Pharmacy Education (2024) 24(1) 340 - 347
https://doi.org/10.46542/pe.2024.241.340347

RESEARCH ARTICLE

Utilising pharmacy students to extend academic detailing services focused on naloxone and opioid overdose education

Lauren M. Linder[1], Megan Pruitt[1], Sarah J. Ball[1], Christopher S. Wisniewski[2], Elizabeth D. Weed[2]

[1] Department of Medicine, College of Medicine, Medical University of South Carolina, Charleston, South Carolina, United States
[2] Department of Clinical Pharmacy and Outcomes Sciences, College of Pharmacy, Medical University of South Carolina, Charleston, South Carolina, United States

Keywords
Academic detailing
Community pharmacist
Experiential education
Naloxone
Opioid overdose
Pharmacy student

Correspondence
Lauren M. Linder
Department of Medicine
Medical University of South Carolina
Charleston
United States
linderl@musc.edu

Abstract

Background: Academic detailing (AD) visits with community pharmacists can effectively increase naloxone access. Pharmacy students, introduced to AD principles, engage pharmacists in guided conversations on naloxone, expanding access and existing AD services. This report outlines an educational initiative to expand an existing AD service to community-based pharmacies. **Methods:** Seventy-one first-year pharmacy students attended two virtual AD principles and naloxone training sessions. Students were subsequently required to have a guided conversation with their preceptor on offering naloxone and overdose education and complete an anonymous post-visit survey on their experience, understanding of current practice, and pharmacist-intended behaviour change. **Results:** Fifty-two self-reported student surveys were assessed. Responses indicated that the following percentages of students believed their preceptor would: (1) start providing opioid overdose education to patients (42%; n=22/52), (2) demonstrate proper use of naloxone to patients at the time of naloxone dispensation (23%; n=12/52), (3) dispense naloxone without a prescription (17%; n=9/52), and (4) keep naloxone in stock (10%; n=5/52). The majority (81%; n=42/52) of students found this experience beneficial, and 69% (n=36/52) indicated they would like to participate in educational outreach again. **Conclusion:** An innovative pharmacy student initiative allowed an AD service to extend face-to-face outreach to community pharmacists and promote the expansion of naloxone and opioid overdose education.

Introduction

Academic detailing (AD) is a face-to-face, individualised educational outreach model utilised to improve healthcare practitioners' clinical decision-making based on current evidence-informed recommendations (Avorn & Soumerari, 1983; Soumerari & Avorn, 1990; May *et al.,* 1999; O'Brien *et al.,* 2007; The National Resource Center for Academic Detailing (NARCAD), 2017). This interactive outreach to practitioners from pharmacists, physicians, and other health professionals has long been established as an effective intervention strategy to change or validate practice behaviours (Avorn, 2017; Davis *et al.,* 2017; Larson *et al.,* 2018; Kennedy *et al.,* 2021a). Traditionally, AD visits focused on meeting with primary care prescribers to promote optimal drug therapy decisions. More recently, this approach has broadened to include outreach to other healthcare professionals, such as pharmacists (Kennedy *et al.,* 2021b; McKeirnan *et al.,* 2021), public health nurses (Tamburrano *et al.,* 2021), and primary care support staff (Ball *et al.,* 2021; McKeirnan *et al.,* 2021), multiple settings, e.g., hospitals, pharmacies, nursing homes (Tadrous *et al.,* 2020), and virtual locations (Smart *et al.,* 2021), with a focus on both pharmacologic and non-pharmacologic behaviour changes (Kilmartin *et al.,* 2020; Ball *et al.,* 2021; Heidenreich *et al.,* 2021; Makarov *et al.,* 2021; Morley *et al.,* 2021).

Many AD programmes utilise pharmacists as academic detailers, given their foundational knowledge of drug therapies, clinical evidence, and patient counselling (Kennedy *et al.,* 2021a). While there is limited literature on applying the traditional AD model of educational outreach to pharmacists, the literature available shows that pharmacist-to-pharmacist AD can change practice behaviour (Kennedy *et al.,* 2021b; McKeirnan *et al.,* 2019).

AD to community pharmacists can provide an effective strategy to increase access to naloxone (Kennedy *et al.,* 2021b), the established antidote for opioid overdose, and a crucial tool in combating the ongoing opioid epidemic (Evoy *et al.,* 2021). Naloxone access laws (NALs) have been enacted to increase the accessibility of this life-saving medication (Smart *et al.,* 2020; Stop the Addiction Fatality Epidemic (SAFE) Project, 2023), allowing pharmacists to dispense naloxone without a prescription. However, the limited knowledge about appropriate patient counselling required for naloxone (Melaragni *et al.,* 2019) and the pharmacist and patient stigma associated with opioids and opioid overdose (Werremeyer *et al.,* 2021; DiPaula *et al.,* 2022) pose potential barriers to an increase in pharmacist dispensing and supportive opioid overdose education (Melaragni *et al.,* 2019).

An adaptation to the pharmacist-to-practitioner AD model is the utilisation of pharmacy students to provide educational outreach to practising pharmacists. This strategy has shown early success, including an increase in pharmacists' referrals to smoking cessation programmes (Wahl *et al.,* 2015), improved knowledge about appropriate pneumococcal vaccination eligibility (Appaneal *et al.,* 2023), and an increased willingness to dispense naloxone under a state-wide standing order (Evoy *et al.,* 2020). Pharmacy student-led visits may be an option for AD programmes to extend their educational footprint, reduce stigma, and expand access to naloxone and opioid overdose education for pharmacists and pharmacy staff.

Objective

This report aims to outline the implementation and feasibility of an educational initiative to expand the reach of an existing AD service to community-based pharmacies. Students on introductory pharmacy practice experience (IPPE) rotations were trained to engage their preceptors in a guided conversation on naloxone and opioid overdose education. Data were collected to show potential changes in behavioural intent in the pharmacist preceptors visited, specific to expanding access to naloxone and offering opioid overdose education.

Methods

Rotational requirements for visit

This educational outreach initiative and training were required for all seventy-one first-year pharmacy students during their 4-week IPPE community pharmacy rotation. Students were required to attend two training sessions that: (1) introduced them to AD principles broadly, (2) provided background regarding the naloxone clinical topic, and (3) prepared them to conduct a face-to-face, guided conversation with their pharmacy preceptor regarding naloxone, including the steps involved in an opioid overdose response and how to dispense naloxone under the South Carolina (SC) Overdose Prevention Act (SC Board of Medical Examiners/SC Board of Pharmacy, 2016). The student-preceptor-guided conversation was supported by a packet of evidence-informed, user-friendly written materials and patient handouts that students provided the pharmacist to assist with future patient interactions. Students offered preceptors continuing medical education (CME) credit that counted towards the required controlled substance CME for license renewal in SC for participating in their visit. Students were required to complete a post-visit survey to record their perception of the interaction and their understanding of the preceptors' post-visit intent to change current practices.

Student training sessions

Seventy-one first-year students at a college of pharmacy on their community IPPE rotation attended two virtual training sessions. The students were divided into three groups based on the month of their community pharmacy rotation. For each training, the first session (one hour) focused on a review of the educational initiative, principles of AD (Avorn & Soumerari, 1983; Soumerari & Avorn, 1990), naloxone, and the AD packet of print materials (i.e., naloxone visit packet) (tipSC, 2020) to support the student-preceptor interaction. All students were invited to an online folder prior to the training sessions to access the required pre-session materials, which included an example video of the naloxone AD visit, the naloxone visit packet, and a concise, evidence-informed, clinical synopsis to guide the conversation. Students were also encouraged to review other items in the online optional reading folder, which included an AD overview (The National Resource Center for Academic Detailing (NARCAD), 2017), state-related naloxone protocols (SC Board of Medical Examiners/SC Board of Pharmacy, 2016), guidance on naloxone and opioid overdose education (Substance Abuse and Mental Health Services Administration (SAMHSA), 2018) SAMHSA opioid overdose prevention toolkit (online),

PrescribeToPrevent.org (2022) Clinician Resources (online)), and evidence related to opioid overdose education and naloxone programmes (Walley *et al.,* 2013; Coffin *et al.,* 2016; Tewell *et al.,* 2018).

The second session (two hours) included a didactic component on stigma and opioid addiction, followed by an interactive role-play and feedback session to practice persuasive communication. In the "*detailing in the round*" session (personal communication, Frank May, Drug and Therapeutics Information Service [DATIS], June 2010), each student practiced guided conversations with one of the AD clinical pharmacists leading the training on the naloxone topic while the other students observed to offer support and constructive feedback.

Student self-report surveys

An anonymous, web-based survey was completed by the students following their visit. There were some variations in the survey instrument among the three groups intended to improve data capture over the course of programme implementation. The data reported were limited to those common across the three groups. Survey items included the type of pharmacy staff receiving AD materials (preceptor, other pharmacist, or technician/intern); pharmacy type [chain, independent, or other (available on two of the three surveys)]; student's take on pharmacist's participation (5-point Likert scale); student's perception of pharmacist's interest in the conversation and print materials in the packet (5-point Likert scale); and student's overall impression of their topic delivery (5-point Likert scale). Multiple choice questions documented the student's understanding of the pharmacist-intended behaviour change as a result of the visit by recording "*yes*", "*no*", "*already doing this*", and "*not discussed*" on the following: (1) keeping naloxone in stock in the pharmacy; (2) dispensing naloxone without a prescription under the SC Overdose Prevention Act; (3) educating patients and caregivers on how to respond to an opioid overdose; and (4) demonstrating proper use of the naloxone device.

Surveys 1 and 2 included four additional questions, specifically asking about current practice. The last multiple-choice question asked if the pharmacist completed the online CME during the visit. The third section of the student survey asked open-ended questions to get feedback on changes in student perception of naloxone and opioid use disorder as a result of their experiences, the benefit of the experience to the student and the preceptor (a single question in Survey 1; two questions in Surveys 2 and 3), student interest in a similar experience on a future rotation, and overall comments on this type of learning and experience.

Student survey analysis

Sixty-four students completed the post-visit survey. Fifty-two surveys were included in the data analysis. Twelve surveys were excluded due to inconsistency in responses about current practice and intended practice changes and because of ambiguous free-text responses on the benefit of the experience. A sensitivity analysis was performed to assess the impact of the 12 surveys that were removed from the analysis.

Results

Sixty-four students (90%) completed a preceptor visit and the post-visit survey. All 64 students completed a single survey for each visit site. Most of the visits were conducted in independent pharmacies (n=36), followed by 26 visits at chain pharmacies, and two pharmacy settings were reported as "*other*." Most students (n=58) recorded a visit with just one pharmacy preceptor. Six students reported visits with their preceptor and other pharmacy staff members, bringing the total count of practising pharmacists visited to 69 community pharmacists and three pharmacy interns or technicians.

Results from 52 of the 64 surveys were assessed to show the potential benefit of the pharmacy student educational outreach on expanding access to naloxone and offering opioid overdose education. The sensitivity analysis conducted to assess the impact of removing 12 surveys from the analysis due to inconsistency or ambiguity in self-reported responses did not change these overall findings.

Figure 1 shows the students' beliefs about their preceptor's current practice behaviour and changes in practice as a result of their visit. The most notable outcome was an increased intent to provide opioid overdose education to patients; 42% (n=22/52) believed their preceptor would begin this practice. Nearly one-quarter (n=12/52, 23%) reported increased intent to demonstrate proper use of naloxone to patients at the time of naloxone dispense. Other impacts of the guided conversations included perceived increases in the preceptor's intent to dispense naloxone without a prescription under the SC Overdose Prevention Act (n=9/52, 17%) and to keep naloxone in stock (n=5/52, 10%).

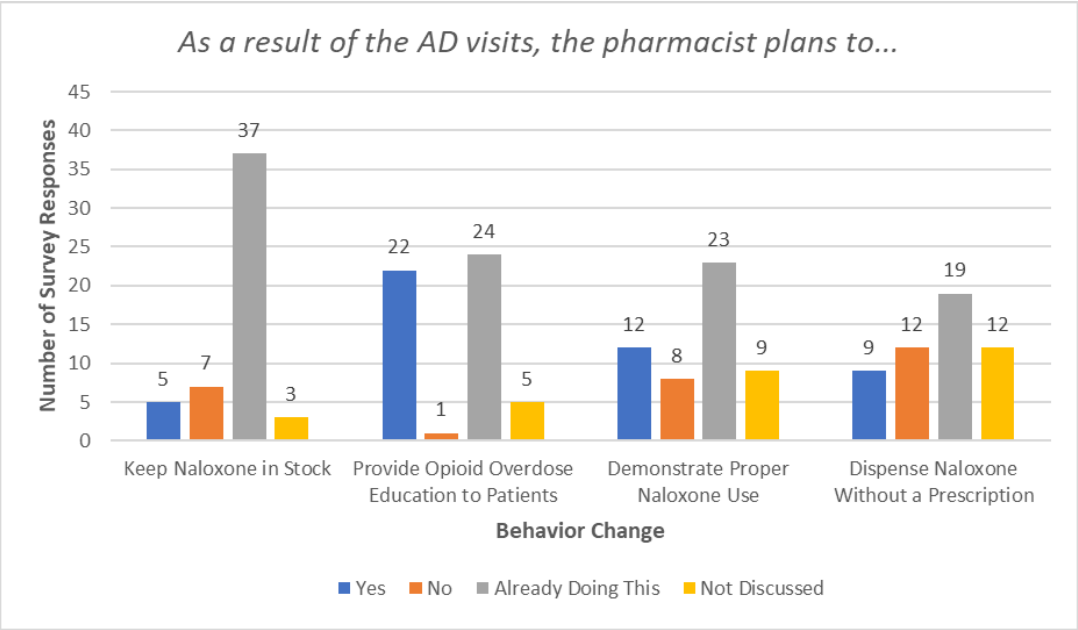

Figure 1: Pharmacy student assessment of pharmacist's intent to change practice behaviour[1]

[1]Group 2 survey (21 surveys) did not include the response *"did not discuss"*

The post-visit survey also assessed the impact of the experience on the students themselves. Most students found the experience beneficial (n=42/52, 81%) and indicated they would like to participate in an educational outreach again (n=36/52, 69%). In addition, 67% (n=35/52) and 65% (n=32/52) of students' perceptions of naloxone and opioid use disorder, respectively, positively changed as a result of this experience (Table I).

Table I: Pharmacy student reflections on AD training and brief visit[1,2]

	Yes	No	Other
Did your perception of naloxone change?	**35** (67%)	**16** (31%)	**1** (2%)
Did your perception of OUD change?	**32** (65%)	**17** (33%)	**3** (6%)
Did you find this beneficial for yourself?	**42** (81%)	**8** (15%)	**2** (4%)
Did you find this beneficial for the preceptor?	**42** (81%)	**7** (13%)	**3** (6%)
Would you like to do this again in future rotation?	**36** (69%)	**6** (12%)	**10** (19%)

1. Group 1 (15 responses) was asked *"Did you find this beneficial for you? For your preceptor? please explain"* as one question;

2. Groups 2 (21 responses) and 3 (16 responses) were asked two separate questions: Did you find the experience beneficial for yourself? Please explain; and did you find this experience beneficial for your preceptor? Please explain.

Discussion

This report describes an innovative, pharmacy student-led educational outreach initiative and demonstrates a novel approach to successfully introducing AD principles into current pharmacy training and practice by leveraging experiential learning gained via educational visits to pharmacy preceptors. While one study has described the success of integrating AD into pharmacy curricula and laboratory settings (Kavanaugh *et al.,* 2021), to the authors' knowledge, this work represents the first description of a programme that incorporates training on AD principles into the pharmacy experiential education curriculum through required student visits to pharmacy preceptors as part of the rotational experience. The initiative successfully expanded the face-to-face reach of SCORxE (South Carolina Offering Prescribing Excellence) Academic Detailing Service to practicing pharmacists. Leveraging the existing relationships between students, preceptors, and other people affiliated with the College of Pharmacy helped overcome the time-intensive

barrier of the traditional scheduling of first-time AD visits by a detailer. While student-led visits cannot be equated with visits from fully trained academic detailers, they were educational experiences for the student and preceptor that were, at a minimum, warm handoffs of timely materials to help with expanding access to naloxone, increasing opioid overdose education, and reducing stigma surrounding opioid use.

Student post-visit surveys suggest pharmacists value the experience and demonstrate that pharmacy students represent a viable method to expand educational outreach on topics clinically relevant to pharmacists, such as naloxone and opioid overdose education. From the students' perspective, less than half of the pharmacists visited were currently providing opioid overdose education, demonstrating proper naloxone use, and dispensing naloxone without a prescription; the intended change after the visit increased those percentages to 88%, 67%, and 54%, respectively. The intent to keep naloxone in stock rose from 71% to 81%. While these findings are based solely on student reporting, they suggest that student visits promoted moderate intent to change practice behaviour.

The findings related to opioid overdose education and naloxone device demonstration are especially important. First, it is not just the physical naloxone prescription itself that leads to safer opioid use and decreased opioid overdoses; it is also the component of opioid overdose education that makes an impact (Wheeler *et al.,* 2015).

Second, opioid overdose education and device demonstration are not just confined to community pharmacies, as they both can be provided in a multitude of healthcare settings (e.g., hospitals) and universally applied, regardless of how the naloxone prescription is generated (e.g., standing order, co-prescription with an opioid), emphasising the global value of this education. The student-led visit also provided their preceptors with naloxone visit materials and counselling tools to aid in the facilitation of future pharmacist-patient conversations.

It is noteworthy that the majority of students found this intervention useful, highlighting the added benefit of not only educating current practising pharmacists on this topic but also influencing the practice behaviour and attitudes of future pharmacists. Some highlights from the open-ended survey responses included increased confidence in discussing naloxone and opioid overdose education, utilising the clinical nuggets in support materials to help with difficult conversations for their own patient interactions, taking the initiative to assist with a practice change at the pharmacy, and changing their own beliefs about naloxone and opioid use disorder. The one student who commented that the experience and teaching method were very helpful was not alone; 81% found the learning experience beneficial, and 69% were interested in having a similar educational experience on a future rotation. The initial intervention at one college of pharmacy in 2020 was expanded to a second pharmacy school within a different geographic region of the state.

Limitations

The current project demonstrated the feasibility and value of AD expansion via student-led visits; however, there are notable factors that limit the strength of conclusions available from the programme evaluation. First, the survey was self-made and adjusted during active data collection as a method of process improvement. While the changes were viewed as a benefit, representing iterative improvements based on new information from the completion of each training session, the resulting inconsistencies in data collection resulted in the exclusion of 19% of the surveys (n = 12/64) for this report. Second, there are no results specific to the pharmacists' intent to change practice behaviour, post-visit practice behaviour change, or their evaluation of the student visit. Observation of pharmacists' actions post-visit was beyond the scope of this project. The online CME assessment was designed to record pharmacist intent to change behaviour on the same 4 key points noted in student surveys and their perception of the student visit; however, the CME office underwent changes and was unable to access evaluation data for the 19 online CMEs completed during the student's rotation time window. In addition, the process to obtain credits offered to preceptors for the student visit was the same as that available to any healthcare provider that reviewed the online version of the naloxone packet (Activity Title: Naloxone Can Save a Life), and it is unknown how many completions can be attributed to student visits.

Conclusion

An innovative pharmacy student education initiative allowed an AD service to extend face-to-face outreach to community pharmacists to promote the expansion of naloxone and opioid overdose education. Student survey results suggest that training students on relevant clinical topics such as naloxone and opioid overdose education, introducing them to the principles of AD, and providing them with concise, evidence-informed print materials to share with their preceptors during community rotations has the potential to impact current and future pharmacy practice. Future initiatives

that effectively capture practice behaviour changes from pharmacists are needed to corroborate the students' beliefs about the impact of pharmacy student visits on day-to-day pharmacy practice.

Conflict of interest

The authors of this paper declare no relevant conflicts of interest or financial relationships other than reported grant funding.

Source of funding

Funding for this project was received through a contract (A201912450A) with the South Carolina Department of Health and Human Services (SCDHHS) for Drug Utilization Review services. SCDHHS had no role in the preparation, approval, or decision to submit the manuscript for publication.

Acknowledgements

The authors would like to acknowledge Chloe Bays, MPH, program assistant at the Medical University of South Carolina for her graphics development of the table and figure in addition to her review and revision of the manuscript.

Ethics approval and informed consent

This pilot project presents data from a programme evaluation, was deemed not human subjects research, and was exempt from institutional review board.

References

Appaneal, H. J., Lesniak, K., LaPlante, K. L., & Feret, B. (2023). Student pharmacists delivering academic detailing on adult pneumococcal vaccination to community pharmacists. *Journal of the American Pharmacists Association,* **63**(4), 1064–1069.e2. https://doi.org/10.1016/j.japh.2023.04.003

Avorn, J., & Soumerai, S. B. (1983). Improving drug-therapy decisions through educational outreach. A randomized controlled trial of academically based "detailing". *The New England Journal of Medicine,* **308**(24), 1457–1463. https://doi.org/10.1056/NEJM198306163082406

Avorn, J. (2017). Academic detailing: "Marketing" the best evidence to clinicians. *JAMA,* **317**(4), 361–362. https://doi.org/10.1001/jama.2016.16036

Ball, S. J., McCauley, J. A., Pruitt, M., Zhang, J., Marsden, J., Barth, K. S., Mauldin, P. D., Gebregziabher, M., & Moran, W. P. (2021). Academic detailing increases prescription drug monitoring program use among primary care practices. *Journal of the American Pharmacists Association,* **61**(4), 418–424.e2. https://doi.org/10.1016/j.japh.2021.02.019

Coffin, P. O., Behar, E., Rowe, C., Santos, G. M., Coffa, D., Bald, M., & Vittinghoff, E. (2016). Nonrandomized intervention study of naloxone coprescription for primary care patients receiving long-term opioid therapy for pain. *Annals of Internal Medicine,* **165**(4), 245–252. https://doi.org/10.7326/M15-2771

Davis, M. T., Bateman, B., & Avorn, J. (2017). Educational outreach to opioid prescribers: The case for academic detailing. *Pain Physician,* **20**(2S), S147–S151. https://pubmed.ncbi.nlm.nih.gov/28226336/

DiPaula, B. A., Cooke, C. E., Boyle, C. J., & Love, R. C. (2022). Implementation of academic detailing for pharmacists on opioid use disorder and harm reduction. *Journal of the American Pharmacists Association,* **62**(1), 241–246. https://doi.org/10.1016/j.japh.2021.09.012

Evoy, K. E., Groff, L., Hill, L. G., Godinez, W., Gandhi, R., & Reveles, K. R. (2020). Impact of student pharmacist-led naloxone academic detailing at community pharmacies in Texas. *Journal of the American Pharmacists Association,* **60**(1), 81–86. https://doi.org/10.1016/j.japh.2019.09.007

Evoy, K. E., Hill, L. G., & Davis, C. S. (2021). Considering the potential benefits of Over-the-Counter naloxone. *Integrated Pharmacy Research & Practice,* **10**, 13–21. https://doi.org/10.2147/IPRP.S244709

Heidenreich, P. A., Lin, S., Gholami, P., Moore, V. R., Burk, M. L., Glassman, P. A., Cunningham, F. E., & Sahay, A. (2021). Interventions to increase leukocyte testing during treatment with dimethyl fumarate. *International Journal of Environmental Research and Public Health,* **18**(19), 10312. https://doi.org/10.3390/ijerph181910312

Kavanaugh, R., Yerks, M., Feldman, R., & Stanton, M. (2021). Combining simulated academic detailing with naloxone training to prepare student pharmacists for opioid risk mitigation strategies. *Currents in Pharmacy Teaching & Learning,* **13**(12), 1679–1682. https://doi.org/10.1016/j.cptl.2021.09.030

Kennedy, A. G., Regier, L., & Fischer, M. A. (2021a). Educating community clinicians using principles of academic detailing in an evolving landscape. *American Journal of Health-System Pharmacy,* **78**(1), 80–86. https://doi.org/10.1093/ajhp/zxaa351

Kennedy, A. G., Wood, M., Starecheski, G., Belcher, R., & Cote, E. (2021b). Academic detailing with ambulatory pharmacists to support naloxone counseling. *Journal of the American Pharmacists Association*, **61**(3), e133–e137. https://doi.org/10.1016/j.japh.2021.01.031

Kilmartin, K. C., McCarty, E. J., Shubkin, C. D., & Holmes, A. V. (2020). Reducing outpatient infant blood draws with transcutaneous measurement of bilirubin. *Pediatric Quality*

& Safety, **5**(4), e335. https://doi.org/10.1097/pq9.0000000000000335

Larson, M. J., Browne, C., Nikitin, R. V., Wooten, N. R., Ball, S., Adams, R. S., & Barth, K. (2018). Physicians report adopting safer opioid prescribing behaviors after academic detailing intervention. *Substance Abuse,* **39**(2), 218–224. https://doi.org/10.1080/08897077.2018.1449175

Makarov, D. V., Ciprut, S., Kelly, M., Walter, D., Shedlin, M. G., Braithwaite, R. S., Tenner, C. T., Gold, H. T., Zeliadt, S., & Sherman, S. E. (2021). Protocol: A multi-modal, physician-centered intervention to improve guideline-concordant prostate cancer imaging. *Trials,* **22**(1), 711. https://doi.org/10.1186/s13063-021-05645-3

May, F. W., Rowett, D. S., Gilbert, A. L., McNeece, J. I., & Hurley, E. (1999). Outcomes of an educational-outreach service for community medical practitioners: Non-steroidal anti-inflammatory drugs. *The Medical Journal of Australia,* **170**(10), 471–474. https://doi.org/10.5694/j.1326-5377.1999.tb127846.x

McKeirnan, K. C., Colorafi, K., Panther, S. G., Potyk, D., & McCarthy, J. (2019). Provider education about pneumococcal vaccination practices for older adults. *The Senior Care Pharmacist,* **34**(7), 432–438. https://doi.org/10.4140/TCP.n.2019.432

McKeirnan, K., Colorafi, K., Sun, Z., Daratha, K., Potyk, D., & McCarthy, J. (2021). Improving pneumococcal vaccination rates among rural older adults through academic detailing: Medicine, nursing and pharmacy partnership. *Vaccines,* **9**(4), 317. https://doi.org/10.3390/vaccines9040317

Melaragni, F., Levy, C., Pedrazzi, J., & Andersen, M. (2019). Assessing pharmacists' readiness to dispense naloxone and counsel on responding to opioid overdoses. *Journal of the American Pharmacists Association,* **59**(4), 550–554.e2. https://doi.org/10.1016/j.japh.2019.04.012

Morley, C. P., Schad, L. A., Tumiel-Berhalter, L. M., Brady, L. A., Bentham, A., Vitale, K., Norton, A., Noronha, G., & Swanger, C. (2021). Improving cancer screening rates in primary care via practice facilitation and academic detailing: A multi-PBRN quality improvement project. *Journal of Patient-Centered Research and Reviews,* **8**(4), 315–322. https://doi.org/10.17294/2330-0698.1855

O'Brien, M. A., Rogers, S., Jamtvedt, G., Oxman, A. D., Odgaard-Jensen, J., Kristoffersen, D. T., Forsetlund, L., Bainbridge, D., Freemantle, N., Davis, D. A., Haynes, R. B., & Harvey, E. L. (2007). Educational outreach visits: Effects on professional practice and health care outcomes. *The Cochrane Database of Systematic Reviews,* **4**, CD000409. https://doi.org/10.1002/14651858.CD000409.pub2

PrescribeToPrevent. (n.d.). Retrieved March 9, 2020, from https://prescribetoprevent.org

SC Board of Medical Examiners/SC Board of Pharmacy (2016). The South Carolina Board Of Medical Examiners and The South Carolina Board Of Pharmacy's Joint Protocol to initiate dispensing of naloxone HCL without a prescription. http://naloxonesavessc.org/wp-content/uploads/2018/11/Joint_Naloxone_Protocol.pdf

Smart, M. H., Mandava, M. R., Lee, T. A., & Pickard, A. S. (2021). Feasibility and acceptability of virtual academic detailing on opioid prescribing. *International Journal of Medical Informatics,* **147**, 104365. https://doi.org/10.1016/j.ijmedinf.2020.104365

Smart, R., Pardo, B., & Davis, C. S. (2020). Systematic review of the emerging literature on the effectiveness of naloxone access laws in the United States. *Addiction (Abingdon, England),* **116**(1), 6–17. https://doi.org/10.1111/add.15163

Soumerai, S. B., & Avorn, J. (1990). Principles of educational outreach ('academic detailing') to improve clinical decision making. *JAMA,* **263**(4), 549–556. https://doi.org/10.1001/jama.1990.03440040088034

Stop the Addiction Fatality Epidemic (SAFE) Project. (2023). State naloxone access rules and regulations. Retrieved December 20, 2023, from https://www.safeproject.us/naloxone-awareness-project/state-rules/

Substance Abuse and Mental Health Services Administration (SAMHSA) (2018). SAMHSA opioid overdose prevention toolkit. https://store.samhsa.gov/product/opioid-overdose-prevention-toolkit

Tadrous, M., Fung, K., Desveaux, L., Gomes, T., Taljaard, M., Grimshaw, J. M., Bell, C. M., & Ivers, N. M. (2020). Effect of academic detailing on promoting appropriate prescribing of antipsychotic medication in nursing homes: A cluster randomized clinical trial. *JAMA network open,* **3**(5), e205724. https://doi.org/10.1001/jamanetworkopen.2020.5724

Tamburrano, A., Mellucci, C., Galletti, C., Vitale, D., Vallone, D., Barbara, A., Sguera, A., Zega, M., Damiani, G., & Laurenti, P. (2019). Improving nursing staff attitudes toward vaccinations through academic detailing: The HProImmune questionnaire as a tool for medical management. *International Journal of Environmental Research and Public Health,* **16**(11), 2006. https://doi.org/10.3390/ijerph16112006

Tewell, R., Edgerton, L., & Kyle, E. (2018). Establishment of a pharmacist-led service for patients at high risk for opioid overdose. *American Journal of Health-System Pharmacy,* **75**(6), 376–383. https://doi.org/10.2146/ajhp170294

The National Resource Center for Academic Detailing (NARCAD). (2017). *Introductory guide to academic detailing.* https://www.narcad.org/uploads/5/7/9/5/57955981/introductory_guide_to_ad.pdf

tipSC. (2020). Naloxone can save a life. Timely Information for Providers in South Carolina. https://schealthviz.sc.edu/Data/Sites/1/media/downloads/tipsc_resources/tipsc_mailer_v10_hyperlinks_%2002%20naloxone%20sp%20ed.pdf

Wahl, K. R., Woolf, B. L., Hoch, M. A., Zillich, A. J., & Hudmon, K. S. (2015). Promoting pharmacy-based referrals to the tobacco quitline: a pilot study of academic detailing administered by pharmacy students. *Journal of Pharmacy Practice,* **28**(2), 162–165. https://doi.org/10.1177/0897190013515711

Walley, A. Y., Xuan, Z., Hackman, H. H., Quinn, E., Doe-Simkins, M., Sorensen-Alawad, A., Ruiz, S., & Ozonoff, A. (2013). Opioid overdose rates and implementation of overdose education and nasal naloxone distribution in

Massachusetts: Interrupted time series analysis. BMJ, **346**, f174. https://doi.org/10.1136/bmj.f174

Werremeyer, A., Mosher, S., Eukel, H., Skoy, E., Steig, J., Frenzel, O., & Strand, M. A. (2021). Pharmacists' stigma toward patients engaged in opioid misuse: When "social distance" does not mean disease prevention. *Substance Abuse,* **42**(4), 919–926. https://doi.org/10.1080/08897077.2021.1900988

Wheeler, E., Jones, T. S., Gilbert, M. K., Davidson, P. J., & Centers for Disease Control and Prevention (CDC) (2015). Opioid overdose prevention programs providing naloxone to laypersons - United States, 2014. *Morbidity and Mortality Weekly Report (MMWR),* **64**(23), 631–635. https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6423a2.htm