A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting

A midday symposium conducted at the 2021 ASHP Midyear Clinical Meeting and Exhibition

Tuesday, December 7, 2021 - 1:00pm to 2:30pm

AGENDA	
1:00 PM - 1:10 PM	**Introduction and Overview** Christina Michalek, BSc Pharm, RPh, FASHP Medication Safety Specialist, Institute for Safe Medication Practices (ISMP)
1:10 PM - 1:30 PM	**Behind the Closed Doors: The Status of Medication Safety in Perioperative Settings** Julie Boytim, DNP, CRNA Performance Anesthesia Services
1:30 PM – 1:55 PM	**Understanding the National Aggregate Results from the 2021 Perioperative Assessment** Judy Smetzer, RN, BSN, FISMP Vice President, Institute for Safe Medication Practices (ISMP)
1:55 PM - 2:15 PM	**Advancing Technologies for the Safe Use of Medication in the Perioperative Setting: The Future is Now** Gee Mathen, Director, Pharmacy Clinical Applications & Technical Services, Texas Children's Hospital
2:15 PM – 2:30 PM	**Question and Answer Session**
2:30 PM	**Adjourn**

CONTINUING EDUCATION INFORMATION

This CE activity is jointly provided by ProCE, LLC and the Institute for Safe Medication Practices (ISMP). ProCE is accredited by the Accreditation Council for Pharmacy Education as a provider of continuing pharmacy education. ACPE Universal Activity Number 0221-9999-21-277-L05-P/T has been assigned to this knowledge-based live CE activity (initial release date 12-7-21). This activity is approved for 1.5 contact hours (0.15 CEU) in states that recognize ACPE providers. This CE activity is provided at no cost to participants. Successful completion of the online post-test and evaluation at www.ProCE.com no later than January 7, 2022 is required to receive CE credit. CE credit will be automatically uploaded to NABP/CPE Monitor upon completion of the post-test and evaluation. No partial credit will be given.

FACULTY INFORMATION

Christina Michalek BSc Pharm, RPh, FASHP
Medication Safety Specialist, Institute for Safe Medication Practices, Horsham, PA

Christina is a Medication Safety Specialist and Administrative Coordinator for the Medication Safety Officers Society at the Institute for Safe Medication Practices. She began working with ISMP as an external consultant and advisor in 2001 and later joined the ISMP staff in 2010. At ISMP, Chris works collaboratively with health-system leaders and clinical staff in order to define, design, and improve medication safety initiatives. She has a passion for empowering others to enhance medication safety efforts and enjoys collaborating with healthcare practitioners and sharing best practices through educational programing at national, international, state, and local-level professional conferences. Chris also manages the update and analysis of ISMP's Targeted Medication Safety Best Practices for Hospitals and is the ISMP lead for medication-related technology issues. Additionally, she has been serving as a Patient Safety Analyst to ECRI Patient Safety Organization since 2013.

Learn more about Christina here: https://www.ismp.org/staff/christina-michalek-bsc-pharm-rph-fashp

Julie Boytim, DNP, CRNA
Performance Anesthesia Services

Dr. Boytim's doctoral research focused on an interdisciplinary approach to improving perioperative medication safety. Her doctoral work was completed in collaboration with The Institute for Safe Medication Practices (ISMP) with a focus on the prevalence of medication errors in the perioperative area. Dr. Boytim continues to seek opportunities to improve medication practices through presentations and publications. She has shared her work at local, state, and national conferences.

Judy Smetzer, BSN, RN
Vice President, Institute for Safe Medication Practices, Horsham, PA

Judy first joined ISMP in 1997 as an ISMP Safe Medication Management Fellow, completing a 1-year fellowship that provided training in adverse drug event prevention and management. Since completing her fellowship, Judy has served as one of the primary authors and editors of five ISMP newsletters—for hospitals, nurses, community pharmacies, long-term care facilities, and consumers. These publications reach more than 1.5 million readers.

Judy has worked with various teams at ISMP to conduct studies associated with medication safety funded by the Agency for Healthcare Research and Quality (AHRQ) and the US Food and Drug Administration (FDA), including the ISMP Medication Safety Self Assessment® for High-Alert Medications (2018), and the ISMP Medication Safety Self Assessment® for Perioperative Settings (2021). She is also a certified trainer in Just Culture and has presented to varied healthcare audiences on this topic and many others related to human factors, highly reliable organizations, and medication safety. Her work in these areas has helped many healthcare organizations understand the human behavior behind medication errors and why the second victims of adverse events require and deserve psychosocial and professional support.

The American Public Health Association honored Judy with the 2002 Avedis Donabedian Award for her work in medication safety. In 2012, she was awarded The Way-Paver for BPOC (Bar-code Point of Care) Award from the TerraPharma Project. In 2013, Judy was the first nurse recipient of the American Society of Health-System Pharmacists (ASHP) Board of Directors' Award of Honor.

FACULTY INFORMATION (continued)

Gee Mathen
Director Application and Technical Services
Texas Children's Hospital – Pharmacy Department, Houston, TX

Gee Mathen is the Director of Application and Technical Services for Texas Children's Hospital Pharmacy Department, where he has devoted over 28 years of his career to improving patient safety with the use of technology. He has extensive experience in pharmacy and technology systems. His recent activities include leading the hospital in standardizing automated dispensing technology along with planned implementation of IV robotics and inventory robotics.

Mathen has worked closely with other pharmacy leaders across the country as well as vendors to advocate and improve the use of technology in the medication management process. Mathen has been the user group President for Cerner Megasource, BDM and GE Centricity. He has also served as the Secretary for Omnicell's Thought Leadership Group.

Mathen has worked closely with Epic to help develop the Ambulatory module (WAM), TPN interface, and the compounding and repackaging module.

Mathen takes great pride in leading a team of twenty people who are dedicated every day to ensuring that Texas Children's is the safest it can be from a medication management perspective.

DISCLOSURE

It is the policy of ISMP and ProCE, LLC to ensure balance, independence, objectivity and scientific rigor in all of its continuing education activities. Faculty must disclose to participants the existence of any significant financial interest or any other relationship with the manufacturer of any commercial product(s) discussed in an educational presentation.

<u>The speakers listed below have no relevant commercial and/or financial relationships to disclose.</u>

Christina Michalek BSc Pharm, RPh, FASHP
Julie Boytim, DNP, CRNA
Judy Smetzer, RN, BSN, FISMP
Gee Mathen

Please note: The opinions expressed in this activity should not be construed as those of the CE provider. The information and views are those of the faculty through clinical practice and knowledge of the professional literature. Portions of this activity may include unlabeled indications. Use of drugs and devices outside of labeling should be considered experimental and participants are advised to consult prescribing information and professional literature.

OVERVIEW

In the perioperative setting, medication errors frequently occur in all phases of perioperative care and are a common cause of morbidity and mortality. When medication errors occur, they are often the result of the complexity of care combined with the fast-paced and fragmented nature of perioperative service delivery.

This symposium will focus on the daily challenges of ensuring medication safety in the high-risk perioperative or procedural setting, highlighting the national aggregate findings and practice gaps identified using ISMP's Medication Safety Self Assessment for Perioperative Settings, and providing highlights of the draft consensus best practice statements developed at ISMP's national perioperative summit. This program will discuss challenges faced during the implementation of best practices and advancing technologies in the perioperative setting, as well as resources and plans for addressing these obstacles.

OBJECTIVES

The target audience for this activity includes pharmacists and pharmacy technicians in health-system settings. At the completion of this symposium, the participant will be able to:

1. Identify current national safety challenges with medication management in U.S. perioperative and procedural settings
2. Highlight the practice risks discovered by inpatient and ambulatory surgical and procedural sites participating in the ISMP Medication Safety Self Assessment for Perioperative Settings
3. Examine the ISMP best practice guidance draft, action plans, and resources developed for hospitals and ambulatory surgical centers to begin the transformation towards meaningful medication safety improvements
4. Recognize first-hand barriers and challenges faced during the early adoption and implementation of safe medication practices in perioperative and procedural settings

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A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting

A Midday Symposium Conducted at the 2021 ASHP Midyear Clinical Meeting and Exhibition

This symposium is funded through an educational grant from **Pfizer**.

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CE Activity Information & Accreditation

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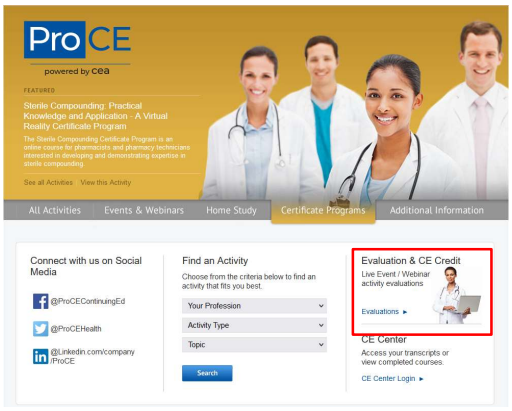
Online Evaluation and Statement of Completion

- **www.ProCE.com**
- Login with username and password
- Deadline: January 7, 2022



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Objectives

Following completion of this activity, participants will be able to:

1. Identify current national safety challenges with medication management in U.S. perioperative and procedural settings
2. Highlight the practice risks discovered by inpatient and ambulatory surgical and procedural sites participating in the ISMP Medication Safety Self Assessment for Perioperative Settings
3. Examine the ISMP best practice guidance draft, action plans, and resources developed for hospitals and ambulatory surgical centers to begin the transformation towards meaningful medication safety improvements
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Behind Closed Doors: The Status of Medication Safety in Perioperative Settings

Julie Boytim, DNP, RN, CRNA

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I have no conflict of interests.

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The Process

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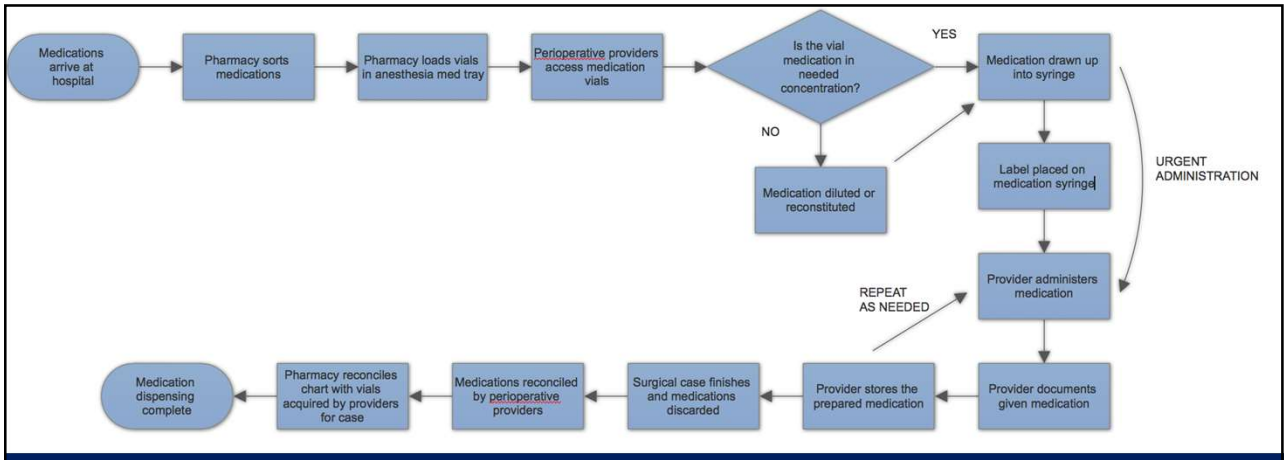

PROCESS EXAMPLE: HOW MANY STEPS?

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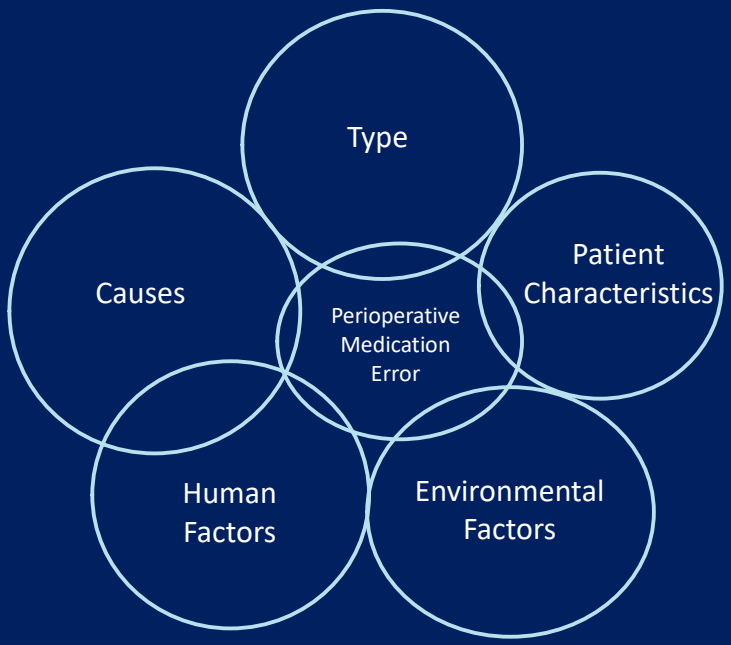
CONTRIBUTING FACTORS



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Patient Characteristics

Acuity
Age
Gender
Procedure
Physical Status Score

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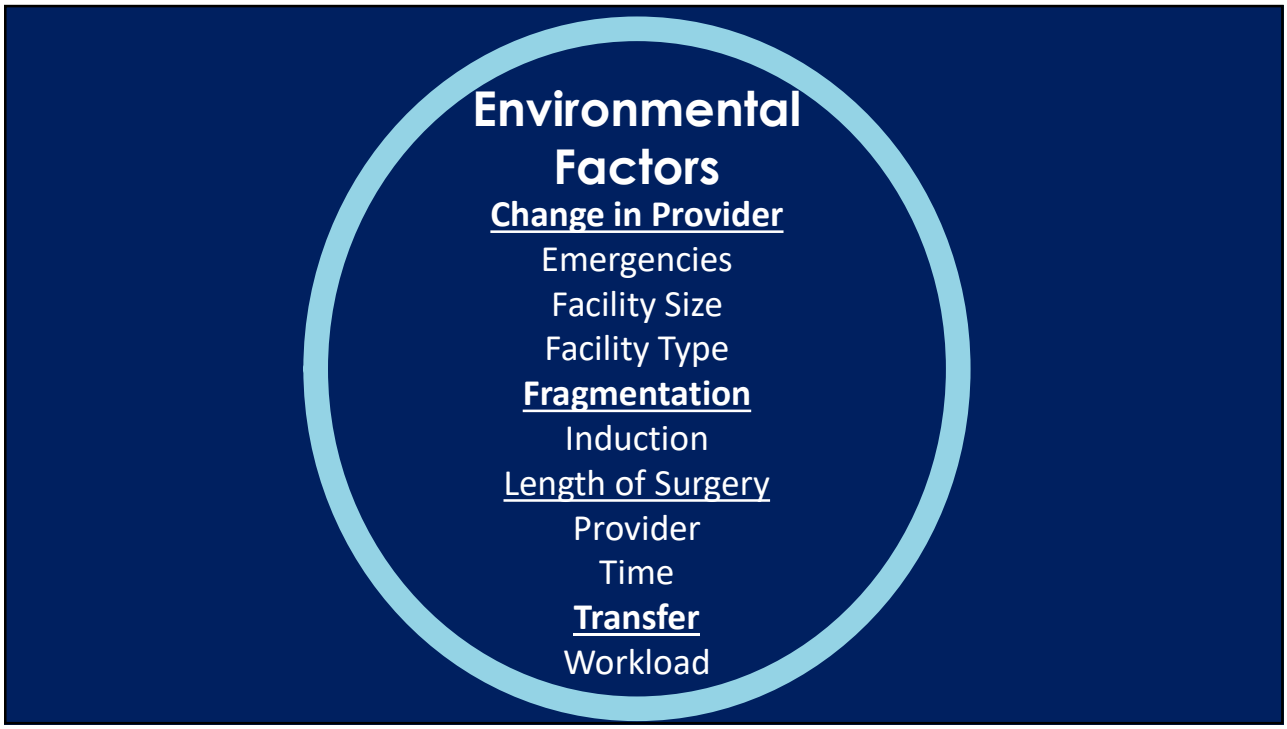

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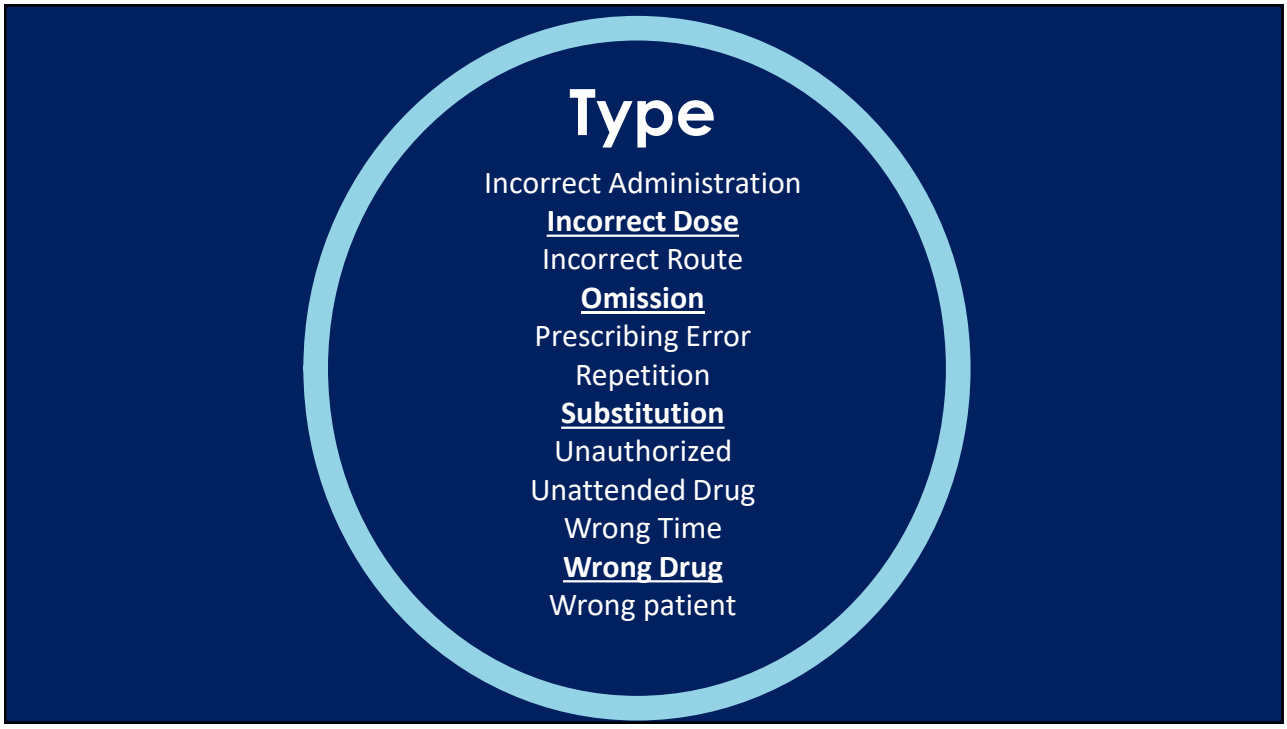

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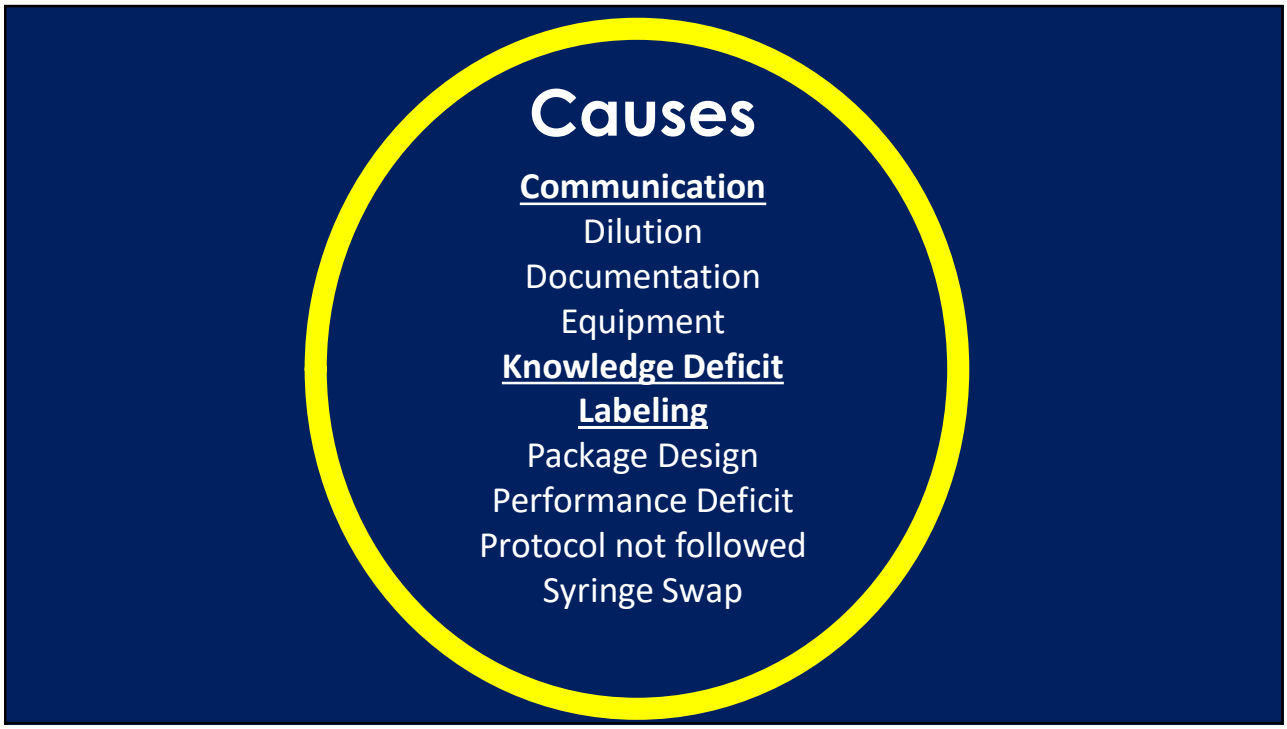

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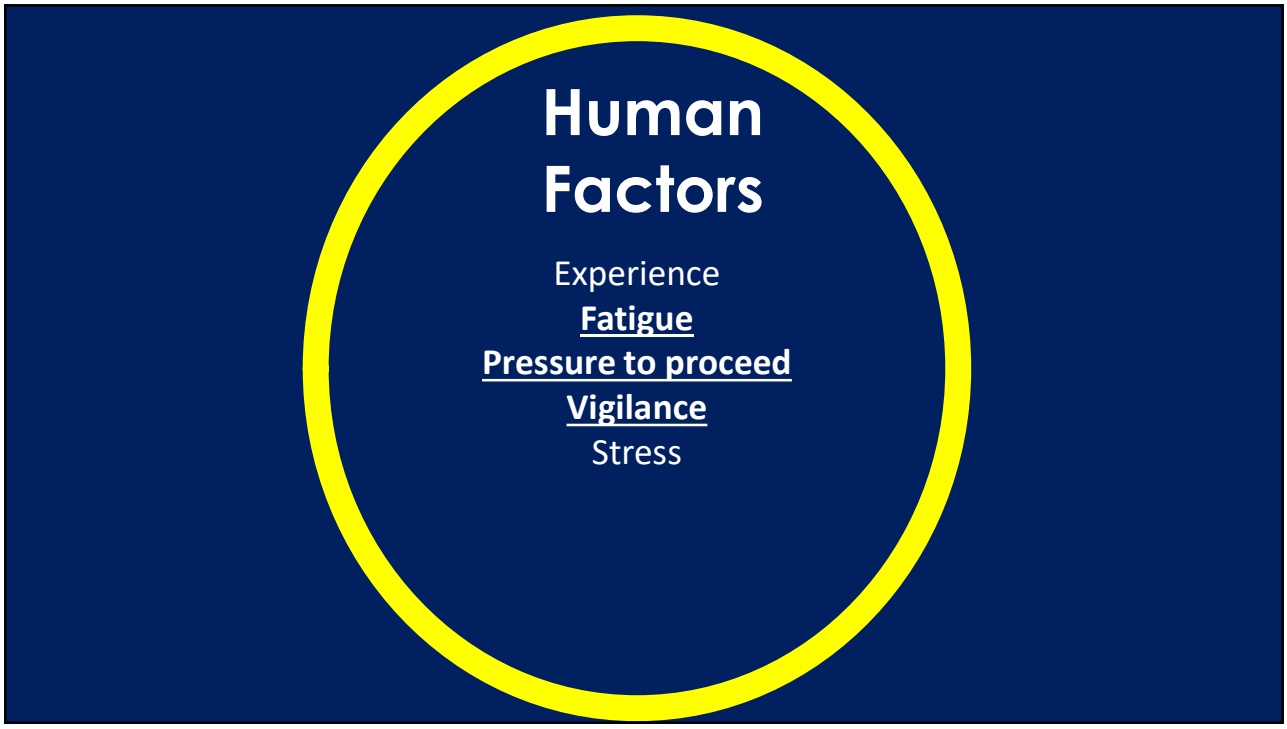

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Where do we start?

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THE GOAL: SAFE PERIOPERATIVE MEDICATION ADMINISTRATION

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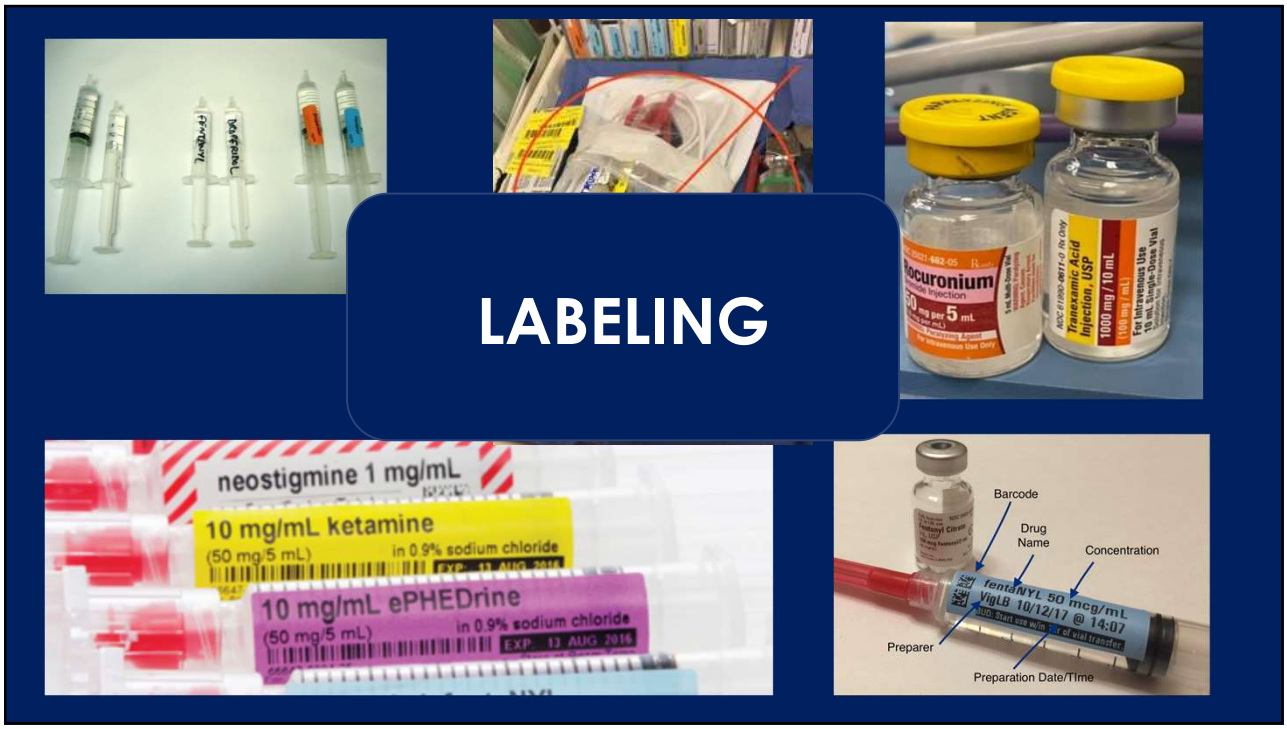
LABELING
neostigmine 1 mg/mL
10 mg/mL ketamine
(50 mg/5 mL)
in 0.9% sodium chloride
10 mg/mL ePHEDrine
(50 mg/5 mL)
in 0.9% sodium chloride
Barcode
Drug Name
Concentration
Preparer
Preparation Date/Time

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BARCODING
fentaNYL
50 mcg/mL
Naloxone
0.4 mg/mL
Propofol
10 mg/mL
Neostigmine
1 mg/mL
EPINEPHrine

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BARCODING

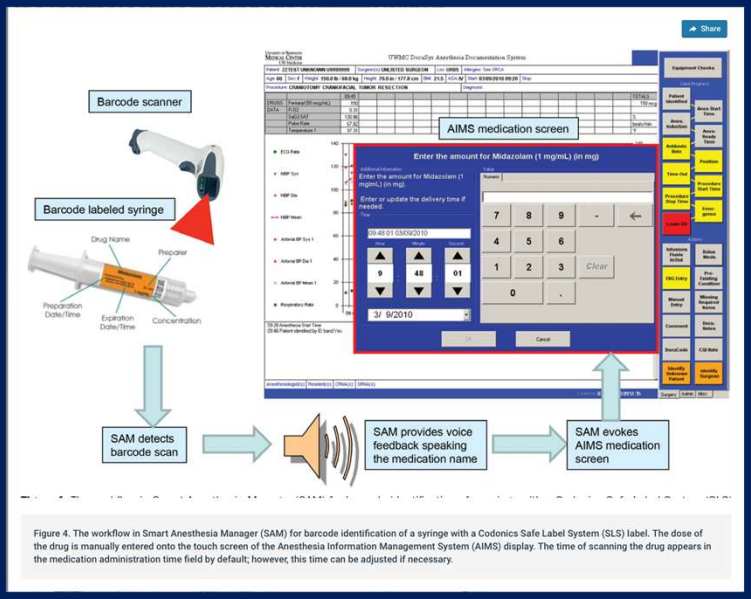

Figure 4. The workflow in Smart Anesthesia Manager (SAM) for barcode identification of a syringe with a Codonics Safe Label System (SLS) label. The dose of the drug is manually entered onto the touch screen of the Anesthesia Information Management System (AIMS) display. The time of scanning the drug appears in the medication administration time field by default; however, this time can be adjusted if necessary.

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SMART PUMP TECHNOLOGY

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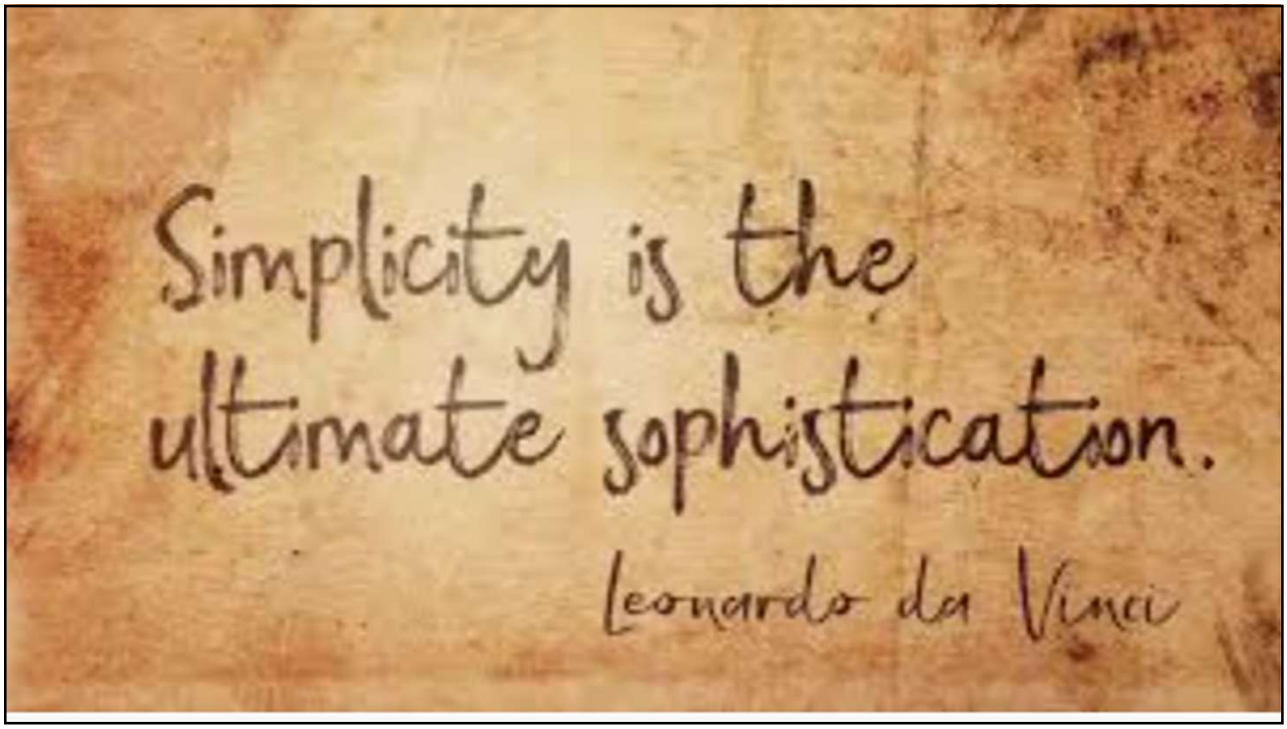
Simplicity is the
ultimate sophistication.
Leonardo da Vinci

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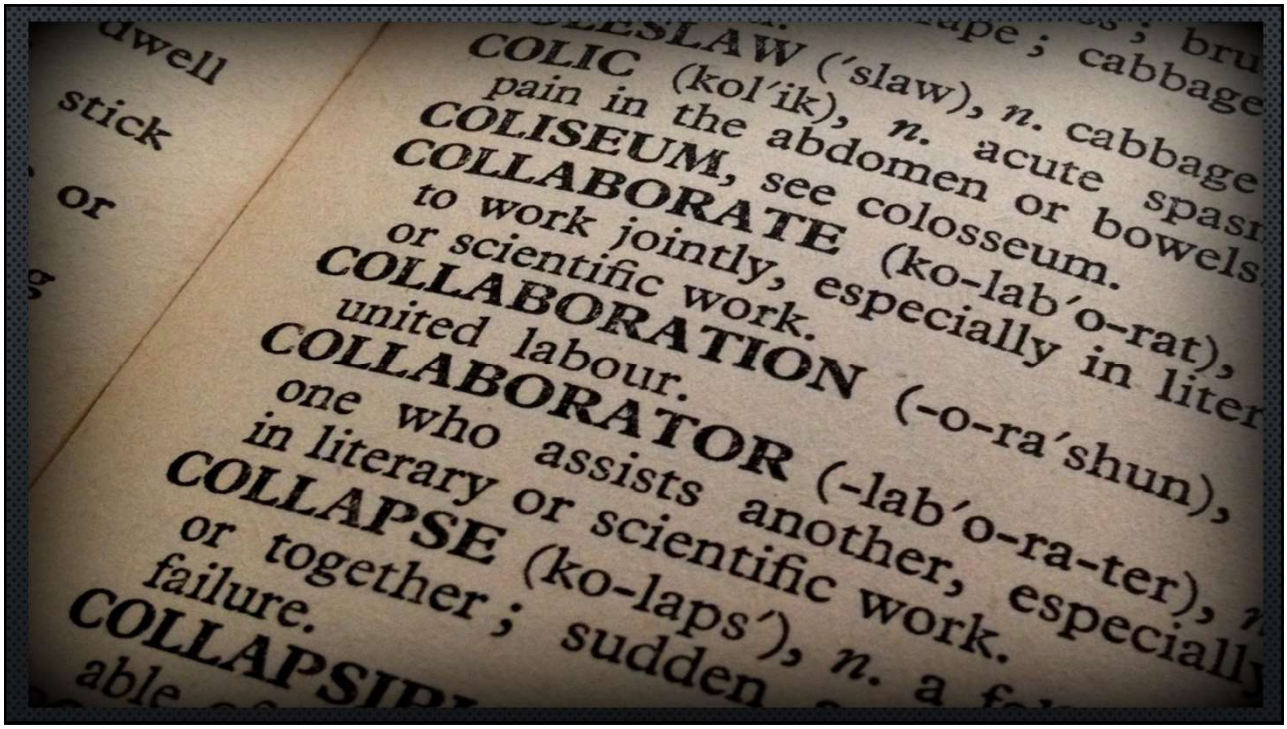
dwell
stick
or
COLIC (kol′ik), n. acute spasi
pain in the abdomen or bowels
COLISEUM, see colosseum.
COLLABORATE (ko-lab′o-rat),
to work jointly, especially in liter
or scientific work.
COLLABORATION (-o-ra′shun),
united labour.
COLLABORATOR (-lab′o-ra-ter),
one who assists another, especiall
in literary or scientific work.
COLLAPSE (ko-laps′), n. a
or together; sudden
failure.

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REFERENCES

Nanji KC, Patel A, Shaikh S, Seger DL, Bates DW. Evaluation of perioperative medication errors and adverse drug events. *Anesthesiology*. 2016;124(1):25-34.
Nicolay CR, Purkayastha S, Greenhalgh A, et al. Systematic review of the application of quality improvement methodologies from the manufacturing industry to surgical healthcare. *Br J Surg*. 2012;99(3):324-335.
Cooper JB, Newbower RS, Long CD, McPeek B. Preventable anesthesia mishaps: a study of human factors. *Anesthesiology*. 1978;49(6):399-406.
Makary MA, Daniel M. Medical error—the third leading cause of death in the US. *BMJ*. 2016;353:i2139. doi:10.1136/bmj.i2139.
Kohn LT, Corrigan JM, Donaldson MS, eds; Institute of Medicine. *To Err is Human: Building a Safer Health System*. Washington, DC: National Academy Press; 2000. http://www.nap.edu/read/9728/chapter/1. Accessed September 15, 2017.
Pan J, Mays R, Gill S, et al. Published costs of medication errors leading to preventable adverse drug events in US hospitals. Poster abstact # PHP73 at the International Society for Pharmacoeconomics and Outcomes 20th Annual Meeting, May 18-20, 2015. https://www.ispor.org/research_pdfs/49/pdffiles/PHP73.pdf. Accessed September 15, 2017.
Bates DW, Boyle DL, Vander Vliet MB, Schneider J, Leape L. Relationship between medication errors and adverse drug events. *J Gen Intern Med*. 1995;10(4):199-205.
Frequently asked questions (FAQ). Institute for Safe Medication Practices. http://www.ismp.org/faq.asp. Accessed September 15, 2017.
Keers RN, Williams SD, Cooke J, Ashcroft DM. Causes of medication administration errors in hospitals: a systematic review of quantitative and qualitative evidence. *Drug Saf*. 2013;36(11):1045-1067.
Brown LB. Medication administration in the operating room: new standards and recommendations. *AANA J*. 2014;82(6):465-469.
Thompson CA. Surgical units have high potential for harmful medication errors, USP says. *Am J Health Syst Pharm*. 2007;64(9):917-920.
Fasting S, Gisvold SE. Adverse drug errors in anesthesia, and the impact of coloured syringe labels. *Can J Anaesth*. 2000;47(11):1060-1067.
Unraveling the unlabeled containers issue. *Acute Care ISMP Medication Safety Alert!* https://www.ismp.org/newsletters/acutecare/articles/19970618.asp. Published June 18, 1997. Accessed September 15, 2017.
AORN guidance statement—safe medication practices in perioperative practice settings across the life span. *AORN J*. 2002;75(5):1008-1009.
Guideline for medication safety. In: *Guidelines for Perioperative Practice*. Denver, CO: AORN, Inc; 2017:295-333.
A look at the Joint Commission National Patient Safety Goals. *Bull Am Coll Surg*. 2006;91(8):49. https://www.facs.org/~/media/files/publications/bulletin/2006/2006%20august%20bulletin.ashx. Accessed September 15, 2017.
National Patient Safety Goals Effective January 2017. The Joint Commission. https://www.jointcommission.org/assets/1/6/NPSG_Chapter_HAP_Jan2017.pdf. Accessed August 31, 2017.
Medication Safety in the Operating Room: Time for a New Paradigm [video]. Rochester, MN: Anesthesia Patient Safety Foundation; 2012. http://www.apsf.org/resources/med-safety/. Accessed September 15, 2017.
Managing medication in ambulatory surgery centers. *Bull Am Coll Surg*. 2015;100(3):36-37. https://www.facs.org/~/media/files/publications/bulletin/2015/2015%20march.ashx. Accessed September 15, 2017.
Tools: IHI trigger tool for measuring adverse drug events. Institute for Healthcare Improvement. http://www.ihi.org/resources/pages/tools/triggertoolformeasuringadversedrugevents.aspx. Accessed September 15, 2017.
AORN Research Evidence Appraisal Tool - Study. AORN. https://www.aorn.org/-/media/aorn/guidelines/evidence-rating-and-tables/aorn-research-evidence-appraisal-tool-study.pdf?la=en&hash=7C7434C8C3961AD90ACD5545E6326FEB3CBCC0DB. Accessed September 15, 2017.
Beyea SC, Hicks RW, Becker SC. Medication errors in the OR—a secondary analysis of Medmarx. *AORN J*. 2003;77(1):122, 125-129, 132-134.
Merry AF, Webster CS, Hannam J, et al. Multimodal system designed to reduce errors in recording and administration of drugs in anaesthesia: prospective randomised clinical evaluation. *BMJ*. 2011;343:d5543. doi:10.1136/bmj.d5543.
Sakaguchi Y, Tokuda K, Yamaguchi K, Irita K. Incidence of anesthesia-related medication errors over a 15-year period in a university hospital. *Fukuoka Igaku Zasshi*. 2008;99(3):58-66.
Cooper L, DiGiovanni N, Schultz L, Taylor AM, Nossaman B. Influences observed on incidence and reporting of medication errors in anesthesia. *Can J Anesth*. 2012;59(6):562-570.
Hicks RW, Becker SC, Krenzischeck D, Beyea SC. Medication errors in the PACU: a secondary analysis of MEDMARX findings. *J Perianesth Nurs*. 2004;19(1):18-28.
Kluger MT, Bullock MFM. Recovery room incidents: a review of 419 reports from the Anaesthetic Incident Monitoring Study (AIMS). *Anaesthesia*. 2002;57(11):1060-1066.
Rosenwasser R, Winterstein AG, Rosenberg AF, Rosenberg EI, Antonelli PJ. Perioperative medication errors in otolaryngology. *Laryngoscope*. 2010;120(6):1214-1219.
Webster CS, Larsson L, Frampton CM, et al. Clinical assessment of a new anaesthetic drug administration system: a prospective, controlled, longitudinal incident monitoring study. *Anaesthesia*. 2010;65(5):490-499.
Webster CS, Merry AF, Larsson L, McGrath KA, Weller J. The frequency and nature of drug administration error during anaesthesia. *Anaesth Intensive Care*. 2001;29(5):494-500.
Yamamoto M, Ishikawa S, Makita K. Medication errors in anesthesia: an 8-year retrospective analysis at an urban university hospital. *J Anesth*. 2008;22(3):248-252.
Zhang Y, Dong YJ, Webster CS, et al. The frequency and nature of drug administration error during anaesthesia in a Chinese hospital. *Acta Anaesthesiol Scand*. 2013;57(2):158-164.
Marotti SB, Kerridge RK, Grimer MD. A randomised controlled trial of pharmacist medication histories and supplementary prescribing on medication errors in postoperative medications. *Anaesth Intensive Care*. 2011;39(6):1064-1070.
van Waes JAR, de Graaff JC, Egberts ACG, van Klei WA. Medication discontinuity errors in the perioperative period. *Acta Anaesthesiol Scand*. 2010;54(10):1185-1191.
Goeckner B, Gladu M, Bradley J, Garmon SC, Hicks RW. Differences in perioperative medication errors with regard to organization characteristics. *AORN J*. 2006;83(2):351-352, 355-362, 365-368.
Manias E, Williams A, Liew D, Rixon S, Braaf S, Finch S. Effects of patient-, environment- and medication-related factors on high-alert medication incidents. *Int J Qual Health Care*. 2014;26(3):308-320.
Abeysekera A, Bergman IJ, Kluger MT, Short TG. Drug error in anaesthetic practice: a review of 896 reports from the Australian Incident Monitoring Study database. *Anaesthesia*. 2005;60(3):220-227.

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Understanding the National Aggregate Results from the 2021 Perioperative Assessment

Judy Smetzer, BSN, FISMP
Vice President, Institute for Safe Medication Practices

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Disclosure

Judy Smetzer declares no conflicts of interest, real or apparent, and no financial interest in any product or service mentioned in this program.

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Learning Objectives

Highlight

- Highlight the practice risks discovered by inpatient and ambulatory surgical and procedural sites participating in the ***ISMP Medication Safety Self Assessment® for Perioperative Settings***

Examine

- Examine the ISMP best practice guidance draft, action plans, and resources developed for hospitals and ambulatory surgical centers to begin the transformation towards meaningful medication safety improvements

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Tool and Process

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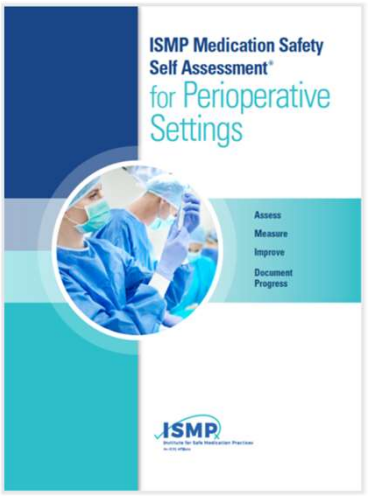
Goals and Assessment Items

- Provide a standardized way for organizations to assess perioperative medication safety
- Create organization-specific, safety focused initiatives
- Create a baseline of national efforts
- 221 critical safe medication systems and practice items
- Items extend beyond minimum standards of practice
- Items weighted based on impact



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Scoring Guidelines

None

A. No activity to implement

B. Discussed but not implemented

Partial

C. Partially implemented for some or all patients, orders, drugs, staff

D. Fully implemented for some patients, orders, drugs, staff

Full

E. Fully implemented for all patients, orders, drugs, staff

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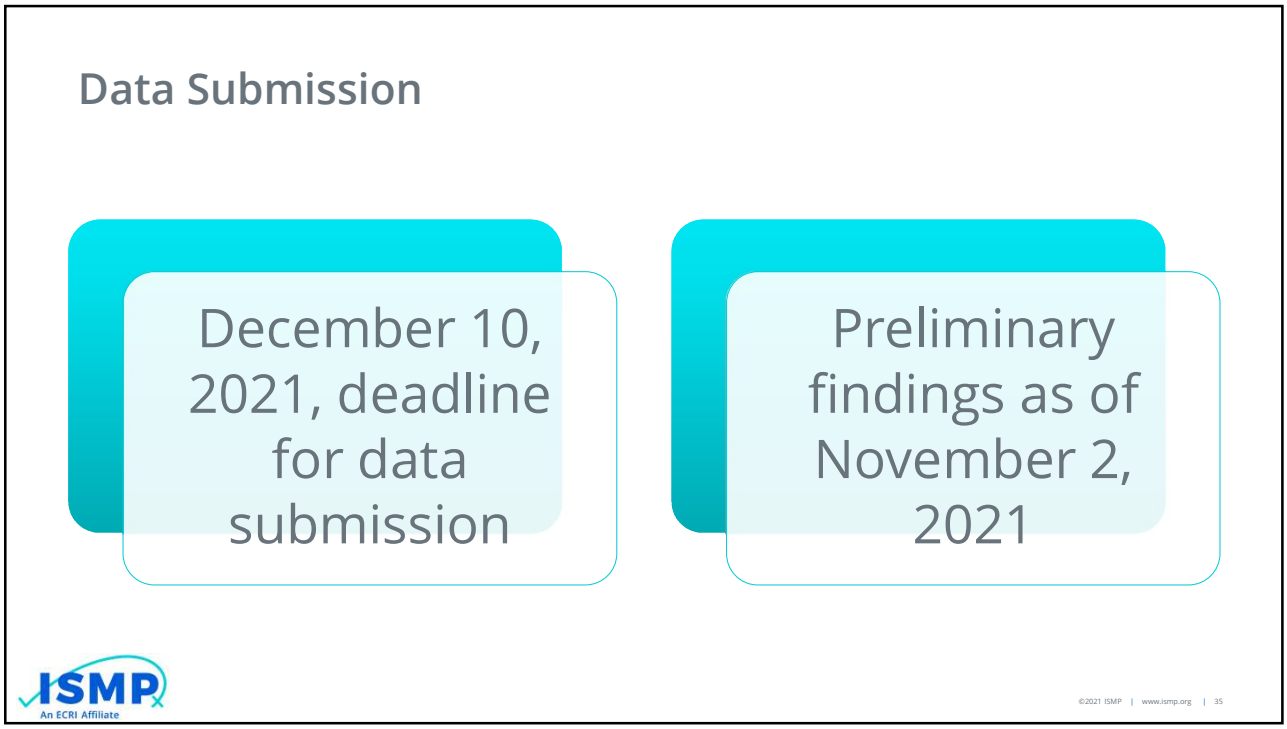
Data Submission
December 10, 2021, deadline for data submission
Preliminary findings as of November 2, 2021
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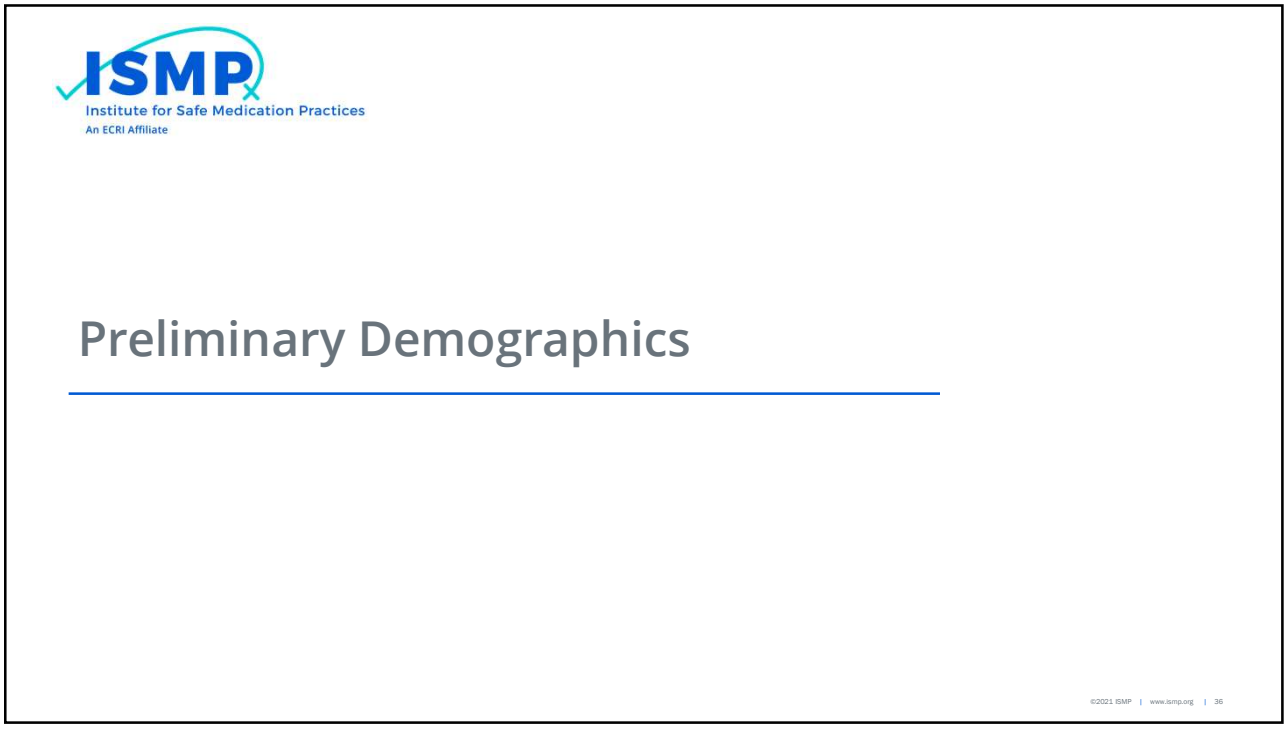
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Preliminary Demographics
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Total Respondents

N = 159

- **124 Hospitals**
- **35 Ambulatory**
  - Mostly ambulatory surgery centers
  - Two "other" facilities

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Hospitals

Bed Size	
Under 100 beds	28%
100-299 beds	30%
300-499 beds	22%
500 beds and over	20%

Patients Served	
Pediatrics	6%
Adults	19%
Combination	75%

# ORs	
Under 10	35%
10-39	54%
40-79	9%
80 or more	2%

# OR Procedures Performed/Year	
Fewer than 5,000	42%
5,000-19,999	41%
20,000-49,000	15%
50,000 or more	2%

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Hospitals

# Procedure Rooms	
Under 10	52%
10-39	45%
40-79	2%
80 or more	1%

# Procedures Performed/Year	
Zero/unknown	15%
Fewer than 5,000	43%
5,000-19,999	35%
20,000 or more	7%

Barcode Scanning (88%)	
Holding area	95%
OR	38%
Procedure room	48%
Recovery	96%

Smart Infusion Pumps/DERS (94%)	
Holding area	97%
OR	93%
Procedure room	93%
Recovery	97%

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Ambulatory Facilities

Visits/Month	
Under 100	26%
100-499	46%
500-999	17%
1,000 and over	11%

Patients Served	
Pediatrics	0%
Adults	43%
Combination	57%

# ORs	
Zero	20%
1-3	46%
4-9	31%
10 or more	3%

# Procedure Rooms	
Zero	23%
1-3	60%
4-9	14%
10 or more	3%

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Ambulatory Facilities

# Medical and/or Surgical Procedures Performed/Year	
Fewer than 1,000	20%
1,000-4,999	46%
5,000-9,999	20%
10,000 or more	14%

Barcode Scanning (11%)	
Holding area	100%
OR/procedure room	50%
Recovery	100%

Smart Infusion Pumps/DERS (34%)	
Holding area	50%
OR/procedure room	92%
Recovery	42%

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Preliminary Results and Opportunities for Improvement

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Overall Score

Mean Percent Score: 78%

- Hospitals: 78%
- Ambulatory: 76%

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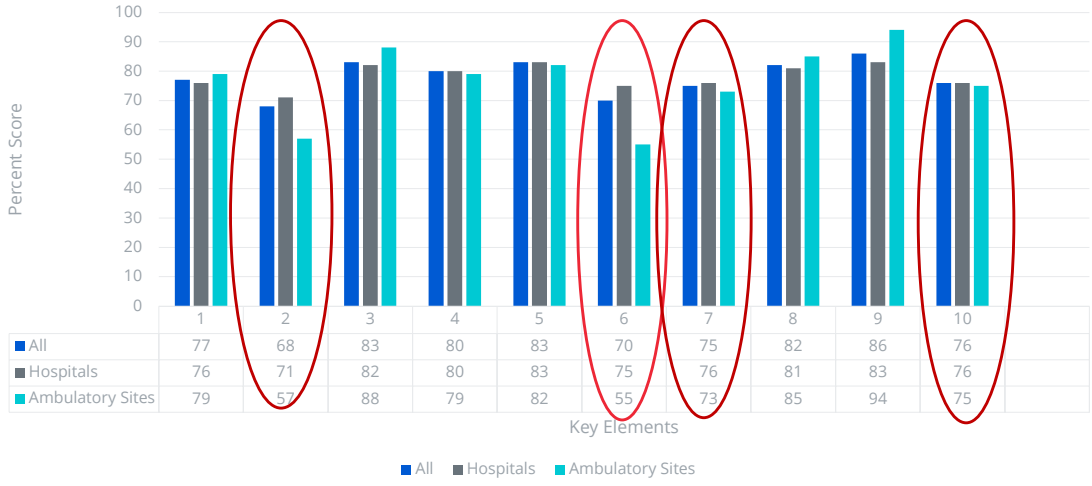
Percent Scores for the 10 Key Elements



	1	2	3	4	5	6	7	8	9	10
All	77	68	83	80	83	70	75	82	86	76
Hospitals	76	71	82	80	83	75	76	81	83	76
Ambulatory Sites	79	57	88	79	82	55	73	85	94	75

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II. Drug Information (68%)

45

#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
42	Practitioner- and/or procedure-specific **preference cards** provide clear and concise medication instructions in an electronic format (not handwritten), **and** are approved and/or updated annually by an interdisciplinary committee (e.g., pharmacy and therapeutics).	All	36%	40%	24%
		Amb	31%	31%	37%
		Hosp	38%	42%	20%
36	Preoperative and postoperative orders for medications (including hydrating solutions) are **verified by a pharmacist** (remotely or onsite) before medications are administered, unless a delay in administration could result in patient harm.	All	25%	36%	39%
		Amb	86%	5%	9%
		Hosp	8%	44%	48%

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VI. Medication Delivery Device Acquisition, Use and Monitoring (70%)

47

#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
149	Plans are in place to transition to the new design standards (ISO 80369-6) for small neuraxial **NRFit** connectors used on medical device tubing, which will not fit into ports other than neuraxial, reducing the risk of misconnections.	All	73%	7%	20%
		Amb	56%	0%	44%
		Hosp	75%	8%	18%
134	**Labels** with the name of the drug being infused and route of administration are affixed to each **access line** (e.g., IV, epidural, bladder instillations) at the distal end closest to the patient **and** above each pump or channel.	All	33%	37%	30%
		Amb	48%	9%	43%
		Hosp	28%	46%	26%

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#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
139	**Smart Infusion Pumps with DERS** Expected by leadership/implemented	All	19%	19%	62%
			21%	25%	54%
	a. Continuous medication infusions	Amb	60%	9%	31%
			57%	9%	34%
	b. Intermittent and secondary infusions (EXCEPT carrier fluids)	Hosp	7%	23%	70%
			10%	30%	60%

Ambulatory: 34% said smart pumps are available
Hospitals: 94% said smart pumps are available

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VII. Environmental Factors, Workflow, and Staffing Patterns (75%)

50

#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
157	A **fatigue reduction plan** is designed and followed for on-call practitioners and/or those who have worked overtime that provides adequate recovery time for staff between shifts and guides an appropriate and just response when practitioners feel, or the organization determines, it is unsafe to provide care during a subsequent shift due to fatigue.	All	29%	21%	50%
		Amb	37%	3%	60%
		Hosp	27%	26%	47%
152	Facility-provided and/or personal **mobile device** (e.g., cell phones, pagers, tablets, smart watches) use, and/or internet use, in the perioperative setting is limited to patient care-related activities.	All	9%	35%	55%
		Amb	6%	23%	71%
		Hosp	10%	39%	51%

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X. Quality Processes and Risk Management (76%)

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#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
203	**Barcode scanning**: a. Holding area/recovery rooms b. Operating/procedure rooms	All	28%	13%	59%
			66%	22%	12%
		Amb	77%	3%	20%
			80%	4%	16%
		Hosp	14%	16%	70%
			62%	27%	11%
Ambulatory: 11% said it was available; Hospitals, 88% said it was available					
206	In the holding area, OR/procedure rooms, and recovery room, before starting selected facility-defined high-alert medication infusions and at additional facility-defined steps (e.g., change of shift, hand-offs, rate pr bag/bottle changes), an **independent double check** is performed and documented.	All	14%	39%	47%
		Amb	20%	11%	69%
		Hosp	13%	47%	40%

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Other Low-Scoring Items

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A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting

#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
9	Standard process used to determine the **opioid status** of adults and if at **high risk** for respiratory depression.	**All**	50%	28%	22%
40	If an **antithrombotic** is held and the procedure is postponed, a process is in place to remind the prescriber to evaluate the need to resume antithrombotic therapy.	**All**	38%	30%	32%
70	Medication storage is **label up**, not cap up.	**All**	21%	47%	32%
17 18	Continuous electronic monitoring of both oxygenation (**pulse oximetry**) and adequacy of ventilation (**capnography**) for patients receiving moderate sedation, MAC, regional anesthesia with an opioid, general anesthesia, continuous or intermittent IV/neuraxial opioids	**All**	18%	55%	27%

55

#	Self-Assessment Item		None (A+B)	Partial (C+D)	Full (E)
142	**Data from smart pumps** are reviewed monthly/quarterly for **compliance with DERS** and **alerts**, and to develop **improvement plans**.	**All**	49%	24%	27%
115	In holding and recovery area, there are **interactive ADC alerts** that require the entry of clinical information.	**All**	52%	18%	30%
168	At least quarterly, staff receive **information about medication errors** and error-prevention strategies.	**All**	30%	33%	37%

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Best Practice Guidelines Draft

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The Future of Perioperative Medication Safety: Charting our Path Forward

- ISMP National Summit held November 10-11, 2021
- More than 80 key stakeholders representing interests of perioperative settings
- Focus on consensus-based best practices for medication use
- Guideline development and release in mid-2022
  - **Public comment in Spring**

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Resource: ISMP Guidelines for Medication Safety in the Perioperative Setting

Likely topics will include:

- Elimination of handwritten syringe labels by 2025
- Advancement of medication-related technologies in the perioperative setting (e.g., barcode scanning, smart pumps, integration with EHR/anesthesia records)
- Continuous monitoring of oxygenation and ventilation for patients receiving sedation and opioids
- Enhanced pharmacy support
- Improved medication storage and distribution processes
- Standardization of products/ concentrations (avoid customized solutions)

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Questions?

jsmetzer@ismp.org

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Intro

Advancing Technologies for the Safe Use of Medication in the Perioperative Setting: The Future is Now

Gee Mathen

Director, Pharmacy Clinical Applications & Technical Services, Texas Children's Hospital

61

2010 APSF called for a New Paradigm

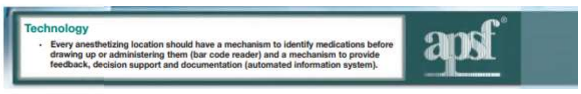
Medication Safety

TECHNOLOGY: *"Every anesthetizing location should have a mechanism to identify medications before drawing up or administrating them (bar code reader) and a mechanism to provide feedback, decision support and documentation (automated information system)."*

- There is drug administration error associated with one in every 133 anesthetics administered [1]. Of those errors, 1 in 250 is fatal [2].

1 Based on Merry AF, Peck DJ. Anesthetists, Errors in Drug Administration and the Law. N Z Med J. 1995; 24:185-187.

2 Hanna GM, Levine WC. Anesthesiology Clinics. 2011; 29:135-144



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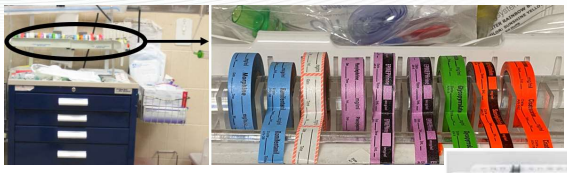
Safety in the Perioperative Environment

Medication Safety



1. No Labeling Elements
2. No Concentration
3. No Expiration or User Initials
4. Illegible Handwriting

- Manual labeling leaves room for human error.
- Barcode technology reduces the chance for error.
- Some barcode technologies provide visual and audible feedback at preparation and administration to ensure drug in hand.

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Safety in the Perioperative Environment

Medication Safety

- Barcode scanning confirms drug-in-hand based on the NDC scan ("source of truth").
- Barcode scanning helps eliminate the most common medication errors: vial/ampoule swaps, mislabeling and syringe swaps.
- Today, 11,000 operating rooms are using barcode technology, helping to prevent more than 1.1 million medication errors.[1]

1 Calculations based on Codonics installed base as of June 2021 and Merry AF, Peck DJ. Anesthetists, Errors in Drug Administration and the Law. N Z Med J. 1995; 24:185-187, 1:133 data,

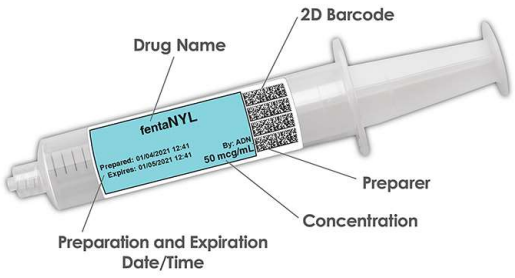
64

Compliant, consistent and easy-to-read syringes

TJC-Compliance

- Completely eliminates handwriting, complies with The Joint Commission (TJC) National Patient Safety Goals (NPSG) and American Society of Anesthesiologists (ASA) Guidelines for full-color labels.

"Best Practice"
--The Joint Commission



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ADMINISTRATION/BCMA

Administration BCMA

- Scan directly into your EMR, such as Epic or Cerner

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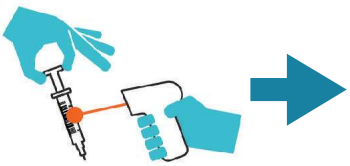
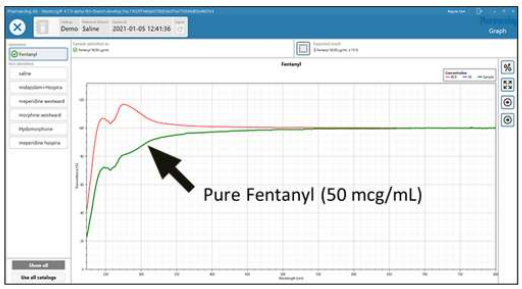
A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting

WASTE

Waste

- Safety beyond patient administration.
- Barcode scanning improves workflow and accuracy to help prevent and detect drug diversion.





Barcode scan

Assay/analysis

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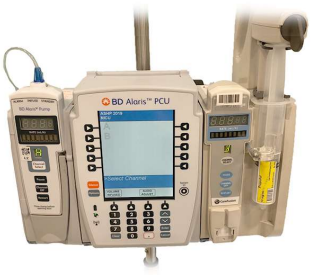
BCMA for Infusions
in the Perioperative Environment "Interoperability"

Infusion Pump Interoperability in the OR



- Auto-programming with less clicks of all LVP and syringe interoperable-equipped pumps.
- Safer operation of pumps through auto-programming.
- Accurate and automatic documentation.
- Automated documentation once the infusion is started. Changes made to the pump (e.g. titrations) will auto-document into Epic without provider interaction.

Only available with: Epic

4 Easy Steps:

1. Scan syringe
2. Scan pump
3. Enter order in 4 clicks
   (Rate, Dose, Duration, Volume)
4. Confirm and start pump

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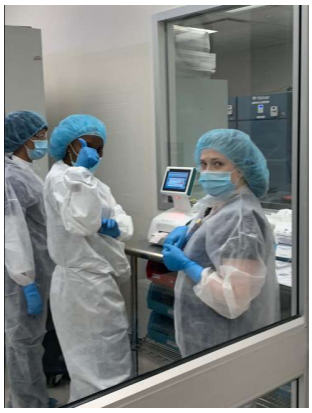
A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting

New safety concerns

***First** COVID-19 vaccines given to caregivers at Texas Children's Hospital*



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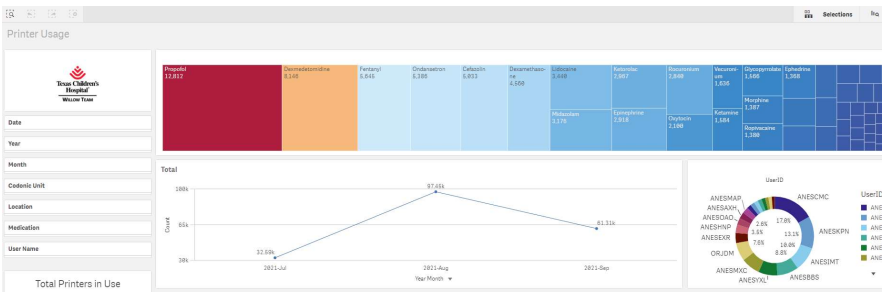
Data Drives Change

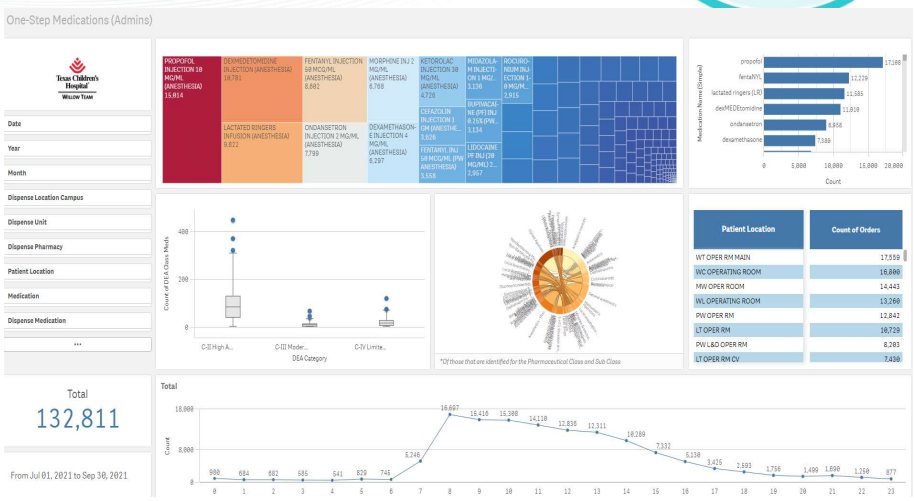
Data Analytics



70

Data Drives Change

Data Analytics



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First, do no harm

The Reason

"We have to take responsibility that we don't cause harm to our patients. When you know a technology is out there, it becomes your responsibility to make sure you're not causing harm to your patients by choosing not to implement it."

-- Christina Barnes, Director of Pharmacy Services, Avita Health System

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What Is the Price You Would Pay for Safety?

Patient safety issues could drive $383B in healthcare costs by 2022

Megan Knowles - Thursday, March 1st, 2018 Print | Email

Share Tweet Share 0 Listen AA TEXT

By 2022, avoidable adverse patient safety events across the U.S. and Western Europe, including healthcare-associated infections, sepsis and diagnostic errors, could cost $383.7 billion, according to a Frost & Sullivan analysis.

Frost & Sullivan assessed the 30 most pressing safety adverse events affecting patients, caregivers, and healthcare organizations worldwide. These events also included medication safety, pressure ulcers, antibiotic resistance and hand hygiene non-compliance.

All together, these adverse events affected around 91.8 million patient admissions in the U.S. and Western Europe, which resulted in approximately 1.95 million deaths.

https://www.beckershospitalreview.com/quality/patient-safety-issues-could-drive-383b-in-healthcare-costs-by-2022.html

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The ETTO Principle – Efficiency – Thoroughness Trade-Off

The basic principle is that people have to make a trade-off between the resources (time and effort) they spend on preparing to do something and the resources (time and effort) they spend on doing it.

Efficiency means the level of investment or amount of resources used or needed to achieve a stated goal or objective.

Thoroughness means that an activity is done to achieve an objective and not create any unwanted side-effects.

The ETTO fallacy is that we are required to be both efficient and through at the same time.

Work as imagined and work as done. What really happens?

Erik Hollnagel

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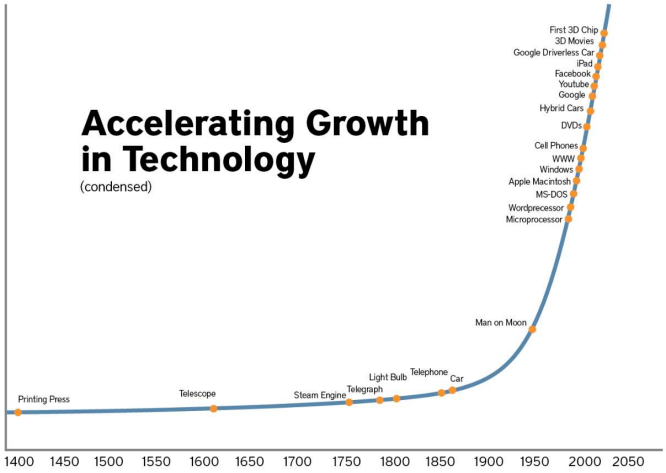
Where Do We Go From Here?

Clinicians in the OR will not only need to adapt to new technologies in the OR, they will need to play a role in developing them.



IBM.com

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Questions?

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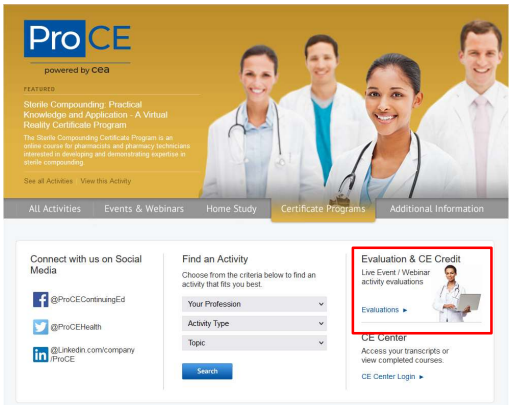
Online Evaluation and Statement of Completion

- **www.ProCE.com**
- Login with username and password
- Deadline: January 7, 2022



Attendance Code = YGVDU4

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CE ACTIVITY EVALUATION AND CREDIT INSTRUCTIONS

1. To receive CE credit for this activity, you must complete the post-test and activity evaluation online **no later than Friday, January 7, 2022**.

2. Visit **www.ProCE.com/evaluation**.

3. Click on the **Evaluation** button which is listed with the **A Call to Action: Dedicated Medication Safety Transformation in the Perioperative Setting – December 7, 2021** CE activity.

4. Login to the ProCE Center. *Note: You will need to sign up for a new account if you have not previously used the ProCE Center.*

5. Enroll in the CE activity, then enter the **Attendance Code: YGVDU4** (you will need this code to access the post-test and activity evaluation).

6. Take the post-test, complete the evaluation, and claim CE credit.

7. If you need assistance or have questions, please contact ProCE at 888.213.4061or via email at **info@proce.com**.

Note: It is ProCE policy that CE requirements (i.e. post-test, if applicable for the specific CE activity, and evaluation) be completed within 30 days of the live activity date to ensure an on-time submission to your CPE Monitor account.

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About ISMP

The Institute for Safe Medication Practices (ISMP), an affiliate of ECRI, is an independent, nonprofit organization, internationally known as an educational resource for the prevention of medication errors. With more than thirty-five years of experience, the Institute provides independent, objective, multidisciplinary, expert review of errors reported through the ISMP Medication Errors Reporting Program (MERP) and the FDA MedWatch Program. ISMP shares all error reports and prevention strategies with the FDA. Working with practitioners, healthcare institutions, regulatory and accrediting agencies, professional organizations, the pharmaceutical industry, and many others, ISMP provides timely and accurate medication safety information to the healthcare community and encourages safe use of medications. ISMP has an interdisciplinary staff, which includes pharmacists, nurses, a medical director, and other support personnel who assist in ongoing safety efforts.

About ProCE

ProCE, LLC is a leading ACPE-accredited provider and full-service medical education company that integrates the expertise of its staff to bring a depth of experience in pharmacotherapeutics, patient care, public health, medical writing, multimedia design and event management. The team has extensive experience developing and producing educational activities in partnership with professional pharmacy organizations, including the National Association of Specialty Pharmacy, the American Society of Health-System Pharmacists, the Academy of Managed Care Pharmacy, and the Society of Infectious Diseases Pharmacists. ProCE also has a longstanding history of partnering with respected healthcare organizations, including VA hospitals, community health systems, Ascension Health, colleges of pharmacy, the Institute for Safe Medication Practices (ISMP), and pharmacy benefits managers.

ProCE has extensive experience reaching the clinical and specialty pharmacist audience, delivering more than 50 symposia at the American Society of Health-System Pharmacists (ASHP) meetings during the past 11 years. Our CE activities are consistently well-attended and demonstrate significant increases in learner knowledge and competence. In addition to deep experience developing content related to the efficacy, safety, pharmacology, economics, and appropriate management of medication therapy in clinical practice, ProCE excels in addressing the unique educational and professional development needs of the pharmacy audience as well as those of the interprofessional, collaborative care team. ProCE is the ACPE-accredited partner for important interprofessional events, such as the Infectious Diseases Society of America (IDSA) IDWeek, the Intalere Elevate Conference, the Pharmacy Quality Alliance (PQA) Annual Meeting, and many others.