Standardization to Reduce IV Medication Errors

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Introduction

- Misadventures with multiple continuous infusions in the Intensive Care Unit (ICU) account for 7.7% of nursing errors. IV drip medication errors occur twice as often in the ICU and impact 14.9-79% of patients. (Kane-Gill, 2017; Nunes, 2023)
- IV drip medication errors are under-reported for multiple reasons including fear of punitive action, reporting time, and lack of knowledge on how to report. Medication errors occur in 42.7% (497 out of 1164) of observed medication passes for ICU patients. (Kane-Gill, 2017; Schnack, 2017)
- Adverse drug events range from $16,874 per event, to $41,925 per patient. (Kane-Gill, 2017; Gill, 2017; Nunes, 2023)

Inquiry, Purpose

Problem: An assessment of hospital-wide system reported intravenous (IV) infusion line errors highlighted a lack of process standardization. Multiple nursing processes and policies require standardization to optimize patient safety.

Inquiry: In ICU nurses, does standardization of IV line and SMART Pump labeling impact medication errors? Purpose: To decrease IV drip medication errors and increase patient safety

Literature Search

Databases searched: CINHAL, PubMed, hospital regulatory agencies and infusion specialist references

Keywords: Titrations, medications AND labeling AND (medication errors or drug errors or medication administration errors or drug administration errors)

Article selection: Articles were selected by database search, regulatory requirements and standards of practice guidelines. Article titles and abstracts were scanned for relevance. Critical appraisal of remaining articles included study quality, level of evidence, content and applicability to site.

Nursing education regarding interventions is necessary for optimal outcomes.

Methods

Stakeholders

- IV Drip Medication Taskforce: a leader and staff nurse from each impacted unit (CICU, L&D, MICU, NICU, NICUCC, PICU, PCU, and SICU), IV team, pharmacy, CCE patient safety representative, EBP and policy specialist

IRB

University of Missouri IRB confirmed approval (project number 2098816) as a quality improvement project.

Setting, Participants and Time

- University of Missouri Health Care ICU and Step-Down care areas
- Nurses administering multiple continuous drip infusions
- Pre-implementation data includes one-year PSN and Quest data while post-implementation data includes one year Quest data

Interventions

Formulate a task force to develop standardized processes for IV drip medication hospital-wide including:

- IV Pole Specifications
- Policy Revision
- EMR Safety Checklist
- Labeling Requirements

Safety Checklists

Shift report and transition of care safety checks were identified by the taskforce as vital for patient safety. Current safety checks within the EMR were utilized to create an Adult IV Drip Safety Checklist and a Peds/NICU Drip Safety Checklist.

Taskforce

Phase 1: Identification of the problem
- University review
- Recommendation formulation
- Policy changes made
- Resource allocation and education preparation
- Final Director of nursing approval
- Implemented recommendations for education

Phase 2: 
- Ensure compliance
- Complete audits
- Ensure compliance

Perceived Healthcare Implications

- Standardization amongst units increases patient safety and decreases variability in patient care
- Policing standardization within units supports standardization care across the system
- Consistent labeling methods decrease nursing task burden
- Increased patient safety regarding safety check completion

References

Nunes, G.K., Antunes, L.M.S., Silva, R.N., Silva, R.C. (2024). Labelling of intravenous drug delivery devices: Adverse drug events range from $16,874 per event, to $41,925 per patient. (Kane-Gill, 2017; Gill, 2017; Nunes, 2023)