

ABSTRACT

Background & Aim: IDC of subcutaneous insulin is a traditional time-consuming inpatient practice with minimal evidence to support its efficacy in medication error reduction.¹⁻⁹ The aim was to explore the literature associated with insulin IDC and to propose and implement a practice change if the literature supported single checking.

Method: Literature review; cross-sectional survey

Results: Evidence does not support IDC; RNs (n =237) overwhelmingly support practice change.

Linking evidence to practice: Implement practice change to single-checking insulin and examine RN attitudes post practice change.

PICO QUESTION

For adults admitted to the inpatient healthcare setting who receive subcutaneous insulin (U-100), does single checking of insulin compared to double-checking insulin reduce medication administration errors?

LITERATURE REVIEW

- Practice variability^{8,14,15}
- Exacerbation of mistimed insulin^{2,4,9}
- Judicious use; practice devaluation with overuse¹⁵
 - Overreliance leads to reduced mindfulness^{2,5,8}
 - Thoroughness/efficiency tradeoff²
 - Diffusion of individual accountability^{3,5,6}
- Workflow interruptions
 - Consequences of EHR hard-stop alerts¹²
- RN empowerment and attitudes
- Excessive time-spend in IDC; non value-added tasks & waste^{2,4,13}

FRAMEWORK

John's Hopkins Nursing Evidence-Based Practice Model

ASSESSING THE VALUE OF INDEPENDENT DOUBLE-CHECKING (IDC) OF SUBCUTANEOUS INSULIN

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PROJECT METHODOLOGY

- Extensive literature review was conducted driven by the clinical practice question.
- Identify & collaborative stakeholder relationships established (Executive Leadership, NPP, CTIS, Pharmacy, RNs) to recommend, plan, implement and evaluate a system-wide practice change (23 hospitals).
- Project deliverables developed, EHR hard-stop removal, presentations to stakeholders.
- Validated SCAMS-II scale (14 item Likert and one free text item) used to assess RNs attitudes towards the practice change (n=237; 38% return rate).
- Outcomes developed—improving or maintaining patient safety and increasing nurse satisfaction.

Plan & Development

1. Develop SBAR and Evidence Table.
2. Consult/collaborate with stakeholders (outlined process and outcomes).
3. Present to & gain Executive Leadership approval.
4. Complete CITI training & IRB (QI project).
5. Obtain permission for use SCAMS-II.
6. Place survey in REDCap.
7. Determine go-live date and communicate.

Implementation

- Implement/distribute education to all stakeholders:
 - Learning Wiki
 - Go-live date
 - Fact Sheet
- Collaborate with CTIS to remove EHR hard-stop
- Post-implementation distribute SCAMS-II

Evaluation

- Assess outcome data incrementally at 1, 3, and 6-months post-implementation.

Dissemination

- Posters & Fact Sheets throughout system
- Publication

6-month IDC Post-Implementation Quality & Safety Measures

1. This practice change saves RNs **4,167 hours monthly** (system-wide) or **50,000 hours annually**
2. Insulin timing **improved by 6.5 minutes**
What does this tell us? Single checking has allowed nurses to administer insulin in a timelier manner.
Why is this important? Insulin is time-critical, yet mistimed insulin is the most common insulin error.
2. Insulin barcode scanning overrides **decreased from 2.07% → 1.76%**
What does this tell us? Single checking has improved insulin barcode scanning compliance.
Why is this important? Barcode scanning is a strong safety action in medication administration.
3. Hypoglycemic events **decreased from 5.52% → 5.24%**
What does this tell us? Inpatient hypoglycemia can result from mistimed or mis-dosed insulin. This score indirectly indicates that single checking has not increased insulin error rates.
Why is this important? Inpatient hypoglycemia is associated with poor patient outcomes.
- 4. No increase** in insulin-related safety events.



SCAMS-II RESULTS

Attitudes Towards Single Checking

- Nurses agree that single-dose checking improves efficiency
- Nurses agree that single-dose checking improves their ability to deliver effective care
- Nurses somewhat agree that single-dose checking does not lead to mistakes

"I think there are fewer errors because insulin can be given in a timely manner and the primary RN is more careful because he knows he's the only one looking at it. Administration is less rushed which leads to (less) errors."

"Please do NOT bring the double insulin checks back. I've found that the 2nd nurse is so busy that they barely checked the dosage anyway. It is a waste of time."

CONCLUSIONS

- This evidence-based quality improvement project serves as an exemplar for challenging traditional nursing practices that are not evidence-based.
- Professionals must revisit the current evidence to reassess resource-intensive practices that do not improve patient safety.
- Planning and collaborating with multiple key stakeholders and addressing their specific educational needs prior to implementation is critical.

