

Exemplary Implementation and Utilization of Smart Pump Technology

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Background

Robert Wood Johnson University Hospital (RWJUH) is a 965 bed elite academic medical center in New Jersey, serving as principal hospital for Rutgers University and nationally recognized for their centers of excellence:

- Bristol-Myers Squibb Children's Hospital
- Cancer Hospital of Rutgers Cancer
- Comprehensive Stroke Center
- Level 1 Trauma Center
- U.S. News & World Report rated Best Hospitals in America 6x in several specialties
- Leapfrog Group rated top 50 U.S. Hospitals
- Harvard rated top 10 Hospital for Clinical Quality
- 4x recipient Magnet® Award for Nursing Excellence

Objectives

RWJUH sought to achieve a successful implementation and utilization of smart pump technology by:

- Utilizing the Lean process for smart pump implementation at an academic medical center.
- Identifying benefits of remote drug library and reporting software with implications for safety and monitoring of nursing practice.

Methodology

Lean Process & Simulation

RWJUH utilized Lean principles throughout the selection and implementation process, which maximized staff empowerment and enabled us to complete the process in record time. Simulation was used for product evaluation to optimize experiential learning and remove patient risk.

We chose the B. Braun Outlook® 400ES with DoseTrac® reporting software due to:

- Ease of use
- Real-time remote surveillance and reporting software
- Wireless drug library upload
- Weight
- Single channels with daisy chain design
- Ease with which staff was able to navigate and utilize during simulation training

Technology Implementation

We partnered with our vendor to ensure a successful transition to smart pump technology. Keys to success were the use of Lean facilitators, staff nurse super users, classroom training, drug library validation workshop and the ability to track infusions in real-time immediately upon go-live. Highlights include:

- Drug library standardization and development took only 9 weeks
- Trained 1391 nurses in 5 days
- 1327 pumps implemented in just 4 hours
- After implementation, few concerns were raised by staff during our unit based practice councils.

Results

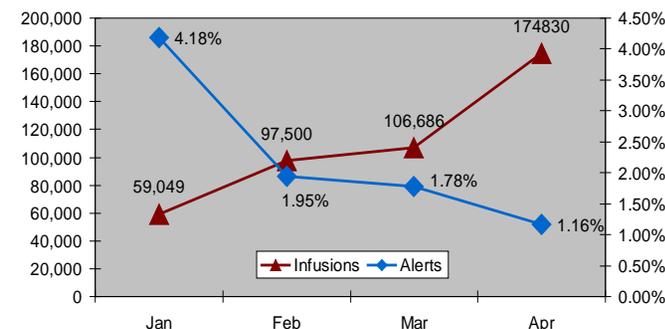
Our vendor provided an in-depth analysis of our infusion practices, identifying opportunities to reduce alerts, improve safety and reinforce best practices. We found:

- 100% use of the drug library in ICU
- Only 512 dose corrections across 262,943 infusions, representing a very low 0.19% error rate
- Steady decrease in dosing alerts - down to only 1.16%

Continual Decrease in Dosing Alerts

Month	Infusions	Alerts	%
Jan	59,049	2467	4.18%
Feb	97,500	1899	1.95%
Mar	106,686	1897	1.78%
Apr	174,830	2027	1.16%

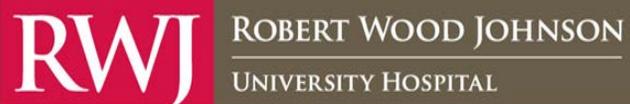
% Alerts Decrease While Infusions Increase



Conclusion

We achieved exemplary implementation and utilization of smart pump technology through Lean principles, staff engagement, vendor partnership and remote monitoring to improve practice and patient safety.

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