

Using opioid risk-screening to combat the opioid epidemic

Opioids are potent painkilling drugs used clinically to treat severe pain, but their addictiveness can cause dependence and a high potential for abuse. Opioids are misused throughout the world, and the opioid epidemic centred in the US leads to more than 100 deaths every day. Professor Mark Strand and his team at North Dakota State University have developed the ONE Program, which provides pharmacists with the knowledge and tools to carry out opioid risk-screening on patients, enabling them to give targeted support to patients at risk of abuse or overdose.

Opioids, originally derived from the opium poppy, include the compounds morphine, codeine and papaverine, all of which can be extracted directly from the poppy's seed pods. These compounds have been used by humans for thousands of years for their painkilling and euphoric effects.

The powerful pain relief delivered by opioids has prompted widespread pharmaceutical effort to synthesise more potent versions with fewer side effects. These man-made opioids are either semi-synthetic – derived from existing opioid compounds by chemical synthesis – or synthetic, built entirely from simple chemical starting materials. Semi-synthetic opioids include heroin, oxycodone and buprenorphine, while the 100+ synthetic opioids include fentanyl, methadone and tramadol.

OPIOID USE DISORDER AND ACCIDENTAL OPIOID OVERDOSE

Opioid misuse and addiction are known worldwide. However, as much as 80% of the global opioid supply is consumed in the US. It is estimated that more than 450,000 people in the US have died due to opioid overdose since 1999, with an estimated 128 deaths every day. The mechanism by which opioids cause fatality is through respiratory depression, where the rate of breathing is hindered to the point where oxygen cannot be sufficiently absorbed by the body. This risk is particularly high in the case of some synthetic opioids whose lethal dose can be far lower than morphine due to their greater potency. In addition, the misuse of and addiction to opioids is a

serious national crisis that affects the social and economic welfare of society. An estimated one out of every four individuals receiving long-term opioid therapy struggles with addiction, which in turn causes an economic burden to the US of over \$78 billion each year.

THE ROLE OF PHARMACISTS

Pharmacists are a vital player in the effort to reduce opioid abuse. Their responsibilities and opportunities for patient contact make them effective 'gatekeepers', able to minimise the abuse potential of prescribed opioids through patient-centred care. Yet pharmacists' potential to reduce the harm caused by opioid misuse is not being fully realised.

To address this, Professor Mark Strand and his colleagues at North Dakota State University, USA, developed the ONE (Opioid and Naloxone Education) Program, an educational initiative aimed at screening and educating patients receiving prescription opioids in community pharmacies across North Dakota. By proactively educating pharmacists, patients, and communities about opioid misuse and accidental overdose, and introducing opioid risk-screening to patients, they want to bring the prevention of opioid misuse upstream to the medication dispensing process at the pharmacy. Community pharmacies throughout the state of North Dakota were invited to participate.

NALOXONE AND PHARMACY PRACTICE

Naloxone provides a good example of why the ONE Program is particularly timely. Naloxone is an opioid antagonist

that binds to specific receptors in the body to block the effects of opioid drugs. By prescribing and dispensing naloxone to patients suspected to be at greater risk of overdose, pharmacists can have a huge impact on providing education and resources to patients to prevent overdose deaths and improve the wellbeing of their communities.

Pharmacists in the US have been slow to use naloxone, however, with a large degree of variability across the country. It was found that more than half the community pharmacists in Minnesota had not dispensed any naloxone in the preceding month, while in California, fewer than a quarter of community pharmacies surveyed had naloxone available for purchase. The researchers realised that more resources, investment, and organisational support were needed to enable pharmacists to have a greater impact on the opioid crisis, improved training on the use of naloxone being one example.

PATIENT SCREENING

Following a successful pilot program, Professor Strand's team implemented training and tools for pharmacists in North Dakota to increase preparedness

for identifying and tackling patients most at risk of opioid misuse or accidental overdose. During the ONE Program process, all patients receiving prescription opioids are screened for their risk of opioid misuse before receiving their medication, and for their risk of accidental overdose, which is based on factors including the patient's age, concurrent medications, and pre-existing diseases. For example, the use of benzodiazepine drugs, high alcohol intake, existing opioid use and co-morbidities such as liver

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disease and sleep apnea were all criteria which may increase the risk of accidental overdose. The risk-screening tool has enabled pharmacists to take a patient-specific approach to opioid misuse and overdose prevention, helping them to intervene in a more appropriate, targeted manner using the evidence-based process provided by the ONE Program.

ONE PROGRAM OUTCOMES

The methods of opioid-focused pharmacy intervention varied depending on the patient's prior life experience and assessed risk for misuse and overdose. In all cases, regardless of individual patient

risk, methods to reduce abuse potential were introduced including medication take-back (through which unused drugs could be disposed of) and partial filling of prescriptions, where a reduced number of doses is dispensed to the patient at any one time. For individuals determined to be at increased risk, pharmacists were encouraged to discuss community support services available to the patient, including how and when to seek them if required. Pharmacists were also urged to discuss the risks of accidental overdose when this was deemed appropriate for the patient's circumstances. The benefits and availability of naloxone were explained to patients identified as at risk for overdose, and the pharmacist facilitates the dispensing of naloxone when necessary. Pharmacists were also urged to discuss the risks of accidental overdose when this was deemed appropriate for the patient's circumstances.

The vast majority (97.1%) of patients at risk of misuse and/or overdose were given one or more of the critical pharmacist-led interventions to promote opioid harm reduction. This represents

a huge success in terms of educating pharmacists to deliver the vital support and information to the patients who need it most.

Behaviour change effected by the ONE Program saw the number of pharmacists registered to prescribe naloxone increase by 67%, and the number of pharmacists dispensing naloxone to patients doubled, from 23% to 46%.

STIGMATISATION OF OPIOID MISUSERS

Another area of impact for the program was in understanding the stigmatisation of opioid abusers. Previous studies have shown a tendency among healthcare professionals to stigmatise certain patients particularly in cases of behavioural health. These negative attitudes include



The prescription of opioids has a high risk of misuse.



Pharmacist interventions within the ONE Program.

Required Interventions Independent of Risk	
Medication take-back	Medication take-back program was introduced and strategies for use were discussed with the patient.
Opioid prescription partially filled	When indicated, partial filling of opioid prescription option was discussed with the patient and acted upon.

Critical Interventions for At-Risk Individuals	
Discussed community support services	Discussion of available community support services, including when to seek, was discussed with the patient.
Explained benefits of naloxone	The benefits and low risk of having naloxone on hand was discussed with the patient.
Dispensed naloxone	The patient received naloxone and associated training for home use.
Contacted provider	When indicated, the provider was contacted to discuss quantity prescribed, need for opioid, or other topics related to the risk of misuse and/or accidental overdose.
Discussed opioid use disorder	The risk of opioids in relation to opioid use disorder was discussed with the patient, relating to their individualised screening results.
Discussed accidental overdose	The risk of opioids in relation to accidental overdose disorder was discussed with the patient, relating to their individualised screening results.

- a** Intervention which should be provided to every patient receiving an opioid prescription, regardless of risk.
b Critical intervention which should be offered to patient identified at risk of OUD and/or accidental overdose.



physically distancing, or social distancing, from the patient. If pharmacists socially distance from patients with opioid misuse this can lead to poorer quality of care, with further negative impacts on the vital therapeutic relationship between pharmacist and patient.

The researchers surveyed 187 of the pharmacists enrolled in the training and found they expressed significant preference for social distancing or stigma toward individuals who display characteristics of opioid misuse disorder. While they were comfortable performing pharmacy tasks with these patients, pharmacists were less comfortable forming therapeutic relationships during patient-centred care. The survey broke down respondents by various factors including length of practice, experience

of substance misuse, and gender, which will help understand and target those with the highest degree of distancing, take measures to reduce it, and provide further education to ensure high quality of care is provided in the pharmacy.

The opioid risk-screening approach allowed pharmacists to take a patient-specific approach to opioid misuse and overdose prevention.

LOOKING TO THE FUTURE

A shortcoming of the program identified by the researchers was the number of patients receiving opioid prescriptions who completed the screening: at 16.9% this fell far short of the programme's target of 90%, highlighting the difficulty of introducing a new service across a large number of pharmacies simultaneously. Of the 149 registered pharmacies in the state,

63 of these enrolled to participate in the ONE Program – far exceeding the researchers' target of enrolling 25% of the state's pharmacies. The ONE Program has been seen as a breakthrough in the way pharmacists

can tackle the opioid epidemic, and the team can now modify the programme to optimise its positive impacts.

Looking forward, Professor Strand's team is interested in sharing the techniques and results of the ONE Program across other states in the US, to help pharmacists have the greatest influence against the opioid epidemic. The systematic nature of the program, as well as the urgent importance of the opioid crisis, give the team confidence that its methods can be implemented effectively into pharmacy practice elsewhere.



Behind the Research

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Research Objectives

The ONE Program: an education program that elevates the level of patient-centred care delivered by pharmacists when patients are prescribed an opioid prescription.

Detail

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Personal Response

What are the most important next steps that you think need to be taken to increase adoption of the programme across the US?

As the opioid epidemic continues to pose a challenge in the US, pharmacists must continue to take advantage of the expanding roles in opioid harm prevention (prescribing naloxone, opioid risk screening, etc). Initiatives like the ONE Program that encompass a tailored approach to each patient have the potential to reduce negative outcomes and improve support to communities with a focus on public health.

In addition, forming partnerships with state agencies and organisations (ie. state boards of pharmacy, state pharmaceutical associations) will have the potential to improve awareness of opioid risk-screening opportunities and increase exposure of these initiatives to pharmacies.

References

Dydyk, A, Jain, N and Gupta, M, (2021). Opioid Use Disorder. StatPearls [online] www.ncbi.nlm.nih.gov/books/NBK553166

Werremeyer, A, Mosher, S and Eukel, H, et al, (2021). Pharmacists' stigma toward patients engaged in opioid misuse: When 'social distance' does not mean disease prevention. *Subst Abus*. Available at: doi.org/10.1080/08897077.2021.1900988

Gold, M, (2020). Opioid Use Disorders and Opioid Overdose Epidemics. *Addiction Policy Forum* [online]. Available at: www.addictionpolicy.org/post/opioid-use-disorders-and-opioid-overdose-epidemics

Eukel, H, Steig, J, Frenzel, O, et al, (2020). Opioid Misuse and Overdose: Changes in Pharmacist Practices and Outcomes. *J Contin Educ Health Prof*, 40(4), pp242–247. Available at: [doi: 10.1097/CEH.0000000000000317](https://doi.org/10.1097/CEH.0000000000000317)

Skoy, E, Eukel, H, Werremeyer, A, et al, (2020). Implementation of a statewide program within community pharmacies to prevent opioid misuse and accidental overdose. *J Am Pharm Assoc*, 60(1), pp117–121. Available at: doi.org/10.1016/j.japh.2019.09.003

Skoy, E, Werremeyer, A, Steig, J, et al, (2020). Patient acceptance of naloxone resulting from targeted intervention from community pharmacists to prevent opioid misuse and accidental overdose. *Substance Abuse*. Available at: doi.org/10.1080/08897077.2020.1827126

Strand, M, Eukel, H, Frenzel, O, et al, (2020). Program evaluation of the Opioid and Naloxone Education (ONE Rx) program using the RE-AIM model. *Res Social Adm Pharm*, 16(9), pp1248–1254. Available at: doi.org/10.1016/j.sapharm.2019.11.016

Gusovsky, D, (2016). Americans consume vast majority of the world's opioids. CNBC [online – Accessed 22 Aug 2021]. Available at: www.cnbc.com/2016/04/27/americans-consume-almost-all-of-the-global-opioid-supply.html

