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Community pharmacy section

Community pharmacy perspectives on managing skin conditions: Mixed methods online survey

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Introduction: Skin disease is amongst the most prevalent diseases worldwide with most people relying on self-care. Community pharmacists are an accessible and convenient source of advice for patients with skin problems yet research on the role of pharmacists in supporting self-care is limited.

Objectives: To identify which skin problems pharmacy staff most commonly encounter and find most challenging, and their research priorities for skin conditions in community pharmacy.

Methods: An online survey was created and widely distributed via Twitter, general snowballing techniques, and professional links e.g. newsletters to community pharmacy staff from 20th July 2021 to 20th January 2022. Data were collected on:

1. Respondent's role, basic demographics, and geographical location.
2. Ranking of the most commonly encountered skin conditions with a free text option for other conditions

(categorised using the British Association of Dermatology [BAD] Index).

3. The two most challenging aspects of managing skin conditions and three key research priorities.

Items 1 and 2 were analysed using descriptive statistics and data for item 3 was analysed based on a content-type analysis to develop key themes.

Results: Of 174 responders, 67.8% were female and 63.8% were community pharmacists; other roles included pharmacy technicians and counter assistants. Almost half (48.9%) had been in their current role for over ten years. Ethnic backgrounds included White (n=60; 34.5%), Asian/Indian (n=38; 21.8%), and Asian/Pakistani (n=18; 10.3%). The majority (n=90; 54%) were aged between 30 and 49. Problems encountered (most to least frequent) were eczema/dermatitis, skin rashes, insect bites, skin infections, acne, psoriasis, and sunburn. Other conditions included COVID-19-related issues, dry skin, and allergic reactions.

The analysis identified the following key challenges:

- i. Knowledge and training related to when to refer, challenges with differential diagnoses, and diagnosis of conditions on non-white skin.
- ii. Treatment-related including treatment restrictions e.g., limited over-the-counter (OTC) range and cost of OTC products.
- iii. Resource-related including time, funding, tools e.g., lighting, and patient clinical history access.
- iv. Patient-related communication e.g., language barriers, phone communication, communication via photos, non-adherence, and patient education.
- v. Related to communication with general practitioners (GPs) including difficulties accessing GPs, and differing advice.

Preliminary analysis identified the following key Research Questions:

1. How can community pharmacy staff be better supported to identify and diagnose skin disorders?

2. What are the procedures in place for referring skin conditions, including knowledge of when to refer, referral pathways, and follow-up on referrals?
3. How can community pharmacy staff best diagnose and treat skin conditions in skin of colour?
4. How can community pharmacy staff best advise on the use of corticosteroids?
5. How can community pharmacy staff ensure that the most appropriate emollient is selected?

Conclusions: Respondents identified several challenges and research priorities, particularly concerning communication with patients and other health professionals and knowledge gaps regarding diagnosis and onward referral of skin conditions. These results are key to developing a programme of research that supports community pharmacy staff to manage and treat patients presenting with skin conditions or problems.

Patients' satisfaction with e-prescribing (Wasfaty) in Saudi Arabia: A survey of country-level implementation

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Objectives: The study was conducted to assess patient satisfaction with the e-prescription service implemented by the Ministry of Health hospitals and primary healthcare centres in Saudi Arabia.

Methods: The study used a cross-sectional approach. Data was collected using a random sampling technique, and an online questionnaire was distributed among the study population. The 5-point Likert scale, ranging from 1 (not at all satisfied) to 5 (very satisfied), was used to assess patient satisfaction.

Results: A total of 400 patients participated in the study. More than half (57.5%) were males and approximately one-third were between the ages of 30 and 39.

Conclusions: Aspects related to the pharmacy, i.e. accessibility to pharmacies in terms of numbers, location, and opening hours, as well as pharmacy facilities, including waiting area, counselling area, dispensing area, and parking lots were skewed towards 5 (very satisfied). Aspects related to pharmacy personnel, i.e. knowledge, skills, competencies, friendliness, and approachability, were also skewed towards 5 (very satisfied). Factors related to patient experience with Wasfaty, the new service, as compared with the old primary healthcare centres pharmaceutical services, such as availability of pharmacists, procedures for refills, waiting

time, privacy, and confidentiality, also skewed towards 5 (very satisfied).

Delivering person-centered healthcare via the integration of telehealth solutions in an ambulatory care pharmacy setting

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Introduction: The adaptation of telehealth in the ambulatory care pharmacy setting is significantly transforming healthcare delivery. Due to the COVID-19 pandemic, access to healthcare became a major challenge. Johns Hopkins Aramco Healthcare (JHAH) has implemented several telehealth models as a response measure to overcome challenges in access to patient care due to the COVID-19 pandemic. These telehealth solutions included MyChart implementation, an online patient health portal powered by Epic. It includes features such as prescription renewal, refill requests, and notification when your medications are ready to be picked up at the pharmacy. The telehealth medication management clinic (Tele-MMC) is a pharmacist-managed clinic where pharmacists work collaboratively with the care team to optimise medication use among patients. Another telehealth model adopted is the establishment of "Pharmacy Call Center" an interactive medium allowing patients to contact pharmacists for their medication management.

Objectives: This study aimed to evaluate the utilisation of telehealth pharmacy services such as pharmacist-led tele-MMC, patient portal MyChart, and Pharmacy Call Center in an ambulatory care setting and its effectiveness in developing a person-centered care model at JHAH.

Methods: A retrospective study was conducted from (January-December, 2021) among JHAH patients who utilised MyChart, visited the pharmacy to pick up their refills, and utilised tele-MMC from (June-December 2021). All telehealth data was electronically retrieved from (EHR) Epic. Call Center data was retrieved from the Cisco dashboard. Descriptive statistics were used to present and compare data between different medication management strategies. Frequency and percentage were reported in the case of categorical outcomes and the mean was reported with standard deviation (SD) for continuous outcomes.

Results: A monthly average of 1881.50 ± 161.92 patients utilised the online portal MyChart either to renew medication refills or to request medication pickup from their preferred locations. A monthly average of 4467.42 ± 286.62 patients availed the pharmacy call center to manage their medication-

related issues. The tele-medication management clinic was newly implemented in June 2021. From the beginning to the end of 2022, a monthly average of 701.86 ± 180.23 patients utilised either telephonic or video MMC consultations. The comparative analysis indicated that 98.54% of the refills patients utilised telehealth solutions to manage their medications compared to regular pharmacy visits.

Conclusions: High utilisation of pharmacy call center and pharmacist-led tele-MMC collaborative care services were observed. Also, high demand in MyChart utilisation was observed for renewal of medication refills and pick-up from the preferred available locations. The easy and convenient remote access to ambulatory care services through telehealth solutions enabled the development of a person-centered care model of pharmacy practice where patients' values and needs could be addressed with utmost care and priority. Telehealth solutions adopted at JHAH introduced new possibilities to overcome COVID-19 challenges and achieve better health outcomes without compromising patient satisfaction.

Primary health care transformation: A model of care to improve efficiency and effectiveness and reduce the pressure on Australian emergency departments

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Introduction: Emergency departments (ED) are vital to the health care system providing care for people who require urgent, and often lifesaving, medical attention. In Australia, more than one-third of ED presentations are for lower urgency care, some of which may be managed more appropriately by health services in the community such as through their general practitioner (GP), community walk-in clinics, and community pharmacies. There were 8.8 million ED presentations, a rate of 342.5 presentations per 1,000 population in Australia in 2021-21 which suggests that approximately 2.5 million could be managed in alternate more cost-effective settings. However, correct triage points within the health system are critical to ensure patient safety and appropriate clinical governance. Clearly, primary healthcare providers such as community pharmacies have a crucial role, but these policy changes need a holistic healthcare system solution to ensure people have access to additional accessible, affordable, and appropriate options to offer an alternative to ED. Importantly, there is a need to better understand the reasons for patients accessing ED including the influence on decision-making of the availability

of services in their area. Initiatives such as virtual healthcare and extended access models need to be considered.

Objectives: This project will co-design and undertake a preliminary evaluation of a sustainable and effective intervention to improve access to primary care services and reduce low-urgency ED presentations.

Methods: A mixed methods research design will incorporate four programme phases, including Phase 1: Refinement of the service model (intervention); Phase 2: Development phase; Phase 3: Feasibility testing and Phase 4: Evaluation and implementation study. A pilot study will be undertaken to test the feasibility of the service model. A Type II effectiveness-implementation hybrid trial, using a stepped wedge approach, will be undertaken to examine the clinical, economic, and humanistic impact of the service model, at the same time as assessing the effect of an implementation strategy. Communities in four priority areas will be targeted, with a focus on Aboriginal and Torres Strait Islander Communities and young people.

Results: The proposed service model (intervention) includes 1) A direct-to-consumer awareness campaign; 2) Established clinical and management protocols between health settings for referral; 3) An educational training package for service providers; 4) A web platform, mobile application and phone number for triage, all of which will lead to telehealth, local or aboriginal healthcare providers and; 5) A bidirectional communication platform between providers to facilitate referrals, follow up and data collection.

Conclusions: The main objective of the service model is to assist consumers in accessing the appropriate level of care. The results of this project may provide an opportunity to drive system change and generate empirical evidence to assess whether, in the Australian context, it is an effective strategy to promote access to primary care services and meet individuals' health care needs in a cost-effective manner.

Mental health training programmes for community pharmacists, pharmacy staff and students: A systematic review

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Introduction: Primary care is often the first contact point for people with mental disorders. Community pharmacists and pharmacy staff are increasingly being trained to deliver mental health care. To identify the status and any gaps in

community pharmacists, pharmacy staff, and pharmacy students' training, the present study reviewed and evaluated the literature to better understand the training components required for effective mental health care delivery by pharmacists.

Objectives: To summarise the evidence evaluating mental health training programmes completed by community pharmacists, pharmacy staff, and students. More specifically, to explore the components of mental health training programmes and identify those that facilitate significant improvements in outcomes.

Methods: A systematic review was conducted following the Cochrane handbook and PRISMA guidelines. A search for published literature was conducted in three databases (PubMed, Scopus, and Web of Science) in July 2021. Eligible studies were included if they described and evaluated the impact of mental health training programmes delivered to community pharmacists, pharmacy staff, and pharmacy students regardless of design or comparator. The methodological quality of included studies was appraised.

Results: Thirty-three studies were included. Most of the identified mental health training programmes contained knowledge-based components and active learning activities. Changes in participants' attitudes, stigma, knowledge, confidence, and skills were frequently assessed. An extensive range of self-assessment and observational instruments used to evaluate the impact of the training programmes, were identified. Positive improvements in participants' attitudes, knowledge, and stigma were frequently identified following participation in training programmes.

Conclusions: This systematic review highlights the importance of mental health training programmes in increasing pharmacists', pharmacy staff, and pharmacy students' skills and confidence to effectively deliver mental health care in community pharmacies. Future research should focus on finding the most effective measures to evaluate these training programmes and assessing their long-term effectiveness to enable comparison across the different training programmes provided. The research was funded by The Pharmacy Guild of Australia NSW Branch.

A qualitative exploration of mental health services provided in community pharmacies

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Introduction: The burden of mental health problems continues to grow worldwide. Community pharmacists, as part of the primary care team, optimise care for people living with mental illness.

Objectives: This study aims to examine the factors that support or hinder the delivery of mental health services delivered in Australian community pharmacies and proposes ideas for improvement.

Methods: A qualitative study was conducted comprising focus groups with community pharmacists and pharmacy staff across metropolitan, regional, and rural areas of New South Wales, Australia. Data were collected in eight focus groups between December 2020 and June 2021. Qualitative data were analysed using thematic analysis.

Results: Thirty-three community pharmacists and pharmacy staff participated in an initial round of focus groups. Eleven community pharmacists and pharmacy staff participated in a second round of focus groups. Twenty-four factors that enable or hinder the delivery of mental health services in community pharmacies were identified. Participants' perception of a lack of recognition and integration of community pharmacy within primary care were identified as major barriers, in addition to patient stigma and lack of consumer awareness regarding service offerings. Suggestions for improvement to mental health care delivery in community pharmacies included standardised practice using protocols, remuneration, and public awareness. A framework detailing the factors moderating pharmacists, pharmacy staff, and patients' empowerment in mental health care delivery in community pharmacies is proposed.

Conclusions: This study has highlighted that policy and funding support for mental health services is needed that complement and expand integrated models, promote access to services led by or conducted in collaboration with pharmacists, and recognise the professional contribution and competencies of community pharmacists in mental health care. The framework proposed may be a step toward strengthening mental health support delivered in community pharmacies. The research was funded by The Pharmacy Guild of Australia NSW Branch.

Attitudes of the general public towards community pharmacy services in Saudi Arabia: A cross-sectional study

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Introduction: Community pharmacy is recognised as the most accessible healthcare sector utilised by a large proportion of the population. Community pharmacists are approachable without a need to schedule an appointment or have a referral. The community pharmacy practice in Saudi Arabia has witnessed a tremendous expansion in its services with a focus on patient-centered care.

Objectives: This research aimed to evaluate the attitudes of the general public toward community pharmacy services in Saudi Arabia.

Methods: The current study followed a cross-sectional design using an online anonymous self-administered questionnaire. The study was conducted in Saudi Arabia between February and April 2022. The study participants were selected and recruited using a convenience sampling strategy. The questionnaire was adapted from previous work and involved three sections: demographic information and use of community pharmacy, perception and willingness to use community pharmacist services, and barriers to approaching a community pharmacist for advice.

Results: A total of 440 participants agreed to take part in the study and completed the questionnaire. Just above half of the participants (n=243) reported visiting community pharmacies at least monthly. The most reported reason for visiting community pharmacies was to buy over-the-counter (OTC) medications. The majority (n=311) of the participants were satisfied or highly satisfied with community pharmacy services. Participants reported the highest willingness to approach a community pharmacist for selecting OTC products (66.59%), management of minor ailments (65.91%), selecting non-pharmaceuticals (61.59%), and counselling on using medications (57.5%). However, the highest unwillingness was reported for counselling on alcohol dependence and drug misuse (55.68%), weight management (41.81%), sexual health (37.05%), and vaccination and immunisation (34.1%). Lack of privacy in the community pharmacy was found as the most reported barrier that would hinder individuals from approaching community pharmacists to get help or advice.

Conclusions: The current study indicated that the general public in Saudi Arabia had a satisfactory perception and attitude toward community pharmacists.

Assessing burnout and anxiety levels in community pharmacists following COVID-19 pandemic: A cross-sectional study in veneto region, Italy

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Introduction: The coronavirus disease 2019 (COVID-19) had a strong impact on physical and mental well-being across numerous regions and professions. Amongst the heavily affected, were Italy and healthcare workers; however, little is known about the long-term impact on community pharmacists.

Objectives: The study aimed to assess burnout and anxiety prevalence and related factors among community pharmacists in the Veneto region, Italy following COVID-19.

Methods: This cross-sectional study was conducted in May 2022 through an online questionnaire that was shared with community pharmacists residing in the Veneto region, Italy, via the Association of Community Pharmacies (FarmacieUnite). Copenhagen burnout inventory (CBI) and Beck anxiety inventory (BAI) were adopted to assess the levels of burnout and anxiety, respectively.

Results: A total of 164 pharmacists participated with a mean age of 47.1 (SD±12.1 years) including 53 males (32.3%, mean age 50.9±13.2 years) and 111 females (67.7%, 45.2±11.3 years, $p < 0.05$). Participant demographics show that the majority are in a position of management (69.5%) with a higher percentage of males (92.5%) than females (58.6%, $\chi^2=19.5$, $p < 0.01$). A percentage (82.9%) of the pharmacists were full-time employees, with a higher percentage of males (96.2%) compared to females (76.6%, $\chi^2=12.2$, $p < 0.01$), and 75.6% have been in pharmacy practice for more than 10 years, with no difference in gender distribution. Single-test reliability analysis showed high internal consistency for the 19-item CBI (Cronbach's $\alpha=0.952$) and 21-item BAI questionnaires ($\alpha=0.9$). The mean burnout score across all burnout domains was 48.6 (±19.5) with 48.2% of all participants having a high burnout score above 50. The personal burnout subdomain score was high in 56.1% of participants compared to work-related (42.1%) and client-related burnout (34.2%, $P>0.05$).

All burnout scores and distributions were independent of gender and other demographic factors. Of all participants: 31.1% had minimal anxiety, 34.2% had mild anxiety, 24.4% had moderate anxiety and 10.4% had severe anxiety scores. The anxiety level was higher in females with a mean score of 14.4 (±9.7) compared to males (10.8±8.3, $p < 0.05$). It was also negatively correlated with age (spearman's $\rho=-0.3$, $p < 0.01$).

and positively correlated with the mean burnout score ($\rho=0.53$, $p < 0.01$) as well as all three burnout subdomains ($p < 0.01$). Indeed, anxiety and burnout levels were dependent ($X^2=22.8$, $p < 0.01$) and participants with high burnout had five times higher odds of having a moderate to severe anxiety level (OR=5.3, 95% CI 2.6-10.8, $p < 0.01$). In relation to COVID-19 factors affecting pharmacy practice, working overtime was associated with high levels of both personal ($X^2=3.9$, $p < 0.05$) and work-related burnout ($X^2=4.6$, $p < 0.05$). On the other hand, insufficient precautionary measures were reported by only 2.4% of participants, and high fears of acquiring COVID-19 (24.4%) and suffering financial loss (26.2%) were not associated with burnout or anxiety levels. Lastly, a low degree of emotional support from family and friends was significantly associated with high client-related burnout ($X^2=6.3$, $p < 0.05$) and moderate to severe anxiety levels ($X^2=6.2$, $p < 0.05$).

Conclusions: The physical, mental, and emotional well-being following COVID-19, as assessed by burnout and anxiety scores, are significantly affected in community pharmacists in the Veneto region, Italy with more than one-third experiencing high burnout and moderate to severe anxiety levels.

Personal and occupational changes among community pharmacists during COVID-19

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Introduction: The coronavirus disease 2019 (COVID-19) pandemic had a significant burden on healthcare workers' physical, social, and mental well-being as highlighted in various reports and studies. Nevertheless, little is known about the impact of COVID-19 on pharmacists, particularly community pharmacists, when compared to physicians and nurses, who were significantly affected.

Objectives: This study was conducted to assess the impact of COVID-19 on multiple personal and occupational factors among community pharmacists.

Methods: The study was conducted through a printed questionnaire that was filled out by community pharmacists in West Bank Palestine. The questionnaire included different categories related to personal, lifestyle, and occupational factors due to COVID-19. The study was filled by a total of 70 community pharmacists from both genders (40% males and 60% females).

Results: During COVID-19, most of the participants reported differences from their usual job duties and work patterns

(72.9%), had personal or family lifestyle changes (74.3%), had their personal life influenced (87.1%), and experienced feelings of worry about the health of their relatives and friends (92.9%). The main change to usual job duties and patterns was the increase in work demand and working hours reported by 47.14% of participants. The main factors that affected their pharmacy practice due to COVID-19 included personal health concerns (51.4%), higher workload (44.3%), reduced supplies (42.9%), providing patient education (31.4%), reduced staff (28.6%) and exposure to high-risk patients (28.6%). Regarding personal life impact, the main complaints were social isolation (61.4%) and financial loss (50%) followed by the illness of a friend or family member (31.4%) and childcare during lockdown (21.4%). Interestingly, around half of the participating pharmacists (48.6%) noted a difference in treatment from the society members due to being a healthcare worker during COVID-19. The effects of COVID-19 on personal life and lifestyle were similar between males and females ($\chi^2 = 0.45$, $p > 0.05$). Lastly, 60% of participants recognised a positive side of working through COVID-19 as a life experience for better future practice during pandemics.

Conclusions: COVID-19 had a major influence on community pharmacists, reflecting their key role in primary patient care during COVID-19 and highlighting the need for further support and recognition of pharmacists for their roles in pandemics.

Pharmacogenomics: Co-designing a community pharmacy testing service in England

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Introduction: Pharmacogenomics (PGx) is the use of Deoxyribonucleic Acid (DNA) to predict an individual's response to a drug. Through the lower cost of DNA sequencing and advances in genomic medicine, PGx testing is a viable and valuable tool in improving medicines optimisation for patients. Over the recent years, the role of the community pharmacist in England has evolved from dispensing medicines to delivering increasingly complex pharmacy services. In addition, community pharmacy is accessible and convenient for patients, and therefore potentially an appropriate setting for this testing service. Whilst in some parts of the world, community pharmacists have begun offering PGx testing, there is no evidence of any activity in England. There is therefore a research gap in knowledge to establish if this service could be implemented in the culture and context of the healthcare infrastructure and system in England, which differs somewhat from other countries.

Methods: The principles of co-design were deployed following three sequential phases using action-orientated frameworks and tools. In Phase one, three focus groups were conducted with community pharmacists (n= 10), prescribers (General Practitioners) (n= 8), and patients (n=8) to identify the barriers and enablers to implementing a community pharmacy-based PGx service in England. The focus groups were recorded, transcribed, and thematically analysed. In Phase two, barriers and enablers from Phase one were mapped onto the Theoretical Domains Framework (TDF) followed by the use of the Theory and Techniques Tool (TATT) to link the identified TDF domain with corresponding Behaviour Change Techniques (BCTs). A consensus questionnaire followed by a Nominal Group Technique workshop was used to facilitate community pharmacists (n=11) selecting their preferred BCTs to include in a service specification. Finally, in Phase three, a draft service specification was developed, and a joint participant (n=10) consensus panel was convened for critical comment. The service specification was refined based on the feedback.

Results: Five barrier and enabler themes were developed in Phase one: (1) In-principle receptiveness, (2) Appreciation of the benefits, (3) Lack of implementation resources (4) Ambiguity about implications for implementation, and (5) Interprofessional relationship challenges. In Phase two, the qualitative data from the pharmacist focus group were mapped onto six TDF domains: Knowledge, Skills, Social/professional role and identity, Optimism, Beliefs about Consequences, and Environmental context and resources. Forty-six BCTs were identified using the TATT, of which nine BCTs were selected by the target audience in Phase two: Review outcome goal(s), Feedback on behaviour, Instruction on how to perform behaviour, Demonstration of the behaviour, Credible source and Adding objects to the environment. Finally, in Phase three, the draft service specification was produced and progressed into the final version following critical feedback from the mixed participant consensus panel.

Conclusions: The co-design methodology using action-orientated frameworks and tools has resulted in the production of a novel service specification for the implementation of a PGx community pharmacy testing service in England to fill a gap in research knowledge. This can now be used to implement the service and further research should be carried out to evaluate the service post-implementation.

The added value of community pharmacists in a vaccination campaign

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Introduction: Since November 2021, community pharmacists in the Veneto Region of Italy, previously certified to participate in the COVID-19 vaccination campaign, have administered the booster doses of the various authorised vaccines. "Farmacia Zerbinato SNC" in Pozzonovo (PD) arranged the first vaccination session on 24/11/2021 and organised other 25 sessions in the following three months.

Objectives: The study evaluates the role of the community pharmacist in a vaccination campaign in terms of citizens' awareness of such a relevant public health issue. Moreover, the potential role of active pharmacovigilance of the community pharmacist is considered, following a previous analysis conducted after the first two doses of the COVID-19 vaccine.

Methods: All the vaccinated citizens at "Farmacia Zerbinato SNC", who could be contacted via email or WhatsApp, have received a nine-question questionnaire, to help achieve the aims of this study. Each citizen involved in the analysis received their booster dose with the Comirnaty (Pfizer) vaccine. Staff members and their relatives have been excluded. The statistical analysis has been performed using SPSS software.

Results: In all, 84 questionnaires were correctly completed and submitted (53 females and 31 males). The most represented age groups were 50 to 59 (29.8 %) and 60 to 69 (22.6 %). The answers concerning the degree of satisfaction have given very high results. The results showed that 26.2% of participants reported at least one adverse reaction following the vaccination, including fatigue (81.8 %) and fever (36.4 %) as the most common. Consistent with the findings of the analysis conducted after the primary COVID-19 vaccine cycle, an association between age and adverse reactions have been detected ($p < 0.05$), with the younger age groups most affected. Accordingly, 35 % of participants stated their awareness of the topic has increased following their vaccination in the community pharmacy. That percentage increased to 43.2% among citizens who were not entirely convinced about vaccinating before their primary cycle. Those citizens were identified after answering 1, 2, or 3 (on a scale from 1 to 5) to the question "How convinced were you to get vaccinated for COVID-19 before the first dose?".

Conclusions: The potential of the community pharmacist is highlighted by the high percentage of participants who increased their awareness of the topic following vaccination. Community pharmacists may play a crucial role in health

communication and education, which can prove to be fundamental in several medication-related issues. Furthermore, the study confirmed the known mild adverse reactions following the vaccination with booster doses. An association between age and fatigue or fever has been found. Even with regard to active pharmacovigilance, the community pharmacist can represent an added value due to their proximity to the patient.

Senna: A project to accelerate the establishment of newly arrived immigrated pharmacists in Sweden

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Introduction: Sweden has especially in the years 2015-2016 been an asylum for a large number of refugees. Among the refugees, there are approximately 600-800 with a pharmaceutical education from non-EU/EES (European Union/ Entry/Exit System) countries. In order to accelerate the establishment of immigrants into the labour market, the Swedish government allocated supporting funding for projects. The Swedish Pharmacists Association has received supporting funding together with employers' organisations and trade associations every year since 2017.

Objectives: The purpose is to guide, and help immigrant pharmacists obtain a Swedish license or a job that corresponds to their competence.

Methods: The used methods have been Education, in the form of study groups both physical and digital classes, in all the relevant pharmacy subjects to prepare for the test that will be needed to pass to get a license as a pharmacist. Guidance to increase the knowledge of the various pathways to obtain a license, Job fair to increase the contacts between immigrants and employers, Collaborative groups to identify difficulties and obstacles to obtain a license or a work, Information about news, changes, and description of the process to obtain a license. The project has been ongoing since the second half of 2017.

Results: Guidance has been given to approximately 600 immigrants since the project started. The most common reason for guidance was information about the licensing process followed by the opportunity for internship/work. Three study circles were conducted every year with a total of 350. The number of non-EU/EES immigrants who have got a Swedish pharmacist license has significantly increased from the time the project has been running.

Conclusions: The project has been considered very productive and successful, and further supporting funds have been granted for 2022.

What barriers do pharmaconomists face, when implementing the medical service of "Treatment-pharmacists" prescribe prescriptions?

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Introduction: Since the 1st of July 2019, pharmacists in Denmark have been able to take education to become so-called "treatment pharmacists", enabling them to issue prescriptions in case of missing prescriptions for ongoing treatment. This has the potential to support the remaining healthcare system, as well as secure the patient's health.

Objectives: To investigate both the development and potential of treatment pharmacists and to identify barriers faced by pharmacy staff, when trying to implement the medical service.

Methods: Data was collected through statistics over how many prescriptions were prescribed by treatment pharmacists from July 2019 to July 2021, plus an observation form gave an overview of potential patients for the action. Further data was obtained through a questionnaire, telling which barriers the pharmaconomists experienced in implementing this service. Lastly, a dialogue was established with the wholesaler with regard to whether the pharmacy had the right medication in stock.

Results: From June 2019 to June 2021 there has been no development in the number of prescriptions issued by the treatment pharmacists, but the observation form showed great potential for the treatment pharmacists to offer the service. The questionnaire revealed that pharmaconomists felt confident offering this service, but further answers indicated that barriers were faced, as the tools provided were insufficient. The questionnaire also revealed that pharmaconomists experienced barriers due to the lack of the right medications in stock.

Conclusions: The "treatment pharmacist" service has great potential, but because of the barriers pharmaconomists experience and no efficient tools were provided to overcome these, this medical service has not currently been implemented successfully at Danish pharmacies.

Facilitators and barriers towards a pharmacist-provided immunisation service: A national cross-sectional study

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Introduction: Austrian pharmacists are not authorised to administer immunisations, and national evidence about practice facilitators and barriers to implementation is lacking.

Objectives: The aim of this study was to investigate Austrian community pharmacists' views on facilitators and potential barriers to the successful implementation of immunisations in the community pharmacy setting.

Methods: This study was designed as a quantitative cross-sectional online survey based on the theoretical domains framework (TDF). The validated and piloted questionnaire was distributed to 3,086 employed pharmacists across Austria by two professional organisations, following ethical approval by Robert Gordon University, Aberdeen. Statistical analyses were performed using SPSS and included descriptive statistics, cross-tabulations, relevant parametric/non-parametric tests, and regression analyses.

Results: Out of 3,086 community pharmacists in Austria, 380 responded and met the inclusion criteria. The most frequent requirements for implementation of immunisation services included: 'appropriate training' (n = 336, 88.4%), 'liability insurance' (n = 297, 78.2%), and 'acceptance by patients' (n = 280, 73.7%). The options 'acceptance by physicians' (n=149, 39.2%) and 'financial remuneration' (n=117, 30.8%) were rated least important. Compared to male participants, female community pharmacists had a greater likelihood to consider acceptance by physicians (OR: 2.72, 95% CI 1.34-5.49, $p=0.005$) and financial remuneration (OR: 2.12, 95% CI 1.01-4.43, $p=0.046$) as highly important or important. In total, 208 out of 380 respondents (54.7%) rated 'legal liability' as the most critical barrier towards vaccine administration, while 'seeing blood' and 'close patient contact' were considered least critical (n=102, 26.9%; n=83, 21.8%, respectively). Participants not willing to immunise evaluated 'personnel resources' (OR 2.98, 95% CI 1.35-6.58, $p=0.007$), 'close patient contact' (OR 2.79, 95% CI 1.46-5.34, $p=0.002$) and 'management of side effects' (OR 2.62; 95% CI 1.21-5.67,

$p=0.015$) more likely as critical barriers compared to participants willing to immunise patients.

Conclusions: The identified facilitators and potential barriers towards pharmacist-provided immunisation will be the basis for the successful implementation of this service in Austria. However, further studies are needed to guide the implementation process in the national context.

The Danish pharmacies in the frontline battling COVID-19: The emergency response, contribution, challenges and lessons learned during the pandemic

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Introduction: Pharmacists and pharmacoconomists have, during the pandemic, proven to play remarkable roles in fighting COVID-19 and decreasing the burden on the Danish healthcare system while continuing to provide primary patient care despite restrictions. Staff including delivery drivers and service workers occupied new roles in order to maximise the use of resources.

Objectives: The authors aimed to investigate up-to-date initiatives taken by pharmacies and challenges that faced pharmacy workers as a result of the pandemic. This knowledge could contribute to national policy decision-making during a global health crisis.

Methods: Online interview-based survey with twelve pharmacies were conducted. Inclusion criteria; a pharmacy from every region and different sizes to represent differences in activities and challenges. Initial online interviews provided answers that inspired new areas of inquiry which resulted in two different electronic surveys. Surveys were posted in a restricted Facebook group with more than 3,000 pharmacoconomist members. Interviews and surveys were anonymous to ensure near-full disclosure. Answers were presented and discussed with Farmakonomforeningen and PharmaDanmark. A key person from the Association of Danish Pharmacies was also interviewed.

Results: The mass of information and restrictions coming from The Danish Medicines Agency, especially at the beginning of the pandemic, gave challenges with communication in pharmacies meaning not all staff felt well informed, which caused concern. Almost every pharmacy stakeholder forgot to think about employee's well-being. It was found that the employees had a high level of

dissatisfaction with appropriate recognition of their contribution as frontline workers during the pandemic.

Conclusions: Battling pandemics demands a high level of internal and external communication in Pharmacies. Lack of communication created challenges and should be worked on for improvement. The Danish Pharmacies need to collaborate during a crisis and must focus on the well-being of employees if pharmacies are to continue at the frontline battling the pandemic.

Substituting medicines responsibly: A multiparty agreement for patients, prescribers, pharmacists, and health insurers for substitution of medicines in the Netherlands

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Introduction: Substitution of medicines (with the same active ingredient, dosage, administration form, and release pattern) can have negative consequences for the safe, effective, and efficient use of medicines. Moreover, medicine substitution can confuse patients and can be a source of discussion with health care professionals and/or health insurers. In the Netherlands national organisations of patients, general practitioners and medical specialists, pharmacists and health insurers initiated a series of workshops.

Objectives: To clarify the role and responsibilities of patients, prescribers, pharmacists (hospital as well as community pharmacists), and health insurers in the substitution of medicines. To reach an agreement over conditions for substitution.

Methods: In summer 2021, a series of workshops started addressing the following topics: which medicines should/should not be substituted; considerations and conditions for substitution of medicines; medicines with a device. The agreement was reached in March 2022.

Results: A guideline for substituting medicines responsibly which includes:

- 1) Three categories of medicines: Red, not to be substituted, unless not available; Orange, can be substituted, provided special patient counselling is given; Green, can be substituted unless contraindicated by individual patient's condition.
- 2) Condition for all three categories that in case of substituting medicines, information and patient counselling should be given by the prescriber and/or pharmacist.

3) If a substitution is not possible, the prescriber will mark the prescription for medicine with 'medical necessity'.

4) The prescriber is responsible for determining medical necessity, the pharmacist will dispense the medicine as prescribed.

5) Recipes with 'medical necessity' are exempted from contracting policies of health insurers, with no malus for community pharmacists.

Conclusions: A multiparty agreement could be reached over the substitution of medicines, categories of medicines, application, and consequences of labelling 'medical necessity'. Moreover, community pharmacists are generally acknowledged as health care professionals. No longer a malus for prescriptions with 'medical necessity' in contracts of pharmacists with health insurers.

Outcomes of pharmacist-initiated general practitioner referrals for patients with poorly controlled asthma

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Introduction: Community pharmacists' surveillance offers a safety net within primary care for patients not routinely seeking health/medical care. For patients with asthma, delays in seeking care may lead to acute exacerbations and premature mortality. Pharmacists have more frequent opportunities to engage and understand patient behaviour, and their disease management and identify patients with suboptimal asthma control early to refer these patients for further medical assessment. Although pharmacists may appropriately refer patients to their general practitioner (GP), little is known about what happens to the patient following these referrals, including uptake of the referral and the subsequent impact on patient outcomes.

Objectives: To investigate the uptake and outcomes of pharmacist-initiated GP referrals for patients with poorly controlled asthma.

Methods: Pharmacists referred patients with poorly controlled asthma for GP assessment during a trial of a

Pharmacy Asthma Service (PAS) in Australia. All patients were categorised as either action-takers (consulted their GP on the pharmacist's advice) or action-avoiders (did not action the referral). Patients' demographic, baseline, and end-of-study clinical data were compared to explore predictors of referral uptake and their association with differential health outcomes.

Results: In total, 58% of trial patients (n=148) received a GP referral; of whom 78% (n = 115) were action takers. A total of 44% of action takers (n = 50) reported changes to their asthma therapy. Patients who already regularly visited their GP prior to the study were more likely to take up the pharmacist referral to the GP for their asthma (OR =1.085, $p = 0.034$). Similarly, patients residing in inner regional areas of Australia were more likely to be action-takers compared to patients residing in the metropolitan area or rural, and remote regions (OR =7.614, $p = 0.007$). Compared with action-avoiders, action-takers were more likely to have an up-to-date asthma action plan ($p = 0.001$) at month 12 and had a significantly higher number of non-specific GP visits during the trial period ($p = 0.034$).

Conclusions: Patients' uptake of pharmacist-initiated GP referrals was high in this service model, which led to GP review and therapy changes in patients with poorly controlled asthma. This study suggests that pharmacist-initiated asthma referrals to the GP are likely to be actioned. Further research will be needed to better understand and engage with high-risk action avoiders to reduce preventable morbidity and mortality.

Data-driven improvements to clinical estimations of patient adherence: Opportunities for future clinical care

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Introduction: Accurate clinical assessment of medication adherence using reliable and valid measures is essential for community pharmacists to identify patients with adherence issues and subsequently address them. However, there is

little published research into how pharmacists can calculate their patients' medication adherence, how adherence estimates may change depending on the data source used, and whether estimates may be improved by using several sources.

Objectives: This investigation aimed to determine patient adherence to their asthma controller medication regimen using a novel combination of patient-specific dosage data from pharmacy dispensing records with centrally collected patient claims records available via government databases and comparing this to pharmacy dispensing records alone and patient claims records alone to discuss the utility of each method.

Methods: A total of 381 patients with clinically uncontrolled asthma were recruited from 95 community pharmacies across three Australian states. All provided consent for the retrieval of their claims records and pharmacy dispensing data. Patients were stratified as multiple or single pharmacy users, and adherence scores were calculated via the proportion of days covered (PDC) method using patient claims records, patient pharmacy dispensing data and combined claims records and pharmacy dispensing data. Cohort and subgroup adherence estimates were then compared.

Results: Low levels of adherence were evident amongst the cohort irrespective of the data source used. PDC estimates based on claims records alone (56%) or combined claims records and pharmacy dispensing data (52%) were significantly higher than estimates based on pharmacy dispensing data (42%) for the total cohort ($p < 0.001$), and this difference was greater for multiple pharmacy users (67%, 64%, 35% respectively, $p < 0.001$).

Conclusions: Access to centrally collected patient claims records increased clinical acuity over patient adherence to asthma controller medications. This promotes the utility of 'big data' beyond pharmacoepidemiological investigations into clinical practice. Thus providing a mechanism to identify patients most in need of adherence support from pharmacists.

Counselling firsthand: Understanding the customer and yourself through mentalising

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Introduction: Counselling in community pharmacy has been studied over the years in different ways. Often times, the previous studies focused on pharmaceutical care and identification, solution, and documentation of drug-related problems (REF). The inclusion of the patient perspective has been described to a lesser extent. A Danish study concluded that pharmacy staff only rarely attended to and included patients' perspectives. In particular, it was found that staff held back if they sensed the patient was emotionally affected (REF). An education programme was developed, with the aim to increase participants' mentalising abilities in order for them to attend to and navigate their own and patients' emotions during counselling. The topics in the education are the mentalising mindset, mentalising communication, and pharmacy practice. The education programme was developed in Denmark by researchers from The University of Copenhagen and Pharmakon and tested in both Denmark and the Netherlands. The development was done in a user-driven workshop format, including perspectives from patients, pharmacy workforce, and proprietors. The extent of the education is 2.5 ECTS (European Credit Transfer and Accumulation System).

Objectives: To describe the learning outcomes, effects, and reflections from the participants' perspectives of the education programme "Counselling firsthand: Understanding the customer and yourself through mentalising".

Methods: The evaluation comprises of a quantitative evaluation of each module including specific topics with respect to knowledge gained, a final written report at the end of the education with the purpose to evaluate knowledge, skills, and competences including reflections on personal and professional practices. In addition, job satisfaction was measured before and after the education using a validated questionnaire translated into Danish. The qualitative data were analysed deductively by means of thematic analysis and statistical analysis to assess changes in job satisfaction after the education included paired t-tests.

Results: A total of 28 participants attended and completed the education in Denmark, 14 pharmacy technicians, 13 pharmacists, and 1 proprietor. The qualitative analysis showed that the education was relevant and added a new perspective to patient counselling in community pharmacies. The participants highlight that the education has raised their

competencies in the counselling of patients, which results in better and more meaningful encounters with the patients. In addition, they also highlight that they have become capable to understand and manage emotional situations that they previously would have avoided. These results were supported by the questionnaire data analysis showing a significant improvement in job satisfaction sub-scale concerning satisfaction with standards of care.

Conclusions: A total of 28 participants completed the education "Counselling firsthand: Understanding the customer and yourself through mentalising". They found the programme relevant and groundbreaking and experienced that their counselling practice became more patient-centered. Additionally a measurement of job satisfaction showed significant improvement among the participants.

Pharmacists' views on their role in combating the trade of falsified medicines

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Introduction: Falsified medicines are medicines whose content and origin are intentionally misrepresented, in order to make them appear almost identical to the original, which makes them extremely suitable for smuggling. Such drugs usually contain impurities of other pharmacologically active substances or the active ingredient of the drug is completely replaced, which seriously endangers the patient's health. The black market of these drugs is growing and it represents a significant global problem.

Objectives: To examine and analyse pharmacists' attitudes, perceptions, and experiences with falsified medicines and their readiness to report these drugs to competent institutions.

Methods: The survey was conducted on 100 licensed pharmacists, 59 from the Republic of Srpska, Bosnia and Herzegovina, and 41 from Serbia, in November 2021, using a specially designed questionnaire with 15 questions. Socio-demographic characteristics and counterfeit medicines attitudes were followed. The analysis was done in Excel 2016.

Results: Of the 73 surveyed pharmacists, 15 were employed as medical representatives, 7 work in hospital pharmacies, and 5 of them work in the wholesale of drugs. A total of 13 of the surveyed pharmacists do not distinguish the meaning between the terms counterfeit and substandard medicine. The 50 pharmacists surveyed believe they have never encountered a counterfeit drug. The majority of respondents

would report such a drug to the Drug Agency and the Pharmaceutical Inspection, but 7% would not do so out of fear of negative consequences at the workplace. On the other hand, 50% of pharmacists would report the illegal sale of drugs online and 49% of surveyed pharmacists believe that their countries do not have a sufficiently effective system of combating the trade of counterfeit medicines.

Conclusions: Pharmacists lack training on how to recognise a counterfeit drug in a pharmacy, as well as to whom they should report it once they notice it, even though a pharmacist is a person who directly dispenses a drug to a patient. European Union countries have introduced modern systems for monitoring every drug on the market, which has significantly reduced the presence of counterfeit drugs and patients' exposure to adverse events. It would be helpful to introduce a similar approach to this problem in Bosnia and Herzegovina and Serbia.

What would make the patients prefer a medical teleconsultation in a community pharmacy?

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Introduction: Medical teleconsultation (MT) has been authorised in French community pharmacies which have a terminal within a confidentiality area since 2018. The patient is in contact with a doctor from the service provider. The community pharmacist can assist the patient if need be during the consultation at the patient's or the physician's request. The confinements due to the COVID-19 pandemic have upset the regulations: MTs have been authorised from home since April 2019. What is the current place of teleconsultation in pharmacies compared to teleconsultation at home, at the end of the health crisis?

Objectives: The aim of the study is to define patient preferences for medical teleconsultation.

Methods: This study is based on a discrete choice experiment. MT was modelled according to four attributes: (i) the physician's specialty; (ii) the reason for consultation; (iii) the waiting time to access the physician; (iv) the reimbursement by the health insurance. These attributes were declined in 11 modalities (two for the first attribute, three for the others) which gives a total of 54 scenarios to be tested. For each scenario, the participant must indicate whether he prefers to teleconsult from home or from a community pharmacy. Given the number of scenarios to be tested, nine versions of questionnaires were created, each proposing six scenarios. The questionnaire was distributed to people over the age of 18 physically and on social networks.

A logistic regression was performed to estimate the weight of each modality within the attributes.

Results: A total of 226 responses were collected and 1,338 scenarios were performed. Respondents are on average 39.1 ± 4.1 years old and 67.7% (n = 153) are women. It appears that 25.7% (n=58) of the participants have already resorted to teleconsultation. In all scenarios combined, 70.8% (n = 947) of the responses are in favor of medical teleconsultation from home. The specialty of the doctor does not influence the choice of the respondents. The modalities that have a positive impact on the participants' choice in favour of MT in a community pharmacy are: "urgent" for the attributed reason for the consultation" (OR = 1.57 [1.16; 2.13]); "shorter delay" for the attribute "waiting time" (OR = 3.24 [2.43; 4.35]) and "Without advance payment" for the attribute "Reimbursement" (OR = 1.39 [1.90; 1.02]).

Conclusions: As it stands, it seems difficult to revitalise MT in community pharmacies. Rapid access to care seems to be a major criterion that influences the choice of the participants. The results confirm that it seems important to rethink MTs in terms of the primary care journey. As the participants return to the community pharmacies for rapid treatment, it is appropriate to highlight pharmaceutical expertise with a prescription for minor ailments, with second-line access to MT for complex cases, as it is done in Switzerland with the Netcare project.

Implementation of a prescription service in Danish community pharmacies: A survey

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Introduction: A pharmacist re-prescribing service was introduced in Denmark in 2019. The service allows prescribing pharmacists to renew prescriptions of a limited number of medications.

Objectives: To describe and evaluate the initial implementation of the pharmacist re-prescribing service in Denmark.

Methods: Twenty-two pharmacies invited persons aged >15 years inquiring about a re-prescription at the pharmacy to participate in an electronic survey.

Results: A total of 119 customers consented to participate in the study, of whom 110 had an inquiry resulting in a re-prescription. The top three drug classes inquired about were oral contraceptives (46.6%; n=51), antihypertensive agents (28.1%; n=31), and inhalation medications for asthma (16.4%; n=18). A considerable proportion of customers requested a re-prescription outside normal pharmacy opening hours (42.3%; n=50). For 97.3% (n=107) of the prescriptions, the prescribing pharmacists used less than five minutes on the process. About 93.6% of the customers were satisfied or very satisfied with the service.

Conclusions: The pharmacist re-prescribing service was mainly used for oral contraceptives and antihypertensive agents and was often used outside the general practitioners' normal opening hours. The workload for the prescribing pharmacist was low and the pharmacy customers were satisfied with the service. For further implementation of the service, more dissemination of information about the service is needed.

The impact of the COVID-19 pandemic on illegal online pharmacy sales and consumer health risks

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Introduction: The sale of counterfeit drugs has grown dramatically in recent years, fueled in large part by the high prevalence of illegal online pharmacies (IOPs) and growing consumer demand for convenient, lower-cost medications sold online, which was further accelerated by the COVID-19 pandemic. These trends are particularly concerning in the United States (US), where 42% of consumers are currently purchasing medications online, and nearly half of them did so for the first time in the past year. Many Americans are also willing to take risks, with nearly half reportedly being open to purchasing medicines from an online source not sanctioned

by the FDA if it increases their access, decreases their cost, and provides convenience to more medicines. However, little is known about the types of medicines consumers purchase from IOPs and how changes in access, convenience, and cost in the legal marketplace impact consumer willingness to take these risks. In the same way that the pandemic has impacted legal sales of drug classes differently, the authors expect significant differences for IOPs sales as well. Understanding which drugs have experienced significant increases in sales through IOPs and which ones have not would help better understand the reasons consumers turn to these illegal sources and what measures can be taken by pharmacy stakeholders to mitigate the risks illegal pharmacies pose to patients.

Objectives: The goal is to better understand the forces driving consumers to take risks online by exploring the impact of the COVID-19 pandemic on IOPs sales for a range of different drug classes, using legal sales as a benchmark.

Methods: The authors draw from a novel methodology developed within an ERC-funded Starting Grant (ILLEGALPHARMA) that uses machine learning algorithms to both identify IOPs targeting US customers and estimate monthly sales of each specific drug through these IOPs. Data on IOPs sales obtained from this methodology were combined with data on drug sales through legal pharmacies available in IQVIA's National Prescription Audit database.

Results: The results indicate that the COVID-19 pandemic has impacted IOPs sales differently across drug classes. Certain types of drugs have experienced a significant increase in IOP sales (e.g., sales of Oncology and Cardiology drugs through IOPs increased by 40%) whereas IOP sales of other drugs have decreased (e.g., IOP sales of ADHD and Pain drugs decreased by around 35%).

Conclusions: The findings demonstrate that there are differences in the types of medications consumers purchase from IOPs, and consumers' motivations for taking such risks were impacted by the COVID-19 pandemic. These results suggest that consumer motivations for purchasing medications through IOPs are complex and vary across therapeutic categories. Further research would help better assess the drivers of IOPs sales as a way to design better strategies to educate customers about the risks of purchasing from illegal online pharmacies.

Pharmaceutical role for COVID-19 and post-COVID-19 symptoms: Direct communication and interaction with patients

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Introduction: Pharmacists are always healthcare professionals who are available to patients at all times, without an appointment. During the pandemic, their role was much greater and most patients went to the pharmacist for all their needs and concerns. COVID-19 was a complex disease and patients turned to pharmacists for COVID-19 symptoms and for post-COVID-19 symptoms.

Objectives: The aim of this research is to define pharmacists' contributions during the COVID-19 pandemic.

Methods: In the chain of pharmacies used which consists of 43 pharmacies. The authors analysed the condition of 200 patients suffering from COVID. They were asked using a questionnaire they filled out at a pharmacy or at home. The questions they answered were: Who helped you the most in organising your therapy during the pandemic? Who did you contact first when you felt the symptoms? Who did you turn to for post-COVID symptoms? What post-COVID symptoms did you have? Have you taken supplements (vitamins and minerals and who recommended them)?

Results: The results were statistically processed by the SPSS method. To the first question, 80% of them answered that pharmacists helped them the most to organise their therapy, 15% of them answered that they were helped by doctors and 5% of them said that they were helped by nurses to organise their therapy. To the second question, 50% of them said that they consulted a pharmacist and 50% of them said that they consulted a doctor. To the third question, 70% of them answered that they turned to pharmacists and 30% to doctors. To the fourth question, the most common answers were: loss of sense of taste and smell, fatigue, tiredness, hair loss, and irritability. To the fifth question, 70% answered that pharmacists recommended supplements, and 30% that doctors recommended them.

Conclusions: Pharmacists have done a lot to help patients to take the right therapy, use supplements properly and resolve post-COVID 19 symptoms. Pharmacists were the main health professionals to whom the largest percentage of patients first turned for help. The role of the pharmacist was more than important. Their commitment to patients has been very helpful, shortening retention times in COVID clinics, reducing errors while taking therapy, and improving patient adherence.

Quality indicators report pharmacy system strengthening in Federation of Bosnia and Herzegovina (FBiH) in COVID-19 response

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Introduction: Indicators are tools designed for and used in healthcare systems to monitor the state of safety and quality of measured aspects of healthcare provision. They serve as feedback for management and policymakers on the state and measure of priority topics and provide comparable and actionable information on where improvement is needed and what can be done. The value of an indicator provides comparable and actionable information across different geographic, organisational, or administrative boundaries and/or can track progress over time. Indicators are divided into three sub-groups: process, structure, and outcome.

Objectives: To monitor and improve the safety and quality of healthcare services provided in community pharmacies, Agency for Healthcare Quality and Accreditation in FBiH (AKAZ) defined five indicators for pharmacies in 2015. The pharmacies are to collect the needed data over the year, calculate the value of indicators, and report it to AKAZ once a year. AKAZ collects the reports, calculates the average indicator value for the pharmacies in the Federation of Bosnia and Herzegovina (FBiH), and publishes its report on the website. The indicators' values for the pre-pandemic year of 2019 and two pandemic years 2020 and 2021 were observed.

Methods: The defined indicators are to be collected and calculated for the previous year, January to December, and reported to AKAZ until March in the current year accordingly. During the COVID-19 pandemic, one indicator, the contact with Medical directors (MDs) for prescription clarification, had a significant increase. The mentioned indicator is calculated as a fraction of the number of times the pharmacist contacted a doctor, divided by the sum of all prescriptions in one year.

Results: The indicator values are compared for the pre-pandemic year, 2019, and for two pandemic years, 2020 and 2021. The result is expressed as an absolute number of yearly contacts and as a percent of prescriptions that needed clarification. The average indicator value for pharmacies in FBiH shows an increase in the pandemic years. Pharmacists contacted MDs over 15% more compared to the pre-pandemic year. Also, higher indicator values were reported for rural compared to urban areas.

Conclusions: Observing the reported data for the last three years (2019, 2020, and 2021), the results derived from indicator values are significantly affected by the COVID-19 response. COVID-19 and the associated health response impacted many of the indicators reported and explained much on reported improvements or reductions in the previous period. Being easier accessible than all other healthcare providers, the pharmacists also had to bear more workload developing local solutions to local problems, emphasising continuous improvement at a local level to lift overall health system performance.

Sustainable approach for emergencies caused by COVID-19 pandemic in pharmacies in the Federation of Bosnia and Herzegovina (FBiH)

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Introduction: During the last pandemic, which lasted for more than two years, the Agency for Healthcare Quality and Accreditation in FBiH (AKAZ) realised the importance of a systematic approach to contain the disease, minimise the risk of spreading the infection, and yet provide timely healthcare service to all who need it. For the reasons mentioned above, AKAZ has developed a new set of accreditation standards for healthcare institutions – Standards for emergencies caused by the COVID-19 pandemic for primary and secondary healthcare. The standards were developed in cooperation with healthcare institutions and leading epidemiology healthcare professionals in FBiH and according to the World Health Organisation (WHO) and European Centre for Disease Prevention and Control (ECDC) guidelines. Since community pharmacies belong to the primary healthcare system with other healthcare institutions, and since pharmacists were the most accessible healthcare professionals for patients during the pandemic, there was a need to pilot these standards in the pharmacies.

Objectives: As a sustainable approach in emergencies is essential, the standards aimed to facilitate systematic admission to the healthcare institutions' readiness to synchronise with one another and act in the same manner whenever needed. That way, all the patients could receive timely and suitable healthcare services in urban and rural areas.

Methods: Following the successful development and implementation of standards for pharmacies, and their successful accreditation by the International Society for Quality in Health Care (ISQua) several years ago, AKAZ has decided to apply the same approach in pharmacies during the COVID-19 pandemic. The intention was to develop a pilot project to introduce the novel standards, with further recommendations for their roll-out across the FBiH. The previously accredited private pharmacy "Nera" in Visoko (a small city with approximately 42,000 citizens) has served as the reference pharmacy and model for the effective implementation of WHO and ECDC recommendations. It also helped as a source of information that several criteria were not applicable in pharmacies or needed minor changes to be fully functional. A further goal is to encourage other pharmacies to meet the standards and requirements on health care provision readiness for challenging times such as pandemics.

Results: The standards have been published publicly on the AKAZ website, along with the information that implementation of the standards has been tested under a pilot phase and that suggestions and comments are welcome. Several other private and public healthcare institutions have already contacted AKAZ to announce immediate standards implementation readiness.

Conclusions: The "Nera" pharmacy's participation and contribution have been a significant asset to this project, not only in terms of the development of the standards but also concerning the proper implementation of the standards in community pharmacies and recommendations. The experience with the above-named pharmacy has proved that pharmacies in low-and middle-income countries can also mobilise sufficient funds and afford at the very minimum, essential requirements of healthcare provision to patients in need, even during the most challenging times.

Community pharmacists' experiences and attitudes towards the provision of sexual and reproductive health services: An international survey

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Introduction: The evolution of pharmacy practice is a global phenomenon. Pharmacists' roles are evolving to deliver more comprehensive services to meet societal demands. Pharmacists are recognised as providers of a wide range of sexual and reproductive health (SRH) services with a patient-centred role. Although there is variability in pharmacy practice globally, research involving pharmacists from countries with different scopes of practice and educational, social, political, and economic backgrounds is needed. Studies exploring pharmacists' current involvement in SRH and the additional training required to expand service delivery are limited.

Objectives: To examine and contrast SRH services provided by pharmacists in different countries and attitudes towards their role as SRH providers.

Methods: A cross-sectional web-based survey was administered to community pharmacists in Alberta (Canada), Bangkok (Thailand), and Japan. The survey covered seven common SRH categories: pregnancy tests, ovulation tests, contraception (non-hormonal and hormonal), emergency contraception, sexually and blood-borne transmitted infections (STBBI), maternal and perinatal health, and general sexual health. The survey was sent via e-mail and was open for up to six months between 2020 and 2021. Descriptive statistics were used to analyse the data.

Results: Most of the participants were female (Japan=295/534, Canada=199/303, Thailand=54/85) and had a bachelor's degree (Japan=94%, Canada=79%, Thailand=55%). Services in SRH categories were, to some extent, provided in all countries. However, distinct patterns of involvement with services were identified. Overall, participants' attitudes in all three countries were positive towards pharmacists' roles in SRH. Most participants strongly agreed or agreed that offering advice on SRH is an essential part of community pharmacists' roles (Japan=80%, Canada=93%, Thailand=95%) and that they had an ethical responsibility as pharmacists to provide SRH services

(Japan=67%, Canada=89%, Thailand=97%). Participants reported pharmacists' knowledge and time required to provide these services as some of the top influencing factors for providing SRH services. Most respondents expressed interest in additional SRH training (Japan=79%, Canada=84%, Thailand=91%). More than half of the participants in Japan (54%) and about three-quarters of the participants in Thailand and Canada (77% and 71%, respectively) were interested in expanding their roles in SRH. Participants' preferences varied between countries. The top preferences for additional training were emergency contraception (Japan=77%), STBBI (Canada, treatment=64% and prevention=55%), and sexual dysfunction (Thailand=68%).

Conclusions: Community pharmacists in countries with different scopes of practice and pharmacy regulations reported providing services in several SRH areas. Even though the pace of pharmacy transformation has not been the same in the three countries, pharmacists shared the willingness to expand their role and were interested in more training. Pharmacists are able to adapt to new challenges, however, support is needed to expand their role and evolve their professional identity as SRH providers.

Community pharmacy staff's knowledge, educational needs, and barriers related to counselling cancer patients and cancer survivors in Denmark

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Introduction: The number of patients living with or surviving cancer increases with better treatment options, raising a need for more healthcare options to ensure their support. The community pharmacy staff are easily accessible healthcare providers who can play an important role in counselling cancer patients and survivors. However, the information on how well pharmacy staff is prepared to do that is sparse.

Objectives: This study mapped the Danish community pharmacy staff's self-perceived knowledge and educational needs regarding cancer treatments. Furthermore, it investigated which barriers pharmacy staff experience when communicating with cancer patients and survivors. The results of the study will supplement another project aiming at developing a healthcare service targeting late effects in cancer patients and survivors at Danish community pharmacies.

Methods: An online survey was conducted. The questionnaire was developed and thoroughly piloted; besides demographics, it consisted of 21 questions on knowledge and educational needs and 14 barrier statements. The participants indicated their responses on a 5-point Likert scale. A link to the questionnaire was distributed to community pharmacy staff in Denmark via social media and publicly available emails of the 185 Danish pharmacies. Data were collected in November 2021. The results were analysed descriptively, for knowledge and educational needs questions the Likert scale response options were numbered from 1 (no knowledge/not important) to 5 (in-depth knowledge/extremely important), and mean values were calculated. For barrier statements, the percentages agreeing were calculated. Pharmacists and pharmacy technicians responses were compared using an independent samples t-test; a *p*-value <0.05 was considered statistically significant.

Results: In total, 134 community pharmacy staff (79 pharmacists, 51 pharmacy technicians, and four pharmacy interns), 5.0% of all community pharmacy staff in Denmark, completed the questionnaire. Community pharmacy staff's mean self-perceived knowledge of the different topics related to cancer treatments ranged between 2.10 and 3.37. For 47.6% of the topics, pharmacists reported having statistically significantly more knowledge than pharmacy technicians. The most well-known topics concerned risk factors for cancer and side effects from cancer treatments; the least known topic was cancer prevalence and incidence. The staff's mean importance of learning more about the 21 topics ranged between 2.73 and 4.40. There was no statistically significant difference between pharmacists and pharmacy technicians in the importance of learning more about any of the topics. The three statements that most participants perceived as barriers when counselling cancer patients in community pharmacies were: lack of training possibilities for staff regarding cancer and cancer treatments (91.0%); and communication with cancer patients (89.6%), including community pharmacies traditionally not focusing on cancer patients but other health problems (75.4%). Pharmacy staff expressed interest in participating in educational programmes about cancer and cancer treatment (91.0%), communication with cancer patients (88.1%), and late effects of cancer (93.3%).

Conclusions: The study found that community pharmacy staff in Denmark are in need of and interested in more education in relation to cancer treatments. Lack of training possibilities and educational needs are important barriers that should be addressed when developing healthcare services in community pharmacies targeting cancer patients and survivors.

Community pharmacy and Primary Health Care: Types of integration

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Introduction: Healthcare systems face challenges and their sustainability is being questioned. Countries are responding by adopting policies that drive integration. In the literature, the term "integration" is used interchangeably with terms such as integrated care, interprofessional collaboration, or coordination. The integration process is a continuum with several stages; fragmentation, linkage/communication, coordination in networks, a collaboration between professionals, collaboration through the organisational management and governance processes and structures. Given that in many countries, community pharmacists are becoming patient-oriented service providers, consideration for the integration of the community pharmacy networks (CP) with primary health care (PHC). However, the level of integration of CP in healthcare systems is limited, highlighted recently by an international series of papers. Nevertheless, international, and national pharmacy organisations are calling for and lobbying for CP to be integrated with PHC.

Objectives: To analyse the types of integration in the field of health and their applicability for the integration of CP and PHC.

Methods: A narrative review was performed using articles derived from an initial manual search of the International Journal of Integrated Care, the key discipline journal, from its launch on November 2000 to January 2022. An additional structured search strategy was applied through Google, using the query: integration + health + (types OR processes OR dimensions) file type: pdf.

Results: Fifty-five articles were found that described 14 types and five sub-types of integration applicable at a macro, meso,

and/or micro level of the health care system. Five types of integration were classified through their objective to integrate practices, services, professionals, and organisations. While the other types describe the breadth (two types), and enablers (seven types) that facilitate the integration. With this information, a model of the interaction between types of integration is proposed with the addition of four constructs (communication, consensus, connectivity, and trust) that provide guidance for the intensity of the integration. It is difficult to conceive “full” integration since in most countries CP are privately owned whilst PHC services are publicly owned or subsidised. However, the findings suggest that applying some types of integration would be feasible and achievable. Since CP are at the same hierarchical level as PHC providers, integration could occur horizontally (breadth) with the greatest potential to reach higher intensities through clinical and services integration at the micro level. Achieving higher intensities of integration is related to working on four constructs and by facilitating integration enablers such as financial, cultural, normative, functional, and structural elements. However, policy and operational support from the meso and macro levels of the health care system seems to be crucial.

Conclusions: Healthcare systems, which are under resource constraints and with questions of long-term sustainability, may benefit by the integration of a privately owned, highly accessible, efficient, and cost-effective network of community pharmacies (primary care sites). Applying integration principles, concepts, and types suggest that it might be feasible and practical to achieve some form of integration. However, the political, financial, and professionally conflictive contexts would need to be overcome with appropriate policy and incentives.

Treatment-seeking behaviour among individuals with uncomplicated sore throat: The important role of pharmacists in reducing primary care burden

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Introduction: Sore throat is a common problem for which many patients consult primary care and is a key driver of inappropriate antibiotic prescribing. A sore throat can often be managed with appropriate symptomatic treatment, such as those available over-the-counter at pharmacies. Research has indicated that pharmacists are well-placed to guide patients on effective self-management and that their advice is valued by patients.

Objectives: To determine how patients respond to advice about sore throat given by pharmacists, their preferences for treatment, and the most frequent physical and emotional symptoms experienced in conjunction with a sore throat.

Methods: This article details an observational, questionnaire-based, multinational consumer research study encompassing 13 countries. The questionnaire was developed by experienced consumer health researchers across different countries and included culturally appropriate translation where necessary to minimise heterogeneity between countries in their understanding of the questionnaire concepts. Data were collected on how patients with sore throats respond to advice from pharmacy personnel, their preferences for treatment and the most frequent physical and emotional symptoms experienced in conjunction with a sore throat.

Results: A total of 5,196 adults who experienced sore throat in the previous 12 months completed the survey. The physical descriptions of their most recent throat discomfort varied, with up to 64% stating ‘dry’ and/or ‘irritated’; however, emotional impacts were also observed. A range of management approaches was utilised, with almost half using natural or home remedies, where soothing (72%), moistening (52%), and the presence of natural ingredients (50%) drove their choice. In total, 42% of respondents went to a pharmacy to ask for advice on the management of their sore throat and they were often recommended medicated sore throat treatments (74%), although natural and/or home remedies were recommended for 33% of respondents. In terms of attributes that respondents identified as important in their sore throat treatments, 78% of patients were looking for sore throat treatments that soothe and/or relieve pain. The responses ‘soothes the throat’ and ‘relieves pain’ were the most highly rated attributes when choosing a treatment (66% and 57%, respectively) with ‘works quickly’ and ‘provides long-lasting relief’ also desired (41% and 32% respectively). When describing the physical sensation of their sore throat, respondents chose moderate descriptions such as ‘dry’ (45%) and ‘irritated’ (38%), although ‘inflamed’ (32%) and ‘difficult to swallow’ (46%) were also selected. Patients reported a number of physical symptoms in addition to their sore throat, the most common being a dry, tickly cough, which was reported by 59% of respondents.

Conclusions: Pharmacists can have a key role in helping patients with sore throat identify appropriate treatments for self-management of symptoms, relieving pressure on primary care provision. Due to their accessibility, pharmacists are in a good position to offer advice to those who want it quickly and are ideally placed to guide patients to choose a management solution based on the attributes that are important to them.

The national medication safety programme of community pharmacies in Finland

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Introduction: Medication errors are the leading cause of patient harm in healthcare systems across the world. Little attention has been paid to medication safety research and prospective risk management of the medication use process in outpatient care. This is even though medications are mostly used at home and in outpatient settings. The value of routine prospective medication safety work of pharmacists in community pharmacies in ensuring medication safety in outpatient care has not been sufficiently recognised and utilised. The information on medication errors and risks recognised in community pharmacies has not earlier been systematically documented, communicated, or utilised in developing safe medication practices and procedures within and between health and social care providers.

Objectives: The aim of the National Medication Safety Programme of Community Pharmacies (2021-2026) is to promote the medication safety of Finnish patients in outpatient care. The programme strengthens collaboration between health and social care organisations and community pharmacies.

Methods: The present work describes The National Medication Safety Programme of Community Pharmacies as a national intervention directed at community pharmacies. The description outlines the theoretical framework of the programme and the action plan for 2021-2022, and it has been generated by using the programme evaluation method (RADAR: Evaluation Planning Tool). The programme is a joint effort between the Finnish Centre for Client and Patient Safety and the Association of Finnish Pharmacies. Other stakeholders are the University of Helsinki, the Pharmaceutical Learning Centre, and Awanic Ltd.

Results: This report describes the first two-year action plan (2021–2022) of the National Medication Safety Programme of Community Pharmacies. The action plan 2021–2022 consists of four actions to be implemented in parallel:

1. Introducing a patient safety incident reporting system (HaiPro) to Finnish community pharmacies. HaiPro is the most widely used safety incident reporting tool in Finnish health and social care organisations. A common incident reporting system enables better

communication on identified medication incidents and risk information, as well as collaboration between community pharmacies and health and social care organisations.

2. Promoting medication safety culture in community pharmacies and enhancing Finnish community pharmacists' competence in medication risk management.
3. Coordinating the collaboration of community pharmacies, as well as the collaboration between regional health and social care organisations and community pharmacies.
4. Creating a research strategy (2023–2026) for the programme.

Conclusions: Improving medication safety in outpatient care requires national guidelines, regional safe medication practices, and strong collaboration between all health and social care providers, including community pharmacies. To the author's knowledge, the National Medication Safety Programme of Community Pharmacies in Finland is an internationally unique intervention. The programme provides other countries with experiences on how to strengthen the role of community pharmacists in medication safety risk management. Further research is needed on the effectiveness of the programme actions on medication safety of outpatients and patients in social care settings.

Assessment of the role of the Cypriot community pharmacists during the pandemic

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Introduction: The pandemic has affected the world and the profession in many ways. Since the first COVID positive case in Cyprus on 9 March 2020, pharmacists, and Cyprus Turkish Pharmacists' Association (KTEB) has been alert and worked extensively on the frontline. Cases tried to be kept under control via educating the public with the most recent information provided by the World Health Organization (WHO), International Pharmaceutical Federation (FIP), and KTEB, supplied to pharmacists which are then conveyed to the public. Vaccinations have been prioritised for pharmacists and technicians as one of the major frontline healthcare professionals while working hours of pharmacies have been rescheduled and community pharmacies were authorised to perform while the Ministry of Health approved antigen testing.

Objectives: To investigate the changes and the improvements in pharmacy practices and outline the impact and importance of community pharmacists during the pandemic.

Methods: In addition to an online questionnaire, registered pharmacists, pharmacy staff, the public, and patients coming to the community pharmacies from different age-group have been interviewed weekly. Data have been regularly collected from the community pharmacies and the Ministry of Health and analysed by KTEB. The data collection adhered to the General Data Protection Regulation (GDPR).

Results: Overall, only 16 of 342 community pharmacists and 34 of 428 pharmacists tested positive for COVID. Due to the precautions taken by community pharmacists in terms of protection, working hours adjustments from 570 minutes to 330 minutes daily, increasing the number of emergency/on-duty pharmacies numbers per area, together with educating the public every day, there has been no transmission and/or infection via community pharmacies. Pharmacy consultations helped the community with safety parameters, correct use of PPEs as well as immune system boosting and self-protection. Not only that but also via interprofessional collaborations, the total number of COVID positive cases has been zeroed for 191 days. Between the first 600-700 days of COVID, 92 community pharmacies volunteered and signed a protocol with the Ministry of Health to perform approved antigen testing which resulted in over 5,000 more tests carried out daily only in the first week.

Conclusions: The pandemic has proved that pharmacists are the closest and the most accessible healthcare professionals to the public and during these hard times, patients have reached out most to community pharmacists. Community pharmacists have provided free counselling services to patients with complex medical histories, ensuring the correct medication for the correct patient, including cost savings on medicine optimisation and adverse reactions. Moreover, together with KTEB, community pharmacists regularly informed the public with up-to-date information and delivered pharmaceutical services effectively using the tools in the era of digital health. However, as immunisation is vital in declining the number of infected people, transmission, and hospitalisation rates, community pharmacists in Cyprus should have been included in vaccination services and more community pharmacies could have been involved in antigen testing. To sum up, this research is an important evidence for further involvement of pharmacists and community pharmacies in emergency situations and recovery of healthcare.

Vision 2030 on the role of the family pharmacist in the hospital loop

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Introduction: Hospitalisation is a crucial moment in any patient's life. The hospital loop (transition from home care to hospital and back home) poses many well-known problems for medication adherence resulting in a high readmission rate of polymedicated patients. This requires a good transfer of medication data and an integral vision of medication management at this critical stage.

Objectives: The aim was to develop a clear vision of the future to describe what is needed before hospital admission, during hospital stay, and after discharge to avoid the known problems.

Methods: In early 2020, 25 pharmacists were questioned about their vision of the role of the pharmacist in the medication transfer and medicines management during the hospital loop. Based on their input, a vision paper was written.

Results: A vision was developed from the Flemish Pharmacist Network (VAN), that describes the role of the pharmacist in 2030. In this vision, the community pharmacist is a confidential caregiver and takes the lead in providing guidance and advice on medication use. In 2030, there will be one integrated multidisciplinary patient record that is accessible to the patient, the primary healthcare, and the hospital. When a hospital admission is planned for a patient, an automatically generated signal is sent to his pharmacist. The family pharmacist checks whether all information in this unique patient record is complete. He adds relevant information about medication use and sociocultural background. He gives the patient the right pre-operative advice on the use of chronic medication such as blood thinners, antidiabetics, and pre-operative medication. The family pharmacist is in 2030 present at the preparatory meeting for the patient's hospital discharge. Ideally, when discharged from the hospital, he should receive all medicines from his family pharmacist.

On seeing the patient again, a home medication reconciliation is carried out by the family pharmacist to fine-tune the medication schedule. Because from 2030 onwards, the family pharmacist will receive information on blood values and information from doctor reports, the quality of care will improve considerably. The family pharmacist knows the needs of the individual patient. Using automatically generated signals, he contacts other healthcare providers for consultation or orientation.

Information and knowledge transfer between hospital and family pharmacists is highly necessary. To facilitate this information transfer, the liaison pharmacist builds the bridge between the knowledge of the hospital pharmacist and the skills of the family pharmacist. A liaison pharmacist is a role that a primary care pharmacist temporarily assumes at the hospital level. He assists the hospital in the discharge of complex patients to anticipate potential problems after discharge. After some years of optimisation, the function of the liaison pharmacist will become less needed.

Conclusions: VAN succeeded to develop a clear vision of the future (2030) concerning the role of the community pharmacist during the hospital loop. In order to prevent DRPs during the hospital loop, a patient-centered approach in which the family pharmacist plays a supporting, advisory role is essential. This vision is the basis for developing a plan with other stakeholders toward integrated transmurial medication care.

Involvement in population management and vaccination service: Two new assets in Belgian community pharmacy

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Introduction: The first corona vaccines came to market at the end of 2020 and confronted society with a huge challenge: to

reach, in the shortest possible time, a vaccination coverage (two vaccines and one booster) of at least 70%. In one of the four regions in Belgium, this coverage of 70% was achieved. Two regions achieved only 70% for the first two doses. In contrast to 36 other countries in the world, vaccination in pharmacies was not legally permitted at the start of the Corona crisis, yet was approved in March 2022.

Objectives: To review the pharmacist's contribution to vaccination coverage and it has evolved during the corona crisis.

Methods: First, a roadmap for the complete organisation of ordering, stock management, and preparation of the vaccines in the 140 Belgian vaccination centres was developed and pharmacists were engaged as 'pharmaceutical experts'. Secondly, a national awareness campaign on vaccination in Belgian pharmacies was set up between 15/4/2021 and 15/9/2021, using automated generated software signals. These signals corresponded with the invitations for vaccination at the time. Thirdly, an 8-hour vaccinator course was organised to train Belgian community pharmacists to be prepared if legislation changed.

Results: In 140 Belgian vaccination centres, pharmacists were responsible for organising the supply and preparation of vaccines up to the moment of vaccination. In the pharmacies, between 15/4/2021 and 20/9/2021, pharmacists opened 4.9 million pop-ups indicating that the patient had received an invitation for vaccination against COVID-19. The handling of 18.9% of these pop-ups was registered: 34.6 % were pop-ups for the first vaccine, and 65.4% for the second vaccine. A total of 71.1% of the patients were convinced of the need for a first vaccination against COVID-19 after the sensitisation talk, 18.4% had doubts or refused, 1.2% had a contraindication and 9.3% it was impossible to have a sensitisation conversation. For the second vaccine, 96.7% were convinced.

In 2021, 5,200 pharmacists completed the vaccination training. From 11/03/2022, community pharmacists were allowed to vaccinate against COVID-19 in their pharmacy. The gradual roll-out started in Brussels, where the vaccination coverage was the lowest, followed by Wallonia, where there is also room for improvement. Flanders follows last. Currently, vaccination by the pharmacist in the pharmacy is applied in 43 pharmacies (Brussels: 10, Wallonia: 24, Flanders 9). The number of administered vaccines was 1493 as of 25/5/2022.

Conclusions: Pharmacists have made a major professional contribution to the vaccination campaign. In doing this, they were supported by innovative technological developments. Besides being a reliable partner in preparation and logistics as pharmaceutical experts, pharmacists have proven their strong added value in data-driven sensitisation by addressing and raising awareness. In addition, the step-by-step roll-out in Brussels and Wallonia proves that pharmacists are able to reach more people in a short period of time. A further roll-out of vaccination services in pharmacies combined with the involvement of the pharmacist in proper population

management is a pathway that could not be ignored in the future.

Spanish community pharmacies' participation during COVID diagnostic tests

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Introduction: Because of the sixth wave of COVID-19 in Spain, many autonomous communities implemented different protocols allowing community pharmacies to perform or supervise COVID-19 diagnostic tests and to notify health authorities of positive results.

Objectives: The General Pharmaceutical Council of Spain collected data on tests performed or supervised, and positive tests reported from community pharmacies, in order to highlight the caring role played by the pharmacist, ensuring the traceability of the results and contributing to curbing the spread of the disease, thus relieving the burden on the healthcare system.

Methods: In most cases, the results were collected on a weekly basis through the Provincial Pharmacy Chambers or the corresponding Regional Pharmaceutical Councils.

Results: During the first month and a half of 2022 (from January to 15 February), 11 autonomous communities were involved in monitoring the dispensing of the tests, as well as the registration and notification of positive cases by pharmacies, where more than 27 million citizens live: Asturias, Aragon, Balearic Islands, Cantabria, Catalonia, Valencia, Galicia, La Rioja, Murcia, Navarre, and the Basque Country. A total of 1,043,800 tests were performed or supervised in community pharmacies throughout Spain during this period. Among these, a total of 109,570 positive cases have been detected so far and reported to the National Health System. In Spain, the total number of tests involving the pharmacist reporting positive results, either in tests performed in the pharmacy facilities or person's home where the results were later reported to the pharmacy, the total number of positive results accounted for 439,000.

Conclusions: Data collected from the participation of pharmacies during the sixth wave of COVID-19 in Spain highlighted the paramount role played by the active participation of community pharmacies, opening up a new and important path for the professional recognition of pharmacists and highlighting the value of the professional work carried out by pharmacists.

The vision of medical primary care of community pharmacy in Sevilla

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Introduction: COVID-19 is a disruptive pandemic worldwide that has led to the need for community pharmacists, doctors, and nurses to work in new ways.

Objectives: To open up the goal of greater collaboration among community pharmacies.

Methods: In this study, the authors created a survey using Google forms that included four questions about the role and capacity of community pharmacy in the context of prescribed care, and added two additional questions to inquire about how to improve the relationship and collaboration. The survey was distributed by the director of a medical center in Seville.

Results: The authors received responses from 75 doctors and 75 nurses. Almost 98% of medical professionals consider community pharmacy useful and important since pharmacists are in close contact with patients on a daily basis. In addition, most of them think that some actions can be done in the on-site pharmacy, such as changing dosage forms or changing package size, which is not allowed by law nowadays. More than 95% of professionals think that more communication and collaboration are needed through annual meetings and improving communication through current healthcare software.

Conclusions: This work has been both inspiring and encouraging, but also very disappointing. Community pharmacy has always strived to be more empowered with further competencies in the healthcare system in Spain, rather than just being "drug dispensers", but pharmacists were not seen as part of the healthcare system until COVID-19. Pharmacists' tireless work in the most difficult times of the lockdown, when they were the only health professionals open to the public, answering their questions and clearing their doubts, always trying to solve problems and making things easier for the health centers. This has changed the way health professionals see pharmacists and their value to them.

It is clear that it is time for the political representatives to demand more allocations for community pharmacies to make the patients' lives easier and the primary health care system less likely to collapse. More technological investments are required in the health system software to create communication channels between care centers and pharmacies. But it's also time for community pharmacists to collaborate and coordinate with their primary care centers to provide the greatest benefit to patients. There is a need to

strengthen the undisputed role of healthcare professionals to make them more accessible to people.

How COVID-19 changed pharmaceutical prescription in Spain

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Introduction: COVID-19 is a disruptive pandemic worldwide that has caused serious problems in the society. From a health perspective, the increase in mental health problems is very obvious. However, COVID-19 has also aggravated other health problems among the patients of the Dairy Community Pharmacy to the same extent.

Methods: In this study, the authors used the Ministry's data from 2016 to 2021. The information provided is the number of registered packs classified by pharmacological group. The information from 2016 to 2019, 2020 and 2021 was compared in a dynamic Excel database with the 150 main pharmaceutical groups to get an idea of what the main health problems are in Spain based on the medication prescribed. To know how COVID-19 has affected everyone's health, the authors compared the growth trend of the different groups with the growth in 2020 and 2021.

Results: Nearly 70% of drugs dispensed in Spain are used to treat problems of the nervous system, cardiovascular system, digestive and metabolic systems. It is significant that the increase in benzodiazepine derivatives is as high in 2020 as from 2016 to 2019, and even increasing in 2021. Analysing the data, it was discovered that the continuous growth of pharmaceutical groups related to pain, such as anilides and pyrazolones, increased in percentage in 2020 which was the same as in 2016 to 2019, and in 2021. Propionic acid derivatives are a special case; they showed a growth trend from 2016 to 2019 and stalled in 2020, but grew more in 2021 than in 2016 to 2019.

Conclusions: The authors found striking an increase in Vitamin D and Coxibs. Vitamin D was growing from 2016 to 2020 but in 2021 it suffers a growth in the same proportion as 2016 to 2019. On the other hand, Coxibs were decreasing from 2016 to 2020 but experienced a huge increase in 2021. Analysis of the data from 2016 to 2019 shows an aging country. The comparison of prescriptions from 2016 to 2019 with 2020 and 2021 shows the change that COVID-19 has taken place in everyone's lives. It is patent that mental illness has increased and is still increasing. Many people are suffering from stress and sadness due to the uncertain times caused by the pandemic. It is necessary that community

pharmacies prevent the abuse of this type of medication and take comprehensive medical control over the duration of the disease.

The data also show that the population suffers more from pain and needs more painkillers. Many restrictions and a lot of time spent at home have led to a more sedentary society that is now suffering the consequences of limited mobility. From the community pharmacy, there is a need to educate for a healthier lifestyle where physical activity must be a priority.

Finally, the authors would like to point out the vitamin D deficiency that the population seems to suffer from and that is related to the acceleration of osteoporosis in society in the coming years.

Inhacheck: Service for patient training in the correct management and use of inhalers

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Introduction: In Spain, almost six million patients use at least one inhaler, and it is estimated that between 52% and 87% of these patients do not use it correctly. This fact means that more than half of the patients do not achieve the desired therapeutic effect, requiring new medical visits in which the medication is frequently changed or simply the abandonment of the medication. This misuse of these complex pharmaceuticals and poor adherence cause acute episodes in asthma or Chronic Obstructive Pulmonary Disease (COPD) patients, requiring urgent medical intervention in some cases. This fact produces unnecessary costs to the health system and low quality of life for chronic patients.

Objectives: The objective of the inhacheck service is to provide a tool to pharmacies to quantitatively measure the use of inhalers when dispensing medication, and if necessary, for the pharmacist to intervene and train the patient on the correct use of these inhalers.

Methods: The current study involves 20 pharmacies, which have conducted 75 initial studies between June 2020 and May 2022. It is worth mentioning that, in times of pandemic and with the mandatory use of masks in pharmacies, it has been very difficult to carry out tests. The service includes a specific course, with the scientific support of a Spanish pharmaceutical scientific society called SEFAC. It addresses the dispensing of complex pharmaceutical forms, notions about asthma and COPD, the fundamentals of inhaled therapy, and the different inhalation devices.

The service is based on a web platform where the pharmacist, with the prior informed consent of the patient, records the dispensed device, the reason why this medication has been prescribed, and whether it is the first time it has been used or not. Depending on the prescribed device, the platform displays a questionnaire with the specific questions that the pharmacist will ask the patient about the use of this device, to check if it is used correctly. Additionally, by using an inhalation flow measuring device that simulates the different types of inhalers that exist on the market, the pharmacist can measure whether the inhalation exerted by the patient is correct or not since each device has a correct inhalation flow range.

Results: Despite not having many registered cases yet, more than half of the patients misuse their inhalers, making critical errors.

Conclusions: It is very necessary for the pharmacist to carry out an objective evaluation of the use of the inhalers at the time of dispensing, and corrective training if errors in their handling and/or an inadequate inhalation flow are detected.

Teledermatology with dermoscopy in the pharmacy

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Introduction: Melanoma is the most aggressive form of skin cancer. Early diagnosis is essential for a patient's survival. Likewise, other types of skin cancer (nonmelanoma skin cancer -NMSC- and its precursors) require rapid screening by a dermatologist. However, the waiting lists for face-to-face consultations make appointments with the dermatologist increasingly difficult, affecting the prognosis. The aging population and the shortage of dermatologists will make this problem more important in the future. On the other hand, telemedicine improves healthcare accessibility while avoiding unnecessary patient influx to health centers, so the use of this technology could be an advantage for the patient and the healthcare system in Spain

Objectives: Bidafarma offers its pharmacies a service for skin cancer screening through asynchronous dermatological teleconsultation to assess the feasibility and usefulness for the population of this service. The objective is to make the population's access to the dermatologist easier and faster.

Methods: Bidafarma provides its pharmacies access to a professional Electronic Health Record (EHR) System, where all the patient's health data is collected. A total of 115 voluntary pharmacies signed in for this service. At least one pharmacist from each pharmacy offering this teledermatology service must attend a training session, wherein basic dermatologic concepts are explained. These pharmacies also have a digital dermatoscope and a digital camera.

When a patient consults the pharmacist about a skin lesion, the pharmacist should refer them to the dermatologist. If the patient states that they do not have quick access to it, the pharmacist can offer them the teledermatology service. The pharmacist will do a brief anamnesis, which includes obtaining patient information such as sex, age, solar exposure patterns, the reason for consultation, perceived changes, perceived symptoms, duration of the lesion, and lesion location. The pharmacist will take at least an image in macro mode and one with immersion dermoscopy. The anamnesis and images are sent to the EHR, and within 24-48 hours, the case is reviewed by two senior dermatologists who agree on a diagnosis or a differential diagnosis and provide specific recommendations. A report is sent back to the pharmacy, and the pharmacist will provide additional explanations and offer support and guidance to the patient. The authors believe that the pharmacist has the proper background knowledge to fulfil this role, and the proximity of the pharmacy to the patient makes this model very convenient for patient consultation.

Results: A total of 777 lesions have been submitted for teledermatology consultation using this service. Except for very few dubious cases, the dermatologist could give the patient a diagnosis in 88% of the cases.

Conclusions: The healthcare value of the community pharmacist is demonstrated. In cases that are classified as "benign lesions", this service avoids unnecessary patient influx to hospitals and other health centers. In malignant or premalignant cases, this service improves accessibility to specialised care, which translates to a better prognosis. This pharmacist's background knowledge and the proximity of the pharmacy to the patient make the pharmacist the ideal candidate for healthcare improvement, accessibility, and sustainability.

Characterisation of patient advice in the community pharmacy

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Introduction: Community pharmacists are in an ideal position to provide advice to patients due to easy accessibility within the community. The advice community pharmacists provide

aims to enhance the rational use of medicines, promoting safety, efficacy and optimising health outcomes.

Objectives: The aim was to describe the type and frequency of patient advice requests provided in community pharmacy practice.

Methods: This observational prospective study was carried out in one community pharmacy. A total of 1000 encounters with the community pharmacist for advice/counselling over a twelve-week period were observed and recorded in a data collection sheet. The developed data collection sheet was validated by an expert panel and characterised patient advice as follows: Responding to symptoms, lifestyle advice, medicine information, medical devices, product recommendation, signposting and medical referral, and waste disposal. The time taken to address each encounter was documented and the time range was reported. Descriptive statistics were calculated to assess the type and frequency of patient advice encounters.

Results: The four most prominent pharmacist-patient advice services were: Medicine information (n=903, 31%, range three-seven minutes); responding to symptoms (n=595, 20%, three-seven minutes); lifestyle advice (n=585, 20%, two-seven minutes) and product recommendation (n=532, 18%, three-four minutes). Other types of pharmacist-patient advice were on medical devices (n=201, 7%, four-seven minutes); signposting and medical referral (n= 86, 3%, three-seven minutes); and waste disposal (n=47, 2%, six-seven minutes). As regards medicine information, advice on dose (34%) and side-effects (27%) was the highest. The most common advice in the responding to symptoms category was for musculoskeletal and gastrointestinal symptoms (both 13%). For lifestyle, advice on avoidance of triggers (34%) and on diet and weight loss (18%) was predominant. Patients sought advice mostly for products administered via the oral route (48%). Of the 1000 encounters, 877 were directed towards patients who needed medication, presented with symptoms or required other advice, and 123 had provision of advice and counselling to a proxy to be passed on to patients.

Conclusions: Characterisation of the provided advice to patients in this study highlights the value of community pharmacists' interventions in patient care in contributing to enhanced medication effectiveness, adherence, and patient safety.

Community pharmacy-customers' wishes and attitudes towards COVID-19 antibody tests

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Introduction: Since June 2020 customers have had the possibility of buying a COVID-19 antibody test carried out at some of the community pharmacies in Denmark at a price of €36. This kind of test at the pharmacies was a whole new possibility for the public, and the pharmacies were the only places offering this service.

Objectives: To investigate the community pharmacy customers' attitudes towards the COVID-19 antibody test, the testing price, the taking of a test at pharmacies, and the expectations regarding the use of the test result.

Methods: A new electronic questionnaire for pharmacy-customers was developed. At the participating pharmacies, pharmacists and pharmacy technicians reviewed the questionnaire with each customer taking a COVID-19 antibody test over a period of 10 working days equal to two weeks. The tests were taken between Monday 13 December 2020 and Friday 19 February 2021.

Results: A total of 13 pharmacies participated in the mapping of pharmacy customers' wishes and attitudes towards COVID-19 antibody tests. A total of 428 customers took the test, 300 customers were invited to participate, and 286 customers answered the questionnaire. The respondents had different motives for taking an antibody test. Some were curious and wanted to know if they had previously had COVID-19. Some had experienced symptoms of COVID-19 or had been tested either positive or negative for COVID-19, some had been ill with symptoms or had been in close contact with a person that had tested positive.

Some customers expected a kind of immunity if they had a positive antibody test. Some would use the answer to decide whether or not to get the vaccine, others would use the test result in connection with travelling, work or to decide whether they could visit vulnerable relatives. Some were curious as to whether the symptoms they had experienced could be from COVID-19. Others had been recommended by their doctor to take the test. A percentage of 72% of the customers chose to take the test at the pharmacy because it was easily accessible, the pharmacies had high credibility, there was no wait nor need for booking an appointment, you

got the answer right away, and the customers expected a good quality test.

A percentage of 91% of the participants felt inclined to take other kinds of tests, various samples and screenings for disease at a pharmacy, because of the accessibility of pharmacies and the skills and high credibility of the staff. Over 50% of the customers felt that the price for the test was reasonable.

Conclusions: Customers have many different reasons for taking an antibody test at the community pharmacy. A majority of the participants would visit a pharmacy again to get a test, a kind of sample, or screenings for disease, because of the accessibility of pharmacies and the skills and high credibility of the staff. This study shows that there is a potential market for other similar kinds of tests or screenings for diseases at community pharmacies in Denmark.

Safe pharmacotherapy management of breastfeeding woman in community pharmacy: New pharmaceutical care service

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Introduction: Breastfeeding provides the child not only with the best way of eating but also with conditions for optimal growth and development. The rate of breastfed children in Serbia is low, lower than in other surrounding countries. The Ministry of Health Republic of Serbia intensified its activities to promote breastfeeding through the development of the National Guideline for the use of drugs during breastfeeding. The guideline, accompanied by the education sessions provided to the community pharmacists, served as a foundation for the implementation of new breastfeeding counselling services.

Objectives: The study aimed to assess the level of community pharmacists' knowledge regarding the safe use of drugs during breastfeeding before and after the educational sessions. The second goal was to evaluate pharmacists' satisfaction and the perceived utility of the educational sessions for future practice.

Methods: Community pharmacists were invited to voluntarily and freely participate in the educational sessions devoted to the safe use of drugs during breastfeeding. The education included lectures and workshops on clinical cases. It was delivered by the university professors, a neonatologist, the community pharmacist specialists in pharmaceutical care, and a hospital pharmacist specialist in clinical pharmacy. The test consisted of ten questions assessing the knowledge of the international code of marketing of breast-milk substitutes (two questions), RID (relative infant dose; two questions), the accuracy of pharmacist's interventions in different clinical cases (three questions), use of vitamins (one question), oral contraceptives (one question) and alcohol (one question) during breastfeeding. A 5-point Likert scale was used to express the pharmacists' satisfaction with the conducted education and the perceived utility. The results of the pharmacist's knowledge test before and after the training were analysed by Mc Nemar's test using SPSS statistical software (version 27).

Results: A total of 265 community pharmacists participated in the first round of educational sessions in April 2022. The results showed a statistically significant higher level of knowledge related to the marketing regulations and the use of drugs during breastfeeding after education ($p < 0.001$ for each of the ten questions). The percentage of correct answers ranged between 43.4% and 75.8% before the educational session, whereas it was 88.5%-99.6% after the education. Interestingly, the highest increase in the proportion of correct answers was observed for the use of vitamins (49.8% of participants), contraception (36.3%), and alcoholic drinks (55.1%) during breastfeeding ($p < 0.001$). The improvement in the knowledge of the international code of marketing of breast-milk substitutes was observed on average in 19.8%, knowledge of the RID and its' application in 32.6%, and knowledge and accuracy in solving the clinical cases in 28.1% of participants. The participants showed high satisfaction with the quality and the utility of the education (mean scores 4.9 - 5).

Conclusions: In line with the reported results, the development of a breastfeeding counselling service is a current need in community pharmacies in Serbia. Education of pharmacists related to the safe use of pharmacotherapy during breastfeeding is an important part of the implementation of new pharmaceutical care services.

Medicine shortages in Norwegian pharmacies in 2019 and 2022

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Introduction: A shortage of medicines represents a great threat to patient safety. There is little knowledge about how extensive the shortage of medicines is in primary health care. Specifically, how it affects the pharmacy customer.

Objectives: The purpose of the two surveys (2019 and 2022) was to investigate the extent of, and time used, to manage medicine shortages in community pharmacies and the outpatient department of hospital pharmacies.

Methods: Data were collected through an online survey in 47 (2019) and 36 (2022) pharmacies during a four-week period. The pharmacy employees reported when they did not have the medicine on the prescription in stock, the time it took to manage the situation, if they needed help from a colleague or contact with the prescriber, if the wholesaler had the medicine, if they provided the patient with another medicine directly or what was the outcome if they did not. The data was analysed descriptively.

Results: In 2022 (2019), 96.7% (96.4%) of the patients were immediately given the medicine on the prescription at the pharmacy. For 1.7% (1.3%) the prescribed medicine was ordered from the wholesaler and delivered within 24 hours. Another medicine was immediately given to 0.5 % (1.0%) of the patients, i.e., another package size. Among the remaining 1.1% (1.3%); 0.4% (0.2%) was sent to another pharmacy that had the prescribed medicine, for 0.3% (0.5%) the pharmacy did not find any immediate solution, and for 0.4% (0.6%) it is unknown if any solution was found. Common for the two surveys was that a few medicines accounted for a large proportion of the shortages. Medicines that are rarely missing are on the generic exchange list, are included in the step price system, and have a high price. The pharmacy employees used 3.2 minutes (3.5 minutes) extra to fill the prescription when managing a medicine shortage, rarely needed help from a colleague, and very rarely contacted the prescriber.

Conclusions: The delivery rate in both surveys (97.2% and 97.4%) is nearly the same if the times the patient received another medicine immediately is added. This indicates that patients have almost the same risk of experiencing medicine shortages today versus three years ago. A pharmacy practice standard for the management of medicine shortages was implemented in 2020. It may have contributed to pharmacists in 2022 being more likely to investigate nearby pharmacies' stock before they had "tried everything". The authors purpose that the most clinically relevant description of medicine shortages is the 0.3% (0.5%) – 0.7% (1.1%) patients

who the pharmacy did not find any immediate solution for. This may seem like a small number, but it amounts to 170,000 (250,000) – 400,000 (600,000) prescription fillings if it is extrapolated to the entire Norwegian market. Most medicines are not completely lacking in the pharmacies, but there are too few packages to meet the demand. This means that a viable measure during medicine shortage is rationing packages in the market; for instance, giving it only to patient groups in most need.

Strengthening medication safety in Danish municipalities: A mapping of challenges

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Introduction: From 2017 to 2018 the Danish Patient Safety Authority reported an increase in the number of unintended events in municipal institutions such as nursing homes, home care, and residential facilities. About 66 % of the registered events are due to medicine management.

Objectives: The aim of the study was to map challenges with medicine-related tasks in the municipalities identified by municipal managers and further explored by municipal employees. The aim of the study was also to use the results in investigating how pharmacy technicians from community pharmacies (CP) can contribute to strengthening medication safety in the municipalities.

Methods: To understand the experience with medicine-related tasks, semi-structured, in-depth qualitative interviews with two-three municipal managers from ten different municipalities were conducted. Six major themes were identified from these interviews, and they were further explored by visual storytelling by municipal employees. The results were presented at a workshop with stakeholders where pharmacy technicians from CP's contribution to medication safety in municipalities was discussed.

Results: Six major themes were identified from interviews with 27 municipal managers and visual storytelling with 17 municipal employees:

- 1.Challenges in several steps in the medication process. Municipal managers and employees experience challenges in ordering, storing, and dispensing medicines for patients in municipal institutions.

2. Compliance with existing procedures and instructions related to medication handling is difficult. Procedures and instructions exist, but it is difficult to follow them on an everyday basis.
3. Observation of the effects and side effects of the medicine can be difficult. This goes for both patients in nursing homes, home care, and residential facilities and for both adults and children with physical and mental disabilities.
4. Medicine during transitions is a challenge. The municipal employees are faced with the time-consuming and difficult task of identifying which medicine the patient should be given and how to get the medicine delivered from a hospital or pharmacy.
5. Medicine-related issues in disease-prevention and health-promotion activities. E.g., non-adherence in patients due to fear of side effects at municipal health centres.
6. The right competence for the right task. Municipal managers and some employees are worried about whether the employees who solve medicine-related tasks always have the right qualifications to do so.

Results were presented at a workshop and stakeholders generated ideas on how pharmacy technicians from CP can contribute to strengthening medication safety in municipalities.

Conclusions: This study identified six major themes that illustrate the challenges with medicine-related tasks as experienced by municipal managers and employees and generated ideas of how pharmacy technicians from CP can contribute to medication safety in municipalities. The ideas will be further qualified by The Danish Association of Pharmaconomists and The Association of Danish Pharmacies who also decide if one or more of the ideas will be tested in a future study.

Syringe exchange programme in community pharmacies in Catalonia

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Introduction: Community pharmacies are healthcare facilities run by healthcare professionals who provide medicines to patients and other prevention and therapeutic follow-up services. Syringe exchange programmes (PIXs) have been shown to be one of the most effective strategies, along with methadone dispensing, to prevent infectious diseases among drug users through injected drugs. In Catalonia, the PIX was

promoted in the 1990s by the Ministry of Health, with the collaboration of the Barcelona Public Health Agency and the Barcelona Pharmacists Association. From 1993, the programme spread progressively throughout the Catalan territory, and in 2017, the Functional Plan was published, reporting that PIXs, together with other interventions, have managed to reduce the prevalence of HIV antibodies from 34.5% to 30.6% and HCV from 74.9% to 60.9% among injectors at harm reduction centers between 2008 and 2013.

Objectives: To prevent communicable and contagious diseases caused by parenteral drug use and encourage the acquisition of healthier habits and behaviors among drug addicts. Also, to try to achieve a higher coverage rate of two hundred syringes per person per year.

Methods: The PIX is aimed at people who continue to use opiates or other substances intravenously and who voluntarily want to adopt safe venipuncture practices. The service is carried out voluntarily by pharmacists, who must have the knowledge, attitudes, and skills that facilitate the effective development of the PIX, so special training is provided to the pharmacists that wish to participate. To provide the service, PIX users deposit the syringe/s in the sanitary waste and pharmacists provide the number of kits that users request in accordance with the established "Basic Recommendations". The exchange must always be free and anonymous. The kit contains a syringe, which can be an American model or Spanish one; a sterile needle, a sterile water bottle, alcohol wipes, a sharps container, and a filter. Each exchanged kit must be registered on an activity sheet. Furthermore, health education and advice are made during the exchange process.

Results: According to the results of the 2020 report on the Syringe Exchange Programme published by the Ministry of Health of Catalonia, 874,415 syringes were distributed, 22% fewer than in 2019, through 665 points, of which 61% were community pharmacies. Pharmacies have increased their representation from 7% (2019) to 12% (2020) regarding the distribution of the total number of syringes. And, in 2020, the 238 participating pharmacies dispensed 60,848 syringes*. Although this service is offered throughout the Catalan territory, Barcelona city alone represents 73.5% of the Catalan population and, therefore, it has the greatest activity, with 78.5% of syringe dispensations.

Conclusions: In their role as health agents, pharmacies have performed an important health task of caring for a group that is often in a situation of social exclusion and does not access the standardised network of social and health resources. Extensive territorial and time coverage is key to ensuring that people who inject drugs use new material for each consumption. The data was provided by community pharmacies.

SPISE, a new simple insulin resistance indicator that can be determined in the pharmacy office

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Introduction: Obesity, declared a pandemic by the World Health Organization (WHO), can lead to different comorbidities as diabetes with an intermediate step in the state of insulin resistance. A new indicator called Single Point Insulin Sensitivity Estimator (SPISE) was shown to be effective for early detection of this state. There is no consensus about the cutoff value and its use. The original authors estimated the upper cutoff value at 6.61 and other authors found 5.82. Lower values would be predictive of insulin resistance.

Objectives: To evaluate the difficulty or simplicity of determining SPISE.

To evaluate the relationship of SPISE with respect to nutritional status.

To evaluate the reliability between the self-report and weight and height measurement.

Methods: Observational, analytic, and cross-sectional study. In the adult population, age and sex were recorded, and triglycerides (TG) and HDL-Cholesterol (HDL-C) were determined in the fasting blood of the patient. Weight and height were obtained by self-report and by measuring for calculation of Body Mass Index (BMI). SPISE was calculated as $SPISE = (600 \times [HDL-C]^{0.185}) / ([TG]^{0.2}) \times [BMI]^{1.338}$. The average SPISE was assessed as the average nutritional status. Pearson correlation coefficient was used to assess the correlation between SPISE obtained from BMI calculated with self-report and measured data.

Results: A total of 579 individuals were evaluated with an average age of 40.1 years (Min:20.1 Max:79.8 years), 59% female. Thirty-three percent of the population studied had a normal nutritional state, with an average SPISE of 8.33; overweight individuals constituted the 37% with an average SPISE of 5.71, and obese individuals 30% and 3.98 respectively. Weight and height measurements were obtained from 60 individuals by self-report and measurement. Pearson correlation coefficient between the SPISE of both data yielded a value of 0.99.

Conclusions: SPISE is an indicator of insulin resistance whose data can be obtained in a simple way and is easy to calculate. It is strongly related to nutritional status. The self-report of weight and height is a reliable tool, thus facilitating their determination. The incorporation of this activity into the pharmacy office can be a good contribution of the pharmacist to the fight against Non-Communicable Diseases.

Identifying and preventing ear, nose, and throat diseases pathologies in Spanish community pharmacies

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Introduction: Ear, nose, and throat diseases (ENT) are one of the first reasons for consultation by attending primary care and community pharmacy. The knowledge and attitude of community pharmacists play an important role in the pharmaceutical advice provided to these patients. To promote this, a training and information campaign was carried out through the National Optics and Acoustics Committee of the General Pharmaceutical Council of Spain with the collaboration of the Reig Jofre laboratory.

Objectives: To understand the symptoms that lead patients to seek help from community pharmacies.

To assess the extent (incidence) and knowledge of Spaniards about these pathologies.

To promote the Minor Ailment Service for ENT-related symptoms.

To raise public awareness of these health problems.

Methods: Between January and April 2022, three anonymous surveys were carried out on patients attending Spanish community pharmacies presenting symptoms compatible with Pharyngitis and laryngitis, Otitis and Rhinitis, and Sinusitis. The surveys were hosted on the website of the General Council (Farmacéuticos.com). Basic statistical analysis was carried out using Microsoft Excel.

Results: A total of 437 surveys were conducted (48 otitis, 169 pharyngitis/laryngitis, and 220 rhinitis/sinusitis). A total of 50% of the respondents were aged 45-64 years.

The most common symptoms include;

- Ear: blockage (21.8%), pain (16.54%), and hearing loss (15%).
- Nose: congestion (20.7%), rhinorrhoea (17.72%), and sneezing (16.85%).

- Throat: a combination of coughing, throat clearing, and scratchy throat (24.85%)

Among the 48 people with otitis symptoms, 52.08% had symptoms for more than 4 days, 58.3% had not worsened in the last 24 hours and 50% were on treatment (mostly amoxicillin active substance). Among the 169 persons with symptoms of pharyngitis/laryngitis, 60.9% visited the doctor after less than 3 days, and 139 had criteria for referral to a doctor (43 more than four days, 35 sudden onsets). Among the 220 people with rhinitis symptoms, 58% were on treatment (75% seawater) albeit 46.3% used it only during symptoms, and 129 referral criteria were identified (26 persistent and/or purulent rhinitis, 21 earaches).

Conclusions: Due to their accessibility, community pharmacists can identify patients with symptoms compatible with these pathologies, identify risk situations and refer them in case of risk factors. Due to seasonality, patients presented more symptoms related to the nose and throat than to the ears.

HazFarma: Three years providing training for professional pharmacy services through Nodofarma Asistencial

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Introduction: The General Pharmaceutical Council of Spain (CGCOF), in collaboration with Cinfa laboratories, carried out theoretical and practical actions for the development of Clinical Professional Pharmacy Services (CPPS) within the HazFarma training programme. Since 2019, it was associated with a technological platform for help and registration of CPPS, NodoFarma Asistencial (NDFA).

Objectives: These training actions aim to train and protocolise CPPS, value the work of the community pharmacist (CP) to obtain health outcomes, promote the collaborative practice, engage with the society and patients, and provide quality healthcare. In 2020 an in-service training on the dispensing of antibiotics, non-steroidal anti-inflammatory medicines, and oral anticoagulants took place. As of 2021, it was the minor ailment service regarding common cold/flu, sleep problems, asthenia, itching and skin redness, heartburn, and pink eye. Finally, in 2022 it was the prevention of therapeutic non-adherence in anxiety and depression.

Methods: These actions have been carried out between January-June each year through the CGCOF's continuing

education platform with theoretical modules, case studies, and materials for patients, for each of the health problems addressed, and a guide for action and registration of the CPPS. At least ten case studies must be recorded by each CP and 11/15 points must be obtained in the evaluation questionnaire in order to obtain accreditation.

Results: A total of 7,809 CP participated during these three years. In 2020, 3,133 CP participated and recorded 8267 cases from dispensing service. A total of 27,122 medicines were dispensed; 18,057 were follow-up treatments and the CP's main action was health education. In 2021, 2,817 CP participated and recorded 15,994 cases from minor ailment services. Main reasons for consultation (n=17,624): insomnia 12.8%, (n=2,265) asthenia 12.5%, (n=2,199) gastric hyperacidity 11%, (n=1,946) common cold 7.5%, (n =1317), insect bites 3.5% (n=619).

The main pharmaceutical actions were: advising hygienic-sanitary measures 53.5% (n=8556), indicating pharmacological treatment 47.4% (n=7588). In 2022, 1,859 CP are currently participating. Preliminary data (more than 3,000 cases) show that more than 50% of patients are non-adherent to treatment and 871 interventions have been proposed to improve non-adherence. CP identified and resolved medication-related problems (DRPs) and negative medication outcomes (NOMs) through professional interventions, across all actions.

Conclusions: In addition, the use of NDFA as part of the training activities, as a tool to support and record CPPS, made it possible to record the professional performance of community pharmacies

Assessment of knowledge and services provided by community pharmacists in Nigeria in managing diabetes mellitus

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Introduction: Community Pharmacists offer unique intervention opportunities in the management of chronic diseases, especially considering the inconveniences of repetitive hospital visits. The critical roles community pharmacists play make it necessary to continuously assess their level of knowledge, standards of practice and their level of integration into the multidisciplinary healthcare team largely domiciled in hospitals and other care facilities physically disconnected from community outlets.

Objectives: This study evaluated the knowledge and services offered by community pharmacists and pharmacies in Nigeria, including counselling, regular medication review, and daily point-of-care blood sugar tests, among other value-adding services in the management of diabetes.

Methods: A cross-sectional study model was employed. A pretested questionnaire was developed and virtually administered. Data were collected from community pharmacists across Nigeria. The study tool tested knowledge of the disease and relevant medications. The pharmaceutical care service rendered by community pharmacists and pharmacies in managing the disease was also assessed. The performance of community pharmacists and pharmacy outlets was graded following methods described in earlier research, using key knowledge and performance metrics demonstrating pertinent variables in the management of diabetes and the critical roles of community pharmacists. Data were analysed using Microsoft Excel and SPSS (Statistical Package for Social Sciences) Version 25.0.

Results: The demographic data collected showed that a third of all respondents practice in Lagos State, Nigeria; over 80% of respondents have a B. Pharm as their highest qualification. Over three in four (76%) have practiced pharmacy for less than five years. Analysis of data on knowledge (graded over a maximum achievable score of 22) showed that less than half

(42%) of the respondents showed good knowledge (≥ 18), about 57% showed moderate knowledge (14 – 17), and a minority (6%) scoring in the poor knowledge range (≤ 13). On practice (graded over a maximum achievable score of 88), Over half (57%) of the respondents demonstrated good practice (≥ 66), with the rest (43%) showing bad practice (≤ 65). The sampled population provided mean average scores within the ranges defining good knowledge (17/22) and good practice (67.1/88). Interestingly, an overwhelming majority of the study respondents had not received additional training, with only about one in ten people (1.2%) reporting having received any specialised training in the management of diabetes.

Conclusions: While the findings of the study suggest that community pharmacists in the study population have a good knowledge of diabetes from a medical and medication point of assessment and demonstrate good practice in the management of the disease, it is necessary to consider what changes there might be should the research be scaled to cover a larger geographical, professional, and (perhaps most importantly,) a more diverse socioeconomic landscape. This necessity is further reinforced by the bias introduced at the data collection stage evident in the demographic data. In addition, the lack of a statistically significant correlation between knowledge and practice interestingly justifies a more holistic study in the future that includes an assessment of the attitude of community pharmacists to pharmaceutical care as it concerns diabetes management.

Impact of community pharmacies on access to point-of-care tests for HIV and Hepatitis C and B infections: An observational, cross-sectional study

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Introduction: Portugal has set early identification and diagnosis of HIV, HCV, and HBV infections as priorities in 2018. Screening settings were extended to community

pharmacies, that started performing point-of-care (POC) tests for HIV, HCV, and HBV infections to the public (≥ 18 years), upon request, as part of the Fast-Track Cities international initiative.

Objectives: This study aims to characterise the population using this service, their behaviors, and motivations for getting tested and to identify access facilitators and barriers for users who perform the test(s) at that setting.

Methods: An observational, cross-sectional, descriptive study was carried out in the community pharmacies in the municipality of Cascais, who voluntarily participated in the initiative with pharmacists specifically trained in this service. Data were collected from October 2018 to December 2019, using two instruments: a log of the tests performed and results per user (filled by pharmacists); and a questionnaire to users (self-administered, optional, anonymous, confidential).

Results: The 21 participating pharmacies (51.2% of total pharmacies) performed 1,422 tests (54.9% HIV, 37.9% HCV, 7.2% HBV), on 808 individuals. Pharmacy users requesting POC testing had a mean age of 37 years ($SD=14$), and the majority were male (60%). In 2.0% of users, there was at least one reactive test, involving a total of 16 reactive tests (1.1% total, 1.0% HIV, 1.5% HCV). Around 70% ($n=569$) of individuals completed the questionnaire. There were no differences in terms of age and sex compared to the total pool of tested individuals. The results showed access to migrant populations (24.8% foreigners), to first-time test users (37.9% HIV, 40.8% HCV, 50.9% HBV), and to younger populations (half of the first-time users were under 30). The main reasons for taking the test were: "Unprotected sexual intercourse" (52.6%) and "I never did the test" (23.9%). More than 50% considered the "Reduced waiting time", "Privacy", and "Trust in pharmaceutical counselling and competence" to be extremely important when choosing the pharmacy over other testing sites. On the contrary, "Fear of discrimination in other places", "Lack of willingness to go to other places" and "Ignorance of other places to perform the test" are not differentiating factors.

Conclusions: Users particularly value the speed, privacy, and confidence in pharmacist's assistance, in agreement with the literature. Performing POC tests in community pharmacies seems to improve the population's access to HIV and viral hepatitis screening, with the potential for reducing inequities, and allowing earlier diagnosis, contributing to societal cost reduction.

Dispense of hospital-only medicines at the community pharmacies during COVID-19 pandemic: A single-arm, before-and-after study

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Introduction: Throughout the COVID-19 outbreak, the Portuguese Government allowed patients to receive hospital-only medicines at community pharmacies. As a response, a nationwide collaborative initiative ("Operação Luz Verde") was launched, ensuring access to these medicines through community pharmacies as a free service that enabled the continuity of care and freedom of choice.

Objectives: This study aimed to measure the value generated by the intervention of community pharmacies in the dispensing of hospital-only medicines

Methods: A single-arm, before-and-after study with three-month follow-up, was carried out in Portugal, enrolling a randomly selected sample of patients/caregivers with at least one dispensation of hospital-only medicines through the community pharmacy. Data were collected from May 15th to October 10th, 2020, through structured questionnaires applied at baseline and three-month follow-up. Main outcomes were therapeutic adherence (MAT-7), health-related quality-of-life (EQ-5D-3L), satisfaction with the service, travel and waiting time, absenteeism, and related costs to patients. Costs of transportation and absenteeism were estimated considering the national transportation tariffs and the average wage for men and women. Extrapolation of total costs was conducted for patients who had received at least one hospital-only medicine in the community pharmacy by the end of the study period.

Results: A total of 603 patients/caregivers accepted to participate in the study. Mean age was 55 years old ($SD=16$) and 50.6% were male. The most prevalent therapeutic areas included HIV (25.2%), and Oncology (20.6%). Transferring the local of dispense was associated with an increase in the mean score of adherence to therapy ($p < 0.05$). There were no statistically significant changes in the mean EQ-5D-3L score. Concerning patient experience, participants reported an increase of satisfaction levels with the dispensing service at the community pharmacy, when compared to hospital pharmacy. This increase was statistically significant in all the

evaluated domains – pharmacist's availability, opening hours, waiting time, privacy conditions and overall experience.

Regarding access, there was a reduction in absenteeism, with 27.6% of respondents reporting missing at least half a day of work to get their medication at the hospital, compared with 0.4% at the community pharmacy. On average, the estimated time gained with the community pharmacy service was 115.1 minutes per visit compared to hospital. Annual savings estimated from travel expenses (€226.8) and absenteeism reduction (€64.8) account for total €262.1/patient. About 4.0 million euros of savings were estimated for the 15,441 patients who received their hospital-only medicines in the community pharmacy through this initiative. Overall, 91% of participants preferred to continue to have access to their medication at the community pharmacy, in a post-pandemic scenario.

Conclusions: Changing the dispensing setting to community pharmacies seems to promote better access, health outcomes, and experience for patients. Moreover, it ensures the persistence of treatments, promotes savings for patients and society, and reduces the burden of health care services, representing a crucial public health measure. This study suggests the importance of considering the overall gains generated by community pharmacies, with proper articulation with the reference hospitals.

IT systems: A timewaster

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Introduction: In Svane, Oerne og Himmelbjerg pharmacy the staff receive 15,000 calls a year from nursing homes and home care about prescription questions, ordering medicine, professional advice on medicine, accidental incident, and others.

Objectives: In this research, the authors examined how many calls the pharmacy staff receive, how much time they use on the calls, and what the calls are about.

Methods: In this research, the authors made a registration of how many calls the pharmacy staff received in week five - six in 2020, how much time they use on the calls, and what the calls are about. Pharmacist and service assistants have registered the calls in a form with a dash under time and subject and with five categories, which are chosen based on experience. The registration is for patient safety.

Results: The results of the registration show that in 14 days, the pharmacies receive 591 calls from home care and nursing homes. The time spent on the calls is 1.724 minutes. In one year, this equates to 15,366 calls which is equivalent to 44,824 minutes, 747 working hours, or 87 working days.

Conclusions: Pharmacists receive many calls regarding prescriptions and ordering medicines. In this registration, those two types of calls take up 62% of the total time consumption/total number of calls. There are IT systems that can be used to see if the prescription has arrived at the pharmacy, and they can write to the pharmacy, but the systems are too complicated and a timewaster. The conclusion is that in order to reduce the calls and help home care and nursing home, better IT systems are needed. In relation to professional advice on medicine and patient safety, the 140 hours can be used to educate the home care and nursing home and increase patient safety.

Social return on investment (SROI) of pharmaceutical patient consultation - The importance of social cost-benefit analysis for pharmaceutical service

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Introduction: Clarification of the value of pharmaceutical care is increasingly required. For instance, health insurers and governments want insight into the value of pharmaceutical services for the patient and the care provided by the pharmacist to the patient. A social return on investment (SROI) analysis can be used to indicate these values. The KNMP (Royal Dutch Pharmacists Association) considers the SROI as an important instrument for pharmaceutical services. And has conducted research into the social value of pharmaceutical patient consultation.

Objectives: To determine the impact of the implementation of the pharmaceutical patient consultation guideline, a Social Return on Investment (SROI) analysis was performed. The SROI provides insight into investments and returns in terms of social return for those involved and stakeholders, both within the pharmacy and beyond.

Methods: The SROI analysis was conducted prospectively and referred to an average Dutch community pharmacy where the pharmacist and the pharmacy team conducted pharmaceutical patient consultations. An impact model has been developed for the SROI consultation, which includes components such as stakeholders, activities, type of revenue and the method of valuation. This impact model was then tested through interviews with two opinion leaders and in

five pharmacies, each consisting of a practice pharmacist and a representative of the association of which the pharmacy is part.

Results: Under the assumption that in 2024, 50% of pharmacies will practice pharmaceutical patient consultation and that 50% of patients in pharmacies will be offered a consultation, the SROI analysis gives a ratio of 3.83. This means that the social investment of one Euro will yield a return of Euro 3.83 over five years. The SROI analysis shows that 74.4% of the costs are incurred by the pharmacist. In addition, 19.9% of the costs to be invested are for the patient himself and 5.7% of the costs are for other care providers in primary care. 40.9% of the proceeds are benefits for the patient, 36.3% to the health insurer, and 20.6% to the municipality. While 0.14% of the benefits accrue to the pharmacy and 2.02% to primary care.

Conclusions:

- Pharmaceutical patient consultation has a positive SROI ratio, with both economic and social returns.
- Pharmaceutical patient consultation is the basis for communication with the patient, and it has promising economic and social benefits.
- SROI analysis provides insight into the larger system and can be used as a basis for the dialogue about the value of pharmaceutical services with stakeholders.
- The KNMP considers the SROI as an important instrument for pharmaceutical services.

Electronic medication data transfer programme: A multiparty collaboration of 24 healthcare professional associations and organisations in The Netherlands

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Introduction: Complete and proper electronic transfer of medication data is important for patient safety. It can prevent unnecessary medication errors and hospitalisations. In addition, digital data exchange replaces time-consuming administrative work. This gives healthcare professionals time to do what they are best at which is providing patients with the best care. This is also applicable to pharmacists. Pharmacists need complete, correct, and up-to-date data to provide optimal medication monitoring and tailored pharmaceutical care for the patient.

Objectives: The Medication Transfer Programme is working on proper, complete electronic transfer of medication data. For an up-to-date and complete medication overview for

every healthcare provider and patient. The programme is the implementation of the multidisciplinary medication transfer guideline. The aim of the guideline is to clarify the role and responsibilities of patients, prescribers, pharmacists (hospital as well as community pharmacists), and nurses regarding medication transfer and to reach an agreement about conditions for medication transfer.

Methods: The 24 participating organisations agreed to a basic set of medication data in the 'Guideline for the transfer of medication data in the chain'. This basic data should be available to any healthcare professional who prescribes, provides, or administers medicines. Three information standards allow the registration and exchange of this basic set which include the Medication process, Lab values for medication, and Contraindications and hypersensitivities. The healthcare-wide implementation of the guideline and the associated information standards takes place within the Medication Transfer programme. This implementation is complex because many different healthcare and ICT organisations play a role. New agreements and procedures make multidisciplinary network and chain care possible. The information standards included in software packages enable digital data exchange.

Results: A guideline for the transfer of medication data in the chain and implementation programme has been developed. In the coming years, 10 steps will be taken toward an up-to-date and complete overview of medication data. On the basis of that overview, medication verification, and risk assessment can take place. The order of these 10 steps is determined on the basis of the starting situation, the relationship between the steps, and the impact. The 10 steps include preparation, patient/client and network, the transition phase, prescribing, medication verification and use, providing medicine, administering medicine, lab values, contra-indication and hypersensitivities, patient characteristics, monitoring.

Conclusions: A multiparty collaboration results in a guideline and implementation programme on electronic medication data transfer. The actual transfer of medication is a concern across the board; it is, therefore, the entire field that initiates and commits itself to the Medication Transfer programme. That's unique. That field consists of 24 organisations from 10 healthcare sectors, more than 75 software suppliers, and more than 16,000 healthcare providers.

Pharmacy service challenges during the pandemic period

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Introduction: The COVID-19 period has revealed the weaknesses of the health system in general including pharmacy, especially in terms of organisation and the necessary number of pharmacists in managing such situations, during this difficult period, it has been proven that the pharmacist's role in healthcare is indisputable. During the lockdown period, the pharmacies were categorised as essential service. Therefore in order to be better organised in terms of providing ongoing professional services in general and in exceptional conditions in particular, it is necessary to have an accurate picture of the pharmaceutical workforce first.

Objectives: Comparison of data obtained from the research study conducted in 2019 in terms of the pharmacist workforce in Kosovo. Identification of the number of pharmacies required to work extra hours during the lockdown.

Methods: The data on licensed pharmacists collected from relevant institutions of Kosovo, compared and analysed with results from the research study of 2019 and analysis of the number of pharmacies required and enforced by authorities to work extra hours during the lockdown period.

Results: The results revealed that pharmacists density in Kosovo has increased by 1.5 pharmacists in 10,000 inhabitants (from 5.5 to 7.0). The percentage of female pharmacists has increased by 3% (from 63% to 66%). Community pharmacy density at the national level has increased from 3.1 to 4.5. At least 5% of the total number of pharmacies were enforced by authorities to provide services for 24h on a daily basis.

Conclusions: The conduction of regular data collection on the pharmacist workforce on a yearly basis will enable Kosovo to give its contribution to the upcoming global trends reports. The data collection method should include the number of pharmacists registered in the country, municipalities, demographic reports, and type of work. These reports would serve as a very useful tool for the Ministry of Health when preparing the National Health Strategy.

The first vaccination by Dutch community pharmacists: The Frisian pilot

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Introduction: In the Netherlands, pharmacists do not have independent authorisation to vaccinate. The Royal Dutch Pharmacy Organisation (KNMP) is advocating for an independent authorisation for vaccination by pharmacists. COVID-19 vaccination in the Netherlands is mainly carried out by the GGD (Dutch municipal health services). KNMP feels that pharmacists vaccinating on a smaller scale ('fine-mazed vaccination'), can be an important addition to the large national campaign since community pharmacies are located in neighborhoods close to their patients. Pharmacists are also known by their patients. This makes it easy for patients to contact them in case of questions or doubts to get vaccinated.

Objectives: The purpose was to show that Dutch pharmacists have an added value in vaccinating people who hadn't reacted to the vaccination invitation of the GGD in the national vaccination campaign for COVID-19 (smaller scale 'fine-mazed vaccination').

Methods: KNMP and pharmacists of community pharmacy 'De Drie Stellingen' in the rural province of Frisia set up a three-week vaccination pilot for first and second vaccination for COVID-19 to those who hadn't reacted to the vaccination invitation of the GGD. This was the first pilot in the Netherlands with pharmacists vaccinating. The community pharmacy cooperated with the local GGD. The GGD supplied the vaccines, did the registration for the Dutch Corona App, and remunerated the time spent by the pharmacists. The pharmacists were vaccinated under the supervision of a general practitioner, after being educated and declared competent by the same GP, who was also on standby for emergencies. The pharmacists invited patients who were not vaccinated yet, generated local publicity, and organised vaccination sessions in the local pharmacy.

Results: During the three-week pilot (December 2021), 175 persons (of the potentially 1300 non-vaccinated persons in the community of Oosterwolde) were vaccinated by the pharmacist. The pilot was well organised and no emergency situations occurred. The vast majority of the people were very satisfied to be vaccinated in their local, trusted pharmacy rather than in the large, anonymous GGD locations further away from their homes.

Conclusions: Dutch community pharmacists have an added value in vaccinating people who hadn't reacted to the vaccination invitation of the GGD in the national vaccination campaign for COVID-19. Community pharmacists are also

very capable of organising the preconditions of vaccination and administering vaccines in the pharmacy.

Educational strategies in cardiovascular risk patients from the perspective of the community pharmacy

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Introduction: Cardiovascular disease (CVD) is the main cause of mortality in Western countries. Patients with CV risk factors (CVRF) are often not aware of their disease and the dangers of not living a heart-healthy lifestyle or not adhering to treatment guidelines

Objectives: To actively contribute to identifying the educational and psycho-educational needs of CVRF patients and teach them how to manage their disease and its pharmacotherapy in order to improve their CV health.

Methods: An observational study was designed with randomised patients from four community pharmacies in Seville and Badajoz (Spain) who were divided into two groups, control (CG, n=48) and intervention (IG, n=48). Therapeutic education (TE) protocols designed for this purpose were periodically applied to the IG for six months to detect patients' educational and psycho-pedagogical needs in relation to CVD and its treatments. To avoid bias, the intervention was carried out by the same researcher who visited the four pharmacies.

Results: All of the patients had to be taught basic knowledge about CVR and CVRF. A total of 26.8% had low self-efficacy or lack of knowledge about how to manage their disease, 66.7% needed information on heart-healthy diet and 27.1% did not know that smoking was a CVRF. Motivational interviewing was necessary to help 52.1% of patients to initiate and maintain long-term physical exercise, and to explain to 60.4% the frequency, duration, and intensity required to obtain the desired benefits. Self-monitoring was explained to 41.7% and the usefulness of doing it periodically to be able to assess whether the medication was effective and 54.2% were taught how to evaluate their parameters. With regard to the negative results of medication, 54.2% of patients did not use their medication properly due to the complexity of the treatments, 29.2% were taking medication that did not produce the desired response, and 25% were found to have a new pathology that had not been treated. Also, 27.1% had to be trained on the importance of adherence to treatment.

After the six-month follow-up, the level of knowledge of CVD and how to manage it improved significantly ($p < 0.001$), adherence to treatment ($p < 0.05$), the number of sedentary patients changed from 54.5% to 15.9% ($p < 0.001$) and the CVR of the sample decreased significantly [(initial time = 2.56 ± 2.18 and final time = 1.91 ± 1.42 ($p < 0.01$)).

Conclusions: The individually adapted TE protocols were highly effective in implementing specific interventions, helping patients to improve their lifestyle habits, increase their knowledge of CVR and CVRF and improve adherence to treatment.

Importance of pharmacotherapeutic patient follow-up during the personalised dosage system service

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Introduction: Among the professional pharmaceutical services, Personalised Dosage Systems (PDS) are one of the most demanded, as it is very useful for patients with difficulties in self-administering medication, which implies a lack of compliance.

Objectives: To evaluate the interventions carried out by the pharmacist in the patients included in the service and to verify their usefulness in them.

Methods: Data from patients from a community pharmacy in Seville (Spain) seen between May 2021 and May 2022 were documented. Each week a blister pack was prepared with the corresponding medication distributed according to the prescribed dosage regimen following the protocol proposed by the Andalusian Council of Official Associations of Pharmacists (ACOAP). The first time they came to collect their medication, they were referred to the personalised care area where they (or their carers) were instructed on how to use the blister pack and the importance of strict adherence to the treatment. This information was repeated at each collection visit to confirm all treatment-related data and to verify its effectiveness and safety (pharmacotherapeutic follow-up, PTF), for which they underwent regular checks of blood pressure (BP), baseline glycemia, weight (Body Mass Index, BMI) and if required by the patient, more specific clinical parameters were analysed: glycosylated haemoglobin (HbA1c), total cholesterol (TC), high- and low-density cholesterol (HDL-c, LDL-c) and triglycerides (TGC). If a problem with the treatment was detected, the pharmacist

informed the physician for evaluation, always with the patient's consent.

Results: During the established period, 24 patients were attended, 50% of each sex and of advanced age (76.7 ± 6.7) of whom 20.8% ($n=5$) had a caregiver. All were multi-pathological and polymedicated with an average of 12.2 drugs/patient and the majority were overweight or obese. A total of 80.2% of the medicines were collected in blister packs, but 20.8% had to be dispensed directly (syrups, creams, sachets). Throughout the follow-up, an average of 3.6 BP measurements/patient (maximum 19 - minimum 0), 1.7 baseline blood glucose measurements/patient (maximum 7 - minimum 0), and only three patients requested HbA1c, TC, HDL-c, LDL-c, and TGC tests. Some patients learned to manage their disease and treatment by performing self-testing, which they always communicated to the pharmacist during blister pack collection visits. A total of 39 referrals to the doctor were necessary to solve drug therapy problems, 46% of which were written reports by the pharmacist and 13% via the intranet that links the Primary Health Care Centre with the pharmacy. In these cases, the physicians' responses were: eight changes in dosage, 24 changes in dosage regimen and 68 changes in treatment. Finally, of the total sample, only 2.9% remained non-compliant.

Conclusions: The PDS service has proven to be highly effective in chronic polymedicated patients as it contributes to solving problems with pharmacotherapy and facilitates adherence to treatment by considerably reducing the complexity of administration.

Influence of pharmaceutical intervention on patients at cardiovascular risk

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Introduction: Cardiovascular disease (CVD) is the leading cause of death in the world. Despite this, many people with CV risk factors (CVRF) who are at risk for these diseases often do not achieve the desired therapeutic goals with their treatments.

Objectives: To evaluate the effectiveness of a complex intervention based on pharmacotherapeutic follow-up (PTF) and therapeutic education (TE) in patients with cardiovascular risk (CVR) from the community pharmacy.

Methods: A clinical trial was designed in which 85 randomly selected patients were divided equally and randomly into two groups, control (CG) and intervention (GI). The following parameters were determined: systolic blood pressure (SBP), diastolic blood pressure (DBP), total cholesterol (TC), low molecular weight cholesterol (c-LDL), high molecular weight cholesterol (c-HDL), triglycerides (TG), body mass index (BMI), cardiovascular risk (CVR) and sedentary lifestyle, at the beginning of the follow-up period (t0) and its completion after six months (t6). Throughout these six months, the IG patients attended periodic consultations in which the pharmacist applied the PTF and TE protocols, while those belonging to the CG received the usual pharmacy care.

Results: The analysis of the initial mean values (t0) of the sample in both groups, CG and GI, showed that there were no statistically significant differences, which confirms the adequate randomisation in the distribution of the participants. When studying the evolution of the patients over the six months, a statistically significant reduction in CVR ($p < 0.005$) and SBP ($p < 0.05$) was observed in the IG with respect to the evolution presented by the CG patients. The number of sedentary patients is highly reduced throughout the study in the IG, obtaining a statistically significant result with respect to this same data in the CG ($p < 0.001$). It is also noteworthy that at t0, 52.3% of the IG patients had their SBP levels under control, and after the pharmaceutical intervention this figure rose to 79.5%. There was also a 12.4% increase in the number of patients who were able to achieve target TG values.

Conclusions: Thanks to the TE protocols and the PTF carried out by the community pharmacy, the patients managed to improve important parameters such as SBP, TG, and CVR, reaching the ideal target figures established by the European Guidelines, demonstrating the important role that the community pharmacist can play with this type of patient.

The virtual patient: An innovative training tool to improve skills in pharmaceutical care

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Introduction: The training received by healthcare professionals is a key element in the development of adequate healthcare for citizens. The active participation of pharmacists in the dispensing and pharmacotherapeutic monitoring of patients and their cooperation with healthcare professionals is essential to ensure their quality of life, the optimal approach to pathologies, and the prevention of diseases. Unfortunately, the availability of a safe setting in which community pharmacists can train and put into practice

these skills and competencies in pharmaceutical care is practically non-existent. Faced with this situation, the Training Department of the Pharmaceutical Society of Granada, through the use of educational technology, has tackled this challenge by providing "The Virtual Patient in Pharmaceutical Care".

Objectives: Design and creation of an interactive environment that simulates a community pharmacy for training, evaluation, and clinical decision-making in the field of pharmaceutical care.

Methods: By means of design-based research oriented towards educational innovation and through 3D animation software, the virtual environment has been recreated, in which the main tools that the pharmacist can use during the pharmaceutical care process are present: the patient, the medicine, and the doctor. They can ask the patient questions, do basic clinical analysis or even check their electronic prescriptions available, prescriptions histories, and medicines' SPCs (Summary of Product Characteristics). To assess the impact of the virtual patient (VP), the online course on pharmaceutical care in chronic pain was implemented, with the participation of more than 600 pharmacies covering nearly 1,300,000 inhabitants and a descriptive-cross-sectional study of satisfaction with the participants.

Two clinical cases were simulated, one for the detection of a contraindication of a medicine with respect to a patient's pathology and the corresponding precautionary cancellation, and the other involving the correct dispensing of the medication accompanied by advice on its correct use. Among the sociodemographic data included age, gender, and years of pharmacy experience. The 15-item questionnaire reflects the pharmacist's degree of satisfaction with the acquisition of technical skills, critical thinking, and decision-making through the VP. Both the corrected homogeneity index and Cronbach's alpha coefficient were adapted to obtain a high reliability of the internal consistency of the assessment.

Results: After analysis of the responses obtained, it can be affirmed that 75% of the participants agree or strongly agree that through the virtual patient, they have been able to train their clinical reasoning and decision-making skills, and 72.5% that it will help them in their approach to patients with this pathology in their daily practice, obtaining an overall rating of 9.2 out of 10

Conclusions: Based on the results, the authors concluded that the virtual patient is a tool that provides a significant contribution to the improvement of clinical practice reasoning and pharmaceutical care skills, directly impacting better patient care. It is the first virtual environment in Spain and one of the first in Europe for the simulation, implementation, and learning of the process of pharmaceutical care in a community pharmacy.

Telematic medicine sell: Review of the service provided by the community pharmacies in Catalonia

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Introduction: In July 2015, Royal Decree 870/2013 came into force, regulating the remote sale to the public, through websites, of medicines for human use not subject to medical prescription, giving rise to a new model of pharmaceutical care and dispensing.

Objectives: To analyse the degree of implementation of the distance selling service for non-prescription medicines in Catalan community pharmacies, as well as the most commonly detected incidents, six years after the legislation came into force.

Methods: Descriptive study, carried out by the Catalan Ministry of Health, based on a periodic and systematic review of the active websites of community pharmacies in Catalonia that offer the distance selling service during the period 2015-2021.

Results: Currently, 4.2% (N=137) of community pharmacies in Catalonia have an active website for non-prescription medicines, overcoming the Spanish average (3%). Of all the pharmacies offering this service in Spain, Catalonia is the region with the highest representation (21.2%). In 2015, 77 communications were received, although, during the years 2016-2019 a lower number was recorded (29, 32, 16, and 16 communications, respectively). In contrast, a small increase has been observed during the pandemic period (25 communications in 2020 and 27 in 2021). The highest number of requests made to the applicant pharmacies to correct any deficiency on the website before accepting the communication of initiation of internet sales is four and one being the average. The total number of these requests sent in these six years was 160. The ratio of pharmacies accepted/the number of requests per year has been increasing over the years, reaching 115% in 2021. During the study period, 85 pharmacies ceased their internet sales activity (22.4% voluntarily unsubscribed and 77.6% refused). In the last review, 68.6% of the websites had some incidences, the most common of which was the mixing of other types of products in the medicines-only sales area, followed by pages that were not available or did not sell any medicine.

Conclusions: Distance sale service of non-prescription medicines through the websites of community pharmacies in Catalonia has not achieved a significant level of implementation in the territory. The number of applications received has been decreasing over the years, although there

has been a small upturn during the pandemic. In the same sense, the impact of this service has been diluted over time, with repercussions on the quality of the websites offering the service, as shown by the ratio of pharmacies accepted – the number of requests per year. A study should be carried out to analyse the reasons for this low uptake.

Point-of-dispensing e-Forms put pharmacists on the map as COVID-era healthcare provider

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Introduction: The COVID-19 pandemic forced an agile reaction from the health sector and prompted pharmacists to try out new technologies that meet the three pillars of the strategy: an innovative service, for all pharmacists, positioning them as a care provider.

Objectives: At the request of the Belgian government, pharmacists were engaged in efforts to increase COVID-19 vaccination coverage among the population. The accessibility of the network of 4,700 community pharmacies makes it ideally suited to address and inform people.

Methods: Having experience in developing solutions to be used in pharmacies, traditional roll-out times of six months to even a couple of years was not an option. On top of that, the vaccination strategy varied substantially imposing high flexibility to which patient to inform. And last but not least a solution needed to be fully embedded in the point of dispense solution without leading to alerting fatigue of the pharmacists. A new technology, the e-Form, was embedded in all existing end-user-software packages used among Belgian community pharmacies. The e-Form provides the means to capture and visualise data at the dispensing level, while being controlled from a central back-end, FarmaFlux. Over the course of just three months, development rollout across all Belgian pharmacies was established. On the pharmacist's screen, the e-Form evolved over time and was in line with the vaccination strategy: pop-up1 for people who had received an invitation letter but had not yet been vaccinated, pop-up2 for people who had been administered only one of the two basic doses. To date, the form variants also address booster vaccination. The second booster vaccination form is planned to be activated shortly. The national monitoring of the e-Form use allows for reporting at the pharmacy, local, regional, and national levels.

Results: The e-Forms offered the pharmacist opportunity to discuss vaccination with the patient and to counter any disinformation. The pharmacist asked the patient two questions, namely whether the patient was certain they wanted to be vaccinated, and when the patient was in doubt,

the pharmacist asked why. Among respondents to pop-up1, 71.1% were immediately certain, while 18.4% expressed doubt or refusal. Among respondents to pop-up2, 96.7% were certain and only 0.6% expressed doubt or refusal. A total of 4.91 million pop-ups were processed over a period of six months, among a population of about 11 million citizens

Conclusions: These e-Forms are a win-win for all stakeholders: for the pharmacist because they all follow the same working method, protocol, and guidance, and for the government because a uniform and properly reported approach makes it possible to determine quickly how (well) the entrusted service is rolled out. The reporting was an important advocacy tool for involving pharmacists in the vaccination and testing strategy. In the meantime, the e-Forms have also been used for other applications (COVID-19 testing, flu vaccination, etc.) and contributed to showing the government that pharmacists are reliable partners in crisis situations, who can very quickly implement and roll out e-services throughout Belgium.

COVID-19 rapid antigen testing programme in community pharmacies in Catalonia: What is the opinion of pharmacists?

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Introduction: The COVID-19 Antigen Testing Programme (TAR Programme) was launched in community pharmacies in Catalonia in July 2021, as a screening strategy to fight COVID-19. An agreement was signed by the Catalan Health Service (CatSalut) and the Council of the Pharmacists Association of Catalonia. The programme included three modalities: a) Supervised TAR financed by CatSalut carried out with a professional test. The professional test and the personal protective equipment (PPE) were provided to community pharmacies by CatSalut thorough pharmacy suppliers; b) Unfunded supervised TAR, performed with a self-diagnosis test in the pharmacy; c) Notification of positive result obtained from a self-diagnosis test performed at home (from January 3rd to February 27th). Participation was voluntary and specific training was required. The results of the TAR were recorded directly on the "TARCAT" platform provided by CatSalut and were integrated into the patient's medical history.

Objectives: To know participating pharmacists' assessments regarding different aspects of the programme, their willingness to participate in similar initiatives, and in the case of non-participation, what the reasons were.

Methods: An anonymous online survey was designed and validated previously to be sent to 7,996 community pharmacists in Catalonia. It was available from March 17th to April 12th. The survey consisted of 35 questions: five related to demographic information and the rest about general aspects of the programme and specific ones for each modality. Some questions were formulated as a Likert scale, others as a scale from 0 to 10 points, and others were open-ended questions. A descriptive, bivariant analysis was done (Chi square, Student's t-test or one-way Anova when it was required).

Results: The response rate was 21.73% (1,737). A total of 450 responses were from pharmacists who did not participate in the programme, most of them reported lack of space or staff. A total of 1,287 responses were from pharmacists who participated in the programme. Based on the responses to the Net promoted score question "How likely would you recommend a partner to participate in a programme similar to TAR?", three groups were created: promoters (518 pharmacists; score from nine - ten), passives (405 pharmacists; score from seven - eight) and detractors (364 pharmacists; score ≤ 6). Statistical differences were found between groups and the assessment of different aspects of the programme. The degree of satisfaction regarding participation in the programme received an average score of 7.68 ± 2.18 . The most highly valued aspect with 8.34 ± 2.21 mean was the belief that the programme was useful to highlight the value of pharmacies in healthcare. The second one was the usability of the TARCAT platform with a mean score of 8.11 ± 1.75 . The aspect concerning the difficulty in following the constant changes in the protocol was the worst aspect, valued with a mean score of 6.13 ± 2.7 .

Conclusions: Community pharmacists value their participation in TAR programme positively. It would be necessary to get those pharmacists listed as passives to become promoters to extend the care role of the community pharmacy. The participation of community pharmacists in screening programmes in an integrated way in the healthcare system has proven to be useful.

Long-COVID: A descriptive observational study from Andalusian community pharmacies

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Introduction: There are patients who experience persistent symptoms after overcoming COVID-19, this clinical situation is called Long-COVID. Currently, there is high uncertainty about how to treat this pathology. The National Institute for Health and Care Excellence and the Spanish Society of Family and Community Medicine have published their clinical practice guidelines for the treatment of patients with persistent COVID symptoms. Cohort studies on Long-COVID patients are available, but further research is needed. For this reason, the authors proposed a descriptive observational study from community pharmacies.

Objectives: To describe persistent symptoms, describe the medication proposed by pharmaceutical indication, and describe the concomitant long term-conditions.

Methods: Descriptive observational study. Patients with persistence symptoms for more than 12 weeks are followed up. Once patients who have suffered COVID-19 and remain symptomatic after overcoming the acute phase have been identified, they are invited to participate in the study. Informed consent is collected and the following variables are recorded in the first interview: a) Persistent symptoms, with start and end dates; b) Non-prescription medications patients use for their relief; c) Previous long term-conditions; d) Hospitalisation; e) Hospital stays in intensive care units; f) Sex; g) Age. Appointments are made monthly to update information, noting the end date of the persistent symptoms in each case. The field work was carried out by pharmacists in Andalusian community pharmacies, who were previously provided with the procedure in a training session. The information was recorded on the AxonFarma platform.

Results: A total of 327 patients were recruited, 272 included in the study presented persistent symptoms for a period equal to or greater than 12 weeks. Joint and muscle pain were present, respectively, in 52.57% (46.64-58.50) and 50.37% (44.43-53.31) of the patients, followed by fatigue and

headache with proportions of 48.16% (42.22-54.10), and 40.81% (34.94-46.65). A percentage of 26.10% (20.88-31.32) of the patients were hospitalised in the acute phase, and 8.46% (5.15-11.17) required assistance in the intensive care unit. Analgesics were the most used pharmaceutical prescription drugs, being used by 61.40% (55.61-67.19) of the patients, followed by anti-inflammatories by 26.10% (20.79-31.21), vitamins for 25.37% (20.20-30.54), sleep inducers for 20.22% (15.45-24.99) and antitussives for 17.65% (13.12-22.18). Hypertension was the most frequent chronic disease, being present in 26.10% (20.88-31.32) of the patients; this proportion is similar to that observed in the Spanish population. Next, anxiety/depression occurred in 14.34% (10.17-18.51) of the patients, and dyslipidemia in 12.5% (8.57-16.53). Diabetes was present in 9.19% (5.76-12.62) of the patients, a figure similar to that published for the Spanish population.

Conclusions: Musculoskeletal symptoms followed by general symptoms are the most common. The persistence of symptoms is common in non-hospitalised patients in their acute phase. Analgesics were the most used medications. Hypertension is the most frequent chronic illness among patients with persistent symptoms after COVID-19 disease.

Safety concerns about pharmaceutical compounding practices: The Portuguese community pharmacies' perspective

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Introduction: Considering the questions of the Portuguese pharmacies directed to CIMPI - Information Centre for Individualised Medicines, it was identified a tendency to diversify the active pharmaceutical ingredients (APIs) prescribed and used in the preparation of compounded medicines, including several APIs classified as hazardous substances.

Objectives: To identify which hazardous drugs are most frequently addressed in the scope of CIMPI's activities. To evaluate current procedures followed by Portuguese community pharmacies related to pharmaceutical compounding safety.

Methods: Data analysis of the questions addressed to CIMPI, within the period of July 2021 to May 2022, to identify the information requests related with hazardous drugs. Statistical analysis of an online survey addressed to the 102 community pharmacies with the highest rate of questions directed to

CIMPI and comparison of this data with the one collected in 2018.

Results: There is an overall increase of APIs portfolio, including several hazardous drugs, some of which are considered cytotoxic. For the online survey, a 46% answer rate was obtained (+13% compared to 2018 survey). The data collected on the questionnaire shows a bigger awareness of Portuguese pharmacies in comparison to 2018 results, regarding area segregation (+17.7%) and material/equipment segregation (+27%), as well as regarding the use of personal protective equipment (PPE), since it was reported an increase of the use of gloves (+6%), disposable or dedicated coat (+5.2%) and filter face mask (+15.2%). Nevertheless, the data collected shows a decrease on the checking and archive of material safety data sheets (MSDS) for all raw materials (-21.1%), although the number of pharmacies with MSDS for all hazardous drugs increased substantially (+17.6%).

The data concerning standard operating procedures for washing and cleaning of laboratory supplies, equipment, and surfaces remains similar, with only approximately 20% of the pharmacies developing internal procedures, and the majority 80% only implementing the procedures described in the Portuguese Galenic Formulary (FGP), published in 2005.

Conclusions: The overall increase of APIs portfolio, prescribed by the physicians and provided by raw materials suppliers, brings new challenges to the Portuguese community pharmacies, since the greater diversification of the APIs used in the preparation of compounded medicines. The data collected can suggest a bigger perception of the risk of handling hazardous drugs and concerning the personnel safety, as well as segregations of materials or areas and therefore concerns about the decrease of mix-ups or cross-contamination risk. It is necessary to update the standard operating procedures to support community pharmacies implementation measures and processes that allow the minimisation of the risk to the operator, to the environment, as well as cross-contamination between preparations, therefore promoting the safety and quality of compounded preparations and the protection of public health. It is crucial to increase the awareness of the pharmacies, providing information that clarifies handling precautions, layout and facilities requirements, adequate clothing, and individual protective equipment as well as procedures for the management of chemical waste resulting from compounding with hazardous drugs.

Anaga project: Three years giving continuity to the treatment of patients living in isolated areas of Tenerife Island

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Introduction: In Tenerife (Canary Islands, Spain) some elderly people are living isolated in areas with a geographical dispersion such as “Parque Rural de Anaga” which has been declared a World Heritage Site. These people might have a physical, mental and/or social dependency that makes them difficult to access resources and medications, increasing a lack of compliance regarding treatments taken. Therefore, the Official Pharmaceutical Society of Santa Cruz de Tenerife (COFSCTFE) and the Insular Institute of Social and Socio-Sanitary Care (IASS) of Tenerife, have been collaborating since 2019 developing “Proyecto Anaga” by helping older dependent people’s access to their medication.

Objectives: To optimise use of medication in treatments taken by elderly, and use Standardised Dose Systems (SPD) prepared by professional pharmacists in order to improve adherence to treatments.

Methods: The IASS detected inclusive criteria. The COFSCTFE verified these requirements and coordinated the delivery and supply of medication. It also monitored the patient's health status and ensured a proper development of the project. Community pharmacist reviewed the use of the medication already prescribed, interviewed the patient and prepared the SPD.

Results: The project began in 2019 and funds are expected to last until 2023, 30 patients were included in the project, three community pharmacies located near the area participated and 3,006 SPD have been delivered. More than 3,000 patient follow-up calls were made and 155 pharmaceutical interventions were recorded. Adherence to treatments increased from 35.5% to 99.8%.

Conclusions: Collaborative work between doctors and pharmacists have been proven to be fundamental to carry out the project. The benefit that the project generates at a social, economic, and humanistic level makes it necessary to continue promoting similar initiatives.

Performance of Portuguese community pharmacies on the provision of professional rapid antigen detection testing for SARS-CoV-2

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Introduction: As part of the Portuguese response to the pandemic, community pharmacies were authorised to provide SARS-CoV-2 professional rapid antigen detection testing (Ag-RDT) to the general population. In November 2020, with the professional, regulatory, and technological support from ANF (National Association of Pharmacies), community pharmacies start to provide the Ag-RDT service, namely through partnerships with local and regional governments, that evolved to a 100% reimbursement of the service by the National Health Service (NHS), to the population.

Objectives: The primary aim of this study was to provide an overview of the Ag-RDT service provided by the Portuguese community pharmacies and of their overall performance.

Methods: This was a descriptive study based on open-access databases (Portuguese COVID-19 Monitoring and “Our World in Data” websites) and internal pharmacy dispensing registries databases (hMR/SICMED, and Portuguese Pharmacies Ag-RDT registry platform). The time period of analysis was from March 2020 until March 2022. Information regarding national policies response was sourced from published literature and ANF communication with the pharmacies.

Results: From November 2020 to March 2022, more than 19 million professional Ag-RDT services were provided in Portugal, 11.6 million of which by community pharmacies. Before the start of the Ag-RDT service reimbursement by the NHS, eight local partnerships were established with municipalities and autonomous regions to deliver free testing to their citizens. More than 1,500 pharmacies (> 50% of the total national pharmacies) delivered Ag-RDT throughout the national territory, mainland, and islands. The average monthly number of Ag-RDT, per community pharmacy, peaked (1682.7) in January 2022, when Portugal faced a new record of daily cases. The average frequency Ag-RDT/person increased about 30% between July 2021 (1.09 Ag-RDT/person) and January 2022 (1.41 test/person). The

positivity rate in Ag-RDT performed in the pharmacies, reached the highest point in March 2022 with a national average of 20.9 COVID-19 cases per 100 tests performed.

Conclusions: Results suggest that community pharmacies played a significant part of the national COVID-19 testing strategy, improving early detection, and contributing to reduced risk of individual transmission through rapid isolation of new cases, highlighting their value as a part of the health system.

Community pharmacy's assessment of health problems arising from teleworking

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Introduction: COVID-19 is changing the way many Spaniards work. According to Eurostat data, before the COVID-19 crisis, only 4% of people in Spain worked from home every day and 5% worked once a week. Since the outbreak of the COVID-19 pandemic, working from home is the norm for millions of European Union (EU) workers and worldwide. According to a recent study by the European Commission's Joint Research Centre (JRC), around 25% of employment is working from home in the EU as a whole, whereas before the pandemic only 15% of employees in the EU had ever teleworked.

Objectives: This survey aims to find out how teleworking affected society and the habits acquired during the pandemic, in order to detect potential improvements that can be added the day-to-day teleworking.

Methods: From 9th March until 31st May 2022, a survey on teleworking habits addressed to the population was available on the website (www.farmacuticos.com). This survey was conducted by the National Orthopaedics Committee of the General Pharmaceutical Council of Spain and it was disseminated through registered pharmacists, Provincial Pharmacy Chambers and social networks, to encourage citizens to participate. In addition, an infographic with the main recommendations on ergonomics during teleworking was made available the website.

Results: These surveys are under evaluation and will allow the authors to stratify the results by age group, urban or rural population, and type of work, among other parameters. Likewise, the surveys will allow the authors to find out whether the respondents were physically active, whether they worked in a specific place in the home, and under what conditions. The respondents were also asked about pathologies related to teleworking and whether they have been taking medication to treat these pathologies since then.

Conclusions: From the community pharmacy, by means of these surveys, authors will be able to detect the main problems related to bad habits acquired during teleworking and the health problems caused by working in poor conditions at home, and thus be able to offer the most appropriate recommendations for each situation.

Plenufar 7: Evaluation of quality of life related to nutritional status

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Introduction: Healthy eating and physical exercise are fundamental pillars for good health. To promote these healthy lifestyle habits, the General Pharmaceutical Council of Spain (CGCOF), through its National Nutrition Committee, organised Plenufar 7, a campaign aimed at the general public in which pharmacists shared on dietary advice tailored to different users, based on their personal characteristics.

Objective: Promoting good dietary, exercise, and lifestyle habits among the population. Collecting data on dietary patterns and lifestyles of the population, with the goal of defining personalised metabolic and nutritional action guidelines through nutritional decision algorithms.

Methods: More than 2,000 community pharmacists from all over Spain volunteered to participate in Plenufar 7. Following a training process through a distance learning course, pharmacists carried out interviews with users to promote the importance of healthy eating, physical exercise and avoiding harmful habits such as smoking and excessive alcohol consumption. During these interviews, a survey was carried out to find out about different aspects of the users, such as socio-demographic data, frequency of food consumption,

adjustment to the dietary pattern of the Mediterranean diet or physical activity carried out.

Results: More than 5,500 user surveys were conducted between 1st March and 31st May 2022. The surveys will be analysed from June onwards for a qualitative assessment of the nutritional status and the emotional and somatic quality of life of the surveyed population, as well as a quantitative assessment of the nutritional well-being of the surveyed population. The results will be available in early September 2022.

Conclusions: Community pharmacy, through Plenufar 7, will become a reference for the evaluation of the quality of life and nutritional well-being of the population served.

The administration management system for COVID-19 vaccination in Norwegian pharmacies

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Introduction: In Norway, each municipality is responsible for offering and organising COVID-19 vaccination to people who live there. Some municipalities want to commission such services from pharmacies. To be able to provide COVID-vaccination services in pharmacies, there was an urgent need to establish IT systems to manage appointment scheduling and documentation of vaccination. The Norwegian Pharmacy Association was asked to coordinate this on behalf of all pharmacies in Norway.

Objectives: To develop and implement a vaccine administration management system that fulfilled all the needs for COVID-19 vaccination in pharmacies. The system needed to be in accordance with regulations, the needs of the municipalities, the pharmacies, and last but not least, the citizens.

Methods: In close collaboration with the system provider (Helseapps), the largest municipality in Norway (Oslo), and the pharmacies, different approaches to managing and inviting citizens for vaccination were tested and piloted by pharmacies and citizens to inform and decide final solutions.

Results: The vaccine administration management system has been successfully implemented in the pharmacies providing COVID-19 vaccination. The experiences of using the system, from pharmacists, patients, and municipalities, are positive. The system will be described in more detail in the poster.

Conclusions: A new IT system to support a crucial and emergent service in pharmacies is possible to establish within a few months, given the close and good cooperation between involved parties.

Pharmacists providing SARS-CoV-2 testing: Patients' perception survey

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Introduction: A comprehensive understanding of patient satisfaction with additional services in the pharmacy has become recognised as an important outcome of care. Patient satisfaction is an indicator in identifying and assessing the patient's needs. It is an essential factor in determining the health care services being delivered to the patient. Hence, this research was designed to measure patient satisfaction with the new services provided by community pharmacists during the COVID-19 pandemic.

Objectives: This investigation was aimed at evaluating satisfaction with the new pharmacy services, provision of COVID-19 testing, and determining general satisfaction with specific aspects of pharmacy services.

Methods: A cross-sectional study was conducted on 210 patients with the aim of assessing satisfaction with the service provided by the Bjelovar community pharmacy from October 2021 to January 2022. Data regarding the socio-demographic characteristics and parameters measuring patients' satisfaction were collected through a structured 10-question Likert-type questionnaire.

Results: A total of 210 answers were included in the final analysis. The mean age of respondents was 32 years, 47.6% of them being female, and 52.4% male. The majority (65.2%) of the respondents had finished high school, 31% had a postgraduate degree, and only 3.8% had finished elementary school. Most of the participants were married (57.4%) and 76.2% of the respondents were satisfied (strongly agreed and agreed) with the availability of COVID-19 testing by pharmacists. Only 12% of the participants were not satisfied with the provided service. A percentage of 74.2% of the participants were satisfied with the technique used by pharmacists, and 76.1% wanted the pharmacy to provide testing again. Of the total number of respondents, 60% would like pharmacists to provide more different pharmacy services.

Conclusions: Patient satisfaction with pharmacy services – provision of COVID-19 testing performed by pharmacists – was found to be very high. Continuing education programmes for community pharmacists on the topic of administrative

pharmacy tools are required in order to improve the service. Community pharmacists may provide added benefits to the health care system during public health emergencies, including additional counselling and education.

A decade of integrated collaboration between community pharmacies and primary care in Barcelona, Catalonia, Spain (2012-2022)

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Introduction: Catalonia has a Beveridge healthcare system with a single payer and several publicly funded healthcare providers. The territory is divided into several healthcare sectors (HS), which are subdivided into healthcare basic areas (HBA). Each HBA has a Primary Healthcare Centre (PHC) and several Community Pharmacies (CP) providing healthcare to around 15,000 - 30,000 inhabitants per HBA. Despite being crucial to improving health outcomes, integrated collaboration between territorial healthcare providers has been historically scarce, difficult, and too person-dependant. Thus stakeholders' identification, mutual recognition, and establishment of stable communication mechanisms have been essential to promoting integrated collaboration amongst healthcare providers from CP and PHC for the patients' sake.

Objectives: To facilitate communication and integrated collaboration between community pharmacists and primary care practitioners to optimise patients' healthcare outcomes.

Methods: To this end, three major projects were developed in order to ease the communication and collaboration between CP and PHC in the province of Barcelona:

a) Creation of a network of community pharmacists' coordinators and delegates. Previously existing roles of HBA CP delegates and HS CP coordinators, defined in 1997, needed to have an enhanced scope. In 2012, the Barcelona Pharmacists Association (COFB) started to develop a new regulation establishing relationship circuits between community pharmacists and COFB. This regulation, published in 2013, established coordinators and delegates as representatives of all the community pharmacists in a given territory to enable local PHC practitioners to have a spokesperson for all the community pharmacists.

b) Creation of a collaboration programme between primary care pharmacists and community pharmacists. In 2017, a collaboration programme established primary care pharmacists as the natural and valid intermediaries to assess

all the communication needs of the community pharmacists with the different PHC practitioners. This programme enabled coherence and consensus regarding drug selection and its safe use; coordination to solve drug-related problems; chronic patient follow-up; public health and harm reduction programmes and enhance the healthcare continuum, when it comes to the pharmacotherapeutic process.

c) Development of Farmaserveis, as a digital tool for patients' data communication between primary care practitioners and community pharmacists. The COVID-19 pandemic in 2020 highlighted the need to improve even further the communication between community pharmacists and the rest of the healthcare system. To this end, several digitalisation projects related to COVID-19 and healthcare contingency circuits were enabled within Farmaserveis, the community pharmacy healthcare practice platform. Farmaserveis is introducing new functionalities to enhance communication between community pharmacists and primary care practitioners in a more stable manner since these circuits are needed beyond the COVID-19 crisis.

Results: Nowadays communication circuits are completely operational: meetings are held in a regular basis, many projects have developed locally ever since and some of them have scaled up to other areas.

Conclusions: These integration projects have been successful to establish communication circuits that have an important impact on patient care and are enhanced with the digitalisation of the processes.

Evaluation of knowledge about photosensitivity in selective serotonin reuptake inhibitor's users

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Introduction: Among the users of selective serotonin reuptake inhibitors (SSRIs), not all of them are aware of the fact that some of the drugs, commonly prescribed by physicians for depression treatment, may have serious adverse reactions such as photosensitivity mediated by the exposure to visible and ultraviolet light. Identification and counselling about the use of photoprotection should always be carried out by healthcare professionals.

Objectives: The aim is to survey SSRIs users at pharmacies in order to understand if patients recognise that antidepressant drug use entails this specific adverse reaction.

Methods: The survey was done through a Google form after the dispensation of the drug. Previously, pharmacists had been informed that they must pass a form to every single patient with an antidepressant prescription. In the questionnaire, it was asked about the SSRIs the patient was consuming, skin phototype, and the recommended UV protection. For sampling calculation, the dose per a thousand habitants a day (DHD) of SSRIs in the community of Andalucía is of 64.92, with a total population of 8.5 Million. The authors prepared a confidence interval with a sample of 275 and with a level of confidence of 94 % to determine where the population's mean land.

Results: The authors obtained the following: The percentage of consumers of SSRIs that visit pharmacies and do not know about the damaging effects of the drug on the skin is 72.9 % with 96 % CI (69.99-76.81). Patients' phototypes tested are arranged as follows: Phototype I (4.4 %), Phototype II (26.7 %), Phototype III (44.3 %), Phototype IV (20.9 %), Phototype V (3.3 %), and Phototype VI (1.1 %). Regarding the recommendation of UV protectives, 56 % were suggested FPS 50+, 33.7 %; FPS 30-50, 2.2 %; FPS 20-30, 1.1 %; FPS <20 and 7 % were not recommended UV protective since they were using a proper one.

Conclusions: Most of the patients prescribed SSRIs do not know they can suffer from photodermatitis after sun exposure. The pharmacist, who is an expert on the subject, is the most suitable professional to recommend appropriate UV protectives to patients prescribed photosensitising medication as well as different instructions to follow in order to avoid this type of reactions.

Has the pandemic caused an increase in prescription drug abuse?

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Introduction: Severe acute respiratory syndrome coronavirus-2 was identified in December 2019, as the cause of the illness designated COVID-19. Since then, in Spain, different containment measures have been adopted, including the total confinement of the population. Medicines use could have been affected. For that, in Catalonia, the Medicine Abuse Observatory (MAO), an epidemiological surveillance system created in 2017 by the Catalonia Pharmacists Council implemented in 75 sentinel network pharmacies scattered throughout the territory, has studied it.

Objectives: As MAO has the tools to analyse the trends of medicine abuse and misuse of the population, the aim was to study and compare if there has been any change in the pattern of abuse of certain medicines in the pandemic versus the pre-pandemic period.

Methods: An observational and ambispective study was conducted. The information was obtained through a validated questionnaire, which provides signs and behaviours that give a clearer indication that a drug abuse problem exists. The questions included in the Abuse Drug Questionnaire (ADQ) were about the type of substance, the frequency, and the way to request it and also if there was intimidation. Finally, pharmacist management was enquired.

A web-based survey and data collection software, easy to use for questionnaire-based closed and open-ended questions, called Typeform was used. Data was achieved from January 2020 to December 2021, regarded as COVID-19 period, to compare with the data obtained in the previous two years (2017-2019), considered pre-pandemic period. Variables were summarised as counts and percentages and the X2 test was used ($p < 0.05$ was considered statistically significant).

Results: The data obtained in the COVID period allows to observe that the substances involved are quite variable, but the main drug class involved were benzodiazepines (41.8%), followed by codeine (20.1%), tramadol (6.7%) and methylphenidate (4.8%). Although these are similar data to those of the previous period, there has been a significant increase in the detection of benzodiazepines ($p < 0.05$). While benzodiazepines were the most consumed drugs in all age groups > 25 years of age in the prepandemic period, it has been observed that in the pandemic period, there is a higher increase in the group over 65 compared to the rest of the age groups ($p < 0.05$). Regarding the sex of the patients, in both periods, the pattern was similar and they were mostly men (67.4% pandemic and 62.6% pre-pandemic). With reference to the way to try to get the medicine, there has been an increase in requests with medical prescription and with falsified prescriptions, with a statistically significant difference versus medicines that require the prescription and are requested without it ($p < 0.05$).

Conclusions: The study shows there has been an increase in the notifications of people under 25 years and in those over 65 years, and also, a rise in benzodiazepines which are the most involved substance, especially in the oldest group. Moreover, there has been an increase in requests with prescription and with falsified prescriptions, probably to attempt to prolong the treatment or to self-medicate or get a state of euphoria and well-being.

Developing a pharmacy COVID-19 vaccination service in Norway

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Introduction: A national pharmacy influenza vaccination service for the private market was established a year before the COVID-19 pandemic started in Norway. Other vaccines, prescribed by doctors, were also administered in pharmacies. The pharmacists obtained prescribing rights for flu vaccines in September 2020, but pharmacies were not included when the national COVID-19 vaccination programme was developed and decided by national authorities.

Objectives: The Norwegian Pharmacy Association and the pharmacies initiated several activities to include pharmacies as a provider of COVID-19 vaccination and to establish models for cooperation between pharmacies and the municipalities responsible for providing the vaccination programme locally.

Methods: A close collaboration between the Norwegian Pharmacy Association, the three vertically integrated pharmacy chains, as well as the hospital pharmacies, was established. A working group developed a training programme for pharmacists and pharmacy technicians, as well as standard operation procedures for the service. The Norwegian Pharmacy Association were at the same time lobbying towards the Ministry of Health and Care Services, the National Institute of Public Health and The Norwegian Association of Local and Regional Authorities at the same time as dialogue with the municipalities started. All activities aimed to include pharmacies as a national vaccination provider.

Results: A pharmacy COVID-19 vaccination service with standardised training and procedures was successfully established in very short time. A digital health service platform (Helseboka) that fulfilled the pharmacies' needs for organising and record keeping the vaccination service provided, was implemented. The pharmacists in community pharmacies where authorised to prescribe COVID-19 vaccines in March 2021. Vaccination in Oslo started in May 2021, and 22 pharmacies administered 15,000 doses in a few weeks time. In December 2021, a system for reimbursement was introduced, and a national template for vaccine collaboration between municipalities and pharmacies was published. From January to June 2022, 208 pharmacies administered 50,000 doses in close collaboration with the municipalities. Feedback from people vaccinated in pharmacies was very positive, and pharmacy staff was also very positive to the new service introduced.

Conclusions: In 2021 the pharmacy chains and the Norwegian Pharmacy Association managed to develop and introduce a

national standardised pharmacy COVID-19 vaccination service successfully. The Norwegian pharmacies and their staff are now experienced and prepared for a bigger role when a new wave of vaccination is expected later this year and the years to come.

Professional pharmacy competencies for community pharmacy in Spain

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Introduction: The General Pharmaceutical Council of Spain, the Pharmaceutical Care Spain Foundation, the Spanish Society of Community Pharmacy (SEFAC), the Pharmaceutical Care (PC) Research Group of the University of Granada, and the National Conference of Deans set up this group in 2009, known as the Pharmaceutical Care Forum in Community Pharmacy (Foro AF-FC). Their main objective is the promotion, development, and implementation of Clinical Professional Pharmacy Services (CPPS).

Objectives: To describe and classify the professional healthcare competencies in the field of pharmaceutical practice in Spanish Community Pharmacy (CP). Also, to draw up the corresponding chart of competencies.

Methods: A working group of seven members was set up in Foro AF-FC. The healthcare professional competencies for 19 Clinical Professional Pharmacy Services (CPPS) provided in Spain were proposed, reviewed, and agreed based on the current academic competencies. In a second phase, the process was repeated, incorporating the competencies of the CPPS for the measurement of clinical parameters and vaccination. The competencies were written using Bloom's taxonomy the resources needed to acquire these competencies were also proposed.

Results: In the first phase, 31 professional pharmacy competencies were identified corresponding to the 19 CPPS provided in Spanish community pharmacies classified by FORO AF-FC: Dispensing medicines and medical devices; Preparing individualised medicines, medical devices, dietetic

products, cosmetics, or food supplements; Conducting a clinical interview; Performing pharmaceutical interventions; Patient follow-up; Record care and management processes; Keeping clinical documentation; Managing the procurement, storage of raw materials, medicines and health products; Managing a quality assurance system for pharmacy processes; Managing the disposal of bio- healthcare waste; Managing therapeutic adherence; Managing the validity of medicines and medical devices; Planning population strategies; Planning disease prevention strategies; Acting on behalf of other health professionals; Collaborating with other health professionals; Communicating with patient and/or caregiver Co-operating with other health professionals; Referring patients to other healthcare professionals and/or other CPPS; Reporting ADRs to pharmacovigilance; Promoting CPPS; Prescribing treatment; Determining parameters; Assessing clinical, pharmacological, pharmacotechnical and biological information; Assessing patient information and/or health outcomes; Assessing patient safety; Reviewing medicines aid kits at home; Valuing medicines and CPPS from a health economics perspective; Verifying prescriptions either administratively and/or pharmaceutically; Packaging medicines; Packaging medical and dietetic products.

The 31 competencies were grouped into four categories (analytical 25.8%, executive 25.8%, collaborative 22.6%, and managerial 25.8%), detailing the knowledge, skills, and attitudes required to acquire them in a competency chart. In the second phase, 13 professional competencies have been identified and will be included in the next edition of the document.

Conclusions: The development of professional pharmacy competencies made it possible to identify the integrated set of skills, knowledge, and attitudes needed to perform the main CPPS provided in Spain, as well as to justify their performance about academic competencies, guiding the necessary complementary training of community pharmacists. Its representation on a map will allow its dissemination and could facilitate professional recertification, determine professional standards, establish objectives for specialised healthcare training, and design systems for professional incentive and promotion in CP.

Specialised inquiry service: A response to community pharmacies information needs

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Introduction: Health knowledge evolves very quickly, and it is important that health professionals have access to reliable and constantly updated information so that they can provide high quality services to their patients. In this sense, the

Information Centre for Medicines and Health Interventions (CEDIME) provides pharmacies with technical-scientific and regulatory information about medicines, health products, medical devices and health interventions through a Specialised Inquiry Service. This service is available every working day from 9 am to 7 pm, through a specialised team of pharmacists.

Objectives: The authors intend to analyse the questions from a 12-month period to understand which are the most sought-after topics and their seasonality.

Methods: All questions received are classified by the pharmacist who answered the call according to their typology and monitored for quality and response time. The information was stored in a customer relationship management software database including the following fields: Date of request; Question; Answer; Tag; Result.

Results: In the period between 01/01/2021 and 31/12/2021, 4,565 questions were received, with an average response time of 1.05h and an average satisfaction rating of 4.81 on a scale of 0 to 5. 80% of these requests were regarding to these topics: COVID-19 testing; Medicines Equivalence; Compounded Medicines; Vaccination Services; Medicines Information; Medicines Marketing Status; Syringe Exchange Programme; Medicines Uses and Dosages; Medicines Pricing and co-payment.

Some peaks can easily be identified, such as the COVID-19 testing in December, due to the increased control measures at the time; but also, questions regarding the Vaccination Services peaked in October, matching the start of the flu-vaccination season. There was also a surge of questions in August regarding Medicines Equivalence, likely due to the influx of tourists in the summer months.

Conclusions: The authors found that there was a seasonality associated with the needs of community pharmacies; as such, having a support centre that can foresee and pre-empt these questions is of much help. Through this analysis, it is possible to develop support information materials beforehand to provide to the pharmacies and answer their requests much faster, often even during patient consultation and counselling.

The national quality improvement programme on compounded medicines by the Association of Pharmacists Belgium: How analytical sciences can promote patients' health

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Introduction: Pharmaceutical compounding is the most convenient way to produce a pharmaceutical product that fits the unique need of a patient. It is a routine activity for hospital and community pharmacists. Whereas an immense number of patients have already benefited from compounded preparations, their quality is sometimes questioned. This argues for the implementation of higher production standards and better quality management systems in pharmacies

Methods: A few years ago, the Belgian professional organisations of community pharmacies have initiated a quality programme for compounded preparations. Formulations are selected based on the following criteria: frequency of prescription, preparation difficulty and risk for the patients. Up to a 100 community pharmacists can register voluntary for a cycle. After a thorough quality check of the preparation, an individual report is sent to each participant and the global results are communicated to the whole sector.

Results: Since 2017, the quality of more than 3,000 compounded preparations sent by more than a thousand different hospital and community pharmacies, has been assessed through this programme. Depending on the galenic form, a careful selection of the critical analytical parameters to be tested is made for each cycle. The identification and the assay of the active ingredient is performed most of the time by HPLC-PDA but other techniques such as titration or atomic absorption can also be used. In general, a method needs to be developed and validated for each cycle, taking into account the different possible differences that can exist in the formulations for a given compounded preparation. This ensures that the developed method can be used for all the products that will be sent by the programme participants, regardless of differences in the excipients they use. Where relevant, the microbiological quality of the preparations is also evaluated according to current pharmacopoeial requirements (enumeration, absence of specified microorganisms, or sterility).

Conclusions: Several conclusions can be drawn about the quality of the compounded preparations in Belgium, thanks to the large volume of analytical data generated by the programme. These conclusions help the Belgian professional

organisations of community pharmacies to raise awareness amongst pharmacists on the importance of the quality of their compounded preparations, for the benefit of patients' health.

Education and training in Portuguese pharmacists' response to the COVID-19 pandemic

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Introduction: In order to respond to the COVID-19 pandemic, the National Association of Pharmacies, Portugal (ANF), through EPGSG and CEDIME identified the need to train pharmacists in the knowledge of the disease caused by the SARS-CoV-2 coronavirus, but also in the provision of the Rapid Ag Testing service. The FIT programme, the largest training model for Portuguese pharmacy teams, was the knowledge tool most used by Portuguese pharmacies to combat the pandemic, providing training courses and webinar sessions for pharmacists with the possibility of fulfilling their training path and getting new skills in topics related to COVID-19.

Objectives: To describe the implementation, the quantitative and the qualitative results of pharmacist training for SARS-CoV-2 coronavirus and the Rapid Ag Testing service by the FIT programme from May 2020 to May 2022.

Methods: Through the need for training to support pharmacists to fight the COVID-19 pandemic, EPGSG and CEDIME built the course content, covering all the fundamental aspects for the provision of the Rapid Ag Testing service in the community pharmacy. It was made available to pharmacies, who joined in large numbers and acquired the necessary knowledge for the implementation of one of the services that contributed the most to the fight against the COVID-19 pandemic. The contents of this course were updated firstly every 15 days and nowadays it is monthly. The data was collected and analysed with the Microsoft tool, Power BI which aggregates data from the participants and pharmacy management platforms (Humantrain and Percepium e-learning platform) and reports results from it.

Results: From May 2020 to May 2022, 73% of Portuguese pharmacies and 4,256 participants were enrolled: more than 900 pharmacies were prepared for implementing Ag Testing service, and more than 1,460 pharmacists completed the training course.

Conclusions: It was a strategic decision by the ANF to launch this course to support the intervention of community pharmacists to combat the COVID-19 pandemic. The number of registered participants well demonstrates the interest and need of pharmacies to know more about this topic to provide the best service to the population. Community pharmacies and their teams have always been on the front line in the fight against COVID-19, being empowered to ensure mass Ag Testing service throughout the country. Throughout this period, another complementary training was developed, such as webinars with current topics, always keeping pharmacists and their teams at the forefront of scientific knowledge on this subject.

Knowledge, attitude, and practice of community pharmacists regarding antibiotic use and infectious diseases: A cross-sectional survey in Bulgaria

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Introduction: Antibiotic resistance (AR) is a worsening global problem, despite national and international efforts to address it. Inappropriate antibiotics use is one of the main drives in growing AR. Community pharmacists are the most accessible health professionals and could facilitate the rational use of antibiotics.

Objectives: The aim of this study was to assess the knowledge, attitude, and practices of community pharmacists in Bulgaria towards antibiotic use.

Methods: A descriptive, cross-sectional study was performed among community pharmacists in Bulgaria with the use of an anonymous, structured, and pre-validated questionnaire developed by Gajdacz and authors. Data was collected nationwide in June 2021. A total of 182 community pharmacists filled in the questionnaire (response rate 86%). Data were analysed with SPSS v.24.0.

Results: The Bulgarian pharmacists have sufficient knowledge regarding antibiotic use and antimicrobial therapy in general and they realize the impact of the irrational use of antibiotics and the growing AR. The majority of the respondents (96.7%) consider that the inappropriate use of antibiotics in Bulgaria is a problem. Every fifth patient would like to obtain an antibiotic without a prescription and 24.6% of the respondents confessed that they have been dispensing antibiotics without proper prescription in up to 25% of all purchases. Almost half of the pharmacists (43.3%) believe

that they could influence patients' behavior toward antibiotic use and knowledge about infectious diseases. The main barrier identified by them is the lack of time for proper consultation.

Conclusions: Community pharmacists have a pivotal role in promoting appropriate antibiotic use in the outpatient setting and preventing patients' practices and behavior that contribute to the growing antibiotic antimicrobial resistance.

Investigating the knowledge and confidence of community pharmacy colleagues dealing with commonly presenting oral health queries in the North East of England

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Introduction: This research investigates the knowledge of community pharmacists and their colleagues to manage and advise patients who have oral health concerns. Previous studies highlight the need for oral and dental health education amongst community pharmacy staff. These papers list common oral health issues that are present in pharmacies such as bleeding gums, oral candidiasis (thrush), toothache, dental infection, and ulcers.

Objectives: To investigate the knowledge and confidence of community pharmacy colleagues in managing and providing advice about common oral health queries.

Methods: This is a cross-sectional study whereby community pharmacists and colleagues anonymously participated in an online questionnaire, which contained five case vignettes of oral health scenarios that are commonly present in a community pharmacy setting. The scenarios were based on oral thrush, ulcers, bleeding gums, toothache/pulpitis, and dental infection. Participants were asked to outline the appropriate management and advice for each scenario, and then rate how confident they were in the information they provided. The questionnaire was directed electronically on Google Forms and circulated online via PharmOutcomes, a national portal that provides updates and bulletins for community pharmacy teams. Data from the online questionnaire was collected for the period of one year from June 2019. The questionnaire also captured information about the participants' job roles and experience, and their knowledge of appropriate oral hygiene advice.

Results: Over the data collection period, 193 responses were received: 104 were pharmacy colleagues and 93 were community pharmacists. Pharmacy colleagues were largely dispensing

technicians, pharmacy advisors, and pharmacy students. The participant's responses to the case vignettes were compared to the national evidence-based guidelines for each clinical presentation. For the 'toothache/pulpitis' scenario, 81.0% (n=93) of pharmacists recommended correct analgesia and only 11.8% provided additional advice. In the 'long-standing ulcer' scenario, 20.4% (n=93) of pharmacists and 8.7% (n=104) of pharmacy colleagues provided all best practice advice. In the 'bleeding gums' scenario, 32.3% (n=93) of pharmacists and 15.4% (n=104) of colleagues provided appropriate oral hygiene advice. In the 'denture-related oral thrush' scenario, 3.2% (n=93) of pharmacists and 2.9% (n=104) of colleagues provided all best practice advice/recommendations. In the 'dental infection/swelling' scenario, no pharmacy colleagues or pharmacists mentioned assessing airway impairment in spreading infection. Overall, there was a very weak positive correlation between how well the participants scored, and how confident they were in answering the case vignettes. In two case vignettes, the better the pharmacists scored, the less confident they were about their answers.

Conclusions: Generally, the better the participants did in answering the scenarios, the more confident they were in the knowledge they provided. The source of their knowledge was based on 'previous experiences' which is anecdotal, rather than information based on formal teaching or education. Nearly all participants (97-98%) believed that oral health training is beneficial to their roles and dealing with relevant queries. There is an unmet need for further oral and dental healthcare education for all members of the community pharmacy team.

Project "It is in our hearts – pharmaceutical intervention in heart failure"

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Introduction: Heart failure (HF) affects more than 400,000 Portuguese people. It is the first cause of hospitalisation in patients 65 years and older, and half of the patients are hospitalised again. One in three patients confuses their symptoms with the normal signs of aging, underestimating their importance, and leading to a late diagnosis. Pharmaceutical intervention may be relevant in the early detection of both the pathology and its worsening.

Objectives: The purpose of this study was to screen signs and symptoms of HF or its worsening in users of community

pharmacies, as well as assess the relevance of pharmaceutical intervention in this pathology.

Methods: Observational and cross-sectional study (May 2021), in the community pharmacies of the Elofarma Network. The study was designed by the Elofarma Network Studies Office, in partnership with the Portuguese Cardiology Foundation. Pharmacies received training on HF, given by the Portuguese Foundation of Cardiology, and on the methodology of the study, in order to standardise the interventions. The signs and symptoms of HF or its worsening were identified through the application of a standardised questionnaire, using an instrument specifically created for this purpose and for use in community pharmacies by Bleske and authors (2014), The One Minute Clinic (TOM-C): Community Intervention Programme for Heart Failure.

Results: The study involved 571 users of 131 pharmacies of the Elofarma Network (margin of error 4.1%, CI 95%), residents from North to South of the country, aged between 18 and 94 years (mean 66.9 years). Most were women (64%), lived with their families (75%), and reported preparing their own medication (89%), even at older ages (≥75 years – 80%). Forty-eight surveyed users (8%) reported having had an acute myocardial infarction, 113 (20%) reported suffering from another heart disease, of which 47 were from arrhythmias, 126 (22.1%) from HF, and 305 (53%) hypertension. More than half of the users surveyed (56%) had at least one of the symptoms potentially related to HF.

The most frequently identified HF symptoms were shortness of breath associated with tiredness (34%), edema (30%), and dizziness when standing (24%). In most cases, users had more than one of the symptoms screened (58%). Users with a potential sign or symptom of HF were referred to their physician.

Conclusions: The results highlight the importance of pharmaceutical intervention in the early detection of signs and symptoms of HF or its worsening. Since community pharmacists are very often the first contact between citizens and the health system, their role can be decisive for an early diagnosis of HF and better control of these patients.

Changes in collaborative practice between community pharmacists and primary care physicians during the provision of a pharmacist-led medication review with follow-up service

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Introduction: Medication review with follow-up (MRF) is a pharmacy service implemented in community pharmacies

internationally and in Spain. In some countries the service is remunerated and offered to a target population, usually polymedicated patients with chronic diseases. In undertaking MRF, pharmacists interact and potentially collaborate with primary care physicians to optimise medication and disease management by jointly addressing clinical issues, essentially through a shared decision-making process. However, it is unknown how the level and magnitude of collaboration between community pharmacists and physicians jointly providing MRF changes over time.

Objectives: To evaluate the changes in collaborative practice between community pharmacists and physicians, from the perspective of the community pharmacist, in the context of MRF provision.

Methods: Alongside an effectiveness-implementation hybrid type-3 study, a prospective longitudinal observational study was undertaken with an intervention group (IG, providing MRF) and a control group (CG, providing usual care). A previously validated tool consisting of 14 items, grouped into three factors, was used to measure the changes in collaboration from the perspective of the community pharmacist. The mean score was calculated for the total score and for the three factors identified in the tool at baseline, six months, and 12 months. The difference in means within each study group between time periods was compared using the Student-t test for paired samples, applying Holm's correction for multiple comparisons in the p-values. The effect of community pharmacists-physician's practice and pharmacy related-factors was estimated using a multivariate analysis mixed effects regression model.

Results: A total of 323 pharmacists were invited to participate in the study (107 in the IG and 216 in the CG). A response rate of 89.7% (n=96) was achieved for the IG and 45.8% (n=99) for the CG. There were no statistical differences at baseline between the two study groups for the overall score and for each of the three factors individually. At the six-month time point, there was a statistical difference between groups for factor 1 "Activation for collaborative professional practice" ($p=0.008$), and for the overall level of collaborative practice ($p=0.029$). At the 12-month time point, there were statistical differences between both study groups for factor 1 ($p<0.001$), factor 2 "Integration of collaborative practice" ($p=0.018$), factor 3 "Professional acceptance of collaborative practice" ($p=0.0185$), and for the overall level of collaborative practice ($p<0.001$). There was evidence of an increase in the level of collaboration, for female physicians (4.24 ± 2.02) and for pharmacists practicing in a rural area, with an increase of about 8.40 ± 2.41 points. An employee pharmacist compared to a pharmacy owner, had a decrease in collaboration with a decrease in score of (5.71 ± 2.54). Each year added to the age of the pharmacist represented an estimated decrease of different magnitude in each scenario in collaboration.

Conclusions: This study provides evidence that significant increases in collaboration between community pharmacists and physicians occur due to the provision of MRF. The longitudinal nature of the study allowed the identification of

those determinants strengthening the collaborative practice which could be taken into account in future initiatives.

Pharmacists' engagement in ensuring equity in COVID-19 vaccine awareness and accessibility

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Introduction: Health disparities continue to be evident across the United States, as most recently documented by the Center for Disease Control's 2022 report noting that Black and Latino persons are more than two times more likely to be hospitalised and more than 1.7 times more likely to die from COVID than their white counterparts. Being one of the most trusted and accessible health providers in the community, pharmacists have the opportunity to impact minority and disadvantaged communities to improve equity and access where needed the most.

Objectives: This project highlights pharmacist engagement in education and equitable access to the COVID-19 vaccine in communities where access is most needed.

Methods: Pharmacists in the Rochester, NY area served in a series of community support projects to ensure COVID-19 vaccine access to underserved and minority communities. Pharmacists and pharmacy students developed educational materials for the community, raised awareness and accessibility of the vaccine, partnered with community leaders, and hosted educational sessions and vaccine clinics targeting minority and underserved communities.

Results: Pharmacists and pharmacy leaders were appointed to the region's Finger Lakes COVID-19 Task Force, to provide expertise in ensuring equitable, transparent, and efficient immunisation efforts. Pharmacists developed culturally relevant educational materials and hosted educational sessions in targeted disadvantaged community groups. Nine different pharmacist-led or supported vaccine clinics were established in the community, targeting underserved and minority populations. Five clinics were held at a local inner-city health center for uninsured patients. Two clinics were held at the local refugee community center. Two pediatric vaccine clinics were conducted at a local health center in a minority and socioeconomically challenged community.

Conclusions: With the breadth of pharmacist's knowledge, coupled with their accessibility in the community, and ability to partner with community organisations, pharmacists have the unique ability to impact local minority and disadvantaged communities to improve equity and reduce health disparities.

Attitudes of community pharmacy service users towards vaccination services in community pharmacy

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Introduction: With the evolution of the role of pharmacists and the shifting of pharmacists' focus from drugs to patients, more and more novel services are being introduced in community pharmacy. One example is vaccination in community pharmacies. Rarely as there been such a need for widespread vaccination services like during the COVID-19 pandemic. A number of countries have organised vaccinations by physicians in community pharmacies, including Croatia. In some countries, pharmacists are encouraged to undergo training and provide this service by themselves.

Objectives: The objective of this research was to investigate the attitudes of Croatians towards vaccination in general and an option of vaccination in community pharmacies.

Methods: This study was organised as a cross-sectional survey-based study. A survey instrument was developed after an extensive literature search by a medical doctor, epidemiologist, and pharmacist. The final survey consisted of 40 items. Questions referred to the standard vaccination programme. Vaccination against COVID-19 was not included as it may yield bias as there has been some negativity in the public regarding the short development and approval times for these vaccines as well as some concerns because of the use of a novel platform. The survey was anonymous and participants received no compensation. The research was approved by the Ethics Committee of the University of Split School of Medicine.

Results: A total of 200 people participated in the study, of which 45 (22.5%) were men and 51 (25.5%) were healthcare workers. A total of 108 persons reported getting seasonal shots i.e. influenza shots. Around 20% (42) of participants reported they know someone who has had an adverse reaction to a vaccine. There were 48 people who had children and of them, only five (10.4%) reported their children have not received all the recommended vaccines, and three reported that they would give all the recommended vaccines to their children if they had another one. There were 41 (20.5%) participants who weren't sure whether vaccination performed by an educated pharmacist is as safe as vaccination by a doctor of medicine in a pharmacy, while 35 (17.5%) agreed or fully agreed with the statement that vaccination by an educated pharmacist is less safe than vaccination performed by a doctor of medicine. As little as 16 (8%) persons would consider paying for services of

vaccination in community pharmacy and 119 (59.5%) would consider it if it were covered by their insurance.

Conclusions: In general, this research showed that there is a portion of the population interested in vaccination services in community pharmacies. However, there is a need for greater education of the population to perceive community pharmacists as competent individuals to perform such services.

Impact of the level of autonomy in the Body Mass Index (BMI) and nutritional status in elderly people in Bizkaia

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Introduction: The level of autonomy can affect nutritional habits leading to Body Mass Index (BMI) and nutritional status alterations, especially in elderly people. The accessibility and proximity of community pharmacies and the high frequency of visits of people of advanced age to these health establishments turn them into suitable places in which to detect these situations.

Objectives: Quantify the possible impact of a patient's level of autonomy in the BMI and nutritional condition in a population older than 65 years according to Mini Nutritional Assessment (MNA) score as well as the relation between these two parameters.

Methods: Descriptive observational study of 385 subjects (95% confidence interval, error margin 5% for a total population of 263,226 people older than 65 years according to Basque Institute of Statistics). Rejection to participate was the only exclusion criteria. Data were collected by community pharmacies using extended MNA with a place of residence, number of medication intake, level of autonomy, and history of COVID-19. Statistical analysis was carried out with SPSS.

Results: A total of 387 valid surveys were obtained. A percentage of 12.4% of the patients were assisted and 85.4% of these were malnourished or at risk of malnourishment. This relationship was statistically significant ($p < 0.01$). Patients with BMI < 21 were malnourished or at risk of malnourishment in 100% of the cases and 15.7% of these were assisted. This relationship was statistically significant ($p = 0.024$).

Conclusions: The level of autonomy has a direct relation with the nutritional state and BMI<21. This relation also exists between BMI and the nutritional state. Early detection of loss of autonomy situations and BMI reduction in community pharmacies is crucial in order to conduct educational and nutritional interventions in this group of population.

COVID relation with Body Mass Index (BMI) and nutritional status of elderly people in Bizkaia

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Introduction: Advanced age as well as COVID produce pathophysiological changes affecting dietary intake and can produce weight deficit and malnourishment. Community pharmacies are the closest and most accessible health establishments for the general population and are an adequate environment in order to detect these cases.

Objectives: To analyse the possible relation between nutritional status and BMI with history of COVID in people older than 65 years in Bizkaia.

Methods: Descriptive observational study of 385 subjects (95% confidence interval, error margin 5% for a total population of 263,226 people older than 65 years according to Basque Institute of Statistics). Rejection to participate was the only exclusion criteria. Data were collected by community pharmacies using extended Mini Nutritional Assessment (MNA) with a place of residence, number of medication intake, level of autonomy and history of COVID. Statistical analysis was carried out with SPSS.

Results: A total of 387 valid surveys were obtained. A percentage of 50.9% of the patients obtained malnourishment or risk of malnourishment score, 17.7% had a history of COVID and 56.5% of them obtained malnourishment or risk of malnourishment score although this relation was not statistically significant ($p = 0.326$). A percentage of 13% of the patients without history of COVID (82.3%) presented with BMI<21 against 18.8% of patients with history of COVID. This relation was statistically significant ($p < 0.01$).

Conclusions: There is a relation between low BMI and COVID history, therefore early detection of malnourishment states in this vulnerable group of patients is especially important in community pharmacies where educational interventions can be done in this population.

Drug-related problems and quality of life in patients using psychotropic medicines: Case reports

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Introduction: Mental disorders are among the leading causes of the global burden of disease. The use of psychotropic medicines can lead to significant drug-related problems (DRPs). Here the authors describe case reports of three patients taking psychotropic medicines. Patient A (35 years, female) used Aripiprazole 20mg daily for three years. When she started a new therapy with Escitalopram and clonazepam, she manifested daily dizziness, weakness, fatigue, and increased appetite. She continued to use her medications, did not consult a doctor for the treatment of her condition, and gained 10 kg within three months. Patient B (27 years, male) stopped monotherapy with Diazepam because he subjectively felt no effect, continued to show symptoms of depressed mood, and did not seek further treatment from a doctor. Patient C (53 years, female) has a depressive disorder and has been taking Paroxetine monotherapy for many years. According to the patient, the symptoms are not well controlled.

Objectives: The objective of the case reports is to analyse the quality of life before and after the pharmacist's intervention.

Methods: Detected DRPs and the type of the pharmacist's intervention are documented using the PCNE (Pharmaceutical Care Network Europe) Classification for Drug-Related Problems, Version 9.1. Quality of life is assessed using the WHOQoL-BREF questionnaire (World Health Organization Quality of Life abbreviated version). Drug interactions, contraindications, and patient management in case of drug interactions were analysed using the Lexicomp drug interaction tool and a summary of product characteristics. For the collection and presentation of the data, the authors obtained approval from the Ethics Committee of Istrian pharmacies and informed consent from the patients.

Results: Identified DRPs in patient A were the occurrence of adverse drug events (increased Aripiprazole plasma levels due to Escitalopram inhibition of the CYP2D6) and untreated symptoms or indications (changes in metabolic factors). The pharmacist intervention consisted of counselling the patient, referring her to the physician, and suggesting reducing the Aripiprazole dose. The intervention was accepted and fully implemented with a complete reduction in the manifested reactions. Laboratory blood tests showed an elevated total

cholesterol level of 7 mmol/L. She started dietary management for overweight and hypercholesterolemia. Results of the second WHOQoL-BREF were not received from patient A. Patient B had untreated symptoms or indication. The pharmacist consulted the patient and referred him to the prescriber, but the intervention was not accepted. The second quality of life measure shows the same frequency of negative feelings such as anxiety, bad mood, depression or despair. For patient C, the pharmacist intervention was a referral to the doctor for evaluation if a change in pharmacotherapy was needed. The intervention was not accepted by the patient. The second WHOQoL-BREF measure showed a decrease in the scores indicating the level of social relationships with no changes in the psychological domain.

Conclusions: To evaluate the impact of pharmaceutical care on patient safety, drug-treatment effectiveness and quality of life in conditions related to the use of psychotropic medicines, the authors consider that a future randomised trial involving a larger sample, control group, and multiple pharmacies is needed.

Developing a framework for pharmacist prescribing: A risk-based approach

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Introduction: Non-medical prescribing provides improved patient access to healthcare, reduced physician workload, and better use of pharmacists' knowledge. Risk assessment is essential prior to implementing a pharmacist prescribing model. A risk assessment exercise identifies weaknesses that may have a negative impact on the success of such a scheme. Should a pharmacist prescribing model be implemented in Malta, the research conducted in this study may guide policy-makers regarding the extent of regulation required.

Objectives: To assess consumers' perception of the risks associated with pharmacists prescribing, and to develop a framework for pharmacists prescribing, based on the perceptions of consumers and healthcare professionals.

Methods: A self-administered questionnaire was adapted and developed, to assess risks, as perceived by the public of pharmacists prescribing for selected medical conditions. The questionnaire was validated by one general practitioner, one linguist, two pharmacists, and three laypersons. The questionnaire was tested for reliability using the test-retest method, where ten respondents were asked to retake the questionnaire after 14 days. The study was registered with

the ethics committee, and a pilot study was performed with ten participants. The questionnaire was subsequently disseminated using convenience sampling via social media and in-person distribution. The probability of side effects occurring was multiplied with the severity of consequences, using a Likert scale from 1-5, where 1 represents the lowest score, in order to calculate the Risk Priority Number (RPN) as perceived by consumers, of medicinal products prescribed by pharmacists for selected medical conditions. Medical conditions were categorised as low risk, with RPN values ranging from 1-5, medium risk, with RPN values ranging from 6-15, and high risk, with RPN values ranging from 16-25. Data extrapolated from analysis was presented to an age- and gender-balanced focus group consisting of four pharmacists and four general practitioners to select conditions for inclusion in a pharmacist prescribing framework.

Results: According to the RPN values calculated, 36 conditions were categorised as low risk (RPN= 1-5), and 12 conditions as medium risk (RPN= 6-15). None of the conditions studied were categorised as high risk according to consumers. RPN values show that consumers are most comfortable with pharmacists prescribing for minor ailments, including bacterial and fungal skin infections, conjunctivitis, and muscle strains and sprains. Participants seemed more skeptical about pharmacists prescribing for chronic conditions, including obstructive airway diseases, anticoagulation therapy, and diabetes, amongst others. The focus group of healthcare professionals identified 21 conditions appropriate for inclusion in a pharmacist prescribing framework. Urinary tract infections, conjunctivitis, mild acne, nicotine replacement therapy, and muscle strains and sprains were identified as areas for further development into prescribing protocols.

Conclusions: The results obtained show that consumers are receptive to a pharmacist prescribing framework. In order to ease consumers' hesitancy regarding pharmacists prescribing for chronic conditions, a collaborative prescribing model is recommended for the successful implementation of such a practice.

Characteristics of the population vaccinated against COVID-19 in community pharmacies

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Introduction: Jujuy is the first Argentine province to incorporate community pharmacies to the public and free vaccination campaign against COVID-19. The online registration system of given doses allows for the extraction and analysis of data from the vaccination process.

Objectives: To describe the characteristics of the population immunised against COVID-19 in community pharmacies.

Methods: The information extracted from the National Register of Nominalized Vaccination (NOMIVAC) during the first quarter of 2022 was analysed. The data were grouped and the similarity of the results obtained between community pharmacies compared to other vaccination centres was compared using the Z-test.

Results: The number of doses applied in 27 community pharmacies authorised to provide vaccination service in pharmacies from January to April 2022 was 2,385, out of a total of 102,535 applications throughout the province (2.3%). A percentage of 77.4% of the vaccination in pharmacies was carried out in the Capital region. Vaccinated users were as follows: from 12 to 17 years old 9.7%, from 18 to 59 years old 68.5%, 60 years old or older 18.8%, and strategic and health personnel 3.0%. The female population represented was 54.7%, males 44.2%, and others 1.1%. A total of 21.7% corresponded to the primary scheme and 78.4% to a booster or additional dose. Except in the personal health and strategic group, in the rest of the categories the proportion vaccinated in pharmacies compared to other vaccination centres was significantly different ($p < 0.05$). A proportion difference of (0.160; 0.162) was reached for the population category between 18 and 59 years old, between pharmacies and other vaccination centres.

Conclusions: The vaccination in community pharmacies analysed is small and proportionally different from that carried out in other centres. However, the active participation of pharmacies in public vaccination campaigns increases access to health services, strengthening the health system.

Position of community pharmacy with regard to prevention and lifestyle

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Introduction: Prevention and health are the two main themes to keep the Dutch healthcare system at a high and affordable level. BENU Pharmacies have taken a leap forward from their traditional role as a drug supplier and drug expert towards prevention and health promotion, with the BENU Health Check. However, many people outside pharmacies have doubts about the role for pharmacies in prevention and health promotion. The position of the pharmacist is not yet clear, nor is the basis clear on which criteria a pharmacy can profile itself. Pharmacists claim that they are the most accessible healthcare providers and are therefore suitable for prevention and health promotion. However, it is questionable

whether this is also perceived as such by consumers and whether it is actually this accessibility that makes a pharmacist suitable for providing preventive care and promoting a healthy lifestyle. There may be other determinants that influence a pharmacist's suitability for prevention and health promotion, and probably other healthcare providers, like general practitioners, dieticians, physiotherapists and home care, are also or more suitable for this.

Little is known in literature on determinants when choosing activities in the field of prevention and health promotion. Preventive activities are an extension of care services and the criteria used to assess services in care are taken as the starting point for the research. These extensively researched criteria have been selected, but they need to be verified and supplemented before they can be used for research into activities related to prevention and health promotion.

Methods: Subsequently, interviews were conducted with healthcare providers who are actively involved in prevention and lifestyle promotion. In these interviews the list of determinants found in the literature is verified and completed. Finally a survey is held among clients of a Dutch BENU Pharmacy in which the associations of consumers about these 15 aspects were questioned, in addition to a number of questions about prevention and lifestyle.

Results: The results of the survey indicated that a pharmacist, a general practitioner and a physical therapist are all considered accessible healthcare providers, compared to home care and dieticians. However, the consumer mainly sees the general practitioner as the preferred care provider for prevention, followed by the physical therapist and dietician and only then the pharmacist and home care. No correlation was found between accessibility and suitability for prevention. However, a positive correlation was found between the factor interaction between patient and healthcare provider and the suitability for prevention for the general practitioner, pharmacist and home care. Interaction consists of the aspects openness, personal approach, service, cooperation, empathy, and hospitality.

Conclusions: The pharmacist is not perceived as the most accessible care provider and seen as less suited for prevention and lifestyle promotion than other healthcare providers. If pharmacists want to gain a position in prevention and health promotion, they have to improve the interaction with patients and be more of a care provider than a supplier.

The Sunflower: A way to successful inclusion of people with hidden disabilities at Glostrup community pharmacy

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Introduction: The Sunflower is a globally recognised symbol for non-visible disabilities, also known as hidden disabilities or invisible disabilities. They include autism and learning difficulties as well as mental health conditions, mobility, speech impairments, and sensory loss such as speech, sight loss, hearing loss, or deafness. They also include respiratory conditions as well as chronic conditions such as diabetes, chronic pain, and sleep disorders when these significantly impact day-to-day life. Wearing the Sunflower lanyard discreetly indicates to people around the wearer including staff, colleagues and health professionals that they need additional support, help or a little more time. The Sunflower is a non-commercial NGO.

Introducing the Sunflower as a natural part of the services at Glostrup community pharmacy improves the experience for people with hidden disabilities. The pharmacy joined the Sunflower programme mid-June as one of the first community pharmacies in Denmark. Other community pharmacies in Denmark will join afterwards. At the pharmacy, staffs are already trained to help people with disabilities - visible and non-visible. Even so, some people fear going to the pharmacy. The Sunflower helps to signal and communicate that the pharmacy is a safe space, also for people with hidden disabilities. Glostrup community pharmacy is one of the largest pharmacies in Denmark located near the capital Copenhagen.

Objectives: The purpose is to introduce the Sunflower to improve the customer experience and counselling at the pharmacy for people with hidden disabilities.

Methods: The study is a qualitative assessment of staff and customers experience with the implementation of the Sunflower programme.

Results: The preliminary reaction to the Sunflower is positive. Customers already asked for the lanyards before launch date. Results will be presented at FIP as statements.

Pharmacy of your choice: A paradigm shift towards patient centred pharmaceutical care services in the community

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Introduction: The Pharmacy of Your Choice (POYC) national scheme was inceptioned in Malta, in 2007, after long negotiations with the Malta Government by the Malta Chamber of Pharmacists and the Chamber of SMEs Pharmacy Section, on behalf of pharmacists and pharmacy owners, respectively and jointly. The POYC effectively decentralised the distribution of national health service medicines to chronic patients (N= 147K; MFH, 2022) entitled, under the Social Services Act, to the private pharmacy of the patient's choice located in the towns and villages of Malta. It enabled a personalised, pharmacist-patient relationship, It introduced and consolidated ICT penetration, including internet connectivity, in the community pharmacy network (n=221). Fifteen years from inception, the tripartite platform has successfully entered into a third Agreement (2022-2027), introducing Medicines Use Reviews (MURs) supported by the further development of the POYC digital platform. This attests to the commitment of the stakeholders to the development of the system; to consolidate the continuous evolution of pharmacy practice in the POYC scenario, spearheaded by the Malta Chamber of Pharmacists; to ensure sustainability and inventiveness of the community pharmacy network safeguarded by robust pharmacy legislation.

Objectives: To present the development in community pharmacy, from an infrastructural and professional practice aspect, resulting from the implementation of the POYC paradigm. The inception of the POYC national scheme is based on a Foresight study (Sant Fournier, 2004); this explored four scenarios, 1) Business as usual; 2) Hard times; 3) Onwards and Upwards; 4) Visionary/ Paradigm Shift. The present study aims to demonstrate that scenarios 1 and 2 have been surpassed and that the POYC scheme implementation and evolution has overtaken scenario 3 and is thriving in scenario 4.

Methods: A review of the four scenarios with attained milestones set by the working group (co-authors) indicated the observed scenario stage of the scheme. Through focus groups (community pharmacists, pharmacy owners, other health care professionals, POYC unit officials, and patients), the milestones were assessed and discussed. Outcomes were discussed in a plenary. The scenario developments were mapped.

Results: It was generally agreed that the POYC national scheme implementation has surpassed the third scenario

(Onward and upwards) and is at the entry-level of the fourth scenario (Visionary and Paradigm Shift). The milestones set by the working group and focus groups converged in the main, but there is still much to be achieved; in particular, the state-of-the-art architecture of the POYC digital platform to move towards paperless practice, an acquired authority (2020) and release pharmacists' time for more clinical and direct pharmacist-patient interaction. The introduction of the delivery of MURs by pharmacists, incepted by the new agreement, was considered as an example of scenario 4 (a paradigm shift) as it focuses on the pharmacists' competencies in patient care, as distinct to the infrastructural development of the process of distribution of medicines.

Conclusions: This exercise underscored the successful implementation of the 2007 Foresight study scenarios. It reinforced the significance of the POYC national scheme in the evolvement of community pharmaceutical care services and pharmacy practice.

Knowledge and application of green practices within the community pharmacy

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Introduction: The International Pharmaceutical Federation (FIP) Development Goal 21 focuses on sustainability in pharmacy and proposes mechanisms related to pharmacy workforce, practice and science. One aspect of sustainability in pharmacy relates to contributions towards safeguarding the environment through green pharmacy practices.

Objectives: To evaluate the perception of pharmacists and the pharmaceutical workforce in Maltese community pharmacies, towards green practices.

Methods: A self-administered questionnaire, entitled 'Green Practices in Community Pharmacy' was developed to evaluate the perception of pharmacists, pharmacy technicians, and assistants working in community pharmacies. The questionnaire was validated for face and content validity by a panel of three academic pharmacists, two community pharmacists, and two pharmacy technicians. The study was registered with the University of Malta, Faculty Research Ethics Committee. Dissemination of the questionnaire was conducted online through social media using Google forms and in community pharmacies around Malta. Participants deemed eligible for the study were required to work within Maltese community pharmacies for at least three hours a week.

Results: A total of 78 participants answered the questionnaire, of which 64 were pharmacists, seven pharmacy assistants, and three pharmacy technicians. Participants were aged between 21-30 years (n=43), 31-40 years (n=17), 41-50 years (n=8), and 51-60 years (n=10) years, with most participants having one - five years of experience (n=37). Thirty-five participants have never heard of the term 'green pharmacy practice'. Twenty-six participants heard the term 'green pharmacy practice' (n=43) from the internet and 22 participants at university. The age of participants who heard the term from university ranged between 21-30 years (n=20), 31-40 years (n=1), and 41-50 years (n=1). All participants (n=78) would like more information about green pharmacy practice, especially through social media (n=54), webinars (n=42), and newsletters (n=33). Participants have never (n=20) or rarely (n=18) examined their pharmacy energy consumption. Green community pharmacy practices such as stock rotation (n=57) and recycling (n=43) were already being implemented by most participants. All participants possess a medicinal waste bin (n=78) to receive unused or expired medicines from consumers. Participants (n=37) remarked that patients tend to collect free medications from the national health services scheme even when they do not need them, leading to hoarding of medicines that go to waste.

Conclusions: Pharmacy schools have an important role in creating awareness about green pharmacy practices amongst the future workforce to promote the implementation of such practices in settings such as the community pharmacy. Being at the forefront of healthcare systems, pharmacists and the pharmaceutical workforce should be encouraged to employ greener practices during day-to-day operations, reduce pharmaceutical waste, provide patient education about the detrimental effects of medicines on the environment, discuss proper medicines disposal, and increase environmental awareness amongst other healthcare workers.

Consumer behaviour related to access and use of online health information and the impact on self-care

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Introduction: Recently there has been an extensive development and availability of digital health information and health and social technology platforms. Seeking health information online is increasing exponentially. It has been widely thought that online health information-seeking behaviour has a positive impact on health-related decision-making and the use of health information. Due to its

increasing importance, consumer online health information-seeking behaviour has been investigated from different aspects. However, no systematic review was found that critically analysed the published evidence and applied the findings to pharmacy practice, and its potential impact on self-care behaviours.

Objectives: A systematic review was conducted to summarise the evidence of published literature for online health consumer behaviour with the following objectives: (1) To determine how, where, and why consumers seek online health information; (2) To determine the factors influencing objective 1, and the impact on self-care; (3) To determine strategies to increase informed decision-making by consumers to seek care at an appropriate level using online health information and apps; (4) To determine the outcomes of informed decision-making by consumers to seek care at an appropriate level through the use of online health information and apps.

Methods: A systematic review was conducted following the Cochrane Handbook for Systematic Reviews of Interventions and PRISMA (Preferred Reporting Items for Systematic reviews and Meta-Analysis) in PubMed, Scopus, and Web of Science. The search was limited to primary articles written in English or Spanish. Letters, notes, commentaries, editorials, and protocols were excluded. No time limits were applied. Individual studies were assessed for eligibility according to inclusion and exclusion criteria.

Results: Two hundred and thirty-five (n=235) records were screened and 15 fulfilled the inclusion criteria. Some of the most frequently identified reasons for consumers' seeking online health information were based on a specific diagnosis or treatment, and physical well-being. The main mechanisms for seeking online health information included public search engines, while other platforms (e.g., social media) were frequently associated with finding support regarding stress-related issues. Factors including age, gender, education, income, race, self-efficacy and trust were found to influence online health information seeking. No papers were found where pharmacists used strategies to enhance or promote appropriate online health information seeking behaviours.

Conclusions: The results of this project may provide a better understanding of how, where, and why consumers seek online health information, and the impact on self-care, and evidence-based strategies to increase the consumer awareness and use of online health information, that lead to informed decision-making and increased self-care. Additionally, the results may assist in developing pharmacy interventions targeted at consumer behaviour.

Case study: Lean and especially Lean Daily Management (LDM) as a way of improving patient care, well-being of employees at work and efficacy in community pharmacy

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Introduction: By the authors' experience a lot of non-value-adding work is being done in pharmacies in Finland. Though some of this is a necessity (regulatory), most can be classified as "it has always been done this way". This typically results in a sense of urgency when it would not be needed, and poor patient care. Introducing Lean, and Lean Daily Management (LDM), the authors went through the processes and management enabling them to take better care of their patients, personnel, and efficacy.

Objectives: The aim was to improve the quality of customer service and the well-being of the employees.

Methods: The authors started by LEANing their customer service process and building up an LDM system for their work community. They then continuously developed (Kaizen) and improved their processes and led by reducing waste (Muda), striving for the best possible result with the least amount of work to be done. With the LDM board, the authors started to go through their employers, strategic points and deviations that were first analysed, to find the root cause. The employers in the LDM board were shown the daily indicators and also went through the other important aspects that the personnel needs to be up-to-date about.

Results: Introducing LEAN and LDM has enabled the authors to improve their care for the customer by 17% (2018-2022). The well-being of employees has risen to 10%, and the sufficiency of communication, management support, and impartiality of management to 45%, 20%, and 23%, respectively (2017-2022). Also, the indicators referring to efficacy have risen: the average queue time was reduced by 50% (2017-2022). The LDM method was also key in reducing deviations of one very typical inconvenience in Finnish Pharmacies, i.e., in Finnish Social Insurance compensations by 48%.

Conclusions: LEAN and most importantly LDM is an easy and cost-effective way to increase efficacy, care of patients, and well-being of employees. After the start-up, it also saves time from the very typical management way of distinguishing fires. The time saved can then be used for productive work such as taking care of the patient. Also, employers can be empowered to develop their own work and take more responsibility for their work. In LEAN terms, this leads to a better flowtime of patients.

COVID-19 vaccination within Swiss community pharmacies during the COVID-19 Pandemic

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Introduction: During the COVID-19 pandemic, community pharmacies across the globe have been involved in public health and contributed greatly to many countries to the vaccination service. Since the beginning of 2016, Swiss community pharmacists may be accredited for vaccinating healthy adults aged 16 and above and the cantonal health authorities define which vaccinations are allowed to be administered and may state additional requirements and limitations. In general, customers actively choose pharmacies for their opening hours, ease of access, and trust in them. At the end of April 2021, Swiss community pharmacies were able to start vaccinating in selected cantons with Swissmedic (Swiss Agency for Therapeutic Products) approved COVID-19 mRNA vaccines and community pharmacies have contributed to the immunisation of healthy adults during the pandemic.

Objectives: pharmaSuisse (the Swiss Association of Pharmacists) aims to highlight the contribution of community pharmacies towards the vaccination service during the COVID-19 pandemic.

Methods: During the pandemic, the Federal Office of Public Health (FOPH) monitored and recorded immunisation in the anonymised and aggregated form given to them by the cantons. This data is published every week on the official website of the FOPH. Data concerning the number of administered vaccine doses in healthy adults (16 years and older) within community pharmacies during the period of 26th April 2021 to 24th April 2022 were extracted and compared to the total administered doses in healthy adults within Switzerland.

Results: During the observation period, a total of 13,164,675 doses were administered in community pharmacies, hospitals, vaccination centres, nursing homes, and doctor's offices. Thereof, 419,197 doses were administered to children aged 5-15 and 1,540,699 to patients with chronic diseases resulting in the administration of 11,204,779 doses to healthy adults aged 16 and above. Of these doses, 825,333 (7.4 %) were administered in 549 community pharmacies that registered to vaccinate COVID-19 mRNA vaccines. On average, 1,503 doses were administered per community pharmacy during the observation period.

Conclusions: Community pharmacies have been able to offer key services during the pandemic and the availability of vaccination services in community pharmacies has promoted to the immunisation coverage of COVID-19. These results confirm that the community pharmacies can integrate

vaccination services into their routine with quality criteria. Further, this showcases the important role of community pharmacies within public health and that the availability of pharmacists-administered services can be an important contributor to a successful vaccination programme in Switzerland.

Procedures to optimise the dispense of compounding medications

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Introduction: Compounding medication by legal definition in Spain, is an individualised medicine and to be effective and secure it needs to be adapted to the patient's characteristics and condition, especially if it is applied to the skin surface. Currently in this area, a high percentage of compounding medications is manufactured at a different chemist than the dispensing pharmacy which received the original prescription. For the pharmacy to be able to prepare an effective and secure compounding medication it is essential to know patient's information and illness. However, in many cases, dispenser pharmacies send compounding medication manufacturing requests without including those details, that is why ways to correct this situation are needed.

Objectives: Improve the information sent to manufacturing pharmacies when a compounding medication is requested to achieve an individualised medicine adaptation of the patient's characteristic and the condition of illness in order to be able to fulfill the requirement of individualisation

Methods: Quasi-experimental study before-after where these procedures were developed:

Develop the Standard Operating Procedure: "Reception and delivery of compounding medications to patients" and send it to pharmacists: 21/02/22.

Specific educational session about the reception procedure when the patient presents the prescription, sending of the request to the manufacturing pharmacy and the dispensing of the compounding medication: 16/03/22

Send three pieces of information reminding the importance to pick up the patient's information: Feb-May/22

Results: Before doing the educational session, the information about the patient and illness were completed in a 11.97% of the requests. After the procedure, that percentage increased to 32.16%.

Conclusions: Specific training and provision of accurate and detailed information to pharmacists has improved professional practice, enabling compounding medication to be adapted to patient's needs. This fulfills legal requirements of the patient-centred approach ensuring effectiveness and safety for treatments.

Determination of diabetes risk in individuals applying to community pharmacy

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Introduction: Diabetes is a serious condition that affects people from all backgrounds of life. Because they suffer such severe consequences, they face exorbitant prescription costs to treat them. It is critical to diagnose the disease early in order to save cost on this medication. Patients who are diagnosed early are significantly more likely to be able to control their disease with proper nutrition and physical activity.

Objectives: The aim of this study was to evaluate the diabetes risk status of people who visit the pharmacy but do not have diabetes, and then refer them to a doctor based on that information.

Methods: In this study, randomly selected patients who came to the pharmacy were given a questionnaire with 12 questions asking about their demographics and a Type 2 Diabetes Risk Test with seven questions. The scores of that answer are written for each answer in this test. These scores were collected at the end of the test, and it was determined whether the patient was in a risky scenario. Patients who were in a risky situation were referred to a doctor for further evaluation.

Results: Forty-eight volunteer patients participated in the study. A percentage of 60.42% (n=29) of the patients were female and 39.58% (n=19) were male. The mean age of the patients was 62.73± 11.74 years. The total mean ± standard deviation of the answers given to the adherence to Medication Adherence Scale of Self-Efficacy for women was 47.17 ± 7.12, and the mean total score for men was 44.74 ± 8.28. The results of the SF-36 Quality of Life Scale were concluded under eight sub-headings.

Conclusions: As a consequence of the study, 45% of the patients were referred to a doctor, and 44.4% of those who were referred to a doctor spoke with the doctor and underwent an examination. The fasting blood sugar level was

high in 60% of the individuals who had the test, and 75% of these patients started taking medication. As a result, 45% of the patients who sought medical attention were unaware that they had diabetes. The pharmacists were prepared to meet the disease early by diagnosing it early.

Evaluation of hypertension treatment adherence in a community pharmacy

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Introduction: The majority of people who take antihypertensive drugs don't reach the specified blood pressure target. Two of the most common reasons for failure to reach target blood pressure are poor daily adherence to drug regimens and a lack of persistence with medication use.

Objectives: This study aimed to evaluate hypertension treatment adherence by a trainee pharmacist in hypertensive patients who applied to a community pharmacy.

Methods: In this study, scientifically proven Drug Treatment Adherence Self-Efficacy Scale and SF-36 Quality of Life Scale were used. In order to determine the sociodemographic characteristics of the patients, 13 more questions were asked apart from the scales.

Results: Forty-eight volunteer patients participated in the study. A percentage of 60.42% (n=29) of the patients were female and 39.58% (n=19) were male. The mean age of the patients was 62.73± 11.74 years. . The total mean ± standard deviation of the answers given to the Adherence to Medication Adherence Scale of Self-Efficacy for women was 47.17 ± 7.12, and the mean total score for men was 44.74 ± 8.28. The results of the SF-36 Quality of Life Scale were concluded under eight sub-headings.

Conclusions: Considering the gender-related percentage of the patients participating in the study, the percentage of female patients was found to be higher than male patients. When the data of the Turkish Hypertension Prevalence Study were compared with the data of the study, the prevalence of the disease was found to be higher in women than in men. Hypertension treatment adherence is very critical for the course of the disease. Community pharmacists, who will provide the closest health counselling service, have great responsibilities in order to correct the treatment adherence of the patients and to identify the problems individually.

Evaluation of drug-drug interactions in a community pharmacy

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Introduction: Drug-drug interaction is an important drug-related problem that causes treatment failure and side effects. Drug interactions are frequently encountered in adult patients, and there is an increase in hospitalisation, morbidity, and mortality rates due to side effects

Objectives: This study aimed to detect and evaluate the potential drug-drug interactions (PDDI) in patients who come to the community pharmacy.

Methods: The study was conducted prospectively and retrospectively in a community pharmacy between October 2021- May 2022. The prescriptions of the patients who applied to the pharmacy and had at least two drugs in their prescriptions were examined by the trainee pharmacist in terms of PDDI. The data of the patients were accessed through the pharmacy system. Only the interactions of drugs used systemically were examined, and topical and inhaler drugs were excluded. Lexicomp Drug Interactions Checker and Medscape Drug Interaction Checker databases were used to detect and evaluate PDDI. In the retrospective phase, the prescriptions of the patients who previously applied to the pharmacy were examined, and in the prospective phase, the prescriptions of the patients who agreed to participate in the study were examined in terms of PDDI. A recommendation was made to the patient or physician to prevent drug interactions if necessary.

Results: In the retrospective phase, 462 prescriptions (428 patients), and in the prospective phase 48 patients' prescriptions were examined. The mean age of 428 patients was 41.2 ± 23.9 years, and 60% were female. In the retrospective phase, there were a total of 1,350 different drug pairs. At least one potential drug-drug interaction was detected in 31% (n= 145) of prescriptions with the Lexicomp interaction programme and 28.5% (n= 132) of prescriptions with Medscape. In total, 391 PDDIs were detected with Medscape and 325 with Lexicomp. In prescriptions with interaction, there were 2.96 interactions per prescription in Medscape and 2.24 interactions per prescription in Lexicomp. The mean age of 48 patients at the prospective phase was 47.7 ± 23.1 years and 26 (54.2%) were female. There were 221 drug pairs used by 48 patients. A total of 178 interactions were detected in 29 (60.42%) patients with Medscape, and 155 interactions were detected in 31 (64.59%) patients with Lexicomp. There were 6.14 interactions per patient in Medscape and five interactions per patient in Lexicomp.

Conclusions: Since the non-prescription drugs of the patient were also questioned by the trainee pharmacist in the prospective phase, the number of interactions per patient was found to be higher compared to the retrospective phase. The use of databases that detect drug interactions also provides support for rapid access to evidence-based information. In line with the study data, the pharmacist's taking the drug history by interviewing the patient, especially the detection and management of preventable drug interactions show the importance of the contribution of pharmacists to public health.

Hypothyroidism: The impact of patient awareness on disease management

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Introduction: Hypothyroidism is the most prevalent thyroid disease and the process of the disease itself leads to many subclinical cases still undiagnosed. Community pharmacists deal with these patients regularly and often form the first line of their counselling. Transmitting and simplifying access to information on hypothyroidism, raising awareness, and helping with medication management are pharmaceutical practices that improve health outcomes.

Objectives: To assess the population followed within pharmaceutical consultation of hypothyroidism in a group of community pharmacies. To present the results of pharmaceutical consultation for hypothyroidism

Methods: Retrospective study, with data reported by pharmacies, between August 2021 and March 2022. The sample consists of data from all users followed up with the pharmaceutical consultation for hypothyroidism. This service involved a specialised pharmaceutical consultation held face-to-face at the pharmacy. The purpose of this consultation was to assess and identify behaviors that potentially interfere with hypothyroidism or its treatment. Previous diagnosis of hypothyroidism and an ongoing treatment were inclusion criteria in this study. Pharmacists used a semi-structured interview technique to assess adherence and users' level of knowledge about the medicine and the pathology.

The data collected during the pharmaceutical consultation for hypothyroidism allowed the community pharmacist to take an active role in counselling. Data were collected using Microsoft Forms. Descriptive analysis was performed using Microsoft Excel.

Results: A total of 430 people were followed up within the scope of the pharmaceutical consultation for hypothyroidism, 90.23% of whom were aged over 40 years. Of the users

interviewed, 88.14% were female. 23.08% of the people stated that they forgot to take their medication for hypothyroidism treatment at least once a month.

Amongst the 119 people who stated that they forget to take their medication at least once a month, less than half (42.85%) considered themselves to be sufficiently informed about the pathology and the correct use of levothyroxine. Of the total users interviewed, 23.02% admitted feeling uncomfortable with the need to take their medicine while fasting.

Conclusions: The data show that the role of the pharmacist in hypothyroidism goes beyond dispensing the medication. The pharmacist consultation of hypothyroidism represents an opportunity for health professionals in community pharmacies to contribute to the increase of health literacy and control of the disease. By clarifying doubts and providing information about hypothyroidism and its treatment, pharmacists enhance positive health outcomes for the population.

Dispensing and counselling diosmin: The role of pharmaceutical intervention

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Introduction: Chronic venous disease (CVD) is a very prevalent disease among the Portuguese population and affects mostly women. The frequent underestimation of symptoms means that the disease is often diagnosed at an advanced stage.

The pharmacist plays an active role in the detection of signs and symptoms, as well as in the counselling of venotropic drugs.

Objectives: The featured population was advised to start treatment for CVD with an oral formulation of diosmin. The need for potential interventions and referrals was then assessed.

Methods: Retrospective study, with data collected by community pharmacists, and reported between March 2021 and April 2022. The group of people with signals and/or symptoms of CVD with indications to take diosmin is the sample of the study. Pharmaceutical interventions were performed over the phone, by community pharmacists. The main purpose of this half-structured interview was to assess therapeutic compliance and identify behaviors that might contribute to worsening health outcomes.

The information collected during the consultations allowed pharmacists to advise their patients about the management

of their claims. Data were collected using Microsoft Forms and Microsoft Excel was used for the descriptive analysis.

Results: A total of 528 individuals were interviewed under this programme. The large majority (83.90%) are women. A percentage of 85.04% of the individuals monitored had started taking the oral formulation of diosmin for the prevention and/or treatment of CVD. Also, 70.45% of patients received some type of pharmaceutical intervention. A total of 171 people were identified as needing more information about the medicine and the ongoing treatment. A total of 251 users were referred to another health professional, 81 of whom for medical consultation.

Conclusions: The characterisation of the sample is aligned with the literature previously consulted, which reports that women are more affected by CVD. The study highlights the spectrum of areas where the pharmacist can act, with regard to CVD. The proactive intervention of the community pharmacist allowed the identification and clarification of doubts about the treatment, thus improving health outcomes. With this study, it was also possible to prove the potential of this proactive contact, which can thus be extended to other therapeutic areas and formulations.

The impact of diabetes mellitus complications on the management of disease

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Introduction: The prevalence of diabetes in the world population has been rising during the last decades, which has also raised concerns about real-life impact of the disease on public health and finances. Diabetes mellitus is a chronic and multifactorial disease that requires regular surveillance, essential for successful daily control. The community pharmacy plays an important role in following and counselling people with diabetes, helping them with the daily management of the disease.

Objectives: To feature a population with diabetes followed by pharmaceutical consultation for diabetes in a group of community pharmacies. Also, describe variable factors with impact on diabetes mellitus complications.

Methods: Retrospective study, with unpublished data collected by community pharmacists, and reported between January 2021 and March 2022. The data collected by the group of people with diabetes mellitus that attended the pharmaceutical consultation for diabetes is the sample of the study. Pharmaceutical consultations for diabetes were performed, face-to-face, by community pharmacists. The

main purpose of this semi-structured interview was to assess and identify behaviors that might contribute to worsening health outcomes.

Previous diagnosis with diabetes mellitus Type 2 was a mandatory inclusion criteria for the pharmaceutical consultation for diabetes. The information collected during the consultations allowed pharmacists to advise their patients about the management of their diabetes. Data were collected using Microsoft Forms and Microsoft Excel was used for the descriptive analysis.

Results: A total of 227 individuals were interviewed in the pharmaceutical consultation for diabetes and 51.98% were men. A percentage of 98.68% of the sample was aged between 40 and 90 years old. Eighty-two individuals related at least one complication of diabetes, with cardiovascular disease being the most common complication (43 individuals). A percentage of 36.59% of these 82 assumed an unbalanced diet and 65.85% doesn't exercise regularly. Smokers represent 5.29% of the total sample (n=227), but only 4.88% of the group that manifested complications (n=82).

Conclusions: The analysis of collected data emphasises cardiovascular disease as the most common complication of diabetes mellitus. The rate of unhealthy lifestyle practices means there's work to be done in terms of pharmaceutical awareness and counselling. This work is part of a patient-following programme carried out by a group of community pharmacies. Community pharmacists are the best-positioned professionals to advise people with diabetes about non-pharmacological measures that contribute to improving their health. Although eating habits and exercise are still underrated, the results show that the presence of complications might contribute to smoking cessation among people who have diabetes mellitus.

Knowledge of community pharmacists regarding the use of medications in pregnancy

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Introduction: Community pharmacists (CPs) are the first point of call for pregnant women regarding the use of both over-the-counter (OTC) and prescribed medications. The role of community pharmacists goes far beyond addressing drug safety in pregnancy and includes their active contribution to treatment decisions, ensuring the proper use of medicines as well as counselling. More specifically, as almost 50% of pregnancies are unplanned, a woman often realises that she

is pregnant while already taking a medication, which can be fatal to the foetus.

Objectives: The purpose of this study was to investigate the current knowledge and needs of the CPs in Greece about the use of medications during pregnancy and their counselling advice.

Methods: This study used quantitative research methods and it used a survey-based questionnaire designed after an extensive literature search. The questionnaire consisted of six subsections and 35 questions in total (multiple-choice, Likert scale, and open-ended questions). The study was conducted in Volos (the 7th largest city in Greece) due to the local knowledge and the convenience of the researcher. Prior to the data collection, all the relevant documentation was ethically approved by the Pharmaceutical Association of Magnisia. A pilot study was also conducted for the validity and reliability of the questions with no further changes

Results: In total, 103 CPs responded with the majority being females (n = 58/103, 56.3%). When CPs were asked about the use of indomethacin during pregnancy, it seemed that they had a lack of knowledge. It is well known that the use of indomethacin (NSAIDs) in pregnancy carries numerous risks, one of which is the obstruction of the foetal artery in the uterus when taken during the 3rd trimester. Half of them (n=54, 52.4%) were not aware of it, which reflects a possible lack of knowledge about the use of other NSAIDs in pregnancy such as naproxen or diclofenac, etc. Additionally, it was also identified that CPs had insufficient knowledge about the use of antacids given as an OTC to treat indigestion during pregnancy. Participants were not aware in terms of which type of antacids can cause a milk-alkaline syndrome in the foetus. Almost half of them (n=50), 48.5% answered incorrectly (they chose either the antacids containing aluminum or all of the above). The correct answer was the antacids containing calcium.

Conclusions: In conclusion, many community pharmacists still lack the confidence and knowledge to provide advice and resolve health and medication problems for pregnant women. To the author's knowledge, this is the first study that explored the views and knowledge of CPs in Greece about their role in medication use during pregnancy. For this reason, it is advisable to replicate this study in other parts of Greece to evaluate the knowledge of pharmacists and to develop training to promote and improve their clinical practice during pregnancy.

Immunisation services in Costa Rica: Strengths, challenges, and opportunities

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Introduction: Immunisation is one of the milestones in public health, which allows populations to avoid infectious diseases and therefore, increase life expectancy and quality of life. In Costa Rica, the health system is divided into public and private services. Private services are quite diverse in their composition and community pharmacies (CP) are part of these. Historically, CP have been considered primary care centres supplying medicines information, counselling to patients, medication dispensing, pharmaceutical indication, and parenteral administration of medicines, including vaccines. Vaccines are administered mainly by the public sector, but there are people who are not included in specific schemes or who prefer to go to pharmacies for immunisation services.

Objectives: To make a diagnosis about the immunisation services provided by CP.

Methods: A cross-sectional study was carried out by the College of Pharmacists of Costa Rica. Data collection was an online questionnaire. The study population were community pharmacists from the private sector. The survey remained open for response from April 26 to May 31, 2021. To participate in the survey, pharmacists were asked to respond from the reality of their current professional practice. Participation was voluntary, anonymous, and the data was handled confidentially.

Results: A survey was sent to 1,910 pharmacists, of whom 325 (17%) provided a complete answer and 71% of the respondents administer vaccines in their CP. Of the rest (29%), the main reasons for not providing this service include: lack of conditions (cold chain), company policies, and injectable medicines are not applied in the CP. The main vaccines administered in CP are for yellow fever, influenza, HPV, hepatitis A and B, diphtheria-tetanus-pertussis, pneumococcal disease, and chickenpox. About 69% of pharmacists carry out pharmaceutical indications of vaccines.

Of those who administer vaccines, only 44% have a programme that encourages immunisation, mainly due to a lack of time and resources and low consumer demand. Programmes developed by CP were oriented to influenza campaigns and information programmes.

More than 50% of the respondents stated they have received university and continuous training related to vaccination. Pharmacists were asked about challenges to improving immunisation services in CP, and more than half answered: distrust about the importance of vaccines, lack of profitability

of some vaccines in CP, lack of information by users about the availability of vaccines in CP, and lack of clearer policies by the Ministry of Health that define, regulate and support the role of pharmacists in vaccination.

Conclusions: Pharmaceutical immunisation services in Costa Rica have been developed from practice. Results show the contribution of pharmacists in the immunisation process. Strengths include regulatory openings for the administration of vaccines, continuous training related to the subject, and the availability of guides and protocols in these services. However, the challenges currently faced should be pointed out: misconceptions about vaccines, the need to develop programmes that take advantage of available resources, economic gaps, and lack of further support to strengthen these services. Given this scenario, support from professional organisation is necessary to advocate and strengthen pharmaceutical immunisation services.

Perception of pharmacists towards oral contraception and emergency contraception in Istanbul

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Introduction: Unwanted pregnancies, whether confounded or unexpected, are common all over the world. Contraception is the use of any practices, methods, or devices to prevent pregnancy. Also known as family planning, pregnancy avoidance, or fertility control. Women can use emergency contraception to avoid pregnancy following a known or suspected failure of birth control or an unprotected intercourse. The use of an emergency contraceptive reduces a woman's chances of pregnancy to 1 to 2%.

Objectives: The aim of the research is to observe the attitudes of pharmacists about oral contraception and emergency contraception, to measure their practical and theoretical knowledge, to determine the methods of transferring this information, and to evaluate the awareness level of the community pharmacy pharmacist by analysing their role in contraception guidance.

Methods: An anonymous online survey using Google online forms was used to conduct a descriptive, cross-sectional observational study. The questionnaire, which consists of 30 multiple-choice questions to be completed in 10 minutes, was distributed through social media platforms such as WhatsApp, LinkedIn, and Facebook in order to reduce risky situations in interviews caused by the pandemic. Volunteer inclusion criteria included graduates from the Faculty of Pharmacy who were actively working in a community

pharmacy, while exclusion criteria included pharmacists who were not actively working in a community pharmacy. The study was approved by Altinbas University ethic committee and the analysis was performed using Statistical Package for Social Sciences, SPSS 20.

Results: A total of 100 pharmacists participated in this study from different community pharmacies in Istanbul. Men made up 34% of the participants, whereas women made up 65%. About 90% of the respondents said they were between the ages of 23 and 29. While 77% of participants reported receiving oral contraception and emergency contraception training while at university, 23% did not. According to pharmacists, the most common side effects of emergency contraceptives are headache, abdominal pain, and mood and emotional changes; the most common contraindications are an ongoing pregnancy and hepatic failure. Variable answers to the study questions were noticed.

Conclusions: Based on the findings of the study, the authors can conclude that pharmacists have a moderate level of knowledge about oral contraception and emergency contraception. Various pieces of training can be given to pharmacists during and after their university education in order to raise patient awareness and guide them more accurately, and their way of conveying information and knowledge can be strengthened. In the long run, this will benefit the welfare of the society by promoting family planning.

Patients' knowledge and attitudes toward multivitamin supplements in Baghdad and Istanbul

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Introduction: Consumption of multivitamin supplements has increased dramatically in recent years, especially during the COVID-19 pandemic. Many people used them to boost their immune systems. Multivitamins are frequently regarded as valuable supplements because they can help bridge the gap between what a person gets from his diet and what he needs for good health. A high multivitamin intake, on the other hand, may be harmful.

Objectives: The aim of this study is to investigate the pattern of use, knowledge, and attitude toward multivitamin supplement consumption among the general population in both Baghdad and Istanbul.

Methods: A cross-sectional study was carried out in Baghdad and Istanbul via an online survey using Google online forms. A total of 213 people from the general population participated in the study, 111 from Baghdad and 102 from Istanbul. The questionnaire was adapted for this study from previous studies. The questionnaire contains a total of 25 questions, both multiple-choice and open-ended, including demographic variables and questions about the patient's knowledge and attitude.

Results: According to the findings, 83.8 % in Baghdad and 60.8% in Istanbul used multivitamin supplements. The percentage of participants in Baghdad who took multivitamins on medical advice was 70.2%, while it was 65.6% in Istanbul. In Baghdad, 99.1% believe that taking multivitamins is beneficial to their health, while in Istanbul, the percentage is 58.8%. In Istanbul, 36.3% believe that multivitamin supplements are always safe, but in Baghdad, the percentage was 22.5%. The majority of the study participants, whether in Baghdad or Istanbul, have no knowledge of the side effects or interactions of vitamin supplements, with 77.5% in Baghdad and 58.8% in Istanbul.

Conclusions: According to the findings of this study, the majority of people were unaware of the drug interactions and risks associated with multivitamin supplements. To reduce self-directed supplement use, specific educational activities are required. Simultaneously, healthcare providers should pay close attention to their patients' multivitamin consumption and advise them on how to use them correctly.

Resilience against COVID-19: Rapid antigen test programme in community pharmacies

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Introduction: The burden of the fifth wave of the COVID-19 pandemic in Catalonia fell mainly on primary care, mainly due to COVID testing and case management to break contagion chains. A leading objective was to keep schools and leisure activities for children open, through quick case management and testing of living groups of the case. Hectic incidence of mild cases risked system collapse, and a dedicated testing programme was set between the Catalan Health Service, the Catalan Public Health Agency, and the Council of the Pharmacists Association of Catalonia to uptake community pharmacies into the testing capacities of the public system.

Objectives: Describe the community pharmacy (CF) Rapid Antigen Test (RAT) programme reimbursed by the Catalan Health Service in Catalonia.

Methods: Legal coverage for professional activity and data protection was provided through a Public Health programme and the signature of a specific two-part agreement, including a detailed protocol and provision for reimbursement of expenses. Participation was not mandatory for CFs; they were required to have a dedicated space at their facilities for the safe handling of cases while minimising risks to other pharmacy users, and specific training. Qualified pharmacies were supplied with individual protection materials, Panbio RATs, and connections to the reporting system. The electronic prescription system was modified to allow Public Health designees to prescribe programme RATs, otherwise not available for prescription. Only asymptomatic children and adolescents of the living group could be tested at CF, and also adults (mainly teachers and monitors) if fully vaccinated. Results could be later accessed by prescribers and physicians at the electronic health records, and by the subjects through the personal electronic portfolio (La Meva Salut). The protocol was adapted four times according to the changing requirements of the epidemiological situation.

Results: Out of the 3,263 existing CFs in Catalonia, 1,680 participated in the programme. Phase one started in July 2021, focused on holiday and summer camps, testing children and adolescents aged ten and over, and their monitors; 36,248 RAT were done with a positivity rate of 1%. Phase two started in September 2021 when the schools restarted their activity, testing adolescents aged 12 and over and their teachers; 71,585 RAT were done with a positivity rate of 1.2%. Phase three started in January 2022, in the context of the sixth wave of massive omicron contagions after the Christmas break, testing children and adolescents aged six and over; 476,859 RAT were done with a positivity rate of 7.3%. Peak activity reached up to 40,000 tests per day, which were challenging to manage, especially in urban areas, suggesting maximum system capacity. Finally, Phase four started in February 2022 with a decreased demand due to the decay of the sixth wave, and is still open and limited to children and adolescents in special education centers.

Conclusions: Community pharmacies proved to be a valuable public health resource that rapidly and efficiently responded to massive demand, allowing to keep schools and educational and leisure activities open during epidemic outbursts, through case detection and reporting using rapid antigen testing.

Living the skin: A community pharmacy-based follow-up programme for acne, atopic dermatitis and hyperpigmentation

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Introduction: Acne, atopic dermatitis, and hyperpigmentation are amongst the most prevalent skin conditions presented at community pharmacies. Despite their high prevalence, there is still a large gap in the dissemination of information about these skin conditions and, consequently, a vast set of wrong beliefs about them. Studies have shown that there is a high dropout rate from treatment by people with these skin conditions, which is explained by the fact that the therapeutic regimens are prolonged, in some cases, with various side effects, and with benefits that take some time to appear.

People with these skin conditions mostly choose the community pharmacy as a first-choice place for assistance. Less severe cases of these conditions are found within the scope of pharmaceutical intervention, with the others being subject to specialist intervention. In all cases, it is up to the pharmacy team to convey information about dermatitis and its treatment, namely the correct use of products and medicines, their contraindications, possible adverse reactions, and drug interactions.

Objectives: To assess the feasibility and effectiveness of a community pharmacy-based intervention and follow-up programme for individuals with acne, atopic dermatitis, and hyperpigmentation.

Methods: The "Living the Skin Programme" consists of an initial assessment, which includes product indication, and two follow-up contacts at one and three months, to promote adherence and monitor treatment effectiveness and tolerability. Patients were recruited from April 2021 to May 2022, through a group of 120 community pharmacies, after pharmacists had completed specific training to perform the intervention. The inclusion criteria for patients were: adults with acne, atopic dermatitis, and hyperpigmentation who took specific products for these skin conditions; and informed consent for data collection and analysis. Specific questionnaires were developed to assess the situation, guide product indication, and monitor the effectiveness and tolerability of the treatment. A descriptive statistical analysis was conducted.

Results: A total of 64 community pharmacies recruited 453 patients to the programme, mainly female (71.74%, n=325), the majority with acne (42.61%, n=193), closely followed by atopic dermatitis (40.40%, n=183). Age distribution was linked to the specific skin condition, with acne patients mostly

in their teens, from 11 to 20 years old (51.30%, n=99) and atopic dermatitis most prevalent for children until 10 years old (20.21%, n=37) and then evenly distributed in other ages.

Until June 2022, 288 patients completed the follow-up programme, and 31 dropped out. The most common pharmaceutical interventions were non-pharmacological advice (27.06%, n=745) and adherence promotion (21.69%, n=597). For those participants with acne (n=121), atopic dermatitis (n=119) and hyperpigmentation (n=51) who concluded the programme, 93.4% (n=113), 93.3% (n=111) and 78.4% (n=40), respectively, felt that the recommended treatment had helped control their skin condition. Satisfaction rates with the treatment at three months were higher for participants with atopic dermatitis (79.8%), followed by acne (67.8%), and then hyperpigmentation (64.7%).

Conclusions: A community pharmacy-based intervention and follow-up programme for people with acne, atopic dermatitis, and hyperpigmentation is feasible and yields important data that can be used to promote treatment adherence, effectiveness, and tolerability.

Evaluation of the precautionary prescription annulment system in Andalusia from 2014 to 2020

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Introduction: The Andalusian pharmacist can warn the prescriber of drug-related problems with the prescriptions using the Precautionary Prescription Annulment System. This system helps to avoid duplicities in medical treatments, adverse reactions or non-medical adherence, among other things. The prescribers can accept or refuse that annulments, or they will be automatically accepted if there is no response within seven days.

Objectives: The objective of this study is to know the PPA ("Precautionary Prescription Annulments") carried out in Andalusian pharmacies between 2014 and 2020 and to estimate the percentage of them confirmed by the prescriber.

Methods: An observational study has been carried out. The data related to the PPA made between 2014 and 2020 in the Andalusian pharmacies were obtained, as well as their confirmation status.

Results: Andalusian pharmacies have carried out 172,578 PPA from 2014 to 2020. The average number of PPA was 19,175

annulments per year, with the province of Malaga being the one with the most annulments. A percentage of 4.4% of PPA remained pending acceptance by the prescriber and 0.5% were eliminated by the pharmacist. About 91.4% were confirmed after seven days without any response from prescriber. A total of 3.3% were confirmed by the prescriber, and 0.4% were annulments rejected by the prescriber.

Conclusions: The PPA system is being underused by both, pharmacist and prescribers. The number of PPA is low and shows big differences between provinces. Only a small percentage of PPA were ratified, while the most were confirmed automatically without any response from prescriber. It's necessary to improve the use of this system to enhance patient safety.

Precautionary prescription annulment system: Analysis of use according to professionals in the province of Malaga

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Introduction: The PPAS ("Precautionary Prescription Annulment System") allows the Andalusian pharmacists to warn the prescriber of drug-related problems like duplicities or adverse reactions.

Objectives: The objective of this study is to investigate the knowledge and use of PPAS by family doctors and community pharmacists.

Methods: A descriptive cross-sectional study was carried out in 46 primary care centres and the pharmacies in the province of Malaga. It was carried out by means of a questionnaire to 105 professionals from December 2021 to February 2022.

Results: A percentage of 98.2 % (n=54) pharmacists knew PPAS compared to 50 % (n=25) of doctors. Regarding the use of PPAS, 83.3 % of pharmacists used it compared to 62.5 % of doctors. The reasons for lower use were the lack of knowledge of the PPAS, the limited interprofessional communication provided by the PPAS, the refusal to use it due to years of practice and to avoid interprofessional conflicts.

Conclusions: The community pharmacist can identify relevant drugs related problems. The PPAS is currently the only official way for prescriber-pharmacist communication. To enhance

patient safety, collaboration between professionals must be improved.

Osteoporosis medication adherence interventions involving pharmacists in primary and secondary care: A scoping review to develop an initial programme theory

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Introduction: Medication adherence consists of three phases: initiation, implementation, and discontinuation. Osteoporosis medications are associated with adherence issues due to adverse effects, complex regimens, and appearance of ineffectiveness. Whilst intervention methods and outcomes have been identified in the literature, it is unclear whether pharmacist involvement has improved adherence.

Objectives: The framework suggested by Arksey and O'Malley was used to conduct the scoping review. The aims were to highlight key components of successful interventions, identify improvement gaps and understand why osteoporosis medication adherence interventions involving pharmacists are effective.

Methods: Medline, Cochrane, Cinahl, Embase, PsycINFO, ProQuest Dissertations, International Pharmaceutical Abstracts, and Google were searched. Studies written in English, involving participants who received an osteoporosis medication adherence intervention involving a pharmacist, in a primary or secondary care setting were included. Patients of non-typical populations, such as prisoners, patients taking supplements, and patients with cancer were excluded. To understand the mechanisms which led to success, data from included studies were extracted and analysed from a realist lens.

Results: Eleven studies were identified. Improved adherence studies were predominantly in primary care (82%) with community pharmacies delivering the majority (78%) of these. Interventions were pharmacist-led or as part of a multidisciplinary team. Components of successful interventions were grouped: identification, counselling, and aftercare. Education on medication use, side effects, lifestyle advice, and explanations of benefits and risks was beneficial. Areas for improvement include delivery of an osteoporosis medication adherence intervention before the first prescription. An initial programme theory was developed suggesting successful interventions were community

pharmacy based, in collaboration, or with support from other healthcare professionals.

Conclusions: Although osteoporosis medication adherence interventions involving pharmacists are complex, the components identified could be used to support the three phases of adherence: identification to support the initiation, counselling to implementation, and aftercare to support discontinuation. Further research should incorporate and test these components with osteoporosis patients in a community pharmacy setting

Antibiotic resistance: Observation and reflection on the role of community pharmacist in the fight and prevention against antibiotic resistance

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Introduction: Antimicrobial resistance is a growing public health problem and if not tackled, the burden of death could reach 10 million per year by 2050. Antibiotic resistance is associated with increasing mortality and morbidity rate as it prolongs the length of hospital stay, treatment failure, and healthcare costs. In order to help combat antibiotic resistance, antimicrobial stewardship (AMS) has been implemented in many global health organisations. But little is known about the involvement of the community pharmacist in AMS the programme.

Objectives: The aim of this study is to evaluate the perception and practices of community pharmacists regarding antibiotic resistance.

Methods: A descriptive cross-section study was conducted among community pharmacists in Malmö and Lund in December 2018. A self-administered questionnaire was developed following a literature review to collect data. Pharmacies were selected based on a simple random sampling approach. Descriptive statistics were used to analyse the data. The inferential statistic such as Mann-Whitney U Test and the Kruskal-Wallis test was applied to describe associations between demographics with the perception and practices of participants.

Results: A total of 108 community pharmacists were approached to recruit a sample and among them, 30 community pharmacists completed the survey yielding a response rate of 27.77%. The majority of participants who responded to the survey agreed that AMS programme is vital and improved patient care (n=23, 76.1% Median=4, IQR=1). However, more than two-thirds of participants did not agree/neutral on the statement that individual effort at AMS

has minimal impact on the antimicrobial resistance problem (n=20, 66.6% Median=3, IQR=1.25). Community Pharmacists mostly demonstrated good practices in antibiotic resistance (n=22, 73.3%, Median=5, IQR=1). There were no statistically significant differences between the community pharmacist's characteristic and their perception and practices toward AMS.

Conclusions: Community pharmacists in this study were well familiar with the importance of AMS and they have an essential role in the AMS programme in the health care setting. However, team effort and inter-disciplinary involvement of different healthcare professionals are very necessary to reinforce the shared decision between the CP and other healthcare teams in order to combat antimicrobial resistance. The study highlighted some positive perceptions and practices of community pharmacists towards AMS and therefore a positive role of community pharmacists in the fight against antibiotic resistance. However, there is a need of integrating AMS-training pharmacists in community settings.

Female gender as a conditioning factor of Benzodiazepine safety during the COVID-19 pandemic

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Introduction: The female gender suffers a higher prevalence of pathologies such as depression and anxiety doubling the incidence compared to the male gender according to the 2020 report of the Spanish Society of Public Health and Health Administration (SESPAS). Benzodiazepines (BZD) used to treat these pathologies are not free of risks during their use. However, these risks must be differentiated on the basis of gender as it has been documented for Diazepam. The liposolubility of this drug suggests a reduction of its dosage in females based on the accumulation of this BZD and the increased risk of side effects such as drowsiness and sedation.

Objectives: To analyse the gender differences observed in patients using BZD in relation to variables of the BZD treatment and patient medication knowledge.

Methods: Prospective cross-sectional descriptive observational study (August 2020 - February 2021 in Santa Cruz de Tenerife, Spain) with 127 BZD patients who voluntarily underwent a clinical interview with a data collection questionnaire (study with AEMPS code: DAA-CLO-2020-01). Statistical analysis was performed with SPSS 25.0 software.

Results: BZD users were 66.14% female, and two out of three patients are women. The main pathologies for which women use BZD are depression (86.36%) and anxiety (69.14%). The median number of years of treatment with BZD is five years in women compared to three years in men. The main prescribing doctor in women is a psychiatrist (78.26%). Poly medication with 1-4 medicines in women reaches 78.72% compared to 21.74% in men. About 71.43% of women reported side effects from BZD compared to 28.57% of men. The proportion of falls is higher in women, with 66.67% compared to 33.33% in men. Tolerance to BZD was observed in 79.17% of the women and dependence was present in 82.61% of the women according to the Tyrer test. Dissatisfaction with the BZD treatment reaches 78.26% of female users.

Conclusions: There is a real need to promote gender during BZD treatments. Pharmaceutical Intervention (PI) must be individualised both in the dispensing and in the follow-up of treatment. In the case of BZD, the review and monitoring of treatments due to their excessive duration and risks (poly medication, side effects, tolerance/dependence, among others) should be optimised, especially in women, in order to achieve improvements in their quality of life.

Cognitive impairment in Benzodiazepine users

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Introduction: Dementia is often preceded by a state of cognitive dysfunction defined as mild cognitive impairment. The use of validated brief tests for screening patients suspected of cognitive impairment such as the validated Pfeiffer (Short Portable Mental Status Questionnaire) has shown great value for healthcare providers. Benzodiazepines (BZD) users, especially short half-life BZDs, are exposed to the risk (dose-dependent) of having their recent memory impaired as well as falls that affect their quality of life. Community pharmacists have the opportunity to contribute to the early and preventive detection of dementia in BZD users, among others, by incorporating the use of cognitive impairment assessment tests in the pharmaceutical care protocols.

Objectives: To assess the degree of cognitive impairment in patients on BZD treatment and correlate it with the risk of falls.

Methods: A total of 113 BZD-using patients participating in a prospective observational, descriptive, cross-sectional study (AEMPS code: DAA-CLO-2020-01) (August 2020 - February 2021 in Santa Cruz de Tenerife, Spain) followed a clinical

interview in the community pharmacy using the validated Pfeiffer questionnaire (Short Portable Mental Status Questionnaire: SPMSQ) for cognitive impairment. SPSS 25.0 software was used for the statistical study (statistical significance $p < 0.05$ is assumed).

Results: A percentage of 85.84% of patients using BZD showed negative cognitive impairment compared to 24.16% with positive cognitive impairment. The exploration of the cognitive impairment-gender association did not reach statistical significance ($p=0.572$). Of the 113 users, 17.3% reported having suffered falls in the last year. The relationship between the Pfeiffer test and patients who have suffered falls shows that 90.63% of BZD users do not have cognitive impairment (negative Pfeiffer test) and do not suffer falls. However, in patients with positive cognitive impairment (positive Pfeiffer test) 46.67% patients suffered falls (statistical significance $p=0.001$).

Conclusions: Patients with positive Pfeiffer test (24.16%) make up a profile susceptible to specific Pharmaceutical Intervention (PI) and referral to the doctor. Falls in patients on BZD treatment are a risk indicator that suggests the need to assess cognitive impairment, reassess the benefit-risk of BZD treatment in the patient and offer the Pharmacotherapy follow-up (PTF) service to minimise the risks.

Pharmaceutical care programme for illiterate patients of La Fé Clinic, Changuinola Bocas del Toro Panamá

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Introduction: Pharmaceutical establishments lack strategies that allow the patient to interpret the information provided during care, therefore it is necessary to promote the development of skills that allow people to take charge of their own health, either to prevent damage or to better manage health problems or illness.

Objectives: To design a pharmaceutical care programme to improve the use of medications in illiterate patients at La Fe clinic, Changuinola, Bocas Del Toro.

Methods: Observational and descriptive study and an instrument was developed for data collection in a survey format that was applied through an interview to illiterate residents. A pharmaceutical care programme was designed consisting of pictograms and didactic intervention sheets (made from the sociocultural characteristics of the region where the population sample for research was taken) that allow illiterate patients to interpret the doctor's instructions

about treatment and observations by the pharmacist; resulting in a better use of medicines by reducing the dangerous consequences on health caused by the misuse of medicines.

Results: A percentage of 40% of the patients indicated that they receive information verbally from the staff of the pharmaceutical establishments on how to use their medications and only 24% admitted that they understood the indications, demonstrating that oral communication is not enough to reinforce this practice as it has been done on a daily basis. On the other hand, something different happens with illiterate patients when the indications are drawn and delivered along with their medications understand the indications, 54% manage to understand the indications while 62% of the patients mentioned that they had the support of a relative or friend who helped them understand their medical treatment, constituting an additional aid to achieve a positive impact of pharmacotherapy in these residents.

Regarding the need to implement a programme for pharmaceutical care and understanding medical indications, all (100%) agreed that it is not only necessary but essential in the inclusion of this sector in daily clinical practice.

Conclusions: Applying a programme to illiterate patients significantly reduces the misuse of medicines in this sector of the population. Its application also reduces adverse reactions and risks due to misuse of medications.

Pharmacists are given the authorisation for writing prescriptions: Is the service known and being used?

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Introduction: As of 1st July 2019, Danish pharmacists were allowed to write prescriptions on a limited list of medications. This opportunity has been a long-time wish from the Danish Association of Pharmacies. It marks the end of a long-lasting monopoly of writing prescriptions for doctors and establishes Danish pharmacies as a vital part of the health care system. The requirement of an authorisation marks the pharmacist as a health care professional. On top of being an

acknowledgement of the pharmacists, it means easier access to necessary drugs for patients and relieves family doctors.

Objectives: Now, three years in, how are we doing? Is the opportunity being used? Is it known by doctors, patients, and staff in the pharmacies?

In this study, seven different pharmacies collect data and compare results. The authors wished to examine the following: a) How many prescriptions? b) Which differences are shown in the results? c) How can we make the opportunity for prescriptions better known and used in the pharmacies? It is the hypothesis of the group, that this service to the patients is quite unknown and that doctors do not inform patients of this possibility. Pending the results, if differences between the numbers of perceptions in the pharmacies, what can be learned from this?

Methods: The pharmacist collects data, after writing the prescription. It will mark who made the patient aware of the opportunity for a prescription in the pharmacy. The following categories were chosen: a) Pharmacist; b) Pharmaceutical technician; c) Student; d) Healthcare professional (ex-family doctor); e) Patient. The collection of data was in April 2022

Conclusions: High differences were seen. Numbers are as low as six prescriptions in total in some pharmacies. It is also seen that in some pharmacies, the biggest group of employees have helped no customers get a prescription in the pharmacy. It is also shown that all prescriptions were made with help from employees in the pharmacy and none from outside healthcare workers such as doctors.

What does augmented biology mean to the community pharmacist?

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Introduction: Musculoskeletal (MSK) conditions, are the leading contributor to disability worldwide, particularly lower back pain. Many guidelines are recommending first-line options, alternative/complementary treatments such as exercise, mind/body techniques, diet, and use of devices. In line with this, a new concept known as 'self-healing' has been recently published and discussed. Self-healing is described as the innate ability of the body and mind to promote body networks to return the body to equilibrium and relieve pain'. Closely aligned with this is another new concept, which is that of augmented biology (Multinational Capability Development

Campaign. Human performance optimization and enhancement. March 2021) where the body is assisted to reach its optimal biological potential, a process which is innate and intrinsic to each person.

Objectives: The community pharmacy will often be the first place patients receive advice about their acute recurring back pain. Central to the community pharmacy is the ideals of self-healing and augmented biology treating the whole person and empowering the patient to take autonomy over their pain. The authors aim to explore further how the ideals and therapies associated with new concepts such as self-healing and augmented biology will help the community pharmacist to empower patient autonomy.

Methods: A literature search was previously undertaken to understand how biological potential is used in the context of augmented biology related to self-healing. In this abstract, the relationship of augmented biology with the community pharmacy was explored.

Results: In tandem with international guidelines that recommend alternative/complementary treatments, many patients are also favouring a move away from conventional drug treatments. Self-healing and augmented biology are patient-centred as they consider the whole-person approach. Associated with self-healing are five body networks that initiate healing and can be optimised by multi-modal, integrative treatments to allow the body to self-heal. For MSK pain, interventions include devices such as transcutaneous electrical nerve stimulation, which provides localised, strong yet comfortable muscle contractions to ease MSK pain, and infra-red technology, which can potentially help enhance blood circulation and metabolism. Augmented biology technologies for MSK pain include smart wearables to monitor health and portable stiffness modulators, which can reduce muscle activity.

Because these are new concepts and devices, before they are fully available in community pharmacies, there will be a period of education for patients and healthcare providers and technology optimisation. However, when available, the devices will be well-aligned with the ideals of community pharmacy, by helping the patient achieve better autonomy of care. This results in a more empowered patient and provides extra satisfaction for the community pharmacist over being in a purely 'supply role'. In addition, the concepts and devices may improve patient outcomes by reducing MSK condition chronicity and reducing cost savings to the health system in terms of better pain self-management.

Conclusions: The self-healing and augmented biology concepts and associated devices should allow community pharmacists to help prevent MSK condition chronicity and allow patients to become empowered through better autonomy of choice.

French people's view of COVID-19 vaccinations administered by community pharmacists: Evaluation of their satisfaction by the PharmaCoVax study

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Introduction: The COVID-19 pandemic has had a major impact on healthcare systems. Vaccines are among the most effective measures to reduce SARS-CoV-2 infections. In France, the government has authorised pharmacists to prescribe and administer the COVID-19 vaccine to improve vaccine accessibility in March 2021. Prior to this announcement, community pharmacists could only vaccinate vulnerable patients against the flu.

Objectives: The aim of the PharmaCoVax study was to evaluate French people's satisfaction with the COVID-19 vaccine administered by community pharmacists.

Methods: This study took place in French community pharmacies from 16 March to 30 June 2021. Four analysis periods were determined according to the eligibility criteria for vaccination (people over 55 years old, presence of comorbidities). A self-administered questionnaire was offered to people who received COVID-19 vaccine in a community pharmacy. Their participation was voluntary and anonymous. All community pharmacists who participated in the national vaccination campaign were able to participate in this study. Interested pharmacists completed an online participation form, giving them access to the self-administered questionnaire. Univariate and comparative bivariate analyses were performed to compare respondent's satisfaction according to the survey period and history of influenza vaccination. In addition, the answers to whether the respondent would recommend pharmacist-administered COVID-19 vaccination were analysed using the Net Promoter Score (NPS).

Results: A total of 5,800 responses were received through 123 community pharmacists participating in the study. The survey, based on 5,733 responses analysed, reveals a detailed picture of user satisfaction after receiving a COVID-19 vaccination in French pharmacies. During all the period of the analysis, about one third of people received a previous influenza vaccination in a community pharmacy, a second third outside a pharmacy, and the last third never received flu vaccination. However, the first period of analysis, involving people over 55 years old with comorbidities, showed that more than one in two patients had received a previous influenza vaccine in a community pharmacy. In addition, and despite the difficulties in supplying vaccines to pharmacies,

patients have been very loyal. Indeed, more than nine out of ten people who received their influenza vaccination at a pharmacy were vaccinated at the same pharmacy as their COVID-19 vaccination. It could be added that only 24% of people visiting a pharmacy had tried to obtain their COVID-19 vaccination elsewhere (general practitioner or vaccination center). Finally, nearly 98% of respondents agreed or strongly agreed with the different statements about their experience receiving their pharmacist-administered COVID-19 vaccination. There was a very high level of satisfaction (4.92/5) and the NPS score confirmed that people would recommend the service with the note of 93.

Conclusions: The pharmacist-administered COVID-19 vaccination service was overwhelmingly appreciated by users. Ease of access and perceived trust are two factors found in the international literature. The trust placed in pharmacists may explain the desire to have them perform additional vaccinations.

Customer education at the pharmacy

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Introduction: The authors observed that their customers don't know basic things about their disease, relevant self-care and their medical treatment and therefore they do not always have the possibility to act appropriately in relation to their disease. It was then decided to educate 10-20 participants/time. It is expected that this will give them the widest knowledge and the ability to reach more customers at the same time.

Objectives: The authors aim to give their customers more knowledge about their disease and the medications, so they get a better understanding for both. They also aim to examine how the participants receive the education.

Methods: Five topics were chosen; high blood pressure, chronic pains, chronic obstructive pulmonary disease (COPD), osteoporosis and psoriasis. The education lasted about two hours for each topic. A pharmacist and a pharmaconomist made the material and the education sessions. A maximum of 20 people participated per time.. The teaching period was during the winter 2019/2020 and in spring 2022 (the pause was caused due to the corona situation). All the topics addressed the knowledge of the disease, self-care related to the disease and the medical treatment. The participants got a quantitative questionnaire to evaluate the benefit of the education received. The questions were evaluated on a scale of 1-4, where 4 is full satisfaction. It was also possible to write comments in the questionnaire.

Results: A total of 83 questionnaires were handed out and a response rate of 100% was achieved. All 83 participants were divided into five sessions. The score for the new knowledge of the general topic was 3.6. The score for new knowledge of the medical treatment was 3.5. The score for new knowledge so participants can better act on their disease was 3.6. The score for carrying out this type of education in a pharmacy was 4.0. There was a lot of positive comments e.g. "Very important knowledge of how to prevent exacerbations and treat COPD", "Very informative evening. I got wiser on a lot of things" and "Very happy for this education". There was no negative comments.

Conclusions: The education increased the participants' knowledge of their disease, their self-care, and medicine. The response was more positive toward the pharmacy that gives this type of education. This type of session is a good way to pass on the pharmacy's knowledge of diseases and medicine.

Services provided by the community pharmacy to fight covid: Two examples in catalonia

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Introduction: Community pharmacies provide a range of services including educational consultations, medication management, chronic condition management, health and wellness services, and other services that help to improve the lives of patients in the community. In addition, they are the community members' preferred, initial contact. They were considered to be essential health agents in response to the COVID-19 pandemic and strategies were established to improve health care, as well as facilitate the availability of essential pharmaceutical products to mitigate the spread of the disease.

Objectives: To validate the suitability of two care services provided by the community pharmacy in the context of the SARS-CoV-2 pandemic.

Methods: One of the initiatives was to set up hotels to accommodate mild patients who had been discharged from the hospital. This service was implemented when the hospital overload was critical. To provide these patients with medicines, a procedure using community pharmacies was defined. The Pharmacists Association (COF) contacted the pharmacy closest to each health hotel to ask for their participation. If this pharmacy was not available, it would contact the following one. The COF put the people responsible in touch with each other, and was also in charge

of presenting the invoice to CatSalut based on the data provided by the pharmacies.

Also, in April 2020 the Ministry of Health of Catalonia (MHC) published a public health campaign called "Health Mask" which consisted of the distribution of face masks by the community pharmacy to all citizens who had a health card, given the shortage of this material at that time. The mask corresponded to a medical, fabric, three-layer model. Initially, a single dispensation was established for each citizen every seven days. Some days later, it was possible to dispense a maximum of four masks every three days. The first was free and the following ones were priced at 0.76 Euros, without either the pharmacies or the pharmaceutical suppliers taking a profit. These protocols were developed by the MHC and the Council of the Pharmacists Association of Catalonia.

Results: From the end of March 2020 to June 2020, 34 health hotels were set up throughout Catalonia, 28 in the province of Barcelona, three in Girona, one in Lleida, and two in Tarragona. A total of 2,588 patients were treated, getting their medication through the 35 participating community pharmacies. With respect to the medicines provided, 14,864 dispensations were charged to CatSalut (611 funded and 14,253 not funded). Regarding the "Health Mask" campaign, by June 2020, after running for two months, 9,252,251 masks had been dispensed to a total of 4,182,515 different people. A total of 3,220 community pharmacies participated.

Conclusions: The COVID-19 outbreak has shown new opportunities for pharmacists and they have played a key role, suggesting that an integrated, inter-professional collaboration is necessary to cope with public health emergencies, as they had a significant impact on community-based pharmaceutical care services. Recognising and expanding the role of pharmacists in providing patient care services will increase access to care and provide more treatment.

Understanding the barriers and enablers of antimicrobial stewardship experienced by pharmacists when treating upper respiratory tract infections

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Introduction: Inappropriate antibiotic use for self-limiting conditions such as upper respiratory tract infections (URTIs) is a considerable cause of antimicrobial resistance (AMR) in the global community.

Objectives: To deliver learning tools aimed at supporting best practices for antimicrobial stewardship (AMS) and dispensing, a survey was deployed to explore the behaviours and perceptions of pharmacists treating/providing medication for URTIs across a range of countries.

Methods: The cross-sectional web-based survey comprised up to 51 questions with a mixture of closed and open responses to explore the knowledge and practice of antimicrobial stewardship for URTIs. The survey was structured to understand barriers to change, learning style preferences, and educational resource needs. Partial completion was permitted.

Results: In total, 794 pharmacists were recruited globally (37% from South East Asia, 21% from Eastern Mediterranean, 15% from Africa, 15% from Europe, 10% from Western Pacific, and 2% from Americas) to self-complete the survey. There was a high recognition that AMR was an issue for their profession (85%), a high level of readiness to play an active role in AMS (85%), and a high interest in playing a greater role (94%) with 96% of pharmacists indicated that they would be interested in attending an educational course on optimising antimicrobial use. Patient education around appropriate antimicrobial use and the need for AMS was believed to be important by 87% of pharmacists. In total, 58% of pharmacists

were willing to use point-of-care *Streptococcus A.* throat-swab testing to inform treatment options in patients with a sore throat; however, availability was limited, with only 12% of pharmacists reporting access to these tests.

Conclusions: Pharmacists routinely managing patients for URTIs are very aware of their important role in promoting AMS. The provision of learning resources for pharmacists and patient-friendly materials to aid conversations with patients would be useful to support best practices for antimicrobial dispensing and rational use in community care.