



## **Catholic Health System's Operating Room Drug Scanning Rates and Its Impact on Quality and Compliance: BD Codonics with Epic Integration**

### **Situation:**

Harmful medication errors are a significant public health problem, causing at least 1 death every day and injuring 1.3 million people annually. In the perioperative setting, medication errors occur frequently in all phases of perioperative care and are a common cause of morbidity and mortality.<sup>3</sup> The frequency of reporting medical errors in the perioperative setting varies widely depending on detection and measurement strategies used by health systems. A study in one of the few large hospitals that uses barcode scanning and audio/visual feedback to verify the drug prior to administration in the operating room (OR) found as many as 1 error in every 20 medication administrations. More than one-third of the errors led to patient harm, and the remaining two-thirds had the potential to cause harm.<sup>4</sup> Sisters of Charity Hospital and Mount St. Mary's Hospital are enrolled in the federal 340B drug discount program. The 340B program provides significant savings and revenue to these hospitals. The hospitals' 340B program is growing at a rapid rate and requires continuous audit compliance of this very complex program. This continuous internal auditing has uncovered various documentation and charging inconsistencies stemming from the lack of barcode scanning across the health system within the OR's. Since 2014, the 340B program has generated over \$15M in pharmaceutical savings and over \$21M in contract pharmacy net profit for Catholic Health System (CHS). Currently the 340B Program is losing an estimated \$74,400 annually due to the lack of barcode scanning within the OR's at Sisters of Charity (SOC), Sisters of Charity – St Joseph's Campus (SJC), and Mount St Mary's Hospital (MSM). Concurrently, there is also a compliance risk of patient electronic medical record (EMR) documentation reflecting inaccurate National Drug Codes (NDC) for drug products administered to patients within the OR across CHS. In some instances, upon recall of a specific NDC by a drug manufacturer CHS does have accurate EMR documentation to reflect the appropriate administration of drug products administered to patients within the OR.

### **Background:**

Overall, medication errors are estimated to occur in at least 1 in every 133 doses administered during anesthesia, alone.<sup>5,6</sup> Given 51.4 million inpatient and 53.3 million outpatient surgical procedures in the US per year, at least 787,218 perioperative medication errors are estimated to occur annually. These errors can cost healthcare organizations up to \$5.6 million every year.<sup>7,8</sup> The Institute for Safe Medication Practices (ISMP) recently put forth the following guideline to reduce medication errors:

#### ***KEY ELEMENT IV: DRUG LABELING, PACKAGING, AND NOMENCLATURE***

*Readable labels that clearly identify drugs are on all drug containers in the perioperative setting, and drugs remain labeled up to the point of actual drug administration.*

#### *Statements*

*4.3 Eliminate the use of handwritten labels in perioperative/procedural areas by 2025.*

*Exception: This excludes medication labels used on the STERILE FIELD. Use sterile, pre-printed medication labels on the STERILE FIELD, whenever possible.*



4.4 Include a machine-readable code (e.g., barcode, radiofrequency identification [RFID]) on all syringe and infusion labels, including those that are PRACTITIONER-PREPARED, by 2025.

*Exception: This excludes medication labels used on the STERILE FIELD. Use sterile, pre-printed medication labels on the STERILE FIELD, whenever possible.*

4.5 Label PRACTITIONER-PREPARED syringes of medications with, at a minimum, the full name, concentration/ dose of the drug, name or initials of the preparing practitioner, as well as an expiration date (when not used in 24 hours) and time (if expiration occurs in less than 24 hours). Application of an anesthesia color coded drug class label alone is not sufficient.

*Exception: When allowed by an organizational policy or procedure, syringe labeling is not required if it is prepared immediately before drug administration, never leaves the hand of the preparer before administration, and the entire dose in the syringe is immediately administered, or the remaining volume is immediately wasted or discarded before the syringe leaves the preparer’s hand. A beyond-use date and time are not necessary for short procedures, as defined by the facility. <sup>1</sup>*

The 340B Drug Pricing Program (“340B Program”), created under Section 602 of the Veterans Care Act of 1992, and codified under Section 340B of the Public Health Services Act (“PHSA”) at 42 U.S.C. § 256b, protects specified clinics and hospitals (“covered entities”) from drug price increases and provides access to drug price reductions or discounts. Participating covered entities are subject to scrutiny under the program, including audit, by manufacturers, government officials, and the Health Resources and Services Administration Office of Pharmacy Affairs (HRSA/OPA), the governing body that oversees the 340B Program to ensure compliance with all applicable rules of the 340B Program including accurate administered drug documentation within the EMR.

**Assessment:**

Perioperative and procedural locations have some of the most unique medication-related challenges within the environment of healthcare. The BD Codonics Safe Label Making System and the Codonics SLS Wave System help to simplify complex medication administration processes by streamlining clinical workflows and automating the documentation of administered medications within the EMR. Applying labels created by the BD Codonics Safe Label Making System provides visual and audible safety checks to help reduce human error as well as helping to comply with The Joint Commission (TJC) and American Society of Anesthesiologists guidelines. Medication labels created by the BD Codonics Safe Label Making System include a barcode that enables integration with the EMR using the Codonics SLS Wave System. In the fast paced environment of the OR the Codonics SLS Wave System provides automatic electronic documentation of medication, concentration, and time stamp at administration that reduces “clicks” while helping to improve charge capture, 340B compliance, and maximize OR revenue.

**Safe Label System may help reduce the three most common medication errors made in the OR:**

Common error	Codonics SLS Solution
Vial/ampoule swaps	Scans the drug container and asks for confirmation before printing the label
Mislabeled/illegible labeling	Provides TJC-compliant full-color labels based upon a site-specific pharmacy-developed formulary

Syringe swaps

Enables labeled syringe to be scanned to identify its content prior to administration

**Recommendation:**

Implementation of the BD Codonics Safe Label Making System and the Codonics SLS Wave System helps to simplify complex medication administration processes by streamlining clinical workflows and automating the documentation of administered medications within the EMR across the Catholic Health System. The estimated cost of the implementation of the BD Codonics Safe Label Making System and the Codonics SLS Wave System is approximately \$1.574M over 72 months across the 5 campuses of CHS. The 340B savings due to current lost 340B accumulations at SOC, SJC, and MSM is estimated to be \$452K over the same 72 months. The combination of BD Pyxis™ Anesthesia Station ES, Codonics Safe Label System (SLS) 550i and Codonics SLS-WAVE will help simplify complex OR medication preparation and administration processes as well as help to improve medication safety and Joint Commission labeling requirements wherever medications are prepared by providing electronic medication safety checks.<sup>2</sup>

## Reference:

1. Institute for Safe Medication Practices (ISMP.) *ISMP Guidelines for Safe Medication Use in Perioperative and Procedural Settings*. ISMP; 2022.
2. Codonics Safe Label System 550i and Codonics SLS-Wave are distributed by: CareFusion 303, Inc. 10020 Pacific Mesa Blvd. San Diego, CA 92121 United States; 2022
3. World Health Organization. *WHO launches global effort to halve medication-related errors in 5 years*. Available at: [www.ismp.org/ext/279](http://www.ismp.org/ext/279). Published 2017. Accessed July 30, 2018.
4. 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.
5. Gariel C, Cogniat B, Desgranges FP, Chassard D, Bouvet L. *Incidence, characteristics, and predictive factors for medication errors in pediatric anesthesia: a prospective incident monitoring study*. *Br J Anaesth*. 2018;120(3):563-70.
6. Webster CS, Merry AF, Larsson L, McGrath KA, Weller J. *The frequency and nature of drug administration error during anesthesia*. *Anaesth Intensive Care*. 2001;29 (5):494-500.
7. Pan J, Mays R, Gill S, et al. *Published costs of medication errors leading to preventable adverse drug events in US hospitals*. *Value in Health*. 2015;18(3):A83.
8. National Quality Forum. *NQF-Endorsed Measures for Surgical Procedures*. Washington, DC: National Quality Forum; 2015.