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Highlights from the ISMP Summit: The Future of Perioperative Medication Safety: *Charting Our Path Forward*

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The Institute for Safe Medication Practices (ISMP) convened on November 10–11, 2021, as a virtual national summit on Perioperative Medication Safety. The intent of the summit was to leverage the current understanding of the causes of medication errors and known successful mitigations to develop additional preventative strategies to further reduce patient harm in the perioperative clinical setting. The summit was attended by approximately 80 stakeholders from various backgrounds including anesthesia professionals, perioperative nurses, pharmacists, industry representatives from both drug manufacturing and equipment related to medication safety, and ISMP staff. The Anesthesia Patient Safety Foundation (APSF) served as a sponsor of the conference along with a number of companies interested in this topic.

The conference began with an overview of summit objectives followed by five presentations on the Current State of Perioperative Medication Safety, Barriers to Safety with a focus of Reporting and Culture, the survey results of the ISMP Medication Safety Self-Assessment for Perioperative Settings, and the survey results of the Levels of Agreement from summit attendees prior to the summit.^{1,2} The main areas of focus of the conference consisted of medication labeling and packaging in the perioperative setting and the adoption of safety technology in the perioperative space. There were several areas of consensus. For example, 97% of summit respondents agreed or strongly agreed that smart infusion pumps should be used for continuous medication infusions, and 81% agreed that barcode scanning for medication administration should be used in the PACU and postoperative care areas.² There were also areas of less agreement such as the use of barcode scanning technology in intraoperative and intraprocedural locations to verify medications prior to administration (63%) and the use of smart pumps in all perioperative settings, including intraoperatively, for intravenous hydrating solutions (68%).²

It was recognized by summit attendees that agreement in principle on the use of medication error reduction technologies does not consistently translate to utilization within procedural

Table 1. Sample Breakout Questions

Breakout Session #1: Labeling	
1.	Should handwritten labels ever be used for routine medication labeling?
2.	Should printing labels be considered best practice?
3.	Are you handwriting your own label now? If so, why?
4.	How do we get practitioners to recognize the risk associated with nonstandard labeling practices and adopt safe labeling expectations?
Breakout Session #2: Barcode Scanning	
1.	Are there general organizational expectations for barcode scanning use for medication administration in your facility (outside of the intraoperative setting) for all medication and fluids?
2.	Is there currently an expectation for barcode scanning use during medication administration in your intraoperative settings?
3.	What workflow concerns do you have about the use of Barcode Medication Administration (BCMA) intraoperatively for medication use?
Breakout Session #3: Smart Infusion Pump Integration and Optimization	
1.	Are there challenges with patient transfer from the operating room to another level of care when there are different infusion devices?
2.	Do you believe there are benefits of smart infusion pump integration with the Electronic Health Record?
3.	What type of training and competency assessments are provided related to smart infusion pump use? For nurses? For anesthesia providers? For nonanesthesia sedation providers?

areas. A self-assessment survey of 98 hospitals and 33 ambulatory centers was conducted by ISMP to evaluate technology availability and utilization.¹ Responses demonstrated that 93% of hospitals and only 35% of ambulatory centers had access to smart infusion pumps.¹ In addition, 87% of hospitals and only 12% of ambulatory centers indicated that barcode scanning was available for medication administration.¹ While smart pumps and barcode scanning were available in many facilities, this did not consistently translate to implementation. Barriers to adoption of technologies were explored such as cost and provider preferences and opportunities to advance safety were discussed including expanding technology availability and education.

There were several presentations in each area of focus, including case studies, followed by breakout group discussions on topics of Labeling, Barcode Medication Administration (BCMA), and Smart infusion pump technology (Table 1) with 4–5 groups and 12–15 participants per group. The breakout groups were led by a facilitator with specific questions to generate

discussion (Table 1). Each breakout group reported back key points to the main audience. Discussion points to highlight include the preference of labeling syringes in concentration per ml by anesthesia professionals to reduce the potential of a mathematical error while administering medications in the perioperative environment, the lack of support/resources for BCMA especially in ambulatory surgery centers and procedural locations, and the lack of smart pump standardization within different locations of the hospital.

Important takeaway points from the conference consisted of recognizing rank order of error reduction strategies in terms of leverage (low to high), level of effectiveness (least to most) and ease of implementation. Preferences among stakeholders attending the meeting for drug labeling consisted of concentration per mL versus the current way of total drug per total volume. The labeling discussions addressed issues related to manufacturer labeling of vials, ampules, infusions, and prefilled syringes.

¹ISMP. Presummit Survey Results: Level of Agreement.

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Advantages of BCMA technology such as interfacing with the Electronic Health Record (EHR) were discussed along with challenges for ambulatory surgical suites and other practice settings where these resources may be cost prohibitive. Smart Pump technology was reviewed, revealing a range of practices within various settings. For example, summit attendees indicated that having available smart pumps does not necessarily indicate that the drug library is updated regularly or that clinicians utilize the drug library when its available for an infusing medication. Having an infusion pump Dose Error Reduction System, commonly known as a “drug library,” that is consistent within the practice setting was considered a minimal smart pump requirement. Smart pump integration with BCMA and bi-directional communication with the EHR are consid-

ered potential future procedural location technologies.

The conference concluded with discussion on consensus building on topics including improving safety culture and medication error reporting in the perioperative area, utilizing innovation to address unmet needs and challenges, and to develop consensus guidelines around perioperative medication safety.

At the time of publication of this article, draft guidelines are under review by conference participants. Once this input is received, ISMP will post the full draft guidelines for public comment. After the public comments have been reviewed internally, ISMP will then publish the final guidelines. APSF members were participants in the conference and will be included in the reviews. APSF members will utilize internal organizational discussion to provide recom-

mendations consistent with APSF current expert opinion. Final ISMP guidelines release is expected in late 2022.

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