EXECUTIVE DIALOGUE

ENTERPRISEWIDE MEDICATION MANAGEMENT

Enhancing Patient Safety, Efficiency and Effectiveness
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Enterprise-wide medication management is essential to providing patient-centered, value-based care. The ability to track and manage medications from acquisition to the point of care can help hospitals and health systems improve inventory turns, enhance efficiency, reduce costs and minimize risks. This executive dialogue will explore the link between enterprise-wide medication management and value-based care. It will examine how organizations can enhance patient safety and outcomes by optimizing inventory management and tracking, preventing diversion and streamlining care across the continuum.

**KEY FINDINGS**

1. Leveraging data and analytics will drive clinical and operational improvements around medication management. AI and data analytics can enhance medication efficacy and reduce costs by ensuring that the right medication is administered in the correct dose via the right route to the right patient at the right time.

2. An enterprise-wide medication management system is an important step toward high reliability by centralizing coordination of data and standardizing formulary and policy, among other things.

3. Hospitals and health systems need to remain vigilant to prevent diversion and encourage employees to speak up if they see a potential problem. High-cost, high-risk medications are also potential areas for diversion.

4. Hospitals and health systems must partner with providers across the care continuum around medication management to enhance patient outcomes.
**EXECUTIVE DIALOGUE**

Enterprisewide Medication Management: Enhancing Patient Safety, Efficiency and Effectiveness

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**MODERATOR** (Jay Bhatt, D.O., American Hospital Association): What are the key opportunities and promising practices in medication management to enhance patient safety and security? What’s working in your organizations?

**DANIEL ASHBY** (Johns Hopkins Health System): Systems integration is critical. It’s the biggest plus, in terms of effectively managing medications. For years, we knew the promise of technology and what that would mean for medication safety. But best-of-breed adoption did not allow that to come to fruition. Enterprise medication management became expensive and difficult to implement. Many times, companies that offered a promising product would be bought and sold and, ultimately, the product disappeared. In the past five years, we’ve seen more systems integration that provides additional opportunities for us.

**SALLY DEITCH** (Tenet Healthcare): It’s one thing to have the systems; output is another. Artificial intelligence will be a game changer, enabling systems to tie medication data to the patient population and outcomes. This can occur only through integration. We’ll learn about the efficacy of different drugs, and different methodologies and approaches. When we look at different diseases across organizations, we can start drilling down into what’s different in a patient population in Alabama versus one in Orange County, California. Are we seeing a difference in the needs of those patients with regard to sensitivity and efficacy of different drugs, for example?

**ASHBY:** It’s about data and the power of data. About 10 years ago, just after Hopkins moved to a new facility, we conducted our regular employee engagement survey. The results were not good, which surprised us because we had brand-new facilities. We went from 300 square feet to 1,800 square feet in some of our pharmacies. When we looked at the feedback, our employees were unhappy because they didn’t have the data and analytics they needed to make decisions. Integration allows for actionable data and intelligence.

**GREG POULSEN** (Intermountain Healthcare): Artificial intelligence (AI) first became a buzzword in the late 70s. It lost steam because people realized it wasn’t really artificial intelligence, rather a series of rules and capabilities that would increase the knowledge base. One example of its use was a program
called Antibiotic Assistant that helped physicians select the best antibiotic. It showed which antibiotic was not likely to be effective against a pathogen that they were trying to deal with. And, it would provide names of several equally effective antibiotics, the cost of those antibiotics and side effects. That was an early foray into AI. A more recent tracking program on the same topic is GermWatch. It takes that same information and adds population dynamics, so we can look at a community and see where patients are presenting with similar symptoms, the diagnoses and the appropriate treatment. It’s helpful, because often when a physician is sitting with a patient, all he or she really knows is that the patient is sick and an antibiotic seems like a reasonable option. This helps eliminate unnecessary antibiotic use. It also helps clinicians know what they may be facing by creating awareness of what’s going on in the community.

DEITCH: It used to be that the infectious control practitioner would partner with the pharmacist, the microbiology team and develop a biogram, an antimicrobial susceptibility test system. That process would take months to review the data and figure it all out. We now have the ability to do that much quicker.

MODERATOR: The other piece is monitoring medications from the loading dock to the bedside. How do you manage the security and reconciliation of medications across your enterprise to minimize financial loss and incidents that might put patient safety at risk?

ASHBY: Some things haven’t changed. The medication-use system begins with the Pharmacy and Therapeutics Committee. As a medical staff committee, you decide what drugs will be stocked with what restrictions and what therapeutic interchanges are required. The change that’s occurred is that it’s now a systemwide health decision. We sponsored a formulary symposium with eight different health systems and each had moved down the path to integrating its formulary to a systemwide initiative. It takes a little more time to get input and acceptance of decisions, and then integrate them into the electronic health record (EHR) system, but it’s important work and it’s a big driver for prescribing patterns and utilization and dispensing.

MODERATOR: Do you have a specific team that manages the medication inventorying and then use and flow, or is it organized by departments?

ASHBY: For the information technology piece, it varies by organization. In some health systems, it’s centralized in the pharmacy. In others, it falls partly in the pharmacy and partly in IT. In still other organizations, it falls entirely in IT. Communication ends up being the key, and ordering, dispensing, storage and preparation fall to the pharmacy department.

RANJEET BANERJEE (BD): When you look at medication management, are you also looking at affiliated nonacute locations?

ASHBY: Yes, we are looking at nonacute locations. When I arrived at Hopkins 20 years ago, it was a decentralized
decision-making process. Shortly before I arrived, they had four different computer systems in pharmacy, including one for pediatrics, one for medicine and one for oncology. It was challenging because you couldn’t move patients back and forth. Today, centralization has become an expectation, and organizations are looking at purchasing and inventory to improve costs and outcomes across the system.

**DEITCH:** It’s one thing for large systems to talk about integration, it’s completely different for small organizations. Documentation, for example, varies from organization to organization. Many rural hospitals and surgical centers still rely heavily on manual documentation. The same is true for physician practices; there are differing levels of integration within the outpatient setting. You may start out thinking that it may be one thing in the hospital setting, but once you start branching out even into the physician practices, it can be different levels of true integration.

**POULSEN:** That’s really important. Many organizations are challenged with losing line of sight once the patient starts to buy their medications outside the hospital pharmacy. Eighty percent of medications are purchased at retail pharmacies. As an insurer, as well as a provider organization, we’ve had a leg up in some respect because we know whether a patient has filled his or her prescription. We don’t know whether they are actually taking it, but it’s a pretty good bet since they’ve taken the initiative to have it filled.

We’re finding that payers are more willing and capable of sharing that information with the provider community. That’s
really important. It’s been incredibly important for us in diabetes management to know if somebody hasn’t filled his or her prescriptions. If not, you know they’re going to be in the emergency department at some point in the near future. The same is true for asthma patients.

**MODERATOR:** If you have a provider-sponsored health plan or value-based care arrangements, that information is critical. And it’s important that commercial payers are beginning to understand that and share those data.

**POULSEN:** It’s critical for all insurers. We’re just now reaching a point at which insurers are sharing information, such as a prescription not being filled, as soon as they realize it may be an issue. Making these connections is tricky, but it can make a big difference.

**MODERATOR:** To recap, integration is an essential component of enterprise medication management, not just from a technology standpoint, but integration among providers across the care continuum. Access to accurate, timely and actionable data is also critical. There is also the strategic question of whether to centralize the pharmacy. There are benefits to both models. Centralization provides an opportunity to streamline costs and enhance efficiencies.

**Let’s now take a look at what you are doing to secure your medication supply chain and reconcile what you have in stock. How have drug shortages and escalating costs impacted the potential for drug diversion within your institution?**

**ASHBY:** When I think of the security issue, I immediately think about controlled substances and the related issues we’ve had across the country. A shift is now occurring, however. There’s a cultural change, not unlike the one that occurred around patient safety. It’s no longer a blame game; we’re looking for real solutions.

At Hopkins, as we focus on controlled substances and diversion, we’re now looking at identifying employees who may have problems. We are modeling after another health system that uses the motto: “Speak Up, Say Something, Save a Life.” Every new employee who comes into that organization is educated on those expectations. If any individuals are identified to have a problem and they get help, they might come back to practice. At the same time, there is greater internal pressure to generate data that might pinpoint areas where diversion is occurring, or identifying people who may have problems. It’s a multifaceted approach.

**MODERATOR:** How are you managing drug shortages and escalating drug prices?

**POULSEN:** We launched Civica Rx in 2018 to combat life-saving drug shortages and to address affordability. Our goal is to ensure access to affordable, generic medications. We aren’t making a dent in terms of drug expenses because, even though generic prices have increased by 3,000 percent in terms of cost, they don’t account for a very high percentage of the total drugs now. It still sends an important message that we can and should do what we can to drive affordability. The real challenge going forward will be to address the enormously expensive drugs that are not amenable to being replicated – drugs resulting from genetic and genomic engineering, for example. They will promise immortality, but at an infinite cost. How will we deal with that as a society? It’s going to be challenging. It will have to be a societal decision.
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MODERATOR: Would you say that high-cost drugs have impacted diversion?

ASHBY: It’s interesting. We’ve tried to find a correlation there, but we haven’t found one. For controlled substances, it’s always been an issue. But expensive drugs often come with procedures that need to be followed, making it a challenge. We use radio-frequency identification tags and barcode technology. We use these not just at point of administration, but within the pharmacy for dose prep and dispensing, etc. We can track a medication and its integrity all the way through. We work closely with our nurses, and we encourage reporting variance in the system. It’s not really cost that’s driving this.

POULSEN: Some of these drugs are literally more expensive by weight and volume than diamonds, and they are managed the same way as inexpensive medications.

ASHBY: It goes back to some concepts with materials management. We would identify which drugs are the most critical and make sure we do not run out of them. But shouldn’t that apply to all medications, making sure we have what we need when we need it? It’s difficult to guarantee, but that’s what we’re trying to do.

BANERJEE: There’s also an interesting technology perspective here. What do organizations need to do from a technology perspective to focus on solutions for diversion? The same capabilities could be applied to high-cost drugs. Technology can support a solution for high-cost, high-risk drugs across the continuum of care.

DEITCH: There’s also an insurance company interface with all of this, especially if we start talking about newer, more expensive medications. Insurers will need to be part of this discussion.

ASHBY: We’ve had some discussions around payer involve-
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ment recently. We are starting to see payers direct providers and patients to specific biosimilars, for instance, because they get a rebate. When new biosimilars are brought to market, we will have to stock all of them. A colleague of mine is really vocal about this, and uses this analogy, which I think is good. A customer could go to Ruth’s Chris Steak House and decide where they want their steak to come from, and they won’t pay if it’s not from that location. It’s ridiculous.

MODERATOR: One of the things I like to touch upon is the steps needed to identify and minimize gaps in enterprise medication management. What are the approaches to creating reliability?

DEITCH: When I started nursing about 30 years ago, I was an operating room (OR) nurse. We still have to this day the same issue in the OR, even though there is better security. It’s still a human process. We don’t have dispensing machines in every operating room, for example.

ASHBY: We have dispensing machines in every OR, but there is no guarantee that the procedures and utilization of that technology is going to be at its maximum. We’ve just recently starting randomly testing drugs that are returned to see what the concentrations are. It’s a preventive measure; our staff are aware of this process.

BANERJEE: We conducted a study recently that looks at how much awareness there is within the health care system on the topic of diversion. We found that there is a high level of awareness. But, at the same time, people feel as though it’s not happening at their organization. Do you see that as an issue?

POULSEN: We’ve all experienced it at one point or another. I think most people are aware of what is going on. Our perspective is that there is always the potential for a problem. We don’t feel immune to it.

DEITCH: I agree. We all know that it happens.

ASHBY: There are supporting data as well, in terms of what percentage of clinicians have practiced diversion.

POULSEN: I do feel, at least for us, that diversion has always been exclusively around people with substance abuse problems.

MODERATOR: When individuals come on board to the organization who will be involved in medication management, do you have a particular approach around training for both security and liability?

DEITCH: Yes, it’s embedded in what we do, but it’s important to recognize the signs. In health care, we tend to have an altruistic nature, and we assume that everyone around us is there for the same reasons. It’s a cultural change.

MODERATOR: It reinforces the need for integration, and developing a systematic approach and openly communicating about the issue. Again, access to data is important because it may be weeks down the line before you even discover that there is an issue.

Regarding opioids, the American Hospital Association launched an initiative called Stem the Tide about 18 months ago. It’s about sharing leading practices related to the opioid epidemic and how to address it. It focuses primarily on stewardship in terms of appropriate utilization and transitions to alternative therapies and treatments.

ASHBY: One of the challenges for organizations, including Hopkins, is staffing these types of programs. I don’t think we have enough people, whether physicians or pharmacists, to help with that. We seem to emphasize stopping the flow, but there are people who need help. There are simple things we can do, like medication takeback programs. When we launched our takeback program, we had some pushback. We expanded it to outpatient pharmacies. I wasn’t sure how well patients would respond, but we’ve had a great response. Word spread throughout the hospital, and people are taking
advantage of it. I think community pharmacy and retail now are recognizing their part of a societal obligation and they’re jumping on it, too.

**DEITCH:** Opioids are a huge challenge, and it’s a tough one for hospitals to address because hospitals aren’t the ones prescribing the medications. It goes back to who’s ordering it, theoretically. It’s a medical staff issue. But we can support efforts to stop opioid abuse.

**MODERATOR:** Are you using the EHR to reduce the number of default medications that are prescribed, or do you have conversations with the medical or clinical staff?

**DEITCH:** Absolutely. Those are all happening. Again, I think it’s much easier when you look at larger systems that have an EHR system and the ability to pull the data and share it with physicians. Small and rural hospitals often don’t have that ability and it creates a challenge. If you look at where the opioid crisis continues to expand, much of it is in our rural communities. While we may be able to do a lot more in the larger cities, we’re really struggling in our rural communities.

**ASHBY:** You are right, Sally. This is a societal issue that’s much bigger and it goes way beyond what happens within the hospital. We first want to stop being part of the problem.

**POULSEN:** Yes, we need to stop being part of the problem before we can be part of the solution. Hospital administrators do not order opioids. We are reaching out and talking to our medical groups. We set a goal last year to reduce the prescription of opioids by 40 percent. We reduced prescriptions by 32 percent during that time. We can’t punish people for what we are asking them to do.

**DEITCH:** Again, here’s that tie-in to outpatient facilities. If you look at our system, last year about half of our total joint, hip and knee surgeries went from an inpatient setting to an outpatient setting. From an EHR standpoint, these facilities are not advanced. It’s going to require significant physician education.

**ASHBY:** That’s not an insignificant transition. Nine months ago, we announced a new outpatient pavilion. One-third of our outpatient surgeries are going to move to that building. It’s a minihospital – a cross between a hospital and a physician’s office. It will be equipped with five medication dispensing machines. The organization is taking on greater responsibility to ensure the integrity of the medication distribution system. Physicians shouldn’t have to take on all of the risk.

**DEITCH:** Another thing to consider is the role of the health information exchange (HIE). It’s a key source of data over a large geographic area. We can track patients as they move from the
POULSEN: There’s an interesting intersection to that, which would be a risk profile of decisions that clinicians could make; however, one of the risks would be that you had an imperfect diagnostic outcome. There are clearly examples of medications with high efficacy, but that also have a high-risk profile. And there are likely examples of medications that are somewhat less effective, but dramatically less risky and that might be a better choice if the diagnostics were in question. It seems like a good intersection for machine learning and machine decisions.

MODERATOR: That’s interesting. Would you say that using AI machine learning to optimize medical management inventory is already here?

DEITCH: It’s already here. We’ve implemented it in certain markets.

POULSEN: I think so, too.

MODERATOR: Does anyone have final thoughts on enterprise medication management?

BANERJEE: We covered some important topics today, the focus on outcomes, the need for integration and the promise of data analytics. There will certainly be a need for greater collaboration across the care continuum going forward.

ED through the care continuum. But I’ve yet to see an HIE that ties into retail pharmacies. That would be significant. There would certainly be issues around patient rights and privacy, but it would provide a comprehensive patient profile if we could access that data.

POULSEN: Again, that’s where the insurers can be key players. Although some opioids are inexpensive enough that people pay out of pocket, the vast majority are still being paid for by insurance. Insurers can easily skim their data to show which person received prescriptions from seven different places, etc. They actually don’t necessarily know where the prescription came from, but they know if it was filled, and they can identify patients that may have a problem.

MODERATOR: Given the amount of data that organizations have on the supply chain and medications, predictive analytics should be able to help. There’s one area we have touch on that I think it past of enterprise medication management and that’s diagnostic error. What happens to your supply of medications and outcomes when, in particular situations, we have a diagnostic error, which is considered by some to be the next frontier of patient safety? Diagnostic excellence is probably a better way to frame it. How do you maintain diagnostic excellence given all that is changing and moving?
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