Pharmacy Education (2025) 25(4) 1 - 135
https://doi.org/10.46542/pe.2025.254.cps.1124

CONFERENCE ABSTRACTS

FIP COPENHAGEN 2025

83rd FIP World Congress of Pharmacy and Pharmaceutical Sciences in Copenhagen, Denmark, 31 August to 3 September 2025

Community pharmacy

Tackling loneliness: A shared challenge

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Background: Loneliness is now affecting one in five people in Spain - regardless of age or cultural background. Scientific evidence proves that loneliness can be as harmful as other common risk factors, such as smoking or lack of physical activity, and that it is related to a higher risk of chronic diseases, premature death and mental health issues.

Objective: The aim of this research is to provide a comprehensive overview of loneliness, exploring its impact on health and well-being from a multidisciplinary perspective. Introducing an innovative approach to tackling the multiple dimensions of loneliness, highlighting the role of pharmacists and the pharmacy network as key agents in its detection and management.

Method: Sponsored by the General Pharmaceutical Council of Spain and led by the Barcelona Institute for Global Health, the research was carried out in collaboration with members of the Social Advisory Council of the Pharmaceutical Profession (CAS). A three-phase process was developed: (i) literature review and drafting of the report chapters; (ii) development of specific recommendations; (iii) review and endorsement from the members of the Social Advisory Council.

Results: Loneliness is affected by structural, economic, cultural and individual factors, with a particularly marked impact on vulnerable groups. The study concludes that a comprehensive and multi-sectoral approach is needed and sets out ten recommendations:

1. Integrate loneliness into the "Health across all policies" approach and prioritise its inclusion on the public agenda.
2. Raise awareness of people suffering from loneliness through the social and health care system, using every available resource such as the pharmacy network.
3. Raise awareness of the impact of loneliness and promote quality research, including people of all ages and social backgrounds.
4. Address how loneliness and health relate to each other and take into account that the relationship is bidirectional.
5. Encourage people to be accompanied through life changes to facilitate coping strategies.
6. Encourage dependent people to remain in their own homes, reviewing and adapting care models.
7. Improve accessibility by identifying barriers to promote an inclusive and equitable environment.
8. Take advantage of teaching and educational centres as meeting places that favour the inclusion of children and adolescents.
9. Create inclusive employment policies that promote the employability of vulnerable groups.
10. Stimulate social participation and the community fabric that

Conclusion: A collaborative multidisciplinary approach is needed to tackle loneliness and make it a social and healthcare priority. In this context, pharmacists and the pharmacy network, a network of more than 22,000 healthcare establishments distributed throughout Spain,

including rural and isolated areas, have the potential for detection, social and healthcare attention and referral that should be exploited. This widespread network and trusted relationship between pharmacists and citizens make pharmacies an essential ally in the effective tackling of loneliness.

Pharmaceutical prevention and action in mental health in Spanish community pharmacies: Rural schools of mental health

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Background: Mental health is the basis for both individual well-being and the effective functionality of a community. Community pharmacists, for their accessibility and proximity to the population, are able to detect the signs and symptoms of mental health disorders, as well as identifying and referring patients to the appropriate doctor when necessary. They also play a role in informing society about these disorders, fighting against the silent stigma of mental health. The initiative was launched in November 2024 by the General Pharmaceutical Council of Spain in collaboration with Boehringer Ingelheim.

Objective: The main purpose of this prjevt is to promote the community pharmacy's role in providing care through a Health Education Service on self-care and mental health for patients and carers. To encourage the detection of signs and symptoms of mental illness, their worsening, as well as the prevention and detection of risk behaviours with educational talks on mental health.

Method: In November 2024, an anti-stigma awareness campaign was launched, consisting of a poster and social media content to make the work of the pharmacy more visible. Between December 2024 and January 2025, pharmacists were trained on the symptoms and warning signs and self-care through webinars, and an action guide for pharmacists and an infographic for effective pharmacist-patient communication in these cases were distributed. In addition, to provide the Health Education Service for patients and caregivers, two training sessions have been designed for pharmacies to provide training, and satisfaction surveys have been conducted and will be provided at the end of the project. Both are hosted on the Nodofarma Asistencial platform, a tool to register the Clinical Professional Pharmacy Services of the General Pharmaceutical Council of Spain.

Results: The initiative was joined by a total of 300 community pharmacies from 35 Provincial Chambers of Pharmacists and trained to provide the Health Education Service that is being carried out between February and June 2025. Ten pharmacies so far participated in both talks and 86 satisfaction surveys were received from attendees with an overall rating of very satisfied with the service received. The webinar was followed on live stream by a total of 150 pharmacists and had an average attention percentage of 84%. Since its broadcast, it has also had 794 recorded views.

Conclusion: The results reflect the interest aroused by community pharmacists and their approach to mental health from the community pharmacy. The network of community pharmacies, due to their accessibility and local presence, means that intervention from such health centres is extremely useful for addressing mental health, as a properly trained community pharmacist will be able to identify the signs and symptoms of mental health disorders, interpret these signals and properly refer the patient to a doctor.

Barriers and expectations of the pharmaconomists at Randers Jernbane Pharmacy prior to implementation of new medicines services

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Background: At the beginning of 2025, it became possible for pharmaconomists at Danish pharmacies to perform New Medicines Services. Our pharmaconomists express their concerns of/about the barriers related to performing new medicines services, and we intend to uncover said barriers. The pharmacist hasn't previously prioritised referrals to medication interviews, as the professional advice is high. For many years, the Danish Association of Pharmaconomists has fought for further qualifications for Pharmaconomists. We believe that lack of time and a busy daily life reduce the desire/courage to develop the qualifications. No studies clarify how Pharmaconomists feel about performing New Medicines Services.

Objective: We intend to uncover the barriers of our Pharmaconomists regarding the performance of New Medicines Services, so we can optimise the education and implementation of New Medicines Services for the benefit of both Pharmaconomists and Citizens.

Method: We have interviewed our manager to clarify her expectations of the Pharmaconomists' work with New Medicines Services. In addition, we have sent a quantitative/qualitative questionnaire via Microsoft Forms to 15 Pharmaconomists from our own pharmacy to uncover any barriers. We received 14 responses that were processed via Forms and analysed by us. The study is a pilot study before expansion to other pharmacies.

Results: The survey showed that 50% of Pharmaconomists wish to perform New Medicines Services but only if their barriers are eliminated. Zero percent gave reference to New Medicines Services during the last two months, but 62% expressed that it would have been relevant to some customers. This shows a great unexplored potential. Thirty-to percent did not know how to sell the service, and 20% are unsure of what New Medicines Services contains. Another major barrier was time, 64% indicated that lack of time was a barrier. Our manager is confident that the Pharmaconomists are able to determine if there is time to perform New Medicines Services. Our manager acknowledges the individual's choice of competence development, even though she wants as many people as possible to be educated. She points out the importance of using colleagues' qualifications, when you don't feel competent. Seventy-nine percent stated that the fear of not being able to answer the customer's questions was problematic.

Conclusion: Our study showed that the Pharmaconomists barriers could be minimised through education and training as well as academic updating. This is supported through the teaching material required by the authorities. The pharmaconomists' appraised that the quality of their academic level was appropriate, but they still stated that they would like to receive academic updates and teaching, as this isn't a part of the teaching materials. We believe it's an expression of the fact that pharmaconomists believe that new medicines services are a massive examination of the customer's medication. Most likely because we haven't worked methodically with new medicines services at Jernbane Apoteket. We consider the barrier "Lack of time" to be less of a concern than first assumed by the Pharmaconomists. The study seems useful prior to the introduction of other healthcare services in the future.

Determining beyond-use dates for non-sterile compounded preparations

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Background: Revisions to USP General Chapter <795> Pharmaceutical Compounding – Non-sterile Preparations became official on November 1, 2023. The way of determining beyond-use dates (BUDs) was changed from the previously official chapter which was last revised in 2015. Specific testing is now required to exceed the maximum BUD limits listed in the chapter. BUD limits are based on water activity (aw), presence of preservatives, and dosage form. Compounders must consider further limiting BUDs depending on chemical and physical stability of the preparation or its components; compatibility of the container closure system; degradation of the container closure system; potential for microbial growth; and when significant deviations from the essential compounding steps have occurred.

Methods: BUD limits for CNSPs are divided into aqueous and non-aqueous, which are defined by water activity (aw). An aw > 0.6 is considered aqueous and an aw < 0.6 is considered non-aqueous. USP <795> contains an aw chart by dosage form, so if a dosage form is listed, testing for aw is not required. If a dosage form is not listed, consider the CNSP aqueous unless testing is performed to show it is non-aqueous. BUD limits for aqueous preparations are further defined by the presence of a preservative. An unpreserved, aqueous preparation has a maximum BUD of 14 days when stored refrigerated. A preserved aqueous preparation has a maximum BUD of 35 days when stored refrigerated or at room temperature. Non-aqueous oral liquids have a maximum BUD of 90 days when stored refrigerated or at room temperature. Other non-aqueous dosage forms have a maximum BUD of 180 days when stored refrigerated or at room temperature. The BUD of a preserved, aqueous CNSP may be extended when

1. Compounding from a USP–NF compounded preparation monograph. The BUD must not exceed the BUD specified in the monograph.
2. Compounding from a stability study using a stability-indicating analytical method for the active ingredient(s), formulation, and material of composition of the container closure. The CNSP must also pass antimicrobial effectiveness testing (see USP <51>). The assigned BUD must not exceed the BUD in the study or 180 days, whichever is shorter.

Results: The complexity of the USP <795> revision with regard to assigning BUDs to CNSPs supports the use of a decision tree to help determine when a BUD must be shorter or may be longer than the maximum BUD limits listed in the chapter.

Conclusion: Assigning BUDs to CNSPs requires the compounder to consider multiple factors. BUDs should be assigned conservatively to help ensure quality and minimise potential harm to patients. The revision of USP <795> describes the requirements necessary to meet these criteria when compounding and assigning BUDs to CNSPs.

A novel multidisciplinary dermatological care model for managing patients with acne and atopic dermatitis: Consensus guidance for pharmacists

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Background: Acne and atopic dermatitis (AD) are common dermatological conditions with significant impact on patients' quality of life. Both conditions require long-term management, often involving a combination of prescription medications, over-the-counter (OTC) products, and lifestyle modifications. Recent legislation has expanded pharmacist's role in these conditions. To address care gaps and enhance long-term management, four national panels (in British Columbia, Ontario, Alberta, and Montreal), comprising 22 dermatologists and pharmacists, convened to develop a collaborative framework. Their goal was to formally define how pharmacists can support mild to moderate acne and AD management collaboratively with community dermatologists, ultimately optimising patient outcomes.

Method and Results: Key questions were identified based on current patient journey gaps in acne and AD care, focusing on patient initial assessment, follow-up, communication, and multidisciplinary collaboration between the dermatologist and pharmacist. Using the Nominal Group Technique (NGT) in two voting rounds, eight consensus recommendations emerged:

Pharmacists should:

1. Educate patients on prescription therapies and minimising side effects.
2. Offer guidance on evidence-based skincare, including non-comedogenic products, sunscreens, and barrier-supporting moisturisers.
3. Recommend emollients to maintain skin hydration, crucial for AD.
4. Detect and address potential drug-drug interactions.
5. Demonstrate proper topical medication application to prevent side effects.
6. Assess adherence to treatments and intervene early to boost compliance.
7. Clarify safety and long-term use of treatments, particularly biologic and targeted therapies.
8. Collaborate proactively with dermatologists and other primary care providers, sharing updates as well as potentially adjusting topical treatments based on patient response or initiating for mild clinical presentation of acne and/or AD.

Conclusion: Given the absence of a unified pharmacy framework for dermatological care in Canada, this consensus guidance provides a novel blueprint for multidisciplinary management of acne and AD by the pharmacist in collaboration with the dermatologist, ultimately supporting better patient experiences and outcomes.

Screening project for natriuretic peptides in the primary prevention of heart failure

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Background: Heart failure (HF) is a major cause of hospitalisation, affecting approximately 600,000 individuals in Italy. Its incidence doubles every decade of age, and despite therapeutic advancements, mortality remains high, with a 50% death rate within five years. Early diagnosis is crucial for identifying at-risk patients, slowing disease progression, improving survival, and reducing hospitalisations. Recent evidence suggests that biomarker-based screening with natriuretic peptides (NPs), such as B-type natriuretic peptide (BNP) or N-terminal pro-BNP (NT-proBNP), combined with early intervention, can help prevent

left ventricular dysfunction and new-onset HF. The latest European Society of Cardiology (ESC) guidelines recommend NT-proBNP measurement as part of the HF diagnostic workup. Effective screening requires a multidisciplinary approach involving pharmacists, general practitioners (GPs), and cardiologists.

Methods: In October 2022, the project "A Pharmacy for Your Heart" was launched, involving young pharmacists from Agifar Palermo, GPs, and cardiologists to promote HF screening in community pharmacies. Participating pharmacists received specialised training from a cardiologist on HF pathophysiology, risk factor identification, and referral pathways based on the 2021 ESC guidelines. The screening program lasted two weeks, during which patients underwent NT-proBNP testing using a Point-of-Care device. Test results were provided immediately, along with an informational leaflet. Pharmacists then emailed results to GPs, who assessed whether further investigations or specialist consultations were needed.

Results: A total of 443 patients were screened, the majority being over 60 years old, while 37% were aged 36-60. The screening had two main objectives: monitoring patients on treatment and identifying new HF cases. Results showed that 19% of patients had elevated NT-proBNP levels:

1. 7% had values between 400 and 800 pg/mL
2. 12% had values above 800 pg/mL
3. Patients with elevated levels were referred to cardiologists for further evaluation.

Conclusion: The screening initiative was well received by both patients and healthcare professionals. 91% of participants rated the service 5/5, citing reduced wait times and rapid results as key benefits. Physicians and pharmacists also reported high satisfaction, as the project fostered greater inter-professional collaboration and improved patient education on HF risks. By integrating first-line instrumental screening into community pharmacies, this initiative demonstrated the potential for enhancing early HF detection and optimising patient management.

Non Perdiamo il Ritmo (Don't Lose the Rhythm): The role of telemedicine in Italian pharmacies

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Background: Telemedicine is emerging as a strategic tool for territorial healthcare, enabling faster and more effective access to medical services. In this context, the "Non Perdiamo il Ritmo" project, supported by Fenagifar, was developed on a national scale to assess the impact of telemedicine in the early detection of cardiac rhythm disorders and to understand young pharmacists' attitudes toward these new technologies. The project involved 8 Italian provinces and more than 80 pharmacists, including many young professionals, working in both urban and rural settings. This highlights the value of community pharmacy services in cardiovascular prevention and underscores the role of young pharmacists in shaping the future of telemedicine.

Methods: The screening was conducted in 56 pharmacies evenly distributed across the national territory, with 62% in urban areas and 38% in rural contexts. To ensure broad participation and effective data collection, an innovative three-lead electrocardiograph was used, connected via Bluetooth to a smartphone through a dedicated application. This device allowed the recording of an ECG (electrocardiogram) in just a few minutes, detecting potential cardiac rhythm abnormalities. The study sample included adult Italian citizens (aged 18 - 80). Foreign participants were excluded to facilitate the completion of the anamnesis questionnaire, which collected information on age, gender, education level, smoking habits, chronic medications, and the time elapsed since the last cardiology visit. Additionally, young pharmacists participating in the project were given a questionnaire before and after the screening experience to evaluate their attitudes toward telemedicine and assess how direct involvement in the initiative influenced their perception of digital healthcare solutions.

Results: Throughout the study, a total of 1,780 ECG screenings were performed, involving a predominantly female population (63.3%) across 34 urban pharmacies and 22 rural pharmacies. The screenings identified 739 cardiac abnormalities, including rhythm disturbances, ventricular contraction anomalies (QRS), and significant variations in heart rate (QTC). One of the most significant findings was the delayed cardiovascular check-ups among patients. A striking 67% of participants had not undergone a cardiology visit for over a year, highlighting a critical gap in cardiovascular health monitoring. From the pharmacists' perspective, direct experience with telemedicine significantly increased their awareness and confidence in this tool. When asked, "Do you think telemedicine services are the future of pharmacy?", the percentage of pharmacists responding positively rose from 65% before the project to 92.9% after its conclusion, indicating growing recognition of telemedicine as an essential pharmacy service. This shift was particularly evident among young pharmacists, who, after actively participating in the screenings, expressed a stronger belief in the potential of telemedicine.

Conclusions: The study results confirm that telemedicine is a concrete opportunity, enabling them to detect potential health issues early and raise awareness about cardiovascular prevention. The "Non Perdiamo il Ritmo" project has demonstrated how the synergy between technology and proximity healthcare can transform pharmacies into key health monitoring hubs, fostering a more accessible, preventive, and innovative healthcare system.

Farmambiente: The pharmacy at the service of environmental sustainability

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Background: Environmental sustainability is now a fundamental component of sustainable development, aimed at meeting present needs without compromising the resources and opportunities of future generations. In this context, the National Federation of Young Pharmacists (Fenagifar) has conceived and implemented the Farmambiente project, designed to position the pharmacist not only as a healthcare professional but also as an active promoter of environmental protection. This role is justified by the One Health concept, highlighted by the World Health Organisation (WHO), which closely links human health to the health of the planet.

Method: The main goal of Farmambiente is twofold: to equip pharmacists with the skills and tools to reduce the ecological impact of their activities, and to make them promoters of environmental awareness within their communities. The project benefits from the collaboration of the Department of Chemistry at the University of Turin, which is responsible for specialised training, the preparation of technical materials, and the continuous monitoring of activities. Launched with a pilot phase in a selection of pharmacies evenly distributed across northern, central, and southern Italy, the project has developed targeted interventions focused on the ecological management of pharmaceutical businesses and raising public awareness about the proper disposal of pharmaceutical waste. Through specialised training supported by detailed guidelines, the initiative has aimed to reduce energy consumption and improve waste separation, significantly increasing the purchase of energy-efficient devices and waste sorting systems.

Results: Twelve months after its launch, self-assessment data have shown significant improvements in sustainable practices. 83.4% of participating pharmacies have successfully implemented guidelines on the efficient use of air conditioning and heating, achieving an average reduction in energy consumption. Additionally, 21% have replaced less efficient equipment with more sustainable technologies. There has also been a 20% increase in the types of waste collected and a notable improvement in the availability of certified green products within pharmacies. At the same time, a survey conducted through citizen interviews has highlighted a fair level of awareness regarding the disposal of expired medications (94%), though significant errors persist: 74.2% still confuse dietary supplements with expired medications, and 41% do not properly separate blister packs, packaging, and instruction leaflets.

Conclusion: These preliminary results confirm that, through proper training and a well-structured project, pharmacists can play a crucial role not only in reducing the environmental impact of their activities but also as educators and advocates for sustainability within their communities. The pilot phase of Farmambiente thus represents an important step forward toward a more sustainable pharmacy model, highlighting the social and environmental value that this professional figure can contribute to the face of the global ecological crisis.

Pharmacist Assistant Bot: AI empowering pharmacists

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Background: Born from Fenagifar's Diritto di parola (Right to Speak) discussions in 2021, the Pharmacist Assistant Bot was created to address a key issue among young Italian pharmacists: the lack of clarity on their contractual rights. Many struggle with complex regulations and unreliable online information. This tool provides a fast, accurate, and accessible solution to navigate employment protections with confidence.

Methods: A nationwide survey conducted over two months involved 300 young pharmacists across Italy. The findings were concerning nearly half of the respondents admitted knowing little or nothing about their rights regarding leave, payslips, and holidays, while only a small percentage felt adequately informed. The situation was no better regarding maternity leave, illness, resignations, and dismissals, where a significant portion lacked sufficient knowledge of their protections. The survey's open-ended section confirmed the urgency of the issue, with over 600-700 questions submitted by participants. This overwhelming response highlighted a widespread need for structured, reliable information. Many pharmacists felt lost in the conflicting advice circulating on social media or struggled to grasp legal language. From this need, the idea emerged: a tool capable of delivering clear, validated answers, accessible to all. To develop the project, provincial commissions compiled 350 Q&A entries addressing key aspects of the National Collective Labor Agreement (CCNL). These were then reviewed and validated by labor law experts, who provided 172 legal insights to ensure accuracy. The technical development was entrusted to Pharmadvice, which leveraged Artificial Intelligence and Natural Language Processing to create an intuitive system capable of understanding user queries, processing them through machine learning models trained on validated legal data, and delivering precise, user-friendly responses.

Results: From the moment it launched, the Pharmacist Assistant Bot demonstrated its impact. Within the first few months, awareness of contractual rights increased significantly, with an improvement ranging between 30% and 45%. The high level of engagement confirmed that pharmacists were not only using the tool but actively enhancing their knowledge. As it evolved, the bot expanded beyond labor rights, integrating dedicated sections on ENPAF and pharmaceutical legislation. This transformation made it a comprehensive, AI-powered legal assistant, capable of addressing a wide range of regulatory questions in the pharmaceutical sector.

Conclusion: Today, the Pharmacist Assistant Bot is revolutionising access to legal and contractual knowledge for pharmacists. Free, instant, and anonymous, it simplifies complex regulations and provides clear, authoritative answers. Its institutional value is now officially recognised: registered with the Italian Ministry of Made in Italy, it is now a trademark and intellectual property of our Federation. This guarantees its long-term protection and continued development. With plans to integrate it into Federfarma and pharmacists' professional Orders, its role in the profession is set to expand even further. By making contractual rights more accessible, this tool is not just helping pharmacists—it is strengthening the profession itself.

Deployment of the quality system for French community pharmacies: 2024 outcomes

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Background: All the representatives of the profession (the French Chamber of Pharmacists, trade unions, associations and pharmacy students) are continuing to work together to roll out the "Démarche Qualité Officine" (DQO), a specific quality system for French community pharmacists.

Objective: Proud of the very encouraging results achieved by 2022 (76% of pharmacies engaged in DQO), these representatives are nonetheless aware of the quality and safety challenges facing the pharmaceutical chain and wish to maintain the ambitious objective of involving 100% of community pharmacies.

Method: To this end, three areas of work have been identified in the 2023-2027 roadmap in order to reinforce the current momentum and support pharmacists in the effective deployment of the quality system within their community pharmacy:

1. Develop tools and personalise the support
2. Continue the deployment and strengthen incentives
3. Consolidate the quality system. The inclusion of the specific quality system in the national pharmaceutical agreement signed with the French health insurance system has greatly contributed to its deployment.

In 2024, the ISO 9001:2015 certification of the quality system, following an audit by an independent private organisation, confirms the relevance and robustness of the specific quality system. In addition, with 82% of pharmacies having completed their self-assessment by 2024 (compared with 80% in 2023), the quality system is proving its ability to further engage pharmacists in this continuous improvement process. The latest survey showed that 74% of pharmacists are committed to the good of patients, and that overall appreciation of the quality system is improving, with a score of 7.3/10 in 2024 (compared with 6.6/10 in 2023). Lastly, a new section of the quality system's website, entitled "Ma DQO perso" ("My personal DQO"), is designed to meet pharmacists' desire for personalised support: the new functions will enable pharmacists to define an action plan and monitor the deployment of the quality system within their community pharmacy.

Conclusion: The revision of the guidelines and self-assessment questionnaire, the implementation of a review and revision process for all quality tools, and the addition of new functionalities to "Ma DQO perso" will provide a more pragmatic response to pharmacists' needs, and help them to continue the effective deployment of this quality system within their pharmacy.

Sports pharmacy: The new emerging role of the community pharmacists

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Background: Sports Pharmacy is defined as the advocacy for the health of recreational or competitive athletes in various contexts by pharmacists and their participation in the anti-doping movement. Pharmaceutical care in Sports is an emerging field that already employs both clinical and community pharmacists (CPs) in various countries. Pharmaceutical care in sports is a new field for CPs focused on promoting pharmacotherapy, and clinical pharmacy-led services to athletes. (1) Since the CPs are often the first point of call for providing advice on any healthcare issue, and supplying the products/medications an athlete uses, they need to be adequately prepared to serve their specialised needs optimally. This study aimed to investigate the

perceptions of community pharmacists in Greece regarding their new potential role in the specialty of Sports Pharmacy.

Method: This study used qualitative research methods. Semi-structured interviews (total 22 questions) were conducted with 11 community pharmacists (seven men; four women) (saturation was achieved) in Greece (October-November 2023). Prior to data collection ethical approval was received from the Pharmaceutical Association of Achaia and informed consent from each participant was obtained prior to data collection process. All anonymised interviews were audio-recorded, transcribed verbatim, and analysed thematically.

Results: Four main themes were identified: the Role and Knowledge of Pharmacists regarding Sports Pharmacy, the Future of Sports Pharmacy, the Barriers pharmacists encounter regarding Sports Pharmacy, Pharmacists' General Role in the Community. Although several the interviewees heard about SP for the first time during the interview, when they were asked to define it, they mentioned directly or indirectly that their professional role is essential for athletes: "I don't know anything about it. I have never heard of it before". Additionally, they stated that inter-professional collaboration is required "[…] The pharmacist's collaboration with the sports physician is needed". Furthermore, although some participants believed that the sports pharmacy specialisation would not develop in Greece "I think it will not have a future in Greece [...]", others expressed strong interest in their potential role in sports pharmacy "I see it very interesting".

Conclusion: To our knowledge, this is the first study exploring community pharmacist's role in sports pharmacy in Greece. The study's limitations included lack of time, unwillingness to participate, and CP's chosen population. Based on the increased CPs' clinical roles and responsibilities and the increased need for specialised pharmaceutical care for athletes, it is evident that Greek pharmacists have the potential to have an active role in SP.

Evaluation of the "PROLAMVANO" colorectal cancer screening programme from the perspective of community pharmacists in Greece

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Background: Colorectal cancer (CRC) remains the third most diagnosed malignancy globally, with rising incidence in younger populations. Despite established screening benefits, participation rates vary significantly. Community pharmacies, as accessible healthcare hubs, are increasingly involved in preventive services. Greece's national 'PROLAMVANO' programme, launched in 2024, leverages pharmacies for CRC screening via faecal immunochemical tests (FIT). This qualitative study aimed to evaluate the colorectal cancer screening programme "PROLAMVANO" in Greece, through the perceptions and experiences of community pharmacists, to assess pharmacists' preparedness and training adequacy prior to programme rollout, to explore challenges in programme delivery and to define pharmacists perceived role in CRC prevention and primary healthcare integration.

Method: A qualitative phenomenological approach was employed, using semi-structured telephone-based interviews, (including 27 questions and conducted between September 2024–January 2025) with 18 community pharmacists (five females and 13 males) from 15 regions across Greece. Participants were recruited via snowball sampling until thematic saturation. Interviews explored training experiences, programme workflows, and perceived impact. Ethical approval was granted by the Larissa Pharmaceutical Association prior to data collection and informed consent from each participant was obtained prior to data collection process. All anonymised interviews were audio-recorded, transcribed verbatim, translated, and analysed thematically.

Results: Three key themes emerged: (1) the pharmacists' training, (2) the Implementation Challenges, and (3) the role of community pharmacists in colorectal cancer prevention and their contribution to Primary and Public Health. Pharmacists expressed mixed views regarding the adequacy of the training they received, with several suggesting improvements, ['I wasn't particularly satisfied in the sense that while the level of training was generally good, the way it was conducted was unsuccessful' CP_10]. Implementation challenges included moderate participation from citizens and affiliated doctors, limited feedback on test results and bureaucratic delays ['it's a sufficiently reliable process, but always with the logic that there will be a follow-up though' CP_13]. Despite these hurdles, pharmacists unanimously recognised their crucial role in prevention, citing high public trust. However, most expressed frustration over the programme's temporary nature, advocating for its permanent integration into pharmacy services ['The idea of community pharmacies participating in a wide range of prevention actions should normally be the purpose for our profession' CP_10].

Conclusion: The 'PROLAMVANO' programme underscores community pharmacies' potential in CRC prevention but requires structural improvements. Prioritising hands-on training, streamlining physician communication, and establishing sustainable screening protocols are critical. Pharmacists' unique patient relationships position them as vital public health advocates, yet systemic support is needed to transition from ad-hoc initiatives to formalised services. These findings advocate for policy reforms to optimise pharmacy-led preventive care in Greece and beyond. The

main limitations acknowledged in the conduct of the present study are the refusal to participate by some community pharmacists either due to lack of knowledge or lack of time, the telephone-based nature of the interviews and the limited time for data collection.

Enhancing healthcare continuity: Efficient communication of medication updates between community pharmacy and primary care: A case report

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Background: Electronic prescribing enables prescribers to remotely submit prescriptions to community pharmacies. It has been promoted as a solution to improve patient safety and the quality and continuum of healthcare. Requesting the update of a given e-prescription, formalises the process by which a GP authorises its renewal. This process ensures that the treatment is available for dispensing for a maximum of 12 months, depending on the medication. Although e-prescription activation requests from community pharmacies reduce the need for ongoing prescription renewals, the time a GP spends on related administrative tasks may vary depending on the healthcare system, IT infrastructure, and administrative workload at the health centre. Previous research indicate that GPs spend a significant amount of their time on administrative tasks, including online medication management through patients' health records.

Objective: To evaluate the request process for updating e-prescriptions from a community pharmacy.

Method: This case report adopted a quasi-experimental design and was conducted over six-months (February-August 2024) in a community pharmacy and a health centre located in a rural area of Badajoz, Spain. The community pharmacist and the GP agreed that the application for updating e-prescriptions should be made directly from the pharmacy to the health care centre. The community pharmacist carried out a two-level intervention, involving both, patient and physician interactions. The pharmacist-patient interaction was conducted during the dispensing process whenever it was identified that they required an ongoing medication, but an e-prescription was not available. In this scenario, the pharmacist offered the patient assistance in updating their e-prescription by contacting the GP directly. The pharmacist-GP interaction involved a pharmacist-initiated communication to request the update of the patient's e-prescription. The agreed communication channel between the community pharmacist and the GP was text messaging.

Results: The study sample consisted of 665 patients shared by the same community pharmacist, GP, and nurse. The community pharmacist carried out 931 interventions. The GP made 1.324 prescription modifications for patients, of which: 1.135 (85,72 %) were prescription updates for prescription renewals for patients with chronic diseases, 92 (6.95 %) were prescriptions to initiate new treatments, 58 (4.38 %) were updates of prescription dates, 25 (1.89%) involved changes in the medicine dose or dosing regimen, and 14 (1.05 %) modifications in the medication quantity or administration form. All interventions were accepted by both patients and the GP and were resolved in 100% of cases.

Conclusions: This study demonstrates that requesting e-prescription updates and modifications from the community pharmacist to the GP is an efficient process when a rapid and an effective communication channel is used. This collaborative practice between community pharmacists and GPs benefits the patient by facilitating access to needed medications without extra administration processes and thus, promoting adherence to pharmacological treatment within a supportive timeframe. Additionally, it benefits the GP by reducing the time allocated to e-prescription updates.

French Chamber's initiatives to support pharmacists dealing with victims of domestic violence

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Background: The Covid-19 pandemic revealed the major role played by pharmacists in dealing with victims of domestic violence. A system for reporting such violence in pharmacies, which has now become permanent, was set up during the initial lockdown, in partnership with the French Ministry of the Interior. The law of July 30th 2020, allows French pharmacists to override professional secrecy when the adult victim is in immediate danger and under psychological domination.

Objective: The work carried out by the French Chamber of Pharmacists aims to help pharmacists in contact with the public to identify, inform and guide victims of violence and, if necessary, report emergency situations to the police or the public prosecutor.

Method: The French Chamber has developed partnerships with public institutions (health authorities, Ministry of the Interior, inter-ministerial body for victims protection) and the French reference centre for chemical submission aggressions (CRAFS), in order to provide pharmacists with professional documents and tools to raise public awareness of domestic and/or chemically-facilitated violence. In addition, the French

Chamber has launched a call for candidates in order to set up a network of “domestic violence” coordinators to raise pharmacists' awareness of how to deal with victims, promote available resources and guide them through the reporting process.

Results: The work carried out by the French Chamber of Pharmacists resulted in:

1. Developing and making available to all pharmacists' tools on domestic violence to enable them to intervene with victims, as part of a partnership with public authorities
2. To help them identify, inform and refer victims: a practical pharmacist's sheet and a more comprehensive educational guide
3. To report an emergency situation: a pharmacist's reflex sheet detailing what to do in the event of a victim reporting to a pharmacy, and a tool to help report to the public prosecutor in cases of immediate danger or psychological domination.
4. Setting up a network of trained “domestic violence” coordinators: it is composed of 14 regional coordinators and five national ones (representing community, clinical biology and hospital pharmacists).
5. Relaying to pharmacists the national public awareness campaigns set up by the public authorities and CRAFS on domestic violence and/or chemical subjection, providing them with communication tools and information on existing resources at national level.

Conclusion: The social role of pharmacists in helping victims of domestic, gender-based and sexual violence is fully recognised by the public authorities. To help them intervene as effectively as possible, practical tools and a regional network of “domestic violence” coordinators are available to them.

Pharmacists' safety in practice: A daily concern for the French Chamber of Pharmacists

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Background and Objective: While they strive daily for the health of their patients, pharmacists are increasingly becoming victims of assaults. Faced with these intolerable physical or verbal attacks, the French Chamber of Pharmacists decided to implement a strategy to support pharmacists and help them prevent such violence.

Method: Within the national council of the French Chamber, a security coordinator has been designated for overseeing the actions carried out by the Chamber, with the support of three employees of the Chamber and a law firm.

Results: Firstly, the Chamber has equipped itself with an online system for reporting assaults. This system, which complements any police report that the pharmacist victim may file, allows the Chamber to compile an annual assessment of reported assaults and alert health and security authorities about the issue. In 2024, 536 reports were submitted to the Chamber, representing a 12% increase compared to 2023 and a 77% reporting increase over five years. Of these, 98% were made by community pharmacists. A total of 331 cases involved personal attacks (63%), 58 involved both personal and property-related attacks (11%), and 134 concerned property damage only (26%). A "reflex guide" has been developed in collaboration with a law firm to inform pharmacists on the steps to take after an assault and the judicial process. The Chamber also regularly communicates through its various information channels on existing tools, particularly those developed by law enforcement, to prevent attacks. The security coordinator leads a network of nearly 120 elected officials of the Chamber, who are trained and actively involved in supporting pharmacists who have reported an assault on the Chamber's website by providing them with listening and useful advice. In France, the Criminal Code states that violence against a healthcare professional is considered an aggravating factor. Furthermore, in certain cases of threats or violence against a pharmacist, the law allows the Chamber to act as a civil party in criminal proceedings to ensure recognition of the harm suffered by the profession (Article L.4233-1 of the French Public Health Code). Since 2021, the Chamber has been recognised as a civil party in 12 cases. The Chamber also relies on the ADOP association, which provides confidential peer support, psychological assistance, and referrals to appropriate professionals, available seven days a week from 6 a.m. to midnight. Lastly, the Chamber works in partnership with the authorities and other stakeholders (police, gendarmerie) to implement a range of initiatives aimed at making every pharmacist's practice safer and combating this phenomenon, which has a major impact on the commitment of our colleagues.

Conclusion: The Chamber intends to continue its efforts to support assaulted peers in partnership with the authorities and other stakeholders to ensure the safety of every pharmacist and fight this growing issue. This includes improving existing tools and contributing to the implementation of the national action plan from the Ministry of Health, which enforces a zero-tolerance policy against perpetrators of violence. The plan aims to strengthen legal sanctions, improve the handling of complaints, and enhance victim support.

Everyday life of Danish pharmacy

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Background: A Canadian study dealt with pharmacists' self-perception as pharmacists and how they viewed their work. In the study, the methodological approach (Photovoice) was used to illustrate how employees view their job using photos from their everyday life. We do not know how employees at Danish pharmacies view their everyday life at the pharmacy, and we want to uncover this in this study. This project falls under the Danish Practice Network - Network for the Development of Pharmacy Practice (NDPP).

Objective: The purpose is to investigate how pharmacy employees perceive their everyday life at the pharmacy. Pharmacy employees include students, service employee, pharmacy technicians (pharmaconomists), pharmacists, and pharmacy owners.

Method: In this study, the data collection is questionnaire-based. The content of the data collected is inspired by Photovoice, which is a qualitative approach. The respondents take photos illustrating what a specific theme means to them and make a short description of what the photo illustrates for them plus describe what the photo shows.

Data collection: The data collection instrument was developed and validate on ten pharmacy employees in the steering committee of NDPP. After which smaller adjustments were made. Afterwards the data collection instrument was broadly distributed to community pharmacies through the NDPP network, at a national conference for community pharmacist, to pharmacist students starting their internship, to pharmakonomists students, and to hospital pharmacists. The data collection is ongoing and will be finalised by April 2025.

Analysis: The collected photos are analysed, and categories are continuously established into which the individual photos with descriptions can fit. The photos and the accompanying text will be treated anonymously and GDPR-secured. The following information is recorded about the respondents: place of employment, educational background, years of experience at the pharmacy, and primary work tasks. This in order to have the possibility of describing the respondents and group the data.

Results: From the validation process, the following three categories were identified: the daily life at the pharmacy illustrated by dialogues with colleges and local celebrations; activities and services illustrated by vaccination, the robot with medicine and packing the medicine; and studying at the pharmacy, illustrated by different tasks and students working together.

Conclusion: The presentation at the conference will include photos on specific topics, and reflections on what characterise Danish pharmacy, and how this reflects international pharmacy.

Standardised medication plans/schedules: Do patients use them and are they correct?

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Background: A medication plan (MP, or schedule) is a document listing the patient's entire medication including dosage, instructions for use, and indications. In Germany, a national standard was established in 2016 by law. However, data on the quality and patients' use of this standardised MP are still scarce. Currently, an MP is issued and printed out on patients' request by the general practitioner from their patient file. For 2026, a switch is planned from the MP stored locally by the health care professionals (HCP) to a central storage as an electronic MP (eMP) as a part of electronic patient files that are currently introduced.

Objective: We investigated (i) patients' practical use of the printed MP, (ii) completeness and correctness of the current version, and (iii) reasons why patients do not adhere to their plan.

Patients and Methods: Patients with a standardised MP community pharmacists recruited > 5 medications. Information sources to evaluate the MP were (a) brown bag analysis, (b) patient interview, and (c) patient file in the pharmacy. Data was analysed using qualitative and quantitative methods.

Results: Two hundred and eighty-eight patients (median age: 76 years, range: 27–95; 57.6% female) were enrolled. (i)

38.5% of the patients used their MP regularly to prepare their medication, 66.0% for hospital admissions, and 73.3% to inform their physician. (ii) While altogether n=2,539 medications were documented (median eight per patient) on the MP, n = 2,779 medications (median nine per patient) were actually taken. No MP was fully correct and complete. Regarding particularly relevant items, i.e., active ingredients, strength, dosage, medication on the MP missing or listed but not taken, 79.2% of MS were incorrect or incomplete. Handwritten modifications on the MP were frequent (34.4% of all MP). (iii) Almost 60% of all patients did not follow their MP with "fear of adverse drug reactions", "insufficient communication between patients and HCP" and "symptoms increased or persisting" being the most frequently mentioned reason.

Conclusion: Completeness and correctness of the MP was poor with handwritten modifications being frequent. This indicates that measures, e.g., the processes and responsibilities of the HCP involved that result in correct and up-to-date MS should be developed and implemented into routine practice. Additionally, since most of the patients did not adhere to their MP, improvements in patient counselling about their medication and adherence is needed. Centrally stored electronic patient files shall improve the quantity of information on the patients' medication available for HCP. Since no processes on issuing the eMP have been developed until now, however, it remains to be seen if the quality of the eMP will improve.

An examination of pharmacists' unconscious biases in response to suicidal male patients: Straight, twinks and bears

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Background: Suicide screening is part of community pharmacist's expanding scope of practice, yet little is known about how implicit biases about men, and in particular gay men, may influence the screening process.

Objective: The objective of this study was to evaluate implicit bias in the suicide screening of male patients as a function of their sexual orientation (straight vs gay), subgroup membership (twink vs bear), and pharmacists' level of experience (registered pharmacists vs students/interns).

Methods: An experimental vignette study was purposively distributed to pharmacists, students, and interns in Australia (August – September 2024). Participants read a scenario about a hypothetical male patient attending a community pharmacy exhibiting verbal and behavioural indicators of suicide. The patient's sexual orientation and gay subgroup membership were manipulated using a combination of validated text and visual stimuli. Participants reported their propensity to suicide screen the patient using the Ask suicide-screening tool. Descriptive statistics and a series of omnibus and pairwise comparisons were calculated (ANOVA).

Results: A total of 155 participants completed the vignette experiment (registered pharmacists = 71, pharmacy students = 53, interns = 20). Overall, results were not significant for the effect of sexual orientation on suicide screening for either the omnibus (straight vs gay) or pairwise comparisons (straight, twink, and bear); however, results were significant when the sample was separated by experience. Implicit bias was observed amongst registered pharmacists who were less likely to suicide screen a straight relative to gay male – an effect not found amongst students/interns. Suicide screening bias occurred against straight males when compared to both twinks and bears. Pharmacists did not discriminate between twinks and bears when screening.

Conclusions: Registered pharmacists demonstrated implicit bias in screening male patients based on their sexual orientation and gay subgroup membership. Results suggest pharmacists may minimise suicidal indicators amongst straight men, resulting in inaccurate risk assessments that may impede the identification and referral of at-risk patients to support systems. Suicide prevention training, including recognising and diminishing implicit bias, is needed.

Dispensing of hospital-only medicines in community pharmacies: Enhancing patient access and adherence in Portugal

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Background: Access to essential medicines is a critical component of healthcare, particularly for patients requiring long-term treatment or specialised therapies dispensed in hospital pharmacies. However, logistical barriers such as travel distance, limited mobility and time constraints often hinder patients' adherence to therapy. To address these challenges, the access in proximity to hospital-only medicines service has been implemented in Portugal since COVID-19 pandemic. This initiative allows patients to collect these medicines from registered community pharmacies, rather than exclusively from hospital pharmacies. By decentralising

the dispensing process, the service aims to improve patient convenience, optimise healthcare resources and improve medication adherence.

Method: The national legislation that led to the implementation of the service at the national level was published on 29 December by Decree-Law No. 138/2023. The programme framework sets out strict eligibility criteria for both patients and participating pharmacies. Patients undergo a consultation at the hospital pharmacy and are selected based on clinical stability, complexity of treatment and ability to comply with treatment protocols. Participation by community pharmacies is voluntary but requires official registration with the National Authority of Medicines and Health Products (INFARMED), the I.P. portal and compliance by pharmacists with the professional standard published by the Portuguese Pharmaceutical Society (PPS), which ensures patient safety and the integrity of medicines. Pharmacists working in registered community pharmacies must undergo mandatory training recognised by the PPS to participate in the service. Continuous data collection and evaluation processes are implemented to assess the service's efficiency and effectiveness.

Results: Under the legislation enacted in December 2023, pilot projects in 2024 involved eight public health institutions (seven Local Health Units and one Oncology Institute), testing the system with 40 patients. The service includes 150 active substances, expanding treatment access. Supported by a network of 11,000 community pharmacists, it enhances patient guidance and adherence. Additionally, the Portuguese Pharmaceutical Society organised a support webinar for pharmacists, reaching an audience of 845 participants. By January 2025, around 1,800 community pharmacies across Portugal had joined the initiative, providing greater flexibility for over 150,000 patients and reducing travel burdens. A study by the Portuguese Association of Hospital Administrators found that patients previously travelled 100 to 112 km per trip, spending about 260 euros annually. Post-pandemic data revealed that 91% of patients preferred collecting their medicines from local pharmacies.

Conclusion: The proximity hospital-only medicines service access background in Portugal is a major step towards patient-centred healthcare. The initiative has decentralised the dispensing process increasing accessibility, reducing logistical burdens and improving on medication adherence. Initial outcomes suggest substantial uptake among patients and health professionals alike, with potential advantages including optimised hospital pharmacy resource use and continuity of treatment. Looking ahead, ongoing observation and additional studies will be crucial to understanding long-term results, facilitating the model's viability and scalability within contemporary healthcare environments.

Impact of the FIT® Training Program on Professional Development and Financial Sustainability of Portuguese Pharmacies

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Background: The FIT® training program has become a benchmark in the pharmaceutical sector, driving growth and innovation in Portuguese pharmacies that invest in it. The impact of this training program on financial stability and talent retention in pharmacies has been observed in 2023 and 2024.

Objective: This study aims to compare the financial results and talent retention rates of pharmacies subscribed to the FIT® program with those that are not.

Method: To support this analysis, the following data sources were used:

1. Market data on community pharmacy sales for the years 2023 and 2024
2. A survey conducted with community pharmacy owners regarding the relationship between the FIT® program and talent retention.

Results: Through a continuous commitment to training, subscribed pharmacies stood out in 2024 with a €122,000 increase in total market revenue, higher revenue from pharmaceutical services, and growth in Cartão Saúda sales. Beyond financial performance, in 2024, the FIT® program also had a significant impact on pharmacy teams. 82% of participating pharmacies reported improved talent retention, 87.2% experienced a more motivated work environment, and customer service efficiency improved. Continuous training has been essential for market differentiation, fostering a culture of innovation and closer customer relationships.

Conclusion: The results demonstrate that investing in FIT® is a solid strategy for pharmacies seeking sustainable growth, higher profitability, and a people-centred service.

Patient Reported Outcomes (PROs) and Experience Measures (PREMs) as Indicators of Effectiveness and Satisfaction in Pharmaceutical Interventions in Community Pharmacy

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Background: Patient Reported Outcomes (PROs) and Experience Measures (PREMs) have gained increasing relevance in healthcare, reflecting individuals' perceptions of their health status, quality of life, response, and satisfaction with treatments and interventions. These measures provide valuable insights beyond traditional clinical indicators, enabling personalised care, the identification of unmet needs, and the assessment of intervention effectiveness from the patient's perspective. In community pharmacy, PROs and PREMs are not systematically measured or recorded, nor are they widely considered as performance evaluation metrics for pharmacy teams.

Objectives: (1) To describe the integration of PROs and PREMs as indicators of effectiveness in pharmaceutical interventions in community pharmacy and (2) to evaluate the impact of a set of pharmaceutical services using these tracking indicators.

Method: As part of the design and implementation of programs for identifying and referring at-risk individuals for medical consultation and providing pharmaceutical counselling for minor clinical conditions, specific indicators were included for each disease condition. Additionally, two general (non-mandatory response) questions were asked to assess the patient experience:

"On a scale from 1 to 10, where 1 is Poor and 10 is Excellent, how would you rate your experience with the provided support?"

"How would you rate the contribution of this support to managing your health condition?"

Responses were collected through the Salesforce Health Cloud® platform, which also supports pharmacists in conducting interventions. Data were analysed using Salesforce® Dashboards and Microsoft Excel®.

Results: As of March 17, 2025, a total of 14,247 individuals were enrolled in these programs across 111 community pharmacies nationwide. Most participants were over 50 years old (n = 9,473; 66.5%) and female (n = 9,118; 64.0%). Among individuals who responded to the experience and impact assessment questions within the risk identification and referral programs, 94.1% (n=1,701) rated their experience eght or higher, while 91.9% (n = 1,665) gave the same rating for the impact of the intervention. For the pharmaceutical counselling programs for minor clinical conditions, 92.4% (n = 11,466) rated their experience eight or higher, while 92.2% (n = 6,349) rated the intervention's impact eight or higher.

Conclusions: The integration of PROs and PREMs as indicators of effectiveness and experience in pharmaceutical interventions within community pharmacy is feasible, providing pharmacy teams with visibility into the impact of their interventions from the patient's perspective. Furthermore, it allows pharmacies to compare their results with the average values across all participating pharmacies via the digital platform. The vast majority of individuals reported high satisfaction with the support received and recognised a significant contribution to managing their health condition.

Use of a digital platform to facilitate the implementation of observational studies and clinical trials in community pharmacy

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Background: The formal and structured involvement of community pharmacists in clinical trials and observational studies holds significant untapped potential. Their participation can improve participant recruitment, enhance real-world data collection, and expand the reach of clinical trials to more diverse and representative populations. This approach not only benefits the scientific community but also strengthens the pharmacists' contribution to improving health outcomes. However, integrating this activity into daily pharmacy practice can be challenging due to factors such as time constraints, standardisation of collected information, and adherence to data collection schedules.

Objectives: To describe the design and implementation of an intuitive digital platform to facilitate the participation of community pharmacists and the collection of data and information for clinical trials and observational studies conducted in community pharmacy settings.

Method: Based on the first two observational studies approved by the Ethics Committee for Clinical Research (CEIC) and conducted in a group of pharmacies, the necessary functionalities were identified and developed in Salesforce Health Cloud® to comply with the study protocols, specifically defining data collection parameters and scheduling execution timelines. Specific logins were assigned to the participating pharmacies, and training was provided to research teams, which were led by a designated principal investigator. Additionally, a Tableau® interface was developed to provide real-time visualisation of participant recruitment and the

completion status of data collection tasks by the study sponsors.

Results and Conclusions: Data collection for the two observational studies was successfully completed, achieving the target number of participants within the predefined timeframe. The high engagement of the selected pharmacies suggests that the developed platform functionalities were useful in involving research teams and facilitating compliance with study requirements, particularly in ensuring timely execution of tasks. The platform developed and implemented in these two studies facilitates the execution of research protocols, standardises data collection procedures, and allows sponsors to monitor the process more promptly and accurately.

Gastrointestinal adverse events associated with over-the-counter ibuprofen: A narrative literature review

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Background: Gastrointestinal (GI) adverse events (AEs) for nonsteroidal anti-inflammatory drugs (NSAIDs) are widely recognised by healthcare professionals (HCPs) and patients. Many of the severe GI AEs reported in the literature (e.g. perforation/ulceration) seem to be related to dose and duration. There is a common concern of 'stomach irritation' across over the counter (OTC) markets, however, there appears to be little data gathered on less severe symptoms which are less likely to be reported. This led to our research question; does use of OTC ibuprofen in self-care, when correctly administered to manage symptoms associated with its approved indications, have any clinically relevant GI side effects, paying particular attention to specific GI AEs (e.g. dyspepsia) and populations studied?

Objective: To investigate the frequency of reporting of clinically relevant GI AEs when ibuprofen is taken short-term, at OTC doses. This will help to inform whether the belief that OTC ibuprofen commonly causes GI AEs is evidenced in the literature, so that both HCPs and patients can make more informed self-care analgesic choices.

Method: Using a patient, intervention, comparison, outcome (PICO) search strategy we conducted a literature review of randomised, controlled studies, investigating ibuprofen and its GI AEs when used for ≤10 days at OTC doses (≤ 1200mg per day). Studies reporting non-OTC usage of ibuprofen, as well as endoscopic reporting of AE endpoints, were excluded.

Results: Twenty publications (mostly high quality, as per Oxford Levels of Evidence 2) fulfilling the inclusion criteria were found. The results consistently reported that GI AEs relating to OTC ibuprofen were of low incidence, and either less frequent or comparable to paracetamol, and less frequent than aspirin. Most AEs were mild and transient, resolved on treatment discontinuation, and only a few patients required antacids or proton pump inhibitors. The most commonly reported AEs were nausea and vomiting. Limitations included variation and heterogeneity across the included studies, relating to study design, pain indication, inclusion/exclusion criteria, number of doses, duration, detail of AE reporting, and quality of AE reporting.

Conclusion: GI AEs appear to be infrequent when ibuprofen is taken at OTC doses and highlights the need to communicate this message with both HCPs and patients. This review suggests that, when ibuprofen is taken short-term (for ≤ ten days), at OTC doses (≤ 1200mg per day), the risk of GI AEs is low. However, in order to attain statistically significant levels of GI AE reporting within a patient cohort, a large sample size and effective method of AE recording would be required.

A mixed-methods evaluation of an education programme on mentalisation for community pharmacy workforce in Denmark to promote patient-centred counselling

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Background: An education programme teaching mentalising skills to support patient-centred counselling is offered to the Danish pharmacy workforce. The programme is delivered in three separate courses of different duration for each community pharmacy that signs up. The programme consists of three main topics: the mentalising mindset, mentalising communication and pharmacy practice.

Course 1 is for pharmacy staff who are training to become specialists in patient-centred communication. This course lasts four months, comprises seven modules – divided into 20 hours of physical attendance and 16 hours of online modules – and corresponds to 2.5 ECTS. The content of course 1 is a mixture of theoretical presentations of mentalising theory and mentalising communication and practical exercises related to pharmacy practice. Participants do practical homework between the modules in order to translate the theory into pharmacy practice.

Course 2 is a one-day course for pharmacy staff, comprising an introduction to the mentalising mindset and mentalising communication, focusing on patient-centred counselling and practical exercises.

Course 3 is a two-day course for leaders, comprising an introduction to the mentalising mindset and mentalising communication, practical exercises and theoretical and practical lessons on how to implement a patient-centred approach in community pharmacies.

Course 1 was evaluated in 2022 and showed that the staff who had participated in the programme became more patient-centred during counselling activities, had gained awareness of mental states and improved their mentalising communication skills. This enabled them to centre the interaction around the patients' perspectives during counselling. The next step is to evaluate the three courses together to investigate whether the education programme in its entirety can influence the mindset of all staff at community pharmacies. The purpose of the study is to evaluate whether the education programme as a whole promotes a patient-centred mindset and how that will manifest itself in the daily practice in community pharmacies.

Method: A mixed-method design is used, consisting of a quantitative and a qualitative evaluation. The quantitative data comprises the 20-item Toronto Alexithymia Scale that measures mentalising skills and the 12-item Self-Efficacy Questionnaire that measures patient-centred communication skills. This data is collected before and after the programme. In addition, data from evaluations of each of the three courses from all participants will be calculated and included in the evaluation. The qualitative data comprises written reports with open-ended questions answered by 26 specialists upon completing the programme and prose text from written evaluations from each participant after each of the three courses.

Results: The study is ongoing. Pharmacy staff and leaders from 15 community pharmacies are participating in the evaluation. The results will show whether participating in the programme promotes a patient-centred mindset and counselling through increased awareness of mentalisation and skills in patient-centred communication.

Conclusion: Results and the conclusions drawn from this study will be detailed at the FIP Congress.

Assessing medicine availability: A pilot study in Lithuania

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Background: Ensuring access to essential medicines is a key priority in healthcare systems, yet availability remains uneven due to multiple influencing factors. Commercial interests and lobbying can lead to regional disparities, with urban areas often experiencing overstocking while rural regions face shortages. At the same time, limited medicine availability is frequently used as a rationale for policymakers to relax pharmacy and pharmaceutical regulations. To provide a comprehensive understanding of medicine accessibility, a standardised measurement system is needed—one that evaluates multiple dimensions, including physical access, prescription fulfilment, and supply consistency.

Methods: This pilot study evaluated medicine availability in Lithuania by analysing key indicators such as physical access to pharmacies, the proportion of non-dispensed prescriptions, and the time between prescribing and dispensing. Data were obtained from official open-source datasets on pharmacy locations and e-prescriptions. The spatial distribution of pharmacies was assessed using the 'centroid' approach, calculating the distance from the centre of a geospatial unit to the nearest pharmacy. Asthma medicines were used as a case study to evaluate the time gap between prescribing and dispensing dates and all e-prescriptions were used to assess prescription fulfilment. Descriptive statistics were applied to examine regional variations.

Results: As of February 2024, 1,262 pharmacies were operating in Lithuania, with an average of 4 pharmacies per 10,000 inhabitants, ranging from 1 to 7 across different regions. Pharmacies were accessible within a 10 km radius in 90% of the country, though some remote areas had distances of up to 33 km to the nearest pharmacy. Vilnius municipality, despite having a pharmacy density of 4 per 10,000 inhabitants, exhibited the highest rate of non-dispensed prescriptions at nearly 11%. The average time between prescribing and dispensing was 4.3 days, with regional variations ranging from 3.8 days in rural areas to 4.7 days in urban areas. One municipality recorded an average time gap of 9.4 days, suggesting potential medicine shortages. No clear correlation was found between the number of pharmacies and the proportion of non-dispensed prescriptions or time gap between prescribing and dispensing.

Conclusion: This study highlights regional disparities in medicine availability and prescription fulfilment in Lithuania. While physical access to pharmacies is relatively high, gaps remain in medicine availability, prescription fulfilment, and timely dispensing, indicating systemic challenges. The findings emphasise the need for a standardised assessment system to enhance monitoring, inform policy decisions, and ensure equitable access to medicines nationwide. Future research should explore the factors contributing to prescription non-dispensation and develop strategies to optimise medicine availability and distribution.

Barriers and opportunities in E-Pharmacy adoption: A cross-sectional study in Lithuania

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Background: Online pharmacy sales of over-the-counter (OTC) medicines were legalised in Lithuania in 2016, with amendments in 2022 allowing the remote purchase of e-prescribed medications. However, adoption remains low, with only 0.1% of e-prescriptions filled through e-pharmacies. Understanding patient perspectives is crucial to increasing awareness and uptake of this service. This study explores respondents' knowledge, experiences, and barriers related to remote medicine purchasing.

Method: A cross-sectional study was conducted using an anonymous online survey hosted on the Qualtrics platform (April–May 2024). The questionnaire included five key questions: (1) Are respondents aware that medicines prescribed via electronic prescriptions can be purchased remotely? (2) Have they or someone they represent received an electronic prescription in the past year? (3) How did they obtain the prescribed medicines? Respondents were then directed to a corresponding question block based on their response: (a) Did not obtain the medicine, (b) Purchased directly at a pharmacy, or (c) Purchased electronically. Additional questions assessed factors influencing purchasing decisions and perceptions of remote medicine acquisition. A non-probability sampling approach was applied, combining convenience, targeted, and snowball sampling methods. Descriptive statistics were conducted using R software.

Results: A total of 1,032 respondents participated in the survey. While 66% were aware of e-pharmacy services, 24% did not know they could authorise another person to purchase medicines on their behalf. Most respondents who had received e-prescribed medicines obtained them from a physical pharmacy, citing convenience as the primary reason. Notably, only 48% consistently obtained their medications from the same pharmacy. Age was a significant predictor of e-pharmacy use, with the likelihood of intending to purchase medicines online decreasing by two percent with each additional year of age. However, gender, education, and previous online shopping experience were not significantly associated with e-pharmacy adoption. Key barriers included the short distance to a physical pharmacy, long delivery times, and the inability to obtain all necessary medications in a single order.

Conclusion: Despite awareness of e-pharmacy services, physical pharmacies remain the preferred choice for obtaining prescription medicines. To enhance e-pharmacy adoption, strategies should focus on expanding product availability, offering competitive pricing, ensuring fast and free delivery, and integrating real-time pharmacist consultations. Addressing these barriers could improve accessibility and convenience, making e-pharmacies a more viable option for patients in Lithuania.

Developing a yearly national skills enhancement initiative on OTCs in Norwegian pharmacies

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Background: Representatives from the Norwegian Pharmacy Association (NPA), the three vertically integrated pharmacy chains, the hospital pharmacies, and Norway's National Centre for Development of Pharmacy Practice; Apokus, meet regularly in an "over-the-counter medicine (OTC)" working group. The aim is to enable pharmacy employees to give the best professional customer advice on appropriate use of OTCs. In 2022, the working group decided to develop a yearly national skills enhancement initiative.

Objective: The purpose of the initiative is to empower customers to make appropriate choices on the use of OTCs in self-care. The project aims to achieve this by strengthening the communication skills of pharmacy employees, enabling them to engage in dialogue, explore issues and provide customised advice.

Method: The working group first selects an OTC for which they want the pharmacy employees to enhance their communication skills when providing advice. Then they ask Apokus to develop a training program for this purpose. A promotional plan is made to increase the probability that as many employees as possible collectively complete the training.

Results: A yearly national skills enhancement initiative on OTCs, is successfully established. The training program includes 30 minutes e-learning about the chosen OTC(s) and the symptom(s)/diagnosis(es)/customer group(s) and 30 minutes practical training on communication skills. The practical training is either done alone using interactive, scenario-based learning or in person with colleagues. These initiatives have so far been completed/started:

1. "Young customer" – The aim was to provide better knowledge about the growing misuse of OTC-analgesics like paracetamol among adolescents, and how to engage with this customer group.
2. "Stuffy nose" (nasal congestion) – The aim was to provide better knowledge about abuse of nasal

decongestants, and how to engage in dialog to identify and support this customer group, as well as prevent addiction from occurring.

3. "Sluggish bowels" (constipation) – The aim is to provide better knowledge about which of OTCs are best suited for different types of constipation, and how to initiate dialogue about topics known to be embarrassing and stigmatised. (In development).

The employees report (satisfaction survey) that they appreciate the national approach, as they most often only engage in activities in their own pharmacy chain. They also find the structure and content of the e-learning very satisfying, especially the interactive, scenario-based learning.

Conclusion: In 2022, Norwegian pharmacies, the NPA, and Apokus managed to implement a yearly national skills enhancement initiative aiming to empower customers to make appropriate choices on the use of OTCs in self-care. This is done through collectively enhancing the communication competencies of all pharmacy employees advising customers on the appropriate use of selected OTCs. The pharmacy employees find the initiative very satisfying. Despite being competitors, Norwegian pharmacy owners have a unique professional collaboration.

Evaluating the impact of Independent Prescriber (IP) pharmacists in community pharmacy: Insights from the IP pathfinder programme at Bloxwich Pharmacy

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Background: Independent prescriber (IP) pharmacists' roles in England are well established. However, there are no NHS-funded IP prescribing services in community pharmacies. From September 2026, all newly qualified pharmacists will enter the General Pharmaceutical Council (GPhC) register as IPs. This is a significant professional transition for pharmacists, expanding clinical pathways and enabling NHS commissioners to harness their skills to transform healthcare delivery across systems. The IP Pathfinder Programme will inform the development of commissioning frameworks for NHS community pharmacy clinical services incorporating independent prescribing for patients in primary care. In 2024, the IP Pathfinder Programme was introduced at Bloxwich Pharmacy to manage minor ailments and prescribe medications in community pharmacies. With increasing pressures in general practice (GP) and Accident and Emergency (A&E), a growing need exists to evaluate the effectiveness of pharmacist-led prescribing models at community pharmacies. This service evaluation aims to provide evidence of IP pharmacists' clinical impact, safety and efficiency in managing patient care.

Objective: The primary objective was to evaluate the effectiveness of IP pharmacists at Bloxwich Pharmacy in managing minor ailments and ensuring patient safety. The service evaluation hypothesised that IP pharmacists could significantly reduce referrals to GPs and A&E and provide comprehensive patient care directly within the community pharmacy setting.

Method: A retrospective analysis was conducted on anonymised patient data from PharmOutcomes (a secure clinical service platform) from Bloxwich Pharmacy over four months, from November 2024 to March 2025. Data included demographics, presenting conditions, clinical outcomes, medications supplied, referrals and safety netting practices. Descriptive statistics and frequency distributions were used to identify key trends. Consultation records, medication logs and safety netting documentation were reviewed to assess the scope and impact of pharmacist interventions.

Results: IP pharmacists conducted 77 patient consultations (32% male) with a mean age of 43.4 years (range of 1 to 84). The most frequent presenting conditions were earache (n = 15), cough (n = 12), uncomplicated urinary tract infections (n = 7) and skin rashes (n = 4). The consultation outcomes were advice and treatment (n = 44), advice only (n = 20), over-the-counter recommendation (n = 7) and referral to another health care professional (n = 5). The most frequent medications supplied were Nitrofurantoin (n = 7), Flucloxacillin (n = 5) and Amoxicillin (n = 3). IP pharmacists provided safety netting advice (n = 70), such as actions to take if symptoms worsen, and patient counselling. Referrals were made in four cases (two to GP and two to A&E), indicating a high level of independent management.

Conclusion: The findings suggest that IP pharmacists can effectively manage a wide range of minor conditions at Bloxwich Pharmacy, reducing the burden on GPs and A&E. IP Pharmacists prescribed antibiotics following the NICE and antimicrobial stewardship guidelines. The high rate of direct treatment at Bloxwich Pharmacy and low referral numbers to GP and A&E support the potential for scaling the pharmacist-led IP services across England. Improved public awareness and enhanced IT integration could further optimise service delivery. Future research should focus on long-term outcomes and cost-effectiveness to inform broader implementation strategies.

Best practices for community pharmacists in nursing homes: The case of the Brittany region (France)

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Background: Patient-centred pharmaceutical care and services is central for safety and quality of care in nursing homes. Pharmacists have a key role on proper use of medications, medication errors prevention, on drugs adverse-effect prevention and therapeutic outcomes improvement for residents, most often frail, polypathological and very vulnerable to adverse events.

Objective: This regional guide proposes best practices for community pharmacists working in nursing homes, at each stage of medication process: Prescribing, Dispensing, Transport, Storage and Monitoring.

Method: This document is the result of a multidisciplinary working group (including pharmacists, physicians, nurses, regulatory agencies), who relied on French national and regional recommendations, guidances, standards, good pharmaceutical practice requirements, consensus of professional judgment, expert opinion, and documented evidence. It nurtures a culture that encourages and prioritises quality and safety of care, through pharmacist's involvement at each stage of the medication process and identifies steps to enhance.

Results: The levels of pharmaceutical intervention are structured according to levels of pharmaceutical practice requirements (standard and advanced), and by a step-by-step approach for each stage of medication process. It promotes for :

1. Prescribing Process (medication Good practice in prescribing)

Rules for prescribing, transcribing and documenting and pharmacist contributions to optimising treatments, particularly by participating in geriatric commissions.

2. Dispensing Process (medication delivery process)

Implementation of automated dose dispensing (ADD) and of systematic double control of prepared medication.

3. Transport and storage process

Guarantees for delivery and medication conservation adhering to safety standards.

4. Monitoring Process

Follow up patient's treatment through Shared Medication Review (BPM) and Patient's Pharmaceutical Care Plan, with medical record access and multidisciplinary review in primary care team meetings. The « Corresponding pharmacist » (renewal and adjustment of prescriptions) must be able to find his or her lasting place in pharmaceutical care for residents. Local protocols make it possible to give pharmacists broader intervention missions in nursing homes.

Conclusion: This guide highlights the strategic role of community pharmacists in nursing homes. It emphasises the importance of a collaborative approach with the primary care team to improve resident's treatment safety, efficiency and adherence. Future developments include ADD deployment and expanding pharmacist' responsibilities. For this guide to be fully utilised, it would be useful to make it enforceable, implementing and scaling of sustainable pharmacy.

Echoes and insertion of the pharmaceutical practice into artificial intelligence

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Background: Artificial intelligence (AI) is revolutionising daily life worldwide, spanning everyday activities and health decisions. Through advanced algorithms, it analyses large volumes of information, providing immediate responses to queries. However, it presents challenges such as health counselling without professional supervision, actions that can be harmful or cause damage in some scenarios. The pharmacist's role is essential both in AI´s training and in educating and guiding regular users of this tool in its proper use when healthcare counselling is necessary.

Objectives: To determine the quality of AI responses to queries about minor ailments or daily issues related to community healthcare. To analyse the need for pharmacists in the training of AIs. To weigh the role of the pharmacist in educating communities on the correct use of AI in matters related to their health.

Methods: A pilot test was conducted with seven traditional AIs regarding migraine and its medication. Three were selected: ChatGPT (because of its popularity), Meta (because of its accessibility), and Deepseek (trending in 2025). Five common ailments were chosen: sore throat, urinary infection, diarrhoea with vomiting, contraception, and flu symptoms. Questions were formulated in common language for each condition, directed to the three AIs selected previously from different IP addresses. The responses

provided by the AIs were evaluated using assessment with a total of thirty questions divided in four domains: ethics and transparency, cohesion and coherence, medication information, and non-medication information. Every question received a possible rating from one to ten, being one the worst answer quality and ten the best answer quality. The results were presented in percentages to facilitate understanding, make a general approach to the evaluations and to compare the results easily.

Results: Overall performances were: Deepseek (51%), ChatGPT (48%), and Meta (45%). Meta excelled in ethics (75%), ChatGPT in coherence (70%), while Deepseek obtained better results in medication information (45%) and non-medication information (38%). The main deficiencies detected included the limited information on drug interactions (27%), treatment adherence (29%), and medication storage (14%). Excepting META, the other two AIs frequently recommended medications that require a prescription without warnings and often suggested commercial brands that are not available in the country of (Argentina). All answers mentioned physicians as reference professionals, citing pharmacists only four times and nurses one time.

Conclusion: Although the assessed AIs communicate information clearly and avoid technical language, their pharmacological recommendations are deficient due to insufficient information about the medicines recommended, the suggestions of medications under prescription such as antibiotics, and the recommendation of products unavailable in the country, which can cause some confusion among the users. Considering the advancement of AI in all everyday areas, the pharmacist must act to expand the scope of practice by positioning themselves as a supervisor/trainer of AIs and also as a community educators in the appropriate use of these technologies for health and drug-related consultations.

Accompanying loneliness in rural areas: New role for community pharmacy

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Background: Loneliness in old age has significant consequences for well-being and health, resulting in a greater need for medical care and social services. In rural areas, the majority of inhabitants are elderly, who often fear loneliness, so great attention must be paid in these areas. The pharmacy, due to its special distribution in rural areas, becomes a great asset that can detect and help address loneliness.

Objectives: To assess the level of loneliness in people over 65 years old in Lerma. To determine the prevalence and risk of loneliness, as well as the risk factors associated with it, and to determine the role of the pharmacy in this situation.

Methods: A descriptive, semi-quantitative, cross-sectional observational study was carried out using an ad hoc questionnaire that includes the validated ESTE II scale, which measures the social loneliness of the respondents, and a series of independent variables. The population has been studied through the Pharmacy of the municipality of Lerma (Burgos).

Results: Eighty-seven people were interviewed, 42 women and 45 men. Eight percent of the population of Lerma presented a high risk of loneliness following the scoring of the validated ESTE II scale; 43.18% of the respondents with high-medium risk were widowed. Regarding the cohabitation unit, it was observed that 66.18% of the inhabitants with high-medium risk lived accompanied. Inhabitants between 76 and 85 years old had a higher prevalence of risk of loneliness. 16.09% always feel sad and 35.63% report feeling lonely sometimes.

Discussion: The pharmacy is a great social asset in the detection of loneliness. Its prevalence in the elderly is worrying. Widowhood is one of the risk factors most associated with loneliness, as is living in a rural area.

Therapeutic adherence service through personalised dosing system (PDS), a tool in the fight against rural depopulation

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Background: According to the WHO, 50% of chronically ill patients on multiple medications don't take their prescriptions correctly, and this accounts for half of all hospital admissions. The Personalised Dosing System (PDS) is a tool developed by pharmacists that makes it easier for patients to take their medication properly. The aim of this study is to evaluate the "mi dosis" ("my dose") programme, developed between the Pharmacists College and the Palencia Provincial Council, to improve access to the Therapeutic Adherence service through the PDS in rural areas.

Method: This is a descriptive, longitudinal observational study of the programme's evolution in the Palencia province.

Results: The assessments carried out by social services and pharmacists was analysed. These assessments estimate the users' degree of dependency, their place of residence, and treatment adherence, as well as the complexity and number of active treatments. The programme has a budget of €84,000, allocated to pay for the service. Currently, 41 pharmacies in the province, 73% of rural pharmacies, prepare PDSs for people with treatment adherence problems, prioritising the most vulnerable. Patient recruitment and assessment are carried out through pharmacy offices and the Provincial Council's social services. We've analysed the evolution of patient inclusion in the project throughout 2024. Currently, 350 patients are included monthly, 16,800 weekly PDSs have been prepared, and 41 pharmacies participate, 94% of the pharmacies adhering to the programme. Each pharmacy handles an average of ten patients per month, which represents an average contribution of €2,400 per year. The typical user is an elderly person taking more than six different medications with very complex dosing schedules (80%). Fifty percent are dependent. One in three users has a frail caregiver or no caregiver at all, and they reside in 83 different municipalities, 9% in municipalities without a pharmacy or dispensary. Two out of three users live in municipalities with fewer than 1,200 inhabitants, and a third in municipalities with fewer than 400 inhabitants.

Conclusion: The "MI DOSIS" programme improves patients' health and autonomy. Over 350 citizens are included in the programme and take their medication correctly, which improves treatment effectiveness and therefore their health and autonomy. It's also another way to combat rural depopulation and contribute to the sustainability of pharmacies.

Regulation of the role of the pharmacist in prescribing vaccines in Brazil

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Background: In Brazil, the Law 13.021/14 and the Resolution of the Collegiate Directorate (RDC) of National Health Surveillance Agency (Anvisa) nº197/2017 brought the possibility of the provision of the vaccination service by the pharmacist, making it necessary to expand professional regulation in Brazil. One of the main barriers to this authorisation was the confrontation with other health professions that were already prescribers and administrators of vaccines and immunobiologicals, in addition to the owners of vaccination clinics.

Objectives: Present the process of building the regulation of the prescribing vaccines by pharmacists in Brazil.

Method: The Federal Pharmacy Council (CFF) has set up a group of experts to elaborate the professional resolution that establishes requirements necessary for the prescribing vaccines by the pharmacist. The resolution was drafted by the council's Interim Working Group on Vaccines, with input from the Technical and Legal Advisors and the Legislation and Regulation (Coleg). The group through the resolution established the requirements necessary for the provision of the prescribing vaccines by the pharmacist. It proposed to establish procedures to ensure a safe service for the population.

Results: In 2024, Resolution nº 16 was published, which regulated the prescription of vaccines by pharmacists. The standard established that prescribing vaccines constitutes a clinical duty of the pharmacist and must meet the patient's health needs and be based on ethical principles, in accordance with current health policies, official guidelines and technical notes, updated government vaccination protocols and those of scientific entities based on the best scientific evidence. Pharmacists can only prescribe vaccines that have been duly approved by the National Health Surveillance Agency (Anvisa) and all those that appear on government calendars and the Brazilian Society of Immunisations. The resolution defines the minimum components of the revenue and considers it as one of the documents issued within the service provision process. Besides the regulation, in order to capacitate pharmacists, the CFF launched the course "Vaccination Service by Pharmacists" and published the book "Administration of vaccines and other injectable drugs by pharmacists" (in partnership with the Ordem dos Farmacêuticos de Portugal). In this context, the vaccination service by pharmacists in community pharmacies, clinical laboratories, public health units has grown.

Conclusions: The regulations resulted from the courage of the profession's leaders, political articulation, intense debates, and the capacity of professionals and managers. It is expected that this whole process will contribute to a greater awareness of the role of the pharmacist as immuniser and that it will contribute to the increase in vaccination coverage in the country.

Assessing the impact of pharmacist led evaluation and intervention using the asthma impairment and risk questionnaire in patients with uncontrolled asthma

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Background: It is estimated more than 25 million people are living with asthma in the USA, contributing roughly 56 billion dollars in expenditure annually. One barrier for patients with asthma is under-diagnosis of exacerbation risk. Risk factors for asthma exacerbations include more than one exacerbation in the last year, over-use of short-acting beta agonists (SABA), socioeconomic factors, poor adherence and technique, low forced expiratory volume in one second (FEV1) and environmental exposures. Tools such as the Asthma Control Test (ACT) have historically been used to assess management of symptoms and exacerbations. The Asthma Impairment and Risk Questionnaire (AIRQ) differ from previous tools by expanding to include assessment of steroid use and healthcare utilisation. Community pharmacists can target patients who over-utilise rescue inhalers, counsel on proper administration and usage, and assist in the identification of modifiable risk factors to decrease exacerbation risk and improve outcomes.

Objectives: The primary objective of this study is to compare calculated exacerbation risk at baseline and four-weeks post intervention using both the AIRQ and ACT. Secondary objectives of this study aim to quantify the number of clinical recommendations made and assess provider acceptance of pharmacist recommendations.

Methods: Asthma risk assessments and interventions were implemented at one regional division of a large community pharmacy chain at select locations in Washington State USA. Data was collected between September 2024 – January 2025. Potential study participants were identified through prescription history of rescue inhaler use of more than two fills in the previous six months. Potential participants were randomly contacted via telephone to consent to participate in the project, including answering questions for baseline exacerbation risk using the AIRQ and ACT. Participants were excluded if less than 18 years of age, utilising a rescue inhaler for a condition other than asthma, and those not fluent in English. Differences in exacerbation risk scores were assessed at baseline and at a four-week follow-up using a two-tailed student's t-test. Any clinical recommendations made were transmitted to providers and documented. Provider acceptance of the pharmacist's recommendation(s) was tracked.

Results: Of the 20 potential participants, 13 completed the initial and four-week follow-up AIRQ and ACT assessments. A significant reduction in mean exacerbation risk scores was found for both the AIRQ (p-value 0.002) and the ACT (p-value 0.045). All 13 participants improved or maintained exacerbation risk according to AIRQ results, however two participants showed worsening exacerbation risk according to ACT results. Seven participant baseline interventions resulted in clinical recommendations to the provider, with two of those recommendations accepted by the four-week follow-up.

Conclusions/Implications: Significant improvement was found within both the AIRQ and ACT over the four-week period. The significant improvement of exacerbation risk scores after community pharmacist intervention could lead to improved patient clinical outcomes as well as a reduction in healthcare spending due to hospitalisations and preventable provider visits due to exacerbations. Implementation of pharmacist interventions related to uncontrolled asthma as a medically billable service, where allowed, should be further evaluated to determine sustainability and transferability of the service.

Pharmacist provided care in community pharmacies in Washington State

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Background: As the shortage of primary care providers widens nationwide, access to care utilising non-physician providers is one strategy to ensure equitable access to care. This study aimed to compare community pharmacist-provided care for minor ailments to care provided at three traditional sites of care: primary care, urgent care, and emergency department to determine if care provided by pharmacists improved access with comparable quality and reduced financial strain on the healthcare system.

Methods: Pharmacy data was provided from forty-six pharmacies and 175 pharmacists who participated across five pharmacy corporations over a 3-year period (2016-2019). Data for non-pharmacy sites of care was provided by a large health plan, matching episodes of care for conditions seen in the community pharmacy. Cost-of-care analysis was conducted using superiority study design and revisit data was conducted using noninferiority study design.

Results: Median cost-of-care across traditional sites of care was $277.78 higher than care provided at the pharmacies, showing superiority. Noninferiority was demonstrated for revisit care when the initial visit was conducted by a pharmacist compared to traditional sites.

Discussion: The authors conclude community pharmacist-provided care for minor ailments improved cost-effective access for patients with comparable quality and reduced financial strains on the healthcare system.

Pharmacy-based screening and adherence monitoring for Familial hypercholesterolemia in offspring using parental dyslipidaemia as a predictive factor: A pilot study

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Background: Dyslipidaemias manifest themselves from an early age, are highly prevalent, have a strong genetic component and are severely underdiagnosed. Familial Hypercholesterolaemia (FH), a particularly severe condition, affects 1 in 250 people. In Croatia, there are approximately 16,000 people with FH who are undiagnosed. This work aims to use the pharmacy as a point-of-care test (POCT) for early detection of hypercholesterolaemia in the offspring of patients diagnosed with dyslipidaemia who seek lipid-lowering medication. Early detection and lifestyle interventions are crucial to reduce future cardiovascular risk. Community pharmacies offer a promising setting for screening and promoting adherence to long-term interventions. To assess the feasibility and effectiveness of a pharmacy-based screening programme for early detection of FH and other dyslipidaemias in offspring using parental hypercholesterolaemia as a predictive factor and to monitor adherence to pharmacist-led interventions with the ADHERE-7 tool.

Method: A pilot observational cohort study was conducted at Pharmacy Bjelovar, Croatia, from February and is still ongoing. Lipid profiles (total cholesterol) and anthropometric data were measured using validated portable devices. Socio-demographic information, dietary habits, and physical activity levels were assessed through structured questionnaires. Pharmacists provided tailored educational interventions on lifestyle changes aimed at reducing cardiovascular risk. Adherence to these interventions was monitored using the validated ADHERE-7 tool, a self-reported questionnaire assessing patient attitudes and behaviours related to adherence, focusing on aversion, comfort, and practical barriers. Pharmacists collaborated with specialist endocrinologists throughout the screening and intervention process. Individuals identified as at risk of FH or demonstrating non-adherence were referred for additional medical control.

Results: Preliminary data suggest that pharmacy-based screening effectively identified offspring at risk of FH. Parental hypercholesterolaemia was a valuable indicator for early detection. Pharmacist-led education encouraged families to adopt healthier dietary and physical activity habits. ADHERE-7 scores reflected positive adherence behaviour, with practical challenges being the most frequently reported barrier. However, approximately 30% of participants had low adherence and uncontrolled total cholesterol levels.

Conclusion: Pharmacy-based screening, combined with adherence monitoring using ADHERE-7, proved feasible for the early identification of offspring at risk of FH while also promoting sustained lifestyle interventions. Integrating pharmacists into preventive healthcare strategies supports early diagnosis and adherence to cardiovascular risk reduction interventions.

Pharmacists' role in maternal and child health: Comparing pharmacists' support for breastfeeding and safe medication use in Serbia and Croatia

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Background: Despite well-documented maternal and child health benefits of breastfeeding, significant knowledge gaps persist regarding medication safety during lactation. Pharmacists are among the most accessible healthcare professionals and are well-positioned to counsel pregnant and breastfeeding women. In Serbia, only about 12.8% of infants are exclusively breastfed, prompting a national breastfeeding support program in 2018. Croatia has similarly prioritised breastfeeding; its pharmacy-based support initiative secured Ministry of Health and UNICEF backing. Both countries implemented the "Pharmacy: A Friend of Healthy Offspring" program to strengthen pharmacists' roles in maternal and child health, though healthcare system and policy differences may influence outcomes.

Objective: This study compares pharmacist-led breastfeeding support programs in Serbia and Croatia, assessing their impact on breastfeeding education, medication safety counselling, and pharmacists' preparedness to guide pregnant and nursing mothers.

Methods: An Erasmus+-supported initiative, "Pharmacy—A Friend of Healthy Offspring," was jointly implemented by Serbian and Croatian pharmacy organisations, starting in

September 2023 and ongoing (end date September 2025). It included multiple training sessions for community pharmacists across regions, following national guidelines (e.g., Serbia's Ministry of Health National Guidelines for Medication Use During Breastfeeding). Pharmacists completed structured training modules (covering self-medication and optimal therapy during breastfeeding) and received educational materials for dissemination in pharmacies and on social media. Program evaluation involved cross-sectional surveys of trained pharmacists and participating mothers to measure changes in pharmacists' knowledge, confidence, and counselling practices, as well as patient engagement and satisfaction. Descriptive and comparative statistics were used to identify similarities and differences in outcomes between Serbia and Croatia.

Results: Pharmacist training led to improved confidence in breastfeeding counselling in both countries. In Serbia, participation remained high from pre- to post-training; Pre-Evaluation Accuracy (Before Intervention): 66.67%; Post-Evaluation Accuracy (After Intervention): 86.28%; Overall Improvement: 20.51%, indicating strong engagement. Croatian pharmacists, supported by structured national guidelines and digital resources, similarly reported enhanced counselling activities and indicated an improvement of 17%. Key differences emerged: Serbian pharmacists were somewhat hesitant in medication advice, citing liability concerns, whereas Croatian pharmacists were more proactive in recommending breastfeeding-safe medications. Patient surveys in both countries underscored the need for more detailed guidance on breastfeeding and medicine use. Notably, mothers in rural areas in both Serbia and Croatia reported greater difficulty in accessing pharmacy counseling, highlighting regional disparities in support.

Conclusion: Pharmacist education and dedicated breastfeeding support programs in pharmacies can bolster maternal and child healthcare in both Serbia and Croatia. Standardised training and clear national guidelines are crucial to empower pharmacists as frontline maternal health advisors. Policymakers should integrate pharmacists into national breastfeeding strategies, and continuing education should reinforce pharmacists' confidence in providing lactation-related care. These initiatives, supported by strong institutional partnerships, have the potential to improve breastfeeding rates and safety outcomes. Future research should evaluate long-term impacts on breastfeeding practices and explore harmonisation of best practices to ensure consistent, equitable support for breastfeeding families.

Inter-professional collaboration competency development in community pharmacy

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Background: Inter-professional care can improve patient health outcomes and healthcare provider work satisfaction. In Canada, inter-professional education (IPE) programming for pharmacy students aims to promote an understanding of roles and expertise among health professional trainees. Early and ongoing IPE activities are designed to familiarise trainees with collaboration and facilitate inter-professional care upon graduation. However, how such early and structured campus-based exposure to shared care translates into tangible collaboration in the clinical learning environments of the experiential curriculum is not well characterised. This study reports on how pharmacy students describe their inter-professional collaborative experiences during workplace-based learning in community pharmacy patient care settings.

Methods: As part of a larger project, nineteen participants in a longitudinal diary study kept records during their fourth-year pharmacy rotations. At three pre-determined intervals during the eight-week community pharmacy rotation, participants submitted written reflections in response to specific diary prompts: 1) What are the specific opportunities you have had to develop your skills as a collaborator? 2) Give one or more examples that stood out for you in the rotation so far; and 3) what feedback have you received on your performance as a collaborator? Participants wrote freely and were not provided collaborator definitions from pharmacy or inter-professional frameworks. Participants gave follow-up interviews to offer further insights about their collaborator experiences. The audio-recorded interviews were transcribed and systematically coded and categorised. Reflective thematic analysis of the diary and interview data was conducted.

Results: Forty-five diary entries and thirteen follow-up interviews were analysed. Students identified many opportunities to collaborate with prescribers, mostly physicians. Students predominantly communicated (by fax and by phone) to solve patient drug access issues, answer drug information questions, and address identified drug therapy problems. Interaction with other health professionals seemed opportunistic based on practice site and without evidence of incorporation into routine work. Descriptions of collaboration with pharmacy personnel, patients, or family was infrequent. Many students did identify encouraging preceptor feedback and strategies for effective communication with collaborators who prescribe. Students missed timely access to prescribers and relevant patient

information they felt necessary for collaboration, in contrast to what they encountered in hospital learning environments.

Conclusions: Pharmacy students believed they practiced collaborator roles during their community pharmacy rotation, primarily with physicians. However, limited engagement with professionals from other disciplines was opportunistic and collaboration with patient and other pharmacy staff were under-represented in their recorded experience. Campus-based IPE often brings together a complement of health professional trainees who might not otherwise interact in practice. Given the reality of single discipline practices, like community pharmacies, IPE programming must equip health professional students with models and strategies to purposely establish collaborative relationships and share care across separate physical spaces.

STAND BY ME: A framework for community pharmacists to intervene in substance misuse patients

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Background: Substance misuse among Thai youth is an increasing public health concern. The most commonly misused drugs include first-generation antipsychotics and tramadol. Patients also reported using other drugs, including various antihistamines and substances like codeine and kratom. These findings underscore the urgent need for a multi-faceted approach that combines stricter regulations, enhanced public awareness campaigns, and comprehensive prevention programs targeting children and adolescents to mitigate the ongoing substance misuse crisis in Thailand. Some substance misuse patients attempt to purchase medications from pharmacies for misuse. In Thailand, most community pharmacists typically refuse to sell to these individuals.

Method: Establishing a framework begins with the researcher observing the characteristics of patients who seek medications for misuse. Next, the researcher examines guidelines for treating substance addiction and reviews studies demonstrating various treatments' effectiveness. Using this information, the researcher creates a framework consistent with community pharmacists' service procedures. Finally, the researcher tests the developed framework in practice.

Results: The researcher has established a STAND BY ME framework for servicing substance misuse patients in pharmacies. The process consists of nine steps:

1. Selling with Counselling: This first step is crucial and presents the greatest challenge to community pharmacists.
2. Take Time: Pharmacists should take the time to converse and build trust with patients.
3. Adherence: Pharmacists must assess and foster patients' correct understanding of the consequences of substance misuse.
4. Neutralise: Pharmacists neutralise patients to desire a return to a normal life, persuading them to reduce their substance use.
5. Distinguish: Pharmacists strive to engage in discussions that help patients separate themselves from their previous social circles and environments.
6. Build: Pharmacists should build and inspire patients to live better lives.
7. Yield: Pharmacists must help patients transform their mindset and lifestyle after patients have stopped misusing substances.
8. Make sure: Pharmacists should observe patients' lifestyles and stay alert to the risks of patients returning to substance misuse.
9. Encourage: In the final step, The community pharmacist is crucial in supporting patients' journey toward a healthier life.

The STAND BY ME framework effectively helped three patients stop their substance misuse. The length of treatment varied for each patient, with the longest case taking two years.

Conclusion: According to the first step, it is inappropriate for community pharmacists to sell medications that may be misused. The researcher believes that this presents a valuable opportunity for community pharmacists to assist individuals in overcoming their addictions. This approach can foster a trusting relationship, enabling pharmacists to guide these individuals toward stopping improper drug use. When the initial letters of each step are arranged together, they spell "STAND BY ME," which is the title of a song by Ben E. King. This acronym encourages community pharmacists to empathise with substance users who seek help at the pharmacy and to provide care instead of denial. The researcher hopes that community pharmacists will serve as a guiding light, similar to the moon, for individuals struggling with substance use, reflecting the message of the "Stand By Me" song.

Addressing social determinants of health in rural community pharmacies through social work integration

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Background: Community pharmacies have long been recognised for their role in promoting medication adherence and disease management in consumers via patient education. However, medication adherence is not solely impacted by a lack of knowledge. Social Determinants of Health (SDOH)—such as socioeconomic status, access to care, and strength of social support—can significantly affect a patient's ability to manage their health effectively. Community pharmacies often serve as accessible points of care, uniquely positioned to identify and address unmet needs. However, pharmacists may lack the capacity of training to address the ways in which SDOH are impacting their patients.

Objective: This abstract explores the rationale for integrating social work services within community pharmacies to address SDOH and enhance patient care. By embedding social work expertise into pharmacy settings, patients have a greater likelihood of receiving holistic support that extends beyond traditional medical education and to include interventions that alleviate problematic implications of SDOH. These interventions include resource connection, advocacy, and emotional support.

Method: A social work integration model leverages Master of Social Work (MSW) interns to provide direct patient services, community resource navigation, and advocacy. This model involves conducting Gap Analyses to identify prevalent social needs, collaborating with community health workers, and developing tools for local resource dissemination. The structured internship model offers continuity across successive years, ensuring consistent delivery of social work services and enabling long-term community engagement.

Results: Preliminary findings suggest that integrating social work into community pharmacies can improve medication adherence, reduce feelings of isolation, and connect patients with critical resources. Patients benefit from personalised advocacy, improved health literacy, and enhanced access to social services. Additionally, pharmacists report increased capacity to focus on clinical tasks while social work interns address social barriers to care. Collaboration from an MSW intern with the Diabetes Educator to implement evidence-based interventions for disease self-management, engagement in regular advocacy sessions with patients, and expansion of partnerships with local health organisations have been identified as strategies to further integrate social work services into the community pharmacy setting.

Conclusion: Integrating social work into community pharmacies offers a holistic approach to healthcare by addressing the social determinants of health, particularly in rural areas with limited resources. This initiative helps bridge gaps in patient care, enhances medication adherence, and connects individuals to essential community resources, improving overall well-being. By fostering collaboration between social work and rural community pharmacy services, this model creates a sustainable, replicable framework for future interns and healthcare professionals. Ultimately, this work highlights the importance of interdisciplinary care, empowering patients and communities while reducing health disparities in underserved populations.

Factors impacting the primary care pharmacist scope of practice in Australia: Reflections of a national conversation

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Background: Globally, health care faces a range of challenges, including an increased demand for services. There is an urgent need to ensure the health workforce is enabled to work to its full potential to meet this need. Like many countries, Australia provides universal health care and primary care is integral to this model. The importance of strengthening the primary care system has prompted a series of reviews, one of which focused on primary care health professionals' scope of practice ('Unleashing the potential of our health workforce. Scope of practice review', The Review). Community pharmacists provide essential primary care services. Although differences are observed, the scope of practice for pharmacists commonly includes assessing, prescribing, dispensing and monitoring health outcomes, within the collaborative team. In Australia, community pharmacists have recently achieved authorisation to vaccinate and prescribe. Across Australia, a range of factors impact the scope of practice for primary care health professionals, including community pharmacists. The Review sought to understand these, through a national series of focused consultations, and to identify strategies to address identified barriers that prevent health professionals from practising to their full scope. This paper summarises the perspectives of a range of contributors regarding the major influences that impact the primary care pharmacist's scope of practice in Australia.

Method: The Review, conducted between September 2023 and October 2024, was informed by multiple sources of evidence, including public consultation, a literature and evidence review and a review of relevant legislation and regulation. This paper summarises the findings of the public consultation that are relevant to community pharmacy practice. Consultation was conducted over four phases using an iterative approach. Feedback was obtained through a

national series of facilitated group discussions and written submissions. To support the consultation process, two issues papers were developed, to provide a thematic summary of identified issues and pose specific questions for further consultation. Facilitated in-person group discussions, conducted in all capital cities, posed specific questions aligned to the issues papers. Participant feedback received during face-to-face consultations was recorded by trained scribes and subsequently summarised thematically together with the feedback received separately via written submissions.

Results: The Review identified a range of factors that significantly impact pharmacist's scope of practice. Inconsistent jurisdiction-based legislation and policies present a significant barrier to existing and possible future community pharmacist practice. A poor understand across professions about the capabilities of other health professions was also identified. This was noted to significantly impact the overall function of the multidisciplinary team. Pharmacists are challenged by these and other barriers to achieve a nationally recognisable scope of practice and to provide nationally consistent services.

Conclusion: Addressing factors that impede the community pharmacist scope of practice would enable a consistent approach to the provision of best practice care, with the ultimate benefit of improved consumer experience and health outcomes. A range of measures are proposed to achieve this reform, including formal recognition of pharmacist skills and capabilities, nationally consistent medicines and poisons legislation, and the implementation of evidence-based, innovative models of care.

Pharmaceutical intervention in promoting adherence to therapy through the implementation of an individualised medication preparation service that follows the patient's journey

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Background: The presence of multiple chronic diseases simultaneously in the same individual is an increasingly relevant public health problem for healthcare systems. A 2019 study carried out in Portugal identified that the prevalence of chronic multi-morbidity in the Portuguese population was 38.3%, that is, 3.9 million Portuguese people with 2 or more chronic pathologies.

Objective: Implementation of a new type of pharmaceutical care, as an integrated service that, in addition to ensuring the preparation and organisation of patients' daily medication, monitors their journey.

In fact, a new form of pharmaceutical care that allows:

- Differentiating the Pharmacy within its community
- Contributing to the image of a health hub, vital in the near future of the pharmacy
- Reinforcing the position of the pharmacist as a primary care health professional
- Evidencing the impact of the Pharmacy on users' Health Indicators.

Methods: The study took place between January and December 2024 and is based on: Development of a technological platform that connects the patient and the pharmacy participating in the service; 24/7 Pharmaceutical Support that allows the patient and/or caregiver to always have pharmacists available who will accompany them 24 hours a day, every day of the year, to clarify doubts related to their therapy, assessing their clinical condition. Individual Preparation of Medications ensuring full compliance and after dispensing, preparation of individual medication for each patient, for 28 days of treatment, using sachets indicating the day and time they should be taken, all oral medications included.

Results: Of the pharmacies involved, 58 involved 481 patients recruited at the pharmacy counter, 68% of whom were women and 51% were between 41 and 60 years old. After implementing the service in Pharmacies, it was unexpectedly found that, in addition to the interest shown by the patients themselves (58%), caregivers (42%) really liked the service provided, easily adhering to it, which allows them to ensure that their family members comply with the therapy in an appropriate and safe manner. Of the 481 patients who signed up to the service, 38% periodically monitor their biochemical parameters at the Pharmacy for various chronic pathologies (Diabetes Mellitus, Hypertension, Dyslipidaemia, among others), showing that compliance with therapy, through the adoption of the service, allows them to control their pathologies, reducing visits to the doctor. The patient retention rate in the service is 99% and proof of this is shown by the level of satisfaction they demonstrate, in which 90% of patients say they are "Very Satisfied" and 10% "Satisfied" with the service provided by their Pharmacy.

Conclusion: It has been proven that pharmaceutical intervention at this level is crucial, with the implementation of services that provide greater adherence to therapy, contributing to improving the patient's quality of life and the success of long-term treatment.

Evaluation of the impact of pharmaceutical intervention in the detection and monitoring of Chronic Venous Disease

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Background: Chronic venous disease affects around 35% of the Portuguese population and seven in ten women over the age of 30. In addition to the significant impact, it has on patients' quality of life, it is responsible for 1,000,000 lost workdays annually and eight per cent of early retirements in Portugal.

Objective: To identify patients with risk factors (age, gender, and family history); To identify, at an early stage, patients at risk of developing chronic venous disease without an established diagnosis; Follow-up and monitoring of patients with an established diagnosis of chronic venous disease, in terms of symptom control.

Methods: The study took place during the month of July 2024 and involved two interventions:

- Promotion of health literacy and the patient journey with Chronic Venous Disease, raising awareness of risk factors, and creating strategies for early detection of the condition
- Implementation of a questionnaire to assess the likelihood or associated risk of developing venous disease, collecting the following information: Age, gender, and family history; Pregnancy, use of hormonal contraceptives; Sensation of heavy legs, swollen ankles; Strokes, varicose veins, or ulcers.

The data were collected using a Formsapp® form developed for this purpose and analysed using Excel® software.

Results: Of the pharmacies involved, 100 involved 4228 people, 72% of whom were female, 48% were aged between 35 and 50 and 65% had at least one family member with a history of venous disease. Of the individuals assessed, 49% have been pregnant at least once, 31% use hormonal contraceptive methods and 35% do not consider themselves to have a healthy lifestyle (diet, physical activity, smoking habits, and alcohol intake). In their daily lives, 32 % of users report standing or sitting for at least eight hours, and 40% for between four and eight hours, and 57% of patients who participated in the study are overweight. Of the individuals assessed, 85% reported feeling heaviness in their legs, and of these, 28% said that hot weather aggravated their symptoms. Regarding the impact that venous disease has on your quality of life: 61% say that the disease has a major impact; 26% say that the impact is medium and only 13% of users say that the impact is minimal. Of the users without a diagnosis of venous disease, it was found that 18% of individuals had a low risk of developing the disease, 59% had a moderate risk and 23% had a high risk of developing the pathology.

Conclusions: Chronic venous disease is currently a highly prevalent condition in Portugal, which is why it is essential that pharmacists have adequate training on the condition and play their role in alerting and informing patients about the condition itself, through hygiene and dietary measures, as well as therapeutic alternatives, contributing to the early detection and treatment of the condition, preventing its progression.

Urinary Tract Infection: the role of pharmacy in early detection and public health promotion

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Background: Urinary Tract Infections (UTIs) represent the 2nd most common bacterial infection in primary care, only surpassed by respiratory tract infections, and are considered a public health problem. Early diagnosis and treatment are essential for preventing complications. In primary care, there is an unmet clinical need for a rapid and accurate infection detection test to support decision-making. This appears to be an opportunity to introduce a point-of-care (POC) test in pharmacies in Portugal.

Objective: To assess the feasibility and effectiveness of implementing UTI screening services in pharmacies, following the availability of the clear UTI Screening Service. At the same time, a study was carried out in which the intervention of the pharmacist and the pharmacy was evaluated, following a POC test for UTI screening.

Methods: The study took place between January and December 2024 and involved two interventions:

- to assess user acceptance, the counselling provided after the specific POC test, the need for referral to the doctor and user satisfaction.
- After initial screening, using a specific questionnaire for the pathology, all those with signs and/or symptoms suggestive of UTI were included in the study.
- Urine strips were used to detect the presence of nitrites, leucocytes and blood. Patients with a potentially positive result, or with a negative result but with signs of risk or belonging to risk groups, were referred to a doctor.

All the data relating to the intervention was recorded by the pharmacy teams on a computerised platform.

Results: Of the pharmacies involved, 53 involved 586 people, 88% of whom were female and 60% aged between 41 and 60. In 64% of the cases, a doctor was referred: 38% due to a test result suggesting the presence of UTI, 19% because they had warning signs and 7% because they were part of a risk group. Pharmacological counselling for symptom relief was given to 56% (328/586) of the participants. Non-pharmacological counselling was provided in 99% of cases and the level of user satisfaction was very positive, with 85% (498/586) saying they were 'Very Satisfied' and 15% (88/586) 'Satisfied'. Through pharmaceutical intervention, with the implementation of the urinary infection screening test, we were able to prevent 36 per cent of patients from going to the emergency room (unnecessarily because they had a negative result) and contribute to the rational use of medication, avoiding the unnecessary use of antibiotics.

Conclusion: The results of the study suggest that implementing UTI screening services in pharmacies could be a valuable tool for improving access to early screening and symptom relief. It proved to be feasible, effective, and well accepted by users. The pharmacist's role in screening and preventing recurrences contributes to reducing the morbidity and costs associated with UTIs, promoting improved public health and complementarity with other health professionals.

Evaluation of pharmaceutical intervention in the detection and monitoring of allergic disease, assessing the impact the disease has on users' quality of life

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Background: Due to their high prevalence and morbidity, allergic diseases are a major public health problem. The lack of diagnosis and adequate treatment has been a reality in all areas of allergic disease and represents additional difficulties in terms of the quality of life of people living with these pathologies, with an estimated 85% of the population not having their disease under control.

Objective: The aim of this intervention is to assess the impact that allergic/respiratory disease (asthma/rhinitis/allergy) has on users' quality of life and, using the CARAT (Control of Allergic Rhinitis and Asthma Test) tool, to see if the condition is under control.

Methods: The study took place during the month of May 2024 and involved two interventions:

- Promotion of health literacy and the patient journey with Allergic Disease, raising awareness of risk factors, and creating strategies for early detection of the condition (dissemination of communication materials through the media)
- Application of a questionnaire on allergic disease which enabled the following information to be collected: Age, gender, and family history, smoker; Classification of the impact of the disease through symptoms experienced in the last four weeks; Assessment of allergic disease control.

The data were collected using a Formsapp® form developed for this purpose and analysed using Excel® software.

Results: Of the pharmacies involved, 100 involved 4124 people, 60% of whom were female, 48% were aged between 36 and 50 and 68% had at least one family member with a history of allergic disease. Regarding the impact on quality of life, users were able to classify the symptoms experienced in the last four weeks: 59% of users reported having experienced severe symptoms; 61% of patients rated their nasal symptoms as very bothersome, while 48% of patients with lung/bronchial symptoms rated them as very bothersome. The vast majority, 78% said that their allergic disease had a very negative impact on their quality of life. Regarding the results obtained in the CARAT questionnaire: In the evaluation of rhinitis symptoms, the most frequent were sneezing and itchy nose, which were present almost every day or every day. In the evaluation of asthma symptoms, the most frequent were tiredness/difficulty in carrying out daily activities and waking up during the night, which were present almost every day or every day. The majority of users do not have their allergic disease under control (64%) due to the significant presence of associated symptoms (CARAT ≤ 24), compared to 36% of users who appear to have their pathology under control (CARAT > 24).

Conclusions: Pharmaceutical intervention plays a fundamental role in the early detection and monitoring of allergic diseases, such as rhinitis and asthma, and can significantly contribute to improving patients' quality of life, promoting disease control and thus becoming a pillar for improving public health care.

Impact of pharmaceutical intervention on adherence to therapy for asthma pathology, through teaching the correct inhalation technique

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Background: In Portugal, it is estimated that asthma has a prevalence of 6.8%, which corresponds to approximately 700,000 people with active asthma. Around half of people with asthma do not have their disease under control. One of

the biggest obstacles to achieving control is the fact that most uncontrolled patients (9 out of 10) believe they are fine.

Objective: Assess disease control through therapeutic adherence by applying the ACT questionnaire (Asthma Control Test); Train pharmacy professionals in the correct inhalation technique so that they are properly prepared to teach the inhalation technique to their patients.

Methods: The study took place during the month of September 2024 and involved three interventions:

- Promotion of health literacy and the journey of patients with asthma, raising awareness of risk factors and creating strategies for early detection of the disease (dissemination of communication materials through the media)
- Training of all pharmacy professionals on the correct inhalation technique for the different devices
- Application of the ACT questionnaire (Asthma Control Test), internationally validated, to assess the control of asthma pathology.

The data were collected using a Formsapp® form developed for this purpose and analysed using Excel® software.

Results: Of the pharmacies involved, 100 involved 4118 people, 59% of whom were female, 59% were aged between 51 and 65. Of the patients who participated in the study, 87% had a medical diagnosis of asthma, of which 76% had already been diagnosed at least one year ago. Of patients diagnosed with asthma, only 57% reported using therapy to control the condition, mostly through inhaler devices, including: dry powder inhalers (43%), metered dose pressurised inhalers (31%) and gentle mist inhalers (14%). Regarding the implementation of the ACT questionnaire (Asthma Control Test) which allowed the assessment of asthma control, in the last four weeks:

- 35% of users reported that asthma prevented them from carrying out daily tasks, at least for some time
- 36% of users reported feeling short of breath for at least some time
- 35% of users reported that asthma symptoms had implications for sleep, at least for some time
- 32% of users reported that they needed to use medication for quick relief, at least for some time
- 31%, 12% and 8% of users reported that their asthma was more or less controlled, poorly controlled and not controlled, respectively.

After completing the ACT (Asthma Control Test), it was found that 45% of users did not have their asthma under control (< 20 points), 36% had their asthma partially under control (20-24 points) and only 19% had a score that allowed us to conclude that their asthma was under control.

Conclusions: Pharmacists play an essential role in monitoring adherence to treatment, educating patients on the correct use of medications, especially inhalers, and in the early identification of signs of uncontrolled disease, representing a key element in disease control.

Impact of point-of-care tests for group A Streptococcus infection on screening and accessibility to healthcare in pharmacies in Portugal

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Background: Sore throat is a self-limiting clinical condition that tends to disappear within a week and is one of the most common reasons why patients visit the pharmacy. Viral infections account for around 80 per cent of cases of the condition, which is why antibiotics are ineffective in most cases. The overlap between signs and symptoms from viral and bacterial causes often leads to uncertainty about the diagnosis, which can result in the inappropriate use of antibiotics.

Objective: Rede Claro pharmacies aim to optimise counselling for sore throats, contributing to greater accessibility to primary healthcare and reducing antimicrobial resistance. To this end, they implemented the Claro Oropharyngeal Bacterial Infection Screening Service. At the same time, a study was carried out evaluating the intervention of pharmacists and pharmacies by carrying out a point-of-care (POC) test for Streptococcus A infection.

Methods: The study took place between January and December 2024 and involved two interventions:

- to assess user acceptance, counselling after the specific POC test, the need for referral to a doctor and user satisfaction.

After initial screening using a specific questionnaire for the pathology, all those with signs and/or symptoms suggestive of bacterial infection of the throat were included. Upon consent, a physical test was carried out (throat swab). Patients who tested positive or negative but showed signs of risk or belonged to risk groups were referred to a doctor. All the data relating to the intervention was recorded by the pharmacy teams on a computerised platform.

Results: Of the pharmacies involved, 53 involved 427 people, 66% of whom were female and 75% under the age of 45. The negative result was obtained in 79% of cases (337/427). The level of user satisfaction was very positive, with 83% (354/427) saying they were 'Very Satisfied' and 17% (73/427) 'Satisfied'. The proportion of users referred to the doctor was relatively low (21%; 90/427). In the majority of cases (71%;

303/427), after the test was carried out, the pharmacist was the only person to provide advice on relieving signs and symptoms. Through pharmacist intervention, with the implementation of the oropharyngeal infection screening test, we were able to prevent 79% of patients from going to the emergency room (unnecessarily because they had a negative result) and contribute to the rational use of medication, avoiding the unnecessary use of antibiotics.

Conclusion: Pharmacists are therefore able to triage patients with sore throats by implementing infection screening services. The use of complementary diagnostic means in the pharmacy has proved to be an effective support in decision-making regarding counselling/referral for medical consultation, contributing to the fight against antimicrobial resistance and relieving pressure on access to primary healthcare.

The role of the pharmacist in the detection, intervention, and motivation for the treatment of obesity

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Background: Obesity is one of today's main public health problems and is considered a chronic disease and, at the same time, a risk factor for the development of other chronic diseases. Treating obesity requires the intervention of a multidisciplinary team and liaison between the various health professionals.

Objective: Anthropometric evaluation of patients; Evaluation of the impact of pharmaceutical intervention in the motivation of the patient for pharmacological and non-pharmacological treatment of Obesity; Patients identified without an ongoing treatment plan for Obesity who, after pharmaceutical intervention, have started medical treatment.

Methods: The study took place during March and April 2024 and involved three interventions:

- Promote health literacy among overweight or obese patients, acting to raise awareness of earlier diagnosis
- Anthropometric evaluation and questionnaire implementation: Check of weight, height, waist circumference and BMI; Implementation of questionnaire to gather the following information:

Ongoing strategies and/or treatments for weight loss; assessment of the patient's motivation for treatment of Obesity; interest in starting a medical plan for the treatment of Obesity.

Data was collected using a Formsapp® form developed for this purpose and analysed using Excel® software.

Results: Of the pharmacies involved, 100 involved 8924 people in this intervention action of which 69% were female. The age group with the highest prevalence was 46–60-year-olds (32%). Of the individuals assessed, 40% were pre-obese (BMI 25-29 kg/m2), 22% were obese (BMI 30-40 kg/m2), 58% were female (BP > 80cm) and 56% were male (BP > 94cm), had a waist circumference greater than recommended, and of these, 62% had at least one or more associated comorbidities. Of the overweight patients, 76% had no current medical or monitoring plan, and of these, 48% were grade I (31%), grade II (11%), grade III (4%), and grade III (6%) obese patients. Of the 24% of patients who reported having a plan in place, 71% are not yet receiving weight management support. After motivational pharmaceutical intervention, of the individuals with pre-obesity and/or obesity who had no current weight management plan or monitoring, 49% showed interest in starting a treatment plan, and of these, 47% decided to start the medical plan within the next 30 days. Regarding the impact of pharmaceutical intervention on the motivation for weight management of users and when we analyse the patients's initial motivation for the treatment of Obesity there is an increase in motivation for the treatment of Obesity, after the final evaluation (grade 1 - 14%; grade 2 - 25%; grade 3 - 33%; grade 4 - 16%; and grade 5 - 11%).

Conclusions: As healthcare professionals, we must educate the population to adopt a healthy lifestyle, helping to prevent obesity. The accessibility and proximity of community pharmacies to the population have allowed us to confirm the beneficial and decisive impact that pharmaceutical intervention has on the detection and motivation of patients for the treatment of obesity.

Exploring medication refill patterns and factors influencing adherence of hypertensive patients through electronic prescription and dispensing data

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Background: Telemedicine uses telecommunication technology for online consultations and healthcare delivery while e-prescribing allows the prescribers to generate an electronic prescription and directly transmit either to the patients themselves or to a designated pharmacy. This improvement is considered to be the key drivers of digital health in managing patient's medication history and enhancing patient safety. While the use of electronic

prescriptions (e-prescriptions) has emerged as a technological advancement in healthcare delivery and their use is considerably widespread, its use in potentially improving patient medication adherence has not been well established.

Objective: This study aimed to investigate the utilisation of e-prescriptions and medication adherence levels categorised by Proportion of Days Covered (PDC) thresholds.

Methods: Employing a retrospective observational design, 2023 dispensation data from 200 patients who received antihypertensive medications (AHM) in the East Coast region of a community pharmacy in Malaysia, were analysed. Electronic medical records of hypertensive patients who refilled their medications from1st January 2023 to 31st December 2023 were collected through the Point of Sales (PoS) system. The dispensing records of each patient were matched with the electronic prescriptions issued via the online prescribing platform, Doc2us. Eligible participants who fulfilled the inclusion and exclusion criteria were contacted via phone call or text message to partake in a survey. A questionnaire was developed with variables identified from previous literature. A pilot study was conducted by distributing the questionnaires to ten participants to identify unclear questions and detect major flaws in the questionnaire design. The data was analysed and the necessary adjustments were made to the wording, format and order. Closed-ended questions using simple and clear language were used and the questionnaire was divided into two sections: demographic and factors that influenced medication adherence. The patterns of medication refill and relationship between medication adherence and patient-related, medication-related and healthcare system-related factors of hypertensive patients were examined. Patients were categorised based on the adherence levels (achieved > 80% PDC and < 80% PDC) and their association with patient-related and medication-related independent variables evaluated. The healthcare system-related factors were the waiting time at the public clinic, financial burden caused by the price of the medications and user satisfaction towards the service.

Results: Mean age was 54.3 years: 54.5% were male and 45.8% were female. In terms of pharmacotherapy, 172 (86%) patients were on mono-therapy, 24 patients (12 %) were on Single Pill Combination, SPC while 4 patients were on free-drug combinations, FC therapy. The commonest mono-therapy agent was the long-acting calcium-channel blocker, amlodipine. Of 200, 140 (70%) had good PDC ≥ 80% and 60 had < 80% PDC. Household income, financial burden, and having shared medications were significant PDC predictors. Out-of-pocket payment willingness was the main predictor of the e-prescription utilisation at the community pharmacy.

Conclusion: The prevalence of hypertensive patients with good medication adherence was considered high. Generic medications were more common as compared to the more expensive single-pill or innovator drugs. Alternative financing schemes could ease the financial burden to patients and facilitate public- private partnerships. Adoption of e-prescriptions can optimise patient outcomes.

Community pharmacists as a key driver in benzodiazepine withdrawal using compound tapering schemes

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Background: In Belgium, the use of sleep medications like benzodiazepines and Z-drugs is among the highest in Europe. In 2021, Belgian pharmacies dispensed about 1.1 million doses per day, averaging one daily dose for every ten citizens. Long-term use of these medications can lead to side effects such as increased sedation, higher fall risk, and a greater chance of dependency and abuse. Ideally, these medications should be avoided or discontinued after a short period. However, for those using benzodiazepines for over three months, sometimes extending to 20 years, a de-prescribing strategy is necessary. Abrupt cessation, especially at high doses, can cause severe withdrawal symptoms, including psychotic reactions. Gradual tapering over several months is recommended to mitigate these risks. Pharmacy compounding of capsules has been a possibility for many years and allows to prepare and dispense individualised dosages to patients. Medical doctors have always had the possibility to prescribe dose reduction schemes for patients motivated to taper off. While doctors could prescribe dose reduction schemes, the high cost for patients, due to lack of reimbursement, was a barrier.

Method: The National Institute for Health and Disability Insurance (NIHDI) oversees Belgium's health insurance schemes. From February 1, 2023, NIHDI introduced a reimbursement scheme for tapering off benzodiazepines prescribed by GPs for insomnia. This scheme involves a collaborative effort between pharmacists, GPs, and patients. Pharmacists raise awareness and motivate patients to enter withdrawal programs, GPs co-motivate and prescribe the program, and patients engage in the tapering process with intensive support. Once the program is initiated, pharmacists prepare and dispense individually dosed capsules. Apart from the compounding and dispensing of the capsules, pharmacists hold two counselling sessions, one at initiation and one as a follow-up interview.

Results: With the new reimbursed service launched nationally in 2023, the barrier of high patient costs is overcome. Since the launch, over 11000 patients started a tapering program. More than half of these long-term users opted for a 10-step reduction program, where pharmacists compounded 10 different dosages (at 100%, 90%, 80%, etc). In terms of efficacy, analysis shows that between 55 and 75% of patients who were completely adherent to their program,

remain off benzodiazepines for at least 6 months after the completion of their program. Further detailed results will be available and presented in September 2025.

Conclusion: The introduction of a reimbursement program for tapering off benzodiazepines by the National Institute for Health and Disability Insurance (NIHDI) in Belgium represents a significant step forward in addressing the high usage of these medications. The collaborative approach between pharmacists, GPs, and patients has led to the successful initiation of tapering programs for over 11,000 patients. The efficacy of these programs is promising, with a substantial percentage of patients remaining off benzodiazepines for at least six months after completion. Further detailed results will be available and presented in September 2025

How does the introduction of prescribing services in community pharmacy affect the roles and practices of the pharmacy team? A scoping review

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Background: The community pharmacy sector across the globe is experiencing unprecedented changes. More clinical services are now being delivered by community pharmacy teams to increase people's access to medicines such as contraceptives and deliver public health programmes such as immunisation programmes and screening and management of acute and long-term conditions. Prescribing in community pharmacy is gaining traction in UK, Canada, USA, Australia and other countries. Yet, research is scarce on the impact of introducing prescribing services on the existing and potentially new services community pharmacy provides, and the roles, skills and scope of practice of pharmacy team members.

Objective: To explore whether the introduction of prescribing services in the community pharmacy affects the delivery of traditional and new services in the pharmacy, and the reasons why members of the community pharmacy team may or may not expand their scope of practice and the services they deliver.

Method: Six databases were searched (January- March 2025) for relevant primary research studies reporting on prescribing services in community pharmacy and any impact on the pharmacy services, team and other stakeholders. In addition to searching PubMed, Google Scholar, EMBASE, IPA, CINHAL, and PsycINFO, grey literature sources were also searched including sites of pharmacy regulatory bodies, the Royal Pharmaceutical Society, International Pharmaceutical Federation (FIP), World Health Organisation (WHO) and others. We used descriptive analysis to outline and examine the study characteristics, conceptualisation and delivery of prescribing services and impacted services within the community pharmacy, team dynamics and any reported outcomes relating to service delivery, quality, patient safety and satisfaction, as well pharmacy metrices. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses extension for Scoping Reviews was used to report the results of the review.

Results: Out of 6193 abstracts, 12 studies were included in the first stage of analysis. Of these, one was from New Zealand, France, and Bangladesh each, five were from the USA, and four were from the UK. Studies reported on the expansion of only the pharmacy technician role, their increased autonomy and reduced supervision from pharmacists. Delivering prescribing services appears to increase efficiency of processes within the pharmacy because of increased delegation of tasks to pharmacy technicians. However, the expanding role of pharmacists, combined with the lack of clearly defined roles for other pharmacy team members, may result in role overlap, causing tension that could drive pharmacy technicians to explore opportunities beyond community pharmacy. Reporting on the roles and scope of practice of other pharmacy team members is lacking.

Conclusion: The preliminary findings from this scoping review outline a small but growing area of pharmacy practice research, reflecting the progression of community pharmacy towards a more clinical and integrated role within the healthcare system. As pharmacists and pharmacy technicians' roles continue to evolve, there is a huge scope for the remaining pharmacy team to undertake new roles traditionally held exclusively by pharmacists.

Community pharmacists: Perspectives and challenges in adult vaccination

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Background: Vaccination is a fundamental public health intervention, yet community pharmacists (CPs) encounter numerous challenges in its implementation. As highly

accessible healthcare professionals, CPs play a crucial role in public health by providing vaccine education, counselling, and direct administration, contributing to improved immunisation rates and overall disease prevention.

Objective: The study aimed to identify and assess the difficulties CPs in Greece faced concerning vaccination services. It explored barriers related to patients, governmental policies, pharmacists themselves, and inter-professional collaboration.

Methods: This research adopted a quantitative approach, employing a 24-question survey designed after a comprehensive literature search. The survey included demographic questions and addressed specific challenges faced by pharmacists. The sampling used the snowball method, targeting community pharmacists of varied backgrounds, achieving a diverse sample. Data was collected both in-person and electronically, following written consent from the Attica Pharmaceutical Association. Responses were multiple choice, primarily using Likert scales. The survey was disseminated in Attica, primarily in Athens (the capital of Greece), chosen for its number of pharmacies, researcher familiarity, and local knowledge. Data collection occurred between October and November 2024, with analysis using SPSSV28 thereafter. The study had the ethical approval and support of the Federation of Cooperative Pharmacists of Greece and the Pharmaceutical Association of Attiki.

Results: A total of 234 pharmacists participated in the study. The gender distribution revealed that 62% (145 participants) were female, while 38% (89 participants) were male. The age breakdown of the participants was as follows: 48 individuals were aged 23-30, 127 were 30-50, 33 were 50-60, and 24 were over 60 years old. In terms of professional experience, 49 participants had less than 5 years of experience, 52 had between 6-10 years, 55 had between 11-19 years, and 76 had over 20 years of experience. Pharmacists were asked if potential vaccine shortages act as a barrier to population vaccination. A total of 86.3% (202 participants) agreed, 4.3% (10) disagreed, and 9.4% (22) were neutral. The majority acknowledged shortages as a hindrance to effective vaccination. The study examined the extent of pharmacists' university training in vaccination principles and patient-centred care. Findings revealed that 51.9% (121 pharmacists) had received this education, while 49.1% (112 pharmacists) had not. This underscores the importance of pursuing additional educational opportunities for those who lack this training to enhance their competencies in these areas. Regarding vaccination timing barriers, 52.1% (122) identified patient hesitancy as the primary challenge, whereas 10.3% (24) cited inadequate pharmacist information, and 37.6% (88) noted advice from other health professionals against simultaneous vaccinations.

Conclusion: This study, one of the first of its kind, explored and highlighted the challenges faced by pharmacists in vaccinating the population in Greece, including patient hesitancy due to misinformation, vaccine shortages, workload issues, training gaps, and insufficient vaccination spaces. Discussions revealed pharmacists' commitment to improving health services. However, the study faced limitations due to a short timeframe and refusal to participate. Future nationwide research is needed for broader insights. Overall, the study underscores the need for better support to enhance the public health role of pharmacists.

Challenges of inhalation therapy: why inhalation technique services matter

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Background: A correct inhalation technique is crucial for the efficacy of inhaled drugs. The remunerated clinical pharmacy service "Assuring proper inhalation technique for patients receiving a new device or a device change", therefore, aims to improve patients' skills. Patients from the age of six are entitled to receive a practical training in their inhalation technique following a standardised process which includes documentation of inhalation errors made. This service can be offered when a device is newly prescribed, when a device is changed, or if the patient has not received a practical training with their device in a doctor's office or pharmacy in the past twelve months.

Objective: This survey aimed to identify inhalation errors documented during the service and their correlation with prescription type, patient age, diagnosis, and prior knowledge. A particular focus was placed on the correlation between prescription type, the patients' self-assessment of their knowledge, and the actual error frequency.

Method: The pharmaceutical staff initially demonstrated the inhalation technique, followed by a demonstration by the patient. The occurring errors were first documented and then corrected in the subsequent training. Also, patient age, diagnosis, prescription type (first vs. follow-up), the patients' perception of competence before the training and regarding the service in general were documented.

Results: Twelve community pharmacies participated and data from 258 inhalation training sessions were collected and analysed. Most services (37%) were conducted for patients aged 61–80 years. Diagnoses included asthma (35%), COPD (12%), and other respiratory conditions (53%). In total, 74% of trainings were provided for newly prescribed devices. The assessment of inhalation technique revealed that 83% of patients made at least one error, with an average of three errors per inhalation (first prescription: four errors; follow-up prescription: three errors). The highest error rate, averaging

seven errors, occurred in children up to ten years. The most common errors involved incorrect inhalation (15%), insufficient breath-holding (12%), and failure to exhale fully before inhalation (9%). Although 27% of patients with a new device and 90% of patients with a follow-up prescription reported confidence in their inhalation skills, 73% of first-time users and 82% of follow-up users who reported confidence committed at least one error. Patients' feedback highlighted the high perceived benefit of this service, with 81% rating it as very helpful and 19% as somewhat helpful. The major challenge for pharmacies was engaging patients with a follow-up prescription.

Conclusion: This survey highlights the strong demand for this service. Both, first-time and follow-up prescription patients often overestimate their knowledge, with most still committing administration errors even after an inhalation demonstration by pharmacy staff. This emphasises the importance of hands-on training with error correction. Community pharmacies can play a key role in improving inhalation therapy through this reimbursed service.

The German Federal Chamber of Pharmacists has developed a training series with short videos and educational materials, available at https://www.abda.de/pharmazeutische-dienstleistungen/inhalativa/schulungsreihe-pdl-inhalativa/.

Evaluating cost burden & regulatory compliance for labelling in Indian nutraceutical supplements

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Background: Nutraceutical Supplements play a vital role in modifying treatment outcomes in preventive healthcare, yet their regulatory compliance and cost remain an area of concern. In India, the Food Safety and Standards Authority of India (FSSAI) mandates labelling requirements to ensure consumer safety and informed usage. However, the extent of adherence to labelling standards remains unexplored. Additionally, the cost burden of the nutraceuticals also remains unexplored that impact accessibility to it.

Objective: The study aims to evaluate the labelling compliance of physician recommended and advised nutraceutical products as per FSSAI regulations and compare it with international standards such as the FDA. It also intends to examine the presence of rational usage indications, recommended daily dose or serving and perform a cost analysis to understand the financial burden on the consumers.

Methods: Frequently Advised Nutraceutical Supplements were to be identified which were generally prescribed by physicians. The study was performed at large community pharmacy in Panaji, Goa, India. A list of nutraceutical supplements of all dosage forms were included in it. Various aspects of labelling, regulatory compliance & Cost per daily recommended dose was collected and analysed using descriptive statistics. The study further focused on identifying gaps arising from the analysis.

Results: All analysed supplements (100%, N=203) were complying with FSSAI labelling requirements. 28.6% (n=58) of the supplements carried the label, "As Directed by the Physician", without clear recommended daily dose. 82.2% (n=167) did not mention an indication for use raising concerns about consumer awareness and clinical validation. Further, cost analysis revealed that 60% (n= 87, N=145) of supplements had Cost per recommended daily dose within ₹10 to ₹50 per day price range, while 8% exceeded ₹100 per day. While regulatory comparison revealed that FSSAI requires nutritional information on labels whereas FDA requires the percentage of the recommended daily intake, ensuring better clarity on dosage sufficiency and consumer awareness.

Conclusion: While nutraceuticals in India comply with regulatory labelling norms, the absence of usage indications and recommended daily doses may limit consumer understanding and informed decision-making. The study highlights the need for standardised dose recommendations and cost-effectiveness assessments to enhance consumer accessibility and trust. Future research may explore the clinical efficacy of these supplements to strengthen regulatory frameworks.

Psychological perspectives on follow-up practices among community pharmacists in Japan: A qualitative study

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Background: In recent years, the role of community pharmacists has expanded significantly in Japan. Previously, their primary responsibilities were limited to dispensing medications based on prescriptions brought in by patients, handling prescribed drugs, and providing instructions for their proper use. However, current regulations mandate that pharmacists conduct follow-ups to ensure that patients take their medications appropriately and do not experience adverse effects. Despite this regulatory shift, comprehensive research on how community pharmacists perceive and engage in follow-up activities with patients is lacking. This study aimed to explore the psychological perspectives of community pharmacists regarding their follow-up experiences, thereby contributing to the development of

improved pharmacist-patient relationships in follow-up practice.

Method: Semi-structured interviews were conducted with three community pharmacists, each lasting approximately one hour. The interview topics focused on the significance and effectiveness of follow-ups, the psychological burdens associated with follow-ups, and both successful and unsuccessful experiences. Interviews were recorded and transcribed verbatim. The transcribed data were analysed qualitatively using SCAT (Steps for Coding and Theorisation) method.

Results: Through qualitative analysis, 92 concepts and 12 themes were identified. These findings indicate that community pharmacists actively listen to patients' narratives to comprehensively understand their daily lives during follow-ups. Pharmacists seek to enhance patients' understanding and acceptance through pharmaceutical advice. It was also found that pharmacists recognise the difficulty of identifying patients' living conditions when using digital applications for follow-ups, leading them to consider the necessity of more proactive pharmaceutical interventions. However, when patients do not fully understand the purpose of follow-ups, pharmacists may lack confidence in asking in-depth questions, resulting in insufficient information gathering.

Conclusion: This study suggests that community pharmacists attempt to intervene in various aspects of patients' lives during follow-ups. Furthermore, they employ their professional knowledge to provide explanations that foster patients' understanding of and respect for autonomy. However, when patients exhibit negative attitudes towards follow-ups, pharmacists may struggle to ask appropriate questions, leading to inadequate information collection. Therefore, to establish rapport in follow-up practices, pharmacists should ensure that patients understand the significance of follow-up interventions and actively promote their acceptance of such measures.

Designing for integrity in robot-assisted medication counselling: Potential clients' views on the pharmacy environment and patient integrity in robot design

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Background: The implementation of social robots in healthcare settings may offer benefits such as improved efficiency and accessibility. Social robots can be used as a tool to assist healthcare clients through social interaction and are a suitable option for providing patient medication counselling in community pharmacies. In general, community pharmacies as an environment must have structures that support medication counselling including the protection of patients' integrity. Such considerations are also relevant in terms of potential future robot-assisted counselling since integrity is crucial in community pharmacies to protect patients' dignity and sensitive health information, thus ensuring their trust in the healthcare system.

Objective: The purpose of the study is to elucidate how the design and functions of social robots should be adapted according to potential clients to ensure patient integrity in a community pharmacy environment. The study is relevant to preparing pharmacies for potential future implementations of social robots in medication counselling.

Method: The study is part of the PharmAInteraction project, with the aim to co-design and iteratively test a robot application to be used in patient medication counselling in community pharmacies. Qualitative semi-structured interviews with an inductive approach were used to explore client perspectives on the pharmacy environment and patient integrity issues relevant in robot design. The social robot, named Furhat and developed by Furhat Robotics, was designed to enable the robot to provide medication counselling on emergency contraception. The counselling was in accordance with national requirements concerning this over-the-counter medicine which requires additional counselling to ensure medication safety. The interviews were conducted with potential clients, who met the social robot Furhat and received medication counselling about emergency contraception in a laboratory environment. The interview data was analysed with reflexive thematic analysis.

Results: Based on the analysis of the 15 interviews, the findings of the study highlight what clients find as important in protecting their integrity at pharmacies during medication counselling provided by a social robot. Three themes were found: The robot should be adapted according to 1) relevant laws and guidelines, 2) the social norms of the pharmacy, and 3) the physical environment of the pharmacy. Each theme consists of two sub-themes offering a detailed description of clients' perceptions on the current subject area using illustrative quotes. The study findings show that the robot must handle information correctly, not spread information voluntarily/involuntarily, not arouse feelings of shame in patients, be adapted to patients' interaction needs, be placed appropriately in terms of its sound level and the sound level must be adjustable by patients.

Conclusion: Potential clients express, that social robots in medication counselling need to be designed with patient integrity prioritised. Integrity preservation should be proactive, integrity should be a default setting and embedded in the design, the system should be transparent and user centred. These findings provide valuable insights for the future implementation of social robots in patient medication counselling. They highlight the importance of both pharmacy facilities and processes supporting the robot-assisted counselling and hence protecting patient integrity to maintain trust and confidentiality in this healthcare context.

In-use microbiological stability study of benzalkonium chloride stock solution for ophthalmic preparations

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Background: Atropine sulphate 1% eye drops are often used in the treatment of amblyopia. Lower concentrations (usually 0.01%) have shown to be efficient in delaying the onset and/or progression of myopia in children and young adults. Since no registered medicines at low concentrations are available, pharmacists are compelled to prepare this essential medication. These eye drops can be stored at room temperature during two months after preparation but can only be used during one month after opening. As it is a long-term treatment, pharmacists need to make this preparation frequently. Atropine sulphate eye drops 0.01% can be preserved with 0.005% benzalkonium chloride combined with 0.05% disodium edetate. In order to overcome the problem of weighing small quantities, a stock solution of 0.011% benzalkonium chloride and 0.111% disodium edetate is prepared. However, very few data are available regarding the shelf-life of this stock solution.

Objective: It is known that the chemical stability of this stock solution is high, but repeated removals and a residual microbiological risk, limit its shelf-life. The aim of our study was to investigate the microbiological stability of benzalkonium chloride stock solution in conditions mimicking its use in community pharmacies over a period of seven months.

Method: Five stock solutions were prepared: three for sterility analysis and two for the test of antimicrobial preservative effectiveness. All stock solutions were stored at room temperature during this study. Sampling for sterility testing was performed with clean non-sterile pipettes in non-aseptic conditions to mimic the sampling conditions in pharmacies. The membrane filtration method was performed using Steritest® Device with mixed cellulose esters filters. Ten mL of the benzalkonium chloride stock solution were filtered per membrane on the canisters and rinsed with validated rinsing fluid. Canisters were then filled with adequate media and incubated during 14 days as described in European Pharmacopeia. Sampling for efficacy of antimicrobial preservation test was performed in aseptic conditions using sterile materials. The test consists of challenging the preparation with a prescribed inoculum of suitable micro-organisms, samples are then withdrawn at specified time intervals and the organisms are counted. The preservative properties of the preparation are adequate if there is a significant fall or no increase in the number of micro-organisms after a defined incubation period. For the ophthalmic preparations the criteria for evaluation of antimicrobial activity are given in Ph. Eur. (5.1.3).

Results: Sterility was tested at 13 time points between T0 and T210 days for each stock solution. All samples complied with Ph. Eur. (2.6.1). Antimicrobial preservative effectiveness test was assayed after T91 and T210 days. All results were compliant to the B criteria as described in Ph. Eur. (5.1.3).

Conclusion: Microbiological stability of the benzalkonium chloride stock solution was confirmed during this in-use study. The results also demonstrated that the efficacy of antimicrobial preservation was not impaired by seven months storage. These data suggest that a longer shelf-life could be possible, allowing the pharmacists to store and reuse this preservative stock solution up to six months.

A simulation-based approach to expanding pharmacist roles

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Background: The expanding role of pharmacists, extending beyond traditional dispensing, necessitates that pharmacy education evolves to equip graduates with essential competencies. The Pharmacy Game, an interactive simulation-based learning model, immerses students in real-world pharmacy scenarios to enhance their clinical decision-making, communication skills, and leadership in patient-centred care.

Objective: This study aims to evaluate how simulation-based education can effectively integrate expanded pharmacist roles into training programs.

Method: A multi-institutional study was conducted across University of Groningen (UG), Leiden University Medical Centre (LUMC), Vilnius University (VU), University of Bath (UB), Vrije Universiteit Brussel (VUB), University of Oslo (UiO), and Ss. Cyril and Methodius University (UKIM)—during the 2024/2025 academic year. Using an online survey, we explored, 1) which evolving roles of the pharmacists were introduced in the courses using the Pharmacy Game educational model, 2) what kind of activities were students involved to simulate such roles and 3) how were students' performances assessed. Data collection and descriptive analysis were performed between January and March 2025.

Results: The study identified a range of evolving roles for pharmacists as implemented in the Pharmacy Game across multiple institutions worldwide. These roles included prescribing (UG, UB), deprescribing (VUB, UG), vaccination support (VUB, UiO), chronic disease management (VU, UG, UiO, VUB, LUMC, UB), medication reviews (VU, UG, VUB, LUMC), patient and physician counselling on medication use and optimisation (VU), smoking cessation consultations (VUB), screening for cardiovascular disease, diabetes, skin and breast cancer (VUB), and promoting environmental awareness (UKIM, UG, LUMC). At UG and UB students piloted pharmacist-led prescribing projects, such as designing a prescribing framework for uncomplicated urinary tract infections and developing implementation strategies (UG) or establishing a new prescribing service (UB). Students also engaged in virtual simulations, including physician consultations (VU), patient counselling in community pharmacies (VU), the use of patient group directions (UB), and promoting sustainable medication use through drug take-back systems, public awareness campaigns, and policy advocacy (UKIM). Additional simulations included telephone-based pharmacist consultations for the initiation of cardiovascular medications (UiO), managing blood pressure clinics (UB), administering infusion therapy in patients' homes (LUMC), and conducting structured annual consultations (UG, LUMC). These activities provided students with hands-on experience in patient-centred communication and care planning. Moreover, students participated in producing podcasts, TED-style talks, social media content (both static and video), educational videos, and infographics (VUB). Most institutions (UG, VU, UKIM, LUMC) used standardised assessment tools, published elsewhere, to evaluate students' communication and knowledge during simulations. At VUB and UB, student performance was assessed through presentations to external professional audiences and through bespoke assessment forms tailored to specific activities, respectively.

Conclusions: The integration of simulation-based learning, as exemplified by the Pharmacy Game, provides an effective educational approach for preparing future pharmacists for expanded professional roles. By immersing students in practical, interactive scenarios, this model aligns pharmacy education with contemporary healthcare needs, equipping graduates with the skills necessary to enhance patient care and contribute to evolving healthcare systems. Further research is needed to explore the long-term impact of simulation-based training on professional practice.

Community pharmacy review: what is being done, and what could be done better?

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Objective: The purpose of this review was to assess the pharmacist and pharmacy service and to identify opportunities to improve patient satisfaction.

Methods: Studies published between January 2006 and July 2016 examining patient satisfaction with pharmacy and pharmacist services, which were written in English, were

identified in PubMed. Studies were excluded if they only looked at pharmacy student-provided services.

Results: A total of 50 studies were ultimately included in the review. Of these studies, 28 examined services traditionally provided by community pharmacists such as dispensing and counseling, while 16 examined a new in-person service being offered by a pharmacy, and the remaining six involved a new technology-assisted service. While study findings were generally positive for patient satisfaction of pharmacy services, several opportunities were identified for pharmacies to improve.

Conclusion: Overall, patient satisfaction is high across pharmacy services; however, this satisfaction is related to prior patient exposure to services and their level of expectation. Pharmacists have multiple opportunities to improve the services they provide, and there are additional services pharmacists may consider offering to expand their role within the health care system.

Enhancing pharmacists' role in sexual and reproductive health: A Canada-Japan comparison and educational initiative

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Background: Sexual and reproductive health (SRH) services encompasses contraception, family planning, infertility services, maternal/perinatal health, sexually transmitted infections, and sexual health. Pharmacists are also increasingly recognised as providers of SRH services as one of the most accessible healthcare providers globally. In Japan, emergency contraception remains prescription-only, though more recently pharmacist provision of emergency contraception has been explored. This research aims to compare Canadian and Japanese pharmacists' attitudes toward SRH service provision, identifies learning needs, and develops professional development programs to enhance their role. The purpose is to report on the delivery and evaluation of an educational program designed to support pharmacists in Japan to provide SRH services, initially focusing on emergency contraception.

Method: The SRH workshop was developed by the research team and delivered in collaboration with the Japan Association of Community Pharmacy in Tokyo, Japan. The SRH Workshop focused on the knowledge and skill development including patient assessment, therapeutic decision making, and patient education. Pre-recorded videos were developed to introduce SRH, the basics of emergency contraception, patient assessment and patient counselling. Participants were asked to review pre-recorded videos prior to the workshop. A one-day workshop was delivered by the research team, including Canadian and Japanese presenters. The workshop included an overview of pharmacists' roles in SRH and roles of pharmacists in Canada and Japan, as well as case-based sessions focusing on assessment and counselling for emergency contraception. A pre and post evaluation survey was completed by the participants which included demographics, experience with contraception services, as well as attitudes and confidence with providing contraception services.

Results: Sixteen pharmacists attended the workshop on March 9, 2025. More than half had over ten years of experience, and 12 had previously attended a lecture on emergency contraception. Participants rated their satisfaction with the workshop highly. Pre- and post-workshop surveys showed a modest increase in willingness to provide contraceptive services, including emergency contraception. There was no difference in perceptions on pharmacist's role on advising on contraceptive options before and after the workshop. Notably, confidence in providing emergency contraception to patients from diverse backgrounds improved after the workshop. Participants appreciated the small group discussions using real patient cases. They also suggested that offering the workshop online would improve accessibility, allowing more pharmacists to benefit from the training.

Conclusion: The first phase of this study highlights the potential for professional development programs to enhance pharmacists' confidence in providing SRH services. The workshop in Japan was well received, with participants demonstrating increased willingness to offer contraceptive services and improved confidence in counselling diverse patients on emergency contraception. However, perceptions of pharmacists' role in contraceptive counselling remained unchanged, suggesting the need for ongoing education and policy discussions. The next phase of the project will be delivered as a SHR workshop in Canada focusing on contraception.

Exploring the relationship between self-reported SDOH and medication non-adherence amongst community pharmacy patients participating in a novel, digital health intervention.

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Background: Social determinants of health (SDOH) are non-medical factors impacting up to 90% of one's health. The United States prioritises addressing SDOH in the Healthy People 2030 campaign. The accessibility of community pharmacies makes them an optimal setting to address SDOH. A recent study examined the relationship between SDOH and medication adherence as reported by older adults with hypertension, hyperlipidemia, and/or diabetes in the National Health and Nutrition Examination Survey. This study showed significant associations between non-adherence and many structural SDOH (e.g., gender, ethnicity) and intermediary SDOH (e.g., alcohol consumption). In the team's prior work, patients from 12 community pharmacies spanning three states in the Midwest consented to participate in a novel digital health intervention. The intervention sought to identify medication non-adherence using patient-reported outcome (PRO) instruments to stimulate conversation between patients and their pharmacist. If non-adherence was identified on the Brief Medication Questionnaire (BMQ), the patient was prompted to answer a second PRO, the Merck Adherence Estimator, along with demographic and SDOH questions. Although this data was collected, the relationship between SDOH and self-reported adherence when collected in community pharmacies is not well understood, particularly in comparison to prior literature. The objective of this study was to explore the relationship between self-reported SDOH and self-reported non-adherence amongst community pharmacy patients participating in a novel, digital health intervention.

Method: This was a secondary analysis of data from the prior community pharmacy intervention. Independent variables include gender, race, ethnicity, burden of out-of-pocket expenses for medications, insurance type, highest level of education, alcohol use, tobacco use, prescription medication misuse, and illicit drug use. The dependent variable was Merck Adherence Estimator scores. Variables were dichotomised due to small sample sizes. Univariate chi-squared analyses were performed, and statistically significant variables ($p < 0.35$) were included in a logistic regression model. All statistical tests were conducted via SAS 9.4.

Results: A total of 37 patients were included. The variables included in the logistic regression model were burden of out-of-pocket expenses for medications (p = 0.27), type of insurance (p = 0.16), highest level of education (p = 0.34), and illicit drug use (p = 0.34). The model showed that none of the variables were significant predictors of indicating non-adherence; however, lower reported burden of out-of-pocket expenses for medications was trending towards significance (p = 0.09).

Conclusion: While not statistically significant, the relationship between reported out-of-pocket expense burden and non-adherence was unexpected and could be indicative of patients responding differently when answering these questions in a community pharmacy. Community pharmacists should potentially take this into consideration when assessing SDOH and/or medication non-adherence. Further exploration is necessary. Limitations include the small sample size, the validity of self-reported prescription instructions used when calculating scores on the BMQ, and self-report bias on the SDOH questions.

Empowering youth through education: A community-based approach to teen sexual risk prevention

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Background: Teen pregnancy and sexually transmitted infections (STIs) remain significant public health concerns, particularly in under-resourced communities. This project aimed to educate and mentor youth on sexual health and risk prevention through the implementation of the Promoting Health Among Teens! curriculum at two afterschool programs in a medically underserved area in Maryland. The initiative sought to increase knowledge of STI prevention, enhance perceived risks of risky behaviours, reduce unprotected sex, and delay sexual initiation among adolescents.

Methods: A 10-day, 20-hour educational and mentoring workshop series was conducted in-person at both sites, serving 50 youth (ages 12–18) and 10 adult facilitators. The Promoting Health Among Teens! curriculum utilised interactive learning techniques, including lectures, discussions, videos, and role-playing. Participants completed pre- and post-program surveys to assess changes in knowledge, attitudes, and behaviours related to sexual health.

Results: Survey data revealed a significant positive impact on youth decision-making and awareness. A majority of participants (over 80%) reported an increased likelihood of making safer choices regarding alcohol and tobacco use and avoiding risky sexual behaviours. The program effectively enhanced knowledge, with over 85% of youth indicating a stronger understanding of STI risks and pregnancy prevention. More than 75% of participants found the program sessions clear and informative, with discussions and activities reinforcing key concepts. Over 70% of participants expressed increased awareness of the social and emotional consequences of early sexual activity. The program also influenced risk perception, with a majority of youth recognising the potential consequences of unprotected sex, including unintended pregnancy and STI transmission.

Conclusion: This community-based initiative successfully enhanced adolescents' knowledge of sexual health and risk prevention while fostering a supportive and engaging learning environment. Findings suggest that structured, interactive education combined with mentorship can positively influence youth decision-making for sexual health. Future efforts should focus on expanding program reach and evaluating long-term behavioural outcomes.

Illuminate360: A culturally responsive approach to mental health and substance abuse education

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Background: Mental health and substance abuse remain critical public health concerns, particularly among Black, Indigenous, and People of Color (BIPOC) communities who face persistent disparities in access to care. Somerset County, Maryland, has been identified as a region with high suicide rates, significant tobacco use, and limited mental health services. The Illuminate360 project, led by a Historically Black College and University (HBCU), aims to bridge this gap by providing culturally relevant educational workshops, peer support networks, and case management services for those suffering from mental health and substance abuse. The program seeks to enhance knowledge, reduce stigma, and improve access to mental health resources for minority and underserved populations.

Methods: Illuminate360 consisted of a structured 10-week educational program focused on mental health and substance abuse awareness, followed by longitudinal peer support groups and case management follow-ups. The curriculum included culturally grounded discussions on mental wellness, stress management, substance use prevention, stigma reduction, and crisis intervention. Sessions were delivered by an inter-professional team of pharmacists, counsellors, and psychologists, with workshops held in both in-person and online formats to ensure accessibility. The program engaged participants through interactive learning, storytelling, role-playing, and wellness planning. Monthly peer mentoring sessions extended support beyond the workshops, fostering resilience and sustained behavioural changes. Program effectiveness was assessed through attendance records, participant surveys, and referrals to mental health services.

Results: To date, Illuminate360 has engaged 190 participants, with 58 individuals expressing interest in mental health services and receiving referrals for support. While retention challenges existed due to the twice-weekly session format, flexible online and in-person options improved participation rates. Among participants, 48 individuals demonstrated increased knowledge of mental health and substance abuse topics, while a similar number reported positive attitude shifts, including reduced stigma and enhanced coping strategies. Participants noted that their mental health concerns improved by the end of the Illuminate360 sessions. All participants expressed satisfaction with the mental health and substance abuse educational sessions along with the peer counselling program.

Conclusion: Illuminate360 highlights the importance of culturally tailored interventions in addressing mental health disparities in underrepresented communities. By combining education, mentorship, and case management, this program provides a sustainable model for improving mental health awareness, reducing stigma, and increasing access to care. Future efforts will focus on enhancing participant retention, expanding partnerships, and tracking long-term behavioural outcomes to ensure lasting impact.

A collaboration between pharmacy students and pharmaconomist students at Community Pharmacy

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Background: When pharmacy students and pharmaconomist students begin their placements at a community pharmacy as part of their education, they each have much to learn. At this stage, pharmacy students already have knowledge in human anatomy, physiology, pharmacology etc., while pharmaconomist students learn these subjects more gradually, alongside practical skills such as communication and customer service. These two groups usually do not collaborate during their placements at the community pharmacy. However, bringing them together, especially in the early stages of their training, may enrich their learning experience. Pharmacy students can contribute their knowledge in medications and pharmacology, while

pharmaconomist students can share their practical knowledge of communication and customer care.

Objective: The aim of this project is to investigate whether collaboration between pharmacy students and pharmaconomist students can enhance their learning by combining their different skills and knowledge, leading to a better understanding of community pharmacy practice.

Method: The supervisor for the pharmacy students and the supervisor for the pharmaconomist students collaboratively developed a set of physical dialogue cards for the students. Each card had a category on one side (e.g., "Communication and Customer Service" or "Pharmacology and Clinical Pharmacy"), while the other side presented a question or case for discussion, encouraging the students to apply their knowledge and experience. Two pharmacy students and two first-year pharmaconomist students were introduced to the concept, and all were excited to participate. The four students were gathered for several structured sessions, where they worked through the dialogue cards together. They were asked to take notes while answering the questions and discussing the cases, to later review their answers with the supervisor. Finally, they were asked to answer a questionnaire to evaluate the sessions.

Results: In the first two weeks of March 2025, both groups of students had their first session together. The feedback was overwhelmingly positive from both groups. The pharmacy students gained valuable insights into customer care, including customer communication and the four phases of dispensing. The pharmaconomist students enhanced their understanding of pharmacology, particularly pharmacokinetics (how the body processes medication) and pharmacodynamics (how medication affects the body). However, it's important to note that the project is still ongoing, and more results will be presented in the poster presentation.

Conclusion: The initial collaboration between pharmacy students and pharmaconomist students has proven to be a valuable educational experience for both groups. This collaboration highlights the potential benefits of combining theoretical and practical knowledge between the two groups, enriching their learning and enhancing their understanding of community pharmacy practice.

Pharmacist-led metabolic health monitoring for people living with mental illness: The patient and pharmacist experience

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Background: People living with mental illness have a high prevalence of metabolic complications (for example, metabolic syndrome), with rates as high as 32.5%. Metabolic syndrome (MetSyn) predisposes the individual to several complications, including cardiovascular events, and higher risk of extended hospital stays and premature death. Higher risk of MetSyn in this cohort can be attributed to various factors, including regular use of commonly prescribed medicines, specifically second-generation antipsychotics (SGAs) – which can further compound this risk. Global practice guidelines stipulate the need for individuals using SGAs to undergo regular metabolic monitoring. However, research has highlighted the discrepancies between guideline and practice, noting suboptimal metabolic monitoring in this cohort. As highly accessible and trusted health professionals, pharmacists can play a pivotal role. Currently, the role of community pharmacists in monitoring and improving physical health of people living with mental illness remains largely unexplored. Existing studies involving pharmacists have mostly been based within secondary and tertiary care settings such as outpatient clinics or hospital wards. Less is known about the potential role of community-based pharmacists in addressing this gap.

Objective: To explore participants' and pharmacists' perspectives and experiences with a community pharmacist-led physical health monitoring service for consumers with mental illness currently taking SGAs.

Method: Trained pharmacists in Australian community pharmacies participated in a service that provided longitudinal metabolic monitoring and lifestyle advice for individuals living with mental illness and taking SGAs (participants). The community pharmacist-led service involved up to five three-monthly face-to-face consultations with participants over a 12-month study period. Semi-structured interviews were conducted with participants and their pharmacists. Interview guides were developed using the RE-AIM framework and data were analysed using reflexive thematic analysis. Participant's satisfaction with the service

was measured using the validated Short Assessment of Patient Satisfaction (SAPS) tool.

Results: Eleven consumers and seven pharmacists participated in the interviews. The study identified three overarching themes, including (1) recruitment and participation, (2) feasibility of the service and, (3) participant outcomes. Most participants (n = 9) believed the service should be routinely available to all individuals living with a mental illness. More than half the participants (n = 6) either agreed or strongly agreed that the service encouraged them to talk to their doctors about their physical health. In general, participants frequently reported positive outcomes and perceived the service to be of value, with some highlighting the benefits to their wellbeing. The average patient satisfaction score was 25.1 (range 19 – 28), indicating a high level of patient satisfaction with the service. Pharmacists indicated that metabolic monitoring as part of a physical health check is within the scope of pharmacy practice and highlighted the need to ensure adequate remuneration to support the sustainability of this service. One notable challenge with the service included the organisation of follow-up appointments, which can result in additional administrative burden.

Conclusion: Feedback from participants and pharmacists showed that the service was well-received and valued. The study design supports the delivery of larger studies that could provide sufficient statistical power to explore the efficacy of the service.

Enhancing pharmacy employees' competence in injection pen administration to improve diabetes management and patient safety

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Background: Patient safety is a critical concern in diabetes management, particularly regarding the correct use and administration of injection pens. Medication errors, including incorrect dosing and improper injection techniques, can lead to severe consequences such as hypo- or hyperglycaemia. Pharmacy employees play a vital role in patient education and error prevention, through medication counselling at the pharmacy. However, gaps exist among pharmacy employees regarding the knowledge of correct use and administration of injection pens. Enhancing their competence through targeted training programs can improve patient outcomes, reduce medication errors, and ensure safer injections. By strengthening the role of pharmacy employees in diabetes care, healthcare systems can support better adherence, optimise therapy, and enhance overall patient safety. Not only pharmacies experience challenges in treating this type of patient, but also specialised centres, such as the Steno Diabetes Centre Copenhagen. In order to approach this subject, a unique collaboration between the pharmacies and Steno Diabetes Centre Copenhagen, for further understanding has been initiated.

Objective: The primary objective of this project is to enhance the knowledge and skills of pharmacy employees in the correct use and administration of injection pens for diabetes patients and for patients using GLP-1 analogues. This will be achieved through a comprehensive training program designed to improve patient safety by minimising medication errors such as incorrect dosing and improper injection techniques. We hypothesise that by training pharmacy employees with the necessary competencies and practical knowledge, the likelihood of injection-related errors will be reduced, leading to better patient outcomes, optimised diabetes management, and enhanced adherence to therapy. The project aims to bridge existing gaps in pharmacy employees' understanding, strengthen their role in diabetes care, and ultimately contribute to safer and more effective injection administration in diabetes patients.

Methods: A pre- and post-training study design will be used to assess the effectiveness of an e-learning training program for pharmacy employees. The training, developed by Steno Diabetes Centre in collaboration with Sønderbro and Glostrup community pharmacies, focuses on injection pen use, dosing accuracy, injection techniques, and error prevention. At first, pharmacy employees will complete a baseline questionnaire to assess their knowledge of injection pen administration and diabetes care. The e-learning program includes interactive modules, instructional videos, and knowledge checks, and is accessible to all participating employees online. Upon completing the program, employees will retake a similar questionnaire to evaluate improvements in their knowledge. Comparisons between pre- and post-training assessments will identify knowledge gains and areas requiring further attention.

Results: Initial feedback from few pharmacy employees is positive and detailed outcomes will be presented at the FIP World Congress.

Conclusion: This collaboration between the Steno Diabetes Centre and Sønderbro and Glostrup community pharmacies highlights the significant potential of targeted training in improving injection pen administration and patient safety. The project will also contribute to increased confidence in the advising role, job satisfaction, and skill enhancement among pharmacy employees. Finally the authors hope to inspire other pharmacies to implement similar training programs.

Communication with other healthcare professionals regarding dose dispensing

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Background: When the Danish PLO (General Practitioners' Organisation) and RTLN (Regional Salary and Tariff Board) reached an agreement in 2021 that municipal care staff and doctors should refer more patients for dose dispensing, the Pharmacy became curious about how this might develop in the future. In the municipality, efforts are being made to ensure that everyone, where possible, has their medication dose dispensed. This has also led to an increase in the number of dose rolls at the pharmacy, and we are not yet at our goal. Currently, Birkerød Pharmacy dispenses 638 dose rolls every 14 days. The increasing number of dose rolls also means that doctors, home care, and care home staff contact us more frequently. The pharmacy is contacted both via correspondence and by phone.

Objective: The aim is to investigate how many times a day we are contacted regarding dose dispensing, as well as who contacts us and how.

Method: The study was conducted by saving incoming correspondence messages and recording who calls, using a tally system. These data were collected over two periods of five days.

Results: During the two periods of five days, the pharmacy received 55 calls. These calls were distributed as follows: ten calls from doctors and hospitals, 20 calls from care staff, and 25 calls from private citizens and their relatives. Additionally, the pharmacy received 89 correspondence messages. These were distributed as follows: 41 from doctors and 48 from care homes and institutions. This results in an average of 14.5 inquiries per day regarding dose dispensing.

Conclusion: It can thus be concluded that the pharmacy receives many inquiries per day regarding dose dispensing. This means that more staff are needed at the pharmacy to handle these inquiries, and therefore more staff need to feel confident in managing dose dispensing at the pharmacy.

Facilitating pharmacist patient communication and assisting with identification of medication therapy problems using a novel digital health intervention

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Background: Medication therapy problems (MTPs) are a substantial problem with estimates of over 50% of patients taking a medication for a chronic condition experiencing at least one MTP. Community pharmacists are uniquely positioned to intervene on MTPs because of their accessibility and frequency of interaction with patients. However, pharmacists have incomplete data to identify potential MTPs. Traditional data sources available to pharmacists for determining MTPs (e.g., prescription fill data) only indicates that the patient is picking up their medications and does not indicate whether the patient is taking their medications correctly. and these data sources make it difficult for pharmacists to identity barriers to medication use. In our team's prior work, patients from 12 community pharmacies spanning three states in the Midwest were invited to trial a novel digital health intervention to reduce medication non-adherence. Patients answered medication adherence questions on an Android tablet located at the pharmacy, then the pharmacist used patient reported outcomes (PROs) to intervene and resolve MTPs, including medication adherence. PROs, including the Brief Medication Questionnaire and the Merck Adherence Estimator, were only given to patients who self-reported at least one of three chronic conditions: hypertension, hyperlipidemia or diabetes mellitus. All other patients were given the opportunity to use the tablet to update demographic data, complete a patient satisfaction survey and ask the pharmacist questions.

Objective: The purpose of this study is to characterise the types of MTPs found and actions taken to resolve MTPs by pharmacists using a novel digital health intervention.

Methods: This is a secondary analysis of existing data from a prior community pharmacy intervention. Pharmacists used the Medication Therapy Problems Category Framework developed by Pharmacy Quality Alliance to categorise MTPs. Descriptive statistics were computed using IBM SPSS 29.0.

Results: A total of 280 patients completed the digital intervention and pharmacists reviewed 250 (89%) patients' responses. Of the responses reviewed, pharmacists found at least one MTP in 66 (26%) patients. For patients who reported non-adherence, pharmacists found at least one MTP

in 23 out 47 (49%) patients. A total of 66 patients reported having at least one chronic condition and self-reported as adherent, 12 (20%) had at least one MTP. Pharmacists found at least one MTP in 31 in the remaining 137 patients (23%) who did not report having at least one chronic condition for which a medication was prescribed. Although most (36 of 66 MTPs, 55%) of the MTPs identified related to non-adherence, adverse drug events were identified in 19 (29%) patients. Other MTPs identified included effectiveness- needs additional monitoring (n = 3, 5%), safety- needs additional monitoring (n = 3, 5%), and cost (n = 8,5%). Regardless of whether an MTP was identified, pharmacists communicated the results of the intervention with 132 (47%) patients. They took at least one action with the patient or provider in response to a MTP in 43 (65%) of the patients.

Conclusion: A digital intervention allowing patients to self-report medication adherence and ask the pharmacist general questions was effective in prompting patient-pharmacist communication and leading to identification of MTPs.

Personal in a limited timeframe – person-centredness during counselling on non-prescription products

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Background: Person-centredness is important for strengthening customers' self-management skills with non-prescription products, thereby limiting the risk of harm and misuse. [1] Pharmacy employees need to consider the customer's prior knowledge when providing counselling. Customers, on the other hand, tend to prefer efficient encounters and may not recognise the importance of counselling [2, 3]. Furthermore, previous research has shown that pharmacy employees often provide generic information during non-prescription product counselling. [4] One way to examine person-centredness is by describing how the employees tailor their advice to the customer.

Objective: The objective is to explore cases of person-centreedness in non-prescription counselling in community pharmacies.

Method: A non-participant observation study was conducted in community pharmacies in the Oslo metropolitan area (Norway). [4] Product information was provided for 183 products, of which 73 product cases were deemed to be tailored to the customer's needs. These 73 cases were examined further, and a selection of best practices was analysed using reflexive thematic analysis.

Results: By proactively engaging the customer at the shelf before product selection, employees created a window for further dialogue. They showed curiosity and asked the customer specific questions. These questions concerned symptoms, duration of illness, and prior experiences, enabling employees to determine which information was essential to the customer. Furthermore, these employees frequently explained the rationale behind their advice. Despite short interactions and busy environments, they were able to focus on the customer and build trust.

Conclusion: Being proactive and curious about the customer increases the likelihood that pharmacy employees adopt a more person-centred approach when counselling on non-prescription products. This research is part of a larger project aimed at improving non-prescription counselling in community pharmacies. Person-centredness is an important aspect to consider in non-prescription counselling, as it fosters trust and empowers customers to make informed health decisions.

Investigation of the involvement and advisory role of pharmacists in patient pharmacotherapy management, a cross sectional study in Corinthia, Greece

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Background: According to the Hellenic Statistical Authority, in 2021, there were 10,400 pharmacies in Greece, with a ratio of 9.7 per 10,000 inhabitants. Community pharmacists serve as the final checkpoint before pharmacotherapy, yet their role in medication management remains unevaluated. Issues related to the management of patient pharmacotherapy impact both health and economic aspects and can contribute to morbidity or even mortality. However, no formal evaluation has been conducted regarding their involvement in pharmacotherapy management and their advisory role. This study aims to assess their contribution and the significance of their counselling role in patient pharmacotherapy management.

Objective: This research evaluates the involvement of pharmacists and their advisory role in the management of patient pharmacotherapy. Specifically, the study aims to assess the ability of community pharmacists to identify prescribing errors across various medication categories, including antibiotics, cardiovascular drugs, and polypharmacy cases. Furthermore, it examines the impact of pharmacists'

experience, training, and consultation time on error detection rates.

Methods: This cross-sectional study (June – October 2024) in 67 community pharmacies that voluntarily participated in Corinthia, Greece, used a simulated patient (SP) approach and a structured questionnaire. Three trained SPs presented standardised scenarios involving antibiotic misuse, cardiovascular drug interactions, and polypharmacy-related risks. Each simulated patient underwent rigorous training to ensure consistency in scenario presentation and uniformity in responses, thereby maintaining standardised assessments across all participating pharmacies. Pharmacists later complete a questionnaire assessing demographics, case studies (CS) in congruence with SP's scenarios and confidence in medication safety.

Results: Pharmacies are evenly distributed across the region, with 47% of participating pharmacists aged 36-45 years. A total of 30.8% reported 11 - 15 years of professional experience, while 29.2% had over 20 years. Most pharmacies (63.1%) operate with a single pharmacist, and 65.6% stated that medication errors rarely occur. Service time ranged from 2 to 20 minutes, with a mean of 7.76 minutes. Pharmacists' correct error identification rates at the scenarios compared to the CS were 14.71% Vs 27.94% (antibiotics), 47.82% vs 65.22% (cardiovascular interactions), and 6.35% vs 26.98% (polypharmacy). A paired t- test between real-time vs case study evaluations scored t = 2.12, p = 0.048. A significant correlation was found between service time and identifying incompatibilities (CS3: ρ = 0.429, $p < 0.001$, N = 58). Training interventions notably enhanced pharmacists' performance (Scenario 3: t = -5.350, $p < 0.001$). Most pharmacists (64-97%) were willing to provide counselling, though only 24.2% had additional training beyond their degree, but 88.9% attended professional development seminars. Notably, 95.2% of pharmacists supported their evaluation in pharmacotherapy management.

Conclusions: The findings highlight variations in pharmacists' ability to detect prescription errors and their willingness to provide information and counselling to patients. As key healthcare providers in pharmacotherapy management, pharmacists can significantly contribute to improving public health. However, their effective involvement necessitates continuous training, systematic support from the healthcare system, and the adoption of modern methods and practices to enhance their services.

Impact of the introduction of Generic Apixaban and Rivaroxaban: Case-study of a pharmacy in a suburban area of Lisbon, Portugal

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Background: The introduction of generic drugs into the pharmaceutical market has a significant impact on the sales of brand-name medications. Generics are more affordable versions of original drugs, containing the same active substance, dosage, and pharmaceutical form, being commercialised after the expiration of the reference drug's patent. Their primary advantage is the reduced cost, making them more accessible to consumers and healthcare systems, particularly in contexts where cost containment is a priority. When a brand-name drug loses patent exclusivity, the entry of generics typically leads to a decline in sales of the original product. This occurs because generics, being more cost-effective, capture a substantial market share, especially in healthcare systems that promote substitution with lower-cost alternatives. Additionally, competition among multiple generic manufacturers often drives prices down further, increasing pressure on the brand-name drug. In Portugal, the oral anticoagulants Eliquis® (apixaban) and Xarelto® (rivaroxaban) have been widely used for the prevention of thrombosis and embolism in patients with atrial fibrillation, among other indications. Until late 2023, when generic versions were introduced, both medications maintained a dominant market position.

Objective: This study aims to analyse the impact of the introduction of Eliquis® and Xarelto® generics on their sales on a pharmacy located in a suburban area of Lisbon, considering that the Portuguese healthcare system is highly regulated and actively promotes generic drug use as a cost-reduction strategy.

Method: Dispensing data for the active substances apixaban and rivaroxaban were obtained from the Sifarma® software of the pharmacy in study, covering the years 2023 and 2024. A comparison of the dispensing trends between generic apixaban and Eliquis®, as well as between generic rivaroxaban and Xarelto®, was performed regardless of dosage. To determine whether the differences in dispensing proportions were statistically significant, the Z-test or chi-square test (χ^2) was applied.

Results: Data analysis revealed that the total dispensed units of apixaban (both generic and Eliquis®) significantly increased by 18.34% between 2023 and 2024 ($p < 0.05$). Similarly, the total dispensing of rivaroxaban (both generic and Xarelto®) also showed a significant increase of 21.18% ($p < 0.05$) between the same two years. In 2023, 17 units of generic

apixaban and 321 of Eliquis® were dispensed. In 2024, the numbers shifted to 325 units of generic apixaban and 75 of Eliquis®, representing a 77% decline in Eliquis® dispensing in favour of its generic. This shift in dispensing trends was statistically significant ($p < 0.05$). Regarding rivaroxaban, 548 units of Xarelto® were dispensed in 2023. Following the introduction of its generic version in 2024, the number of Xarelto® units dispensed decreased by 43%. As observed for apixaban, these results indicate a significant market shift due to generic competition ($p < 0.05$).

Conclusion: The results demonstrate a significant market shift toward generics, probably driven by their cost-effectiveness, the regulatory environment promoting generic substitution and the confidence patients demonstrate towards generics (which is assured by their pharmacists' counselling). In conclusion, this study highlights the critical role of generics in reducing healthcare costs and expanding patient access to essential therapies.

Evaluating the role of targeted communication during the vaccination season in a suburban pharmacy in the Lisbon metropolitan area (Portugal)

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Background: The World Health Organisation (WHO) recommends a 75% vaccination rate for Flu and COVID-19 among individuals over 65. To achieve this, Portugal launched on September 20, 2024, its 2024/2025 Autumn-Winter Vaccination Campaign, providing free vaccinations (for the Flu for COVID-19) to those aged 60 to 84. The campaign expanded to include those aged 50 and above on December 17, 2024. The previous campaign (2023/2024), started on September 29, 2023, providing free vaccination to those aged above 60 and was extended in January 2024 to include people above 50. A pharmacy located in a suburban area of Lisbon participated in both vaccination campaigns. During the 2024/2025 campaign, the pharmacy used active communication strategies to boost vaccination rates, including SMS, email marketing and local flyer distribution.

Objective: The aim of this article is to analyse the application of communication strategies promoting Flu and COVID-19 vaccination services in the pharmacy in study during the 2024/2025 season and compare its results to the ones achieved during the 2023/2024 season when these strategies were not used.

Method: The study gathered anonymous data from the pharmacy on Flu and COVID-19 vaccinations administered between September 2023 and December 2024. Data from two vaccination campaigns (2023/2024 and 2024 /2025) was compared and the effect of external factors, such as changes in the health authorities' vaccination policies and an increase in the number of pharmacies participating in the campaign, was evaluated.

Results: In the pharmacy in study, during the 2023/2024 campaign, 963 vaccines (500 Flu and 463 COVID-19), were administered. In the 2024/2025 campaign, 1,011 vaccines (540 Flu and 454 COVID-19) were administered. There was a 3.22% increase in the overall vaccinations, with a 8% increase in Flu shots but a slight decline of 1.94% in COVID-19 vaccinations. In the overall vaccination numbers of other three pharmacies, which are part of the same Chain of the pharmacy in study, a significant decrease was registered (-26.73%) in the overall vaccine administration when comparing the two vaccination campaigns. This might have happened due to the fact the target audience for vaccination changed from one year to another, with the 2023/2024 campaign having a larger target audience for the service compared to 2024/2025.

Conclusions: Although there was a slight increase in the overall national Flu vaccinations in the 2024/2025 campaign (73.6% in 24/25 vs 72.8% in 23/24), Portugal did not reach the WHO's target of 75% vaccination coverage for people aged 65 and older. Despite the communication efforts by the pharmacy in study, the impact on vaccination uptake was apparently limited, as the increase in vaccinated individuals was modest (3.22%). However, while other pharmacies of the same chain registered a decline in vaccinations, the pharmacy in study reported an increase in the overall vaccination, meaning that it experienced a positive outcome despite the external factors (target audience for vaccination was smaller in 24/25 when compared to 23/24 and more pharmacies nationwide had the service available). The positive results of the pharmacy in study were achieved due to the targeted communication strategies applied.

Development of the one-stop smoking cessation service by community pharmacists under the universal health coverage scheme in Thailand

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Background: Tobacco and e-cigarette use rank among the leading causes of preventable mortality globally, contributing

to over eight million deaths annually. In Thailand, tobacco use accounts for approximately 80,000 deaths each year representing 18% of total mortality and imposes a substantial economic burden estimated at 352 billion Thai Baht annually. Community pharmacists are strategically positioned to play a pivotal role in smoking cessation, given their accessibility and trusted relationships within local communities. Through personalised counselling, medication management, and follow-up services, pharmacists can deliver impactful interventions. Recognising this potential, Thailand has introduced the One-Stop Smoking Cessation Service under the Universal Health Coverage (UHC) Scheme. Supported by the Pharmacy Council of Thailand, the National Health Security Office (NHSO), the Thai Health Promotion Foundation (ThaiHealth), this initiative seeks to enhance access to smoking cessation services and foster sustainable improvements in public health outcomes.

Method: The study adopted an action research design divided into three phases. Phase 1: A retrospective descriptive study was conducted using data collected between January 2023 and December 2024 from individuals aged 18 years and older who utilised pharmacist-led smoking cessation services. Data were sourced from community pharmacies nationwide, as well as two model pharmacies—one university-affiliated pharmacy and one independent pharmacy—both providing comprehensive services supported by ThaiHealth. Phase 2: The One-Stop Smoking Cessation Service model was developed for implementation in community pharmacies under the UHC framework. Phase 3: Outcomes of the service will be evaluated, and policy recommendations synthesised. This abstract presents results from Phases 1 and 2 only.

Results: In Phase 1, 995 individuals accessed cessation services over the two-year period. Of these, 89% were male, with a mean age of 40.4 years and an average smoking history of 30.6 pack-years. The majority exhibited low nicotine dependence (Fagerström score 0 – 3, 40.4%). Continuous abstinence rates at weeks 4, 8, 12, and 24 were 26.5%, 21.1%, 17.5%, and 8.7%, respectively. Average daily cigarette consumption declined from 16.5 to 6.1, while peak expiratory flow rate (PEFR) improved from 78.5% to 93.9%, and carbon monoxide (CO) levels decreased from 10.7 to 3.9 ppm. Although improvements were observed, these changes were not statistically significant. Phase 2 formalised a nationwide implementation model accessible to individuals of all ages under the UHC scheme. Participating pharmacies are required to obtain certification and complete standardised training. The service is structured around the 5A framework (Ask, Advise, Assess, Assist, Arrange), with counselling incorporating STAR (Set a quit date, tell family, anticipate challenges, remove tobacco products) and 5D (Delay, Deep breath, Drink water, Do something else, Destination) techniques. Interventions are documented via the A-MED/Telehealth platform, with reimbursement set at 180 THB per visit, up to eight visits annually.

Conclusion: The One-Stop Smoking Cessation Service underscores the essential role of community pharmacies in providing accessible, structured, and sustainable smoking cessation interventions within Thailand's Universal Health Coverage Scheme. By integrating pharmacist-led services into routine pharmacy practice, this model has the potential to significantly reduce tobacco use and the burden of NCDs at a national level.

Community Pharmacy-based common illness services under universal health coverage in Thailand: Outcomes and policy insights

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Background: Community pharmacy-based services for the management of common illnesses represent an innovative strategy under Thailand's Universal Health Coverage (UHC) scheme. Initiated by the National Health Security Office (NHSO), this program aims to alleviate overcrowding in public hospitals while expanding access to primary healthcare. The service was officially launched on November 1, 2022.

Objective: The objective of this study evaluates the outcomes of community pharmacy-based services for common illnesses and provides synthesised policy recommendations to enhance their effectiveness and sustainability.

Method: A mixed-methods approach was utilised, comprising:

1. A descriptive analysis of service utilisation and outcomes
2. Qualitative data collection via focus groups and interviews to assess user satisfaction, barriers, and success factors
3. Financial analysis to determine the program's break-even point
4. A synthesis of policy recommendations informed by the findings.

Results: Between December 1, 2022, and August 31, 2023, the program served 270,839 individuals, predominantly female (62.78%) with a mean age of 40.19 ± 22.15 years. Participation extended to 1,067 pharmacies across 71 provinces, achieving 92.21% national coverage. Common illnesses treated included fever, cough, and sore throat

(34.49%), joint and muscle pain (19.84%), and skin rashes (10.90%). Pharmacists provided behavioural counselling and risk-reduction advice to 6,882 individuals (2.54%) through 28,571 sessions, addressing risks such as dietary habits (32.96%), insufficient physical activity (23.51%), and insomnia (16.89%). Symptom severity scores significantly decreased from 5.69 ± 1.96 to 1.35 ± 1.67 ($p < 0.05$), with only 1.57% of cases requiring physician referrals. Medication dispensed averaged 2.25 ± 0.30 items per visit. Among the 1,037 survey respondents, 83.03% were patients and 16.97% were caregivers, with an overall satisfaction score of 4.76 ± 0.54 out of five. The break-even point was estimated at 282 visits/month (approximately 9.4 visits/day).

Conclusion: Community pharmacy-based services for common illnesses under Thailand's UHC scheme demonstrate significant benefits, including high public satisfaction, improved access to healthcare, and measurable health outcomes. These findings underscore the program's value both for patients and the pharmacy profession. Continued support and strategic policy expansion are crucial for sustaining and scaling this impactful initiative.

Illness perception in patients following the transfer of free-of-charge medicine dispensing from hospital to community pharmacy

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Background: Illness perception significantly influences how patients manage their condition, follow prescribed treatments and interact with healthcare providers. In Denmark, hospital pharmacies have traditionally been responsible for dispensing various free medications, but in the Greater Copenhagen area, this service is now being shifted to community pharmacies. While this change is known to enhance accessibility and convenience, the impact on patients' perception of their illness remains unexplored. Gaining a deeper understanding of how this transition affects illness perception can offer valuable insights into optimising healthcare services to better promote patient engagement, adherence to treatment and overall well-being.

Objective: This study aims to explore how the shift in medicine dispensing from secondary to primary care influences patients' illness perception. By assessing key aspects of illness perception, such as perceived severity, control, and emotional impact, the study explores whether this transition affects how patients view their condition. It is hypothesised that, at least, patients will perceive their illness as less severe when having medicine dispensed at a community pharmacy rather than at a hospital. Additionally, the study aims to identify areas where the free-of-charge dispensing service can be improved to enhance patients' experience, treatment outcomes, and overall satisfaction.

Methods: This study employs a mixed-methods approach, combining both quantitative and qualitative data collection techniques. Data is gathered through questionnaires and semi-structured interviews with patients. Pharmacy students undertaking their mandatory internship assist with data collection, administering questionnaires and conducting interviews, both at community pharmacies and hospital pharmacies in the capital region of Denmark. The quantitative data from the questionnaires are analysed using statistical methods to identify patterns and correlations in illness perception. The qualitative data from interviews undergo thematic analysis to uncover key themes and insights related to how the transfer of medicine dispensing affects patients' understanding of their condition.

Results: Preliminary data from the interviews highlights patients' strong understanding of both their illness and treatment, although the perception of illness severity shows only slight improvement. Nonetheless, patients generally express high satisfaction with the transition, citing human interaction, accessibility and the friendly demeanour of pharmacy employees as key factors in their positive experience. Several suggestions for improvements have been made, for example the ability to order the next batch of medicine directly at the pharmacy. Additional data from the interviews and full questionnaire results will be presented at the FIP World Congress 2025.

Conclusion: This project highlights the significant role that environmental factors, such as frequency of hospital visits, play in shaping illness perception. By gathering direct feedback from patients, it aims to inspire positive changes not only in the current transition of medicine dispensing, but also in the broader context of shifting more healthcare services from secondary to primary care, particularly community pharmacies, in the future.

Spain's map of pharmaceutical services

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Background: Pharmacists, being part of the Health System, share a mission with patients, doctors, other health professionals and health authorities to guarantee the safe, effective and efficient use of medicines. To this end, community pharmacies provide Clinical Professional

Pharmacy Services (CPPS) designed to improve the proper use and results of treatments to improve the patient's quality of life, as well as health promotion and disease prevention.

Objective: The aim of this initiative is the collection and categorisation of the CPPS provided by community pharmacies throughout the country. Highlighting the status of the initiatives within the framework of Pharmaceutical Care and Community Health that the pharmacy network is developing within regional, provincial and national programs to give visibility to CPPS.

Method: The General Pharmaceutical Council of Spain drew up a standardised template providing information on CPPS, name of the initiative, date, aims, number of pharmacies and patients participating and their remuneration. This was sent to every Provincial Pharmacy Chamber and Regional Pharmaceutical Councils in Spain to compile the information between July and September 2024.

Results: Over 400 initiatives were submitted. Only those initiatives that were already underway were chosen and they were all classified according to the CPPS classification of the Pharmaceutical Care Forum in Community Pharmacy (Foro AF-FC), a consensus group that defines and develops CPPS in Spain. We have developed two maps with an overall of 177 activities. The first map consists of 82 services related to the proper use and results of medication, such as therapeutic adherence programs, medication review or collaborative dispensing of hospital medication. Every pharmacy provides the Minor Ailment Service and the Medicines and Healthcare Products Dispensing Service, while the most widespread service is the Repackaging of Medicines using Personalised Dosing Systems, available in 16 regions (out of 17), and remunerated in 11. The second map contains 95 services involving 13 community health services focused on disease prevention and health promotion, where the harm prevention service including methadone programs shows the greatest development, currently present in 11 regions, followed by the screening service for different pathologies such as HIV, colorectal cancer or cognitive impairment.

Conclusion: The Pharmaceutical Services Map is an initiative that highlights community pharmacy's care work. It has been implemented to compile and classify all the pharmaceutical services currently provided by Spanish pharmacies. By continuously updating the maps, it will be possible to observe the expansion of pharmaceutical services and compare the evolution of community pharmacy in Spain.

The impact of annual price revision based on external reference pricing on medicines between 2012 and 2023, in Portugal

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Background: External Reference Pricing (ERP) is a widely used price control mechanism to inform decisions on pricing and coverage of pharmaceutical products. This approach involves referencing prices from one or several countries to establish a benchmark or reference price for the purpose of setting or negotiating the price of the medicine in a specific country. In Portugal, the Annual Price Revision (APR), based on ERP, has been one of the key pharmaceutical price regulation measures implemented since 1990 for the outpatient market (and since 2013 for the hospital market).

Objective: This study aims to evaluate the impact of the APR on branded medicines in the outpatient market in Portugal, between 2012 and 2023.

Methods: A retrospective longitudinal study with time series was conducted using national sell-out data for branded medicines from the outpatient market subject to the Annual Price Revisions between 2012 and 2023. Data was retrieved from a panel of over 82% of community pharmacies and extrapolated to the national level. The impact was measured based on two main outcomes: (i) the annual impact and (ii) the cumulative impact, both analysed at current and constant prices (adjusted for inflation). Both outcomes estimate the isolated effect of retail price variations resulting from changes in the maximum retail price. Additionally, the impact was assessed considering the inclusion of medicines in Homogeneous Groups (HGs) and according to payer segmentation.

Results: The annual impact ranged from a reduction of 128.4 million euros in 2012 (at constant prices) and an increase of 2.7 million euros in 2023. Overall, the present value of the total cumulative impact of the Annual Price Revision between

2012 and 2023 (sum of the years) amounted to 5,300 million euros, representing the direct income loss of the pharmaceutical sector. The impact of the APR was more significant in innovative medicines (not included in HGs), and revealed the greatest increase in this segment, reaching 81.7% in 2023. The stratified analysis by financing entity shows that the major effect of APR was observed on the reduction of public expenditure component, with public entities (National Health Services and Regional Health Services of Azores and Madeira) capturing 56.9% of the total price reductions.

Conclusion: The impact of the Annual Price Revision on branded medicines in the outpatient setting represented a cumulative market loss of 5,300 million euros over 12 years, in Portugal. Policymakers should carefully consider the complex trade-offs when implementing External Referencing Pricing systems, ensuring a balance between benefits and negative effects. This study provides a valuable contribution to the evaluation of price regulation measures based on ERP and can support decision-making by helping to identify and select specific criteria for future price revisions.

Bringing vaccination closer to home: Environmental gains from expanding the 2023/24 Immunisation to community pharmacies

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Background: Environmental sustainability is a growing concern across all sectors, including healthcare. The adoption of policies that reduce carbon footprint is essential to minimising environmental impact. In the 2023/24, the seasonal influenza and COVID-19 vaccination campaign was expanded to community pharmacies, ensuring free and equal access for individuals aged ≥ 60 years, similar to services provided in Primary Health Care Units. This measure aimed to improve accessibility and efficiency in vaccination campaigns while reducing unnecessary travel for at-risk populations.

Objective: This study assessed the environmental impact of this policy by analysing changes in CO_2 emissions due to shifts in population mobility to vaccination sites in 2023/24 compared to the previous year.

Methods: A prospective observational cohort study was conducted using telephone surveys (CATI) with a random sample of individuals aged ≥ 60 years. The first survey (n = 1,400) was conducted from September 22 to 29, 2023, and the second (n = 1,200) from January 25 to February 7, 2024. Data collected included vaccination status, vaccination site, transportation method, and travel distance (km). Total CO_2 emissions were estimated based on the proportion of vaccinated individuals, the percentage using cars or taxis, and the average round-trip distance to vaccination sites during both seasons. Emissions were calculated using an average of 122.1 g of CO_2/km (2019 EU data for new cars) and were compared with air travel CO_2 emissions.

Results: A significant shift in vaccination locations and transportation patterns was observed. In 2022/23, most participants were vaccinated in vaccination centres or primary care units (88.1%), whereas in 2023/24, 76.4% received their vaccine at a pharmacy. The proportion of individuals using cars or taxis to reach vaccination sites decreased from 69.0% in 2022/23 to 43.3% in 2023/24, while the percentage of those walking increased from 20.3% to 54.4%. The average travel distance slightly decreased from 8.1 km (SD = 8.9) in 2022/23 to 7.6 km (SD=7.4) in 2023/24. Estimated CO_2 emissions from car-based transportation dropped from 1,253 tons in 2022/23 to 739 tons in 2023/24, representing a 41% reduction (514 tons). This decrease is equivalent to the emissions produced by over 1,100 round-trip flights between Lisbon and Brussels (0.46 tons of CO_2 per flight).

Conclusion: These findings highlight the environmental benefits of integrating community pharmacies into vaccination programs. Bringing vaccination services closer to the population significantly reduced CO_2 emissions associated with travel. This study underscores the potential role of pharmacies in promoting both public health and environmental sustainability, supporting the inclusion of sustainability as a core consideration in future healthcare policies.

Preliminary results from the JunTOS research study: Improvement of pharmaceutical care in transplant patients

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Background: The advancement in Solid Organ Transplant (SOT) procedures, including immunosuppressant drugs, is one of the most important therapeutic achievements of the 20th century. However, various challenges are still pending, such as the high mortality, in which a lack of adherence and the risk of rejection play a crucial role. The JunTOS project resulted from a collaboration between the General Pharmaceutical Council of Spain and the Spanish Society of Hospital Pharmacy to ensure continuity of pharmaceutical care between healthcare levels. It has been designed to optimise the use of immunosuppressants in SOT, with special focus on adherence rates and patient education, through an improved coordination of pharmaceutical care among hospital and community pharmacists.

Objective: The aim is to develop a pilot research project to measure the effectiveness of an optimised pharmaceutical care pathway on immunosuppressants adherence rates in patients with SOT, while assessing the impact on medicine knowledge, quality of life and health outcomes.

Method: From July 2024, a prospective, longitudinal and observational investigation has been undertaken in two regions (Cantabria and Islas Baleares) and one province (Tenerife) in Spain, including so far three hospitals and 196 community pharmacies. Eligible patients must have undergone any solid organ and be using one or more immunosuppressant medicines. They will be allocated in two cohorts (1 - recently transplanted and 2 - transplanted > 18 months ago), for an individual follow-up of 18 months. In six-monthly visits, a series of questionnaires will be used to assess variables, such as the validated SMAQ for adherence, another for medicine knowledge or EQ-5D-5L scale for quality of life; ad hoc questionnaires were created for health outcomes and satisfaction. In every visit, pharmacists may display specific interventions to achieve research objectives, such as health education and the adherence clinical professional pharmacy service. A specific technological development of Nodofarma Asistencial is being used as electronic Case Report Form and communication tool for hospital and community pharmacists. Study protocol and all study materials were approved by Cantabria's Clinical Research Ethics Committee by June 2024.

Results: By 17th March, a total of 133 patients had been enrolled, 26 in cohort 1 and 107 in cohort 2, and 36 of them had already been enrolled for more than six months, thus completing the second study visit. The pre-specified intermediate analysis will be conducted with data collected as cut-off date 1st April, when half of the recruitment period (nine months in total) has been completed. A descriptive analysis of sociodemographic characteristics of patients together with preliminary results on adherence and other objectives will be presented in the subsequent poster during the FIP Congress.

Conclusion: JunTOS is an innovative project that has so far provided training and communication tools for professionals and patients. The results of our observational research will hopefully validate the hypothesis that continuous and optimised pharmaceutical care will lead to better adherence and clinical results in the use of immunosuppressants and, in turn, in the survival and quality of life of SOT patients, thus pointing to the future change in daily pharmaceutical practice.

Enhancing patient-centred counselling in Danish online pharmacies: Insights into preferences and the role of a counselling guide

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Background: Pharmaceutical care is evolving rapidly, with online pharmacies gaining momentum in Denmark, particularly after the COVID-19 pandemic. This growth underscores the need for effective digital counselling. While platforms like chat, email, and phone are now common in Danish pharmacy services, patient preferences regarding these methods remain under-researched both in Denmark and globally.

Objective: This study investigates patient preferences regarding counselling at Danish online pharmacies, with a focus on preferred communication channels and counselling content. It also evaluates the potential of a personalised counselling guide to enhance the patient experience.

Method: This study employed a mixed methods design to explore patient perspectives. An initial survey 1 (SP1) with 402 participants using alendronate or isotretinoin served as the basis for ten semi-structured interviews with women from this group. The interviews, lasting approximately 30 minutes, examined their counselling preferences and experiences. Insights were analysed thematically using NVIVO. A follow-up survey 2 (SP2) with 533 online pharmacy patients quantified the qualitative findings, investigating preferences for counselling format, content, and digital guidance tools.

Results: Patients exhibited diverse preferences for counselling formats. For example, some patients preferred physical counselling materials for easy reference, while others managing routine medication favoured email guidance for its convenience. The SP2 showed 51% of patients preferred physical counselling materials in the package, while 45% favoured email-based guidance. Furthermore, 84% preferred chatting with a human rather than a chatbot. Regarding content, patients prioritised guidance on proper medication use (75%), drug interactions (62%), and side effects (58%). A personalised counselling guide was considered particularly helpful for first-time users, with 73% of patients finding such a tool beneficial.

Conclusion: To ensure a more patient-centred approach, Danish online pharmacies should provide flexible counselling options that integrate written materials, digital solutions, and personal contact. A personalised counselling guide can enhance the individualisation of guidance, especially for first-time users, improving patient satisfaction and adherence.

Valuing the profession and role of community pharmacists: Insights from a cross-sectional study in Portugal

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Background: A key issue among developed countries is the shortage of healthcare professionals, as highlighted by the Bucharest Declaration, which calls for policies to attract, recruit, retain, and train these professionals. In Portugal, while the pharmacist-to-population ratio is favourable compared to other EU countries, community pharmacies still struggle with attracting and retaining talent. The Portuguese Association of Young Pharmacists (APJF) has been advocating for a unified strategy to enhance the professional, personal, and social development of community pharmacists.

Objective: To assess community pharmacists' perceptions of their working conditions and professional practice, as well as their satisfaction and perspectives on the pharmacy profession and the sector.

Methods: A survey was developed and then validated through an adapted eDelphi method. The final version consisted of 51 statements, mostly assessed using a 5-point Likert scale, and grouped into six main dimensions: Salary and Financial Recognition, Work-Life Balance, Employment Benefits, Professional Development, Practice Abroad, and Conditions for Professional Practice. The survey was distributed via email and through the social media platforms of APJF and other institutional partners. Descriptive analyses were conducted.

Results: A total of 1,226 professionals participated in the study, with 1,095 currently working in community pharmacy. Nearly half of the respondents (48.3%) are under 35 years old, and the majority (81.7%) identify as female; 54.1% have less than ten years of experience in community pharmacy, while 12.2% hold a specialisation in the field, and 53.2% serve as technical directors. Job satisfaction emerged as a significant concern, with 71% of community pharmacists dissatisfied with their current remuneration and 83% unhappy with career progression opportunities. Additionally, 70% feel their work schedules do not allow for a healthy balance between personal, professional, and family life. The most valued benefits identified by respondents include flexible working hours, schedule adjustments based on personal needs, and employee discounts. Regarding professional development, only 45% consider the training provided by their employer to be adequate. Despite these challenges, 74% feel their professional contributions are valued by the community. However, 30% have explored job opportunities abroad. Workplace conditions also raised concerns, with only 44% acknowledging the existence of a recognised quality improvement policy. Furthermore, 40% of pharmacists believe they cannot perform their duties without undue personal or commercial pressures.

Conclusion: With the growing concern over the shortage of healthcare professionals, it is crucial to assess the job satisfaction of community pharmacists. Our study reveals a concerning reality in Portugal, where most pharmacists are dissatisfied with their working conditions. In response to these findings, APJF will bring together key stakeholders across the country to sign a strategic agreement, ensuring a collective commitment to implementing a program aimed at retaining the essential talent and expertise of pharmacists within community pharmacies.

Enhancing professional collaboration among pharmacists in extended-hours pharmacies: Experiences from Glostrup Community Pharmacy

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Background: Glostrup Community Pharmacy, a high-traffic pharmacy, operates 18 hours a day (6:00 AM – 12:00 AM) year-round, with a diverse team comprising ten full-time pharmacists, five on-call pharmacists primarily employed in the pharmaceutical industry, 18 pharmacy technicians, and additional support staff. While this diverse workforce provides a strong foundation of expertise, the extended opening hours and solo shifts limit face-to-face interactions, creating challenges for professional collaboration and knowledge sharing. To address these challenges, the pharmacists at Glostrup Community Pharmacy have developed and implemented structured initiatives to enhance professional collaboration. These include the Professional Pharmacist Forum, regular pharmacist meetings, and optimised use of Microsoft Teams for asynchronous communication. This initiative aims to ensure high-quality professional support across all working hours, benefiting both pharmacists and the broader pharmacy team.

Objective: The purpose of this project is to evaluate the impact of structured professional sparring on team cohesion and professional confidence among pharmacists working in staggered shifts. The study investigates whether implementing targeted collaboration strategies improves knowledge sharing, decision-making, and overall professional support.

Methods: A mixed-method approach was used, consisting of:

- A quantitative questionnaire distributed to all pharmacists (full-time and on-call) to assess the perceived impact of professional sparring on team cohesion and confidence.
- Qualitative interviews with pharmacy technicians to explore their perspectives on whether pharmacist sparring enhances their professional support.

The initiatives examined include dedicated pharmacist meetings, structured knowledge-sharing sessions via the Professional Pharmacist Forum, and the use of Microsoft Teams for continuous communication.

Results: Preliminary findings indicate:

- Improved team cohesion and enhanced professional support, as reflected in positive feedback from participants.
- A structured framework for collaboration through the Professional Pharmacist Forum.
- Optimised use of Microsoft Teams for asynchronous knowledge sharing.
- Regular pharmacist meetings, contributing to clearer decision-making and greater uniformity in responses across the organisation.

Conclusion: Preliminary results suggest that structured professional sparring effectively addresses the challenges of limited face-to-face interaction in extended-hours pharmacies. The initiative fosters a stronger collaborative culture, improves knowledge retention, and enhances overall confidence in professional decision-making. Findings from this project will inform further development of communication and professional sparring initiatives within the pharmacy. By sharing these results at the FIP World Congress, we aim to inspire other pharmacies facing similar challenges to adopt similar strategies for enhancing collaboration and professional support.

Antimicrobial stewardship interventions involving community pharmacy teams: A scoping review

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Background: Antimicrobial stewardship (AMS) is defined by the World Health Organisation as “a coherent set of actions which promotes the responsible use of antimicrobials”. The importance of including pharmacists in AMS-related interventions from different practice settings is validated in the most recent statements of the International Pharmaceutical Federation (FIP), in which the necessity of mitigating AMR through AMS involving hospital and community pharmacists is emphasised. The involvement of community pharmacy (CP) teams in AMS-related interventions is further justified by the high consumption of antimicrobials in primary care. Despite this, CP teams are rarely considered as part of AMS activities. The aim of this scoping review is to synthesise the available evidence in relation to the current involvement of community pharmacists in AMS-related interventions involving CP team members.

Method: To ensure rigour, a systematic search followed the recommendations of the PRISMA-ScR and the protocol was registered with the Open Science Framework. The search was conducted in MEDLINE, IPA and CINAHL Complete. Studies published between 1999-2023 and in English were included and no geographical restrictions were made. Studies reporting AMS-related interventions, involving at least one CP team member and conducted in a CP setting were included. Study selection and data extraction were performed by two

independent reviewers. To describe the components of the different interventions, the Descriptive Elements of Pharmacist Intervention Characterisation Tool – version 2 (DEPICT-2) was adopted; barriers and facilitators for the implementation of the interventions were identified and mapped to the Consolidated Framework for Implementation Research (CFIR).

Results: Thirty-eight reports met the inclusion criteria. All the interventions were delivered by community pharmacists. Included interventions were mainly conducted in the United States (US) (n = 11, mostly focussed on Human Immunodeficiency Virus) and United Kingdom (UK) (n = 9, mostly focussed on respiratory tract infections). Pharmacists mainly obtained information for patient's assessment from patient interviews (n = 26) and point-of-care-testing (n = 15), providing patient counselling in 30 reports and referring to other healthcare professionals in 17. Most of the interventions provided service outcomes (n = 30), which were generally positive and led to medication and healthcare optimisation. Almost all the interventions were identified at the stage of evaluation (n = 20) or feasibility (n = 16), as described by the UK Medical Research Council guidance for developing and evaluating complex interventions. Only three interventions were underpinned by theory. The most common identified barrier for intervention implementation was the lack of and adequate remuneration (n = 10), with the easy accessibility of CPs representing the most frequently detected facilitator (n = 12).

Conclusion: The findings from this review show a variety of therapeutic areas in which community pharmacists can contribute to AMS, with different roles and generally positive service outcomes. Future research may need to be underpinned by theory to successfully implement into clinical practice, while also potentially focussing on clinical outcomes. The review emphasises the need to remunerate CPs for their involvement in AMS while highlighting the potential for expansion of easily accessible CP services.

Securing continuity of pharmaceutical care in the Netherlands

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Background: One of the major lessons learned during the COVID-pandemic is the importance of continuity of pharmaceutical care. The pandemic learned us also that the system of delivering pharmaceutical care and providing the right medicines at the right moment can also be fragile. Disruptions, not only those caused by a pandemic, can endanger the continuity of pharmaceutical. These disruptions can be caused by medicine shortages due to supply chain issues or recalls). But also major hacks of computer systems or damaged electricity networks can disturb or damage the information infrastructure. Pharmaceutical care depends on the expertise and experience of pharmacists and technicians, an epidemic or strikes can directly affect their availability. Finally, as experienced during the first year of the war Ukraine, refugees coming in a country or region will make an appeal to medical and pharmaceutical care. Whatever their cause, these events can be strictly locally, occur in a region or affect the whole country. Events can be short, a few hours or a day, or very much longer e.g. weeks or months. Pharmacists should be aware of their responsibility and take appropriate action to mitigate the consequences and to secure continuity or pharmaceutical care.

Objective: During (severe) disruptions or crises pharmacists and pharmacies can secure continuity of pharmaceutical care.

Method:

- Definition: developing a definition of a pharmaceutical emergency, defining what the scope should be of crisis management in pharmaceutical care.
- Awareness: creating awareness among individual pharmacists and regional organisations of potential disruptions which van affecting continuity of pharmaceutical care.
- Development of emergency and crisis management plans and providing a format for local and regional organisations as well as a National crisis communication plan.
- Collaboration: liaise with Regional Public Health Services and Regional Medical Emergency Preparedness and Planning and pharmacists representing their regionals organisations, collaborate with the National Civil Health Reserve, the Ministry of Health and the Ministry of Defence.

Results:

- Resources: A definition of pharmaceutical emergency care has been established. A proven concept for a regional crisis management plan is developed and made available. A National Crisis Management Plan for Continuity of Pharmaceutical Care has been agreed on by the board.
- Networks: Pharmacists participate in most local and regional Medical Emergency organisations. Membership of National Civil Health Service is open for pharmacists (practising/non-practising). Pharmacists are to be part of a national medical resilience scheme.

Conclusions: COVID pandemic raised awareness of potential risks for continuity of pharmaceutical care. It strengthened the role and responsibility of pharmacists. It also created awareness of other events which could affect severely continuity of pharmaceutical care. A coherent line up of available resources and access to networks enable

pharmacists in the Netherlands to prepare for disruptions and to mitigate effects on the continuity of pharmaceutical care.

The Evolution of Pharmaceutical Services in Brazil and the Role of Technological Platforms in the Standardisation, Compliance, Recording, and Traceability of Data

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Background: The transformation of pharmaceutical services in Brazil has been driven by professional regulations such as CFF Resolutions No. 585 and 586/2013, which recognise pharmacists' clinical responsibilities, as well as sanitary regulations including Anvisa RDCs No. 44/2009, 197/2017 and 786/2023, which established standards for the operation of pharmaceutical services in pharmacies, including vaccine administration and rapid diagnostic testing. Another important milestone was the enactment of Law 13.021/2014, recognising pharmacies as healthcare establishments. Technological platforms play a central role in the standardisation, compliance, recording and traceability of pharmaceutical services, ensuring clinical data security and integration into the patient journey. The Clinicarx Platform by Interplayers is the largest and most widely used pharmaceutical services platform in Brazil, operating as both a services platform and supervisory laboratory, and other services. Over its eight years of operation, Clinicarx has reached over 12,000 pharmacies and clinics in more than 1,470 municipalities, supporting the standardisation and monitoring of over 100 distinct health services and procedures.

Objective: To analyse the evolution of pharmaceutical services in Brazil and the role of technological platforms in managing clinical data. The study focuses on the expansion analysis of pharmaceutical consultations, rapid diagnostic testing, pharmaceutical prescribing and vaccination, with emphasis on traceability and regulatory compliance.

Method: The analysis is based on data extracted from the Clinicarx Platform and Clinicarx Annual Report 2024, which presents comparative indicators between 2024 and 2023 on the evolution of key pharmaceutical services recorded through the platform.

Results: Clinicarx registered more than 100 pharmaceutical services and procedures. According to Clinicarx's data lake, pharmaceutical services have grown significantly over the years. In 2023, recorded 10.9 million services, while in 2024 this number exceeded 14 million, representing a 28% increase. Among the most requested services, rapid diagnostic testing showed substantial growth. In 2024, dengue testing was a key highlight, with over 570,000 tests performed and a 24% positivity rate, representing a 41% increase compared to 2023. Vaccination services also saw notable growth. In 2023, 250,000 doses were recorded on the platform, rising to over 350,000 in 2024, a 40% increase. Pharmaceutical consultations and prescribing followed a similar upward trend, reaching 1.1 million records in 2024, a 37% increase compared to 2023. It is also important to highlight that during the COVID-19 pandemic, pharmacies conducted over 21 million rapid tests.

Conclusion: The evolution of pharmaceutical services in Brazil strengthens the integration of pharmacies within the healthcare system. Technology is essential for ensuring service quality, traceability and patient safety. The consistent growth of clinical services consolidates the pharmacist's role as a key healthcare provider. Considering the context of a country with over 220 million inhabitants and eight million square kilometres, marked by regional inequalities and barriers to healthcare access, the territorial capillarity of pharmacies represents a unique opportunity for healthcare delivery at scale. Strengthening these services enables wider care coverage, contributes to early diagnosis, and offers accessible and efficient solutions for millions of Brazilians, specially if driven by digitalisation, integration of data with national health systems, and strategic use of clinical data.

Challenges and opportunities in community pharmacists' role in chronic obstructive pulmonary disease management in Kosovo

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Background: Chronic obstructive pulmonary disease (COPD) is a prevalent and progressive respiratory condition that significantly impacts patients' quality of life. Effective management requires proper medication adherence, inhaler technique, and regular monitoring, where community pharmacists (CP) play a crucial role. However, CP face multiple challenges in delivering optimal care, and understanding these obstacles is essential for improving COPD management and enhancing CP-patient collaboration.

Objective: The aim of the study was to identify key challenges faced by CP in Kosovo in providing pharmaceutical care to COPD patients and explore possible solutions for improvement.

Method: A cross-sectional survey was conducted from September 3 to November 30, 2024, among CP in Kosovo. Using a structured questionnaire, responses were collected via Google Forms, including an open-ended question on barriers to providing pharmaceutical services in COPD management.

Results: Among 125 CP, 46% provided qualitative responses, which might be categorised into several groups.

a) Patient education and compliance:

- Many CP highlighted patient education as a challenge, citing a lack of knowledge about COPD, incorrect use of inhalers, and a lack of awareness of disease management.
- Non-adherence to therapy and medications was also a problem, with some patients not following prescribed treatments, discontinuing therapy without consultation, and not attending training sessions (e.g., "non-cooperation," "not taking inhalers," "discontinuing therapy").

b) Patient behaviour:

- Other challenges include lack of discipline, smoking, difficulty breathing, fear of punishment (e.g., "smoking", "patients not following advice", "fear of parking fines").

c) Communication and trust:

- Poor communication was observed between CP and patients, especially due to lack of trust and failure to listen to CP advice (e.g., "patients do not trust CP").
- Some responses highlighted the need for strengthening collaboration in the "physician-patient-CP triangle".

d) Systemic and structural barriers:

- There were comments on the lack of medicines, financial constraints, lack of dedicated staff and limited time for counselling (e.g., "lack of medication", "lack of staff", "limited time").
- Some respondents highlighted issues such as inconsistency, lack of continuity and frequent changes of community pharmacies (e.g., "changing pharmacies", "non-consecutive visits").
- One response highlighted the need for greater knowledge of CP, the importance of raising awareness of the role of CP in disease management (e.g., "campaign to raise awareness that community pharmacies are part of healthcare").

Conclusions: CP in Kosovo face significant challenges in COPD management, including patient non-adherence, poor disease awareness, communication barriers, and systemic constraints. Addressing these issues through targeted strategies can enhance CP engagement and improve patient outcomes. Possible solutions include educational sessions to improve inhaler adherence, trust-building through effective communication and ongoing follow-up, and public awareness campaigns highlighting the CP role in COPD care. Strengthening collaboration between CP, patients, and healthcare providers can further support adherence and disease management, ultimately enhancing the quality of pharmaceutical care and improving health outcomes for COPD patients.

Realtime visualising adherence in a public pharmacy setting: A call for insights

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Background: The rise in chronic therapies urges for an identification of patients in need of an improved adherence. However, no golden standard exists for identifying adherence ad hoc. With 4,500 pharmacies serving 11 million citizens, Belgian community pharmacists are well-positioned to play an important role in this obstacle for efficient therapy. However, pharmacists lack at present a powerful tool to identify and analyse the degree of adherence in polymedicated patients.

Objectives: This project explores the most realistic method to calculate adherence at the counter as a strategy to target patients at risk. By implementing audit and feedback mechanisms, we aim to equip pharmacists with a tool to address and analyse patients at risk at the moment of dispensing. This includes a graphic timeline indicating on which days a specific patient was able to continue his therapy.

Methods: A key innovation within this initiative is the development of a calculating method ad well as predefined restrictions in medication history, in order to present an accurate warning for adherence problems for an individual patient. We aim to disperse these principles and preconditions to all Belgian software providers through structured discussions with pharmacists and an international analysis of best practices.

Results: At present we conclude PDC "Proportions of Days Covered" is the only method to render a graphic result. Prerequisites for an adequate calculation are set to:

1. In practice, only adherence pattern during the last year is interesting but previous stock needs to be taken into account = 24 months of medication history but only 6 or 12 months adherence will be graphically shown on a timeline.
2. Only medication with a precise unit per package should be taken into account; no ophthalmics, no oral liquids.
3. Therapy is considered to be stopped if no therapy could be taken over the last 180 days.

4. All medicines are considered to be chronic due to a lack of differentiation, except antibiotics, pain relievers.
5. Only medicines with a known "units per day" are taken into account. Witch implicates an effort from the pharmacist.

Conclusions: especially the 5th prerequisite poses problems in a Belgian setting: few pharmacists encode the label on the box in a structured manner in order to capture "units per day". Besides this obstacle, we are eager to learn from the details of best practices around the pharmaceutical globe and welcome all insights of the community.

Development of easier-to-swallow liquid capsules for tablet-averse individuals

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Background: Some individuals have an aversion to swallowing solid oral medications, leading to possible medication avoidance and, in the case of over-the-counter (OTC) analgesics, preventing access to pain relief. Tablet-averse individuals may also manipulate tablets and capsules to aid swallowing, which may affect the efficacy of the medicine. In addition, healthcare professionals are likely to be less aware of these individuals, which has implications for health equity.

Objective: These studies were conducted to identify tablet-averse individuals, characterise their behaviours, and assess the ease of swallowing of mini-capsules versus currently marketed OTC alternatives.

Methods: A UK-based market research study, consisting of ten-minute quantitative online interviews, was conducted in 2019 and a consumer swallow-ability study at two non-healthcare sites was conducted in 2022. In the swallow-ability study, participants received placebo-containing liquid capsules equivalent in size to currently marketed ibuprofen 400 mg (16.9 × 10.3 mm) or ibuprofen 200 mg (14.6 × 8.5 mm) capsules, and corresponding novel mini-capsules (14.9 × 10.0 mm and 13.4 × 7.6 mm, respectively). Participants received either both sizes of the 400 mg capsule, or both sizes of the 200 mg capsule. Significance was assessed using a Pearson's Chi-squared test of independence. A further in vitro study on 30 of each mini-capsule was conducted to determine mean time to rupture.

Results: Market research study: of 858 adult participants (52% female) from across the UK, 38% reported difficulties with swallowing pain tablets/caplets, with 17% reporting frequent (10%) or very frequent (7%) difficulties. Overall, 14% of participants indicated pain medication avoidance due to tablet/caplet swallowing aversion, with 39% avoiding large tablets/caplets, 36% choosing the smallest they could find, and preferring alternative formats (21%). Even among those who found swallowing pain medication easy, 24% reported they 'did not like it very much'. Difficulties swallowing pain tablets/caplets were experienced most frequently in participants aged < 30 years, among whom 57% reported at least occasional difficulties when taking pain medication. In this population, 24% reported avoiding taking pain medication and 50% reported avoiding larger tablets/caplets. Overall, one-quarter of participants reported manipulating medication by splitting (12%), crushing (7%), or opening (6%) capsules. Swallow-ability study: among 400 participants (58% female; 56% aged 18 − 44 years, 44% aged 45 − 64 years) more rated the mini-capsules easy to swallow vs market-sized capsules (200 mg: 94% vs 90%; 400 mg: 85% vs 76% [$p < 0.05$]). Moreover, a greater proportion of participants 'liked the size and shape' of the mini-capsules compared with the corresponding market-sized capsules (200 mg: 50% vs 34% [$p < 0.05$]; 400 mg: 44% vs 28% [$p < 0.05$]). In vitro study: the mean rupture time for both the 400 mg and 200 mg mini-capsules was < 60 seconds.

Conclusion: The findings provide evidence of a subgroup of tablet-averse individuals with an unmet need for oral medication with improved swallow-ability to mitigate tablet manipulation or medication avoidance. Development of new forms of oral medication with improved swallow-ability, as observed with the novel mini-capsules, is one possible approach towards supporting these individuals to increase access to appropriate pain relief and improve health equity.

Factors associated with medication adherence among adults with asthma

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Background: Asthma is a chronic disease characterised by respiratory tract inflammation, airway obstruction, respiratory hyper-reactivity, and by episodes of exacerbation due to bronchial spasms, varying in duration and intensity. Asthma is a common chronic disease globally with around 300 million people affected worldwide, including both children and adults, posing a substantial financial burden on top of the detrimental effects on the health of individuals with asthma. Management of asthma is typically achieved through patient education and medical treatment. Asthma medication adherence is of crucial importance for successful disease management.

Objective: The aim of this study was to identify and rank factors associated with medication adherence among adults with asthma in the general population.

Method: This study used data on physician-diagnosed asthma, medication adherence, and factors associated with asthma medication adherence from the Danish General Suburban Population Study using a cross-sectional study design. The study also ranked factors associated with asthma medication adherence based on magnitude of odds ratios, and the population attributable fractions.

Results: Among 20,032 individuals from the general population, 1,128 (6%) suffered from asthma and 822 (73%) of these were adherent to asthma medications. Based on odds ratios, the three top ranked factors associated with asthma medication adherence were asthma attacks within the past year (4.0; 95% CI: 2.9-5.5), allergy medication use (3.8; 2.6-5.6), and age above median (3.4; 2.4-4.7), followed by asthma severity markers like airway obstruction, and coughing with mucus. Based on population attributable fractions, the three top-ranked factors associated with adherence to asthma medications were asthma attacks within the past year (70%), age above median (57%), and use of allergy medication (49%).

Conclusion: The study showed that in the general population recent asthma attacks, higher age, and taking allergy medication were the three most important factors associated with asthma medication adherence. The importance of maintaining adherence to asthma medications even in the absence of severe disease or expressed asthma symptoms should be better communicated to the general population.

Can the local Pharmacy play an important role in helping to treat late effects after cancer treatment

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Background: More and more patients are surviving cancer treatments compared to 25 years ago. This is, of course, a great success, but at the same time, it means that more people must live a normal life while dealing with the late effects of their cancer treatment. It is estimated that six out of ten cancer survivors experience late effects*. Due to this success, on January 15, 2025, the Danish National Board of Health presented a new plan for cancer treatment. One of the main focuses of this plan is addressing late effects. These late effects can be divided into two categories: complex late effects, which require further treatment at hospitals, and more common late effects, which could be managed at local pharmacies. Until now, cancer patients have rarely been seen at local pharmacies, as all cancer treatment takes place at hospitals. General practitioners are typically not involved in cancer treatment. As a result, patients are often left to manage these late effects on their own after completing their cancer treatment.

Objective: After completing cancer treatment, patients are often sent home and left to cope with late effects on their own. At local pharmacies in Denmark, as part of a "Healthcare service," we routinely offer "Medicine consultations" for patients who have recently been diagnosed with a chronic disease or for patients whom we recognise as having challenges in administering their medication correctly. If this study shows that there is a need to assist patients who have recently completed their cancer treatment in managing their late effects, then we at the pharmacy have the expertise to guide and assist these patients through a "Medicine consultation." The late effects of cancer treatment are numerous and include loss of appetite and subsequent weight loss, diarrhoea, fever, constipation, skin problems, oedema, hair loss, nausea and vomiting, oral issues, nail problems, nerve and muscle discomfort, sexual challenges, sleeping problems, fatigue, eye discomfort, and more—the list is long, and there is therefore a great need for assistance for these patients.

Method: To begin with, it will be necessary to assess cancer patients' needs for assistance at the pharmacy. A questionnaire will be presented at the pharmacy desk to determine whether patients require help in finding solutions for their late effects following cancer treatment. Data collection will take place from April to August 2025.

Results: Results will be presented at FIP25, Copenhagen.

Conclusion: The conclusion will be presented at FIP25, Copenhagen.

Empowering pharmacists for a digital future: Redefining patient care in retail pharmacy across India

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Background: The digitisation of healthcare is transforming patient care and pharmacy practice worldwide. India, with an estimated population of 1.46 billion as of March 2025, has over 1.25 million retail pharmacies, presenting a significant opportunity to enhance healthcare delivery through digital transformation. Maharashtra, one of the largest and most economically active states, has over 105,000 retail pharmacies, making it a strategic starting point for

implementing innovative pharmacy-based digital models. The Ayushman Bharat Digital Mission (ABDM) is driving India's transition to a connected healthcare system by improving access to health records and digital services.

Objective: This study explores the impact of digital integration in retail pharmacy, focusing on Maharashtra as a scalable model for improving patient care and pharmacist efficiency. It examines how digital tools, tele-health solutions, and AI-based platforms can empower pharmacists, improve patient adherence, and reduce medication errors.

Method: The study analysed Maharashtra's pharmacy network and evaluated the implementation of a dual-prescription model where both brand and generic names are listed on prescriptions. This model aimed to provide better clarity to patients and pharmacists, reduce dispensing errors, and support generic substitution where allowed. Pharmacist training programs, inventory management improvements, and patient engagement strategies were also assessed.

Results:

- Improved Patient Adherence: Adherence rates increased by 15% when both brand and generic names were listed on prescriptions, as patients better understood the medication's purpose and composition.
- Reduced Dispensing Errors: The dual-prescription model reduced dispensing errors by over 30%, as pharmacists could cross-reference the generic name with the brand name for accuracy.
- Enhanced Pharmacist-Patient Engagement: Pharmacists reported greater confidence in patient counselling and medication review, leading to better health literacy and patient satisfaction.
- Cost Savings and Affordability: Improved understanding of generic substitution enabled pharmacists to offer more affordable alternatives without compromising therapeutic outcomes.
- Operational Efficiency: AI-powered inventory systems improved medication availability and reduced stock-outs, increasing operational efficiency by 15%.

Conclusion: Digital integration in retail pharmacy is essential for improving healthcare delivery and patient outcomes. Maharashtra's pharmacy network serves as a model for other Indian states, demonstrating that combining digital tools with pharmacist training and dual-prescription models can enhance medication adherence, reduce errors, and increase affordability. Empowering pharmacists with digital platforms and AI-driven tools will transform pharmacies into key healthcare hubs, ensuring accessible and efficient patient care nationwide.

Pharmaceutical compounding in Portugal: A SWOT analysis of legal and regulatory frameworks

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Background: Pharmaceutical compounding is a fundamental practice for ensuring personalised treatments and mitigating medicine shortages. In Portugal, community pharmacies play a critical role in providing compounded medicines and third-party preparations to ensure the access to medicines for all and the continuity of care. However, the lack of definition of all requirements and the need for legislative updates create barriers that could impact the efficiency and safety of compounding practices.

Objective: This study aims a SWOT (Strengths, Weaknesses, Opportunities, and Threats) analysis of the regulatory and legal frameworks governing pharmaceutical compounding in Portugal, identifying key factors that influence the community pharmacies efficiency and compliance.

Methods: A qualitative approach was employed, drawing on insights gathered from the activity of the CIMPI – Pharmaceutical Compounding Information Centre. Data included semi-structured feedback from pharmacy professionals, a review of national and European legislation, and an assessment of regulatory guidelines issued by competent authorities. Additionally, the final analysis will incorporate insights collected at an upcoming meeting, which will bring together more than 60 pharmacists, providing a broader perspective.

Results:

Strengths:

- All pharmacies have legal authorisation to compound medicines, ensuring access to essential treatments.
- Flexibility in compounding allows adaptation to individual patient needs, particularly in paediatrics, geriatrics, and orphan diseases.
- The existence of Good Compounding Practices (GCP) guidelines provides a primary structured approach.
- Collaboration between pharmacists and prescribers facilitates tailored therapies for specific clinical needs.

Weaknesses:

- Inconsistent and fragmented regulations lead to uncertainty in compliance and enforcement.
- Lack of standardised training and certification for pharmacists in compounding practices.

- Insufficient oversight and regulatory clarity regarding the distinction between magistral (patient-specific) and officinal (stock preparations) compounding.
- Limited access to high-quality raw materials and active pharmaceutical ingredients (APIs) due to supply chain restrictions.

Opportunities:

- Alignment with other European countries compounding regulations to improve standardisation.
- Expansion of pharmacist training programs in advanced compounding techniques.
- Enhancement of collaboration between regulatory bodies, professional associations, and academic institutions to improve best practices.
- Technological advancements in compounding processes, such as automation and quality control innovations, to enhance precision and efficiency.

Threats:

- Patient safety risks due to potential variability in compounded medicines quality or pharmacokinetics profile.
- Increased regulatory scrutiny and potential restrictions on compounding practices at the European level.
- Competition with industrially manufactured pharmaceuticals, limiting the role of compounding in certain therapeutic areas.
- Economic pressures on pharmacies, making compliance with evolving regulations financially challenging.

Conclusions: The SWOT analysis provides a comprehensive assessment of the regulatory landscape for pharmaceutical compounding in Portugal. While the sector benefits from flexibility and patient-centred care, regulatory inconsistencies and lack of harmonisation present barriers to optimisation. Strengthening training programs, aligning national policies with other EU countries' standards, and enhancing collaboration among stakeholders. The legal framework needs to be updated based on evidence-based recommendations to ensure safer, more efficient compounding practices, ultimately improving patient care and public health outcomes.

Expanding the role of pharmacies in Portugal: New opportunities for intervention

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Background: Proximity and the reduction of access barriers are fundamental to achieve better health outcomes. Community pharmacies, as widely accessible healthcare providers, have been shown to reduce health inequities and improve citizens' access to essential treatments. Pre-exposure prophylaxis for HIV (PrEP) had been available in Portugal since 2018, but until July 2024, it was dispensed exclusively through hospital pharmacies within specialised consultations. Similarly, until February 2025, insulin pumps were only accessible through hospital treatment centres. These centralised models posed challenges to access, particularly due to difficulties in securing consultations and the logistical constraints of hospital-based care. Since the effectiveness of these treatments relies on timely access and adherence, expanding their availability became a critical step in improving health outcomes. To address these challenges, legislative changes enabled community pharmacies to dispense both PrEP and insulin pumps, aiming to improve patient access, reduce hospital burden, and streamline the dispensing process.

Objective: This study aims to describe the implementation of PrEP and insulin pump dispensing in community pharmacies in Portugal and present data on the evolution of dispensing patterns over time.

Method: Following legislative changes, all community pharmacies were authorised to dispense PrEP and insulin pumps without requiring additional registration. To support implementation, targeted training was provided to pharmacy professionals:

- An online training course on PrEP covered pharmacological aspects, patient counselling, and adherence strategies.
- An online informative session on insulin pump use was conducted, focusing on technical operation, troubleshooting, and patient education.
- A comprehensive document explaining insulin pump use was distributed to pharmacy professionals.

Additionally, information leaflets were developed to educate patients on both topics, and pharmacy information systems were adapted to accommodate the specific dispensing requirements of these treatments. Preliminary data on the number of units dispensed were collected from about 82% of community pharmacies across Portugal since July 2024. These data were analysed to assess trends in dispensing patterns over time.

Results: A total of 923 professionals participated in the PrEP training session, while 1177 attended the sessions on insulin pumps. From July 2024 to January 2025, a total of 466 PrEP units were dispensed across 148 community pharmacies in Portugal, with a steady increase in monthly dispensings. Starting in February 2025, 1414 insulin pumps and corresponding consumables were dispensed in 330 pharmacies. Like PrEP, a continuous rise in insulin pump dispensations has been observed.

Conclusion: The legislative changes have expanded the role of community pharmacies in healthcare delivery, marking a milestone in the decentralisation of services. These changes aim to enhance patient access, support adherence, and reduce workload on hospital care facilities. This development aligns with global trends recognising pharmacies as key players in primary healthcare. The steady increase in PrEP and insulin pump dispensings demonstrates growing acceptance of these services. Ongoing investment in training and support for pharmacy professionals is crucial for the sustainable and effective implementation of these services. These efforts aim to ensure the proper dispensing of both treatments, enhance pharmacists' confidence, and optimise patient care.

Forecasting pharmaceutical needs for 2023: A case study of CU Turgeau in the context of sustainable healthcare and collaborative innovation

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Background: The global healthcare landscape is rapidly evolving, with an increasing emphasis on sustainability, collaboration, and personalised care. Pharmacists play a pivotal role in ensuring the efficient use of resources, enhancing patient outcomes, and driving healthcare transformation. This abstract explores the forecasting of pharmaceutical needs for 2023 at CU Turgeau, a healthcare facility in Haiti, highlighting how sustainable practices, collaborative efforts, and personalised care can be integrated into pharmacy operations to improve healthcare delivery. The focus is on the development of a robust forecasting model that aligns with global health priorities and addresses local healthcare challenges.

Method: The forecasting process at CU Turgeau utilised historical data, current trends, and predictive analytics to estimate pharmaceutical needs for 2023. Data from the previous year, including patient demographics, disease prevalence, and medication usage, were analysed. The forecasting model incorporated variables such as seasonal disease patterns, population growth, and healthcare policy changes. The methodology also included consultations with healthcare providers, pharmacists, and supply chain experts to ensure accuracy and relevance. The forecast was structured around key therapeutic areas, including medicines, vaccines, medical kits, and laboratory consumables, with a focus on optimising resource allocation and minimising waste.

Results: The 2023 forecast for CU Turgeau identified significant demand for essential medicines, vaccines, and medical equipment. Key findings included a projected increase in the need for antibiotics, antimalarials, and therapeutic foods due to seasonal disease outbreaks and population growth. The forecast also highlighted the importance of sustainable practices, such as reducing pharmaceutical waste and improving supply chain efficiency. Collaboration efforts with local and international partners were identified as critical to meeting the forecasted demand. Additionally, the integration of personalised care into the forecasting model ensured that treatments were tailored to individual patient needs, improving overall healthcare outcomes. The forecast also emphasised the role of technological innovations, such as tele-pharmacy, in enhancing medication adherence and patient safety.

Conclusion: The pharmaceutical forecasting model developed for CU Turgeau in 2023 demonstrates the importance of integrating sustainability, collaboration, and personalised care into pharmacy operations. By leveraging historical data, predictive analytics, and stakeholder input, the forecast provides a comprehensive approach to meeting healthcare needs in a resource-constrained setting. The model not only addresses immediate pharmaceutical demands but also promotes long-term sustainability and efficiency. This approach serves as a valuable framework for other healthcare facilities aiming to improve resource allocation, enhance patient outcomes, and contribute to global health priorities. The findings underscore the critical role of pharmacists in driving healthcare transformation and ensuring the delivery of high-quality, patient-centred care.

Is it necessary to attach additional substitution labels to medication?

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Background: At Middelfart Pharmacy, there is a strong emphasis on sustainability and efforts to reduce environmental impact. However, additional substitution labels are printed at the pharmacy when a patient's preference differs from the prescribed medication listed on the prescription. These substitution labels contain the name of the prescribed medication, the name of the substituted medication, and the price difference between the two. The intention is to enhance compliance and service quality for the patient, ultimately leading to better health outcomes.

Objective: To evaluate whether substitution labels remain necessary and beneficial to patients, or if they can be eliminated as part of the pharmacy's sustainability strategy, without compromising compliance and service quality.

Method: This was investigated through an oral survey consisting of yes/no questions directed at patients receiving prescription medication, along with a separate survey for the pharmacy staff involved in medication dispensing. Responses were recorded immediately in an online survey to collect data, which will help determine whether the pharmacy can discontinue attaching substitution labels without affecting patient compliance or service quality. Patients in the oral survey answered the following three questions:

1. Do you notice the extra substitution label on your medicine?
2. Is the information on the substitution label clear and helpful for you?
3. Would you miss the substitution label if it were removed for sustainability reasons?

Result: So far, 262 patient responses have been collected, and the results are as follows:

1. Of the responses, 87% do not notice the substitution label.
2. A further 64.5% found the substitution label unclear and unhelpful.
3. A percentage of 88.5% would not miss the substitution label if it were removed.

The survey for the pharmacy staff is scheduled for distribution, with final results to be presented at FIP 2025.

Conclusion: Based on the results so far, the findings suggest that substitution labels can be removed without negatively impacting patient compliance or service quality. This supports the pharmacy's sustainability efforts while maintaining effective patient care.

Social media for health: Creative strategies to overcome flu vaccine hesitancy across generations

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Background: Social media has been linked to vaccine hesitancy (i.e., refusal of reception of vaccines). Survey and social media data has shown that younger age groups (< under age 18 years) are likely to be hesitant about receiving vaccines. Misinformation shared on social media can lead to a reduction in intention to receive vaccinations. Generation-Z (Gen-Z) has been shown to have negative opinions on vaccines, perhaps related to an amalgam of social media use and less acute concern about personal health. Gen-Z and Millennial groups prefer to use social media platforms to obtain health-related information. Thus, a series of short videos were produced to be shared on social media to address vaccine hesitancy issues related to the influenza vaccine.

Method: A series of creative and engaging videos were conceptualised, developed, produced, and posted on Instagram (IG) to address vaccine hesitancy issues related to the influenza vaccine. Target audiences were identified, scripts were written and reviewed, student volunteer actors were recruited, and then filmed and edited for IG. Storytelling techniques were utilised to create IG reel style format, filmed to be commercial-like or short film style videos. A pharmacist was prominently featured to help increase message credibility, trustworthiness, and reliability.

Results: During the Covid-19 pandemic, misinformation and distrust in healthcare resulted in an increase in vaccine hesitancy fuelled by the rapid spread of misinformation, especially through social media. Fact checking may lag behind the sharing of any information. A source of accurate information that is easily digestible, and enjoyable to watch could provide a benefit for viewers and help to quell vaccine hesitancy for those who source health information primarily from social media. Vaccine hesitancy and misinformation can lead to less reception of vaccines and can lead to outbreaks of communicable infections. Our vaccine videos reached more than 29,000 unique viewers including 16,211 accounts, 11,546 replays, 499 likes, and 54 shares to date of March 2025. Across all social media platforms, over 70,000 views were charted.

Conclusion: Utilisation of social media channels to disseminate accurate and relatable educational information

regarding influenza vaccination has great potential to assist with overcoming vaccine hesitancy and decreasing the spread of misinformation. Short video format can reach a large and inclusive target audience using creative storytelling techniques and organised thematically with thoughtful planning and review. In total, the combined use of video production and social media allowed the importance of vaccinations to accumulate to more than 70,000 people (views). In the future, we would like to evaluate the effect of these efforts on vaccine hesitancy and find out if these videos directly contributed to an increase in the uptake of influenza vaccinations and the uptake of other expanded immunisations.

Advancing pharmacy through soft skills: A key to performance, collaboration, and transformation

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Background: In the evolving global healthcare landscape, primary care systems face mounting challenges, with pharmacists expected to take on expanded roles in patient care. However, research indicates that many pharmacists remain reluctant to assume responsibility for therapy outcomes, while adverse events often stem from compromised practice standards, including gaps in knowledge, skills, working conditions, peer support, mentorship, and procedural frameworks. Soft skills, recognised through global regulations by the World Health Organisation, the International Labour Organisation, and the International Pharmaceutical Federation's Global Competency Framework, are increasingly essential for healthcare professionals. Yet, studies show that pharmacists often lack sufficient development in these competencies, further impacting their well-being, motivation, and patient outcomes.

Objective: The study aims to explore pharmacists' perspectives on the integration of soft skills into undergraduate, postgraduate, and continuing education programmes, addressing existing gaps and supporting professional development in pharmacy practice.

Method: The qualitative study employed a focus group methodology, engaging 25 community pharmacists across three groups. A semi-structured, previously validated guide was used to facilitate discussions, with data collected until thematic saturation was reached. Audio recordings were transcribed and systematically coded, allowing for the identification of key themes. Key discussion questions explored pharmacists' perspectives on integrating soft skills education into pharmacy curricula—whether they deemed it necessary and which specific topics should be included. Additionally, participants were asked to identify relevant themes for continuing professional education, preferred learning formats, and the potential impact of such training on their professional development and practice.

Results: All participants unanimously agreed on the necessity of incorporating soft skills development into pharmacy education. The most frequently identified codes included communication, personal responsibility, leadership empowerment, strengthening the identity of pharmacists as healthcare professionals, self-awareness, conflict management, and business skills. For undergraduate curricula, the key competencies highlighted were communication, teamwork, emotional intelligence, self-awareness, and business skills. In continuing professional development programs, participants emphasised the importance of human resource management, process and change management, critical thinking, leadership, resilience, risk and stress management, and inter-professional collaboration. Interactive, multidisciplinary workshops and a blended learning model, supported by professional organisations and institutions, were identified as the most effective training approaches. The potential impacts of such educational initiatives include pharmacist empowerment, preparedness for real-world practice and crises, improved organisational performance, and overall enhancement of pharmaceutical healthcare quality.

Conclusion: Soft skills are perceived as essential for pharmacists' performance, sustainable business practices, and healthcare resilience. Their inclusion in undergraduate, postgraduate, and professional education is key to preparing pharmacists for real-world practice and collaboration.

Optimising communication workflow between community pharmacies and municipal institutions

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Background: Danish society faces a growing challenge: an increasing number of citizens are requiring treatment while at the same time there is a shortage of healthcare professionals. Community pharmacies play a key role in primary healthcare, and one of the core pharmacy tasks is to supply medication to municipal institutions, which is time-consuming and resource-intensive. Pharmacies communicate with institutions physically, by phone, and electronically, but phone inquiries are often the most resource-intensive

method. Staff have observed that many calls from institutions are unnecessary and could be avoided through better use of existing communication solutions. As municipalities are also facing staff shortages, improving communication efficiency would not only reduce the workload on the pharmacies but also benefit institutions.

Objective: This study aims to examine the telephone inquiries between Sønderbro Pharmacy and institutions in Copenhagen and assess how communication can be optimised. The goal is to explore whether better utilisation of electronic systems can reduce telephone calls and create time savings. Furthermore, the potential for developing a healthcare service to support more efficient communication was evaluated.

Methods: This study is a quasi-experimental study using a mixed methods approach to optimise communication between pharmacies and institutions. The first phase established a baseline by mapping phone inquiries, categorising calls, and identifying those better suited for electronic handling. In the second phase, targeted interventions—such as actively promoting electronic communication with institutions—were implemented, followed by a reassessment of inquiry volume to measure impact. The third phase quantitatively analysed the time spent managing phone and electronic inquiries for both pharmacy and institutional staff, while also supplementing this data with qualitative observations for a more thorough understanding of the tasks involved.

Results: There is a significant optimisation potential for reducing phone calls between pharmacies and institutions, by more effectively utilising existing electronic solutions. The majority of calls could be handled by the institutional staff if they receive training in how to use IT systems more efficiently. While phone contact will still be necessary for complex or urgent situations, a greater focus on electronic systems can result in timesaving and streamlining work processes at both the pharmacy and the institutions. The study highlights the need for targeted training and systematic use of digital tools. Detailed outcomes will be presented at the FIP World Congress.

Conclusion: Large portion of the telephone inquiries from institutions to the pharmacy, could be optimised by using the existing electronic systems. Developing a healthcare service focusing on training institutional staff in how to use these systems is advisable. This will not only lead to timesaving and improved workflows but also a more efficient use of resources and a better communication structure between the pharmacy and the institutions.

Vaccination services in the Norwegian deregulated pharmacy market

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Background: The pharmacy sector in Norway operates within a deregulated market. There are 1,025 pharmacies, owned by three privately held and vertically integrated pharmacy chains, and 36 state-owned hospital pharmacies, all competing for patients and market share. Despite this competitive environment, there is strong willingness to collaborate on the development of national pharmacy health care services. The Norwegian pharmacy vaccination services serve as a prime example of such collaboration.

Objective: To support the governmental vaccination goals and make Norwegian pharmacies a natural provider of vaccination services.

Method: The Norwegian Pharmacy Association leads a working group dedicated to the development and implementation of vaccination services. This group convenes every three to four weeks, holding responsibility for both the content and maintenance of these services. The vaccination services adhere strictly to the guidelines provided by the Norwegian Institute for Public Health. A committee, comprising the professional directors of both the pharmacy chains and the hospital pharmacies, is tasked with approving the vaccination services.

Results: The working group is responsible for:

- Specifying the necessary competence for vaccinators and prescribers
- Developing training programs for vaccinators and prescribers
- Creating service manuals and procedures
- Deciding which vaccines are included in the vaccination services
- Developing fact sheets for each vaccine offered
- Designing certificates of competence

All resources related to vaccination services are made accessible via an intranet page available to all pharmacies. In 2017, the first vaccine doses were administered in pharmacies. By, 2024, 94 % of the pharmacies delivered vaccination services, resulting in the administration of a total of 400,000 vaccines. Currently, 40 vaccines, including both

live and non-live vaccines, are a part of the vaccination services.

Conclusion: Since 2017, Norwegian pharmacies have delivered national vaccination services developed by the pharmacy sector itself. This achievement is attributed to the willingness to collaborate despite competitive pressures. Through this initiative, the pharmacy sector ensures that all Norwegian pharmacies deliver vaccination services in a consistent manner, maintaining high-quality standards.

The role of pharmacists in public pharmacies in managing pharmaceutical waste

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Background: Pharmaceutical waste management is an important part of pharmaceutical practice, as it helps prevent negative environmental and human safety consequences. The pharmaceutical industry was identified as a significant environmental pollutant at the end of the last century. Until recently, pharmaceutical waste management focused on the proper collection, storage, and disposal of pharmaceutical waste. The newer concept is based on the waste hierarchy, which includes prevention, reuse, recycling, energy recovery, and disposal as the least desirable process. The primary goal is to reduce pharmaceutical waste. Pollution resulting from the pharmaceutical industry is mostly due to normal physiological excretion by humans and animals, which cannot be prevented, but efforts could be made to rationalise therapies, especially in the domain of polypharmacy and supplementation, which requires the involvement of pharmacists and collaboration with prescribing doctors. Other segments of the waste hierarchy are only occasionally applicable, but significant efforts are being made by the scientific community, regulatory bodies, and pharmaceutical companies (retesting expired batches, recycling secondary packaging, innovative solutions for pharmaceutical packaging). Waste disposal is a significant part of the competencies of pharmacists in public pharmacies, which includes knowledge of legal regulations, both local and international. It is crucial to understand and classify different types of pharmaceutical waste, proper storage, handling, and disposal. Additionally, educating the public about this issue and encouraging the return of unused medications to pharmacies (the most common model) is part of the pharmacist's competencies.

Objective: To explore the attitudes, role, and involvement of pharmacists in managing pharmaceutical waste in pharmacies.

Method: The research was conducted via an online survey in both the public and private sectors of the Republic of Serbia. The survey included demographic data, pharmacists' attitudes and knowledge, as well as questions related to practice.

Results: The disposal of pharmaceutical waste was clearly identified as a significant part of the pharmacist's work in the public sector. Existing barriers include insufficient awareness of its importance, inadequate knowledge, and lack of training. Transparency of data related to pharmaceutical waste is also one of the problems.

Conclusion: Although these competencies are officially recognised according to international standards, they seem to be somewhat underemphasised, even though they are of great importance for human life in general. Since a pharmacist is a top expert on medications and understands the entire life cycle of a drug, they should also be positioned as a top professional in this field.

The impact of eczema and unintended consequences of its management: Opportunities for pharmacists

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Background: Myths and misconceptions about health and medicine use have a profound impact on implementing best possible care and health outcomes. Addressing them requires a multidisciplinary approach and consumer-centred evidence-based resources accessible directly to consumers and through their health professionals. Funded by Australian Government grants, the Quality Use of Medicines (QUM) Alliance, a consortium of 16 consumer, health professional, education and research organisations, is collaborating on a series of national programs to improve the use of medicines. The first focus area is atopic dermatitis (eczema). Timely first-line management and foundational care are critical, however, misinformation and concerns about topical corticosteroids are common, leading to poorer adherence and outcomes. The QUM Alliance is addressing this through a multidisciplinary co-designed program to improve care and outcomes for people with eczema.

Objective: To demonstrate how a collective impact approach was used to develop and implement a national program to improve education and health literacy for eczema.

Methods: Steps included: (1) forming the consortium with agreed objectives and distributed responsibilities; (2) desktop and qualitative research and analysis to inform program design; (3) co-designing the program including key messages and strategy; (4) developing, testing and implementing interventions via consortium channels; (4) evaluation of uptake and impact of program.

Results: Desktop research and interviews with consumers, health professionals and key opinion leaders identified multiple challenges:

- An overwhelming range of treatment options for foundational and first-line care
- Misinformation and concerns about topical corticosteroids, contributed to by social media, leading to avoidance and poor outcomes
- Complex instructions and treatment regimens for patients to recall
- Conflicting information from dermatologists, GPs, nurses, pharmacists leaving consumers confuse
- Lack of quality time for patients with health professionals hindering ongoing management and understanding the impact of eczema on daily life and mental health.

Key program messages focus on early diagnosis, understanding impacts on daily life, person-centred approaches for foundations of care, step-wise approach for ongoing management, and use of management plans. Educational activities and resources were developed for health professionals in primary care including GPs, pharmacists, nurses or Aboriginal health workers/practitioners. For pharmacists practicing in community, general practice and Aboriginal health services, interventions included:

- Educational activities including train-the-trainer packages, webinars, on-line case studies, podcasts, peer group learning seminars and communication videos
- Point-of-care resources including a management algorithm and care plan to support shared decision-making, and improve the consistency of information and communication between health professionals and consumers
- Consumer resources including videos, factsheets, translated resources, resources developed for priority populations including First Nations and multicultural communities.

Early evaluation results show strong uptake by consumers and health professionals, as well as positive impacts on knowledge, confidence and practice for health professionals.

Conclusion: The consortium-based approach has provided a platform for developing a multidisciplinary national program to improve eczema care with pharmacist interventions aligned with the role of other health professionals while supporting consumer-centred model of care.

Impact of pharmacist-led home medication management on patient adherence and healthcare communication

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Background: The increasing prevalence of chronic diseases and polypharmacy poses significant risks to medication safety, leading to poor adherence and higher hospital readmission rates. Many elderly or mobility-impaired patients face difficulties accessing healthcare facilities, resulting in inadequate medication management. Pharmacist-led home care services aim to bridge this gap by providing medication counselling and optimising pharmacotherapy. This study evaluates the impact of pharmacist interventions on patient adherence, medication knowledge, and healthcare communication.

Objective: This study assesses the effectiveness of pharmacist-led home visits in improving medication adherence, patient understanding of drug use, and communication with physicians.

Method: Eligible patients were recruited by community pharmacists based on at least one of the following criteria:

- Diagnosis of two or more chronic diseases.
- Use of five or more prescribed medications.
- Possession of two or more chronic disease prescriptions.
- Poor treatment outcomes.
- Unclear medication usage or requiring urgent pharmacist intervention.
- Aged ≥ 50 years with financial or social vulnerability (e.g., low-income, disabled, or severely dependent individuals with official documentation).

Other criteria recognised by the Ministry of Health and Welfare for home-based pharmaceutical care. Pharmacists conducted monthly home visits (up to three times) to assess medication adherence, educate patients on proper medication use, and optimise treatment regimens when necessary. Patients were also guided on how to communicate more effectively with their physicians regarding their treatment plans. If needed, pharmacists provided medication therapy recommendations for physicians to consider.

Results: Improved medication adherence: Patients demonstrated better understanding of proper medication use. Enhanced patient knowledge: Patients became more

aware of medication precautions and potential interactions. Better patient-physician communication: Patients learned how to discuss medication concerns and treatment adjustments with their physicians more effectively. Pharmacist recommendations: When necessary, pharmacists provided therapy adjustments, such as dosage modifications, drug substitutions, or de-prescribing, which were submitted for physician review.

Conclusion: Pharmacist-led home visits significantly improved medication adherence, patient knowledge, and communication with healthcare providers. These findings highlight the need for structured home-based pharmaceutical services as a key component of chronic disease management. Future research should explore the cost-effectiveness and long-term impact of this model to support policy development and broader implementation.

Community pharmacist's role in insomnia management

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Background: Insomnia is a common sleep disorder that increases the risk of various health issues. Despite its significant impact, it is often under-recognised and inadequately treated. NICE guidelines suggest starting with non-pharmacological treatments, like sleep hygiene, for both acute and chronic insomnia. Cognitive behavioural therapy for insomnia (CBT-i) is the first-line treatment for chronic cases. However, pharmacological treatments are typically the primary therapies used in practice. This study examines the role of community pharmacists in managing insomnia.

Method: Semi-structured interviews were conducted with community pharmacists in Northeast England to explore their roles in managing insomnia cases. The data were analysed using thematic analysis.

Results: A total of 21 community pharmacists were interviewed. The results showed a gap in the practice, as community pharmacists did not adhere to the clinical guidelines in managing insomnia. Community pharmacists began by gathering patient information, with some offering sleep hygiene advice before considering over-the-counter sleep medications, while others provided over-the-counter products with or without sleep hygiene advice; complex cases were referred for further assessment. Participants were unaware of CBT-i, and no one recommended it for patients with insomnia. Numerous obstacles to effective insomnia management were identified, such as tendencies toward self-medication, a lack of understanding of pharmacists' roles, limited training for pharmacists, off-label prescribing practices, time constraints, insufficient remuneration, and the absence of screening tools and follow-up process procedures.

Conclusions: Insomnia management is suboptimal in community pharmacies. Insomnia is a multifaceted condition that cannot be effectively addressed only within community pharmacies. Collaboration among healthcare professionals is essential to enhancing patient outcomes. Additionally, community pharmacies should implement further sleep training and specific guidelines for managing insomnia.

Implementation of competency development for better handling of dose-dispensed medication at a local community pharmacy

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Background: Dose-dispensed medicine is growing rapidly in Denmark, as municipalities focus on improved safety and savings in working hours. Birkerød pharmacy have done a lot to help increase the number, and of course this means that Birkerød pharmacy are contacted by patients, nursing staff and doctors who have questions. Allerød nursing staff have a goal that 50% of the citizens who receive help with medicine are on dose-dispensed medicine. This shifts the workload from dispensing traditional preparations to dose-packaged medicine. Birkerød pharmacy don't pack it but handle the IT around it. In Danish pharmacies, there are traditionally very few employees who can handle the IT system for dose-dispensed medicine. This has also been the case at Birkerød pharmacy in the past. As dose-packed medicine is growing rapidly, it became very vulnerable, for example during holidays and illness. The management therefore wanted all skilled employees at the pharmacy to learn how to handle the IT system. Since dose-packed medicine typically runs in cycles of 14 days, there can be a long time between people coming into contact with the system. This makes the learning process difficult. Birkerød pharmacy have been working on the competency improvement for 1 year and have gained a number of new employees along the way, so there are very different levels of competency. At joint meetings the system was shown, there are written instructions that precisely describe the processes, and Birkerød pharmacy have worked with peer training. Since Birkerød pharmacy still have employees who need to be trained, the purpose of this project to investigate how best way to do it and how long it should take.No other pharmacy in Denmark has so many people who can handle the dose IT system, but that several pharmacies want to get started with a similar competency development.

Objective: To investigate how well the employees feel equipped to handle dosage-related expeditions and inquiries, how long it should be expected to take to learn the system,

and investigate how the employees experience the best way to learn the system.

Method: A questionnaire to skilled employees to answer about how they assess their abilities in dosage-related issues, how long they have been in training, and what they feel is the best way to learn it.

Results: There is no linear relationship between training period and self-assessed ability. Of course, there is a tendency for you to get better over time, but there are some who become really good with a very short learning period. They all say that peer training is the best way to learn. But that good instructions are also important.

Conclusion: Birkerød pharmacy must continue with peer training carried out by the best and continue to maintain the instructions. Make the staff believe in their own abilities. The management must also be clear that it is a requirement that staff receive a competency development in handling dose-packed medicine.

Enhancing outpatient medication safety through national medication safety reports: A case of biological medicines

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Background: Preventable medication errors in the outpatient medication management process reduce care effectiveness and increase costs. Community pharmacies can mitigate these errors through systemic medication risk management practices. Since September 2021, community pharmacies have introduced the HaiPro system, a patient safety incident reporting and learning system prevalent in the Finnish healthcare. To facilitate systematic and shared learning from outpatient medication safety incidents reported by Finnish community pharmacies, the Association of Finnish Pharmacies produces national medication safety reports (Valo Reports). The growing adoption of biologic therapies in outpatient care and up-taking the pharmacy-led substitution of subcutaneous biologics in Finland underscored the necessity for a Valo Report dedicated to this topic. As biologics differ from small-molecule medicines, special attention should be drawn in medication counselling procedures in collaborative practice to ensure medication safety.

Objective: The main purpose was to detect medication safety risks associated with biologics dispensed by Finnish community pharmacies. The secondary purpose was to prepare a Valo Report based on the findings.

Method: This is a retrospective study utilising registry-based HaiPro data. Incident reports related to biological medicines submitted by community pharmacies between September 2021 and July 2024 were included. The Anatomical Therapeutic Chemical (ATC) classification of active pharmaceutical ingredients (API) was used in the data inclusion. A descriptive quantitative analysis of incident types was performed with Microsoft Excel®. The open-ended descriptions of incident reports were used to define specific characteristics of error types related to the most frequently occurring APIs. Additionally, open-ended descriptions were anonymously included in the Valo Report to concretise central findings of the HaiPro data.

Results: In the study period, three percent of the medication safety incident reports (n = 959/32568) were related to biological medicines. Most incidents reported by community pharmacies were either prescribing (48%, n = 456/959) or dispensing (34%, n = 324/959) errors. Around a third of the prescription errors (36%, n = 166/456) and most dispensing errors (80%, n = 259/324) reached the patient. Major of both the prescribing and dispensing errors concerned either incorrect strength, dosage or administration device (including dosage form). The study data included 54 different APIs; the most concerning semaglutide and insulins (50%, n=484/959). Based on these findings, a Valo Report was published in December 2024. To support the implementation of the Valo Report, a launching webinar was organised for community pharmacies. According to a survey (February 2025) for medication safety pharmacists (n=277/643), this Valo Report had been utilised in 44% (n=116/277) of community pharmacies for developing safe practices.

Conclusions: Although a relatively small proportion of the HaiPro data includes biological medicines, particular attention is required due to the considerable ongoing reform. Community pharmacists are key in minimising unnecessary harm in outpatient care, as prescribing errors are often detected and corrected before they reach the patient. The Valo Report offers a concrete tool for sharing medication safety information at the national level. Furthermore, community pharmacies have found the Valo Reports a convenient resource for enhancing in-house safe practices, for example medication counselling, as well as encouraging collaborative medication safety work with other health and social care actors.

Evaluation of a newly developed elective course on inter-professional collaboration in pharmacy technician education

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Background: Inter-professional education of health care professionals has been proposed as a strategy to enhance collaborative practice. A Danish study from 2022 that evaluates an inter-professional programme showed that pharmacy technician students benefit from participating in inter-professional programmes. The evaluation showed, however, that their involvement should be more integrated to ensure more active participation. With that in mind, an elective course on inter-professional collaboration in pharmacy technician education was developed in collaboration between the Danish College of Pharmacy Technicians and University College Copenhagen.

Objective: To evaluate the students' satisfaction and outcome of the elective course on inter-professional collaboration.

Method: Fifty-five students studying one of the following professions attended: pharmacy technicians, nurses, social workers, psychomotor therapists, physiotherapists and social educators. They were all invited to fill in a questionnaire during the first and the last sessions of the course. The questionnaire included the Readiness for Inter-professional Learning Scale (RIPLS), learning objectives, insights into own and other students' work areas, other outcomes and satisfaction. Questions allowing students to elaborate on their learning and satisfaction were added at the endpoint. To further explore the questionnaire results, a focus group interview and two individual interviews with students were conducted, recorded and transcribed. The data will be analysed in NVivo R1.

Results: Fifty-three (96 %) students with an average age of 28 years, mostly women (77 %), filled in the questionnaire at baseline. They were from the following educational programmes: Twelve pharmacy technicians (23 %), 19 nurses (36 %), seven social workers (13 %), eight psychomotor therapists (15 %), and seven physiotherapists (13 %). At baseline the students responded "not at all" or "to a lesser extent" when asked if they had insight into the work area of pharmacy technicians (28.3 %), nurses (18.1 %), social workers (33.9 %), psychomotor therapists (73.5 %), physiotherapists (14.9 %) and social educators (9.5 %). Forty-five (82 %) students with an average age of 28 years, mostly women (78 %), filled in the questionnaire at endpoint. They were from the following educational programmes: Nine pharmacy technicians (20 %), 16 nurses (36 %), seven social workers (16 %), five psychomotor therapists (11 %), four physiotherapists (9 %) and four social educators (9 %). At the endpoint, students responded "not at all" or "to a lesser extent" when asked if they had insight into the work area of pharmacy technicians (11.1 %), nurses (11.1 %), social workers (13.4 %), psychomotor therapists (44.4 %), physiotherapists (13.4 %) and social educators (26.6 %). The students elaborated that they had gained some insight into their own and other groups' work areas but felt that the course did not clearly show how the different professions complement each other. The insight was gained through communication and problem-solving in the inter-professional groups, which highlighted how each profession can contribute.

Conclusion: The preliminary results show that the students have gained greater insight into their own and each other's work areas. The conclusions drawn from this study will be detailed at the FIP Congress.

Available evidence on formal recognition and implementation of advanced-level practices in community pharmacy: a scoping review

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Background: Advanced-level community pharmacists have been promoted as essential contributors to achieving Universal Health Coverage (UHC) by expanding patient access to health services. Formal recognition has been identified as one of the key facilitators to strengthen advanced practices. However, evidence synthesis on advanced pharmacists and their practices in community pharmacy remains limited, hindering further essential research to fill existing gaps. This review aims to systematically explore available evidence on the formal recognition and implementation of advanced-level practices in community pharmacy.

Method: This scoping review followed the JBI Manual for Evidence Synthesis and was registered on the Open Sciences Framework. The definition of advanced-level practice was developed based on the FIP Global Advanced Development Framework. Formal recognition was defined as post-registration specific licensing, accreditation, or certification by authorised bodies. A comprehensive search was

conducted across 12 databases and Google Scholar, including published studies and grey literature. Primary studies, theses/dissertations, and healthcare reports published between 2004-2024 were included, with no restrictions on country or language. Data extraction was structured using the PEPPA-Plus framework, which is widely applied in evaluating advanced nursing implementation. Key findings were thematically analysed using NVivo 14.

Results: Sixty-three reports were included, primarily surveys (n = 29) and semi-structured interview studies (n = 11). All studies were conducted in high-income countries, predominantly in North America (Canada 18, United States 16) and Australia/New Zealand (11/7). Most studies focused on the personal-professional characteristics of advanced pharmacists (n = 28) and evaluated quality of care (n = 13) and patient-family (n = 12) outcomes. Formal recognition of advanced-level practices in community pharmacy mostly involved prescribing, vaccination, and medication reviews. While these practices were implemented within different frameworks, they were found to improve patient health outcomes and faced common challenges, including lack of reimbursement, limited pharmacist time, insufficient employer support, restricted access to patient records, and low stakeholder awareness. Key facilitators included formal recognition of advanced pharmacists, good relationships with physicians, and effective service promotion.

Conclusion: There is limited high-level evidence on the formal recognition and implementation of advanced community pharmacy practices. Further studies in high-income countries should focus on other outcomes, such as economics or sustainability evaluation. More formal recognition of advanced pharmacists in community pharmacy should be conducted in low-middle-income countries.

The Danish network for community pharmacy practice research and development

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Background: Denmark has a long tradition for research and development of community pharmacy practice. For decades, a variety of community pharmacy studies have been running at both national and local levels but sharing knowledge and providing support can be difficult and time-consuming. For this reason, The Danish Network for Community Pharmacy Practice Research and Development was established in September 2016. The network assists Danish pharmacies in developing pharmacy for the benefit of citizens and society.

Objective: The purpose of the network is to support research and development in community pharmacy through a structured collaboration between researchers and community pharmacies.

Method: The network comprises 90 pharmacy owners as members, representing 289 out of 527 community pharmacies, which accounts for 55% of all community pharmacies in Denmark. The three institutions in pharmacy practice research in Denmark, including University of Southern Denmark, University of Copenhagen and The Danish College of Pharmacy Practice, are also represented. The steering committee consists of four members from community pharmacies and three researchers from the three pharmacy practice research institutions. The steering group arranges monthly online meetings where members of the network can present their project ideas. Researchers qualify these project ideas from the community pharmacies, which validates the projects and provides support on project design and methods. Likewise, community pharmacies qualify project ideas from researchers, so the projects become relevant for patients and community pharmacies. In later project stages, support from the steering committee is provided on how to publish results in reports, posters, scientific papers, etc.

Results: Currently, the following eight projects are running under the auspices of the network, some of which will be presented on the poster:

1. Exploring Onboarding in the Community Pharmacy Sector: A Holistic Approach to Well-being and Attachment
2. Dosage and Perceived Effects of Wegovy Among Users in Denmark
3. My Daily Life at the Pharmacy – A Qualitative Exploration of Daily Life at the Pharmacy
4. Opioid Users' Knowledge and Experience of Fall Risk Associated with Opioid Use: A Pharmacy-Based Questionnaire Study
5. Elderly Citizens' Understanding of Medication and Communication with Their GP About Medication
6. Working Together on the Community Pharmacy's Core Task
7. Retention of Pharmacists in the Community Pharmacy Sector
8. Attitudes among pharmacy staff towards research in the Danish community pharmacy setting

Since 2016, 49 projects have been finalised, and results are published through: eight posters at international

conferences, one poster at a national conference, nine videos/webinars, 17 reports, eight articles in national professional journals, 15 scientific papers.

Conclusion: The network supports knowledge sharing on pharmacy practice research in Denmark, with a strong focus on evidence-based development of community pharmacy in Denmark.

How to present the results of your research with a good poster?

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Background: FIP is a congress where practitioners as well as researchers from all over the world meet to discuss and share knowledge. This is often done through sharing projects. Therefore, they present the results of their projects in the form of a poster and may need sparring and support. We have, since 2015 supported the production of 50+ posters, from practitioners and researchers in Pharmacy.

Objective: The purpose of the poster is to share knowledge on how to build a good poster to present projects and results.

Method: Pharmakon has held the following workshops and webinars every year for six years and hereby guided pharmacy staff and researchers to become sharp in their presentation of results on posters for FIP congresses.

1. How do you create a good project?
2. How do you submit an abstract?
3. How do you create a poster?
4. How do you present a poster?

We will present the structure we are using and then, based on feedback from practitioners, we have developed recommendations on how to create an engaging poster. We have helped with the text and the visual presentation of the results. We have created layout, such as graphs and figures to show the results. We helped with photographs and illustrations to catch the eye of the audience, created handouts and QR codes, and offered proofreading.

Results: We have helped create posters for a total of 43 pharmacy staff and researchers and thus contributed to presenting results from Danish community pharmacy projects on more than 50 posters at ten FIP congresses. Recommendations for a good and engaging poster:

- Clear and engaging title and headline Clear structure and logical reading direction
- Easy and understandable language (avoid abbreviations and difficult words/sentences)
- Text that is easy to read from a distance and, not too much (for the interested reader)
- A self-explanatory visual presentation of the project and results (figures, illustrations, images, text bubbles, QR codes)
- Images (rights and consents, colours, relevance to the project, quality)
- Colour choices in text and figures (consider the meaning of colours) Contact information Help the audience taking the results back home (email, QR code to email or link to website or LinkedIn profiles)

Typical topics in the production of the poster:

1. What elements should be on a poster?
2. How much text?
3. How do I fit in all my data?
4. What visual aids suit my results?
5. What format should it have?
6. Questions about printing.
7. How should I present my poster?

Conclusion: Pharmakon supports pharmacy staff through workshops, webinars, and ongoing guidance who have not previously had to present their results to an international audience. Through individualised sparring and help, it is ensured that their project results are presented on an engaging poster. Giving pharmacy staff and researchers an opportunity for sparring about presenting their project results helps spread their research results internationally, and high-quality presentation is ensured through individualised support and collaboration. We are very proud to say that we have even had a couple of nominees to awards among the produced posters through the years.

What is important for the patient in online and telephone counselling? A literature review

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Background: In recent years, especially during the COVID-19 pandemic, much communication between patients and health care professionals has transitioned to online platforms such as Skype, Teams or via phone or email. This trend has continued, as both patients and health care professionals have found the platforms to be effective communication tools in certain cases. In 2019-2020, Pharmakon conducted a

literature review on how the relationship between patients and health care professionals is affected by using online communication platforms. The review showed that these platforms impact the interaction between patients and health care professionals both positively and negatively, highlighting the importance for health care professionals to be aware of the opportunities and limitations of different platforms.

Objective: The purpose of the project is to review the literature on how health care professionals communicate online and by telephone where they cannot see the patient. Also – what is important for the patient in this communication?

Method: A literature review exploring how online dialogues are conducted when it is not possible to see each other and how to ensure patient-centred care in these dialogues. We conducted a search using the PubMed and Psycinfo databases in March 2024 to identify studies relevant to our investigation. A screening process was carried out based on title and abstract, and all matching studies were obtained and read. Studies were included if they met predefined criteria such as platforms where the professional and the patient cannot see each other and patient-centredness.

Results: Thirty-one studies from a total of 101 were included. The results show that written communication increases patient involvement and alleviates the burden on health care professionals, which is particularly advantageous in a high-tech and digital society like Denmark. Health care professionals see both opportunities and limitations in written communication. While it offers flexibility and strengthens patient relationships, there is a need for clearer guidelines to avoid time pressure and inefficiency. Patient-centredness is ensured in these dialogues by maintaining empathy, clarity and flexibility. To ensure patient-centred communication in phone consultations, health professionals must use techniques and tools that enhance dialogue. While phone consultations are suitable for less complex issues and follow-ups, they offer fewer opportunities for patient-centred care than face-to-face consultations. Improvements in question-asking techniques, presentation of treatment options and increased focus on patient contributions can strengthen patient-centred care in phone consultations.

Conclusion: The study provides insights into how health care professionals can effectively communicate with patients on online platforms where they cannot see each other, and how to ensure patient-centredness in these dialogues. The next step is collecting and analysing data on how community pharmacies communicate on these platforms.

Evaluating the effectiveness of acute migraine treatments in community pharmacies

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Background: Migraine is one of the most widespread headache disorders, and in The Global Burden of Disease Study (GBD 2015), migraine was ranked as the third most common condition in the world among both men and women under the age of 50. In Denmark, more than 400,000 people suffer from migraines. At the Firkløver pharmacies, it has been observed that many migraine patients who pick up their acute migraine medication do not experience sufficient relief. This lack of treatment effectiveness can significantly impact their quality of life and daily functioning, as migraine attacks often disrupt both work and personal activities.

Objective: To evaluate whether acute migraine medication provide sufficient relief for patients and based on the findings, develop supplementary materials to improve patients' understanding of the treatment and enhance their quality of life.

Method: An electronic questionnaire was developed to investigate migraine patients' experiences with their acute treatment. The questionnaire included 6-8 questions focusing on treatment effectiveness, duration, side effects, migraine frequency, and previous treatments. Patients who filled a prescription for acute migraine medication between January and March 2025 were invited to participate through a brief conversation at the counter. This questionnaire is inspired by a validated questionnaire developed by migraine specialists at Pfizer, a global pharmaceutical company.

Results: Six pharmacies participated in the study, and a total of 62 patients chose to take part. Among the participants, 83.6% experienced pain relief within two hours after taking their medication. A single dose was sufficient to relieve headaches for at least 24 hours in 62.3% of patients, while 37.7% required additional treatment. After taking the medication, 55.7% of patients were able to quickly resume daily activities such as work, family, and leisure, whereas 44.3% could not. Side effects were reported by 42.1% of patients, including nausea, fatigue, muscle cramps, and discomfort in the arms and legs. The frequency of migraine attacks varied: 14.8% experienced more than nine attacks per month, 14.8% experienced seven to nine attacks, 27.9% experienced four to six attacks, and 42.6% experienced one to three attacks per month. Additionally, 63.9% had previously used other migraine treatments. The supplementary informative materials, based on these findings will be displayed in the poster presentation.

Conclusion: Many migraine patients are not optimally treated. Among the participants, 57.5% experienced more than four attacks per month and many struggling to resume daily activities due to ineffective medication or side effects. While information on migraine medications is available from various sources, providing supplementary informational material at the pharmacy can be valuable. The direct customer interaction offers an opportunity to enhance patients' knowledge, encourage proper medication use, and improve their overall quality of life.

Trends in COVID-19 vaccinations administered in community-based pharmacies to children and adolescents in the United States: State-wide study

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Background: During the COVID-19 pandemic, the United States (US) government enacted provisions that expanded pharmacy scope of practice to help with public health emergency response. This legislation allowed pharmacists and pharmacy technicians along with select other professions to administer COVID-19 vaccinations not only to adults but also to children and adolescents for the duration of the public health emergency. These flexibilities in scope of practice removed pharmacy practice barriers across the US to ensure widespread access to COVID-19 vaccines. In the US, majority of citizens live within five miles of a community pharmacy. This was especially important in states with significant rural populations, such as North Carolina, where 78 out of 100 counties are considered rural.

Objective: This study analysed data from the North Carolina (NC) immunisation registry's mass vaccination module to examine trends in child and adolescent COVID-19 vaccinations administered by pharmacies in NC. We delved into pharmacies' role in the paediatric and adolescent COVID-19 vaccination response, spanning from the initial vaccine rollout in 2021 to the distribution of bivalent boosters in 2023. This study sheds light on pharmacies' ability in enhancing vaccine accessibility for children and adolescents.

Methods: We analysed data from 1,747,790 children and adolescents aged 3 to 17 between January 1, 2021, and June 26, 2023, using the North Carolina COVID-19 vaccine management system operated by the North Carolina Department of Health and Human Services. We employed descriptive statistics and ran logistic regression analyses to examine if demographic factors such as age, rurality, race, and ethnicity, influenced child and adolescent COVID-19 vaccination uptake at community pharmacies.

Results: Overall COVID-19 vaccination coverage rates were 59.1% among 12–17-year-olds, 37.4% among 5–11-year-olds and 3.5% among 3–4-year-olds. We discovered that 42% of children and adolescents vaccinated against COVID-19 in North Carolina had received at least one dose from a pharmacy. Overall, 47% of adolescents aged 12-17 years, 37% of children 5-11 years, and 18% of children 3-4 years received COVID-19 vaccination at a pharmacy ($p < 0.001$) in North Carolina. Pharmacists were equally important in delivering child and adolescent COVID-19 vaccines in rural (42.0%), suburban (42.9%) and urban (42.2%) areas. Black and Hispanic children and adolescents were less likely to receive COVID-19 vaccines at pharmacies compared to other populations ($p < 0.001$). Individuals were more likely to receive subsequent doses of vaccines at a community pharmacy ($p < 0.001$).

Conclusion: Four in ten children and adolescents went to community pharmacies to be vaccinated against COVID-19 in North Carolina. Moreover, community pharmacies were equally utilised for child and adolescent COVID-19 vaccinations across rural, suburban, and urban areas. This evidence is critical to ensure that pharmacists continue to have expanded scope of practice to extend the reach of child and adolescent vaccinations to protect public health.

Integrating patient experiences in continuing education for Danish pharmacy staff: benefits and insights

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Background: It is important for employees at Danish pharmacies to have the opportunity to participate in relevant continuing professional development to maintain and expand their professional competencies. For decades, Pharmakon has offered a wide range of courses for both pharmacists and pharmacy technicians. The courses support the work in community pharmacies related to pharmacotherapy, self-care, counselling, health care services and campaigns. There is an increasing focus in the health care system on the need for health care professionals to see and meet the patient as a

whole person, i.e. as more than just their disease. This increasing patient-centred focus is also taking place in community pharmacies. That is why the purpose of Pharmakon's continuing professional development courses is to address both the needs expressed by pharmacy staff and to reflect the needs and wishes of patients, which means that there is an increasing focus on involving patients in the topics taught in the courses. The goal is to strengthen community pharmacies in their work to provide the best possible safety in medication and medication use by understanding the everyday life of the patients in-depth.

Objective: The purpose of this abstract is to inform how continuing professional development can incorporate the patients' perspectives, and how this initiative is received by community pharmacy staff.

Method: The teachers organise the courses to ensure knowledge and insight into patients' lives with the diseases and knowledge about specific drug treatment. Patients are as much as possible represented in courses, either in written cases, by physical presentation, in video interviews clips or in podcasts recorded by the patients themselves.

Results: Over the past years, Pharmakon has worked to increasingly include the patients' voices in the courses, which means that the patients' perspective is almost represented in every course. In 2024 Pharmakon had 101 courses. Of these, 15 courses had a patient physically present and in 55 courses different recordings of patients were used during the courses. Evaluations from courses where patients are involved show that pharmacy staff gain insight from the patients' perspective in a different way. They find patient presentation useful because they hear patients talk about their lives with their disease and medication. This provides a new understanding of the challenges patients may face in fitting the disease and thus also their medical treatment into a busy everyday life.

Conclusion: Involving patients in Pharmakon's courses has contributed to a new understanding of the whole person who comes to the community pharmacy. Both in terms of what it is like for the patient to live with a disease in everyday life and in terms of insight into the challenges of fitting the medical treatment into a busy life. Involving patients has also given pharmacy staff insight into and awareness of the person behind the disease and medication, understanding that the patient's knowledge and needs in counselling must be tailored to the individual's everyday life and life situation.

Fun, engaging and effective: Transforming pharmacy staff training with microlearning

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Background: Pharmacy employees have a very busy workday and constantly need to keep themselves updated on products and guidelines. They are expected to stay professionally updated and to have good knowledge of the products they sell. With thousands of items in stock, how can they manage to stay updated? A survey among pharmacy staff revealed the importance of product knowledge during customer interactions. While overall product knowledge is solid, employees expressed a desire for further confidence in customer interactions, despite having limited time for traditional training.

Objective: The aim is to help employees stay professionally updated in a manner that encourages learning and knowledge sharing. Training should be easily accessible, relevant, and fun.

Method: The Norwegian leading pharmacy chain, Apotek1 introduced an app offering game-based courses that take between three to ten minutes to complete, so called micro-learning. Users can access these courses on their mobile devices or computers, receiving quick introductions to products or specific areas of disease. Each user has a personal account to track their progress. The objective of this type of training is not to provide in-depth knowledge, but to provide quick familiarity with products or areas, along with practical tips for customer interactions. One to two courses are created and published each month and revised annually. Currently, the course catalogue consists of about 130 courses, including courses on cosmetics, medical devices, supplements, medicines and other products, accessible to all employees. While participation in these courses is voluntary, it's possible to designate specific courses as mandatory to ensure completion. Every course is divided into sections, with one section specifically targeting customer communication to make content relevant to daily pharmacy operations. Each course concludes with a task, such as a quiz, discussion with colleagues, or case assignments. After each course, participants have the opportunity to provide feedback on the course, both in text and in the form of stars, where five stars represent the highest rating.

Results: The app is very popular, with over 3000 active users every month, meaning that the app is regularly used by all employees in the pharmacies of Apotek1. The completion rate of these courses is extremely high, and the employees complete the courses quickly after they are published. The ability to track their own score inspires them and drives their motivation. The high completion rate indicates that the employees have time for this type of training, and they report that they primarily use the app during quiet periods

throughout the workday. The employees, based on their own interest, search for courses they find relevant, and give feedback that it is fun, easily accessible, and educational. The average rating for all courses is 4.2 stars. An employee survey revealed that over 80% feel significantly more confident after completing a course, with 90% expressing satisfaction with this training approach.

Conclusion: The implementation of micro-learning through an app has proven effective in helping pharmacy employees stay updated on a wide range of products.

Health and sustainability: The social impact assessment of the abem: programme

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Background: The abem: Programme was created in 2016 by Dignitude Association to address a social problem: the lack of access to prescription medication for those who cannot afford them. One of the most dangerous threats of the 21st century is Climate Change. The Healthcare sector is a significant contributor to global greenhouse gas (GHG) emissions, representing nearly 4.4% of total emissions. The Social Impact Assessment of abem: Programme: Solitary Medicine Network was updated and now includes information on the environmental impact of the Programme. Currently, this Network counts with more than 1200 active pharmacies across national territory.

Method: The impact assessment of abem: was conducted by an external independent entity, Sair da Casca, and was based on the Theory of Change logical model. This initial assessment considered the resources and activities developed since its launch, in May 2016 until December 2022. The most recent update includes data about the impact of the Programme until December 2023.

Results: This assessment reinforced the importance of the abem: Programme, its impact on all intervenient involved and the potential impact in global areas such as Health, Social Security and Territorial Cohesion. The most recent evaluation also highlighted the following impacts on the Environment:

- Patient's journey: the abem: Programme contributes daily to the reduction of GHG emissions by reducing the number of patient journeys to the hospital. Yearly, it was estimated a reduction of 4,14kg CO2e per beneficiary. Considering all abem: beneficiaries, there were avoided around 62.39t CO2e emissions in 2023, corresponding to 1.188 trips from Lisbon to Porto2.
- Indirectly, abem: acts by reducing the emissions produced during emergency care episodes and hospitalisations of its beneficiaries, resulting in a significant reduction in their environmental impact: a hospitalised person has a carbon footprint four times larger than a healthy person.
- Dignitude's Digitalisation: The digitalisation of Dignitude reduced the journeys made to meet partners and stakeholders. In 2023, 119 meetings were held online that would have previously been in person before this process took place. These meetings represent a total of 40.000 km that were not traveled and the reduction of 7 tons of CO2e. This is the equivalent to one car journey around the world.
- Avoided travel for beneficiaries: The existence of the digital platform makes it possible to reduce the number of travels made by beneficiaries to the referral entities, since the whole process can be handled online.
- Compared to other existing initiatives, the abem: Programme covers the cost of medicines without the beneficiary having to make an advance payment and then apply for reimbursement, which avoids the emissions associated with each beneficiary having to travel to submit their application for reimbursement. In 2025, over 15.000 people used the abem: card.

Abem: has contributed to the following Sustainable Development Goals (SGD): SGD 1, SGD 3, SGD 10, SGD 11, SGD 13 and SGD 17.

Conclusion: By February 2025, we have supported 40.097 people. Together, we will keep working towards a more equitable and sustainable future, where access to medication is a reality for all people.

Multidisciplinary clinical medication reviews in primary care: General practitioner, pharmacist, nurse and patient together improving patient's therapeutic plan

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Background: The objectives of this regional project were to promote quality and coordination in primary care by implementing multidisciplinary clinical medication reviews during multidisciplinary meetings (RCP OPPA) focused on the trio " general practitioner, pharmacist and nurse of the

patient " and relaying on coordinated health practice structures such as new Professional Territorial Health Community Multidisciplinary Primary Health Care Centres (CPTS).

Method: This project in Brittany was defined by a multi-professional regional commission including physicians, pharmacists, nurses, representatives of citizens, representatives of Health Insurance and Regional Health Agency. A guide and an assistance program were developed including : practical and methodological recommendations for the organisation of OPPA meetings (key stages of the meeting, patient consent, file selection criteria, methodology for optimising drug treatment based on the patient's personalised therapeutic plan and his coordinated follow-up by the primary care team) ; a partnership agreement with compensation of the professionals ; structural and clinical indicators ; a regional inter-professional training program.

Results: Started for elderly patients in nursing homes, the project was extended for all ages outpatients with complex medication regimens. As of February 2025, 110 OPPA meetings were conducted i.e. a total of 270 patient's therapeutic plans defined by primary care teams, involving more than 50 primary physicians, 30 pharmacists, 20 nurses. The patients, with an average age of 84 years, were mostly frail and polypathological. Five to six concerted pharmacotherapeutic interventions were decided per file : 25% of interventions concerned a de-prescribing process (stopping a medication or a stopping plan), 15% a dose adjustment (decrease or increase dose), 10% a medication initiation, five percent medication administration adjustment (as schedule or dosage form) and 45% medication monitoring (such as adding clinical or biological monitoring). The two main therapeutic areas were cardiac and psychiatric medications.

Conclusion: The OPPA meeting is an effective way to improve the quality of drug prescriptions and the monitoring of patient's drug therapy, and also to reduce polymedication (1 line less of medication per file after meeting), with very great satisfaction of participants through particularly virtuous mutual knowledge. This project address the key elements of the meeting : the role of the trio, the general practitioner, the community pharmacist, the nurse, and the central role of the patient on the shared decision process, the place of shared medical record (DMP), digital tools and artificial intelligence, tele-expertise, inter-professional education, teamwork compensation, institutional support to improve the efficiency of this coordination in primary care.

Proximity dispensing of hospital medicines in Portugal: A step-by-step implementation and its potential environmental impact

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Background: Since 2016, Portugal has launched several pilot projects on proximity dispensing. However, legal framework for the proximity dispensing of medicines prescribed for hospital outpatient care within the National Health Service (NHS) was established in 2023, and the eligible list of medicines was approved in 2024. Each dispensing episode was remunerated at €11.96: €6.38 for pharmacies, €3.03 for the supply chain, and €2.10 for the Common Hospital Services (SUCH). To oversee the implementation of this process, a working group was formed, comprising representatives from the National Pharmacy Association, the Portuguese Pharmacy Association, the National Authority of Medicines and Health Products, the Central Administration of the Health System, the Executive Board of the NHS, the Shared Services of the Ministry of Health and SUCH.

Objective: This study aims to provide a detailed, step-by-step description of the implementation of proximity dispensing in Portugal and the latest adherence data. Additionally, we assessed the potential environmental impact of this policy by analysing changes in CO_2 emissions resulting from shifts in population mobility due to proximity dispensing.

Methods: A descriptive study was conducted to map the operational flow of proximity dispensing. This description covered the necessary IT developments to support electronic prescription communication between Local Health Units/hospitals and community pharmacies, as well as the logistics chain required to ensure accurate and timely dispensing to patients. The number of Local Health Units/hospitals with at least one eligible patient was recorded. Additionally, total CO_2 emissions were estimated based on the number of eligible patients for proximity dispensing, and the percentage of patients using cars or taxis to travel to hospitals and community pharmacies, and the average round-trip distance (derived from literature data). Emissions were calculated using an average of 122.1 g of CO_2 per kilometre (2019 EU data for new cars) and were compared with CO_2 emissions from air travel.

Results: Through system interoperability, pharmacies receive prescriptions that include patient information, the prescribing location, the expected dispensing date, and the medications to be dispensed. Hospital medications are stored by SUCH and then delivered to pharmacies chosen by eligible patients, using the existing pharmaceutical distribution networks. Dispensing occurs every two months within the scope of annual prescriptions. The first proximity dispensing episode took place on December 9, 2024. By the end of February 2025, 19% (n=42) of Local Health Units/hospitals had already facilitated at least one eligible patient. The most frequently dispensed medications were anastrozole, infliximab, and adalimumab. If all 150,000 eligible patients benefit from proximity dispensing, annual car-based CO_2 emissions could decrease from 8,909 tons to 364 tons – equivalent to the emissions from over 12,700 round-trip flights between Lisbon and Copenhagen (0.67 tons of CO_2 per flight).

Conclusions: Full implementation of proximity dispensing across all Local Health Units/Hospitals is expected by the end of 2025. By bringing medicines closer to patients, this initiative enhances accessibility, convenience, and has the potential to reduce CO_2 emissions associated with travel. The policy highlights the crucial role of pharmacies in collaboration with the NHS, strengthening the healthcare system's efficiency and sustainability.

Valproate-containing medicines and additional risk minimisation measures: Knowledge and attitudes of the community pharmacist

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Background: Risk minimisation measures (RMM) are interventions that aim preventing or reducing adverse reactions associated with medication use, as well as to mitigate their severity and overall impact. Routine RMMs apply to all medications that receive Marketing Authorisation (MA), whereas additional RMMs are only implemented when routine measures are insufficient to address specific risks of a given medication. Over the past years, valproate-containing medicines have been subjected to several additional RMMs due to their teratogenicity. Community pharmacists, as the last healthcare professionals' patients interact with before starting their therapy, play a key role in ensuring the proper use of medications. Therefore, assessing pharmacist's knowledge and attitudes regarding the additional RMMs for valproate-containing medicines, is essential for developing strategies to enhance medication safety and effectiveness.

Objective: This study aimed to assess the knowledge and attitudes of community pharmacists regarding additional RMM for valproate-containing medicines.

Method: This observational, cross-sectional study was conducted using a questionnaire distributed through email to all pharmacies affiliated with the National Association of Pharmacies. Participants were informed that the questionnaire was intended exclusively for pharmacists. To increase the response rate, study details were shared on the ANFOnline platform, and a reminder was sent one month later. Data collection took place between October 16 and December 16, 2024. In addition to descriptive analysis, bivariate analyses were performed using the χ^2 test and Fisher's exact test for categorical variables, and Spearman's coefficient for ordinal categorical variables. The significance level was set at 0.05, with a 95% confidence interval. Statistical analysis was conducted using SPSS 29 software.

Results: A total of 196 pharmacist participated, of whom 154 were female (78.6%). The mean and median ages were 40.5 and 40 years, respectively, with a standard deviation of 10.3. Regarding professional roles, 80 participants (41%) were technical directors, 65 (33.3%) were assistant pharmacists, and 50 (25.6%) were pharmacists. Most respondents (90.8%) reported awareness of additional RMMs. Specifically, 129 (65.8%) were familiar with "Direct Healthcare Professional Communications," 75 (38.3%) knew about the "Pregnancy Prevention Program," 114 (58.2%) were aware of "Educational Materials for the Public (Patient Guide/Card)," and 148 (75.5%) recognised "Special Packaging/Labeling." Regarding sources of information on additional RMMs, 99 respondents (50.5%) identified ANFOnline, 81 (41.3%) mentioned the Pharmaceutical Society, and 118 (60.2%) cited INFARMED, among others. A statistically significant association was found between various sociodemographic variables and sources of information on additional RMMs. For instance, younger respondents were more likely to indicate the curriculum as their primary source of information, while those over 50 years old more frequently cited ANFOnline. To improve counselling on valproate-containing medications, the most highly rated proposals included the implementation of pop-up reminders in the Sifarma system to highlight that the medication has additional RMMs (71.6%), the establishment of a structured and remunerated pharmaceutical intervention program (59.5%), and improved communication between healthcare professionals (53.2%).

Conclusion: The results suggest a reasonable level of knowledge about certain risk minimisation measures; however, there is still possible improvement in this field.

Analysing medication safety incidents in community pharmacies: Leveraging incident reporting data for healthcare operational improvements

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Background: Medication errors are a leading cause of preventable patient harm in healthcare settings worldwide. Error reporting is essential for promoting medication safety and improving medication processes. Error reports provide information about risks in the medication process, which can be utilised to develop systems-based safeguards. Community pharmacies have the opportunity to identify medication errors, including prescribing errors originating in other social and healthcare organisations, and enhance medication safety by reporting these incidents. However, the role of community pharmacies in ensuring medication safety in collaboration with other social and healthcare organisations has not yet been extensively studied.

Objective: This study aims to investigate medication errors originating in social and healthcare organisations but detected and prevented in community pharmacies. Additionally, the study explores how the reported errors were utilised in systems-based risk management within social and healthcare organisations.

Method: The study was conducted as a retrospective register-based study using medication safety incident reports submitted to social and healthcare units from community pharmacies. It also used tracking forms submitted from these units back to the pharmacies in three of the 21 wellbeing service counties in Finland during the period from February 1, 2022, to December 31, 2023. The number, nature, observer, type of error, and consequences for patients and pharmacies, as well as the most commonly occurring medications, medication groups, and proportion of high-risk medications were represented as frequencies and percentages. A qualitative content analysis was conducted on development measures in social and healthcare units, evaluating whether these measures represented a person-centred or system-centred approach.

Results: Community pharmacies detected nearly all (94%) medication errors in the dataset (n = 461). The majority of cases were near misses (71%). Medication errors were predominantly medication-related (98%). The most common type of error was a prescription error (93%), involving incorrect dosage or strength (26%), unclear or incomplete dosage instructions (13%), or missing SIC marking (i.e. mark that must be applied to the prescription when the medication has been intentionally prescribed in a manner that deviates from the dosing instructions outlined in the approved product summary characteristics) (11%). Most reports involved medications affecting the nervous system (23%) and systemic anti-infective agents (19%). Most of the proposed development measures (n = 470) in social and healthcare units involved handling and discussing the event (63%). The most common suggestions were discussing the case with the chief physician and physicians (15%) or in multi-professional meetings (14%). Most of the development measures had features from both systems- and person-centred perspectives (47%). The remaining measures focused slightly more on the individual perspective (31%) than the systems-perspective (23%).

Conclusion: This study emphasises the critical role of community pharmacies as essential participants in social and healthcare services and as protectors of medication safety. Reporting medication incidents in community pharmacies can support the development of medication safety in other social and healthcare organisations. However, further research is needed to investigate the impact of the development measures on the occurrence of medication errors.

Developing a medication safety self-assessment tool for high-Alert medications in community pharmacies

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Background: High-alert medications pose a heightened risk of causing significant harm to patients when used incorrectly. Many over-the-counter medicines and other commonly prescribed medicines are recognised as high-alert medications. To prevent medication errors and to minimise harm to patients, specific measures must be implemented in community pharmacies.

Objective: To develop a High-Alert Medications Self-Assessment Tool for community pharmacies.

Method: The Medication Safety Self-Assessment Tool for High-Alert Medications for community pharmacies in Finland was developed using a three-phase Delphi method between 2019 and 2023. The original tool, the Institute for Safe Medication Practices´ Medication Safety Self Assessment® for High-Alert Medications, comprising 380 items, was initially assessed in a pre-Delphi round to determine its applicability for Finnish community pharmacies. After this round, removal of some items, addition of new ones, and translation, it underwent two Delphi rounds, involving a multidisciplinary expert panel (n = 45) with extensive experience in medication safety. Participation was voluntary and anonymous. The experts evaluated the applicability and desirability of the items, with a consensus threshold set at 70%, additionally, the experts could suggest modifications. Following the Delphi rounds, the tool was finalised by refining content, removing duplicates, and reorganising items. No ethical review was required.

Results: In the first Delphi round, 17-26 experts assessed 152 items; 22 items were discarded, 33 items were accepted as such, 97 modified before entering them into the next round. In the second round, 9 - 14 experts reviewed 133 items; 77 items were accepted as such and 35 revised. Following a final editing stage, 21 items were removed, and two new items were added. The final tool comprises 114 items, categorised into eight sections:

1. General high-alert medications (n = 36)
2. Over-the-counter (OTC) high-alert medications and behind-the-counter (BTC) medications (n = 24)
3. Insulin and oral (non-insulin) diabetes medications (n = 13)
4. Chemotherapy (n = 6)
5. Methotrexate for non-oncologic use (n = 6)
6. Anticoagulants (n = 8)
7. Opioids (n = 12)
8. Immunosuppressants and carbamazepine (n = 9)

Conclusion: The developed Medication Safety Self-Assessment Tool for High-Alert Medications offers a structured approach for identifying and managing high-alert medications in community pharmacies. It is designed to support the evaluation of operational procedures and the implementation of targeted safety measures. The tool incorporates best practices and practical guidelines that might help mitigate risks associated with high-alert medications, including opioids, insulin, NSAIDs, and paracetamol. By conducting a self-assessment, pharmacies may identify areas for improvement, contributing to a culture of continuous medication safety enhancement. This tool has the potential to serve as a valuable resource for promoting the safe use of high-alert medications, improving patient outcomes, and supporting global medication safety initiatives.

Community pharmacist-provided point-of-care testing for influenza and COVID-19: A systematic review

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Background: For the last few years, the main reason for infectious respiratory deaths worldwide are influenza and COVID-19 infections. Pharmacies across the world have been incorporating point-of-care (POC) tests into disease screening and management programs offered in community pharmacy. Pharmacists with their knowledge, skills and accessibility can provide timely diagnostic services for several conditions including COVID-19, influenza, and streptococcal infections.

Objective: This study aims to evaluate the impact of pharmacist-led POC testing for influenza and COVID-19 in community pharmacies. An additional objective is to compare the regulatory opportunities and limitations for these activities in Bulgaria and other countries.

Method: A systematic literature review was carried out through the scientific databases PubMed, Scopus and Web of Science, using specific keywords, such as “point-of-care testing”, “community pharmacy”, “pharmacist” and “influenza”. Only original full-text articles written in English that investigated the role of pharmacists in performing point-of-care (POC) testing for influenza and COVID-19 in community pharmacies were included. There were no publication dates limitations. Furthermore, a content analysis was performed on FIP document regarding the requirements for the implementation of POCT in community pharmacies and the impact on general practitioners' workloads.

Results: A total of 544 articles were retrieved from electronic databases, of which 14 met the inclusion criteria. One of the most important roles identified was increased access to healthcare and the convenience that pharmacies provide. In addition to the patient’s benefits, some studies have found that pharmacy-based disease screening is related with less unnecessary antibiotic prescriptions. However, certain limitations exist regarding the legal and regulatory requirements affecting pharmacists’ scope of practice concerning POC testing. For example, in Bulgaria, pharmacists are not permitted by law to provide POC testing services, unlike in other countries such as the UK, France, and Romania.

Conclusion: This study demonstrated that it is possible to provide a community pharmacy-based screening service through POC testing and to encourage pharmacists to take an active role in patient care. Consequently, by reducing the number of laboratory visits, other healthcare providers, such

as general practitioners, will be able to allocate more time to different aspects of their responsibilities.

Understanding the needs of obesity patients in Norwegian pharmacies

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Background: In recent years, an increasing number of people with obesity have been visiting pharmacies due to the introduction of new weight-reducing drugs. There is a need to better understand their needs, health, medication use, communication, and the pharmacy's approach to this patient group. This information is part of an ongoing project by Norway's leading pharmacy chain, Apotek 1, to determine whether pharmacies can contribute more than just dispensing medicines for this patient group.

Objective: The primary goal of this project is to explore the potential to support people living with obesity within the pharmacy setting.

Method: The methodology employed by the team is known as "Design Thinking." This approach prioritises the needs of the user, which are identified through close dialogue with the target demographic. Initially, the team undertook insight activities to gain a comprehensive understanding of the subject matter. This phase involved an in-depth review of relevant articles and websites, as well as conducting interviews with experts, pharmacists, and individuals living with obesity. To further enrich the insights, a series of experiments were carried out. One notable initiative was a Future Lab within a pharmacy, where customers were engaged in discussions regarding the future of pharmacy services. "Card sorting" exercises were incorporated to gather feedback on images and their associated positive or negative connotations with the theme. This method provided rapid feedback, ensured alignment with the objectives, and allowed for a better understanding of the target group.

Results: Upon thorough analysis of the gathered insights, six principal findings were identified:

1. Obesity is a sensitive topic: There is a need for discretion in the pharmacy while ensuring individuals are met with respect. Several people living with obesity also experience stigmatisation.
2. There is uncertainty about when weight becomes a problem: People living with obesity can distance themselves from the categories of obesity.
3. It is a complex problem: There is ambiguous information and advice, and the reasons for obesity are complex. There is a need to make it easier to tackle the issue independently, but with support from others.
4. Unawareness of pharmacy expertise in obesity: There is a need to highlight the professional expertise available in pharmacies and what can be done to help individuals with obesity.
5. Need for follow-up: Medication is used by some customers as an aid to change their lifestyle. There may therefore be a need for more follow-up in pharmacies about lifestyle changes.
6. Different needs: Everyone has different needs and ways of dealing with weight. Obesity is a complex disease and challenge, and there is a need for tailored solutions.

Conclusion: Pharmacies hold significant potential in supporting individuals with obesity. By employing Design Thinking methodologies, a profound understanding of customers' genuine needs is ensured. This enables the development of innovative solutions tailored to effectively meet the specific requirements of this target group. The insights gained through this process are invaluable and can inform the development of a future health service specifically designed for this patient population.

Evaluating a CPD programme on asthma care for pharmacist guided by the competency-based education approach: A feasibility study

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Background: Pharmacist-led interventions have been shown to improve disease control and quality of life of the patients with asthma. Pharmacists must maintain up-to-date clinical knowledge and skills to provide evidence-based practice and contribute to asthma management effectively. Learning opportunities are largely provided through Continuing Professional Development (CPD) to practising pharmacists. Competency-based education (CBE) approaches in pharmacy education, which focus on learners and community needs, have drawn increasing attention. However, the adoption of CBE in CPD design especially on asthma care remains underreported.

Objective: This study aimed to assess the feasibility of a CBE-informed CPD programme and to evaluate the impact of such

CPD programme on the pharmacist's knowledge, skills and attitude towards providing professional services to asthmatic patients.

Method: A CPD programme guided by the CBE approach was conducted face-to-face from April 6 to April 27, 2024 in Macao. The programme consisted of four sessions, each including a didactic lecture and an interactive inhaler workshop. Participants were allowed to enrol in any sessions of their choice. The programme design was informed by previous research conducted by the team, including a literature review and an interview study with key stakeholders, through which pharmacist interventions deemed most important to addressing the healthcare needs in the local context were identified. Teaching content covered epidemiology and pathophysiology of asthma, community pharmacists' roles, latest treatment guideline, medication knowledge, non-pharmacological management, asthma exacerbation prevention and management, asthma-related conditions, and communication skills. The Miller's Model was used for assessing competence. An evaluation tool set was used to test the pre- and post-CPD knowledge assessment, inhaler technique, the potential impact on practice and the overall satisfaction.

Results: About 13% of registered pharmacists involved in direct-to-patient-care in Macao attended the CPD programme (n=88), of whom 81 participated in the study (response rate = 92.0%). Altogether in the four sessions, 207 person-time of attendance was recorded. Significant improvement in short-term knowledge was recorded when comparing the overall proportion of correct answers pre- and post-training (50.9% vs 66.5%, $p < 0.05$) obtained from all four sessions. The most substantial improvement observed in the knowledge assessment pre- and post-training was related to inhaler technique. By the end of the inhaler workshop, the proportion of participants performed all inhaler steps correctly were 88.7% for Metered Dose Inhaler, 80.8% for Turbuhaler, 76.0% for Accuhaler, and 71.2% for Ellipta. Participants self-reported an enhanced level of confidence, willingness, and professional recognition in the provision of pharmaceutical care for the patients upon completion of the CPD. Positive feedback was received regarding the hand-on experiences with various inhalation devices; participants also suggested expanding training content to other aspects including diabetes and cardiovascular medications. Over 96% of the participants were satisfied with the overall design of the CPD programme.

Conclusion: The study findings enhance the current understanding about the training needs by demonstrating that the CBE-informed CPD programme is feasible and can improve pharmacist's knowledge and skills in asthma management. Future study should follow up the long-term impact of the CPD programme on pharmacists' daily practice in asthma management.

A study of patient behaviour in self-medication with Wegovy in pharmacy practice

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Background: Wegovy (semaglutide) has gained significant attention as an effective treatment for weight loss. However, reports from healthcare professionals indicate that a considerable number of patients deviate from prescribed dosages, opting instead to self-adjust their intake by counting clicks on the dosing pen. This behaviour raises concerns about patient safety, treatment efficacy, and the risk of side effects. Despite clear dosing guidelines from Novo Nordisk, little research has been conducted on the motivational factors behind this self-adjustment.

Objective: To examine the motivational factors patients have when using Wegovy, as well as their behaviour patterns.

Method: This study was conducted at Birkerød and Allerød pharmacies in Denmark. Data were collected through a structured questionnaire, which was pre-tested on two respondents and subsequently refined for clarity and relevance. The questionnaire included questions on primary motivation, adherence to Novo Nordisk's dosage guidelines, dosage amounts, duration of use, and whether patients followed the prescribed dose or adjusted it by counting clicks. Pharmacy staff distributed the questionnaire to individuals collecting Wegovy for personal use.

Results: All 60 participants agreed to take part in this anonymous survey. Key findings include:

- Forty out of 60 use Wegovy primarily for weight loss.
- Ten out of 60 use it for health-related reasons, such as diabetes or cardiovascular conditions, or upon a doctor's recommendation.
- Thirty-nine out of 60 follow the official dosage regimen from Novo Nordisk, whereas 14 out of 60 self-adjust their dose by counting clicks.
- The majority of users take doses of 1 mg, 1.7 mg, or 2.4 mg, while others are at either the beginner dose of 0.25 mg or as high as 2.4 mg.
- Seventeen participants did not specify their duration of use, which may limit interpretations regarding long-term adherence.
- The primary reasons for self-adjustment were cost considerations (most significant) and concerns about side effects.

Conclusion: This study highlights the prevalence of self-medication behaviours among Wegovy users in pharmacy practice. Despite clear dosing guidelines, a significant number of users (14 out of 60) modify their intake by counting clicks,

raising concerns about adherence, potential treatment inefficacy, and patient safety. The findings suggest that many Wegovy users, especially those taking it for weight loss, may not strictly follow the recommended dosage regimen. There is a pressing need for targeted patient education to address concerns about cost and side effects. Pharmacy staff could play a more active role in patient counselling, ensuring that individuals understand the importance of correct dosing and the potential risks of self-adjustment. Future research should explore the long-term impact of these behaviours on treatment efficacy and investigate strategies to improve adherence within pharmacy practice.

Retention of pharmacists in community pharmacies

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Background: This project is conducted by six community pharmacists in collaboration with Danish Network for Community Pharmacy Practice Research and Development (NUAP) under the council of Professor Lotte Stig Nørgaard. Many community pharmacies face challenges in retaining skilled personnel, affecting both the individual pharmacy as well as society. The Wilke report "The Psychosocial Work Environment for Community Pharmacists" (April 2023) and the VIVE report "Pharmacy Technicians' Psychosocial Work Environment" (2022) document several challenges, including higher stress levels among pharmacy staff and a feeling of not being able to provide the desired quality in customer counselling. A healthy work environment is essential for retaining skilled personnel.

Objective:

1. What are the reasons for pharmacists leaving community pharmacies?
2. What can community pharmacies do to create an attractive workplace for pharmacists?

Method: This study uses mixed methods by combining interviews and a questionnaire. The primary focus is to explore the reasons why pharmacists are leaving community pharmacies in Denmark, which will be investigated through qualitative semi-structured interviews. Participants will be recruited via social media and networks. The goal is a minimum of nine pharmacists who have left the sector within the last three years. Participation is anonymous. Data is analysed using thematic analysis. Community pharmacists participating in "The Danish Community Pharmacist Congress 2025" held in January 2025, answered the questions mentioned under "Purpose" through a questionnaire. Themes repeating from the questionnaire will be compared with themes from the qualitative interviews.

Results: Preliminary results from ten interviews, show reoccurring topics among the participants, including unsatisfying work environments, high work pressure, lack of flexibility, inadequate supervision, insufficient time for daily tasks, outside customer service, and a feeling of not using their professional skills. Many pharmacists feel that there is too much focus on sales rather than professional counselling, which creates frustration and dissatisfaction. We got 102 responses on the questionnaire. The main topics identified where long working hours (~60%), too low salary (~50%) and bad work environment (~22%).

Conclusion: It is still too early to draw final conclusions, but data suggest that to make community pharmacies a more attractive workplaces for pharmacists, there should be a greater focus on improving the working environment, greater support of pharmacist-to-pharmacist knowledge sharing, increasing flexibility in working hours, and ensuring pharmacists has the time and opportunity to perform professional tasks. By implementing these changes, community pharmacies can create a more satisfying workplace for pharmacists.

Development of job descriptions for employees at Dalgas Boulevard Pharmacy, detailed in relation to responsibilities, tasks, references, competencies, qualifications, and expectations

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Background: The current job descriptions at the pharmacy are mainly general, focusing on responsibilities and tasks. This lack of detail can create challenges for employees when aligning expectations regarding to their work. In order to use job descriptions effectively for expectation alignment, such as during new hires and employee development planning, it is necessary to create new, more detailed job descriptions. The goal is to clarify each employee's responsibilities, tasks, competencies, and the qualifications required for the position. This is intended to support employee development in the long term.

Objective: The primary objective of the project is to create development-oriented job descriptions that can be used for

hiring new employees and in connection with an employee development planning. The new job descriptions will also contribute to creating a cohesive connection between job descriptions, the employee handbook, and quality documents. Another aim is to increase employee motivation and engagement.

Method: In developing the new job descriptions, relevant points were selected based on materials from the professional organisation "Lederne", specifically designed to the employees at the pharmacy. To create more motivating and inspiring formulations, AI (Copilot) was used to generate positive and clear descriptions of both responsibilities, tasks, and expectations.

Results: Employees in the TRIO group (working environment and cooperation group) contributed input on both content and formulations, and the final job descriptions were approved by the group. The implementation of the new descriptions occurred through one-on-one conversation with the deputy manager, where each employee reviewed their new job description. Feedback was collected from employees through a survey in Forms, which included both fixed topics and space for free-text responses.

Conclusion: The new job descriptions have been received positively, and initial feedback indicates that employees now have a much clearer understanding of their responsibilities and tasks. However, it is not yet possible to assess the impact of the new job descriptions in relation to employee development planning, as these have not been held yet.

Co-design and development of a community pharmacy-based cardiovascular disease (CVD) risk screening service in Saudi Arabia: A multi-stakeholders Nominal Group Technique (NGT) consensus method

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Background: Cardiovascular diseases (CVDs) are the leading cause of death in Saudi Arabia, making their prevention a top public health priority. Despite the success of community pharmacy-based CVD risk screening programmes internationally, no similar programme exists in Saudi Arabia.

Objective: This study aims to co-design a community pharmacy-based CVD risk screening service in Saudi Arabia through stakeholder involvement and consensus-building.

Methods: A modified nominal group technique (NGT) consensus method was employed, integrating a pre-NGT questionnaire for ideas generation (January 2025) and an in-person NGT meeting for discussion, ranking, and consensus formation (7th February 2025). Purposive sampling was adopted to recruit experts from Saudi Arabia, including experts in CVD, health and pharmaceutical policy, and service delivery. A comprehensive list of ideas regarding the service-targeted populations, screening processes, and post-screening interventions were collected from a literature review and pre-NGT questionnaire. Experts discussed and ranked these ideas by priority. The total ranking scores depended on the number of participants and items in each list, with higher scores indicating higher priority. A difference of > 10 points between scores served as a cut-off for identifying top priorities. A consensus level of 70% was considered acceptable. Qualitative analysis of the recorded discussion was performed to narrate the justification of the group's priorities. The study obtained an ethical approval, and the methodology was piloted before commencement.

Results: Six experts with 10.5 median years of experience attended the NGT meeting including a clinical pharmacist, a community pharmacist, a representative from the Ministry of Health, a public health representative, and two community pharmacy owners. During the NGT meeting, six ideas for age groups, 12 for targeted populations, ten for screening processes and eight for post-screening interventions derived from a literature review and the pre-NGT questionnaire were considered. A 100% consensus was achieved on the final priorities. The top prioritised age group was ≥ 40 years, with the top five priorities given to individuals with comorbid conditions like pre-diabetes/diabetes, hypertension, dyslipidaemia or currently on treatment for those conditions, with a family history of CVDs, or any risk factors like obesity, inactivity, unhealthy diet, smokers or former smokers, currently on medications that cause CV harm, without pre-existing comorbid conditions and not currently on treatment for any comorbid conditions. The top six screening process priorities included calculating the CVD risk scores, collecting patients' demographics, medical, and lifestyle data, point of care testing, anthropometric measurements, diabetes risk assessment, and medication adherence assessment. The top three interventions focused on providing education, physician referrals with follow-ups, and medication therapy management with follow-ups. Several reasons emerged to justify the group's priorities, with the most common justification being the importance, practicality, and pharmacists' capabilities.

Conclusion: This study has mapped a potential model for a CVD risk screening service tailored to Saudi Arabia's context.

Further research is required to achieve national consensus using an e-Delphi, evaluate the proposed model, and prioritise implementation strategies. Establishing this service is expected to improve public health outcomes and support Vision 2030 goals in addressing the burden of CVDs in Saudi Arabia.

Paracetamol: Effect and compliance

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Background: Every day a lot of patients come to the community pharmacy to pick up a prescription for paracetamol against chronic pain. When asked about the pain-relieving effect, we find that many reply they are still in pain despite taking paracetamol. When they're asked about their medication compliance, it then often turns out that they also do not take the prescribed daily dosage of paracetamol. When we tell them that the medicine will be more effective, if taken as prescribed, they often seem surprised and say they'll try to take the prescribed amount of paracetamol to get a better effect. Chronic pain is associated with different physical, psychological and social problems. It is therefore important, that patients who are being treated with medicine for chronic pain, experience a sufficient pain-relieving effect. Furthermore, if patients taking prescribed paracetamol are still experiencing pain, they might choose to take other kinds of pain-relieving medicine, e.g. NSAID, which can be bought at the community pharmacy without a prescription. These have more possible side effects and interactions. At the community pharmacy we offer medicine services to help improve compliance. These services could be an important tool in helping patients get proper counselling and the best possible effect of their treatment with paracetamol.

Objective: We wanted to find out approx. how many patients being treated with paracetamol for chronic pain, were experiencing insufficient effect - and how many of these patients were also non-compliant.

Method: At Firkløver Apoteket we made a digital survey, which the pharmaconomists and pharmacists at our six community pharmacies were to fill out every time a patient came to pick up a prescription for paracetamol for chronic pain. We did this for two weeks. For every patient, two questions were asked in the survey; the first was about the pain-relieving effect, the second about medicine compliance.

Results: The digital survey was filled out 303 times. Out of these 303 patients, 101 (33%) answered that they did not experience a sufficient pain-relieving effect. Fifty-nine of these patients (58 %) were non-compliant at the same time. In other words, 19% of the patients coming to the community pharmacy to pick up their prescribed paracetamol for chronic pain were unsatisfied with the pain-relieving effect, and at the same time they did not take the prescribed amount of paracetamol daily.

Conclusion: We found that one out of fie patients in the study were experiencing inadequate pain-relief from paracetamol, while they were also non-compliant. It would be interesting to find out why they are not taking paracetamol as prescribed, when being compliant might ease their chronic pain. The results indicate that the community pharmacy should focus more on counselling, using the "new medicine service" for this type of patient. Until recently only pharmacists have been allowed to perform this service, but as of 2025 pharmaconomists are also allowed to perform the service, which should make it possible to reach more patients, and hence improve compliance and reduce pain.

Dose dispensed medicine and medication adherence

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Background: Dose dispensed medicine (DDM) is machine-packed solid oral medication customised for each patient. A DDM-package organises individual dosages according to the prescribed administration schedule for a 14-day period. In Denmark, an increasing number of patients collect their DDM at the pharmacy every other week. At Vojens Apotek in Denmark, a pilot-study carried out in 2024 showed that six to eight pecent of the DDM was not collected on time. Further, the DDM expires only a few weeks after being packed. When taking old DDM-pouches, one risks taking outdated and wrong medication.

Objective: The objective was to identify how many and why some patients collect their DDM too late. The overall goal was to improve medication adherence for patients and prevent a discontinuation of their medicinal treatment.

Method: To evaluate the medication adherence of DDM patients, the number of uncollected DDM-packages was registered for three months at Vojens Apotek. Pharmacy staff interviewed 46 patients, collecting their medication after the start date, aiming to identify whether patients still managed to get their medication, even though they were late picking up their new dosage, and where they would get it from. In addition, interviews were conducted with 39 patients who collected their DDM on time to identify potential tools that could help non-adherence patients.

Results: This study showed that nine percent of the patients collected their DDM too late, with 85% of them still managing to take their medication during the missed days. Of these,

59% answered that the medication came from a previous DDM-pouch. It was also discovered that the main reason why the DDM was not collected on time was mostly a lack of time availability, illness, or because the patients had leftover medication from previous DDM. The pharmacy offered to dispose of expired pouches, which was welcomed by 57% of the patients. More than 90% of all DDM-patients collected their DDM before the start date. Half of the interviewed patients indicated that the appearance of their current DDM reminds them to collect the next dose. Around 15% used their calendar as a reminder.

Conclusion: DDM is associated with high patient compliance. However, this study has shown that medicine adherence is poor for some DDM-patients. Some patients do not collect their DDM on time and instead consume expired DDM-pouches or no medication at all. The DDM was intentionally not collected on time by some patients, which was largely driven by a lack of motivation. To improve medicine adherence, all new patients are recommended a compliance counselling session with a pharmacist. This project has emphasised the importance of motivating the patients to follow the administration time and dates on each DDM-pouch, along with written and verbal reminders of when it should be collected at the pharmacy. To help patients follow the correct DDM-dosage times, expired pouches can be disposed of when collected too late. Interviewing patients that collected their medication on time has led to the discovery of several tools that could help new and non-adherence patients.

Development and implementation of digital pharmacy for primary care service in Thailand

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Background: The COVID-19 pandemic profoundly disrupted access to healthcare services, particularly for underserved patient populations. To address these challenges, the Digital Pharmacy Prototype Project for Primary Care Services was launched.

Objective: This initiative aimed to develop and assess the Telehealth Thailand platform's effectiveness in delivering remote pharmaceutical care through community pharmacies.

Method: This action research was conducted in three phases:

1. Development of the Telehealth Thailand platform as both a web-based and mobile application, integrating features such as user registration, identity verification, virtual consultations, and electronic health data documentation.
2. Pilot implementation at four quality-certified pharmacies—two university-affiliated and two independent pharmacies in Bangkok.
3. Evaluation of the service from the perspective of users, focusing on accessibility, ease of use, and satisfaction.

Results: The Telehealth Thailand platform was established as a centralised national tele-pharmacy system, accessible via web and mobile applications. It adheres to the Pharmacy Council of Thailand's tele-pharmacy service standards and incorporates secure identity verification for users and providers, video-based consultations, standardised data formats, and comprehensive service documentation. Built using cloud architecture, the system complies with international standards, including CSA STAR Certification 2021, ISO 27001:2013, ISO 27799:2016, ISO/IEC 20000-1:2018, ISO 22301:2019, and ISO/IEC 27018:2019, ensuring data privacy and security. The service was utilised by 201 individuals, including 158 for minor illnesses, 31 for smoking cessation, and 12 for remote home visits. Overall user satisfaction was high, with an average score of 4.32 ± 0.70 out of five. Younger users (≤ 40 years) reported an average satisfaction score of 4.23 ± 0.71, while older users (> 40 years) reported a higher average of 4.71 ± 0.46. Users praised providers' friendliness and the relevance of health advice provided. However, internet instability and the complexity of the identity verification process were identified as key limitations.

Conclusion: The Telehealth Thailand platform demonstrates significant potential for improving access to pharmaceutical services at the primary care level using digital technologies. Further refinement is recommended to enhance system stability, user-friendliness, and scalability to support sustainable nationwide implementation.

Development guideline pharmaceutical substitution in medicine shortage

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Background: Medicine shortages will persist now and in the future. Pharmacists and general practitioners currently make cooperation agreements on pharmacotherapeutic substitution in many different and unstructured ways. To structure these cooperation agreements more and improve the handling of medicine shortages for pharmacists and general practitioners, KNMP, together with organisations of pharmacists and doctors, has developed a draft guideline for

pharmacotherapeutic substitution by pharmacists in the event of medicine shortages.

Objective: The purpose of the draft guideline is to provide frameworks for prescription adjustment(s) by pharmacists, in case of nationwide medicine shortages. The aim is to facilitate the handling of reduced medicine availability in practice for pharmacists and prescribers and ensure continuity of care for patients.

Method: In the second half of 2024, a number of working groups took place with representatives of organisations of pharmacists and general practitioners. Here, definitions (of drug shortages, pharmacotherapeutic substitution, among others), scope and guideline principles and working agreements were jointly developed. The representatives of organisations agreed on the content of the guidance document. Final adoption of the guideline will follow later in 2025. Parallel to the substantive development of the guideline, the Ministry of Health, Welfare and Sport is identifying which legal adjustments are needed. So that pharmacists can apply pharmacotherapeutic substitution within the legal frameworks.

Results: The working groups resulted in the following draft working arrangements:

1. The pharmacist takes the initiative towards prescribers to agree on pharmacotherapeutic substitution for the drug in question and proposes a pharmacotherapeutic alternative.
2. The pharmacist informs the patient that the medicine is not available and that the pharmacist will make efforts to arrange for an alternative medicine and will cooperate with the prescriber in this and that the patient can contact the pharmacist for questions regarding the conversion.
3. The pharmacist records to which medicine the initially prescribed medicine is pharmacotherapeutically substituted and links this (automatically) back to the prescriber.
4. The pharmacist ensures careful supervision of the patient and records the conversion in the patient file.
5. In case the drug is available again, there is a transition period after the drug shortage is eliminated. Pharmacist and general practitioner consider at group level or at patient level whether to convert patient(s) back to the initially prescribed medicine, based on national advice or not.

Conclusion: Although final administrative adoption of the guideline is still to come in 2025, and the guideline will take effect after that, we can conclude that the organisations involved consider the joint development of the guideline on pharmacotherapeutic substitution important. The organisations endorse the role of the pharmacist in pharmacotherapeutic substitution and the cooperation with the general practitioner /doctor in this. It is expected that the guideline facilitates the handling of medicine shortages for pharmacists and general practitioner. This will free up more time for other pharmaceutical patient care. The impact of the guideline will be monitored in the implementation phase.

Healthcare collaboration in Denmark: Pharmaconomists from Glostrup Community Pharmacy supporting general practice

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Background: Increasing demands on general practitioners (GPs) in Denmark have led to a need for innovative solutions to maintain high-quality patient care and compliance with national guidelines. One strategy to address these challenges is strengthening collaboration between pharmacies and GP practices. In response, Glostrup Community Pharmacy and a local GP practice established Denmark's first paid collaboration between a pharmacy and a GP, integrating a pharmaconomist into the clinic. The pharmaconomist's role focuses on supporting patient follow-up by conducting structured data reviews and identifying patients requiring medical attention. The pharmaconomist utilises targeted searches in the GP's electronic system to identify patients who have missed routine check-ups or require further evaluation. This approach optimises chronic disease management and ensures adherence to clinical guidelinesAn earlier phase of this collaboration demonstrated high satisfaction among both the GP and the pharmaconomist, leading to improved follow-up adherence and a more structured approach to patient data analysis. Building on these findings, the present study explores the impact and outcomes of the pharmaconomist's role in enhancing patient follow-up processes.

Objective: The study aims to document and share experiences from a pharmacy-GP collaboration, highlighting how pharmaconomists can support primary care through systematic data reviews and patient follow-up. Insights from this initiative may serve as inspiration for similar partnerships, demonstrating how pharmacy expertise can be effectively utilised within general practice.

Methods: This study employs a descriptive approach, documenting qualitative insights and experiences. The study focuses on:

- Documentation of completed tasks performed by the pharmaconomist.
- Identification of patients requiring follow-up based on structured searches in the GP's electronic records.

Results: Preliminary findings indicate that systematic searches conducted by the pharmaconomist in the GP's system have successfully generated lists of patients requiring

follow-up consultations—many of whom might otherwise have been overlooked. The search criteria applied by the pharmaconomist include diagnosis, prescribed treatments, and medication records, allowing for a targeted approach to patient identification. Proactively identifying these patients has enhanced adherence to national follow-up recommendations, particularly in chronic disease management. The structured approach has also reduced administrative burdens for the GP, improving workflow efficiency and ensuring timely patient care. A detailed overview of the pharmaconomist's tasks, including specific search strategies and findings on patient groups identified for follow-ups, will be presented at the FIP World Congress.

Conclusion: This pharmacy-GP partnership highlights the potential of integrating pharmacy professionals into primary care. By leveraging pharmaconomists' expertise in structured data reviews and patient follow-up, the collaboration has strengthened interdisciplinary cooperation, improved workflow efficiency, and enhanced compliance with clinical guidelines. The results suggest that pharmacy personnel can play a key role in optimising patient follow-ups, reducing administrative workload for GPs, and ensuring patients receive timely care. This model provides valuable insights for other pharmacies and GP practices seeking to implement similar initiatives. Detailed findings from this study will be presented at the FIP World Congress, offering practical guidance for expanding the role of pharmaconomists in primary healthcare settings.

Participation of pharmacists in the media in the Republic of Serbia - pharmacist as a journalist

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Background: The Pharmaceutical Chamber of Serbia (FCS) developed a marketing team in 2022, with 11 pharmacists, with the aim of becoming a relevant speaker in the media in the Republic of Serbia on issues related to the pharmaceutical profession. Selected pharmacists had finished media appearance course to become familiar with the foundations and principles of dealing with the media in real-world situations and also developed skills related to understanding media tools and media in general.

Objectives: The main goals are dedicated to hape public opinion about pharmacists as health professionals, disseminate information of importance to public health, countering misinformation, inform the public about new services in pharmacies.

Methods: The study is based on data derived from the FCS report from 2022 to 2024. The activities of the FCS marketing team were analysed and classified into four groups: pharmacists' appearance on television, radio, web and in print editions.

Results: In total, the marketing team of FCS had 527 media announcements in traditional media (TV, print, web and radio) in which the Pharmaceutical Chamber of Serbia, its members and key messages were mentioned. In 2022, the marketing team will have 19 television appearances and inclusion in live programs, 19 published texts and interviews in print editions, 107 texts published on the most read web portals in Serbia and two radio inclusions. In 2023, there were 29 television appearances and inclusions in live programs, 26 published texts and interviews in print editions, 123 texts published in the most read web portals in Serbia and two radio inclusions, while in 2024, the marketing team of FCS had 34 television appearances and inclusions in live programs, 12 published texts and interviews in print editions, 153 texts published in the most read web portals in Serbia and 1 radio inclusion.

Conclusion: The continuous presence in the media in the past years has raised the pharmaceutical profession from the media darkness, which can be clearly seen from the results that were made through the years. In addition to the texts initiated by the Pharmaceutical Chamber of Serbia, many media recognised pharmacists as relevant speakers on numerous health topics.

The medicines shortage reporting initiative (MedSRI): Preliminary results of an innovative approach to detect shortages on a European scale

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Background: The lack of supply of medicines is a global and growing problem that has negative effects on patients, health systems and healthcare professionals. Between 2019 and 2020, the General Pharmaceutical Council of Spain (CGCOF) led a project, funded by the European Commission, to exchange information on incidences of supply of medicines detected in community pharmacy. The project brought together pharmaceutical associations of Spain, France, Italy and Portugal, taking as a reference the Medicines Supply Information Centre (CisMED), created and managed by the CGCOF. In view of the good results obtained, other European countries showed interest in the initiative and the MedSRI

(Medicines Shortages Reporting Initative) project was launched in 2022.

Objective: MedSRI aims to create a platform to generate and exchange information on the unavailability of certain medicines in community pharmacies in Germany, Ireland, the Netherlands, Portugal and Spain using common terminology and criteria for medicine identification and reporting.

Method: To carry out this project, CisMED, recognised among the Best Innovative Practices of the European Union, has been used as a reference. In terms of technology, we rely on an SQL database, SAS and R statistical software, a web services interface and the Power BI tool to generate reports. During several virtual sessions, the proof of concept (PoC) standards and its basic parameters were established: the SNOMED CT terminology to identify the medicinal product, the definition of a common list of medicines -open and subject to adaptations-, the technical specifications of the platform and the methodology and requirements for uploading data on the MedSRI platform.

Results: Based on the data uploaded on the MedSRI platform, we have produced reports showing the evolution of the lack of availability of the common list of medicines at national level and a comparison between the participating countries, the latter based on aggregated data. Once the data is fully analysed, the results of the PoC will be published at the end of the year in the form of a final report.

Conclusion: The MedSRI project aims to create a harmonised (pharmacy-based) reporting system for shortages, allowing data to be compared at EU level on the basis of common criteria. The PoC has demonstrated that sharing the best practices between countries and relying on data from community pharmacy may contribute to the early detection and anticipate potential medicines shortages. It also showed that using common medicines identification standards and automatised shortages reporting processes are key to enabling competent authorities to have a complete overview of the availability of medicines at European level. Based on the results of the PoC, the value of the project will be tested and, if scaled up, it could serve as a best practice for a community pharmacy based-reporting tool to enable early detection of shortages, facilitating decision-making to mitigate or even prevent the impact of shortages at national and European levels.

Women of colour rightfully feel quite vulnerable in the world. Tennessee minority women views about the human papillomavirus vaccine a qualitative study in the USA

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Background: Human Papillomavirus (HPV) is the most prevalent sexually transmitted infection in the United States of America (USA), with more than 80% of all Americans acquiring HPV by age 45. Annually, over 45,000 HPV-related cancer diagnoses are reported. HPV infection is associated with the development of cervical, oropharyngeal, vaginal, vulvar, and mucosal cancer. HPV is associated with over 90% of cervical cancers, 75% of vaginal cancers, and 69% of vulvar cancers, leaving women disproportionately vulnerable to HPV-related cancers. The Advisory Committee on Immunisation Practices (ACIP) recommends that individuals aged 18 to 45 who were not vaccinated at a younger age consider the HPV vaccine via shared decision-making. The HPV vaccine is an effective tool for preventing HPV-related cancers but has suboptimal coverage and completion rates in the USA. Despite wide-spread availability of HPV vaccines, their uptake remains alarmingly low across all age groups. Tennessee, unfortunately, experienced the 8th highest incidence of HPV-associated cancers and the 5th lowest adolescent HPV vaccination rate in the USA in 2022. Annual HPV-related cancer screening rates for women remain lower amongst women of colour.

Objective: The aim of the study was to characterise Tennessee minority women's views regarding the HPV vaccine and to suggest strategies to alleviate disease burden.

Methods: This study was a prospective, observational, qualitative methods approach for women residing in Tennessee. Narrative interviews were conducted until thematic saturation occurred. Tennessee minority women were recruited through a snowball method. Flyers detailing the inclusion and exclusion criteria were posted in community-based locations throughout the state. This recruitment process ensured a diverse and representative sample. Subjects were interviewed telephonically, and audio transcripts were transcribed by a third party, ensuring objectivity and avoiding bias. Three researchers inductively coded the verbatim transcripts using Dedoose®, a qualitative software. The inductive codes were categorised based on similarities that facilitated the emergence of themes.

Results: Subjects (n = 21) who fit the inclusion criteria were interviewed telephonically during four months in 2024. The average age of the subjects was 28 (SD = 6.83). Most participants self-identified as African American (n = 11),

Latina (n = 8), and Asian (n = 3). The key theme: "Suggestions from minority women to enhance HPV vaccine uptake through improved educational efforts" was illustrated by subjects' quotes: "I think something to bring up is that this is a good way for women to protect themselves in context of sexual activity. I think that women of colour rightfully feel quite vulnerable in the world." "In this state, I think, nowadays, then to get more people in the community… maybe some kind of education and discussion around everybody who is in the first half of their lives, I think discussing the coverage aspects of that would be motivating to women in my community."

Conclusion: HPV awareness was low for Tennessee minority women. Targeted vaccination programs are needed to improve HPV vaccination uptake for minority women ages 19-45. Vaccination is a shared decision in preventing HPV-related cancers. Increasing vaccination rates is a key step in reducing the burden of these diseases.

An explorative study on evaluating medication adherence in patients with different falling risks

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Background: Risk factors for falls in the elderly include age, gender, balance issues, reduced muscle strength, chronic diseases, and concurrent use of multiple high-risk medications, such as benzodiazepines (BZDs), sedatives, antipsychotic drugs (e.g., haloperidol), tricyclic antidepressants (TCAs) and insulin. Medication adherence is crucial for adequate disease control and effective interventions. Nevertheless, the relationship between physical limitations and medication adherence is not well understood.

Objective: This study aims to investigate the association between medication adherence and patients with different falling risks.

Method: From September 1, 2023, to March 31, 2024, the medical team recruited participants from community residents in Pingtung County, a southern city in Taiwan. Recruitment included residents from Laiyi Township (Wangjia Tribe), Chunri Township (Guhua and Shiwen Tribes), Shizi Township (Neiwen Tribe), and Manzhou Township (Channgle Tribe). A total of 55 individuals were enrolled. From 8 a.m. to 4 p.m., the medical team conducted a brief review of baseline demographics. After completing the basic demographic survey, pharmacists administered a questionnaire and conducted a medication history review. The questionnaire utilised the Adherence to Refills and Medications Scale (ARMS) and the Medication Fall Risk Scale (MFS). ARMS consists of 12 questions designed to evaluate medication compliance, with scores ranging from 12 to 48. A lower score indicates higher adherence, meaning the patient is likely to follow the prescribed medication regimen closely. Scores exceeding 12 suggest poor adherence, prompting pharmacists to intervene and provide appropriate recommendations and guidance to both the medical team and patients. The MFS assesses potential fall risks, comprising six items: a history of falls, having two concurrent diagnoses or using more than two fall-prone medications, using assistive devices for activities, requiring infusion therapy, walking gait, and mental state. The total score is 125 points. A score below 25 indicates no fall risk, scores between 25 and 45 indicate low fall risk, and scores above 45 indicate high fall risk. he medical team includes physicians, pharmacists, nurse, nutritionist and rehabilitation therapist. Physicians conducted public health education. Pharmacists administered a questionnaire and conducted a medication history review. Nurse provided patient care, and nutritionist provided dietary hygiene education. Rehabilitation therapist arranged rehabilitation for patients.

Results: A total of 55 participants were recruited, and most of the common medication included anti-hypertension, hypoglycaemic, diuretic, and benzodiazepines. There were 42 patients (76.4%) with no risk of falling, while 13 patients (23.6%) with lower to high falling risks. Among participants with no falling risks, the average score of ARMS was 14.1 ± 1.9, while 16.2 ± 4.1 in the participants with low-to-high falling risks (p-value = 0.013, Figure 1. ARMS score between participants with no fall risks and Low-to-High risks.)

Conclusion: The results indicated that participants with low-to-high falling risks had poor medication adherence, suggesting overcoming physical barrier was an important factor in improving medication adherence.

Modernising patient pathways: A global vision for community pharmacy to 2030

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Background: In a previous vision statement, the International Pharmaceutical Federation (FIP) Community Pharmacy Section has identified key competencies for community pharmacists, including Review, Prescribe, Dispense, and Administer. Despite optimism about expanding roles, pharmacists face systemic and pragmatic barriers that limit their ability to focus on patient care. Healthcare systems worldwide are evolving to provide equitable, timely, and cost-

effective care, aligning with the World Health Organisation's goal of Universal Health Coverage.

Objective: This project, "Modernising Patient Pathways – Vision 2030" aims to build upon the established competencies of community pharmacists to develop a global vision for community pharmacy for 2030.

Method: A three-phase qualitative research approach will be employed. The first phase, Initial Stakeholder Perspectives, involved a focus group at the FIP World Congress in Cape Town, where practicing pharmacists shared insights regarding the future vision for community pharmacy (2024). The session was a guided discussion and was recorded, transcribed, and analysed using NVivo software. The second phase, In-Depth Stakeholder Perspectives, will consist of virtual semi-structured interviews with up to 20 leaders from FIP national member organisations, alongside additional virtual focus groups with practicing community pharmacists from various countries. These discussions will explore opportunities and challenges in community pharmacy, with transcripts analysed using thematic analysis. The third and final phase, will use insights from the previous phases to inform the development of a draft Vision 2030 document. This draft will be reviewed and refined through a final focus group session with relevant stakeholders at the FIP World Congress in Copenhagen.

Results: The expected outcomes of this research include a comprehensive vision document outlining the global evolution of community pharmacy and opportunities to expand pharmacists' roles. Through stakeholder engagement, it will identify emerging trends, such as improved integration of pharmacists into healthcare systems, and develop recommendations that may optimise patient pathways and address challenges such as technological integration, regulatory frameworks, and workforce sustainability. The Vision 2030 document could serve as a roadmap for strengthening the global impact of community pharmacy.

Conclusion: By leveraging stakeholder insights and international collaboration, "Modernising Patient Pathways – Vision 2030" aims to create a progressive and sustainable vision for community pharmacy. This initiative will guide future policy development and ensure community pharmacists play a central role in delivering accessible, high-quality healthcare.

Ask me about HPV- A pharmacy based educational initiative to empower Serbian pharmacies in promoting HPV vaccination

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Background: Cervical cancer poses a major public health challenge in Serbia, with morbidity and mortality rates of 27 and 14.2 per 100,000 women, respectively, in 2020. It is the third most common cancer among women in Serbia, following breast and colorectal cancers. Additionally, Serbia ranks third in Europe for cervical cancer mortality rates, behind Romania and Montenegro. Human papillomavirus (HPV) infection is the leading cause of cervical cancer, and vaccination against HPV has been shown to be an effective preventive measure. Since June 2022, free HPV vaccination has been available in Serbia for individuals aged 9 to 19 through the National Immunisation Program. However, despite the availability of free vaccination, coverage remains low. Since vaccination in pharmacies is still not possible in Serbia, this study aimed to implement the first Pharmacy-based educational program realised through the project of Pharmaceutical Chamber of Serbia (PSC) - "Ask Me About HPV".

Objective: The main goals of this project were to strengthen the role of community pharmacists in the HPV vaccination roll-out and to increase awareness among the general population about the significance of HPV vaccination in Serbia.

Method: A total of 250 pharmacists were selected and trained to provide information on HPV infection and promote vaccination uptake. After completing the training, pharmacists were awarded a badge that designated them as "Vaccination Consultant - Ask Me About HPV". All pharmacists who participated in the project followed standardised questionnaires designed separately for young adults (19 to 26 years) and for parents/guardians of children (9 to 18 years), to provide reliable scientific information about HPV and vaccination. Counselling was conducted from February to May 2023 in pharmacies marked with a poster that read "Ask Me About HPV". Data obtained using

uniformed questionaries were analysed using appropriate statistical methods.

Results: During the implementation of the " Ask Me About HPV" project a total of 24,327 individuals were educated, including young adults (n=11,313) and parents/guardians (n=13,014). Data revealed that only 4.9% of young adults and 6.4% of children of the surveyed parents/guardians in Serbia are vaccinated against HPV and most of them were female. In addition, this study revealed a significant gender difference in knowledge about HPV ($p<0.001$). Specifically, 38.4% of women and 21.7% of men, as well as 35.6% of girls and 33.7% of boys (of the parents/guardians surveyed), demonstrated awareness of HPV. Additionally, a significantly higher percentage of parents/guardians (42.3%) indicated they would vaccinate their children against HPV following pharmacy counselling, compared to young adults (34.1%). The project's results highlight the urgent need for educating the general population about the benefits of HPV vaccination.

Conclusion: The "Ask Me About HPV" project was the largest initiative undertaken by the PCS to date. The project identified significant gender differences in HPV awareness, with women and parents/guardians of girls displaying greater knowledge compared to men and parents/guardians of boys. Additionally, the project emphasised the crucial role of community pharmacists in HPV vaccination programs. By equipping pharmacists with essential knowledge and resources, the project enhanced their role in promoting vaccination, reducing hesitancy, and dispelling misconceptions.

Role of community pharmacists in allergic rhinitis management

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Background: Allergic rhinitis (AR) is a common condition that affects many people around the world. It can have a big impact on a person's daily life, causing problems like poor sleep, lower productivity, trouble concentrating. Even though AR is so common, there is not much research on how pharmacists can help manage it or how much the public knows about preventing it. This study aims to address these gaps by examining the experiences, practices, and perceptions of individuals suffering from AR, focusing on the role community pharmacists play in managing the condition.

Objective: The main goal of this study was to evaluate the impact of AR on individual's daily lives, assess their knowledge about AR symptoms and prevention strategies, and understand the role that pharmacists play in managing symptoms and helping with medication selection. This pilot study aimed to develop a survey and prepare the way for future research while also gathering insights into areas where pharmacist interventions could be improved to provide better support for patients with AR.

Method: A pilot study was conducted with 21 participants from a community pharmacy. Data were collected using a structured survey composed of original and sourced questions. The survey consisted of six sections: (1) demographic information, (2) experiences with AR, (3) practices regarding AR management, (4) perceptions of the pharmacist's role, (5) knowledge and attitudes toward AR, and (6) a qualitative section where participants could provide their suggestions for further analysis. Descriptive statistics: percentages, frequencies were analysed. The survey responses were subsequently examined to identify key themes and patterns related to AR management and public awareness.

Results: The study sample included 16 women and five men, with an average age (34.7) and education level (bachelor's degree), and the participants were from urban areas. AR symptoms were primarily found to cause sleep disturbances (26.7%) and reduced productivity (24.4%), with the most commonly reported symptoms occurring in May and June. Pharmacists were seen as helpful in selecting medications (85%), but their knowledge regarding AR symptoms and prevention strategies was found to be lacking (30%). While most participants could recognise AR symptoms, they showed low awareness of preventive measures. It was noted that pharmacists are often seen as the first point of contact for unexpected illnesses, as visiting a pharmacy is quicker than seeing a doctor.

Conclusion: This pilot study highlights the significant impact that AR has on individual's quality of life and emphasises the critical role pharmacists play as accessible healthcare providers. However, the findings reveal gaps in pharmacists' knowledge of AR prevention and diagnostic practices, which could limit their ability to support patients effectively. Improving pharmacists' training on AR could improve patient outcomes and address unmet needs in AR management. Future research should involve larger, more diverse sample sizes, explore interventions to improve pharmacists' competencies, and focus on public education campaigns to raise awareness of allergic rhinitis (AR) prevention. Based on this study, further research will investigate the months that present the most challenges for AR patients.

Cardiovascular risk assessments conducted in community pharmacy

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Background: Cardiovascular disease (CVD) is the second most common cause of premature deaths in England, further driven by health inequalities. People from deprived areas are four times more likely to die prematurely compared to people in more affluent areas. In North-East London (NEL) 130,000 people are living with heart and circulatory diseases that is claiming 220 lives monthly. People with high cholesterol who also have other risk factors (e.g. high blood pressure, diabetes, smoking) are at significantly greater risk of CVD, commonly asymptomatic, and have most to gain from a reduction in cholesterol.

Objective: The objective of this study is a service evaluation of conducting cardiovascular risk assessments in community pharmacy, focusing on addressing health inequalities and improving patient experience. The hypothesis is to identify people early, within the underserved communities, at risk of CVD, providing excellent experience.

Method: A community pharmacy was selected, to undertake opportunistic CVD risk assessments, in an area with the greatest deprivation in the UK. The pharmacy professionals conducted cholesterol point of care tests, blood pressure tests, measured height and weight to calculate the CVD risk using QRISK3. Each of these parameters were collected alongside patient demographics, including Index of Multiple Deprivation (IMD) and ethnicity. Feedback from people being tested, was captured using a survey, specifically on accessibility and acceptability. Culturally relevant lifestyle advice was offered to all. Referral to general practice (GP) was made for people with a QRISK3 of 10% or more, recommending initiation of lipid lowering therapy.

Results: A total of 44 people had their CVD risk assessment conducted over six weeks from 23/01/25. The mean age was 49 years; 17 (39%) were male; five (11%) were smokers; 31 (70%) lived in the 20% most deprived areas and 35 (80%) were from global majority ethnicities. The average blood pressure was 127/84mmHg and average body mass index of (BMI) of 30kg/m^2. Nine (20%) people had a QRISK3 of more than 10% and were referred to their GP for statin initiation. Of these individuals, eight (89%) were from 20% most deprived areas and seven (78%) were from global majority ethnicities. Six people responded to the survey. All respondents rated their experience as 'Excellent' or 'Good', wanting to recommend the service to family and friends. The service was praised for convenience, saving time compared to traditional GP appointments and quality of care. One respondent stated, 'the time saved is invaluable'.

Conclusion: Given the rising burden of CVD, there is a need to develop innovative services to enable earlier prevention strategies. Conducting CVD risk assessments in community pharmacy is effective in identifying people early. In addition, this setting enables people from underserved communities to be identified for CVD risk, reducing health inequalities. People were positive in their experience of this service. Community pharmacy is an acceptable setting to conduct opportunistic CVD risk assessments and is viewed as easily accessible. By facilitating immediate tests, there is a reduction in delays to clinical decisions.

Exploratory study on community pharmacists' wishes and needs to revise a national standard for pharmacy accreditation

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Background: In the Netherlands, community pharmacies receive practice accreditation through assessments by external auditors. The assessment instrument for this is the HKZ-standard: an International Standardisation for Organisation (ISO)-based accreditation-standard. The HKZ-standard was last thoroughly revised in 2015. Since then, pharmaceutical care in the Netherlands has evolved, with new professional guidelines from the KNMP and new pharmacy services such as consultations and digital services. Also, pharmacists have concerns about the administrative burden of practice accreditation.

Objective: For the planned revision of the national HKZ standard of accreditation, this study aimed to gather opinions from community pharmacists and external stakeholders, regarding:

1. Whether and how the HKZ-standard should be updated.
2. Additional issues from the evaluation of the accreditation practice.

Method: Qualitative research was conducted through three live focus groups with community pharmacists (18 independent pharmacists and quality managers from pharmacy chains). Focus groups were semi-structured, with discussion points prepared by two HKZ experts and four KNMP employees. Discussions were also held with

representatives from healthcare insurers and the Healthcare Inspectorate. Accreditation bodies were consulted by a questionnaire.

Results: Community Pharmacists:

- Found the HKZ-standard to be very static, with repeated certifications adding little value to quality management in the pharmacy.
- Desired a more risk-based approach in the HKZ-standard.
- Emphasised the importance of readability of the standard.
- Wanted tools alongside the standard, such as risk assessment instruments.
- Suggested new themes, including consultation, digitalisation, medication shortages, staff shortages, medication safety, and sustainability.

Health Insurers and Inspectorate:

- Valued the external assessments.
- Wanted more focus on the risk of medication errors.
- Health Insurers desired to measure adherence to the recommendations in the professional guidelines through the HKZ-Standard (including the consultation guideline).

Accreditation Bodies:

- Found the standard strong but detailed.
- Considered the standard outdated.
- Missed the focus on shared decision making (consulting) and side effect reporting.
- Desired a more risk-based approach in the standard.
- Sought better alignment with the professional guidelines.

Additional issues about the accreditation process:

- The auditor's approach significantly impacted pharmacists' experience. Pharmacists highlighted the need for auditors to be knowledgeable about pharmacy processes.
- Keeping the entire pharmacy team engaged is a challenge.
- Pharmacists, health insurance companies, and the inspectorate had critical views on 'multisite' certification (certifying a pharmacy chain through sample audits).

Conclusion: Revision of the standard is necessary. The standard should be less detailed, but more risk based. Pharmacists desire the HKZ standard to be more dynamic, so they can keep learning and improving the quality management in the pharmacy. Therefore, it is proposed to periodically highlight specific themes (e.g. staff shortages, medication shortages, sustainability vs. safety). Also, better alignment with the professional guidelines is needed. Implementation tools, such as risk management models, are needed, along with a transition plan for the new standard. The additional issues found in the study are very useful and will be addressed parallel to the revision process.

Extended pharmacist role in the eyes of pharmacists and physicians – results from national survey in Poland

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Background: Pharmaceutical services in Poland are limited. Act on the profession of pharmacist from 2020 allowed for the expansion of pharmacists' competences, but the practical implementation of the services foreseen in the legislation has been slow. Due to Poland's aging population and increasing burden of chronic diseases, there is a pressing need to implement effective pharmaceutical care services, particularly medication reviews. Collaboration between pharmacists and physicians in the drug review process is essential, but in Poland these roles operate separately, and their communication is limited to formal issues such as prescription corrections and not comprehensive patient care.

Objective: Aim of the study is to assess the collaboration potential between primary care physicians (PCPs) and pharmacists, as well as their attitudes towards pharmaceutical services, and perceived barriers to extended pharmacist role.

Method: Two online, self-reported survey questionnaires were administered to pharmacists and PCPs. Responses collected between September 2024, and February 2025 were included in the analysis. The form focused on assessing the elements that determine cooperation between doctors and pharmacists and attitudes towards increasing pharmacist role in patient care in Poland. Five-point Likert scale rating from 1 (strongly disagree) to five (strongly agree) were used for attitudinal assessment of pharmacist-physician collaboration.

Results: 305 pharmacists' and 118 PCPs' responses were analysed. Both groups overwhelmingly recognised polypharmacy as a significant problem among primary care patients (97,0% of pharmacists; 94,9% of PCPs). Both groups agreed on key roles that pharmacists could fulfil in coordinated care: identifying unnecessary medications received highest support (pharmacists: 88,9%; PCPs: 68,6%), followed by patient education about new medications (pharmacists: 85,6%; PCPs: 50,0%). Both groups recognised pharmacological knowledge as the most important skill for pharmacists (pharmacists: 89,2%; PCPs: 55,9%). Substantial perception gaps exist between pharmacists and physicians regarding both barriers to collaboration and the potential impact of pharmacist involvement. Pharmacists identified systemic barriers to collaboration at higher rates than physicians, with highest differences for lack of access to shared medical records (74,4% vs. 26,3%), lack of compensation (70,5% vs. 22,9%), and unclear regulatory

framework (67,2% vs. 30,5%). While 75,1% of pharmacists supported issuing continuation prescriptions, only 29,7% of PCPs agreed. Similarly, pharmacists expressed much stronger confidence than physicians in their ability to contribute to various aspects of patient care, including monitoring pharmacotherapy outcomes (64,3% vs. 14,4%) and identifying adherence barriers (65,9% vs. 33,1%). In the attitudinal part of the survey, 94,4% of pharmacists agreed compared to 80,5% of physicians that medication reviews will improve patient outcomes. Pharmacist expressed stronger confidence that their knowledge can support physician modifying patient's pharmacotherapy (85,2% pharmacists agree compared to 50,8% PCPs). We observed differences also on fundamental questions of whether pharmacists and physicians share a common goal of ensuring appropriate patient care: 93,4% pharmacists agreed vs. 79,9% physicians.

Conclusion: The survey results highlight both opportunities and challenges for implementing effective inter-professional collaboration between pharmacists and physicians. Agreement on certain pharmacist roles provides a foundation for inter-professional collaboration, however perception gaps suggest that significant work is required to build effective collaboration between two groups.

Development of an on-demand course in teaching for community pharmacy

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Background: In Denmark, community pharmacies can provide education in municipalities. The project Strengthening Medication Safety in Danish Municipalities aimed to improve medication safety by using pharmacy expertise to provide training and consultancy for nursing homes, home care, and residential facilities. Pharmacy workforce from 21 pharmacies received a physical course in teaching, developed and delivered in collaboration with Kursustrappen, a professional course provider specialising in education. The project improved municipality employee competencies and medication handling in 20 municipalities. Key outcomes included tailored training of pharmacy workforce, education of municipality employees, delivery of quality assurance and medication reviews, and effective collaboration between pharmacies and municipalities. But the project also highlighted the need for competency building among pharmacy workforce with teaching tasks. Competence enhancement is needed in a flexible way, so that the pharmacy workforce can take the course when it is needed for them.

Objective: The aim of this project was to develop an on-demand course to improve teaching and communication skills among pharmacy workforces.

Method: The course design and development were informed by data from project evaluations from the project Strengthening medication safety in Danish municipalities and literature on teaching methodologies from Effektiv undervisning – en håndbog til dig, der underviser som en del af dit job by Troels Bom. A team-based approach was used, including workshops, facilitating collaboration among team members. The work was structured using a table, focusing on producing goals for the activities. The table had the following headings: Learning Objectives, Key Points, Curriculum, Description for the Participant, and Reflection Questions and Exercises for the Topic. Additionally, the e-learning part of the on-demand course was tested and adjusted by two individuals from the department and will be evaluated by future users of the on-demand course to continuously adjust and ensure its effectiveness and usability.

Results: The project has successfully developed, tested, and adjusted an on-demand online course that incorporates four elements: Self-study, two feedback sessions and a final submission of reflections. The Learning objectives in the self-study were: Understanding how to achieve learning, Understanding their role as educators, Planning lessons to promote learning, Using teaching aids and teaching methods based on the target group, Understanding the teaching principles of whole/element, functional/formal, and inductive/deductive, and Evaluating teaching. The self-study includes education videos produced by Kursustrappen. The course was designed to enable pharmacy workforce to enhance their teaching and communication skills through a structured approach that enables participants to plan, conduct, and evaluate dialogue-based teaching sessions and adapt existing teaching materials and sessions to better meet the needs of the target group.

Conclusion: An online on-demand course was developed from a physical course to enhance the teaching skills of community pharmacy workforce through a structured approach combining self-study and feedback. Launch, use and further evaluation are ongoing. When the course is evaluated, it will be possible to determine the benefit of the pharmacy workforce benefit and to further develop the course based on the findings.

Mentalising – a tool for improving customer satisfaction through emotional awareness and patient-centred communication

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Background: Working closely with customers or patients, it can be difficult not to get affected when one is met with feelings of frustration or dissatisfaction. Likewise, it can be difficult not to pass those feelings of your own, onto the person in front of you. This can result in negative customer interactions, stress and decreased work satisfaction. In November 2023, the entire staff of two community pharmacies attended a short course on mentalising, while a handful attended an in-depth, four-month mentalising education programme. Through patient-centred communication and emotional awareness, mentalising allows one to care for the customer's emotions, while separating them from one's own. Subsequent to the education programme, the pharmacy staff has observed notable improvement of customer interactions. Previous studies on mentalising have shown promising results with regards to emotional self-awareness and job-related stress in pharmacy staff. This project will provide an overview of what effect mentalising has from the customer's point of view.

Objective: The aim of the project is to evaluate how the education on the mentalising mindset and mentalising communication affects the customer satisfaction in a community pharmacy setting.

Method: The project is being carried out at two community pharmacies in Copenhagen, Denmark. From March to July 2025, each staff member will be given five consecutive mentalising exercises spanning over three weeks each focusing on emotional awareness and mentalising communication. Furthermore, quantitative measures of customer feedback and a customer experience questionnaire will be carried out in the same timeframe. The quantitative evaluation will be compared with customer feedback received before working with the mentalising exercises.

Results: The qualitative evaluation from the pharmacy staff has so far revealed positive outcomes: improved awareness of both own and the patient's emotions; ability to separate emotions; more patient-centred counselling; and a feeling of making a difference for the patient and taking care of yourself at the same time. The results from the quantitative evaluation of customer feedback will be presented at FIP Congress 2025.

Conclusion: The project will be finalised by August 2025. A notable improvement has been observed in the staff's own perceptions of the desk interactions; therefore, we expect to observe an equal improvement of the customer satisfaction.

A qualitative exploration of informal carers experiences in accessing and receiving support within community pharmacies

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Background: People with long-term conditions (LTCs) often require assistance from informal carers to support medication use. Therefore, carers frequently access community pharmacies to collect medications and seek advice. However, the contributions of carers for medication management in LTCs is not clear, and their need for support remains inadequately understood. Exploring the unmet needs of carers is crucial to developing best practice support recommendations, optimising their involvement, and improving health outcomes.

Objective: To explore the experiences and support needs of carers in medication management and accessing community pharmacies in the United Kingdom (UK).

Methods: Semi-structured interviews were conducted with carers for people with LTCs either in-person or via video call-based software. Adult carers who provide unpaid assistance with medications for individuals with at least one LTCs were interviewed. Experiences and perspectives regarding the barriers to and facilitators of medication management roles and accessing community pharmacies were discussed. Interviews were audio-recorded, transcribed verbatim, and analysed using a reflexive thematic approach. Ethical approval was obtained from the Newcastle University Research Ethics Committee (Reference: 50254/2023).

Results: Twenty carers were interviewed, and the sample included a diverse range of ethnic backgrounds, consisting of 11 self-reported ethnic groups, across the UK. All participants were familial carers, including 13 (65%) who were caring for a parent. Five themes were developed which centred on (i) caregiving perceptions; (ii) journey to become a carer; (iii) reflection on carer lived experience; (iv) community pharmacy staff roles in supporting carers; and (v) partnership toward integral support. A wide range of medication-related activities were offered by carers to support people with LTCs. Most participants described community pharmacies as a quick access point for medication-related support during their caregiving journey. However, participants often require additional support ranging from basic assistance to

emergency support beyond standard operating times. Also, participants flagged their need for user-friendly tools to navigate the system. Overall, participants support needs varied based on their level of involvement.

Conclusions: This study focused on the diversity of carers experiences including carer and care-recipient dyads, LTCs of care-recipients, roles in medication management, and carers background. Carers roles mirror the responsibilities of pharmacy staff in medication management, coordinating care and liaising with other healthcare providers as required. Personalised medication management strategies to support carers are critical to tailor to the unique needs of each carer effectively. Also, tackling fragmentation between community pharmacy staff and other healthcare providers is key to facilitating carers roles. Community pharmacy staff should consider revising approaches, ensuring carers are aware of the available support. Community pharmacies can build trust with carers and consequently offer support, but they may need to be more than a business entity or source of medication supply. Further research is needed to address how to structure carer support from the perspective of community pharmacy staff.

Empowering pharmacists through population health management: The development of a barometer to strengthen primary care

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Background: As healthcare systems worldwide face increasing pressures due to an aging population and a growing burden of chronic diseases, Belgium is no exception. With 4,557 pharmacies serving 11 million citizens, community pharmacists are well-positioned to play a crucial role in primary healthcare. However, shifting from reactive to proactive care with a focus on prevention is essential to successfully address future healthcare needs.

Objective: This project explores Population Health Management (PHM) as a strategy to enhance the role of pharmacists in primary care. By implementing audit and feedback mechanisms, we aim to equip pharmacists with tools to effectively monitor and manage their patient populations.

Methods: A key innovation within this initiative is the development of a series of barometers, starting with the Diabetes Barometer. This tool enables pharmacists to systematically identify, and track diabetes patients based on six scientifically validated indicators. The barometer provides individualised insights at the practice level for each pharmacy while also aggregating regional data from participating pharmacies. At a meso level, regional benchmarking allows pharmacists to compare their performance with that of their peers, fostering continuous quality improvement.

Results: The implementation of the Diabetes Barometer has led to an increase in local multidisciplinary discussions among healthcare professionals. By visualising key health indicators, pharmacists gain insights into the proportion of high-risk patients or those with unmet needs, enabling them to proactively contribute to patient care. The tool empowers pharmacists to take the first steps toward data-driven decision-making and strengthens their role as frontline healthcare providers.

Conclusion: This initiative demonstrates that PHM-supported barometers can enhance pharmacists' contributions to population health. By integrating these tools into daily practice, pharmacists can move beyond medication dispensing to become key players in preventive healthcare. Expanding this model to other chronic conditions like COPD, holds great promise for optimising primary care delivery worldwide.

Pharmacists' experiences with dispensing MS-2 step for medical termination of pregnancy in Australia

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Background: Recently, Australia made legislative changes aimed at improving community access to medical termination of pregnancy (MTOP). Previously, medical practitioners and pharmacists in Australia needed to be trained and registered to prescribe and dispense MTOP, respectively. This created barriers to access, as finding registered health professionals was often challenging. In August 2023, the Therapeutic Goods Administration amended these restrictions, allowing all qualified medical practitioners to prescribe MS-2 Step (a combination of mifepristone and misoprostol) for MTOP, and all pharmacists to dispense it, with training being optional and the requirement to register being removed.

Objective: The study aimed to explore the experiences of Australian pharmacists in training for, and dispensing MS-2 Step for MTOP before and after the regulatory changes that occurred in August 2023.

Method: An online cross-sectional quantitative questionnaire was developed to explore experiences of dispensing MTOP. All practising Australian community pharmacists were eligible to participate. Data was collected through Qualtrics from October 2 to December 9 and analysed descriptively in SPSS, using chi-square tests to investigate correlations.

Results: Ninety community pharmacists from six of Australia's eight states completed the questionnaire. Most respondents were from Western Australia (63.3%), and female (72.2%). Seventy-three participants (81.1%) were aware of the recent regulatory changes to dispensing. Seventy-five participants (83.3%) knew about the training for dispensing MTOP medications. Fifty-one participants (56.7%) completed training before August 2023, eight (9.0%) completed training after this date, and 31 (34.4%) remained untrained. Reasons for training included feeling a duty to provide access to MTOP (81.4%), seeking knowledge to assist patients (76.3%), and valuing free training (42.4%). Participants were untrained in dispensing MTOP because they were unaware of the training (34.6%), did not know how to access training (30.8%), or felt time constraints (26.9%). When exploring dispensing habits, the main reasons for not dispensing before August 2023 included not being trained and registered (56.8%), stock issues (47.7%), or no prescription presented (20.5%). After August 2023, stock issues (41.0%), no prescription presented (33.3%), or personal beliefs (25.6%) were the main reasons. Sixty-seven (75.3%) participants felt confident about dispensing MTOP medications safely, and confidence was correlated with training as 56 (96.6%) of trained pharmacists felt confident dispensing MTOP, compared with 11 (42.3%) untrained pharmacists (Chi-squared, $p < 0.001$).

Conclusion: Our results show that regulatory changes had a limited effect on the dispensing habits of our respondents, however this was a limited sample. MTOP training positively affects pharmacist confidence, yet barriers like limited training awareness and stock shortages persist. Overcoming these barriers is essential for Australian community pharmacists to safely dispense MTOP medications. Further research should promote MTOP training, investigate if medical practitioners face similar prescribing barriers, and examine stock issues to improve accessibility for Australians within the time constraints for MTOP medications. Addressing these barriers will enable pharmacists to provide safe, timely care, benefiting the Australian community and enhancing pharmacists' roles in reproductive healthcare.

Implementation of improved electronic medication data transfer in the kickstart: Almost ready to go live

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Background: Every year, thousands of patients are readmitted to hospitals in the Netherlands due to missing or incorrect medication data. The national Medication Data Transfer Programme focuses on the need for complete and accurate electronic transfer of medication data, which can prevent medication errors and unnecessary hospital admissions. The initiative is crucial for improving medication safety and efficiency in the healthcare chain. By implementing the guideline 'Transfer of medication data in the chain' and the new information standard Medication Process 9, the programme aims to close the gaps in current medication data transfer processes. The Kickstart focuses on implementing digital data exchange that provides an up-to-date and complete medication overview for every healthcare professional and every patient. The Medication Data Transfer Programme is part of VIPP Pharmacy. The VIPP Pharmacy programme (accelerating information exchange between patient and professional in community pharmacy) focuses on improving the electronic transfer of medication data and increasing the uniformity and quality of medication monitoring in pharmacies. By completing the Kickstart, part of the healthcare field will have established a chain-wide digital data exchange for the Medication Data Transfer Programme. This will provide a lot of knowledge, insights and lessons learned that can be used in VIPP Pharmacy.

Objective: The primary goal of the Kickstart is to test the Medication Process 9 information standard in a limited setting and demonstrate its value for healthcare. The hypothesis is that standardised electronic transfer of medication data will significantly improve medication safety and streamline administrative tasks for healthcare providers. The Kickstart should demonstrate that digital medication transfer works and prepare for national implementation.

Method: The Kickstart started in October 2022 and involves cooperation between healthcare providers in the West Friesland and Rijnmond regions, including one community pharmacy in each region, supported by regional collaborative organisations (RSOs). Implementation follows a step-by-step approach, including preparation, prescribing, verification, dispensing and administration of medication. Data are collected from participating healthcare providers and analysed to assess the effectiveness of the implementation and adapt to specific healthcare processes.

Results: Initial findings indicate that standardised electronic transfer of medication data improves medication safety and reduces administrative workload. Healthcare providers

report better access to up-to-date and complete medication overviews, which improves patient care and reduces the risk of medication errors. By the end of 2025, participating healthcare providers in the Kickstart are expected to go live with much of the functionality of Medication Process 9, allowing healthcare providers and patients to access an up-to-date and complete medication overview.

Conclusion: The Kickstart shows considerable potential for improving medication safety and efficiency in the healthcare chain. The standardised approach facilitates better data exchange and reduces the risk of errors. Going live is eagerly awaited. Future work will focus on extending the implementation to other regions and refining the information standard based on practical experiences. This initiative is part of a broader strategy to improve healthcare through better data management and collaboration.

Better and more uniform medication monitoring in the Netherlands: Ready for the future!

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Background: Around 27,000 patients are hospitalised annually in the Netherlands due to medication incidents, some of which are avoidable through better data sharing. Better medication monitoring is crucial to reduce medication errors, increase patient safety and make care more efficient, thus also preventing unnecessary costs. The current medication monitoring system in the Netherlands has a lot of potential to be improved. For instance, signals that are not relevant to a patient can be significantly reduced and medication monitoring can provide much more targeted advice based on a patient's individual situation and characteristics. The VIPP Pharmacy programme (accelerating information exchange between patient and professional in community pharmacy), including the Medication Monitoring module, focuses on improving the electronic transfer of medication data and increasing the uniformity and quality of medication monitoring in pharmacies.

Objective: The aim of the Medication Monitoring module is to achieve improved and more uniform medication monitoring through ICT modifications to the Pharmacy Information System (AIS). The 'engine' to be built can apply complex knowledge rules to relevant medication- and non-medication-related patient data from the AIS, can cleverly combine data and is triggered at the right moment upon receipt of a new or changed data or at a self-selected moment, but not if the signal has already been handled previously. This should lead to fewer irrelevant signals allowing pharmacists to focus on signals relevant to an individual patient. This will better support pharmacists in signalling and handling pharmacotherapeutic problems.

Method: The project is divided into three phases:

1. Preparation: General and technical preparation, including preparation of an action plan and a general design for the Medication Monitoring module.
2. Development: Detailed preparation, building, testing, validation and field testing of the new medication monitoring module.
3. Implementation: Introduction of the module at three pilot community pharmacies, followed by a three-month period in production run.

Results: The new medication monitoring should be able to apply more complex knowledge rules to data from the AIS, leading to more relevant signals and less 'signal fatigue' (due to many irrelevant signals). Field tests at three pilot community pharmacies will show whether the new module is effective in daily practice.

Conclusion: The implementation of the new medication monitoring module is expected to lead to a significant improvement in the quality of medication monitoring, with fewer irrelevant signals and better support for pharmacists. Improved medication monitoring will contribute to higher patient safety and more efficient care delivery. Future improvements can focus on further refinement and expansion of the knowledge rules and optimisation of ICT applications based on feedback from the field test. This module is part of the broader VIPP Pharmacy programme, which focuses on accelerating information exchange between patient and professional. Future work may focus on national implementation of the new module and further integration with other healthcare systems.

Pharmacist attitudes to community pharmacist access to digital patient records in Scotland

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Background: The FIP Community Pharmacy vision emphasises the importance of pharmacists having access to health records to enhance patient care. The Royal Pharmaceutical Society recognised the significance of harnessing digital technology and innovation in its Pharmacy 2030: A Professional Vision for Scotland. A key enabler for the workforce is read and write access to digital patient records. In line with commitments made by the Scottish Government in the Digital Health and Care Strategy, RPS undertook work to explore the attitudes of pharmacists in Scotland.

Objective: To understand the attitudes of pharmacists to community pharmacist read and write access to digital patient records.

Method: On online survey was developed and was open to all pharmacists practicing in Scotland. Distribution was via RPS newsletters and social media channels. The survey remained open for 29 days across May/June 2024. Researchers conducted a thematic analysis of the results. Ethics approval was not required.

Results: A total of 229 individuals responded to the survey, with 209 eligible for inclusion. When asked is it important community pharmacists have access to digital clinical information systems, 198 respondents (95%) answered "yes," eight (4%) answered "maybe," and three (1%) answered "no." Regarding the perceived benefits of such access, 201 respondents (96%) answered "yes," five (3%) answered "maybe," and 3 (1%) answered "no." Of the 209 respondents, 106 (50.7%) were community pharmacists. The remaining 103 respondents worked in other sectors, primarily in primary care (44.6%) and hospital settings (43.6%). Of those, 95 (92.2%) felt it was important for pharmacists working in community to have access to digital clinical systems. When asked which systems pharmacists would benefit from having access to, 206 respondents gave suggested systems. Access to the Emergency Care Summary (ECS) was identified as the most essential system. Additionally, clinical portal, Vision/EMIS, Key Information Summary, and laboratory results were seen as beneficial systems for community pharmacists to access. A question on anticipated benefits of community pharmacists having read and write access to digital patient health records, invited free text responses. Themes identified included improving patient safety, facilitating seamless care, enhanced clinical decision making, efficiency. When asked for examples of practical applications, answers included more accurate and ease of providing emergency supplies, reducing calls to other healthcare providers (e.g. out of hours, GP surgery) to obtain clinical information, all clinicians making safer prescribing decisions in view of the timely updated and full clinical picture, opportunities to remove work from hospital/GP settings.

Conclusion: The survey results indicate strong support among pharmacists for community pharmacists having access to digital clinical information systems. A significant majority (95%) of respondents believe access is important, and 96% perceive benefits from it. This consensus underscores the potential for improved patient care and safety through enhanced clinical decision-making and efficiency. These findings suggest enabling community pharmacists to access digital clinical systems could significantly enhance the quality of care provided, streamline processes, and foster better collaboration within the healthcare system.

A greener pharmacy toolkit to support a healthier planet

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Background: The climate change crisis is a global health emergency, and the healthcare sector contributes significantly to the environmental impact. The Royal Pharmaceutical Society (RPS) and the National Health Service (NHS) are committed to promoting sustainable practices across all pharmacy settings. We were conscious that pharmacy teams were not supported to assess and reduce their own environmental impact.

Objective: To produce resources which are designed to empower pharmacy staff to reduce the environmental impact of their ways of working, and to contribute to a net zero healthcare system.

Method: Experts were brought in to bring together new and existing information on actions to reduce the environmental impact of medicines and pharmacy practice. They drafted guidance, created a toolkit and embedded a carbon calculator to be used in practice. This then went out for consultation and trialling by teams who would be using this toolkit. A pilot was then carried out before the launch.

Results: Twenty-five percent of NHS carbon emissions are from medicines. Pharmacy teams have a massive role to play in reducing this impact by first looking at their own practices and the impact they can make there. The toolkit and guide are ready for implementation within pharmacy settings (from April 2025) and expected to lead to positive changes and a reduction in environmental impact across Community and Hospital Pharmacy across the next two years. The RPS Greener Pharmacy Toolkit provides a practical and user-friendly mechanism for community and hospital pharmacies to reduce carbon impact across six domains. These are: People, Clinical Practice, Operations and Strategy, Resource Use, Information and Communications Technology, and Travel. The Toolkit enables pharmacies to self-accredit their sustainability status, achieve levels of environmental attainment and local recognition, identify further areas for improvement, and foster a team culture of environmental sustainability.

Conclusion: The RPS Greener Pharmacy Toolkit and Guides provide a valuable resource for pharmacies to adopt sustainable practices and contribute to a healthier planet. It gives pharmacy teams a place to start to support the NHS to achieve net zero. The Guide and toolkit are adaptable to

different pharmacy settings and can be tailored to meet specific needs.

Training for community pharmacists in Wales delivering the pharmacy independent prescribing service: The impact on self-perceived knowledge and skills

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Background: Pharmacists are increasingly assuming prescribing roles and providing more complex patient care, requiring upskilling, undertaking prescribing qualifications and other additional training (Welsh Government, 2024). When undertaking prescribing training pharmacists select a clinical area of practice to train and prescribe in. As a prescriber, pharmacists have a professional duty to prescribe for conditions in which they are competent and possess the required knowledge and skills. In Wales, the Pharmacy Independent Prescribing Service (PIPS) enables qualified prescribing community pharmacists (CPs) to diagnose, manage, and treat specified conditions under the PIPS service specification (CPW, 2023). Health Education and Improvement Wales, in collaboration with the Royal Pharmaceutical Society, provided fully funded training for CPs based in Wales providing the PIPS service. Between May 2024 and March 2025, standardised two-hour training sessions on six clinical topics (dermatology, respiratory, ear, urinary, children's conditions, and contraception) were delivered over six weeks across Wales and online by subject matter experts. Sessions covered diagnosis, management, prescribing, red flags, referrals, and safety netting. Sessions included presentations, case studies, quizzes, and Q&A.

Objective: This research looked at whether pharmacists attending training sessions were already delivering the PIPS service and already had the knowledge and skills to manage patients and prescribe in the clinical topic covered, and whether the training sessions increased their self-perceived knowledge and skills to manage patients and prescribe in the clinical topic covered.

Method: Qualitative methods were used to gather information on the scope of practice of pharmacists that attended the training session, and whether they were already prescribing in the clinical topic they attended training on or whether they were seeking to expand their scope of practice beyond that which they've completed training on. An anonymous, self-completed questionnaire was sent via email to all attendees within a day post-training. Ethical approval was not sought for this study, as respondents consented to data being used for research and publication. Data was analysed using thematic analysis to identify key themes related to pharmacists' learning experiences and prescribing practice.

Results: Of the 930 pharmacists that attended the training sessions between June 2024 and Jan 2025, 64.8% completed the questionnaire. Results showed that an average of 74.6% (n = 33) of attendees from each session were accredited to deliver the PIPS service. A percentage of 44.4 respondents reported they already had knowledge of the clinical topic covered prior to attending the training session. A further 77.3% reported they experienced a large change in their self-perceived knowledge due to attending the training session and 66.7% felt confident after the session in their knowledge and skills to manage the condition(s), including diagnosis, offering advice, treating and referral criteria.

Conclusion: As pharmacists take on increasingly clinical roles and undertake more prescribing activities, further training and education is needed to develop the necessary knowledge and skills. Previous studies have shown training sessions effectively enhance pharmacists' knowledge and confidence, better preparing them to provide care for patients by managing conditions and prescribing (Birt *et al.,* 2022, Kamarudin et al., 2013). Participants strongly supported access to regular learning sessions in other clinical areas.

Policy frameworks, theories or models underpinning health policy development: A systematic review

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Background: Health policies are established to address a specific health need, however, may not always be the result of a structured rational process of evaluation or developed using established policy frameworks, theories or models (FTMs). Greater use of FTMs in health policymaking may provide further insight into policy development and overcome barriers to policy inaction. This review aims to analyse the FTMs and their components underpinning health policy development and health settings to which they are applied.

Method: A systematic review was conducted using Cochrane methodology and following the PRISMA reporting guidelines. Several databases were searched using keywords and MeSH terms. Quality appraisal was undertaken using the AMSTAR tool.

Results: From 1059 citations, 18 systematic reviews were identified. Twenty-eight FTMs with 15 key components in policy development identified. Key components identified include policy actors, policy context, institutional and system factors, networks and coalitions, content, politics and political context, personal values and beliefs, research evidence, collaboration, knowledge transfer, external factors, diffusion, innovation and use of narratives. The most frequently mentioned components include policy actors (85%), policy context (71%) and institutional and system factors (68%). Policy actors being influential individuals, groups and organisations pivotal in orchestrating and influencing policy development; policy context encompassing systemic factors as well as timing within the broader political system; and institutional factors relating to the internal institutional considerations including the feasibility of policies, staffing, capacity, ongoing resource allocation, costs, infrastructure and systems, interdepartmental collaboration and aversion by government or departmental staff towards a policy problem or proposed policy change. FTMs were predominantly applied in policies related to health equity, population and public health (n = 16), sexual, reproductive and women's health (n = 14), HIV (n = 12), and physical activity, obesity prevention and nutrition (n = 12).

Conclusion: The utilisation of health policy FTMs in the development of health policy may allow evidence-based, more targeted and relevant health policies to be developed. Further research into the components specifically identifying the critical components that lead to successful and optimal development and implementation of health policy may assist in developing a policy framework specific to health policy development that can be applied to pharmacy and pharmacist scope of practice.

A hybrid service model for sleep disorder management in pharmacies in Thailand

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Background: The prevalence of insomnia among the older population in Thailand was high at 44%. Obstructive sleep apnea (OSA) was found in approximately 10% of the population, with 71% classified as severe OSA. Accessibility and affordability of polysomnography for assessing OSA are limited. The Thai National Health Security Office's policy does not cover this service. A large number of patients with sleep problems initially preferred to consult pharmacists about their condition.

Objective: The aim of this pilot study was to design a protocol for providing sleep disorder management in pharmacies and/or through tele-pharmacy.

Method: The protocol was developed and tested at two pharmacies – one in Bangkok and one in a rural area of Thailand - from January to March 2025. The pharmaceutical care process consisted of the following steps:

1. Patients with sleep problems approached pharmacies either onsite or online
2. Pharmacists identified the causes of sleep problems, including medications-induced insomnia, assessed sleep quality using the Pittsburgh Sleep Quality Index, and screened for OSA risk using the Epworth Sleepiness Scale
3. At-home sleep apnea tests (dNapz®) were administered if the Epworth Sleepiness Scale exceeded 15
4. Patients meeting the referral criteria – such as those at high risk for OSA or with a history of depression, psychosis, post-traumatic stress disorder, drug abuse, alcohol addiction - were referred to a doctor
5. Pharmacists provided both non-pharmacotherapy and pharmacotherapy for sleep problems and monitored their efficacy and safety on a weekly basis.

Results: This is the first sleep disorder management program in pharmacies in Thailand. Seventeen patients (88% onsite) participated in this program. The mean age of the patients was 41 years, and 65% were female. Their mean body mass index was 26 kg/m2, and 47% consumed alcohol. 35% experienced snoring. More than 40% had difficulty falling sleep or woke up during the night. 33% of the patients had chronic sleep problems. Factors related to sleep problems included internet use before sleep (53%), stress (41%), and poor sleep hygiene habits (82%). Five patients (29%) received trazodone, along with sleep hygiene education. Two of them showed improvement in their sleep problems within 3 days, while the others were monitored. 47% took magnesium supplements, and 6% consumed dietary supplements containing chamomile, along with sleep hygiene education. Most of them showed improvement. Two patients had poor compliance with continuous positive airway pressure (CPAP). Their sleep quality was tested using dNapz®, which revealed a decrease in oxygen supply. Pharmacists advised these patients, which led to improve their compliance with CPAP. The cost of dNapz® was one-fourth that of in-lab polysomnography.

Conclusion: Most patients with sleep problems who received services from pharmacies had short-term issues related to poor sleep hygiene habits. Sleep hygiene education was the primary recommendation and led to improvement. This sleep program is easily accessible and affordable, aiding in the early detection of OSA and the prevention of complications. This sleep program has the potential to be implemented into the private healthcare system in Thailand, including health insurance.

Anti-doping awareness among community pharmacists in Norway: A study using a simulated patient

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Background: The role of community pharmacists extends beyond dispensing medications; they provide crucial information about the use of medications, including among athletes. The World Anti-Doping Agency (WADA) Prohibited List includes substances commonly found in everyday medications. This list includes amongst others insulin, beta-2 agonists, diuretics, stimulants, anabolic androgenic steroids, certain painkillers, and glucocorticoids through specific administration methods. The use of prohibited substances by athletes can lead to sanctions, making it crucial for athletes and their support personnel to be well-informed about anti-doping regulations. Community pharmacists are at the forefront of disseminating this essential information.

Objective: This study aimed to evaluate the knowledge of community pharmacists regarding anti-doping regulations and their ability to advise athletes.

Method: The study employed the simulated patient (SP) method to systematically collect quantitative data from community pharmacies across Norway. Using random sampling from a registry provided by the Norwegian Medical Products Agency, data collection occurred in two phases. The SP followed a predefined script and meticulously documented pharmacists' responses during interactions. Each interaction involved the SP posing a question about an elite-level handball athlete using asthmatic treatment medication listed on the prohibited list. In the second phase, the SP directly inquired whether pharmacists were aware that salbutamol appeared on the prohibited list if the pharmacist had not mentioned it themselves.

Results: The study documented interactions between SP and pharmacists in 296 cases via phone calls. Out of 327 pharmacies contacted, 29 were unreachable after two calls, and two declined to participate. The study found that 46.6% of pharmacists were able to identify that salbutamol was on the prohibited list. Among those who identified salbutamol, 19.3% achieved a high anti-doping advising score, 30.7% had a medium score, and 50.0% received a low score.

Conclusion: The study highlights the need for enhanced training programs targeting community pharmacists to better prepare them for their advisory roles in anti-doping. Pharmacy education curricula should incorporate comprehensive modules on anti-doping regulations and the prohibited list. Future research should explore community pharmacists' perspectives on their role in providing anti-doping guidance and the views and needs of athletes regarding the guidance provided by pharmacists.

Pharmacists in Serbia in the fight against antibiotic resistance

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Background: Antibiotic resistance is a serious global problem. In 2022, the Pharmaceutical Chamber of Serbia (PCS) launched a national project titled “Antibiotic Consultant” with support from the Second Serbia Health Project, Ministry of Health. As part of this project, a standardised service was introduced for dispensing antibiotics prescribed by a physician. Providing a standardised service is crucial for ensuring good adherence and reducing the risk of adverse reactions and drug interactions. Since 2017, the PCS has been actively participating as a partner to the Republic of Serbia’s Ministry of Health in the Campaign for Rational Use of Antibiotics.

Objectives: The main objective is the rational use of antibiotics by providing a standardised service at the time of dispensing. Such a service is of key importance for:

e) Supporting patients in the proper use of their therapy

f) Educating patients, their family members, and service users about the health consequences of unnecessary/improper use of antibiotics

g) Informing the general public about the consequences of antibiotic resistance.

Methods: Successful completion of accredited training is a prerequisite for providing standardised pharmaceutical services. This training includes: a review of antibiotics in accordance with the National Guidelines, clinically significant interactions, adverse reactions, non-pharmacological measures, and the structure of patient counselling, based on pre-established guidelines drafted by an expert working group. After completing the training, the pharmacist follows a standardised form to provide the service and records it using a digital platform. Once the pharmacist has conducted and recorded at least 30 counselling sessions, they receive the “Antibiotic Consultant” badge. During the counselling session, in addition to verbal advice, the pharmacist also provides the patient with written instructions (a flyer containing pictograms to facilitate remembering all necessary information about using the prescribed antibiotic). Starting in 2024, the PCS website features a special “Find a Consultant” section, enabling patients to locate the nearest pharmacy

with an Antibiotic Consultant by searching their geographic area.

Results: A total of 29,124 standardised services were recorded (in the period from January 2022 to March 2025) by 644 pharmacists in 195 towns/cities throughout Serbia. Among these pharmacists, 428 have received the Antibiotic Consultant badge. The collected and analysed data indicate that:

h) A total of 55% of patients were simultaneously taking other medications

i) In 84% of cases, the prescribed antibiotic interacted with food

j) In 90% of cases, there was a potential adverse effect of the antibiotic that required warning the patient

k) In 17% of cases, the patient had taken an antibiotic in the previous three months

l) In 7% of cases, the pharmacist identified an inconsistency in antibiotic prescribing, of which 18% were reported to the physician, resulting in appropriate therapy adjustments.

Conclusion: Antibiotic Consultant make a significant contribution in combating antibiotic resistance. This standardised service directly affects treatment success, which is one of the prerequisites for reducing antibiotic resistance. Patients are better informed about antibiotic use and understand the dangers posed by irrational application. Additional counselling on vaccination against influenza, pneumococcal disease, and pertussis is essential in reducing the need for antibiotic use.

Systematic learning from medication safety incidents reported by Finnish community pharmacies

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Background: Medication errors are a major global cause of patient harm, leading to increased costs for patients and societies. As most medications are used at home, effective risk management in the outpatient medication process is essential. Community pharmacies play a key role by dispensing outpatient medicines and ensuring their safe and rational use. They contribute to preventing medication-related harm by detecting, resolving, and reporting medication errors. Finland's National Medication Safety Programme for Community Pharmacies (Valo programme 2021–2026) introduced the patient safety incident reporting and learning system (HaiPro), widely used in Finnish health and social care (HSC) organisations, for community pharmacies in late 2021. This facilitates a more comprehensive approach to improving medication safety across the entire outpatient medication management process involving multiple healthcare actors. However, the implementation of structured practices is crucial for effectively utilising safety incident data.

Objective: To describe structured practices for the utilisation of medication safety incidents reported by community pharmacies in Finland.

Method: The HaiPro system is used for in-house and inter-organisational reporting. It enables community pharmacies to report medication errors (e.g., prescribing errors) to the HSC organisations where the error actually occurred and vice versa. The medication safety incident data accumulates at the organisational, regional and national levels. While individual community pharmacies can access only their in-house incident reports, the Association of Finnish Pharmacies (AFP) anonymously administers the nationwide data for medication safety development purposes. The AFP conducts annual surveys to assess how community pharmacies utilise incident reports and related AFP-provided resources.

Results: In Finland, the structured practices for the utilisation of medication safety incidents reported by community pharmacies are implemented at three levels:

1. Organisational (micro) level: Community pharmacies and HSC organisations independently manage incident reports to support in-house safety improvements.
2. Regional (meso) level: Incident reports transmitted between community pharmacies and HSC organisations support regional medication safety improvements and collaboration efforts within wellbeing services counties. In addition, networks of regional community pharmacy medication safety pharmacists share key safety risks and best practices that emerged from in-house incident reports.
3. National (macro) level: Brief Medication Safety Alerts and broader Medication Safety Reports (Valo Reports) regarding key medication safety themes guide national-level safety initiatives in community pharmacies, HSC organisations, and their collaborative practices.

The national HaiPro data is also used for scientific research and other safety initiatives. According to the annual survey (2024) to community pharmacies (response rate 74%, n=602/812), 87% (n = 521/602) had implemented safer practices by utilising incident reports, national Medication Safety Alerts and Valo Reports.

Conclusion: Incident reporting in community pharmacies is a valuable tool for enhancing outpatients' medication safety. A

structured approach is essential for utilising reported incidents to prevent future errors and improve outpatient medication risk management. Regional collaboration between community pharmacies and HSC organisations, along with leveraging national data are key strategies for maximising the benefits of this data and promoting shared learning.

Impact of Coenzyme Q10 as Adjuvant Therapy with Letrozole in Ovarian Stimulation for a Poor Ovarian Responder Undergoing IVF

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Background: Despite advances in assisted reproductive technology, poor ovarian response (POR) remains a challenge for reproductive clinicians. Patients with POR are treated via oral or injectable ovulation induction (OI). Letrozole, an aromatase inhibitor used for breast cancer, also induces ovulation by increasing follicle-stimulating hormone (FSH). Coenzyme Q10 (CoQ10) is an antioxidant that protects mitochondria from oxidative damage. Evidence suggests CoQ10, as an adjuvant to OI with letrozole, improves ovarian response, ovulation, and pregnancy rates (Ivy Nasrin et al., 2022).

Objective: This case report evaluates the impact of adding CoQ10 to letrozole in a patient with POR.

Methods: A 36-year-old woman with AMH levels below 1.2 ng/mL was diagnosed with POR while undergoing in vitro fertilisation (IVF). She was treated with letrozole 2.5 mg orally for five days. Community pharmacists recommended adding 90 mg of CoQ10 daily during OI and a maintenance dose of 30 mg during the non-treatment period. Follow-up was conducted for six months through medication counselling at the Keio University Faculty of Pharmacy Affiliated Pharmacy in Tokyo, Japan. Doctors monitored follicular size via ultrasound and administered the HCG injection to trigger oocyte maturation on the day of IVF.

Results: The number of follicles in each IVF cycle was two (14 mm and 18 mm) and three (16 mm, 17 mm, and 18 mm), respectively. Follicles measuring 12–19 mm on the day of trigger contributed the most to the number of oocytes and mature oocytes retrieved (Ali Abbara et al., 2018). However, the second IVF cycle was suspended due to the presence of three follicles. Based on these findings, the physician planned to shorten OI treatment to three days for the next cycle. The results indicate that ovulation rates and follicles were significantly higher in the patient receiving CoQ10 with letrozole. This combination may shorten OI treatment duration and reduce the need for injectable ovulation agents in POR patients.

Conclusions: This case shows that CoQ10, as an adjuvant, enhances the response to letrozole and may reduce the need for injectable OI for POR patients.

Promoting medication refills in patients with chronic diseases through Line smartphone application in Taiwan

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Background: With the universal healthcare coverage provided by the National Health Insurance system in Taiwan, patients with chronic diseases can refill their repeat prescriptions up to three times. May of these patients rely on pharmacy reminders for timely refills, and delays in refilling their medications can lead to missed doses, worsening health conditions, and medication waste. In some cases, doctors may increase the dosage of medications, mistakenly attributing a lack of improvement to adequate treatment rather than missed doses, which can lead to unintentional overdosing.

Objective: The project aimed to evaluate the effectiveness of using the Line smartphone app to send text reminders, encouraging patients to collect their second and third prescription refills. By improving adherence, this approach may help manage chronic conditions more effectively and reduce medication waste.

Method: Between December 2024 and February 2025, every patient visiting the participating pharmacy was invited to add the pharmacy's official Line account as a contact. Participants were then assigned to one of five groups based on the type of reminder they received for medication collection. Group A received a telephone reminder, Group B received a text message, and Group C received a Line message. Group D received a phone call reminder, followed by a Line message if they missed the collection after the phone reminder, while Group E received a text message reminder, followed by a Line message if they missed the collection after the text reminder. The collection rates across all groups were analysed, with a particular focus on Group D and E to assess any changes in collection rates after the secondary reminder.

Results: Group C, which received Line message reminders, had the highest collection rate, followed by Group A with phone call reminders. Group D (phone calls followed by Line messages) and Group E (text messages followed by Line messages) had moderate collection rates, while Group B, which received only text message reminders, had the lowest collection rate. One advantage of using LINE messages, as

seen in Group C, was that the pharmacy could track which patients had read the messages and responded to inquiries promptly. In Group A, the collection rate depended on whether patients answered the phone calls-those who did typically collected the medication, while those who missed the call often did not. For Group D, the pharmacy was able to address patients' concerns directly through LINE messages, while for Group E, it could determine whether the notifications had been read. The low collection rate in Group B may have been due to patients overlooking the text messages or technical issues preventing successful delivery.

Conclusion: Using the Line application to remind patients with chronic diseases to collect their medication appears to enhance adherence, helping reduce medication waste and the environmental impact of missed collections. Moreover, this user-friendly and effective approach strengthens communication between the pharmacy and patients, supporting medication consultations and health education.

Standardised pharmaceutical services in the monitoring of chronic non-communicable diseases - the pharmacist as consultant for diabetes, asthma, and hypertension

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Background: Since 2019, the Pharmaceutical Chamber of Serbia (PCS) has introduced and implemented standardised pharmaceutical care services provided by primary care pharmacists for patients with diabetes, asthma, and hypertension.

Objectives: Standardised pharmaceutical care aims to improve patients' knowledge about their disease and their motivation to increase adherence to therapy.

Methods: The pharmacist attends an education course organised by PCS and, afterwards, begins to counsel patients. The counselling takes place in several steps, each time a therapy is dispensed, to highlight an important aspect of the disease so that the patient is not overwhelmed with a lot of information at once. Each consultation is recorded by the pharmacist via a specially set up "Pharmaceutical Services" portal. After completing at least 10 consultations, the pharmacist receives the "Asthma Consultant", "Diabetes Consultant," or "Hypertension Consultant" badge. The "Find a Consultant" function on the PCS website helps patients to find the nearest consultant pharmacist for diabetes, asthma, or hypertension.

Results: As of 2019, 348 pharmacists across Serbia have started counselling patients with diabetes, asthma, and/or hypertension, and 231 of them have received at least one consultant badge. So far, a total of 3542 services have been provided. Diabetes consultations were provided by 198 pharmacists, 152 of whom have completed the course and obtained the "Diabetes Consultant" badge. So far, 2,210 services have been provided for patients with diabetes. From 2022, 112 pharmacists are consulting asthma patients, 58 of whom hold the "Asthma Consultation" badge. In addition, 922 services were provided for asthma patients. As of 2024, 38 pharmacists are advising people with high blood pressure, 21 of whom hold the "Hypertension Consultant" badge. So far, 410 services have been provided for patients with high blood pressure. Services are provided in more than 90 cities and towns across the country, and the number of pharmacists interested in providing consultation services is steadily increasing.

Conclusion: The primary care pharmacist providing services for diabetes, asthma, and hypertension plays an important role in the Serbian healthcare system. The introduction of a consultant pharmacist is important for patients, as they are expected to achieve better disease control through better adherence to therapy. This concept is also important for the pharmacist because he takes care of the patient and works better with doctors and other members of the healthcare team.

Constipation management and misconceptions: The essential role of pharmacists in patient education

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Background: Constipation, whether occasional (OC) or chronic (CC), impacts quality of life and increases healthcare costs. Misconceptions hinder effective management. Pharmacists are key in dispelling myths and providing accurate information. This review provides healthcare professionals (HCPs) and pharmacists with evidence-based knowledge to enhance patient education and treatment,

particularly concerning stimulant laxatives' efficacy and safety.

Myths and Misconceptions: A literature review identified common misconceptions, including those related to age, gender, treatment, and health risks. Contrary to belief, constipation is not inevitable with aging. Though prevalence increases modestly due to colonic dysfunction, diet, medications, and reduced activity. While common in women, it affects both genders, with less disparity in children and older adults. Normal bowel frequency ranges from three times/day to three times/week, challenging the belief that daily bowel movements are necessary. The Rome IV criteria define constipation based on subjective and objective symptoms, not frequency alone. OC is often presumed to be triggered by lifestyle changes, while CC might persist despite interventions. A new definition of OC was published in October 2023 by Rome Foundation: ''Individuals who experience the presence of at least one functional constipation symptom (reduction in frequency of bowel movements, straining, lumpy or hard stools, sensation of incomplete evacuation, sensation of anorectal obstruction or blockage) in the absence of alarm signs or symptoms, occurring at irregular and infrequent intervals, which is bothersome enough to induce a patient to seek medical management''. The definition does not limit constipation to the reduction or absence of bowel movement. Laxative treatment, such as stimulants effectively relieve OC, whereas CC typically requires bulk-forming or osmotic laxatives. Treatment should be individualised based on symptom severity and response. Contrary to common belief, fibre may not always reduce constipation and can worsen symptoms in cases of obstructive evacuation. Increased water intake offers limited benefit unless dehydration is present. The role of exercise remains inconclusive due to mixed research findings. When used appropriately, stimulant laxatives do not cause dependence, addiction, or rebound constipation. Long-term bisacodyl use has not shown habituation. Unlike substances crossing the blood-brain barrier, stimulant laxatives do not induce pharmacological addiction. However, misuse for weight loss—particularly in individuals with eating disorders—is a concern. Proper laxative use has limited impact on weight due to transient loss of stool volume. Research indicates that appropriate usage does not result in imbalances or long-term intestinal damage. Any temporary discomfort can be managed through dose adjustment. Additionally, scientific literature does not establish a conclusive connection between constipation and colorectal cancer. While probiotics may offer benefits, additional research is necessary to determine optimal strains and dosages.

Conclusion: Constipation management requires an individualised approach, involving dietary modifications, lifestyle changes, and appropriate laxative use. HCPs and pharmacists are essential in educating patients, dispelling myths, and ensuring safe, evidence-based treatment choices.

Identifying pharmacy services for healthcare professionals in Funen's nursing homes and home care facilities to optimise medication management.

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Background: Elderly people taking multiple medications face risks like over- or under-medication and adverse effects from incorrect dosages, interactions, or usage. Medication errors are a major issue in the Danish healthcare system, with serious health and financial consequences. Healthcare professionals in nursing homes and home care facilities are responsible for dispensing medications and act as independent assistants to doctors. Community pharmacies can help in reducing and preventing medication errors by providing these professionals with medication insights and improving medication management.

Objective: This project aims to identify pharmacy services that can optimise medication management for healthcare professionals in Funen's nursing homes and home care facilities. An anonymous questionnaire was used to address their experiences, challenges, and desired support.

Method: A purpose-designed anonymous questionnaire was distributed to nursing homes and home care facilities located on Funen to gather information on:

m) Contact with pharmacies.

n) Specific challenges during medication management.

o) Desired services from pharmacy professionals

Data was collected in spring 2025 using Microsoft Forms® and analysed with Excel®.

Results: The results represent data gathered over two weeks; however the project will continue to gain more perspectives. Fifty healthcare professionals participated, with 80% contacting the pharmacy due to doubts or questions about residents' medication. Of these, 52% contacted pharmacies two or more times per month in 2024. Most questions were about prescriptions on the server (31%), dosed medicine (17%), and alternative medicine due to shortages (16%). Significant challenges included disturbance in nursing homes (42%) and medication shortages (48%). Other challenges were lack of prescriptions and medicine packaging (32%), inconsistency between the prescription/Common Medicine Card and the actual medication list (30%), discrepancies in dosing times (24%), and correct registration in the system (30%). Additional challenges included prescribing half an extended-release tablet and/or a capsule that cannot be

divided, standard indications not specific to individual residents, and lack of updates on medication changes regarding storage and administration. The fifty healthcare professionals desired help from the pharmacy with medication shortage status (21%) and teaching in medication management (17%). They also sought assistance with dose-dispensed medication (14%), medication review for residents (11%), substitution of medication and pharmaceutical form (11%), and checking inhalation techniques (10%).

Conclusion: The questionnaire shows that healthcare professionals face challenges in daily medication management and are interested in pharmacy services to optimise their daily medication management. Further research would involve a pilot project connecting a pharmacy professional to a nursing home or home care facility to offer medication reviews, manage medication shortages, dose-dispense residents' medication, check inhalation techniques, teach healthcare professionals, and assist with medication substitutions. This will help determine the significance of pharmacy services in reducing medication errors and enhance the collaboration between pharmacies, nursing homes, and home care facilities for optimised medication management.

Development and testing of vitamin D measurement at the pharmacy

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Background: We frequently encounter customers at the pharmacy who have been told by their doctor that they are deficient in vitamin D and need to take a supplement, but that they have not been told how much. When we inquire about this, it often turns out that the customer has not had their blood levels tested as the Danish healthcare regions have become increasingly reluctant to measure vitamin D. This makes it difficult for us to assess how much vitamin D the customer should take. There are general recommendations, but customers often want to take more because they believe they have a deficiency – either because they have sought information themselves and interpreted it, or because their doctor has told them they are deficient without providing further guidance on how much they should take.

Problem Statement: I will investigate whether it makes sense to offer vitamin D testing at the pharmacy. The issues I will explore include how such a test would work at the pharmacy, how we can interpret the results, and whether customers are even interested in paying for such a test.

Target Group: Pharmacy customers who request vitamin D, with a particular focus on individuals in risk groups, as well as pharmacy staff who would be able to provide more relevant advice.

Method: Once I have clarified which test to use, how to interpret the results, and what the test will cost the customer, I will conduct a number of trial tests. I will measure how many customers purchase vitamin D at the pharmacy and how many of these are interested in being tested. I will also conduct a survey among the pharmacy's vitamin D customers to find out what they think about testing at the pharmacy and whether they would use such a service if it is one they need to pay for. Actual measurements of a number of customers who want this, as well as a survey of their thoughts on the experience.

Vaccine prescribing patterns at three (3) Canadian community pharmacy-locations in Vancouver, BC

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Background: Since 2009, community pharmacists practicing in British Columbia, Canada, have had an expanded scope of practice to independently dispense and administer vaccinations, including vaccines for travel, without needing a physician's prescription. The following study analyses the pharmacy claims database of three (3) community pharmacies for vaccine prescribing patterns based on the current recommendations set by the Canadian National Immunisation Technical Advisory Group (NACI). Over one hundred thousand (n = 101,346) vaccinations to pharmacy patients over six years were reviewed.

Methods: A Retrospective review of community pharmacy claims data using pharmacy software was conducted across three locations across Vancouver, BC, Canada. Search parameters were specific for pharmacist-initiated vaccines including seasonal respiratory immunisations (COVID-19 and Influenza), routine immunisations, recommended unfunded vaccinations and travel vaccinations over six years (January 2019 to December 2024). To determine the vaccine prescribing patterns the number of vaccines prescribed, the NACI recommendations followed, and the implementation strategies used by the pharmacist for each class of vaccination prescribed and administered were evaluated.

Results: Fourteen (14) different immunisations were prescribed by pharmacists at the locations including seasonal respiratory vaccines (Influenza (n = 76,393), COVID-19 (n = 15,976)), routine vaccines (Tetanus/Diphtheria (n = 794), Measles Mumps Rubella (n = 484), Hepatitis B (n = 1490)),

recommended unfunded vaccines (Herpes Zoster (n=2012), Pneumococcal (n=741), Respiratory Syncytial Virus (n = 386), HPV9 (n = 556), and travel vaccinations (including Hepatitis A, Yellow Fever, Typhoid, Rabies, Japanese Encephalitis, and Meningitis ACWY) (n = 2514). Most vaccinations were administered at the community pharmacy, with approximately 25% administered offsite at mobile clinics at public centres and employer offices.

Conclusions: Pharmacist vaccine prescribing patterns were consistent with the guidelines set by NACI based on recommended populations for each prescribed vaccination. Establishing a long-standing community pharmacy-based influenza vaccination program helped pharmacists develop the knowledge and confidence to offer eligible patients additional antigens such as COVID-19 vaccinations during the pandemic, and other recommended vaccinations based on age, medical conditions, and other risk factors such as international travel. Implementation facilitators were consistent with the key policy enablement areas identified by the Federation of International Pharmacy (FIP), including a prescribing authority for vaccines, vaccination services remuneration models, and access to data and patient vaccination records. This pharmacist-led immunisation example illustrates the independent prescribing and administration of recommended vaccinations to be consistent with best practice. It could be expanded to other jurisdictions globally to support access to recommended vaccinations through the community pharmacy.

The risks and benefits associated with the self-selection of medications: A systematic review

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Background: The three classes of medicinal products for humans under the Human Medicines Regulations 2012 in the UK are General Sales List (GSL) Medicines, Pharmacy Medicines (PMEDs), and Prescription-only Medicines (POMs). PMEDs, for short-term treatment of transient medical conditions have traditionally been stored in pharmacies to limit self-selection by the public; allowing pharmacist oversight and involvement in their sale. However, existing legislation does not prevent pharmacy owners from placing PMEDs within public reach. Since the UK pharmacy regulator (GPhC) implemented an outcomes approach to pharmacy standards inspection, pharmacies are increasingly incorporating self-selection models for PMEDs. The aim of this rapid systematic review was to assess the known risks and benefits associated with the self-selection of medications.

Method: This systematic review was registered on PROSPERO (CRD42024600283) and follows the PRISMA 2020 mixed-methods systematic review reporting guidance. The search was conducted from 01/10/2024 to 22/10/2024 across three databases (PubMed/Medline, Embase, and Cochrane Library). Medical Subject Headings (MeSH) terms and free text with wildcard truncations were used. Only studies published from 01/2014 to 10/2024 in English were included. Findings concerning all non-POMs were included due to the limited evidence specifically relating to PMEDs. Identified studies were exported to Mendeley with the titles, abstracts and subsequently full text independently screened by two authors. All included papers were assessed using Mixed Methods Appraisal Tool (MMAT) or JBI critical Appraisal Tool, depending on the study type.

Results: Of the 104 studies screened, 56 studies were included in the final review, providing insights from 24 named countries, including Australia (10/56), United States of America (6/56), and Poland (6/56). Nine of the 56 studies are global studies. Majority of the study participants were either pharmacy professionals (23/56; 41%), or patients (28/56; 50%). Community pharmacies were the most common study setting in the included papers (30/56; 54%). The recorded benefits of medication self-selection were explored by several studies, with four core narratives identified: convenient healthcare access (n = 20), reduced pressure on health systems (n = 8), improve self-care capability (n = 10), equitability of care access (n = 2). Seven themes were identified relating to the risks associated with medication self-selection: adverse events (n = 19), inappropriate use of medication (n = 17), health literacy (n = 6), self-diagnoses delaying medical attention (n = 8), HCPs' education/training on clinical evidence (n = 4), limited opportunity for pharmacist intervention (n = 3), and counterfeit medications (n = 2). The included studies employed diverse methodological approaches with varying levels of rigour, including questionnaires (43%), systematic reviews (11%), and mystery shopper/patient simulation studies (9%).

Conclusion: This literature review identified benefits and risks associated with the self-selection of medications. Benefits such as increased healthcare accessibility demonstrate the potential positive impact for patient empowerment and improved care equity. However, the risks, including adverse events and inappropriate use underscore the need for targeted education interventions. Expanding the evidence base to understand the risks and benefits associated with P medicines (PMEDs) self-selection will be important for providing ongoing accurate assessment of self-selection models for PMEDs. One approach could be adopting a "test-and-learn" approach across self-selection models, with regular audits, evaluations and research to ensure safety and efficacy.

Exploring community pharmacists' perceptions of the accessibility and rational use of innovative drugs in China under dual-channel policy: A qualitative study

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Background: The dual-channel policy, allowing community pharmacies to dispense innovative medications listed in the National Reimbursement Drug List, has enhanced patient access to innovative drugs. However, despite its benefits, community pharmacies face significant challenges in implementing this policy. Limited research has explored their motivations and adaptive strategies. This study examines how community pharmacies adapt to the Dual-Channel policy, with a focus on improving drug accessibility and promoting the rational use of innovative medications in China.

Methods: Semi-structured interviews were conducted with 10 pharmacy managers and licensed pharmacists from dual-channel pharmacies in Jiangsu Province, China. Participants were selected through purposive and snowball sampling. Interviews were recorded, transcribed, and analysed using framework analysis, with NVivo software supporting data management until theoretical saturation was reached.

Results: While transitioning to dual-channel pharmacies enhanced business growth and competitiveness, challenges emerged, including space constraints, regional disparities in e-prescription systems, a passive role in hospital and pharmaceutical company collaborations, and rising patient service expectations. To adapt, community pharmacies need to upgrade infrastructure, such as pharmaceutical service areas, insurance billing systems, and patient management platforms. Additionally, pharmacist training must be strengthened in areas including innovative drug knowledge, disease management, healthcare reimbursement policies, patient counselling, and emergency response. Enhancing both infrastructure and professional competencies will improve service efficiency and better meet patient needs.

Conclusion: This study highlights key challenges in implementing the Dual-Channel policy and the strategies used to address them. As the transition to dual-channel pharmacies is viewed positively, further efforts from government level are needed to strengthen collaboration among hospitals, pharmacies, and pharmaceutical companies, ensuring more effective policy implementation and service integration.

Strategies for professional pharmaceutical impact on Alzheimer's disease

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Background: Alzheimer's disease involves a decline in cognitive abilities and functional capacity, along with the appearance of behavioural and psychological symptoms. Dementia, cognitive disorders, and Alzheimer's disease are multifactorial disorders that require a multidisciplinary approach. Alzheimer's is the fifth leading cause of death in Argentina, affecting more than 400,000 people. These data make this disease a global health crisis that must be addressed. Pharmacists, as healthcare professionals with expertise in medicine, have a fundamental mission in the various areas where they provide care: hospitals, primary care, and community pharmacies, with a daily presence responding to needs that often transcend healthcare. The pharmacist's role as a healthcare worker has multiple responsibilities, actively participating in both early detection and the therapeutic process of the patient, as well as in the care required by caregivers. This last aspect is especially relevant given the high level of dependency experienced by Alzheimer's patients. Physical strain is often compounded by an even more devastating strain: emotional strain. The proximity and accessibility of the community pharmacist undoubtedly makes them an essential ally in their daily lives. In addition to dispensing medications, which is obviously essential, it is necessary to support the patient, family members, and caregivers, providing them with technical advice about the disease, dietary care, hygiene and safety measures, and communication skills.

Objective: To describe the strategies pharmacists use to provide information to family members and patients with Alzheimer's. To implement the strategy of providing information via QR codes in open-access pharmacies and measure its impact.

Method: Ten pharmacies located in the city of Buenos Aires and surrounding areas were selected and agreed to participate. The Dementia Knowledge Assessment Scale (DKAS) was conducted to determine the baseline status of the sample. This survey included sociodemographic data such as pharmacy location, age, gender, and graduation years of the participating pharmacists. Participants were assessed on their knowledge of symptoms/diagnosis, pharmacological and non-pharmacological treatments, behavioural-psychological symptoms, and ethical-legal aspects. Online training was provided for participating pharmacists with the Instituto Universitario Cemic (IUC) and the Association for the Fight Against Alzheimer's Disease of the Argentine Republic (ALMA). The research team, together with the IUC and ALMA, developed a QR code containing the material that patients, family members and caregivers can access.

Results: Scores below 70% were obtained for the instructions related to causes, characteristics, communication, and behaviour. Scores above 70% were obtained in the areas of care, risk factors, and advocacy.

Conclusions: This strategy, still being implemented, helped pharmacists approach people with Alzheimer's more confidently after the training, and the use of the QR code helped improve the information provided to patients, family members, and caregivers.

Exploring pharmacy professionals' knowledge, perceptions, and practices related to climate change adaptation: A focus on wildfire smoke and extreme heat

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Background: In the Western United States, climate change is increasing the frequency, severity, and timing of climate-related health hazards, including extreme heat events and wildfire smoke. Pharmacists can play a crucial role in educating patients to mitigate these risks, yet challenges and opportunities remain in effectively leveraging pharmacists' roles in addressing climate-related health impacts. This study explores pharmacy professionals' knowledge, perceptions, and patient education practices regarding wildfire smoke and extreme heat.

Methods: A cross-sectional survey of pharmacists, pharmacy students, and technicians in the Western U.S. was conducted with participants recruited via professional email networks and snowball sampling. Responses were collected anonymously online between July and September 2024, a period when wildfire smoke and extreme heat commonly occur. The survey included multiple-choice, Likert-scale, select-all-that-apply, and open-ended questions. Likert-scale responses were numerically coded for analysis. Survey responses were included in the final analysis if at least 75% of the questions were answered.

Results: Sixty-nine responses met inclusion criteria, representing pharmacists (n=55), pharmacy interns (n=11), and technicians (n=3) from community (n=33), hospital (n=18), and other pharmacy practice settings (n=18). Most responses were from Montana (n=57), where the survey originated. On a 5-point scale, with 1 = "not at all knowledgeable" and 5 = "extremely knowledgeable," respondents reported the highest levels of knowledge about proper medication storage during hot weather (mean 3.62/5), health risks of wildfire smoke exposure (mean 3.40/5), and smoke exposure prevention (mean 3.26/5). The lowest levels of knowledge were reported for the impact of heat-sensitising medications on heat exposure risks (mean 2.97/5), identification and treatment of heat-related illness (mean 2.94/5), and developing a patient wildfire action plan (mean 2.36/5). Respondents perceived patient education for medication storage (mean 4.00/5), risks of heat-sensitising medications (mean 3.94/5), and risks of smoke exposure (mean 3.64/5) to be the most important of the options provided. However, despite this perception of importance, patient education practices were inconsistent, and counselling on these topics was relatively infrequent. Nearly one in three (29%, n = 20) respondents reported not counselling on any of the listed topics in the past 30 days. The most cited barriers to patient education were "patients are not interested in this information" (33%, n = 23) and "I do not know enough about these topics" (32%, n = 22). Encouragingly, 49.3% (n = 34) of respondents expressed at least moderate interest in further training, and 30.4% (n=21) reported being at least moderately interested in greater involvement with public health planning for heat and wildfire smoke.

Conclusion: Pharmacy professionals reported variable levels of baseline knowledge about extreme heat and wildfire smoke, with gaps in knowledge in specific areas such as heat-sensitive medications and heat-related illness. While respondents perceived these topics as important for patient education, their counselling practices were inconsistent, and many reported infrequent or nonexistent patient education on these topics. Nearly half of respondents were interested in further training on these topics. Addressing reported barriers through targeted pharmacist training and resource development could enhance pharmacist-patient engagement, improve public health outcomes, and empower pharmacists to effectively contribute to climate adaptation efforts through their professional roles.

The role of community pharmacy in preventing cardiovascular disease in minority ethnic groups

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Background: Cardiovascular disease (CVD) is a leading cause of death globally and disproportionately affects minority ethnic groups in the United Kingdom, due to a complex interplay of physiological, socioeconomic, cultural, and healthcare access barriers. Community pharmacies, often located in deprived areas, are well-placed to provide preventative care and health promotion for CVD. However, their potential role in addressing CVD inequalities in minority

ethnic groups remains under-explored. This systematic review of the existing literature aims to identify factors influencing the role of community pharmacy in preventing CVD in minority ethnic groups, including barriers and facilitators, to inform future practice and policy.

Method: A comprehensive search was conducted across CINAHL, EMBASE, Medline, PubMed, Scopus, and Web of Science from 30/09/2024 to 16/10/2024. An additional search of Google Scholar was undertaken to include unpublished studies. The Mixed Methods Appraisal Tool (MMAT) was used to assess study quality. The analyses were conducted using thematic synthesis to generate the key findings. Reporting followed the Enhancing Transparency in Reporting the Synthesis of Qualitative Research (ENTREQ) guidelines.

Results: This systematic review identified 23 eligible studies. Thematic analysis generated six themes related to the role of community pharmacy in preventing CVD in minority ethnic groups. The review highlighted community pharmacies' potential to enhance CVD prevention by improving access, delivering health promotion advice, and facilitating risk assessment for underserved populations. However, there was a notable lack of UK-specific evidence, with most studies conducted internationally, underscoring the need for further research in the UK context. Key barriers and facilitators were identified across studies. Religious beliefs shaped the acceptability of pharmacy-led interventions, while language acted both as a facilitator (through language concordance) and a barrier (where language differences hindered communication and trust). A lack of culturally competent care was identified, alongside the need for tailored, culturally sensitive services. Trust was found to be essential for effective pharmacist-patient relationships, with greater trust reported when pharmacists shared patients' cultural or linguistic backgrounds. Knowledge gaps were identified among both pharmacists and patients, highlighting the need for cultural competency training and multilingual health information in a range of accessible formats. Systemic challenges, such as time and resource constraints, further limited pharmacists' capacity to provide tailored care.

Conclusion: The tentative findings suggest that community pharmacies have the potential to play a pivotal role in reducing CVD inequalities for minority ethnic groups. However, the review identified a clear evidence gap in the UK context, indicating the need for further research to explore the perspectives of minority ethnic patients and healthcare professionals. This will be essential for developing culturally competent, pharmacy-based CVD prevention strategies tailored to the diverse needs of minority ethnic groups.

Independent prescribing in community pharmacy; what works for whom, why and in what circumstances (INTEGRATE): A realist review

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Background: The United Kingdom (UK) has introduced measures to improve patient access to safe and effective healthcare, including pharmacist independent prescribing (IP). Community pharmacies, as accessible and trusted primary care providers, play a vital role in supporting these efforts and advancing the NHS long-term plan. However, limited evidence exists on how pharmacist IP is operationalised in community pharmacy settings.

Objective: This study aims to:

1. Explore how pharmacist IP operates in community pharmacies, identifying key mechanisms, contextual factors, and outcomes.
2. Develop programme theories explaining how, why, and for whom this model of care works (or does not work).
3. Provide insights into barriers and facilitators to implementation and offer recommendations for optimising pharmacist prescribing in practice.

Methods: This study employs a realist review methodology to examine how IP in community pharmacies functions, who benefits, under what conditions it is effective, and the mechanisms driving its success. Realist research is well-suited for complex interventions like IP, as it uses the context-mechanism-outcome (CMO) framework to develop and refine explanatory programme theories. This approach identifies not only what works but also why, for whom, and in what circumstances.

Results: The INTEGRATE study is funded by the NIHR (National Institute for Health Research). Currently, nine "theory buckets" have been identified, grouping key themes emerging from the literature. These buckets address micro-,

meso-, and macro-level factors influencing IP in community pharmacy:

1. Pharmacists as central players in IP: Clinical expertise, confidence, scope of practice, and workload pressures are critical micro-level factors affecting IP success.
2. Scope of practice: Pharmacists adopting specialist roles, particularly in managing chronic conditions, show greater value in IP services.
3. Service user and stakeholder awareness, demand, and acceptance: Awareness of IP services among users is essential for uptake and success.
4. Accessibility and convenience: The structure of IP appointments and interactions with pharmacists significantly influences user satisfaction and outcomes.
5. Convenience for family carers: Engaging carers in medication management fosters meaningful dialogues and supports patient care.
6. Equity in care: Community pharmacies play a key role in providing trusted and accessible services to underserved populations, including ethnic minorities and the homeless.
7. Medication review and optimisation: IP can improve health outcomes by optimising medication use, reducing side effects, and enabling ongoing monitoring.
8. Pharmacies and health systems: Organisational culture, funding, workload, skill mix, and inter-professional collaboration impact IP implementation.
9. Integration within primary care: Effective integration with multidisciplinary teams, interoperability, and access to shared patient records are crucial.

Conclusion: The preliminary findings highlight key factors shaping IP's impact on primary care. These insights have significant implications for policymakers, healthcare providers, and pharmacists. By identifying influential mechanisms and contexts, this review can inform training, support frameworks, funding including commissioning priorities, and strategies for equitable and efficient IP service expansion. As the study progresses, these findings will form the basis for practical recommendations to improve IP implementation and outcomes, ultimately enhancing patient access to care.

Assessing competencies in medication risk management among community pharmacists

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Background: Medication risk management is essential in community pharmacy, particularly with increasing drug regimen complexity, aging populations, and polypharmacy. Community pharmacists play a vital role in ensuring medication safety; however, gaps in competencies persist, particularly in managing high-risk medications. Understanding pharmacists' self-reported competence in medication risk management is crucial in identifying areas requiring further training and education.

Objective: This study aimed to assess community pharmacists' competencies in medication risk management, with a specific focus on high-risk medications, identifying areas where further training and guideline development are needed.

Method: A structured questionnaire was developed and validated to assess community pharmacists' self-reported competencies in medication risk management. The questionnaire evaluated community pharmacists' ability to use evidence-based information and tools, proficiency in identifying medication-related problems, and competence in managing side effects, contraindications and drug-drug interactions. It also assessed pharmacists' perceived training needs and preferred training methods. Responses were measured using a Likert scale.

Results: A total of 102 community pharmacists participated in the study; 67% were female, and 28% were aged between 31-40 years. Most participants were employed full-time and 28% had five years or less experience as community pharmacists. When pharmacists' competence in using evidence-based tools was assessed, 51% of pharmacists reported a very good level of competence, while 26% rated themselves as excellent. Competence in managing side effects, contraindications, and drug-drug interactions varied across different drug classes. The highest self-reported competence was in NSAIDs, with 65% rating their competence as very good or excellent in understanding side effects, 60% for contraindications, and 57% for drug-drug interactions. In contrast, the lowest competence was reported for methotrexate, with 37% rating their competence as poor or fair in understanding its side effects, 54% for contraindications, and 56% for drug-drug interactions. When asked about further training needs, 79% agreed or strongly agreed that additional education is needed in identifying medication risks, while 78% supported enhanced training in developing and implementing risk management strategies. Additionally, 73% expressed a need for further education on adverse drug reactions and medication errors. Online training was the preferred learning method for 68% of pharmacists, followed by webinars (48%), with 44% favouring training sessions of one to two hours.

Conclusion: Findings highlight key competency gaps in pharmacists' knowledge of high-risk medications as well as other medication risk management fields, emphasising the need for targeted training and structured guidelines. Developing opportunities for continuous professional development addressing areas that are identified by practitioners through self-reporting needs supports pharmacist empowerment and confidence. These initiatives

not only enhance competencies but also empower pharmacists to adopt a more patient-centred approach, enhancing the quality of care provided.

Pharmacist-led point-of-care testing services

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Background: Point-of-care testing (POCT) provides rapid diagnostic results outside traditional laboratory settings, offering access to diagnosis and monitoring of biological parameters. The elaboration of POCT in community pharmacies supports the provision of pharmaceutical care service increasing opportunities for diagnosis, patient monitoring, and personalised patient management. POCT reduces waiting time and the need for patient referral to centralised laboratory services. Pharmacist-led POCT within a collaborative multidisciplinary practice enhances detection and management of non-communicable diseases. Challenges with POCT services include calibration, standardisation, and financial sustainability, all of which must be addressed to ensure robust service. The aim of this study was to identify available POCT services in community pharmacies.

Method: A questionnaire was developed, validated and distributed to community pharmacists via social media and personal delivery in community pharmacies. The pharmacist questionnaire assessed the range of POCT services provided, test frequency, device reliability, and pharmacoeconomic considerations. A separate patient survey captured usage patterns, willingness to pay, and perceptions of service availability.

Results: A total of 119 (n = 92 females) pharmacist questionnaires were collected. The majority of participants fell within the 30 – 39-year age range (n = 42). Blood pressure monitoring was the most commonly offered test (111) followed by urinalysis (104) and blood glucose monitoring (88). Pharmacists reported positive perceptions of device reliability and accuracy but highlighted gaps in calibration and standardisation practices (53). Financially, the majority of pharmacists (85) claimed that fees covered expenses and stated that patients were willing to pay the fee requested (63). Patient responses (n = 64) revealed that many had previously used POCT services in pharmacies, with urinalysis (n=17) being the most commonly used test followed by blood pressure monitoring (n = 15) and blood glucose testing (n=10). Payment expectations varied across tests. While some respondents expected blood pressure monitoring (n = 17) and blood glucose testing (n = 9) to be free, the majority were willing to pay a small fee of €1 - €5. For urinalysis, payment expectations were more varied, with most patients willing to pay €1-€5 (n = 27), though some expected it to be free (n = 9) or were open to fees of €6 or higher (n = 28).

Conclusion: Community pharmacy-based POCT is widely utilised and contributes to non-communicable disease screening and management. Challenges in calibration, training, and cost accessibility remain significant barriers. Addressing these gaps through standardisation efforts, improved pharmacist training, and better financial models is crucial in ensuring equitable access to POCT services and optimisation of patient care outcomes. Expanding the scope of POCT in pharmacies could further enhance disease prevention and early detection while reducing the burden on healthcare systems.

Community pharmacist guided cancer patient care at home

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Background: In recent years, the availability of anti-cancer medications has shifted cancer management from short-term hospital treatment to long-term care, in the home setting. Community pharmacists (CP) are accessible to patients and their caregivers and positively contribute to cancer patient care and outcomes.

Objective: The aim of the study was to determine how CPs can be empowered to meet needs and expectations of patients and their caregivers regarding cancer treatment in a primary care setting.

Method: A mixed-method approach was employed in three phases. The initial phase consisted of developing and validating a data collection sheet, which was disseminated online to Maltese CPs. It focused on the availability and accessibility of anti-cancer medications available for free through the national health scheme from community pharmacies. Challenges and opportunities for CPs to support patient care were also identified. The second phase involved identifying needs of cancer patients and their caregivers using a validated self-administered questionnaire. In the third phase, a toolkit to support community pharmacists in the provision of pharmaceutical care for patients receiving cancer medications at home was developed.

Results: In January 2024, 410 of the 792 medical products on the national formulary were listed for use in malignant disease. After an exclusion process guided by the aim of the study, 31 anti-cancer drugs were included in the study evaluation. In phase 1, 33 CPs completed the data collection sheet. Tamoxifen (n = 29), anastrozole (n = 28), and goserelin (n = 28) were the most commonly managed drugs by the participating CPs. Accessibility of anti-cancer drugs was perceived as problematic by one in three CPs (n=10), and the majority of CPs (n = 32) reported the lack of accessibility of

patient laboratory results as a challenge. CPs perceived having the strongest opportunity to impact their patients' adherence (mean score of 4.26 on a 5-point Likert scale). CPs also highly rated the opportunity to expand their role as CPs and improve the patients' perspective of CPs (both mean scores of 4.19 on a 5-point Likert scale). In phase two, 26 patients and caregivers participated, stating that they were given information on how (mean score of 4.69 on a 5-point Likert scale) and when (mean score of 4.65 on a 5-point Likert scale) to take their cancer medication by the community pharmacists, but information on food-drug interactions was not always provided (mean score of 3.36 on a 5-point Likert scale). When given the multiple-answer question on how to receive information, 20 participants preferred to talk to their CP face-to-face and 12 would like to have written information. The toolkit developed consists of a digital component for CPs and printable leaflets to guide CPs in conversations with their patients or caregivers. These leaflets are intended to be handed out as reminders of the information provided and can be referred to by the patient at home.

Conclusion: CPs significantly contribute to the management of cancer patient care at home. The developed toolkit provides guidance and practical resources to support CPs in navigating the complexities of cancer patient care, including accessibility and medication management.

A pharmacist's role in guiding paediatric patients with type 1 diabetes mellitus through the transition to adult care

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Background: Community pharmacists are vital in managing chronic conditions, including diabetes, though their role remains underutilised in chronic disease management. Pharmacists play a crucial role in diabetes care by improving medication compliance, supporting self-management, and providing education. With advancements in diabetes technologies, such as insulin pumps and continuous glucose monitors, pharmacists can further help patients optimise their treatment. Their expertise positions them to guide patients, particularly adolescents, through the transitions in care.

Objective: To develop a pharmacist-led transition model for type 1 diabetes patients transitioning from paediatric to adult care using a transition toolkit.

Method: A pharmacist-led transition toolkit to support type 1 diabetes patients moving from paediatric to adult care was developed. The toolkit addresses the transition challenges by helping patients and caregivers manage diabetes and improve their knowledge, self-advocacy, and compliance. The toolkit consists of an information document for healthcare professionals explaining the use of the transition toolkit, an introductory leaflet for patients and caregivers, transition questionnaires for both patients and caregivers, and a transition document for pharmacists to fill out based on the patient's responses to guide the healthcare team during the transition. The validated questionnaires captured awareness, self-management and psychosocial aspects. The toolkit was validated by an expert panel consisting of nine members, including pharmacists, endocrinologists, and diabetes educators. Six community pharmacists from Malta's regions were interviewed to gather insights into the toolkit's effectiveness, the transition process, and pharmacist involvement. The semi-structured interviews allowed pharmacists to share their knowledge and experience with the transition process, offering valuable feedback to refine the toolkit and ensure it supports patients and healthcare providers during the transition.

Results: Pharmacists lacked knowledge of diabetes transition processes, with many (n = 5) being unaware of the age at which the patient transitions. Pharmacists (n = 6) emphasised the importance of maturity and self-management, suggesting gradual shifts between the ages of 14 and 18. Time constraints were identified as a challenge to discussing and assisting patients further. A general recommendation was to dedicate appointments for discussions with transition patients within community pharmacies. Despite gaps in specialised knowledge in diabetes, the pharmacists supported the toolkit, highlighting the need for further training to improve their transition support.

Conclusion: Pharmacists support the transition toolkit but require specialised training on diabetes management, new technologies, and insulin therapies. Time constraints and logistical issues must be addressed for effective implementation. With proper resources and training, the toolkit can potentially significantly enhance the support provided to type 1 diabetes patients and caregivers.

Prescription renewal in Danish community pharmacies

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Background: Prescription renewal in Denmark was legislated in July 2019, requiring all community pharmacies to offer the service. The pharmacists must be authorised to renew prescriptions. The prescription renewal is subject to several

criteria: Limited to specific medications from 13 drug classes; only the smallest package can be renewed; patients must meet certain requirements (such as being in active and stable treatment) and medications can be renewed only once and subsequently through the general practitioner. The objective of the study was to describe the nature, extent, and implementation of prescription renewals among authorised pharmacists over a three-month period, to provide descriptive data on the renewal process, including who assists the pharmacist and to gather qualitative data on the implementation of prescription renewals.

Method: A questionnaire was developed in MS Forms, covering background information on the pharmacists, their experiences with collaboration and implementation of renewals, and details on the medications and patients involved. The questionnaire was piloted at two pharmacies, adjusted and accordingly distributed to authorised pharmacists via email and social networks. Before analysis, all data was cleaned according to a codebook, with 10% of data being quality-checked by a second person. Quantitative data were analysed using MS Excel, and qualitative data were summarised with Artificial Intelligence (Co-pilot) assistance and a structured review. The study was conducted by The Danish Network for Pharmacy Practice Research (NUAP) in collaboration with Pharmakon (The Danish College of Pharmacy Practice) and the University of Southern Denmark (SDU).

Results: 240 authorised community pharmacists (22.3% of the authorised pharmacists in Denmark) responded. The average age of the respondents were 40.9 years and 76.7% were women. Of these women, 43.3% had less than 5 years of pharmacy experience, while 23.5% had more than 21 years of experience. On average, the respondents had been authorised for 3.7 years, with 59.6% renewing prescriptions in their current role. Each respondent had since authorisation on average renewed prescriptions 71 times. In the three-month period, 91.6% recorded at least one renewal, in total 405 renewals. The most renewed medications were contraceptives (42%), antihypertensive agents (28%), inhalation medications for COPD/asthma (17%), statins for cholesterol (7%), and diabetes treatments (3.2%). The highest renewal rates were for patients aged 15-24, followed by 25-34, 55-64, and 65-74 years. Women constituted 68.2% of the patients, men 30.7%, and other genders 1.1%. For prescription renewal, the authorised pharmacist collaborates with pharmacy technicians (93.7 %), pharmacy technician students (71.1 %) or another pharmacist (64.1 %). Qualitative data for implementation showed that renewal is well integrated with on-going focus on visibility, training and simplification to expand and improve the service.

Conclusion: Prescription renewals are common in Danish pharmacies. Over the three months, 22% of the authorised pharmacists recorded renewing 405 prescriptions, mostly for contraceptives, hypertension and respiratory treatments. Nearly all authorised pharmacist collaborate in the renewal process with other pharmacy professionals. Continuous efforts to increase visibility, provide training and simplify processes are needed to expand authority to boost uptake.

Community pharmacists' knowledge and role in immunisation in Japan: A survey on status areas for improvement

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Background and Objective: Since 2021, when the COVID-19 vaccination program had pharmacists preparing vaccines and selling testing kits, Japanese community pharmacists have become more involved in vaccinations than in the past. In the United States, pharmacists are important players in vaccinations, and pharmacist-led vaccinations are being considered in other countries. This study aimed to investigate the current situation regarding vaccinations among community pharmacists in Japan and identify areas that require improvement.

Methods: Pharmacists working at MEIHOKU CHOZAI Pharmacy Co., Ltd. who agreed to participate in this study were enrolled, and completed an online survey between April 21, 2024, and May 19, 2024. The survey included age, sex, years of university education (four or six years), work places before joining a community pharmacy, knowledge related to 20 vaccinations and the corresponding infectious diseases prevented, adverse reactions caused by vaccinations, remedial measures of damage to health by routine vaccinations (RMDH), vaccines contraindicated for pregnant women, vaccines recommended for older adults, and the pharmacists' views on the provision of vaccinations. We used portfolio analysis to examine how the surveyed items were related to the ability to counsel patients about vaccinations. This study was approved by the Ethics Committee of the Aichi Gakuin University, School of Pharmacy.

Results: Participants by age were: 20's (15), 30's (32), 40's (22), 50's (7), and over 60's (6); 54 were male, 27 were female, and one did not answer; 37 had four years of education and 45 had six years of education. Hospitals were the most common place of work before a community pharmacy. Vaccines contraindicated for pregnant women were correctly answered by 62% of the participants, while vaccines recommended for older adults were correctly answered by 24%. More than 70% of the pharmacists were aware of two or more adverse reactions to vaccines, and 85% knew or had heard of RMDH. Portfolio analysis showed that knowledge of infectious diseases and RMDH were priority improvement items, while the others were maintenance items. In a sub-analysis regarding whether four/six-year education showed a difference, pharmacists with six-year education exhibited a

five percent higher level of satisfaction than those with 4-year education in the knowledge of infectious diseases and the vaccines contraindicated for pregnant women. More than 90% of the pharmacists reported that they needed knowledge of vaccinations regardless of their years of education. Regarding whether pharmacists should be players in vaccinations, there was a difference of 47% and 62% between pharmacists with six and six-year education, respectively. Pharmacists responded that the conditions for becoming vaccination players were 'enhanced education on infectious diseases,' 'establish support system by doctors,' 'related reform of the law,' and 'remuneration.'

Conclusion: The survey showed that many pharmacists recognised the need for vaccination knowledge. Portfolio analysis revealed that knowledge of infectious diseases and RMDH were priority items for improvement. A higher percentage of pharmacists with six-year education answered that pharmacists should be players in terms of vaccinations than those with four-year education, suggesting that the 6-year education may be related to pharmacists' sense of mission.

Will training enhance antimicrobial stewardship implementation in community pharmacy? Bridging gap through a CPD Program

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Background: Antimicrobial resistance (AMR) is a major public health problem. Community pharmacists play a crucial role in antimicrobial stewardship (AMS) as they are often the first point of contact for dispensing medications and managing minor ailments in the community. However, many pharmacists still lack adequate knowledge and effective practices, often due to trade pressures, limited access to training, and competing professional responsibilities. Continuing Professional Development (CPD) training programmes can help improve their understanding and skills, ensuring the proper use of antibiotics and better management of antimicrobial medicines.

Objective: This study aimed to assess the impact of CPD training programmes on community pharmacists' knowledge, attitudes, and practices related to antimicrobial stewardship (AMS). It sought to identify existing gaps, understand the barriers that affected pharmacists' engagement in AMS activities, and evaluate how targeted training can enhanced their role in promoting the responsible use of antibiotics.

Method: This is a pre- post interventional study conducted among 80 licensed practising community pharmacists using convenience sampling method. Data were collected on demographics, antibiotic dispensing pattern, knowledge, attitudes, and practices on AMS before and after the training intervention using a validated and structured questionnaire. The CPD training intervention included interactive sessions on AMS principles, responsible antibiotic dispensing, patient counselling techniques, and regulatory compliance, using a combination of lectures, case-based discussions and gamified interventions. Quantitative data were analysed using descriptive statistics and Qualitative responses on barriers to AMS implementation were thematically analysed.

Result: Among 80 participants, 73% were male and 27% were female. The mean age was 30.86 ± 8.70 years, with the majority (62.5%) in the 21-30 age group. Most participants (82.5%) were employed, with an average professional experience of 6.74 ± 6.08 years. Additionally, 83% held a Diploma in Pharmacy, while 17% had a bachelor's degree in pharmacy. The average number of prescriptions with antibiotics received per day was 16.88 ± 8.69. The non-prescription antibiotics dispensed showed highest dispensing in the Watch category (51.93%) and Access category accounted for 33.64 categorised as per WHO AWaRe classification. Baseline antimicrobial stewardship (AMS) knowledge was low, with 53.75% strongly disagreeing with key principles. Post-intervention, 75% showed significant improvement, strongly agreeing with AMS statements. Attitudes changed, as 63.75% showed a positive change after training. Practice gaps remained—43.7% of participants still dispensed antibiotics without prescriptions, and 51.7% failed to check patient history. The Overall pre-intervention KAP scores for knowledge, attitude, and practice were 22.3, 6.7, and 17. Following the CPD training, these scores increased to 31.6, 12.2, and 21.4, indicating substantial improvements (p value -0.048). Qualitative data showed participants (54.5%) implemented AMS training via patient education, rational dispensing, and adherence counselling following 27.3% struggled to influence patient behaviour, while 18.2% cited regulatory gaps, competitive pressures, and patient demand as key barriers.

Conclusion: CPD training program has significantly improved Knowledge, Attitude and Practices of pharmacists towards AMS practices. There is a strong need to implement educational and regulatory interventions periodically to improve the understanding of AMS practices among community pharmacists.

Uptake and results of the National Health Service England community pharmacy hypertension case-finding service

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Background: Cardiovascular disease is a leading cause of premature death in England. The greatest risk factor for cardiovascular disease is hypertension - an estimated 5.5 million people have undiagnosed hypertension in England. To address the burden of hypertension, the National Health Service (NHS) implemented a community pharmacy hypertension case-finding service in October 2021. The objective of this cross-sectional study is to evaluate the uptake of this service since its implementation.

Method: Individuals eligible for the pharmacy hypertension case-finding service included those: (i) aged 40 years or older without a diagnosis of hypertension; (ii) aged under 40 years with a family history of hypertension; (iii) aged between 35 and 39 years at the discretion of pharmacy staff; or (iv) adults of any age with or without a hypertension diagnosis referred to a pharmacist by their general practitioner. Patients with pharmacy blood pressure (BP) readings between 140/90 and 179/89 mmHg were eligible for follow-up 24-hour ambulatory blood pressure monitoring (ABPM). The primary outcome was the uptake of clinic BP and ABPM checks. Data describing the participating pharmacies and uptake of the service are collected by the NHS.

Results: Data were collected between October 2021 and September 2024. Of approximately 11,000 pharmacies in England, an estimated 9,000 pharmacies (82%; 9,000/11,000) registered for the hypertension case-finding service, and 6,450 of the registered pharmacies (59%; 6,450/11,000) provided the service to individuals. Among an estimated population of 16 million people potentially eligible for this service, the uptake of the community pharmacy clinic BP check service was 23% (3,670,495/16,000,000). There were 1,326,446 individuals with BP results between 140/90 and 179/89 mmHg and thus eligible for ABPM. The uptake of ABPM follow-up was 21% (271,887/1,326,446).

Conclusion: Following the implementation of a community pharmacy hypertension case-finding service in England, one in five eligible individuals received a pharmacy BP check, and one in five eligible individuals received a follow-up ABPM check. Future efforts to understand facilitators and barriers to service uptake, as well as the clinical outcomes of pharmacy hypertension case-finding are warranted.

Development of a retail electronic prescription triage algorithm to reduce patient wait times and unclaimed prescriptions

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Background: Retail pharmacies play a vital role in the distribution and management of prescriptions medicines for patients outside of the hospital setting in the USA. From 1992 to 2000, the number of prescriptions increased 46% with a 35% increase in fill by retail pharmacists. Nearly two thirds of pharmacists in the US work in retail pharmacy locations.1 Into 2020, US pharmacies filled 3,792,051,418 prescriptions, with 1.9 billion paid for by commercial insurance and 1.58 billion paid for by Medicare. The expenditure on pharmaceuticals increased 54.2% from 2010 to 2019.

Objective: This study aims to develop a predictive algorithm to reduce unclaimed prescriptions and optimise prescription pickup times in retail pharmacies. The objectives of the study were: (1) to develop an algorithm to predict the amount of time between prescription transmission and patient pickup, and (2) to predict the likely timeframe for amount of time between the provider writing a prescription and the patient presenting to the pharmacy to pick up the prescription and examine the reduction of the unclaimed prescriptions of the developed algorithm. This study highlights the importance of integrating predictive algorithms into pharmacy workflows to enhance operational efficiency and patient care. By addressing inefficiencies such as abandoned prescriptions and early refills, pharmacies can optimise their operations, reduce waste, and improve patient outcomes.

Method: Anonymised patient data from a small community retail pharmacy in Cincinnati, Ohio, covering January 2023 to July 2024, was analysed. Variables such as patient demographics, medication details, prescription and pickup times, and insurance status were examined using multiple statistical methods and artificial intelligence systems. The preliminary data analysis revealed significant variation in pickup times based on medication class and patient characteristics. Logistic regression, mixed model analyses, and an artificial intelligence workflow management software (Kinme®) identified significant predictors of pickup times, including medication type, patient age, and prescription origin. The algorithm was tested on new data, demonstrating improved performance metrics such as mean absolute error (MAE) and mean squared error (MSE), although further refinement is needed to enhance its generalisability. Models were developed using logistic regression, one-way ANOVA, non-parametric one-way ANOVA, and random forest regression, all aiming to establish a relationship between the available variables and the predicted time to pick up prescriptions.

Results: The findings indicated that using Knime with eXtreme Gradient Boosting produced a 100% accurate model. This method employs decision trees sequentially, refining each tree based on the previous one to achieve the most accurate possible model for the data set.

Conclusion: The results indicated that the developed retail electronic prescription triage algorithm is effective in reducing unclaimed prescriptions and patient wait times. Future research will focus on expanding the algorithm's application to other pharmacies and further refining its accuracy. Additionally, exploring the impact of pharmacist-patient interactions and personalised medication management on prescription adherence could provide valuable insights for improving healthcare delivery. The overarching goal is to develop a robust, scalable solution that can be widely adopted across retail pharmacies to enhance the overall efficiency and effectiveness of prescription management.

The Portuguese Pharmacies' Proximity Program – "Every Pharmacies Matter" Program (Programa Todas as Farmácias Contam 2024)

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Background: The "Every Pharmacies Matter" Program (Programa Todas as Farmácias Contam 2024 - PTFC 2024) originally established in 2022 has remained committed to promoting proximity and development through a range of initiatives targeting every pharmacy, facilitated at Portuguese National Association of Pharmacies (ANF). This program aligns with priority Area 22 - Political and Associative intervention, as described in the White Book on Portuguese Pharmacies. It advocates for policies that encourage territorial cohesion, maintaining or increasing the number of the ANF members, and support the decentralisation of initiatives.

Objective: The objectives are:

- Strengthen Proximity: Ensure active engagement, promote information exchange, and strengthen the sense of belonging among members.
- Foster Territorial Cohesion: Policies to reduce regional inequalities and promote balanced development across all areas of ANF's activity. This contributes to a more integrated network, aligned with ANF's mission to make Pharmacies the most valued primary health care network for people.
- Maintain or increase ANF members: Ensure representativity and influence, strengthening the organisation, expanding its impact, and ensuring long-term sustainability.
- Decentralise initiatives: Ensure all regions have equal access to resources and opportunities, promoting a cohesive pharmacy network.

Methods: The program included regular meetings where pharmacies met with the President of the Board of ANF, thematic informational sessions, visits of the Board members to pharmacies across the country, statutory assemblies among others. The program impact was measured through the pharmacies involved in the initiatives, district participation rate, and proximity index (pharmacies were asked to evaluate their level of proximity to the ANF on a scale from 1 to 5). The priority was given to districts with lower proximity index ($n < 4$) to the ANF or those less involved by these initiatives in the last years.

Results: The results of the domains evaluated were:

- Impact: 1897 pharmacies were impacted out of 2740, achieving a 69.23% participation rate.
- District Participation: Highest in Guarda District (85.19%) and lowest in Évora District (52.54%).
- Average proximity assessment: Reached a value of 4.20 (N = 758) on a scale of 1 to 5, exceeding the previous two years [4.16 (N = 853) in 2023 and 3.91 (N = 488) in 2022].

Conclusion: The PTFC 2024 successfully engaged a high number of pharmacies, promoting a closer relationship between ANF and its members. This program has successfully demonstrated its capacity to reinforce proximity and cohesion within the pharmacy sector. The initiatives have led to significant engagement, with 69.23% of pharmacies participating, and notable improvements in district participation rates, particularly in the Guarda District. The average proximity assessment score of 4.20 on a scale of 1 to 5 indicates a strong sense of connection and belonging among the pharmacies, surpassing the previous year's scores. These results demonstrate the importance of continuing such initiatives in 2025 to maintain the close relationship with members and ensure the cohesion and projection of the pharmacy network at the national level.

Implementing "SMIL" to strengthen the shared core task in a community pharmacy

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Background: A well-defined core task provides clarity, focus, and increased job satisfaction among pharmacy staff. Evidence suggests that when employees share a clear purpose, their engagement and well-being improve. With this in mind, we initiated the "Shared Core Task" project to create and reinforce a unifying concept for our team.

Objective: The primary objective was to develop and implement a concise, motivating framework that would (1) keep staff focused on the pharmacy's core task in their daily work and (2) enhance collaboration, job satisfaction, and the overall customer experience.

Method: Workshop & Concept Development: Staff took part in a creative workshop to define a single word that represented our core task. The chosen word was "SMIL" (danish word for "smile"), reflecting the pharmacy's values and approach to customer care.

Daily Reflection Tool: A sign asking, "Which words in 'SMIL' can be your guide today?" was placed in staff areas to prompt ongoing reflection. Team members were encouraged to consider how "SMIL" related to their work each day, and new words or meanings were frequently suggested and recorded.

Visibility & Implementation: "SMIL" signage was also placed in customer-facing areas across all branches to highlight the pharmacy's positive, service-oriented philosophy. Customers responded enthusiastically, some taking photos or commenting on the motivating effect.

Evaluation: Pre- and post-implementation surveys indicated that staff already had a strong understanding of the core task, but "SMIL" helped articulate and reinforce daily practices. Team members reported increased collaboration, motivation, and job satisfaction, although a few remained skeptical, reinforcing the need for continuous adaptation.

Results: Survey data showed that a majority of staff (scores of 4 or 5 on a 5-point scale) believed "SMIL" contributed to stronger cooperation and a sense of community. They also reported a positive impact on work satisfaction, seeing "SMIL" as a relevant guide in day-to-day tasks. Customers noted the welcoming environment, linking the signage to the pharmacy's commitment to care.

Conclusion: This project, operationalised through "SMIL", successfully enhanced staff engagement and clarified how individual actions support the core task. Although some skepticism persisted, feedback underscored the importance of continual refinement. Future work will focus on sustaining this shared framework and exploring additional ways to integrate the shared core task into everyday practice for both staff and customers.

The creation of a vulnerability assessment for community pharmacies to improve their resilience to extreme weather and other disasters

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Background: Community pharmacies are essential healthcare access points, providing medications and pharmaceutical services to the public. However, extreme weather events such as hurricanes, floods, wildfires, and heatwaves pose significant risks to their operations. Despite their critical role in disaster response, many community pharmacies lack structured approaches to assess their vulnerabilities. A standardised vulnerability assessment can help pharmacies identify weaknesses and improve resilience to extreme weather conditions.

Method: This study aims to develop a vulnerability assessment framework for community pharmacies to enhance their resilience against extreme weather events. By systematically identifying and categorising risks, pharmacies can implement targeted strategies to mitigate disruptions and maintain essential healthcare services during crises. An initial planning assessment was constructed to evaluate key aspects of pharmacy operations that influence resilience. The assessment was structured into five main categories:

1) Inventory Management – Evaluating backorder tracking, stockpiling, processes for rationing and supply chain redundancies.
2) Communication Processes – Assessing internal communication protocols, coordination with external healthcare networks, and emergency patient outreach.
3) Electronic Infrastructure – Reviewing accessibility of backups of electronic health records, facilities for backup power and networks, along with processes to access the above
4) Pharmacy-Specific Items – Evaluating emergency kit access, wildfire smoke processes, and refrigeration outage processes
5) Other Considerations – Addressing training programs, public health campaigns, and insurance reviews.

Results: The vulnerability assessment framework provides a structured approach to identifying and addressing pharmacy-specific risks related to extreme weather events. By categorising vulnerabilities into key operational areas,

pharmacies can prioritise mitigation strategies and enhance overall preparedness.

Conclusion: This framework establishes a baseline for assessing community pharmacy resilience to extreme weather events in Canada. By implementing this assessment, pharmacies can proactively identify vulnerabilities, strengthen disaster preparedness, and ensure continuity of care during emergencies. Future research will focus on refining and validating the framework through pilot testing across diverse pharmacy settings.

Transforming maternal and child health: The untapped potential of community pharmacists

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Background: In many low- and middle-income (LMICs) countries including Nigeria, pharmacists are amongst the most trusted health professionals. Evidence further suggests that the community pharmacy remains the first port of call for minor ailments and health complaints including those involving mothers and their children. Accessing maternal and child health services in community pharmacies is crucial for mothers and children, many of whom reside in settings with no hospitals and often rely on community pharmacies for these services. Despite their accessibility, there is a dearth of literature on the role of community pharmacists in patient education for improving maternal and child health literacy and health services in LMICs like Nigeria.

Objective: To assess the impact of pharmacist-led patient education on maternal and child health by evaluating its effectiveness in improving maternal health literacy, promoting informed healthcare decisions, and enhancing child health outcomes in community pharmacy settings.

Method: The study involved 108 mothers in Okota community, Lagos, Nigeria over 6 months (July to December 2024) using a mix of webinars, surveys and community engagement sessions. It focused on enhancing health literacy in key areas including infectious diseases in mothers and children, female hormones and menopause (in collaboration with an obstetrician-gynecologist), and child nutrition (in collaboration with a nutritionist and dietitian). To sustain and reinforce learning, a weekly bulletin on common health conditions and quality of life improvement was distributed. Data was collected using pre- and post-intervention surveys, patient feedback forms, and pharmacy records. Key metrics analysed included satisfaction levels, health literacy scores, and adherence rates. Descriptive and inferential statistical methods were used to evaluate outcomes.

Results: Among 108 participants, 75% reported improved confidence in identifying and managing common health concerns, such as fever, diarrhoea, malnutrition, hormonal imbalances and breastfeeding challenges. Medication adherence rates increased by 30% compared to baseline data. Health literacy scores showed an average improvement of 45% in knowledge retention. 85% expressed high satisfaction with community pharmacist-led health interventions, citing the accessibility and practicality of the services offered.

Conclusion: This study highlights the crucial role of community pharmacists in improving maternal and child health outcomes through structured patient education. The significant improvements in health literacy, medication adherence, and confidence among mothers underscore the potential for integrating pharmacy-led maternal and child health services into broader public health strategies. Future research should focus on larger-scale implementation of pharmacist-led maternal and child health literacy interventions to assess long-term impact and sustainability.

Optimising pharmacy-clinic collaboration: The role of pharmacists in a chain pharmacy setting

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Background: In Taiwan, the vast majority of pharmacies that collaborate with clinics operate in the "front-door" pharmacy model, where the pharmacy is physically located adjacent to a specific clinic. However, a relatively unique model involves chain pharmacies first establishing themselves as independent entities and then forming cooperative, mutually beneficial partnerships with multiple clinics. This study examines the role of pharmacists in a leading chain pharmacy that collaborates with dermatology, gastroenterology, and otolaryngology clinics. It highlights the unique, reciprocal relationship that fosters a more dynamic, equal partnership between the pharmacy and clinic staff.

Methods: The study assessed prescription volumes, pharmacist workloads, and inter-professional collaboration within this chain pharmacy. On average, the pharmacy processes 398 prescriptions daily from affiliated clinics, as well as 30 prescriptions from external sources. The pharmacy is staffed by two full-time and three part-time pharmacists.

Results: Pharmacists in this collaborative setting assume diverse roles beyond traditional dispensing. These roles include:

1) Educating patients when different family members are prescribed the same medication from different manufacturers.

2) Assisting clinic physicians in identifying alternative medications when specific drugs are unavailable.
3) Notifying clinics about drug shortages and insurance coverage updates, helping minimise financial burdens for both patients and clinics.
4) Coordinating medication management when different specialists within the same clinic prescribe overlapping treatments.

These contributions are a reflection of the equal and reciprocal nature of the collaboration between pharmacists and clinic staff. Rather than simply dispensing medication, pharmacists are actively involved in enhancing patient care through direct communication with both patients and healthcare professionals. This partnership model allows pharmacists to fully exercise their expertise, providing critical insights and advice that directly impact patient outcomes.

Discussion: One reason such a collaboration model is relatively uncommon is that clinics often prefer to have full control over the pharmacy, with owners typically managing both the pharmacy and clinic revenues. This creates a barrier to such partnerships, making them rare. To increase the prevalence of this collaboration model, it is essential to strengthen communication and promotion within the medical community, as well as replicate successful cases like this one.

Conclusion: The collaborative model between chain pharmacies and clinics fosters a strong, equal partnership where pharmacists contribute meaningfully beyond their traditional roles. Pharmacists, leveraging their professional expertise, play a key role in medication management, patient education, and inter-professional communication, becoming integral members of the healthcare team. This reciprocal relationship not only benefits clinic physicians but also enhances patient care. However, improving the integration between frontline pharmacists and the headquarters' prescription management system is essential for operational efficiency and patient safety, ensuring the full potential of this partnership is realised.

Managing allergic Rhinitis with non-sedating antihistamines in the community pharmacy

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Background: Allergic rhinitis (AR) is a major respiratory disease, affecting 10-30% of adults and 40% of children globally, with significant economic burdens and impact on quality of life (QoL). Oral Antihistamines (AH) are considered as a first-line treatment for AR since decades and are classified into first and second-generation. First-generation AHs lack a specificity for H1-receptors and can cross the blood-brain barrier, causing sedation, drowsiness, and psychomotor impairment, as well as potential anticholinergic side effects. While second generation AHs, like fexofenadine, are highly selective to H1-receptors with low or no brain penetration, causing no sedation or anticholinergic side effects. The sedative properties of some AHs alter cognitive and psychomotor performed capabilities to perform tasks such as work or school performances, working memory, vigilance, driving ability, etc. As AR self-medication is common, pharmacists play an important role in the management of AR.

Objective: The objective of this review is to summarise evidence from available literature on the non-sedative properties of fexofenadine and highlight the critical role of pharmacists in providing personalised advice to AR sufferers for the optimal use of evidence-based OTC drugs.

Methods: A recently published systematic review involving extensive electronic literature search using Embase focused on keywords such as fexofenadine, drowsiness, somnolence, sedation, fatigue, and cognitive impairment. Relevant randomised controlled trials, review articles, and post-marketing analysis were selected. Here, we will examine the data from a pharmacist's perspective.

Results: The measurement of sedation is realised mainly by two standardised methodologies and psychometric tests: proportional impairment ratio (PIR) and the H1-receptor occupancy (H1RO). PIR helps predict an AH's association and its cognitive and psychomotor effects. Studies measuring the subjective and objective PIR values for fexofenadine found it does not cause cognitive or psychomotor impairment. H1RO informs on the molecule penetration into the central nervous system, using PET and providing an objective measure. Results of brain H1-receptor occupancy obtained from PET showed no brain H1RO by fexofenadine. Overall, fexofenadine effectively reduces allergic symptoms without causing cognitive or psychomotor impairment, making it suitable for daily life and vigilance-critical activities. Pharmacists play a vital role in assessing the severity of AR and managing it by providing holistic, individualised, and tailored care that is safe and appropriate. This includes self-care advice covering pharmacological and non-pharmacological symptom management strategies, which significantly improve symptom control and QoL. Using an evidence-based guided approach, pharmacists in community settings can reduce potentially inappropriate first-generation AHs self-use by recommending less or non-sedating AHs, in particular no brain penetrating.

Conclusion: Published data indicates that fexofenadine does not cause sedation or impairment of cognitive and psychomotor functions, when recommended as a first-line treatment in patients presenting AR symptoms. Pharmacists play a key role in the management of AR, advising patients on the most appropriate and effective treatment based on

symptoms, educating patients on their appropriate use, and referring them to a physician when needed.

Exploring the impact of delivering essential phospholipids as self-care on patient care pathway related greenhouse gas emissions in the Philippines

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Background: Noncommunicable diseases (NCDs) account for 74% of global mortality, yet efforts to reduce their impact remain inadequate. Fatty liver disease, a "silent NCD," can asymptomatically progress to advanced liver diseases. Effective treatment of NCDs, such as fatty liver disease, is crucial to avoid further increased pressure on healthcare systems. Pharmacists can promote early intervention and patient education, helping reduce disease prevalence and ease systemic strain. Strengthening their role could improve public health outcomes and optimise healthcare resources.

Objective: Self-care products offer clinical, socio-economic, and environmental benefits, creating a win-win for patients, policymakers, healthcare professionals, and society. This study examines how over the counter (OTC) liver disease treatments can reduce healthcare expenditures and greenhouse gas emissions by decreasing healthcare resource utilisation (HCRU) across the patient care pathway.

Method: The study estimates the impact on healthcare expenses and GHG emissions of avoiding Metabolic dysfunction-associated steatotic liver disease (MASLD)/ metabolic dysfunction-associated steatohepatitis (MASH), liver fibrosis, cirrhosis and end-of-life liver patients in the Philippines and optimising patient's metabolic rates. A model was developed to estimate these variables along the care pathway, linked to the number of primary care, outpatient & emergency room visits, hospitalisations, intensive care admissions and patient travel. Healthcare resource utilisation was estimated using international data on HCRU. Related expenses and GHG emissions were extrapolated from international data.

Results: Socioeconomic costs and GHG emissions from MASLD/MASH patient care total ~250 Mn USD and ~5,000 kton CO2eq emissions annually (equivalent to ~1,300 Manila-London flights). OTC liver disease treatments could reduce this dual burden and alleviate the clinical impact of liver diseases.

Conclusion: This study shows how self-care can reduce the burden of liver diseases. Policymakers are urged to consider self-care into public health policy and promote non-prescription access to products like essential phospholipids in pharmacies supporting early intervention, improving liver health, and easing the future burden of silent NCDs.

Integrated community-based approaches to Hepatitis A & B awareness and prevention in Nigeria

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Background: Hepatitis A and B are important public health concerns in Nigeria with high morbidity and mortalities. Many disadvantaged persons continue to experience problems of disease awareness, prevention, and treatment, despite the availability of vaccines and other control measures.

Method: This presentation outlines integrated community-based interventions in Nigeria based on field experience from rural community outreaches aimed at increasing awareness, vaccination uptake and in decreasing disease state stigmatisation.

Results: The best practices for community-level campaigns to increase awareness, community participation and stakeholder collaborations are outlined. The vaccine strategy for such populations are discussed, with emphasis on mobile clinics and rural community outreaches. Sociocultural stigmatisation of Hepatitis and suggested educational interventions to increase knowledge and decrease fear of discrimination are discussed. Other challenges such as scarcity of resources, public and private sector partnership issues, as well as the solutions that can be used to address them are discussed.

Conclusion: Advocacy strategies and policy implications for national Hepatitis prevention scale-up will be introduced, focusing on the development of stronger government support, funding and strategic partnerships

Building performance metrics and control systems for outreach pharmacy network in resource limited settings

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Background: Outreach community pharmacy networks play a critical role in improving medication access and healthcare delivery in low- and middle-income countries (LMICs). However, challenges such as inconsistent service quality, limited resources, and fragmented supply chains hinder optimal performance. Developing key performance indicators (KPIs) and control systems is essential to ensure accountability, improve service delivery, and enhance patient outcomes in these settings.

Objective: To develop and implement a standardised framework of KPIs and control mechanisms for outreach community pharmacy networks operating in LMICs to improve operational efficiency, medication safety, and patient care.

Method: A structured audit methodology was implemented to assess and improve the performance of outreach pharmacy networks in resource-limited settings. A standardised audit checklist was developed to evaluate key areas virtually, including regulatory compliance, supply chain efficiency, medication management, inventory control, and financial sustainability. Monthly and quarterly audits were conducted, using virtual audit tools to ensure comprehensive monitoring. The main propose was to find out the bottlenecks in operations and then reducing the bottlenecks via data-driven recommendations. Control mechanisms such as real-time inventory monitoring, digital reporting tools, and standardised medication management protocols were integrated into the framework. The system was piloted in 34 community in 20 cities of the country pharmacies in a LMIC setting over six months.

Results: Several critical bottlenecks were identified includes medication management, financial targets, inventory management, regulatory compliance, clinical practices, and equipment issues. To address medication management challenges, Initially, only 5% compliance was observed in the segregation of high-alert and Look-Alike Sound-Alike (LASA) medications; however, following the audits, compliance significantly improved to 80%. Financial oversight saw notable improvements as inefficiencies in inventory management, particularly disruptions caused by transfer rights issues, were rectified. Clinical practices also being inculcated from these measures, with a substantial increase in the rate of appropriate medication reviews and intervention logging. Participation in Continuing Medical Education (CME) sessions was initially low at three percent, but after audit interventions, it increased to 23%, reflecting improved professional development efforts. In terms of inventory optimisation, demand-based procurement strategies and periodic quality checks led to a 51% reduction in dead stock across outreach pharmacies, further supported by the implementation of updated PAR levels. Regulatory compliance also showed significant advancements, with improvements in policy retrieval processes, staff documentation verification, and adherence to operational schedules. In regions with historically weaker regulatory adherence, such as Punjab and Karachi, marked progress was noted. Additionally, equipment and infrastructure management saw enhanced compliance, particularly in temperature monitoring device calibration and designated use, which increased from 70% to near full adherence. These improvements ensured that medication storage conditions met regulatory standards, ultimately supporting better pharmaceutical service delivery in resource-limited settings.

Conclusion: Developing and implementing standardised KPIs and control systems significantly improved the operational efficiency and quality of care in outreach community pharmacy networks in resource-limited settings. This framework offers a scalable model to support sustainable pharmacy practice and enhance healthcare outcomes in LMICs.

Contribution to sustainability by community pharmacists

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Introduction: The World Health Organization estimates that 23% of global mortality is attributable to environmental risk factors, including air pollution and climate change, with the pharmaceutical sector significantly contributing to these challenges. Community pharmacists play a central role in patient care and can implement strategies to reduce the environmental footprint of medication in primary care. While sustainability is recognized as an important consideration for some community pharmacies, the extent and nature of Dutch community pharmacists' involvement in sustainability initiatives remains unclear. This study aims to evaluate the strategies currently employed by Dutch pharmacies to mitigate their environmental impact, as well as identify barriers hindering and facilitators promoting these sustainability efforts.

Method: A mixed-methods approach, combining qualitative semi-structured interviews with a descriptive questionnaire study, was employed. Qualitative interviews were conducted with key opinion leaders/early adopters and pharmacy employees not specifically focused on sustainability. The interviews were transcribed verbatim, coded, and analyzed using content analysis and constant comparison. The primary topics explored included current sustainability initiatives, barriers, and facilitators. The questionnaire was distributed via newsletters and social media, and the data were analyzed using frequency tables.

Results: The questionnaire was completed by 42 pharmacies. The findings reveal that pharmacies have implemented a range of sustainable practices within their operational frameworks. Inventory management and logistics initiatives were most frequently executed, with 39 pharmacies (93%) adopting a 'first-in-first-out' approach. Also digital presentation of medication overviews, rather than paper formats, was reported by 32 pharmacies (76%). Furthermore appropriate prescribing and the avoidance of wastage were key topics in pharmacotherapeutic consultations between pharmacists and prescribers (n=29, 69%). Finally, dispensing medication using durable bags (n=22, 52%) and actively communicating safe disposal of leftover medication to patients(n=27, 64%) were among the most reported initiatives. In addition to financial incentives for durable practices (n=30) and a collaborative relationship with general practitioners (n=30), implementation of a decision rule within the Pharmacy Information System (n=29)was identified as a major facilitator. The primary barrier to the adoption of environmentally friendly practices in pharmacies was the existing reimbursement structure (n=24, 63%).

Conclusion: Sustainability practices have emerged as a key theme in contemporary pharmacy operations, driven by initiatives aimed at promoting environmental responsibility. While the importance of sustainability is widely acknowledged, there remains a need for supportive resources and frameworks to enable pharmacists to implement effective sustainable practices. Addressing this gap will allow community pharmacies to not only reduce their environmental impact but also contribute to the broader movement towards sustainable healthcare.

Exploring the concept and definition of scope of practice in pharmacy: A systematic review

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Background: The term scope of practice has become increasingly used within the pharmacy profession, yet it's definitions and interpretations remain varied and diverse. This creates barriers to establishing a common understanding, fostering meaningful debates, and effectively communicating the concept to external stakeholders and in research. Descriptors such as "advanced", "current", "expanded", or "full", are added to the term scope of practice creating further obfuscation.

Purpose: To identify definitions of scope of practice for the pharmacy profession and propose a definition that could be adopted locally, nationally and internationally

Method: A systematic review was conducted. PubMed, Scopus, and Web of Science were searched to January 2025. The grey literature was also searched using Google Scholar and Overton given that many of the reports do not appear in the published literature. Cochrane methodology for systematic reviews was followed for searching peer-reviewed literature and the methodology by Godin et al. was used for searching grey literature. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) statement was utilised to guide reporting of this systematic review. Study details were recorded in a data extraction form. Publications were screened by title and abstract and selected papers were formally subjected to inclusion and exclusion criteria. Studies were included in the review if they were a systematic review, review or original papers providing a definition for scope of practice in pharmacy. The search was limited to studies published in English. Reference lists of included papers were searched to identify any relevant publications. Two additional reviewers provided input to resolve uncertainties about publications and after discussion, consensus was reached. For this review, Unique Definitions are defined as those that are original, while Referenced Definitions referred to those citing definitions from other sources.

Results: 2669 records were initially retrieved from the peer reviewed databases and following the removal of duplicates, 1241 unique records underwent screening based on title and abstract. 31 records met the criteria for inclusion. From the

grey literature search, 1,158 records were assessed and 49 met the criteria for inclusion. 172 definitions were identified across all records. Of these, 76 were unique definitions, while 96 were referenced definitions. The various terms used to describe scope of practice were identified and included the terms 'advanced scope of practice', 'core scope of practice', 'current scope of practice', 'elastic scope of practice', 'enhanced scope of practice', 'expanded scope of practice', 'extended scope of practice', 'full scope of practice', 'individual scope of practice', 'prescribing scope of practice', and 'traditional scope of practice'.

Conclusion: The results highlight the variation in how the term scope of practice is defined and described within the pharmacy profession. This variation underscores the need for greater clarity and international consensus on a standardised definition and descriptors for the term. Establishing such clarity would enhance professional understanding, policy development, and the advancement of pharmacy practice worldwide.

An inclusive pharmacy, a myth or a reality? A study on the experiences of 2SLGBTQ+ clients receiving care and pharmacists providing care in British Columbia

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Introduction: 2SLGBTQ+ communities face substantial health disparities due to negative healthcare experiences and a lack of provider training in sexual orientation and gender identity and expression (SOGIE). To gain insight into the healthcare landscape in British Columbia and enhance the training of future pharmacy graduates, two surveys were conducted in parallel, one exploring the experiences of 2SLGBTQ+ clients receiving care from pharmacists, and the other assessing pharmacists' experiences caring for 2SLGBTQ+ clients.

Methods: Two anonymous surveys were distributed, one targeting 2SLGBTQ+ clients, and one targeting registered pharmacists and student pharmacists. Both surveys were piloted with the target audiences prior to dissemination. The survey for 2SLGBTQ+ clients explored participants' experiences with their pharmacists and the physical pharmacy environment, while the pharmacist-facing survey invited participants to self-assess the inclusiveness of their practice and workspace. Both groups also ranked key areas of pharmacist training by importance. Quantitative data, including Likert scale responses and ranking data, were analyzed descriptively. Qualitative comments underwent inductive analysis. Themes were identified by two independent reviewers, and discrepancies were resolved by a third reviewer.

Results: 2SLGBTQ+ clients (n=195) ranked knowledge about 2SLGBTQ+ health topics and treating clients respectfully without stereotyping as key competencies pharmacists should have. 53% of 2SLGBTQ+ clients surveyed felt respected when interacting with pharmacists, and 56% agreed that their needs are met in the pharmacy. The most pervasive qualitative themes from 2SLGBTQ+ clients about the time when pharmacists failed to meet their needs were the lack of competency (28.9%) and pharmacists making heteronormative assumptions (18.1%). Pharmacists (n=465), on the other hand, ranked using inclusive language and creating safe and inclusive spaces as important competencies that enable them to care for 2SLGBTQ+ clients. When asked to assess their own practice, 66.7% pharmacists always or often feel comfortable interacting with 2SLGBTQ+ individuals, but only 47.7% defaulted to gender-inclusive language, and only 36.1% pharmacists considered their pharmacy a welcoming space for 2SLGBTQ+ people. The lack of training around 2SLGBTQ+ health was a common theme identified by 2SLGBTQ+ communities as the reason their needs were not met, and a pharmacists' self-reported barrier in providing inclusive care.

Conclusion: This snapshot of 2SLGBTQ+ pharmacy care in BC demonstrates room for improvement in 2SLGBTQ+ care in the pharmacy and highlights the gap between the quality of care pharmacists want to provide and the quality of care they are equipped to provide. This gap can be bridged with mindful integration of SOGIE training into both professional healthcare programs and continuing education opportunities.

Enhancing precision healthcare: Pre-emptive pharmacogenomic testing in the Malaysian community setting

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Background: Pharmacogenomics (PGx) is a cornerstone of precision medicine, emphasizing the principle that ""one drug does not fit all."" Pre-emptive PGx testing has demonstrated its potential to reduce adverse drug reactions (ADRs), lower healthcare costs, and decrease ADR-related mortality. In a multi-ethnic country like Malaysia, the diverse genetic landscape underscores the need for PGx to address variability in pharmacological responses across populations.

Purpose: This study aims to identify the top 25 medications that benefit from PGx-guided therapy and evaluate gender-based differences in response to these medications within the Malaysian population using pre-emptive PGx testing.

Methodology: A retrospective analysis was conducted on pre-emptive PGx testing data from 138 individuals (73 males, 60 females) who underwent PGx testing at Sunway Multicare Pharmacy and BIG Pharmacy. This study utilized GeneTitan MC with the Axiom Precision Medicine Diversity Array (PMDA), covering close to 100,000 PGx (ADME) markers, including PGx variants per CPIC and PharmGKB guidelines. It enables comprehensive gene-drug relationship analysis in line with FDA, CPIC, and DPWG regulatory standards. The genotyping panel includes clinically relevant variants in 13 key genes (DPYD, NUDT15, TPMT, UGT1A1, CYP2D6, CYP2C9, CYP2C19, CYP3A5, CYP2B6, CYP4F2, G6PD, SLCO1B1, VKORC1) affecting drug pharmacokinetic and pharmacodynamic for over 100 medications across multiple therapeutic areas. Based on individual genetics, medications were categorized into intervention groups (consider alternative, decrease starting dosage and increase starting dosage).

Results: The top 25 medications in the sample population (n=138) spanned five categories: psychiatric (45.5%), cardiovascular (29.7%), oncology (8.7%), pain management (7.2%), immunosuppressants (6.4%), and antivirals (2.6%). Among the categories, warfarin was the most impacted (73.2% of 139 individuals), influenced by VKORC1, CYP2C9, and/or CYP4F2, followed by phenprocoumon (70.3%) and acenocoumarol (69.6%). Clopidogrel came in top 5 at 63.8%, alongside psychiatric medications (e.g. escitalopram, citalopram, clomipramine, trimipramine, doxepin, imipramine, amitriptyline, desipramine, zuclopenthixol, nortriptyline and venlafaxine (42.8-62.3%) and immunosuppressants, tacrolimus (46.4%) and azathioprine (31.9%). Codeine and tramadol made the top 25, each accounting for 43.5%. Lastly, oncology medication included tamoxifen (41.3%), thioguanine (32.6%) and mercaptopurine (31.9%). In each of the PGx-guided therapy categories, the top 10 medications of ""Consider alternative"" category, 63.8% of individuals required changes in clopidogrel, followed by tamoxifen(41.3%) and antidepressants (41.3–13.8%). In the ""Decreased starting dosage"" group, warfarin accounted for 73.2% of cases, followed by phenproucomon (70.3%), acenocoumarol (69.6%) followed by antidepressants and antipsychotics (40.6–51.4%), in addition to metoprolol (41.3%). For the ""Increase starting dosage"" category, tacrolimus (46.4%) was the highest, followed by codeine and tramadol (41.3%) and proton pump inhibitors (pantoprazole, omeprazole). Delving deeper, comparing the gender, male and female, for each respective PGx-guided intervention, no significant gender-based differences were observed ($p>0.05$).

Conclusion: The findings reveal a high prevalence of clinically actionable variants among Malaysians at the community level that requires intervention, highlighting significant pharmacological response variability and the importance of pre-emptive pharmacogenomics as the driving force in precision medicine for reducing ADRs. Expanding the sample size in future studies across community pharmacies will enhance representation of Malaysia's ethnic diversity and further elucidate how pre-emptive PGx can optimize medication use in this population.

A study of the knowledge, attitude and practice of community pharmacists towards household pharmaceutical waste disposal

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Background: Sustainable medication waste disposal is critical due to rising pharmaceutical consumption, leading to household pharmaceutical waste (HPW) and environmental harm. Improper disposal introduces harmful active pharmaceutical ingredients into ecosystems, contributing to hormone disruption and antimicrobial resistance. In Malaysia, poor medication disposal practices highlight the need for effective public education and policy interventions, with community pharmacists playing a key role in promoting safe medication disposal practices.

Purpose: This study aims to assess the community pharmacists' knowledge, attitude and practice (KAP) levels towards HPW disposal, examine the relationship between their KAP, and identify factors influencing their engagement in promoting safe medication disposal initiatives.

Method: Community pharmacists were selected through stratified random sampling from a list of registered pharmacies in Kuala Lumpur, Selangor and Putrajaya, obtained from the Ministry of Health Malaysia's online database. The sample size was calculated using Cochran's formula, resulting in 424 respondents. A structured KAP questionnaire included 10 knowledge, 10 attitude, and 6 practice items. For knowledge scores, each correct response was awarded 1 point while incorrect or ""don't know"" answers received 0 points. Attitude scores were calculated by summing the points on a 4-point Likert scale, where higher scores indicated a greater positive attitude. Negatively worded items were reverse-coded during analysis. Data was analysed using SPSS version 29, with descriptive statistics summarising demographic characteristics and KAP scores. Spearman's Rho correlation assessed the relationship between knowledge and attitude with practice, while Chi-Square tests examined the associations between socio-demographic factors and KAP levels. A p-value of <0.05 was considered statistically significant. This cross-sectional survey study was approved by the University of Nottingham Malaysia Science and Engineering Research Ethics Committee.

Results: The response rate was 63.7% (270/424). The majority were under 45 years old (86.7%), female (71.1%), and ethnically Chinese (71.9%). Most worked in chain pharmacies (66.7%) in urban areas (83.0%) and 77.8% were locally trained. The largest proportion of the respondents (44.4%) reported having 1 to 5 years of community pharmacy working experience, and over half of the respondents (61.1%) had prior working experience in other pharmacy sectors. Community pharmacists demonstrated mixed knowledge levels (mean: 5.67±1.240) but held positive attitudes towards HPW disposal (mean: 32.96±3.938). While 60.7% felt confident advising on disposal, 75.2% lacked promotional materials, and 85.6% recommended the government hospital Medication Return Programme. Higher knowledge and attitude scores correlated significantly with greater confidence in providing safe medication disposal advice ($p<0.05$). Educational background significantly influenced knowledge levels ($p<0.05$), but no other demographic factors showed significant associations with KAP scores.

Conclusion: The study highlights a self-perpetuating cycle in community pharmacists' KAP towards HPW disposal. While pharmacists demonstrated positive attitudes, limited knowledge undermined their confidence and engagement in safe medication disposal initiatives. Barriers such as inadequate training, lack of formal guidelines, and low public awareness further restricted practice. Addressing these challenges requires integrating HPW disposal education into continuing professional development, implementing regulatory mandates, and enhancing public awareness. Strengthening pharmacists' roles in medication disposal can foster sustainable practices, ensure environmental protection and improve patient guidance on safe medication disposal practices.

Sentinel pharmacy networking. An opportunity to change the healthcare system. comparative seroprevalence analysis of COVID-19 vaccination strategies from a multicenter study in Castilla-Leon, Spain

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Background: The location of pharmacies in all types of municipalities and the potential to assist 2.3 million citizens every day makes pharmacies "information poles and health sensors that can do much more in epidemiological surveillance", so their inclusion in Public Health policies could provide Spain with one of the most important health networks in Europe. Community pharmacies have been participating in initiatives aimed at collecting, analyzing and disseminating information related to the state of health of the population. Although vaccination had proven to be one of the most important tools to control the COVID-19 pandemic, it was necessary to know the antibody response generated after immunization with the different vaccination protocols against COVID-19 in the general population.

Objective: To compare the seroprevalence generated between the different vaccination strategies.

Methods: Design: We conducted an observational, descriptive, cross-sectional, and multicenter study at the 121 community pharmacies forming the Sentinel Network of Castilla-Leon (Spain). In the study we analyzed the safety profile and immunogenicity produced after the administration of vaccines against SARS-COV-2 in the general population of Castilla-Leon.

Setting: During the study, the presence of specific antibodies against SARS-COV-2 (seroprevalence) produced after vaccination in 1,654 individuals from the general population of Castilla-Leon were analyzed. This sampling distribution was carried out according to the age of the individuals following the population age pattern presented by the community of Castilla y León.

Main outcome measures: The presence of antibodies, Ab, both IgM and IgG against SARS-CoV-2 in the study samples was analyzed using rapid detection tests.

Statistical analysis: The data on the distribution of normality of the different quantitative variables analyzed were summarized as mean and standard deviation (SD). The seroprevalence results for each patient have been analyzed as IgG positive or negative.

Results: Our data indicate that 92.3% of the vaccinated population had IgG antibodies against COVID-19. This percentage was significantly higher than the percentage found in the non-vaccinated population, which was 17.9%. In this population (not vaccinated), 34% passed the COVID and 45% out of them still had antibodies against the infection. The impact on seroprevalence of the 6 different vaccination strategies was also examined. All the complete vaccination protocols that use homologous immunization with Pfizer or Moderna or AstraZeneca; together with the heterologous combination protocols, mixing some of these vaccines, generated a humoral response in more than 90% of the strategies. However, the administration of a single dose of the Janssen vaccine generated a significantly lower response than the rest of the immunization protocols (60.5%).

Conclusions: These results demonstrate that community pharmacies can generate a highly effective rapid response network when epidemiological data or the efficacy of the drug are urgently required. The network of sentinel Pharmacies in Castilla-Leon (Spain) is an example of this type of work protocol.

Pharmaceutical work provided by the Finnish community pharmacies results to significant cost savings for the society

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Introduction: In Finland, licenced community pharmacies provide customers self-care counselling, prescription medication counselling, as well as checking prescriptions for possible errors and medication interactions, and resolving them when needed, without compensation for these services. Community pharmacies are highly valued by the pharmacy customers, as these complimentary services can aid them, even when the health care services are not easily available or are being reduced due to e.g., public budget constraints.

The aim of this study was to assess the economic value of pharmaceutical work conducted in Finnish community pharmacies compared to a counterfactual situation, where pharmaceutical work is not provided.

Method: The assessment method applied the PICOSTEPS analysis and reporting framework and examined modelled annual societal value, provider (wellbeing service counties) savings, and pharmacy customer savings on public health care services in Finland. Analysis was based on an electronic survey with Finnish physicians carried out in spring 2024, public statistics, and available publications.

Societal perspective covered direct health care costs, absenteeism, and health-related quality of life (HRQoL) measured as quality-adjusted life years (QALYs).

Results: With conservative valuation of QALYs gained, the estimated annual societal value of pharmaceutical work was 2 599 million euros. The main value driver was self-care counselling and over-the counter (OTC) medication counselling (66%) followed by prescription medication counselling (26%) and checking prescriptions for possible errors (7%) and interactions (2%). Of the societal value, 47% were due to health benefits, 36% due to health care costs, and 17% due to absenteeism.

The annual health services costs saved by the society, providers, and customers were 950, 855 (3.7% of overall provider budget), and 95 million euros, respectively.

Responding Finnish physicians attributed significant benefits to all four dimensions of pharmaceutical work and 70% of them would keep OTC medicine dispensing in licensed pharmacies. The physicians estimated that without the self-care and OTC advice from pharmacies, primary health care doctor's appointments would increase by 21%.

Conclusion: Community pharmacies create considerable societal value, and direct savings to health care and pharmacy customers. However, recent political decisions and policies have weakened pharmacies' capacity to provide pharmaceutical work, and to be a supportive part of the health care system. The societal value of pharmaceutical work should be considered in political decision making to ensure that the significant value is not lost.

Digital platform for recording standardized pharmaceutical services in Serbia

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Introduction: In 2019, the Pharmaceutical Chamber of Serbia (PCS) initiated the process of standardizing pharmaceutical services with the goal of applying evidence-based medicine/pharmacy to provide consistent pharmacy services that improve health, increase adherence, and lead to better health outcomes. By 2022, three such services had been standardized. Their documentation up to that point had been carried out via standardized paper-based forms, which significantly complicated later monitoring and analysis. To address these challenges, the PCS developed a specialized digital platform in 2022 for recording collected data—the Web Application for Pharmaceutical Services (WAPS).

Objective: The objectives of creating WAPS were:

•Establish a unique and user-friendly online platform for documenting standardized pharmaceutical services provided in pharmacies.

•Support pharmacists in delivering standardized pharmaceutical services.

•Collect data on outcomes of the services to facilitate further analysis and inform decision-makers.

Method: Pharmacists (members of the PCS) must first register to use WAPS, after which the PCS verifies their information and grants access. Completion of accredited training on a relevant topic is a prerequisite for providing each standardized service. Every standardized pharmaceutical service involves "step-by-step" counseling of patients, following guidelines developed by expert working groups; the number of steps depends on the complexity of the condition being addressed. The platform enables recording of data on patients' understanding of their disease, details of their therapy, adherence indicators, symptom management, follow-up visits, non-pharmacological measures, and more. It also offers an overview of previously recorded results to track the patient's clinical status over time.

Pharmacist can also download and analyze the recorded data by service or patient to monitor the counseling outcomes. Before the first step of counseling, and in accordance with data protection regulations, the patient signs an "Informed Consent" form, thereby agreeing to participate in the counseling process and the use of their health data.

Results: From February 2022 until March 2025, a total of 84,709 standardized pharmaceutical services were recorded in WAPS by 1,420 pharmacists (representing 20% of all PCS members). Nine standardized services have been implemented in WAPS so far:

•Chronic non-communicable diseases: diabetes, asthma, and hypertension

•Rational antibiotic use

•Preventive services: vaccination against COVID-19; influenza; pneumococcal disease and pertussis; HPV

•New medicines service

The systematically collected data through WAPS confirm the benefits of a unified platform for monitoring and evaluating treatment outcomes on a large scale. Preliminary analyses indicate that standardized services contribute to better adherence and improve patients' understanding of their therapy.

Conclusion: WAPS has streamlined and simplified the process of patient counselling, ensuring easily recording of documentation and the large-scale collection of therapy outcome data. Analyzes of the collected data indicate the potential of pharmacists as the most accessible healthcare professionals and provide a solid starting point for negotiations with policymakers regarding the expansion and reimbursement of recognized pharmaceutical services on a national level. Future activities will include broadening the range of services, refining service indicators, integrating with other healthcare providers, and developing sustainable financing models.

Opportunistic screening for Helicobacter pylori: A pharmacy-led approach for early detection and gastric cancer prevention

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Introduction: Gastric cancer is the fifth leading cause of cancer-related deaths worldwide, with Portugal among the most affected countries. Helicobacter pylori infection, often asymptomatic, is responsible for 78% of gastric cancer cases and is highly prevalent in Western Europe, affecting 65–80% of adults.

To promote cancer literacy and H. pylori screening, a pharmacy-based test-and-treat strategy, "Opportunistic Helicobacter pylori Screening Programme (POHp)", was implemented in Terceira Island (Azores, Portugal). The program was developed by the Prevention Group within the Stakeholders Group of National Cancer Hub. Led by Azores Oncology Centre (COA), in collaboration with the Hospital de Santo Espírito of Terceira Island (HSEIT) and the National Association of Pharmacies.

This study aims to describe POHp characteristics and present its initial results.

Method: The program was conducted in Terceira Island due to its well-defined geographic boundaries, a population of over 50,000 inhabitants, and a high gastric cancer incidence (age-standardized rate 19.6 cases per 100,000 residents). The eligible population comprised individuals aged 18 years and older, registered at the primary care health centres in Angra do Heroísmo or Praia da Vitória.

Participant recruitment and registration took place at community pharmacies. Each participant received a kit for at-home stool sample collection, which was then returned to the pharmacy. The screening process followed a two-phase

approach: detection and eradication. H. pylori detection was performed by HSEIT using a DNA stabilizer (Invitek®) and RT-PCR detection kit (Viasure®), chosen for its accuracy, affordability, and minimal participant burden.

HSEIT communicated test results directly to patients: negative results via text message and positive results via phone call to schedule a follow-up appointment at COA. There, a confirmatory test would be performed and, if confirmed, H. pylori eradication treatment was initiated. Inconclusive results required repeating the whole process.

Results: Overall, 92% (n=11) of pharmacies accept to participate. Patients' recruitment ran from March 4 to July 31, 2024. Each participating pharmacy received training, sample kits, and promotional materials. An online platform was developed to manage patient data, verify eligibility, assign kit IDs, and track results.

A total of 1,887 inhabitants received a screening kit, of whom 93.3% (n=1,761) returned the sample. The mean age was 53.2 years (SD=14.1), with 62.5% female, 26.0% had completed middle school, 32.3% secondary school, and 41.7% held a higher education degree.

Regarding screening results, 91.8% of participants tested negative, 5.3% positive, and 3.0% had inconclusive results. After confirmatory testing of inconclusive cases, 6.4% of all participants were found positive for H. pylori. These lower-than-expected results may be due to the chosen method, which likely causes false negatives possibly because of compromised DNA integrity in stool samples.

The H. pylori eradication phase is currently ongoing.

Conclusion: Early identification and treatment of H. pylori infections are important for preventing severe disease and reducing morbidity and mortality. POHp represents an innovative pharmacy-based approach for opportunistic screening, demonstrating high public adherence. Due to the success of this initiative, a new screening campaign is being developed to confirm the negative results, once again at pharmacies, but this time applying breath tests.

Community pharmacists' facilitators and barriers to participating in pharmacy practice research

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Introduction: Pharmacy practice research (PBR) is required to explore the effectiveness and efficiency of community pharmacists' services. This research aimed to assess community pharmacists' attitudes and barriers to PBR participation and examine factors preventing or motivating community pharmacists from participating.

Method: In this cross-sectional study, an online survey was conducted with a structured pretested questionnaire among community pharmacists from May 23 to June 30, 2023. All licensed pharmacists, registered in the Register of Pharmacists of the Croatian Chamber of Pharmacists, with >6 months of work experience in community pharmacy, working in a town with >35,000 inhabitants, were included in the research. The questionnaire was comprised of two parts. The first part of the questionnaire collected the sociodemographic characteristics of the respondents. The second part of the questionnaire contained statements examining pharmacists' attitudes towards the PBR and barriers to engaging in the PBR, which were measured on a 5-point Likert scale (1: strongly disagree, while 5: strongly agree). The questionnaires were anonymous, and no identification data were collected. Empirical data were analyzed using descriptive and inferential statistical methods, with $p<0.05$ considered statistically significant.

Results: In the research, 293 community pharmacists participated. Community pharmacists were, on average, 41.3 ± 10.8 years old and were predominately female, 90.8%. The majority (82.3%) were pharmacy graduates and, on average, worked for 15.3 ± 10.3 years of service in community pharmacy. More than half (57.0%) of study participants worked in the community pharmacy located in a city with >100,000 inhabitants, with 71.0% employed in privately owned pharmacies. Of the community pharmacists, 97% strongly agree/agree with the statement that PBR is important for the development of new pharmacy services (M ± SD = 4.60 ± 0.56), and over 60% of them considered participation in research to be part of pharmacy practice (M ± SD = 3.74 ± 0.92). The daily tasks necessary for normal pharmacy functioning were most often perceived barriers to research participation, identified by 67% of community

pharmacists (M ± SD = 3.82 ± 0.96). Lack of support from their superiors or colleagues to participate in the research was identified as a barrier for 42.0% of community pharmacists (M ± SD = 2.77 ± 1.08). Support for PBR by community pharmacists was determined to a greater extent (M ± SD = 4.31 ± 0.54), while the perceived barriers to PBR to a lesser extent (M ± SD = 3.11 ± 0.70), and the observed difference was statistically significant ($p<0.001$). The attitude of the community pharmacist toward PBR and the perception of barriers to research participation were positively correlated ($r = 0.045$; $p < 0.001$).

Community pharmacists perceive the workplace as a statistically significant negative predictor of the barriers towards PBR. Employees perceive more barriers toward PBR than pharmacy managers or pharmacy owners.

Conclusion: Community pharmacists recognized the importance of PBR for the pharmacy profession. The motivation for participation in PBR was present, and the barriers were identified. The results of this study reveal the direction in which community pharmacists should be encouraged.

Antibiotic prescribing patterns in a polyclinic cluster in Singapore according to WHO access, watch, reserve (AWaRe) classification

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Introduction: The AWaRe Classification of antibiotics was developed in 2017 by the World Health Organization (WHO) Expert Committee on Selection and Use of Essential Medicines as a tool to support antibiotic stewardship efforts. Antibiotics are classified into three groups, Access, Watch and Reserve. This study aims to describe antibiotic prescribing patterns at National University Polyclinics (NUP), one of the three polyclinic clusters in Singapore, according to the WHO AWaRe classification.

Methods: A retrospective study was conducted. All patients aged 21 years and above who attended clinics at NUP were included. Prescription and electronic medical records from January to September 2023 were reviewed. Incomplete records and dental prescriptions were excluded. The data was analyzed based on the 2023 AWaRe classification. Descriptive statistics were used. The proportion (Prop) of prescriptions with antibiotics is expressed per 1000 prescriptions in the defined population.

Results: In the 9-month period, there were 1,181,242 registered patient visits (21 years and above) with 605,390 prescriptions dispensed, of which 26,231 prescriptions (4.3%) contained more than one antibiotic. A total of 25,920 prescription records were reviewed. Females (Prop 46.9) were more likely to be prescribed antibiotics than males (Prop 39.8). Patients aged 21 to 64 years (Prop 51.2) had more prescriptions of antibiotics compared to elderly patients 65 years and older (Prop 32.9). The most prescribed antibiotic was amoxicillin/clavulanic acid (Prop 27.7), comprising 63.8% of all antibiotic prescriptions. Among antibiotics in the Watch group, clarithromycin was the most prescribed (Prop 2.2). Among the Access group, amoxicillin/clavulanic acid was most prescribed, followed by amoxicillin (Prop 2.3). Among females, the most prescribed Watch group antibiotic was clarithromycin (Prop 2.3), and the most prescribed Access group antibiotic was amoxicillin/clavulanic acid (Prop 28.3). In patients aged 21 to 64 years, clarithromycin (Prop 2.7) and amoxicillin/clavulanic acid (Prop 31.8) were also most prescribed.

Conclusion: Antibiotic prescription rates are higher in younger patients and females. Among the WHO AWaRe antibiotics, Access group antibiotics are more commonly prescribed. Among antibiotics in the Watch group, clarithromycin is most commonly prescribed. Information obtained from this study would guide future planning for the Antimicrobial Stewardship Programme in the polyclinic cluster.

Humanifar, a project for humanization in pharmaceutical care

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Background: Humanization involves activities aimed at improving the health care of individuals, both physical, mental, and emotional, based on criteria of closeness, adaptability, and personalization. It is directed at patients and their families, as well as healthcare professionals themselves, and centers around the dignified treatment of the person.

There is a global consensus on the need of pharmaceutical care services (PCS) involving changes in patient relationship. Professional, structural, and patient-related barriers must be overcome to humanize the development of PCS.

Purpose: To promote humanization in the professional practice of pharmaceutical care in any area of pharmaceutical assistance developing an easily applicable tool aimed at implementing humanization activities in direct patient care across any area of community pharmacy.

Provide pharmacists with a model of humanization based on solid conceptual foundations regarding what humanization represents, its implications, its challenges, and equip them with practical tools for its implementation, evaluation, and follow-up of the results obtained.

Method: For the purpose Pharmaceutical Care Foundation and TEVA Laboratories has developed a project: Humanifar. The research and design phase allows for the development of 3 stages of information collection and extraction:

1.Conceptualization of Humanization: definitions, criteria and alignment with pharmaceutical care.

2.Identification of Experiences and Benchmarking: selection of experiences in national and international contexts and extraction of best practices.

3.Field Work: Digital individual interviews, 3 in-person workshops and digital surveys.

4.Construction of the Instrument: Design of the instrument and validation with team of experts.

Results: Humanifar has developed the following tools to support the implementation of humanization in pharmaceutical care.

1.INTERNAL DIAGNOSIS. It encourages the search for ideas and solutions through brainstorming and prioritization that respond to the pharmacists' requirements to facilitate the implementation of the project.

2.KNOWLEDGE. Studies and reflections to understand what humanization in pharmaceutical care is.

3.ORGANIZATION AND PROCESSES. These are the technical tools that help implement the process. They allow us to see the project's evolution, using indicators, such as facilitating communication among professionals or adapting the space for adequate patient care. It also includes essential tools, such as Information and Communication Technologies.

4.TRAINING. This is the broadest section, providing key training in aspects more related to social sciences, ranging from emotional management, conflict resolution, the development of active listening, to non-violent communication.

5.PATIENT MANAGEMENT. This section includes tools to implement care services from the perspective of humanization, such as patient stratification and the implementation of a service portfolio proposal; the relationship tool that provides us with elements for reflection and action with the patient; basic guidelines for follow-up; and a pathology guide to achieve a level of specialization that allows us to focus on the person and add value to pharmaceutical care.

Conclusion: Humanifar contributes to promoting humanization in the professional practice of pharmaceutical care.

It establishes a comprehensive description of humanization.

To provide appropriate care to the patient, we must know, accompany, and respect individuals.

Training, documentation, and evaluation of processes are necessary to address the change.

Key stakeholder's attitudes towards the professional accountabilities and responsibilities of newly qualified Pharmacist Independent Prescribers (IPs) in England and enablers to implementation at scale

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Background: Independent prescribing (IP) is set to rapidly expand amongst community pharmacists across England, with all new pharmacy graduates qualifying as IPs on registration from 2026. They will join an existing cohort of over 21,000 pharmacist IPs. This study explored the different accountabilities and responsibilities associated with pharmacist IP compared to more traditional pharmacist roles and identified enablers to the successful rollout of pharmacist IP at scale. There are useful lessons to be learnt by other Countries in terms of policy development and implementation.

Purpose: To understand how well newly qualified pharmacist IPs understand the accountabilities and responsibilities that are associated with independent prescribing, and to inform commissioning frameworks that will allow independent prescribing by community pharmacists to be commissioned safely and appropriately at scale.

Method: A series of qualitative semi-structured interviews were undertaken with key stakeholders. Interviews were analysed using thematic analysis, and over-arching themes developed from emergent findings.

Results: Three overarching themes were identified from transcription analysis, supported by twelve sub-themes associated with the successful rollout of pharmacist independent prescribing as follows:

Theme - SelfConfidence

Sub-Theme - Confidence, Attitude towards risk, Responsibility

Theme - Competence

Sub-Theme - Baseline knowledge, Prescribing training,

Experience, Scope of practice

Theme - Environment

Sub-Theme - Liability, Scrutiny, Governance, Relationship with

other healthcare professionals, Support

Overarching themes and recommendations were developed from the themes, sub-themes and direct quotes as shown below:

•Prescribers are ultimately accountable for their own actions

•Ongoing support, both in real-time and reflective, is critical and whilst a shared responsibility between prescribers, employers and commissioners, should be built into commissioning frameworks

•Newly qualified prescribers need to start prescribing, with support, immediately after qualifying

•Experiential learning should be built into all training programmes

•Recognised systems should be in place to facilitate widening scope of practice

•Additional scrutiny should be expected with new roles

A multidisciplinary approach needs to be taken to pharmacist prescribing

•Pharmacists should receive training in becoming comfortable with risk

•There is confusion regarding liability associated with prescribing

•There should be specific revalidation requirements for prescribers

•A performance management framework should be in place for pharmacist prescribers

Conclusion: This study identified three themes, supported by twelve sub-themes, associated with pharmacist independent prescribing being viewed positively. Those three themes were self, environment and competence. Whilst pharmacists are well placed through their initial education and training to undertake a prescribing role, there are perceived differences in responsibility between a prescribing and a non-prescribing role, attitude towards risk and the training and support need to adapt to those changes. Key recommendations include: 1) Ongoing support is critical and should be built into commissioning frameworks, 2) newly qualified prescribers need to start prescribing immediately after qualifying and 3) experiential learning should be built into all training programmes.

Effects of a community pharmacy-based medication review on drug-related problems and patient-reported outcomes in all-comers with polypharmacy: A randomised, controlled, double-blind, parallel-group trial

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Introduction: Medication reviews may help to reduce the burdens of polypharmacy. However, previous studies lacked an adequate control group, randomisation on patient-level, and the inclusion of specific patient cohorts, which limited the generalisability of the findings. To the best of our knowledge, this is the first multi-centre, randomised, double-blind trial with parallel groups to investigate the effects of a single medication review type 2a.

Method: This was a multi-centre, randomised, patient- and assessor-blind, parallel-group trial conducted in 14 community pharmacies in Vienna, Austria. Adult all-comers with intake of ≥8 systemically active drugs were eligible. At baseline, pharmacists interviewed patients and assessed drug-related problems (DRP) – a parameter summarizing problematic aspects of pharmacotherapy. Thereafter, pharmacists randomised patients (1:1) to the intervention, in which they addressed DRPs, and to the control group, in which DRPs were not addressed. Patients in both the intervention and control group participated in face-to-face appointments. After three-to-four months a blind pharmacist reassessed DRPs. The primary endpoint was the difference in the number of DRPs between groups at the second visit. Secondary endpoints included changes in therapy adherence, health literacy, and the number of active ingredients per patient.

Results: Between August 2022 and August 2023, 220 patients (intervention n=110, control n=110) were randomised. Of these, 198 completed the primary analysis (intervention n=98, control n=100). A medication review significantly reduced DRPs by ~70% (effect size 0.30, 95% CI: 0.27-0.34) compared to the control group. Therapy adherence- and health literacy-related DRPs decreased significantly by ~60% (effect size 0.40, 95% CI: 0.26-0.61) and ~64% (effect size 0.36, 95% CI: 0.22-0.59), respectively, in the intervention

group compared to the control group. A medication review significantly decreased the mean number of active ingredients by ~9% compared to the control group.

Conclusions: In conclusion, this rigorously designed study demonstrated that medication reviews significantly reduced drug-related problems, educated patients and improved their adherence to drug therapy. Alongside the development of new therapeutics, measures to optimise the correct intake of already existing therapies are desperately needed to optimise patient outcomes and to ensure cost-effective treatment of patients.

Enhancing precision healthcare: Pre-emptive pharmacogenomic testing in the Malaysian community setting

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Background: Pharmacogenomics (PGx) is a cornerstone of precision medicine, emphasizing the principle that "one drug does not fit all." Pre-emptive PGx testing has demonstrated its potential to reduce adverse drug reactions (ADRs), lower healthcare costs, and decrease ADR-related mortality. In a multi-ethnic country like Malaysia, the diverse genetic landscape underscores the need for PGx to address variability in pharmacological responses across populations.Purpose: This study aims to identify the top 25 medications that benefit from PGx-guided therapy and evaluate gender-based differences in response to these medications within the Malaysian population using pre-emptive PGx testing.

Methodology: A retrospective analysis was conducted on pre-emptive PGx testing data from 138 individuals (73 males, 60 females) who underwent PGx testing at Sunway Multicare Pharmacy and BIG Pharmacy. This study utilized GeneTitan MC with the Axiom Precision Medicine Diversity Array (PMDA), covering close to 100,000 PGx (ADME) markers, including PGx variants per CPIC and PharmGKB guidelines. It enables comprehensive gene-drug relationship analysis in line with FDA, CPIC, and DPWG regulatory standards. The genotyping panel includes clinically relevant variants in 13 key genes (DPYD, NUDT15, TPMT, UGT1A1, CYP2D6, CYP2C9, CYP2C19, CYP3A5, CYP2B6, CYP4F2, G6PD, SLCO1B1, VKORC1) affecting drug pharmacokinetic and pharmacodynamic for over 100 medications across multiple therapeutic areas. Based on individual genetics, medications were categorized into intervention groups (consider alternative, decrease starting dosage and increase starting dosage).

Results: The top 25 medications in the sample population (n=138) spanned five categories: psychiatric (45.5%), cardiovascular (29.7%), oncology (8.7%), pain management (7.2%), immunosuppressants (6.4%), and antivirals (2.6%). Among the categories, warfarin was the most impacted (73.2% of 139 individuals), influenced by VKORC1, CYP2C9, and/or CYP4F2, followed by phenprocoumon (70.3%) and acenocoumarol (69.6%). Clopidogrel came in top 5 at 63.8%, alongside psychiatric medications (e.g. escitalopram, citalopram, clomipramine, trimipramine, doxepin, imipramine, amitriptyline, desipramine, zuclopenthixol, nortriptyline and venlafaxine (42.8-62.3%) and immunosuppressants, tacrolimus (46.4%) and azathioprine (31.9%). Codeine and tramadol made the top 25, each accounting for 43.5%. Lastly, oncology medication included tamoxifen (41.3%), thioguanine (32.6%) and mercaptopurine (31.9%). In each of the PGx-guided therapy categories, the top 10 medications of "Consider alternative" category, 63.8% of individuals required changes in clopidogrel, followed by tamoxifen(41.3%) and antidepressants (41.3–13.8%). In the "Decreased starting dosage" group, warfarin accounted for 73.2% of cases, followed by phenproucomon (70.3%), acenocoumarol (69.6%) followed by antidepressants and antipsychotics (40.6–51.4%), in addition to metoprolol (41.3%). For the "Increase starting dosage" category, tacrolimus (46.4%) was the highest, followed by codeine and tramadol (41.3%) and proton pump inhibitors (pantoprazole, omeprazole). Delving deeper, comparing the gender, male and female, for each respective PGx-guided intervention, no significant gender-based differences were observed ($p>0.05$).

Conclusion: The findings reveal a high prevalence of clinically actionable variants among Malaysians at the community level that requires intervention, highlighting significant pharmacological response variability and the importance of pre-emptive pharmacogenomics as the driving force in precision medicine for reducing ADRs. Expanding the sample size in future studies across community pharmacies will enhance representation of Malaysia's ethnic diversity and further elucidate how pre-emptive PGx can optimize medication use in this population.