

# Getting to Zero Adverse Drug Events with SafeDose®

Why settling for anything less is unacceptable.

**No one would ever fly an airline if one out of every 14 flights crashed. A seven percent failure record is simply unthinkable. Fortunately, the airline industry has engineered errors out of their systems to the point where last year there were just 2.1 airplane accidents for every one million departures<sup>1</sup>.**

**Yet in healthcare, where medication administration still relies on error-prone human processes rather than automated solutions, seven percent of children who need care in an emergency – one out of every 14 – will receive a harmful or fatal medication error. Medical errors are the third leading cause of death in the US.**

Why is this at all acceptable in medicine? Sadly, the real answer is that it is hard to be perfect. But with patients' lives at stake, it's even harder not to be.

Adverse Drug Events (ADE's) continue to be the leading type of non-surgical adverse event occurring in hospitals in the U.S. An estimated 1.3 million people are injured by medication errors annually according to the Food and Drug Administration.<sup>2</sup> According to the Office of Disease Prevention and Health Promotion, ADEs affect about 2 million hospital stays each year and prolong hospital visits an average of 3.2 days.<sup>3</sup>

These chilling statistics represent only ADEs which were actually reported. Unreported and "near-miss" ADEs are another cause for concern. Many organizations have long had a culture of non-reporting and covering-up of near misses.

ADEs are damaging to hospitals both from a patient care and cost perspective. Although many initiatives are underway to reduce ADEs, any goal less than getting to zero ADEs must be unacceptable.

## ***Challenges of drug administration***

Safe medication administration is one of the greatest challenges in clinical medicine. Getting the dose, concentration, volume, and dilution correct 100 percent of the time for every drug, weight, and indication is daunting.

The problem is most severe in acute and emergency care settings where treating children and adults has become increasingly complex. During emergencies, half of all medication administrations are incorrect with 14 percent of those leading to harmful or fatal results.<sup>4</sup>

Despite massive investments in computerized health record systems, hospitals still rely on manual processes and procedures to safeguard drug safety in emergencies. But these labor intensive, time consuming methodical checks rely on human processes that too often fall apart under duress.

## **Getting to Zero with SafeDose®**

Getting to zero ADEs may seem like an impossible task, but it doesn't have to be. The key is shifting from unreliable human processes to consistent engineered solutions. SafeDose® is a web-based and mobile enabled clinical support application that ensures providers consistently administer medications rapidly and accurately. Like the Broselow Tape before it, SafeDose® uses simple visual cues that standardize and simplify the complex process of drug administration to dramatically improve patient safety.

SafeDose® was designed to safely manage chaotic, uncontrolled situations by eliminating the need to manually execute complex calculations to determine safe medication

<sup>1</sup> Safety Report, International Civil Aviation Organization (ICAO), 2017 Edition

<sup>2</sup> Medication Errors More Than Double, by Kim Hayes, AARP Newsletter, July 24, 2017

<sup>3</sup> Overview, Adverse Drug Events, Office of Disease Prevention, Health.gov website.

<sup>4</sup> Medication errors during medical emergencies in a large, tertiary care, academic medical center by R. Gokhman, AL Seybert, P. Phrampus, J, Darby, S.L. Kane-Gil, NCBI, Pub Med.gov, April, 2012.

dosages. By providing quick reference and barcode scanning using a desktop, smartphone, or tablet, clinicians can immediately determine the proper medication doses and deliver them promptly and accurately.

### Taking the math out of medicine

Acute drug administration still involves memory, manual math calculations, and encyclopedic medical references that are simply not practical during medical emergencies. According to studies, under normal circumstances the average human math error rate is three percent. That jumps to 25 percent in stressful situations like those found in the average ED.

Even the best clinicians can't be 100 percent accurate 100 percent of the time when making the required calculations under extreme duress. SafeDose® eliminates that issue and saves time in the process, allowing nurses to focus on the other critical elements of care.

### Versatile technology offers multiple capabilities

SafeDose® eliminates the significant risks caused by the gap between drug ordering through CPOE and final barcode verification prior to administration where nearly 40 percent of errors occur. The application presents the correct dose in both mg and ml by exact weight and indication. It provides dilution and delivery instructions, adverse reactions, Y-site compatibilities and appropriate flow charts.

#### SafeDose®:

- Scans vials for clinical knowledge
- Exports a time-stamped log to the EHR
- Displays clinical/medication information at a glance
- Provides a secondary check

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<sup>5</sup> Medication Preparation in Pediatric Emergencies: Comparison of a Web-Based, Standard-Dose, Bar Code-Enabled System and a Traditional Approach by Heather N. Damhoff, PharmD, Robert J. Kuhn, PharmD, and Stephanie N. Baker-Justice, PharmD, NCBI, July-September 2014

### SafeDose® is a proven solution

SafeDose® has proven to eliminate errors and extra steps in medication preparation and administration in real-world settings.

A recent study at the University of Kentucky School of Pharmacy concluded that using SafeDose® with just ten minutes of training:

- Increased the accuracy of medication doses prepared during pediatric code simulations by 24 percent while eliminating clinically significant errors
- Reduced average medication preparation time by eight minutes per event
- Enabled nurses with less pediatric experience to prepare medications as quickly as those with more experience
- Improved the accuracy of nurses mixing medications with pharmacy consultation

### Based on a trusted history of innovation in safety

As an emergency room doctor in the 1980's, Dr. Broselow invented the Broselow Tape, a simple, but effective color-coded tool that determines body weight from body length and provides proper dosing and airway information for children. Dr. Robert Luten has performed pioneering work in the field of emergency medicine helping to create the specialty of pediatric emergency medicine in 1993.

Drs. Broselow and Luten spent nearly 10 years developing the underlying standards and content of SafeDose®. They worked with multiple committees including groups of esteemed pharmacists and doctors to refine the product. Launched in 2010, SafeDose® is now licensed to over 300 hospitals across the United States.

As a healthcare leader, you can't afford to settle for anything less than zero ADEs both from a patient care and cost standpoint. Striving to reach perfection will dramatically reduce the incidents of ADE. Start your quest with SafeDose, the powerful tool that can help you get to zero.

### About SafeDose

SafeDose is dedicated to developing an international standard that ensures simple, safe, and effective acute drug administration. SafeDose® products and services are used by hundreds of thousands of clinicians daily furthering the company's mission to provide needed critical information to those administering acute care and to help them improve treatment, save lives, and simplify their jobs. For more information, visit [www.safedoseinc.com](http://www.safedoseinc.com).