"Evidence Based Practices In Prevention Of Distraction During Medication Preparation And Medication Administration Error"

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Abstract:
Medication error has the potential to lead to harm to the patient. It is the leading cause of threatens trust in the healthcare system, induce corrective therapy, and prolong patients' hospitalization, produces extra costs and even death. This study aimed to assess medication administration error (MAE) and associated factors among nurses at Hospitals in India

Purpose
The purpose of this paper is to explore the potential role of wearing specialized attire, such as a medication jacket, to reduce distractions and interruptions during the medication preparation process in hospital settings. It aims to examine whether the implementation of medication jackets can improve medication safety, speed up medication preparation, and enhance the overall workflow by providing Nurses with visual cues that signal a focused, distraction-free task

***P** (Population): Healthcare professionals involved in medication preparation and administration (e.g., nurses, pharmacists).*
***I** (Intervention): Use of a medication vest (specialized attire) to reduce distractions.*
***C** (Comparison): Healthcare professionals not wearing the medication vest or wearing standard attire.*
***O** (Outcome): Reduction in medication errors and delays.*

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I. Background

Medication errors are a significant safety concern in Hospitals and can result in adverse patient outcomes, increased healthcare costs, and legal liabilities. Distractions and interruptions during the medication preparation and administration process are major contributing factors to these errors. Studies show that environmental factors, such as noise, movement, and colleague interactions, can lead to mistakes in medication administration.

In response, interventions aimed at minimizing distractions—like redesigning workspaces, implementing strict protocols, and introducing specialized uniforms—have been proposed to improve safety. Wearing a medication jacket, specifically designed to signal to others that the wearer is engaged in a critical task, could be a promising intervention. Such uniforms or attire serve as visual cues that may encourage colleagues to respect the wearer's focus, potentially leading to fewer interruptions, quicker medication preparation, and fewer errors. This paper seeks to explore the theoretical and practical applications of this idea in hospital settings.

II. Methods/ Evidence/ Intervention

Use of the Johns Hopkins Evidence-Based Practice (JHNEBP) Model

Using the Johns Hopkins Evidence-Based Practice (JHNEBP) Model provides a structured approach to solving the problem of distractions during medication administration. By systematically addressing the issue through a well-defined practice question, appraising the available evidence, and implementing a translation plan with careful monitoring and evaluation, healthcare providers can ensure that the use of wearable vests is both effective and sustainable in improving medication safety and nursing workflow.

Practice Question:

Can the use of wearable vests reduce distractions and improve medication safety in nurses during medication preparation and administration?

Evidence:

Synthesized the available evidence on the impact of distractions in medication administration, the potential role of wearable devices, and the specific need for distraction-reduction interventions in nursing practice.

Translation:
Implemented the wearable vest intervention, ensuring training, pilot testing, data collection, and continuous evaluation to monitor effectiveness and improve outcomes over 3months

Search Engines Used:
PubMed, CINAHL, Cochrane Library, Google Scholar

Keywords Used:
"Clinical Problem, Evidence synthesis, wearable vest, Alert system, medication errors, dose accuracy, medication safety protocols, error prevention strategies, interruptions, error rates, time efficacy"

Filters Applied:
Peer-reviewed, published in the last 10 years (2015-2025), English language, full-text availability

Number of Articles Retrieved: 56
Number of Full-Text Articles Reviewed:24
Final Number of Studies Included: 16

Level of Evidence	Number of Studies	Study Design	Overall Quality
Level I	8	Meta-Analysis of RCTs	High
Level II	4	Randomized Controlled Trial	Good
Level III	2	Quasi-Experimental Study	Good
Level IV	1	Cohort Study & Cross-Sectional Study	High & Good
Level V	1	Quality Improvement (QI) Project &Expert Opinion	Good

III. Results

**Medication error rates** dropped by nearly **97%**.
Distraction frequency decreased by over **94%**.
Time efficiency improved by **66.67%**.
Nurse satisfaction increased dramatically by **93.67%**.

These results suggest that the use of wearable vests effectively reduced distractions, improved medication administration, and enhanced nurse satisfaction in the clinical setting. The p-value < 0.02 shows the significant improvement

outcome measures	pre intervention	post intervention
Error rates wrong medication, missed doses	66	2
Distraction frequency.	186	10
Time efficiency.	15 min	5min
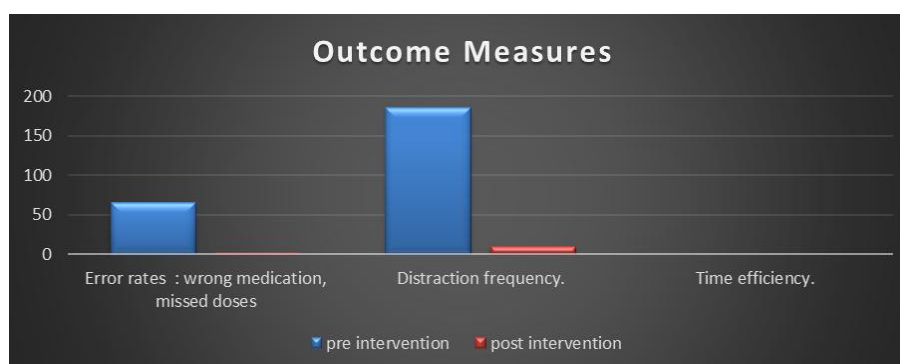
IV. Conclusion

Evidences shows that the wearable vest effectively minimized distractions, leading to fewer medication errors and, consequently, improved patient safety. This finding aligns with evidence that minimizing distractions can reduce medication-related errors in clinical settings.

V. Recommendations

The **next steps for research** on wearable vests in medication preparation should focus on **long-term outcomes**, **broader applications**, and **integration with existing healthcare systems**. By addressing these critical areas, future studies will not only confirm the **effectiveness** of the intervention but also expand its applicability, improve its **cost-effectiveness**, and enhance its potential to **revolutionize clinical practices**. Conducting these studies will help establish wearable vests as a **mainstream solution** for improving medication safety, nurse well-being, and overall healthcare quality.

Reference

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