The Impact of Barcode Medication Administration Workarounds on Medication Safety

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PROBLEM
• Barcode medication administration (BCMA) is designed to ensure that the five rights of medication administration are verified during the medication administration process
• Gaps between BCMA system design and nursing workflow increase the risk for unintended medication errors
• Nurses pursue problem solving behaviors called workarounds to ensure timely medication administration

BACKGROUND & SIGNIFICANCE
• 98,000 medication error related deaths per year
• 34% of all errors occur during the medication administration phase
• BCMA was developed to intercept errors during the administration phase
• Workarounds: Interrupt the verification of the five rights of medication administration, Increase the risk of an unintended medication error occurring, Faulty systems alter nursing workflow resulting in workarounds that lead to medication errors

PURPOSE
• PICO Question: In acute care nursing, do workarounds compared to properly performed barcode medication administration impact medication safety?
• Review of the literature completed to find the best evidence for answering this question

METHODS
• Databases Searched: CINAHL, Cochrane Central Register of Controlled Trials, Cochrane Database of Systematic Reviews, MEDLINE, PsychINFO, Academic Search Premier, Biological Abstracts, Database of Abstracts of Reviews of Effects, & Health Technology Assessments (HTA)
• Inclusion Criteria: English Language, Date range: January 2004 to September 2014, Compared workarounds to properly performed barcode medication administration (BCMA), or Showed the effect of workarounds on medication safety, medication errors and/or adverse drug events
• Exclusion Criteria: Not a research study, Compared properly performed BCMA to something other than a workaround, Existing bias or conflict of interest

FINDINGS
• 5 studies found
• Total sample size(s): Observation hours: 290 Number of nurses: 331 Number of medication administration attempts: 411 Number of medication alerts: 143, 899
• Level of Evidence: AACN Levels of Evidence All studies rated Level C

WORKAROUND TYPES

WORKAROUND CAUSES

MEDICATION OVERRIDE ALERTS
• 31,772 to 61,725 medication override alerts reviewed to identify alert causes:
  • Wrong dose: 59 – 65%
  • Wrong patient: 33%
  • Late administration: 29%
  • Early administration: 4%
  • Medication omitted or not given: 6%
  • No order found: 2%

Override = bypass of a properly performed BCMA step

RECOMMENDATIONS
• Ensure working conditions in which BCMA technology will be used are carefully investigated before and after implementation
• Perform on-going education related to the proper use of BCMA technology
• Run and analyze medication override alert reports on a regularly scheduled basis

SELECTED BIBLIOGRAPHY

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