



# Patient Expectations and Realities:

## Study Sheds Light on the State of Medication Management

When patients receive healthcare, they see clinicians and technologies working hard to keep them safe. It's not surprising, then, that nearly 40 percent of the 1,131 patients and family members who participated in the *2017 Medication Management and Safety Study*, conducted by HIMSS Analytics, indicated that they feel more protected than ever before. Yet, 38 percent of these survey respondents reported that they know someone who has experienced a medication error – and of those, 65 percent experienced serious repercussions including death (Figure 1).

Despite the fact that such errors are occurring, 55 percent of the patients and family members surveyed trust clinicians to administer medications according to the “five rights” (patient, drug, dose, route and time), and more than 60 percent reported that they had “supreme confidence” in the care team’s ability to do so (Figure 2).

Tejal K. Gandhi, MD, MPH, Chief Clinical and Safety Officer for the Institute for Healthcare Improvement (IHI),

a Boston-based, not-for-profit organization dedicated to improving health and healthcare worldwide, said that many patients simply don't consider the possibility of errors when they are receiving treatment. “If you've had an error, then you're certainly very worried about another one. If you've never had one, then it's not something that's top of mind,” she said, pointing to a 2017 IHI/NPSF Lucian Leape Institute survey of 2,536 adults that showed that those who have not experienced a medical error were more likely to say they are not at risk (75 percent) compared to those who had previous experience with errors (48 percent).<sup>1</sup>

This inflated sense of security could stem, in part, from the fact that patients only see what is in front of them and are not aware of the complexity of the overall medication management process, much of which takes place behind the scenes.

“There are some 30 steps that happen in a typical hospital just to get one medication moving from the pharmacy all the way to the patient. And, a typical hospital could have some 10,000 medications being

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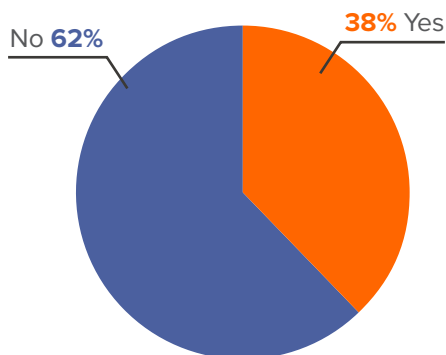
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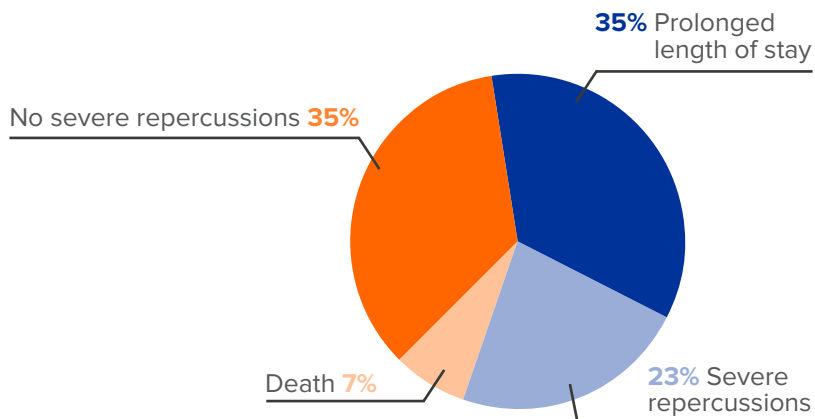
**HIMSS** Analytics

Figure 1: **Medication errors and outcomes**

Do you know anyone who has experienced a medication error?



What was the result?



administered across the course of a day,” said Ranjeet Banerjee, Worldwide President of Medication Management Solutions at BD.

Gandhi agreed that all of these steps increase the potential for error. “Any system that has higher complexity has a higher likelihood of failures. If you have a 5 percent error rate in a two-step process, and then you have a 20-step process, then the likelihood of error is much greater,” Gandhi said.

She also pointed out that the medication process is growing more complicated as time goes on. “With all the new drugs that have come out over the last decade, there are so many more treatment options. So, there’s more complexity around knowing how to prescribe and administer the latest and greatest hypertension drug. There are just many more options that clinicians need to become familiar with even compared to a decade ago,” Gandhi said.

Even though organizations are using technology to improve safety, there are still “human errors,” and errors are still “falling through the cracks,” said Jill McKinney, Director of Clinical Informatics at Novant Health, a Winston-Salem, North Carolina-based integrated

delivery system. In fact, McKinney said that before embarking upon an integration initiative at Novant, “We had no idea we had so much variation in practice.”

### Some safety strides

Patients are not entirely incorrect in believing that the technologies that healthcare organizations have adopted so far are keeping them safer, though. In fact, Gandhi pointed out that “a number of technologies that have been studied have had a demonstrable impact on errors.” She added, “For example, several studies show how strong of an impact computerized physician order entry (CPOE) can have on reducing prescribing errors.”

Novant Health, for example, is successfully using technology to prevent medication errors. “When the provider does the medication reconciliation, there are automated electronic prompts to ensure they have made a choice for every medication. We also put processes in place to make sure that pharmacy is alerted with any changes to the medication list after reconciliation has occurred,” McKinney said. “We also have barcode scanning in place for all medications and electronic prompting for dual signature for some of our high-risk medications.”

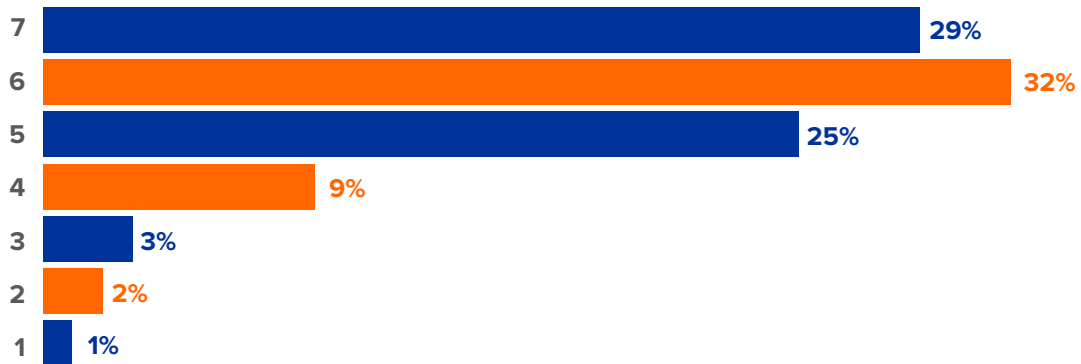


**“Several studies show how strong of an impact computerized physician order entry (CPOE) can have on reducing prescribing errors.”**

Tejal K. Gandhi, MD, MPH | Chief Clinical and Safety Officer | Institute for Healthcare Improvement

Figure 2: **The “Five Rights” and patient confidence levels**

Patients rate their level of confidence on a scale of 1 (no confidence) to 7 (supreme confidence) with respect to likelihood of care teams adhering to the “five rights”



Indeed, organizations such as Novant have made considerable progress. However, Banerjee cautioned that there is still a lot of “variability” and “disconnection,” which put considerable strain on organizations’ clinicians to manage medication processes and limited their ability to more successfully reduce errors.

The key to moving forward is for healthcare organizations to bring together multidisciplinary teams, including physicians, nurses, pharmacists, information technology professionals and others, to “look at the kinds of medication errors that are happening and then do a deep dive to understand why,” Gandhi said.

Such analysis could prove especially helpful when addressing “care transitions,” which are proving to be a particularly vexing component of the medication management process. In fact, 32 percent of 153 healthcare professionals who also participated in the HIMSS Analytics survey pointed to care transitions as the most vulnerable part of the medication management process. Other areas of concern included 24 percent who cited “at the patient bedside,” and 14 percent who cited “between technologies.”

“There are gaps in our systems today that make it possible to introduce human errors,” Banerjee said.

“If you remove that human interface where it is not needed, and you bring in the right technologies at the right time, that will go a long way in removing unnecessary variability and driving better work processes in healthcare.”

### **The power of one**

To accomplish this, Banerjee suggested “connecting the stand-alone medication technologies into one system that spans pharmacy and nursing, with seamless integration to the EMR so that all technologies in the medication management process are talking to each other.” For example, a patient who is admitted to the hospital would be accompanied by his or her electronic medication history, and any known allergies to support accurate ordering of medications would be evident. Medications when administered via infusion pumps are talking to the pharmacy system. “So, it’s this connectivity of devices, along with information flow centered around the patient, that is going to drive a lot of these human errors away,” Banerjee said.

Such integration is already proving its worth. For example, integration between the EMR and infusion pumps is helping to take human errors out of the equation at Novant Health.



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**Ranjeet Banerjee** | Worldwide President of Medication Management Solutions | BD

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Jill McKinney | Director of Clinical Informatics | Novant Health

“Having the medication order automatically sent to the infusion pumps is huge. Ensuring that information is integrated and is flowing into the pump is definitely improving patient safety,” McKinney said. “When infusion pump integration is not used, there is great potential for human error in programming the pump. There is also potential for tubing mismatches. For example, the clinician may think she is adjusting the saline, but she is actually adjusting the Heparin. By having the system send those order details, it’s appropriately programming the correct pump and administering that infusion appropriately based on the physician’s orders.”

The goal of such integration is to create a “seamless closed loop” that will not only connect infusion pumps and CPOE systems but also will connect technologies and information across the entire medication management process, Banerjee said. To achieve this high level of integration, healthcare organizations could eventually rely upon a single-vendor, closed-loop medication management platform that would integrate the entire process from medication ordering to dispensing to administration. Such a platform would ensure that “technologies continue to stay in-sync and connected as future stages of innovation happen” and also ensure that “data exchanges are happening in real time,” Banerjee said.

Bringing an integrated closed-loop system into play is only part of the solution, though. “If you just go at it with technology, we will be only partially successful. The traditional approach will not work. We need to look at all of the systemic challenges and ask: What does success look like and what challenges do we face

in getting there? Identifying and overcoming these challenges will help the industry move toward the elimination of medication errors,” Banerjee said.

To accomplish this, healthcare organizations need to adopt a systemic approach that considers how technology, clinicians and even patients themselves can work together to eliminate medication errors. For example, clinical staff could encourage patients to interact with clinicians before medications are administered. “Maybe there’s some intravenous drug being hung and the patient could very easily say, ‘What is that?’ and ‘What do I need it for?’ On the outpatient side, patients might want to question their doctors when their prescriptions look different from what they used to look like. Having that questioning mindset is very helpful for patients,” Gandhi said.

Indeed, by taking a systemic approach, healthcare organizations are likely to migrate toward the implementation of single-platform integrated medication-management systems that can effectively re-create a more seamless clinical workflow to reduce risk of errors and deliver a patient safety experience that could come into line with patient expectations. “We are at a tipping point. There are more things happening now that are moving us toward improvements in medication management from both a quality and cost perspective than ever before. It will take perseverance, and it will take leadership to make this happen, but the industry is now at a point where we can move toward the more complete elimination of medication errors,” Banerjee concluded.

<sup>1</sup> Institute for Healthcare Improvement. *Americans’ Experiences with Medical Errors and Views on Patient Safety*.



### About BD:

BD is a global medical technology company that is advancing the world of health by improving medical discovery, diagnostics and the delivery of care. BD leads in patient and healthcare worker safety and the technologies that enable medical research and clinical laboratories. The company provides innovative solutions that help advance medical research and genomics, enhance the diagnosis of infectious disease and cancer, improve medication management, promote infection prevention, equip surgical and interventional procedures and support the management of diabetes.

Disclosure: The survey conducted by HIMSS Analytics, 2017 Medication Management and Safety Study, was sponsored by BD.