Developing Safe Habits for Practice

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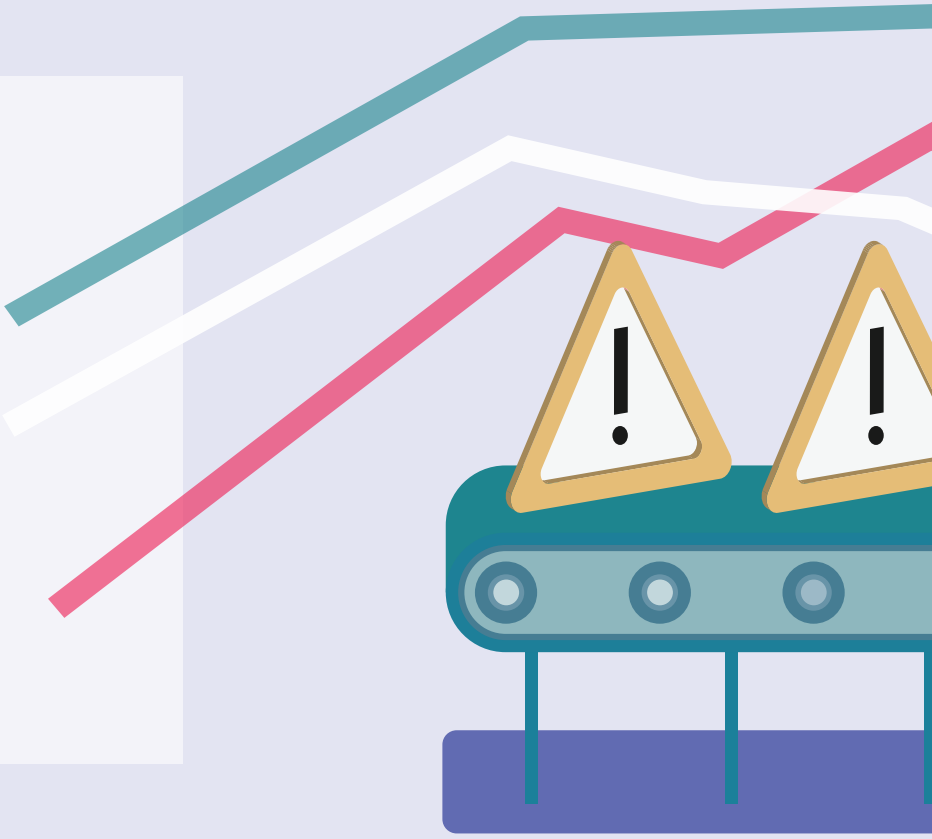
Submitted: December 17, 2021
Accepted: December 17, 2021

Fatal and nonfatal medication errors continue to occur in American healthcare. These are reported in a variety of ways and formats, and can include sensationalistic case reports about a patient receiving the wrong medication or more rigorous science-based research reports. It is often difficult to truly quantify the number of medication errors that occur in the United States each year and the associated costs.[1] Varied definitions used for the terms medication error, adverse drug event, and drug-related problems make for a toxic soup when trying to sort through the true impact and cost associated with medication mistakes.[2] In most instances, it should be enough to know that U.S. patients are harmed by medications each day by well-intentioned caregivers.



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Disclosure: The author declares that they have no relevant or material financial interests.

One day in 1988, I was standing in my driveway about to receive my final grade for my high school driver's education course. The course had taken about two weeks to complete and included both classroom instruction and driving practice behind the wheel with an instructor. While I did well on the classroom portion, the whole process of driving each day for 60 to 70 miles was a nerve-wracking roller coaster of emotion. Frequently, I left the car drenched with sweat and exhausted by the experience. I wanted to do well, and I did not want to cause an accident. Our instructor was a hulk of a man that held a position of authority at my school: the dean of students. I have never forgotten what he told me as he gave me my grade (an A-): "Danny, you did a good job driving. You need to remember though, 'A' students make shoulder checks."

He was referring to checking over your shoulder when attempting to change lanes—a good habit to have while driving. In my own experience teaching the concepts of safety, I frequently find that drivers can identify the habits that accompany safe driving, such as driving the posted speed limit, coming to a complete stop at a stop sign, looking both ways at an intersection, wearing a seat belt, and using a turn signal when changing lanes or initiating a turn. When I ask healthcare practitioners, "What are some safe habits that you can use when providing care to patients?" usually the group can identify some habits, but they are much slower in coming to mind. Why does it seem to be so easy to identify safe habits of driving and so much more challenging to identify these types of activities when practicing pharmacy or other areas of healthcare?

In looking for literature about the application of habit formation and science in patient safety and healthcare, there does not seem to be much available. A study published in 2003 about the concept of improvement in the neonatal intensive care unit (NICU), across 34 medical centers, identified four key habits that organizations should use in improving performance:[3] evidence-based practice, change management, collaborative learning, and systems thinking; however, it did not describe individual care practitioner habits that could be used.

A second study, published in *Critical Care Nurse* in 2014, attempted to review the evidence associated with established practice habits to determine if they should be perpetuated. It looked at the practice of turning patients, patient sleep in the acute care setting, feeding tube management in infants and children, and the prevention of venous thromboembolism.[4] The study challenged established habits and tradition through the exploration of practice evidence for a group of practitioners (nurses) rather than an individual practitioner.

An opinion piece in the *Journal of the American College of Radiology* published in 2019 by Jacob Mandell exhorts the need for good habits to be demonstrated by radiologists.[5] Dr. Mandell's article describes where bad and good practitioner habits may be on display in the radiologist reading room and even discusses the need for habit formation as it relates to safe practice. The article provides an initial glimpse into the world of habit science, healthcare, and patient safety.

In his bestselling book, *Atomic Habits*, James Clear breaks down the science of habit formation into four primary stages: cue, craving, response, and reward.[6] Truthfully, there are several great books that discuss the concepts of individual behavior change and habit formation.[7,8] Individual practitioners applying these concepts to pharmacy can likely have a significant impact on safety. Behavior change and habit formation (or the elimination of a bad habit) can be hard work. One issue in particular that makes habit formation hard in pharmacy is that the reward associated with safe practice—not harming an individual patient—is often far removed from the actual act of performing safely. A great example of the dissociation between habit accomplishment and reward can be found in hand hygiene; very few practitioners are exposed directly to the reward of a safe patient as a result of washing their hands.

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> **Excellence is an art won by training and habituation.**
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> —Aristotle

As a courtesy assistant professor at a college of pharmacy, I work with groups of highly talented, motivated, and bright students. As we teach students about patient safety, I find they can become nervous about the possibility of harming a patient by making a mistake. We teach about the system-based nature of error commission: An error is seldom related to a single human mistake, but rather is a result of a cascade of errors that led to a potentially harmful outcome for a patient. While recognizing the system-based nature of errors, students frequently ask me what they might be able to do to minimize their potential for making a mistake. The truth is that there are things that an individual practitioner can do, outside of whatever poorly designed system they may be practicing in, that can improve the ability to practice safely.

Getting a good night's sleep

A growing body of evidence points to the idea that adequate sleep can improve individual performance and minimize the potential for human-based errors.[9] Industries outside of healthcare have identified this trend and in some cases mandated a minimal amount of sleep to avoid significant errors. As an individual practitioner, improving sleep hygiene can minimize the chance of making a mistake.

Reading the latest information on medication errors

When teaching third-year pharmacy students about the concepts of patient safety, we frequently review cases of tragic medication errors, including the cases of Emily Jerry and Eric Cropp, the 2006 heparin errors in Indianapolis, and the devastating case of Kimberly Hiatt and Kaia Zautner.[10,11,12,13] The purpose behind discussing these situations is for students to understand the systemic nature of medication errors and the improvement principles needed

to make processes better. As part of the process, students learn how to openly discuss medication problems and about the need to address safety issues transparently.

One way of knowing the types of errors that can happen in your own practice is by learning from the lessons of others. There are many opportunities to further explore the principles of medication safety and error mitigation strategies. In the past year this journal, *Patient Safety*, has published articles on medication errors in outpatient care, the safety of vaccinations, medication reconciliation, and dosing errors that may result from inaccurate patient measurements.[14,15] The Institute for Safe Medication Practices (ISMP) publishes a newsletter every two weeks that highlights medication error–prone situations and offers helpful and expert-based solutions. The Institute for Healthcare Improvement (IHI) and the American Society of Health-System Pharmacists (ASHP) both offer practitioner certificates in quality and safety.

Every practitioner should incorporate safety as a segment of their practice. The safety principles a practitioner uses should be based on the science of safety rather than just professional opinion, just as with the adoption or use of any other clinical guideline when practicing.

Developing a list of safe practice habits based on your own individual practice

Identifying the safe habits associated with the practice of pharmacy can be an enlightening exercise. In April 2019, I was asked to present on the topic of habit and its impact on patient safety to a national group of pharmacists and nurses. As preparation for that presentation, I asked a series of questions on two medication safety listservs (ASHP and ISMP). Specifically, I asked practitioners, "What are professional habits that may make a practitioner less likely to make an error?" I provided a list of examples as part of the request. I did not receive a significant number of replies; however, those that I did receive may be worth sharing. They included

1. Standardizing through specialization and inviting repetition with pauses
2. Performing checks for accuracy in the same order—every time
3. Taking a pause and physically taking a breath when dealing with complex orders
4. Inviting others to double check your work
5. Asking the same three questions for every medication order reviewed
    - What is the drug treating?
    - How is the drug dosed?
    - What patients should not receive this drug?

The constant quest for improvement is frequently accompanied by behavior change. Using the science of habit formation and behavior change in patient safety and pharmacy practice has the potential to bring exponential improvement to daily practice. Remember this quote by Aristotle, "Excellence is an art won by training and habituation."[16]

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