More 'Actionable Insight' Needed To Improve Infusion Safety

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For More Information

To learn more about the work of the National Coalition for Infusion Therapy Safety, please visit the AAMI Foundation at **www.aami.org/foundation**.

Clinicians, healthcare technology experts, regulators, patient safety advocates, researchers, and leaders in the medical device industry have been working together since early this year as part of the National Coalition for Infusion Therapy Safety. This two-year initiative organized by the AAMI Foundation enjoys the support of three platinum-level industry sponsors—B. Braun Medical, Inc.; Ivenix, Inc.; and Smiths Medical. Here, representatives from these companies describe the challenges and opportunities for improving infusion therapy.

What is the top challenge hospitals face when trying to improve compliance with drug libraries?

Golebiowski: A top challenge hospitals face is analyzing available data that can lead to actionable insight. Real-time views and retrospective reports provide valuable insight into nursing workarounds and gaps between protocol and actual practice that may need to be bridged with adjustments to the drug limits to reflect actual practice or staff education. The more insight that is provided, the easier it becomes to identify solutions.

Kuhlken: From our discussions with clinicians and pharmacists, we see three key opportunities: 1) Drug libraries must be simple to use, making it easy for users to find the fluid or medication they are looking for. 2) Drug libraries must have the capacity to support standardization among larger health systems yet be flexible enough to support the various care environments within the hospital and outside of the four walls of the hospital. 3) Drug libraries must have the ability to evolve quickly and deploy changes easily to the pump fleet.

Ulseth: From a process perspective, the challenge seems to be the commitment of necessary resources—people, time, and attention—to develop and improve best practice drug libraries on an ongoing basis. From a product perspective, the challenge is opting out of the smart pump's safety software, which compromises patient safety and drug compliance.

What were the three key messages you took back to your colleagues after the March meeting?

Golebiowski: 1) Implementing smart pumps doesn't mean you're providing the highest level of safety and care. You must create a culture within the organization that utilizes its features all the time. 2) It's surprising to hear that many hospitals don't achieve 100% drug library compliance or even close to that. But you quickly realize that they don't have the data, tools, and education to support practice. 3) An important tool in achieving 100% drug library compliance is access to data. You need real-time data to quickly identify drug library compliance and foster an environment where compliance is continuously being monitored.

Kuhlken: 1) The lack of standard practices and the chaotic healthcare environment contribute significantly to errors. New processes must be designed and adhered to in order to significantly improve patient safety and outcomes.
2) Education and training of clinicians are inadequate—there's no time for clinicians to attend in-depth training sessions. Nurses get 30 minutes of in-service orientation, then are expected to use the device on patients. 3) There is a surprising inconsistency among physician ordering conventions with the hospital formulary, which is complicated by drug shortages. Drug substitutions are often in concentrations different from those in the formulary.

Ulseth: 1) The value of the information and reports that our smart pumps can provide for infusion delivery, and the tendency for many hospitals not to use the reports as intended—or use them at all. 2) Infusion pump/information interoperability with electronic medication administration record (eMAR) and barcode medication administration (BCMA) is a worthwhile advancement in patient safety and clinician efficiency, but it is a challenging process.
3) The AAMI Foundation initiative is a unique opportunity to collaborate with customers and competitors to advance infusion therapy safety.

What action can hospitals take to reduce infusion pump alarm noise?

Golebiowski: Beyond proper maintenance and ongoing equipment training for nursing, the most a hospital can do about the frequency of alarms is to understand customizable settings in a pump and make adjustments to those settings to best fit practice and reduce nuisance alarms.

Outside the hospital, manufacturers should take a look at and address how alarms are managed and how they impact the patient and the clinical workflow. Technology is opening doors for better management of alarms. Today, nurse call systems with mobile devices can send prioritized alarm information directly to specific clinicians with the patient, location, and alarm details that let the clinician know which steps to take next. This improves workflow by reducing the steps required to solve the problem. But it also begs the question: Is there a better way than how we've always done it?

Kuhlken: Hospitals must have the ability to analyze alarm behavior among their pump fleet and identify opportunities for adjusting pump settings to an appropriate level that guarantees safe operation while minimizing unnecessary or unactionable alarms. Ideally, the goal is to minimize or eliminate nuisance alarms.

Ulseth: They can take advantage of smart pump alarm customization capabilities to optimize actionable alarms and minimize nuisance alarms. Also, we can help them consider opportunities to decrease interruptions to clinician workflow.

How do you see infusion therapy evolving over the next 10 years?

Golebiowski: Infusion therapy is likely to become even more technical as smart pumps transition to smart systems. Integration of infusion pumps with electronic medical record systems is an early step in that direction. This step will later provide hospitals and pump manufacturers with massive amounts of data that can be analyzed to create even safer systems.

In addition, inventors are looking at how to repurpose existing technologies in the biosciences. Some of these advancements may alert clinicians to potentially harmful situations much earlier than they are identified today, or they may combine technologies that today exist independently into single sources that reduce demand on the clinician and improve work flow. Ultimately, I think we are looking at the start of a technological revolution that will equate to better patient outcomes and cost reduction to the hospitals.

Kuhlken: Our healthcare environment will continue to be focused on improving patient care across the care continuum while reducing overall cost to the health system. For infusion therapy, this will require vendors to build knowledge-based systems that capture patient-specific data regardless of the care location and provide clinicians with the knowledge needed to make the right decision at the right time. In addition, technology needs to evolve to eliminate distractions for clinicians that can lead to potential errors, putting the focus back on the patient. ■