

Studies show Codonics Safe Label System® is proven to increase patient safety



# Achieve and Maintain Medication Safety Excellence

The operating room (OR) is a place where patients undergo complex and critical care, under the vigilant eyes of talented doctors and nurses who are saving lives and curing disease. Despite vigilance and training, preventable drug administration errors continue to occur.

Codonics Safe Label System (SLS) addresses the three most common medication errors made in the operating room.<sup>1</sup> These errors include vial and ampoule swaps, mislabeling and illegible labeling, and syringe swaps. SLS ensures medication safety and labeling compliance anywhere medications are prepared. Every medication labeled by SLS contains unique information for both visual and 2D barcode-enabled BPOC (barcode point-of-care) confirmation of the prepared medication. This label allows for an additional visual and audible confirmation of the drug, concentration and beyond use date (BUD) pre-administration verification once a drug is prepared and labeled at the SLS. The label also integrates with AIMS (Anesthesia Information Management Systems), other clinical information systems (CIS) and electronic health records (EHR). SLS users include nurses, CRNAs, anesthesiologists, physicians and pharmacists involved in the preparation of medications.

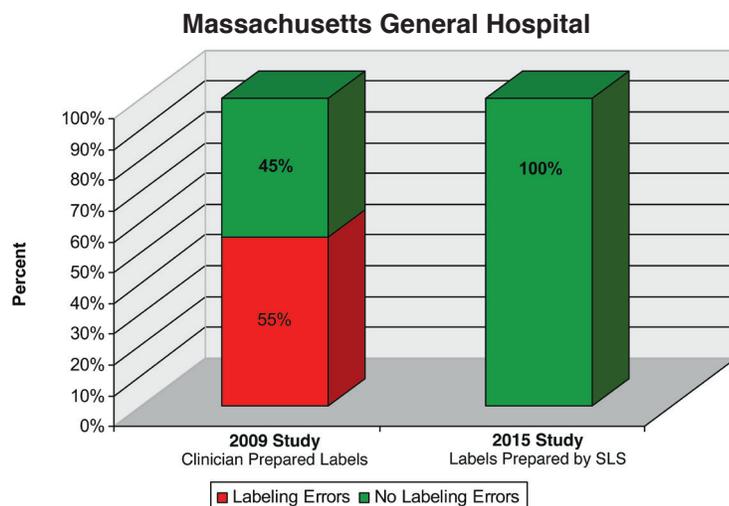
The Institute of Safe Medication Practices (ISMP) has identified many causes of medication errors, including incorrect dosing, accidental substitutions, and several other human errors, such as poor handwriting. Manual syringe labeling is often incomplete, incorrect or illegible, resulting in poor compliance with the Joint Commission (TJC) requirements and American Society of Anesthesiologists (ASA) guidelines, and creates a significant safety risk to patients.

## Studies show SLS is proven to improve medication safety and labeling compliance

In 2013, anesthesiologists at Massachusetts General Hospital (MGH) set out to assess the rates of perioperative medication errors and adverse drug events.<sup>2</sup> The study was published in the November 2015 journal of *Anesthesiology*. In 2009, MGH conducted a similar study that looked at errors associated with clinician-prepared, manually labeled syringes. That study was presented at the 2009 American Society of Anesthesiology Meeting. Today, MGH uses Safe Label System as a standard of care in all ORs; however, in 2009, barcode labeling technology was not yet in place. The 2009 study found 55% of the syringes manually prepared by MGH clinicians contained a labeling error while *zero syringes prepared using SLS contained errors* in the study published in 2015.<sup>3-4</sup>

**55% to ZERO**

When clinicians prepared syringes manually in the OR, 55% contained a labeling error. With SLS in the OR, there were zero labeling errors and 100% compliance.



**SLS is an award-winning, FDA-cleared medical device, proven to:**

- Help eliminate medication errors
- Improve patient safety
- Ensure consistency
- Provide 100% compliance every time a medication is prepared

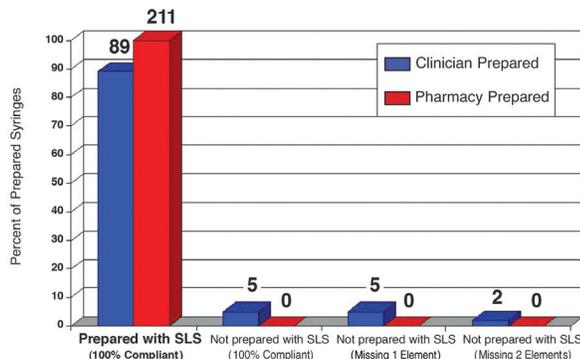


In a quality assurance audit conducted by the University of Washington in 2014, providers set out to determine the level of syringe labeling compliance among its anesthesia providers.<sup>5</sup> The site randomly selected two cardiothoracic ORs and an OR satellite pharmacy over a five-week period for the pre-installation audit and over seven weeks for the post-installation audit, and both were conducted without the knowledge of the anesthesia providers. After SLS was introduced, they found that all of the syringe labels prepared by SLS systems, whether by the anesthesia provider or satellite pharmacy, were compliant. The study, published in the 2015 journal of *Anesthesia & Analgesia*, confirmed and concluded that SLS significantly improves medication labeling compliance which can increase patient safety.

**100%**  
Both studies found zero labeling errors when using SLS.

**SLS has been used in more than 6 million drug preps, preventing over 45,000 medication errors, hundreds that would have resulted in death or serious injury.<sup>6</sup>**

Post SLS installation compliance.<sup>5</sup>  
Percent of prepared syringes in each group displayed by compliance and the number of label elements missing



University of Washington

Today a standard of care in the world's leading hospitals, SLS scans the FDA-mandated manufacturer's vial/ampoule barcode to create a medication label that complies with the Joint Commission (TJC) requirements. SLS combines the FDA's "source of truth" with a hospital's rules for use and best practices in a drug database that is accessed on-demand every time a drug is scanned. Labels include the drug name, concentration, diluent and dilution, date and time of preparation and expiration, preparer's initials and any warnings about the drug. The system also provides safety features including audio and visual feedback and clinical alerts for recalled and expired vials.

The results of these studies showing the real-world impact of SLS establish that SLS is a "leapfrog safety innovation," the benefit of which can be extended to every location where critical mediations are being prepared by front line caregivers. SLS is a tool that is helping clinicians achieve "excellence every day."

*"During a routine case, I needed Zofran. It wasn't until I scanned the vial on Safe Label System that I realized I had Hydromorphone – a narcotic – which had been incorrectly placed in the anesthesia cart. Had it not been for Safe Label System's visual and audible safety checks alerting me, my peds patient may have never woke up."*

---Anesthesia Resident



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2. Nanji KC, Patel A, Shaikh S, et al. Evaluation of Perioperative Medication Errors and Adverse Drug Events. Anesthesiology 2015.

3. Vernest K, Nanji KC, Driscoll WD, et al. "Smart Labels": Improving labeling compliance and patient safety in the operating room. American Society of Anesthesiologists Meeting 2009; Abstract A609.

4. Nanji KC, Vernest K, Sims N, et al. "Smart Labels": Bar Code-Assisted Medication Labeling To Improve Efficiency and Patient Safety. American Society of Anesthesiologists Annual Meeting 2009. Accessed 2009, Abstract A612.

5. Jelacic, Srdjan MD; Bowdle, Andrew MD, et al. A System for Anesthesia Drug Administration Using Barcode Technology: The Codonics Safe Label System and Smart Anesthesia Manager™ Anesthesia & Analgesia 2015.

6. Based on Merry AF, Peck DJ. Anesthetists, errors in drug administration and the law. N Z Med J. 1995; 24:185-187

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