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Efficacy of Community Pharmacy Based Take-Home Naloxone Programs in Overdose Prevention

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Abstract

Community pharmacies now run important take-home naloxone programs that aim to decrease opioid overdose deaths as a main public health approach. Pharmacists implement THN programs which allow them to give out naloxone prescriptions-free to persons who face opioid overdose risk along with their support networks. The study investigates multiple research works which explore THN program implementation aspects as well as obstacles and outcomes for pharmacy environments. Reports indicate the main obstacles lie in pharma community resistance to naloxone administration because of social disapproval and insufficient staff preparation and restrictive legal requirements together with inconsistent patient learning programs. When combined programs include pharmacist education and standing orders together with targeted counseling and harm reduction training they enhance both naloxone dispensing rates and public awareness. Research shows that active pharmacy-based harm reduction programs help community pharmacies succeed in reducing opioid-related deaths and increasing naloxone distribution numbers. Research studies emphasize that communitywide public health initiatives together with strategic policy changes create expanded benefits from these health programs. Future studies must explore how well patients continue with treatment and how pharmacists engage with naloxone distribution and what longer-term effects of these programs will be. Research emphasizes the necessity to combine various strategies which enable improvement of THN program outcomes within community pharmacy environments.

Keywords: ***Take-home naloxone (THN), Community pharmacy, Opioid overdose prevention, Harm reduction, Naloxone accessibility, Pharmacist training, Public health intervention, Medication-assisted treatment (MAT), Opioid crisis.***

1. Introduction

The Growing Opioid Crisis and the Need for Take-Home Naloxone Programs

Medical opioids along with illegal opioids have raised to crisis level as a public health threat across several nations although North America bears most of the burden. Canada has experienced more than 16,000 opioid-related fatalities since 2016 as the United States lost above 60,000 people to drug overdoses in 2018 because of opioids and similar compounds. The excessive usage of opioids alongside their addiction epidemic has led to reduced life expectancy in the impacted areas according to these worrying numbers. Timely intervention can prevent opioid overdoses, thus making Take-Home Naloxone (THN) programs stand as essential public health strategies for preventing mortalities from opioids(1).

Opioid antagonist Naloxone proves to be the most potent medicine for preventing death from opioid overdose by promptly canceling opioid-driven respiratory arrest. The administration of naloxone concentrated mostly on hospital settings through healthcare personnel. The growing opioid crisis led to a transformation in naloxone distribution protocols that established its easy accessibility in pharmacies and other community locations to assist People under overdose risk and their support individuals. Naloxone became more accessible through community pharmacies following jurisdictional decisions to make it available over the counter in Canada (2016) and many American states in 2019. Although enabling regulations have improved naloxone accessibility newer roadblocks remain in achieving its appropriate distribution to those who require it.

The Role of Community Pharmacies in Naloxone Distribution

Naloxone distribution through community pharmacies is beneficial because pharmacists manage medications expertly and patients frequently visit these establishments while they sit easily accessible to everyone. The extensive network of pharmacies which extends both to cities and countryside makes these facilities the most suitable for naloxone delivery operations. Pharmacists contribute significantly by instructing patients about opioid overdose

safety practices together with opioid risk elements and naloxone usage procedures. The availability of naloxone in different pharmacy locations remains inconsistent because of factors that include public perception, price barriers, pharmacist training deficiencies as well as differences in laws that govern naloxone prescription(2).
The research shows independent and rural pharmacies provide lower rates of naloxone availability compared to large chain pharmacies thus creating geographic barriers to access this life-saving drug. The distribution rates of naloxone are lower in areas where opioid overdose deaths occur frequently together with low socioeconomic status populations thus intensifying the opioid crisis. Experiences suggest that patients who need naloxone face confusion about its pharmacy accessibility even though some pharmacists shy away from active naloxone promotion because they feel uncomfortable dealing with opioid medications. Pharmacy-based THN programs need to address these existing barriers for achieving their intended success.

2. Materials and Methods

The authors conducted a scoping review as a methodology to investigate and synthesize everything available about community pharmacy-based take-home naloxone (THN) programs. The researchers selected this methodology because it enables the identification of main concepts and research gaps while synthesizing comprehensive findings between many studies beyond systematic review limitations. The present scoping review followed the Arksey and O'Malley framework by conducting five essential phases starting from research question definition through study selection based on eligibility criteria before extracting data and reporting findings. A comprehensive reporting system was established through the use of the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) extension for scoping reviews(3). The objective behind this review did not involve performing a meta-analysis because it focused on creating a holistic overview of pharmacy-based naloxone programs alongside their success barriers and facilitators along with identifying evident knowledge gaps to support future deployment strategies.
The review started by creating a specific research question which served as the research selection filter. The research investigates existing knowledge about community pharmacy-based take-home naloxone programs and their enhancement strategies through interventions. The general research query enabled investigators to analyze diverse methodology in their review of peer-reviewed and grey literature content which included quantitative results alongside qualitative work and hybrid research. A complete database search took place after the research question creation through the utilization of PubMed, EMBASE, Scopus and International Pharmaceutical Abstracts (IPA). Multiple research databases provided sufficient medical and pharmaceutical and public health study coverage to extract all relevant research documents. The search included both database results but also incorporated grey literature through examination of government websites and pharmacy regulatory authority reports and policy documents that contained relevant information outside peer-reviewed categories. The research query utilized both Medical Subject Headings (MeSH) terms together with specific keywords including naloxone and its related concepts regarding pharmacy services and harm reduction programs for opioid overdose prevention and pharmacist interventions and THN programs(4).
The second phase began with applying established inclusion and exclusion criteria to review the initial gathered studies. The research included three primary requirements: examinations of pharmacy-borne naloxone programs together with precise interventions for increased accessibility or distribution of the drug. All studies needed to be written in English or French. The review team accepted all research originally published in peer-reviewed journals with randomized controlled trials together with cohort studies and cross-sectional surveys and qualitative interviews and implementation studies. Conference proceedings together with editorial content and grey literature articles were included when they presented both empirical evidence and policy-relevant material. The study exclusion criteria involved examinations that concentrated on hospital naloxone dispensing or medical provider naloxone distribution without community pharmacy involvement. Studies which presented theoretical or proposed naloxone programs without implementing them into practice did not qualify for the review because it focused on verified empirical evidence. The screening evaluation utilized COVIDENCE to permit several independent reviewers who operated without knowing each other's choices. Two independent researchers reviewed abstracts and titles which led to full-text testing of qualified studies. This study team followed a procedure of investigation and third-party consultation to address any problems regarding inclusion of studies for review(5).
After study selection the third process led to data extraction and charting activities. A standardized extraction form was created which would help researchers collect essential information from the included studies. The collected data

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contained critical information points about each study including title, author(s), publication year, country source, design, sample data, participant details, research methods, intervention details, control group (when present) and intervention length and measured effects. The researchers systematically captured essential findings about THN programs along with naloxone distribution patterns and the obstacles fishermen faced while also noting pharmacist and patient knowledge deficits. Two evaluators performed independent data extraction tasks which they verified and settled any differences through collaborative discussion. The analysts condensed the obtained information into thematic charts and narrative summaries which structured the studies regarding their goals and findings.
This scoping review did not require formal quality appraisal of included studies as its fourth step. The goal of scoping reviews contrasts with systematic reviews because they concentrate on research methodological rigor evaluation while scoping reviews function to determine available literature breadth with identified gaps in research. The study placed emphasis on selecting high-quality research material with special attention given to peer-reviewed studies that employed strong methodologies. Qualitative thematic analysis techniques helped researchers extract and synthesize information from the literature to identify recurring themes and patterns. The research group organized principal data points across four primary themes: (1) community pharmacy-based THN programs overview, (2) Naloxone supply and prescription policies, (3) Elements supporting successful THN program development and (4) Knowledge deficits among pharmacists and clients(6).
Jones (2014) conducted analysis by synthesizing and delivering findings as the fifth and final step in the review process. Narrative summaries contained detailed assessment of results which received thematic support through graphs and tables for easy visualization of fundamental data. The study selection process received illustration through a PRISMA flow diagram which displayed the numbers of retrieved records along with screened records and excluded records and included records for the final analysis. The evaluation included particular case studies demonstrating effective pharmacy-based naloxone interventions which presented best practices examples. Contextual analysis of results occurred with respect to existing research about harm reduction approaches along with opioid overdose prevention techniques and pharmacy-based interventions to recommend improvements for THN program delivery.
A meticulous research method enables this review to deliver an extensive overview of existing evidence about take-home naloxone community pharmacy practices and their main strategies as well as obstacles and growth potential. Following the presentation of methods the paper will showcase study results regarding naloxone distribution patterns and identified obstacles and effective solutions to boost THN programs in community pharmacies.

3.Results

Knowledge Gaps Among Pharmacists and Patients

The researchers highlighted substantial understanding deficits between pharmacists and patients regarding programs that distribute take-home naloxone for opioid overdose prevention. Knowledge deficiencies about pharmacy-based naloxone distribution were investigated in 17 out of 52 reviewed studies. Research grouped five essential knowledge categories that pharmacists and patients lacked about THN programs: first is patient wrong beliefs regarding naloxone use; secondly is public lack of awareness about naloxone distribution; thirdly is pharmacist difficulties in implementing admin functions; fourthly is clinicians' gaps in treatment protocols for naloxone and overdose; finally is pharmacists' deficient counseling abilities.
Several research projects uniformly reported that patients often held incorrect beliefs about naloxone. There exists a broad misperception among opioid therapy patients who use opioids chronically for pain management that their continued opioid use without past incidents makes themselves alongside their family members immune to experiencing a fatal overdose. Patients maintained on chronic opioid therapy hesitated to accept naloxone kits because they believed their opioid tolerance made them immune to accidental overdoses according to three studies. Patient research showed the misconception existed where naloxone was restricted solely to individuals who inject drugs (PWID) because patients thought it had no role in treating medical opioid prescriptions. Users who depended legitimately on opioids refrained from taking naloxone to avoid drug addiction stereotypes when they carried the device in public.

The primary obstacle in addition to false information existed due to inadequate patient understanding. Research showed that numerous patients remained uninformed about getting free naloxone at community pharmacies even though these areas had standing order programs in place for an extended period. The pharmacies neglected to promote naloxone availability adequately while patients remained uninformed about its accessibility. Numerous research studies advocate for pharmacies to actively set up educational materials like informational brochures and posters where patients can easily see them for better awareness(7).

The lack of administrative knowledge proven to be a substantial problem according to pharmacists. Interventions found that pharmacist familiarity regarding naloxone requirements was limited because they lacked understanding about standing orders and paperwork procedures and insurance billing codes. Pharmacists directed patients to get a physician prescription when naloxone could be purchased from stores over the counter in specific districts. Pharmacists failed to recognize their ability to provide naloxone to both substance overdose risks and their family members or caregivers without a medical prescription. The barriers faced in pharmacy settings underline the requirement for uniform pharmacy protocols combined with more detailed education about naloxone dispensing procedures for pharmacists.

Furthermore various medical professionals displayed limited awareness when it came to applying their understanding of these situations. Research demonstrated that pharmacists insufficiently felt capable of detecting patients appropriate for naloxone administration. A majority of pharmacists were unsure about which patient groups required naloxone prescriptions because they either had smaller opioid prescriptions or no established substance abuse diagnosis. The pharmacists showed insufficient understanding about different versions of naloxone medicine and their correct usage methods between intranasal and intramuscular routes. Pharmacists demonstrated reluctance to offer naloxone to pregnant patients although research showed the drug poses no pregnancy-related dangers because it lacks teratogenic properties. The studied results indicated pharmacist uncertainty regarding naloxone's administration capability for alcohol-based overdoses and overdoses involving barbiturates or benzodiazepines despite the fact naloxone demonstrates effectiveness only in treating opioid-related respiratory distress.

A number of research studies highlighted poor practices in the way pharmacists deliver patient information to their clients. Several pharmacists avoided starting the naloxone discussion because they worried such conversations would make patients feel judged or treated in a negative way. Pharmacists exhibited high levels of reticence during situations where they needed to give naloxone kits to new opioid patients obtaining their medicine for the first time. Professional communication training meant to strengthen motivational interviewing abilities and reduce stigma felt by pharmacists produces better confidence in patient interactions about naloxone(8). The lack of appropriate training among pharmacists about naloxone administration led to inadequate patient guidance about emergency service calls and proper rescue breathing techniques along with the correct positioning for overdose victims. Patients who receive naloxone therapy through these THN programs encounter ineffective counseling which leads to reduced effectiveness because they might not understand how to administer naloxone during emergency situations.

Summary of Key Findings

The expansion of THN programs in community pharmacies exists alongside considerable implementation limitations as well as educational and accessibility needs. Progressive THN policies that give pharmacists prescriptive authority and standing order capabilities produce higher rates of naloxone distribution. Independent rural and lower-income pharmacies in areas with high overdose risk fail to distribute naloxone even though they encounter dangerous conditions. A major obstacle to naloxone distribution remains the expense patients have to pay for the medicine however free naloxone programs lead to substantial growth in dispensing rates.

The primary barriers to naloxone use included (1) high costs associated with naloxone along with insurance issues and (2) pharmacist and patient-related stigma and (3) insufficient training for pharmacists and lack of education. The major challenge to naloxone distribution exists because patients avoid this medicine out of misconception about illegal drug use and some pharmacists shy away from proactive naloxone promotion because of their fear of patient offense. The provision of naloxone faces obstacles because pharmacists lack guidance on administrative systems and clinical applications and patient education methods which demand specialized training programs.

The effectiveness of THN programs receives support from multiple identified contributors that enable their successful implementation. Research has shown that pharmacists who underwent specialty training for naloxone programs became more comfortable in providing naloxone prescriptions and administration services. When pharmacy workflow interventions included automated patient screening tools connected with pharmacy software alerts both together resulted in higher naloxone dispensing rates(9). Research shows that simultaneous policy

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adjustments with educational training programs and pharmacy system optimization measures will lead to substantial growth in pharmacy-based naloxone distribution.

The data confirms that pharmacy-based THN programs stand as essential elements for opioid overdose prevention yet the programs can achieve better performance. Moving forward the Discussion section will analyze the major consequences produced by these results alongside recommended strategies and future research and policy recommendations.

4.Discussion

Research results obtained through this scoping review demonstrate important knowledge about existing take-home naloxone (THN) programs run from community pharmacies and the key elements which influence their performance. The compelling evidence demonstrating that pharmacies function well as naloxone distribution sites encounters existing major barriers which obstruct equal access along with best practice implementation and program adoption across all settings. Strategic interventions are necessary now because naloxone dispensing rates differ among pharmacy settings and patients and pharmacists maintain prejudices against substance use disorder and patients face financial constraints alongside gaps in pharmacy provider knowledge. This paper discusses THN programs' effect on naloxone accessibility together with stigma reduction strategies and pharmacist training quality and proposes strategies for better THN program effectiveness(10).

1. The Impact of THN Programs on Naloxone Accessibility

Therapeutic drug lockers located in pharmacies serve as the primary accessible mechanism to distribute naloxone kits particularly in regions where people who face high opioid overdose risk avoid visiting healthcare providers regularly. The reviewed studies show that implementing pharmacy-based naloxone programs under supportive policies including standing orders, pharmacist prescriptive rights as well as mandatory co-prescription mandates leads to significantly higher naloxone dispensing rates. Pharmacy locations differ widely regarding their ability to provide naloxone distribution access to patients. Research shows independent and rural pharmacies possess significantly lower naloxone stock and distribution rates than large retail pharmacy chains do. Official THN programs theoretically exist but fail to distribute properly to those communities which specifically need them most.

The absence of reimbursement standards and financial benefits for independent pharmacies stands as a primary reason why they do not engage in naloxone programs. The limited financial capabilities of independent pharmacies compared to large retail pharmacy chains contributes to their reluctance to stock naloxone unless insurance payment parameters become clear and sufficient. Independent pharmacies that focus on maximized profits limit the presence of naloxone among other medication options. Rurality creates obstacles for pharmacies that include delayed product distribution and limited access to pharmacist training programs thus reducing their involvement in THN programs.

Surprisingly naloxone distribution was discovered to be lower within locations which exhibited the highest opioid overdose numbers. Research showed that pharmacy outlets situated in areas with increased opioid death rates and low household income had lower naloxone stocking rates even though this region needed naloxone most urgently. Systemic healthcare and pharmacy operational disparities seem to reduce the effectiveness of THN programs specifically among low-income and marginalized populations. The reduction of these geographic disparities demands that government agencies initiate funding policies for naloxone distribution and implement financial support for understaffed pharmacies and establish strict naloxone supply protocols in high-risk areas.

2. The Role of Stigma in Limiting Naloxone Uptake

Stigma functions as the major impediment which stands in the way of pharmacy-based THN programs. The public continues to view naloxone as a substance needed only by individuals who use drugs because they maintain their negative associations between it and illicit substance use. Patients avoid asking for naloxone because they anticipate judgment and drug user labels together with potential negative consequences from pharmaceutical record documentation(11).

This stigma appears when pharmacists avoid giving out naloxone as they feel hesitant about possibly offending their patients. Studies demonstrated pharmacists avoided discussing naloxone with patients getting chronic pain opioid medication although they worried naloxone administration might suggest the patient were misusing opioids. People act with caution when accepting naloxone because the opioid use stigma affects every demographic including

patients who require medication for legitimate medical needs. Some pharmacists held untrue beliefs about naloxone by assuming the medication would allow people to take more risks when using opioids. Positive attitudes among pharmacists reduce the number of high-risk individuals who get naloxone prior to potential overdoses.
The elimination of stigma can be achieved by making naloxone an accepted part of normal pharmacy operations. Studies demonstrated that naloxone distribution standardization among opioid prescriptions especially for high-dose opioid recipients could reduce stigma because naloxone treatment would become a required practice in opioid safety methods. Public awareness campaigns through pharmacy outlets can transform naloxone perception into a healthcare prevention practice by using messaging across posters and patient education materials and brochures. The education of pharmacists about anti-stigma practices would make them feel more confident to engage with patients about naloxone administration and eliminate worries about patient offenses.

3. The Importance of Pharmacist Education and Training

The success of THN programs strongly depends on pharmacist education as the reviewed studies demonstrate repeatedly. Pharmacists who underwent specialized training about naloxone showed increased naloxone dispensing behavior and gained better counseling abilities while also achieving improved skills to screen users who needed this reversal medicine. Pharmacists without formal training consisted of practitioners who expressed uncertainty regarding naloxone dispensing procedures and patient screening processes as well as billing requirements.
Training programs for pharmacists about naloxone distribution have been identified as deficient in every state. Many pharmacists lacked access to mandatory training about naloxone since education programs in some jurisdictions were optional. The training on naloxone delivery showed major differences in depth and quality as a normal service in various areas despite its availability. Public health entities should create strict pharmacist training mandates to provide all community pharmacists with extensive education about naloxone delivery techniques and drug misuse evaluation and patient interaction effectiveness.

5. Conclusion and Future work

This scoping review demonstrates the key importance of THN take-home naloxone distribution services through community pharmacies to help fight the opioid crisis. Pharmaceutical services continue to face a rising opioid death rate because pharmacies serve as accessible healthcare platforms which make them ideal for distributing naloxone together with overdose prevention education to patients and neighborhood residents. The growth of THN programs encounters important obstacles which prevent comprehensive program success. Financial restrictions along with unequal distribution of naloxone stands as a primary obstacle while stigma toward naloxone hurts uptake and too many pharmacists lack satisfactory knowledge about its use. The examined research documents show that standing orders and pharmacist prescriptive authority brought more naloxone distribution to specific geographic regions but access remains scattered across rural locations and independent and low-income community pharmacies. Pharmacists need standardized education and training because most feel inadequate at discussing naloxone with patients while also facing administrative challenges whenever they prescribe naloxone and holding wrong assumptions about how naloxone helps reduce drug-related harms. The success of THN programs demands liền approach to these obstacles so naloxone distribution reaches all necessary individuals.
The review reveals dangerous data indicating that regions with the high rates of opioid overdoses actually have limited access to naloxone. The opposite pattern indicates that healthcare system access barriers prevent vulnerable populations from getting naloxone despite the availability of community pharmacy services. Research shows that pharmacies located in areas with high overdose rates rarely draw from the prescription of naloxone even though public health evidence proves naloxone access diminishes death by overdose. The issue seems to stem from financial barriers as well as supply limitations and pharmacist concerns about naloxone medicine distribution programs. Due to the existing disparities policymakers need to develop focused interventions that give high-risk area pharmacies supplemental backing such as public funding for naloxone stocking while also offering financial incentives for independent centers and implementing improvements to supply chain management. State and federal funding expansion for uninsured or underinsured naloxone kits would decrease economic barriers and improve the participation of pharmacies in THN programs. Governments need to make naloxone stocking requirements mandatory for pharmacies operating in areas with elevated opioid mortality rates because these areas need naloxone the most.
This review highlighted the negative perception about naloxone distribution among the population as one of the main obstacles to patient access. Public health awareness about opioid overdose has grown but pharmacists together with

patients maintain the stereotype of associating naloxone with illicit substance usage which results in them avoiding requests for naloxone or its acceptance from other individuals. Patients who take opioids for chronic pain feel their opioid usage will be questioned when they accept naloxone. A few pharmacists allow concerns for patient offense and potential implications of opioid misuse to prevent them from actively offering naloxone to patients. A cultural transformation regarding prescription naloxone distribution along with its societal perception must take place to fight stigma. High-risk opioid prescriptions accompanied by routine naloxone co-prescription policies will make naloxone use more regular and decrease the misconception that it serves only those who misuse opioids illegally. Public education initiatives in pharmacies focused on naloxone need to deliver messages through posters and brochures along with specific digital outreach efforts which should position naloxone as a basic medication like EpiPens for anaphylaxis treatment or defibrillators for cardiac emergencies.

Research findings reveal that the level of success achieved in THN programs depends heavily on what training services pharmacists receive. When pharmacists received specialized training about naloxone they demonstrated improved capability to actively offer naloxone as well as deliver proper counseling and overcome reimbursement hurdles. Naloxone training gaps among pharmacists reduced their prescribing confidence and created barriers to patient education and harmed their understanding of adverse outcomes or dispensing requirements. Research results established that many pharmacists did not recognize their capacity to give out and administer naloxone prescriptions independently of medical oversight which resulted in preventable harm reduction situations. Many pharmacists showed poor understanding regarding correct naloxone administration procedures because they failed to understand the comparison between intranasal and intramuscular formulations and they did not know when to alert emergency medical services or establish correct care positions. The research underscores the requirement of official regulatory pharmacist training initiatives which need to teach clinical measures along with drug dispense administration protocols for naloxone. All jurisdictions should implement a standardized program for pharmacist training which guarantees uniform knowledge and skill delivery about effective naloxone provision regardless of pharmacist location or workplace setting.

Several vital strategic measures exist which would improve the effectiveness and accessibility and sustainable implementation of THN programs in community pharmacies. The government should enhance public opioid overdose rescue funding to enable unrestricted access for people at risk of overdose regardless of their economic situation. A solution for unequal naloxone availability must include requirements for high-risk pharmacies to stock naloxone plus financial aid for independent drug stores and help for rural pharmacies to obtain the medication. Pharmacy-based naloxone programs should implement stigma reduction efforts by providing pharmacists with training on stigma-free patient interactions along with public education about naloxone use normalization and routine prescriptions of naloxone with high-dose opioid medications. Standardized and mandatory pharmacist training programs must include complete instruction about naloxone medication dispensing along with overdose risk evaluation as well as patient guidance through standardized curriculum. Additional research must evaluate the long-term benefits of various THN program structures by conducting quantitative assessments for patient outcomes and qualitative observations about healthcare professional experiences and analyzing policies connected to naloxone prescription accessibility rates.

Community pharmacy-based THN programs demonstrate exceptional potential to become among the most successful harm reduction approaches for fighting the opioid crisis. These important obstacles including monetary constraints and regional differences as well as public prejudice and medical expert knowledge deficiencies significantly limit the complete realization of these intervention programs. These obstacles to effective harm reduction can be solved by implementing policy initiatives along with pharmacist training schemes and financial programs and general public enlightenment efforts. The implementation of effective optimization strategies within pharmacy-based naloxone programs will enable the delivery of this vital medication to the intended people thereby decreasing opioid-related deaths and advancing public health results.

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Conflicts of interest

The authors have no conflicts of interest to declare

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