Journal of the American Pharmacists Association xxx (2018) 1–6

Contents lists available at ScienceDirect

Journal of the American Pharmacists Association

journal homepage: www.japha.org

RESEARCH

Description and comparison of medication diversion in pharmacies by pharmacists, interns, and pharmacy technicians

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ARTICLE INFO

Article history:
Received 31 July 2017
Accepted 19 February 2018

ABSTRACT

Objectives: 1) To describe reported medication diversion within the practice of pharmacy; and 2) to compare diversion by employee type.
Design: Retrospective study.
Setting: A sample of state board of pharmacy records was examined from 9 states. Disciplinary actions were obtained from the records for the time period of May 2008 to May 2013.
Participants: Pharmacy employees (pharmacist, technician, interns).
Intervention: Not applicable.
Main outcome measures: When a diversion case was identified, the following items were obtained for each case of medication diversion: 1) category of pharmacy employee (pharmacist, technician, intern); 2) type of substance (control, noncontrol, both); 3) use of diverted substance (sale, personal use, both, undetermined); and 4) action taken by the board.
Results: A total of 811 medication diversion cases in 9 states were identified. Most cases involved a pharmacy technician (71.4%), controlled substances only (94.2%), and diversion for personal use (46.6%) and resulted in license or registration revocation or surrender (62.5%). When examining medication diversion use by purpose for diversion, there were significant differences by pharmacy employee type (sale use: $P = 0.003$; personal use: $P = 0.032$; unknown use: $P < 0.001$).
Conclusion: Medication diversion is a pressing problem. There were 811 cases examined by 9 state boards, and many cases may be unreported. Technicians represent nearly three-fourths of diversions. It is essential that the practice of pharmacy identifies and assesses strategies to reduce medication diversion.

Abuse of prescription medications has become an epidemic in the United States.[1,2] In a 2012 survey, the majority of prescription pain relievers that were abused were originally obtained by prescription.[3] The majority of abusers (54%) obtained the medications from a friend or family member, and in the majority of those cases (85%) the friend or family member obtained the medication by prescription.[3] In reaction to the epidemic, recent measures have been implemented in multiple states to decrease inappropriate prescribing and dispensing, especially of opiate pain medications.[4-6] Although in the 2012 survey, fewer than 5.1% were stolen from a health care facility, including pharmacies, and 4.3% came from "drug dealers or other strangers,"[3] there have been many well publicized cases of medication diversion involving pharmacy employees. However, there are little extant data examining which pharmacy employees were diverting the medications and the purpose of the diversion.

Diversion is the "unlawful channeling of regulated pharmaceuticals from legal sources to the illicit marketplace."[7] Misuse of prescription medications by health care workers is the most common diversion.[7-9] Research has shown a correlation between workplace access and diversion.[8,9] This has been well documented when looking at health care workers such as physicians and nurses.[8,9] However, there is a lack of data on the methods of diversion, which prevents development of successful antidiversion programs.[10,11] Reasons for diversion include personal use, a friend or family member's use, and to sell for a profit.[10,11]

Disclosure: The authors have no conflicts of interest to disclose or financial relationships.
Funding: Internal grant from Cedarville University School of Pharmacy.
Previous presentations: Cedarville University Research Symposium, April 1, 2015, Cedarville, OH; Ohio Pharmacist Association Annual Meeting, April 4–6, 2014, Columbus, OH; American Pharmacist Association Annual Meeting and Exposition, March 28–31, 2014, Orlando, FL.
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https://doi.org/10.1016/j.japh.2018.02.009
1544-3191/

Key Points

Background:

- There have been many well-publicized cases of medication diversion in pharmacies, as access provides opportunities for diversion.
- Some research suggests that it is fairly easy to divert medications from the workplace due to inadequate control mechanisms.
- There is limited information regarding the extent and consequences of medication diversion as well as the individuals diverting with the pharmacy profession.

Findings:

- A total of 811 diversions in 9 states occurred, with nearly 75% of diversions occurring by technicians.
- It is important to explore further ways to reduce opportunities for diversion by pharmacy employees, particularly for technicians who are being granted greater access to medications in many states.

However, there is limited research examining the nature and extent of medication diversion within the profession of pharmacy. Research that examined prescription medication diversion among "drug dealers" found that "connections" in the health care setting were key players in obtaining prescription medications, and pharmacy technicians were mentioned most often as the "connection" in this process.[10] There are multiple ways that pharmacy employees can divert prescription medications from the pharmacy. These include taking expired medications, manipulating the inventory, forging prescriptions, and stealing the medications.[11] When examining pharmacists with substance-related impairment, researchers found that pharmacists considered it to be very easy to divert from the workplace.[11] The pharmacists reported that most control mechanisms in place were inadequate and allowed easily diverting both noncontrolled and controlled prescription medications.[11]

The consequences of medication diversion have a wide range of effects that span both the patients and the diverter. The impact on public health is profound; much has been written about the large increase in opioid-related deaths[12] and the contribution of prescription pain relievers to the opioid epidemic.[13] Consequences to the diverter can range to loss of employment, fines, loss of license, or jail time. If medication diversion is reported, state boards of pharmacy examine cases involving registered pharmacy personnel in addition to any legal consequences. Because many states do not register technicians, there is an absence of data is this area. The purpose of the present study was to examine state boards of pharmacy (state boards) records to determine which personnel are most frequently diverting from the pharmacy and the reason(s) for the diversion.

Objective

The aim of this work was, with the use of state board records, to describe reported medication diversion within the practice of pharmacy and to compare diversion by employee type.

Methods

Design

This study was a retrospective analysis of state board of pharmacy (hereafter referred to as "state board") records.

Sample

To describe the problem of medication diversion in the United States, a sample of state board records were examined. First, states were categorized into regions and then divisions to ensure a nationally representative sample. U.S. Census classifications for regions and divisions were used. Websites for each state were examined, and states who did not have minutes posted online or who did not register technicians were excluded. TEN states did not register technicians during the study period (CO, DE, FL, GA, HI, MI, NY, OH, PA, WI), and 19 states did not have disciplinary action reports available online (AL, AK, AR, ID, LA, ME, MI, MO, MT, NE, NV, NH, ND, OR, TX, UT, WA, WV, and WY). After exclusion, 18 remained eligible for analysis. If more than 1 state remained in a division after the inclusion criteria were met, then only 1 state per division state was randomly chosen for inclusion, data collection, and analysis. A total of 9 states were used for the study.

Data collection

Disciplinary actions were obtained from online reports for the time period of May 2008 to May 2013. A diversion case was defined as any unlawful removal of prescription products from the pharmacy for either personal use or sale. When a diversion case was identified, the following items were obtained for each case of medication diversion: 1) category of pharmacy employee (pharmacist, technician, intern); 2) type of substance (controlled, noncontrolled, both); 3) use of diverted substance (sale, personal use, both, undetermined); and 4) action taken by the board.

The Bureau of Labor Statistics was used to gather number of pharmacists and pharmacy technicians per year for each of the 9 states used for the study. These were then averaged to form an average number of each per state.

Of the 9 states examined, 7 had mandatory reporting laws for medication diversion at the time of data collection.

Statistical analyses

An a priori sample size was calculated ($\alpha = 0.05$; effect size = 0.3; n = 253 cases). Descriptive statistics were performed for all data in IBM SPSS v. 21.0 for Windows (Armonk, NY), and chi-squared tests were used to assess categoric differences between groups, with statistical significance set at $\alpha = 0.05$.

Results

A total of 811 medication diversion cases in 9 states were identified and used for our analyses. Demographics and diversion characteristics (including employee type) are presented in Table 1. Pharmacy technicians were responsible for the majority of reported medication diversions (71.4%), with