

A Need to Graduate from 'Smart' to 'Intelligent' with Infusion Safety

This past March, close to 100 clinicians, healthcare technology experts, regulators, patient safety advocates, researchers, and leaders in the medical device industry gathered in Annapolis, MD, to kick off a two-year initiative to improve the effectiveness and safety of infusion therapy. The National Coalition for Infusion Therapy Safety, organized by the AAMI Foundation, enjoys the support of two diamond-level industry sponsors—CareFusion and Hospira. Here, representatives from those companies describe the challenges in improving infusion therapy.

What is the top challenge for hospitals when it comes to improving compliance with drug libraries?

Ansari: As is the case for many types of improvement initiatives, there is a need for a top-down and bottom-up approach. Expectations on the levels of compliance must be clearly conveyed by the senior leadership team (SLT) to all hospital employees. The SLT must be consistent with metrics and dashboards, and remain open to various sources of input and support, for example, other hospitals or industry.

Successful compliance models have been driven by the creation of cross-functional infusion safety executive steering committees. Once such a team is established, empowered, and provided with relevant and targeted data, compliance will follow as long as there is ongoing engagement and oversight. Vendors are helping with technology that no longer requires clinicians to opt into drug libraries. The new challenge for compliance hinges on interoper-

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—Candida Arvelo

ability, and the success factors noted above will be critical to interoperability.

Vanderveen: In our experience, the hospitals that pay close attention to their continuous quality improvement (CQI) data and periodically monitor compliance with the use of the library, have the best compliance. Those hospitals that do not routinely review their alerts and conduct compliance rounds typically have issues. Analysis of the CQI data provides a treasure trove of information on the drug library use, helps to finetune the limits, and identifies potentially unsafe practices—all of which are important elements of ensuring compliance.

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

Arvelo: The three key issues are: 1) Healthcare is evolving, and providers are making impressive efforts to drive performance quality improvements utilizing metrics and technology. 2) There are still challenges for manufacturers in understanding the needs of clinicians, and in both groups working together to prioritize those needs associated with patient safety. 3) With hospital boards and CEOs facing a rapidly changing market, prioritizing patient safety initiatives—particularly expensive ones—is challenging.

Vanderveen: Perhaps the most important message we carried back is that despite the use of the computerized physician order entry (CPOE), barcode medication administration (BCMA), smart pumps, and electronic medica-



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Free White Papers

The AAMI Foundation has supported the development of multiple white papers that describe the successful efforts of individual healthcare facilities to improve infusion systems.

One paper details best practices for integrating infusion pumps into the wireless network. Another paper details nine recommendations to prevent multiple-line infusion medication errors. A third paper serves as a guide for healthcare institutions on how to purchase and implement smart infusion pumps—and how to assess successful adoption.

To download these complimentary white papers and others, please visit www.aami.org/foundation/safetyinnovation.

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tion administration record (eMAR), hospitals still face discrepancies and errors in the IV infusion pump process. Smart pumps have helped promote standardization and reduce programming errors. However, the infusion process is very complex, and programming of the pumps is a small piece of the overall system.

The second key message is that the most serious discrepancies and errors will best be addressed with a closed-loop infusion system—most commonly referred to as infusion pump/health information technology interoperability.

The third message is that while hospitals are focusing on addressing monitor and ventilator alarms, there is a rapidly growing interest in addressing infusion pump alarm issues.

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

Ansari: The creation of internal teams with accountability for prioritizing alarms—utilizing metrics and workflow analysis—is a critical starting point. The creation of actionable data that points us to failure nodes and opportunities to adjust for workflow needs will be key to success. Such activity will allow clinicians to prioritize and align alarm signals with patient safety. Vendors will need to listen to these choices in order to drive technology that aligns with this prioritization.

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Vanderveen: Unlike monitors, infusion pumps typically do not have false alarm signals. Turning off the alarms and alerts that are part of the safety system is not an option. Working with the infusion pump vendors to identify the common causes of alarm sounds, surveying the clinical staff to identify practices that lead to alarm activation, and providing training in best practices to avoid frequent alarm sounds are among the steps that hospitals can take today.

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

Arvelo: Interoperability is key to the future of infusion therapy. We should no longer see a “box,” but an integrated solution. Interoperability will reveal a wealth of information we have not had at our disposal in the past. We will need to develop skills to effectively utilize this information to drive positive patient outcomes. Additionally, we should expect significant improvements in clinical workflow associated with auto-documentation, a decrease in practice variability, and a reduction of medication errors associated with manual programming.

Vanderveen: With the widespread adoption of smart infusion pumps, bidirectional wireless connectivity, and the recognition of the power of linking the physicians’ orders directly to the pumps using BCMA technology are key ingredients to move infusion from “smart” to “intelligent” systems. In addition to the use of auto-programming and auto-documentation, the following items are likely to see widespread adoption over the next decade: remote alarm and alert notification, status of each patient’s infusions, and linking of infusion and monitoring for closed-loop drug administration. ■

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.