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NURSE INTERVENTIONS AVERT HIGH RISK MEDICATION ERRORS

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Background

- Australia: Potentially preventable adverse medication-related incidents account 10-20% of all clinical incidents (Australian Council for Safety and Quality in Health Care, 2003)
 - UK: a five-fold increase in of reported medication errors over a decade, representing 1000 deaths a year (Guy, Persaud et al., 2003)
 - US: medication errors 8th leading cause of death (7000pa) (Kohn, Corrigan et al., 1999)
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Background

- Fiscal cost to Australian public healthcare system; \$380 million annually

(Australian Council for Safety and Quality in Health Care, 2003)

- 2005, Victorian Auditor General – ‘Managing patient safety in public hospitals’
 - Recommended development of core dataset to record near miss events

Background

- Core dataset 'Riskman' allows systematic reporting of near misses
- 2006: pharmacist interventions (near misses)
 - 300 interventions (165 near misses) over 8 weeks
 - > Yu, Nation, Dooley et al. (2006)

Definitions

Near-miss

- A mistake in prescribing, dispensing, or planned medication administration that is detected and corrected through intervention before actual medication administration

○ *[American Society of Hospital Pharmacists]*

Nurse intervention

- Action by a nurse which prevents a medication related mistake before administration

Literature review

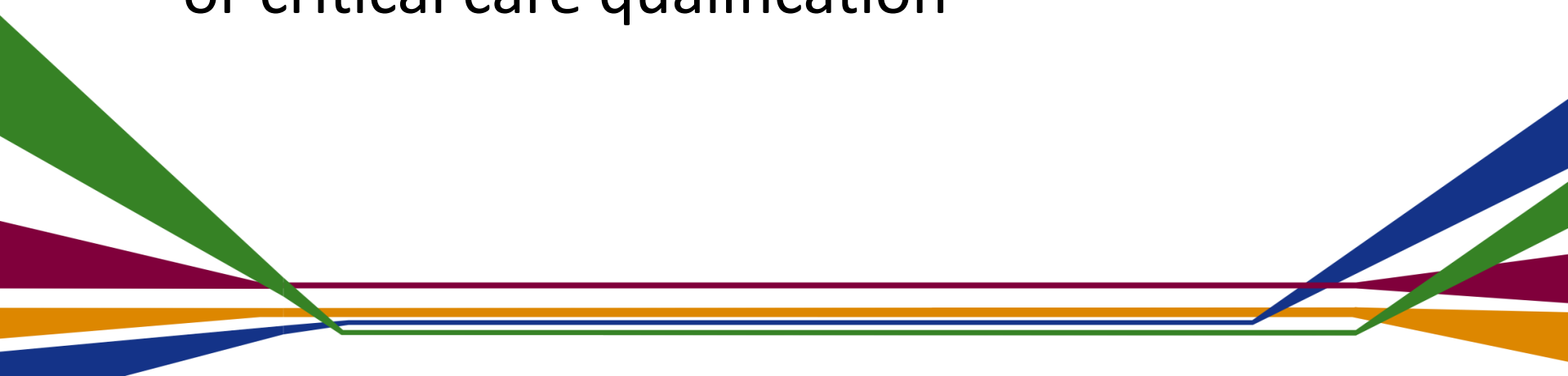
- Near misses occur more frequently than adverse events
- Near misses are under-reported
 - No harm to patient
 - Blame culture
- Nurses are in a unique position to detect errors and intervene to prevent adverse events

(Leape, Bates et al., 1995; Wakefield, Wakefield et al., 1999; Wakefield, Wakefield et al., 1999; Barach and Small, 2000; Neale and Woloshynowych, 2003; Auditor General Victoria, 2005)


Literature review

- International studies of nurse interventions
 - 50-85% of all medication errors intercepted by nurses (Leape, Bates et al., 1995; Guy, Persaud et al., 2003)
 - 119 (30%) nurses reported making at least one error
 - 127 nurses (33%) intervened to prevent at least one error
 - 80 (63%) nurses prevented one medication error
 - 47 (37%) nurses prevented between 2 and 7 errors (Balas, Scott, et al. 2004)


Aims

1. Explore the type, frequency and pattern of the nurse interventions
 2. Explore potential relationships between nurse interventions and years of experience or critical care qualification
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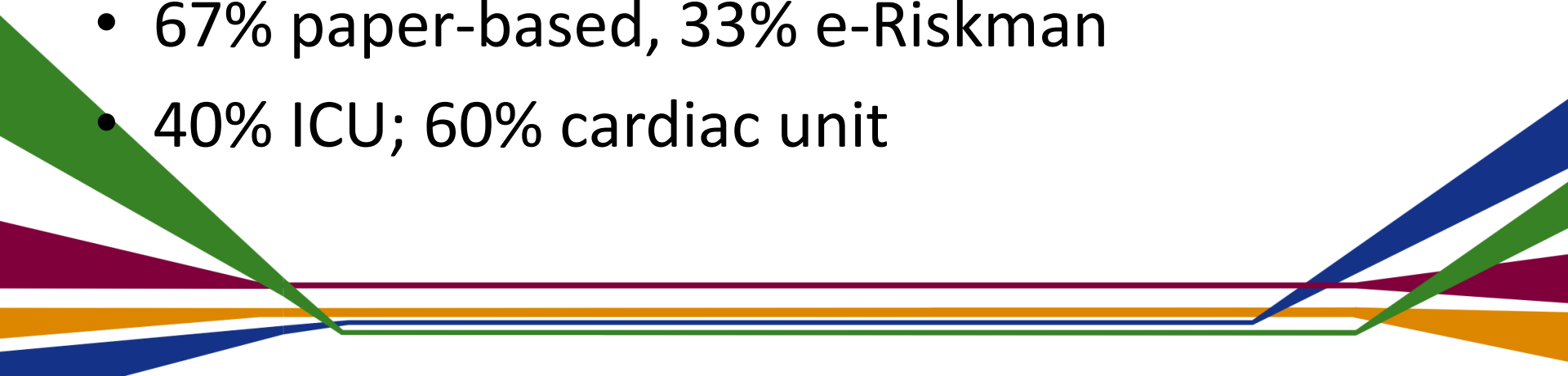
Methods

- Prospective, exploratory, descriptive design
 - Sample: 38 nurses
 - Setting: ICU and cardiac unit in tertiary referral hospital
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Methods

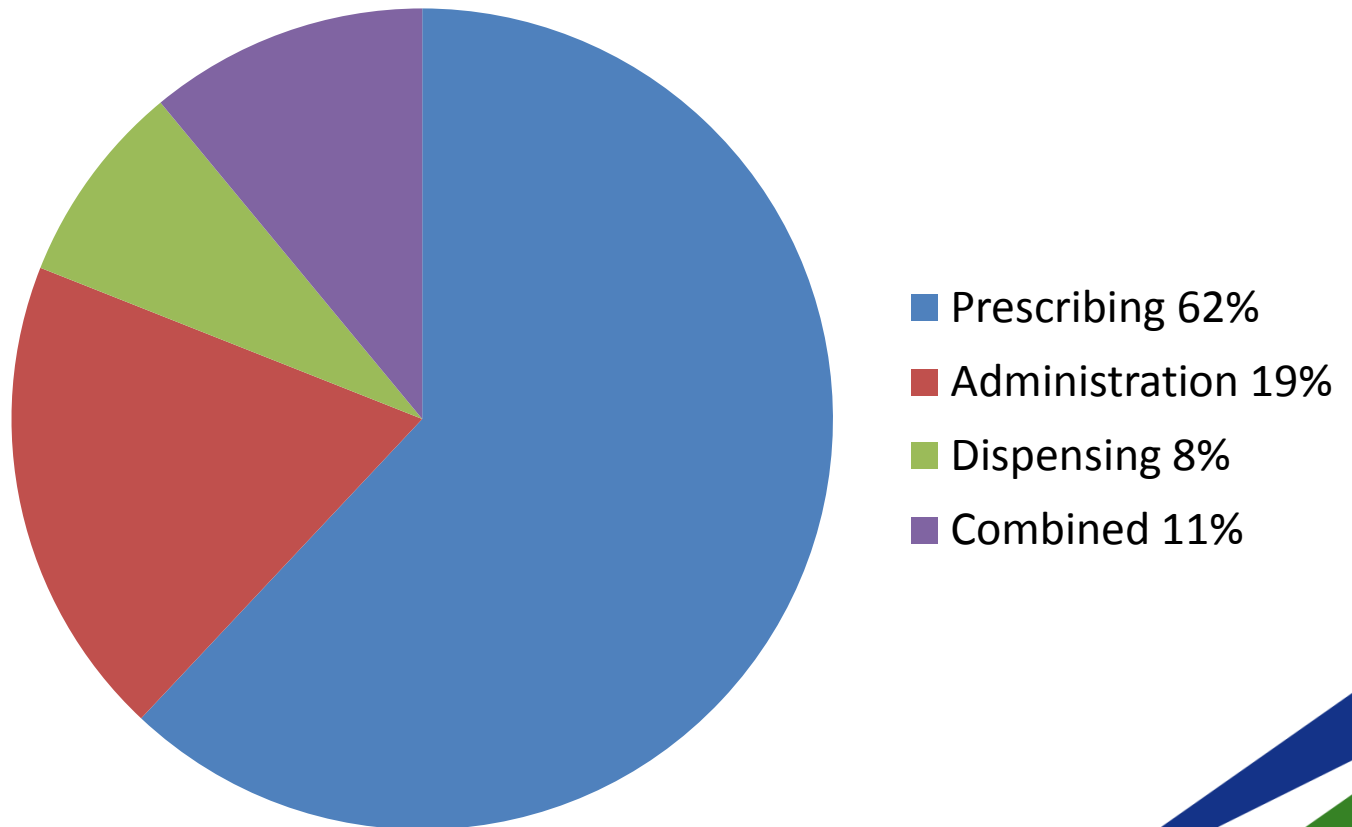
- Instruments: e-Riskman or paper-based version
 - Procedure: Information / education sessions, two week phase in followed by 8 week study
 - Ethics approval
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Results

- 140 interventions reported during 8 weeks
 - 38 RNs reported between 1 and 10 interventions each
 - 67% paper-based, 33% e-Riskman
 - 40% ICU; 60% cardiac unit
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Results

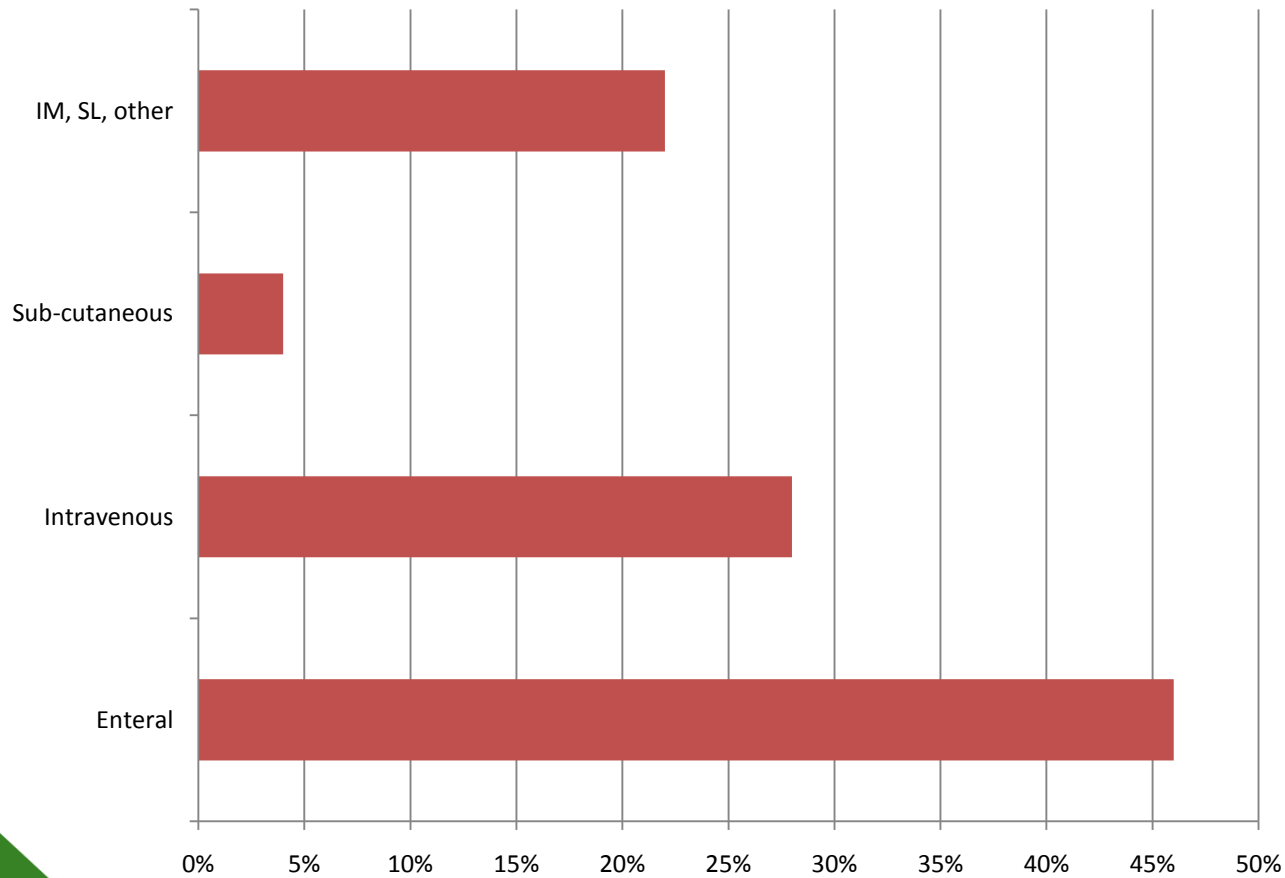
- Types of Nurse Interventions



	Prescribing	Dispensing	Administration
ADR	1 (1%)		
Wrong Drug	4 (3%)	1 (1%)	2 (2%)
Wrong Dose	13 (9%)		2 (2%)
Wrong Route	8 (6%)		
Wrong Rate			2 (2%)
Wrong Time		2 (2%)	2 (2%)
Wrong Preparation	2 (2%)		1 (1%)
Omitted Dose	13 (9%)	8 (6%)	7 (5%)
Inadequate Monitoring	1 (1%)		2 (2%)
Illegible order	33 (24%)		
Absent signature			1 (1%)
Extra Administration			1 (1%)
Multi	12 (9%)		4 (3%)

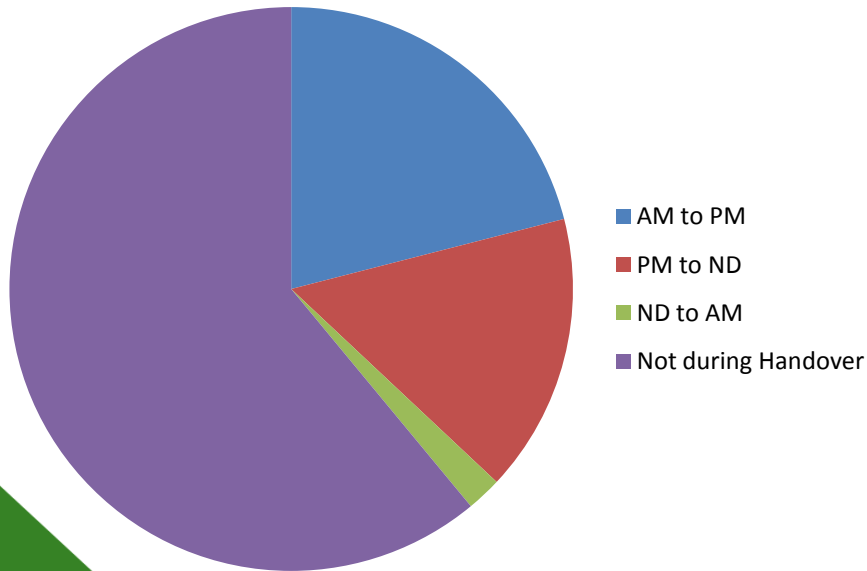
Results

- Nurse Interventions by Route

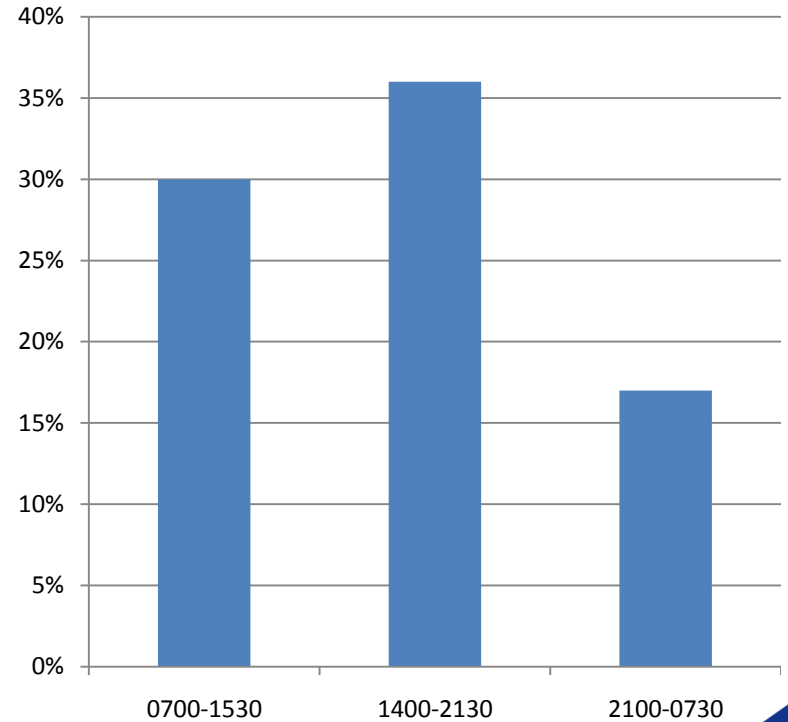


Results

Nurse Interventions by Handover



Nurse Interventions by Shift



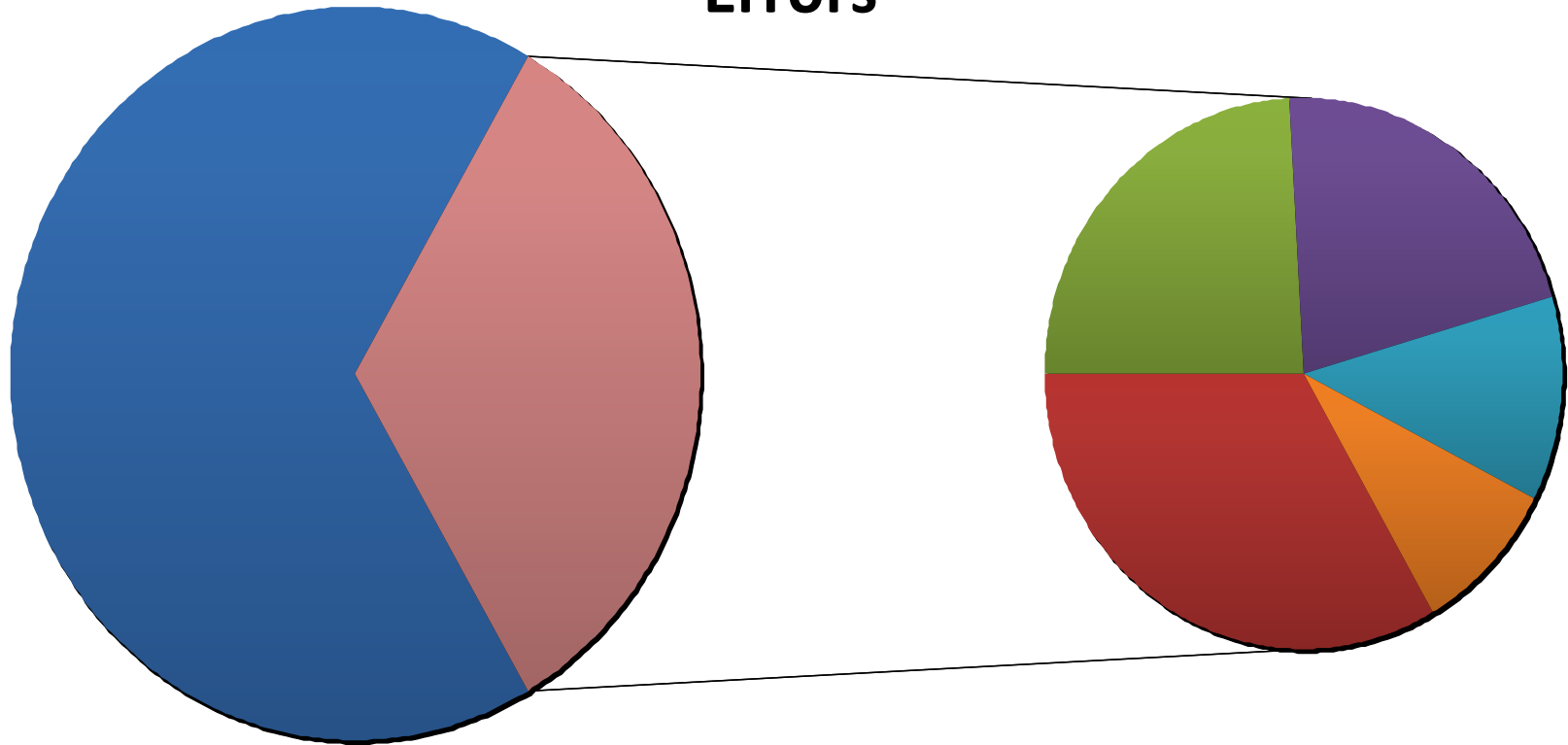
PINCH

- Potassium/**P**ressors
- Insulin
- **N**arcotics
- **C**hemotherapy
- **H**eparin/Anticoagulants

> Australian Commission on Safety and Quality in Healthcare
Medication Safety Alerts 2009



Nurse Interventions to Prevent PINCH Errors



■ Other

■ Narcotics

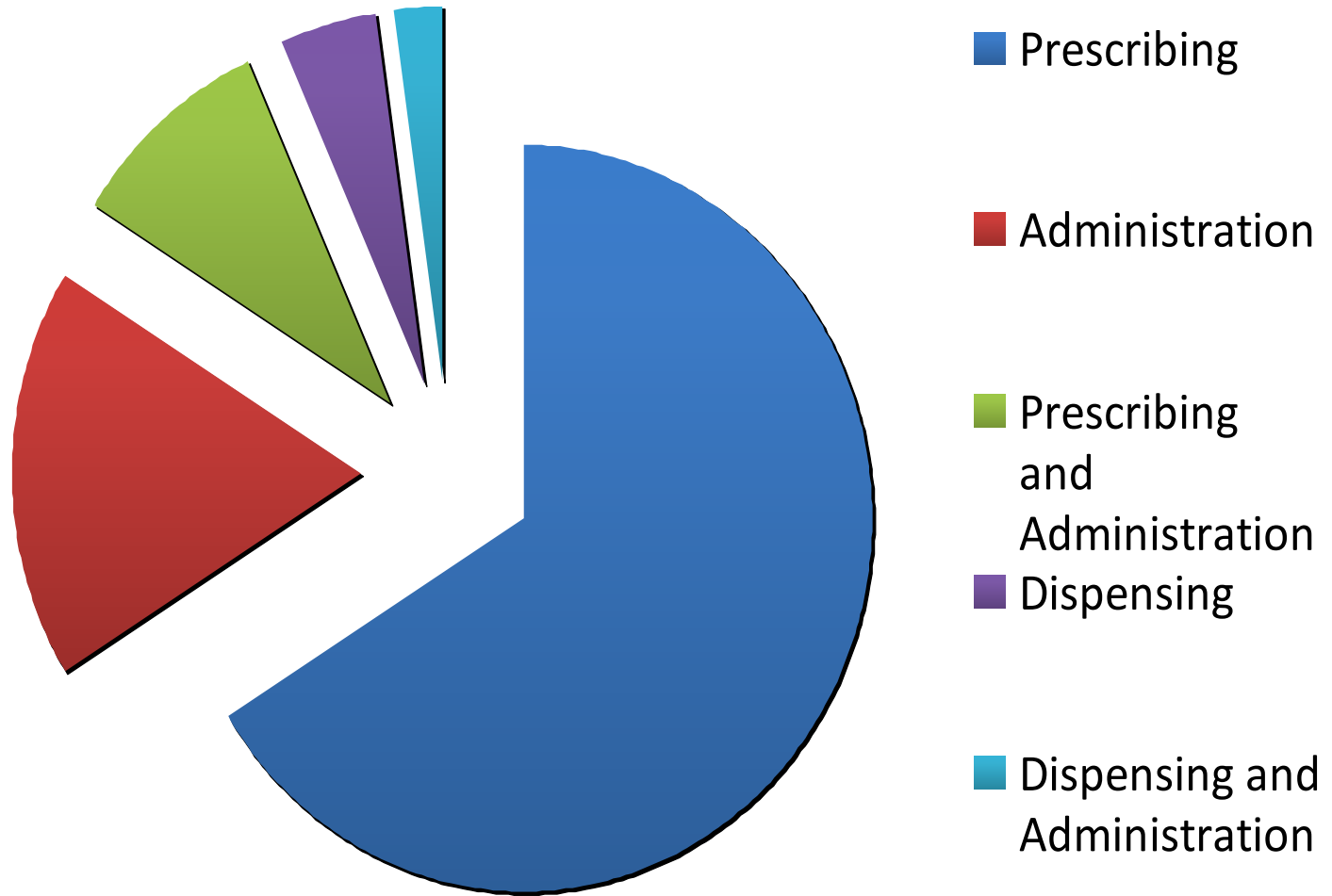
■ Anti-coagulants

■ Potassium

■ Pressors

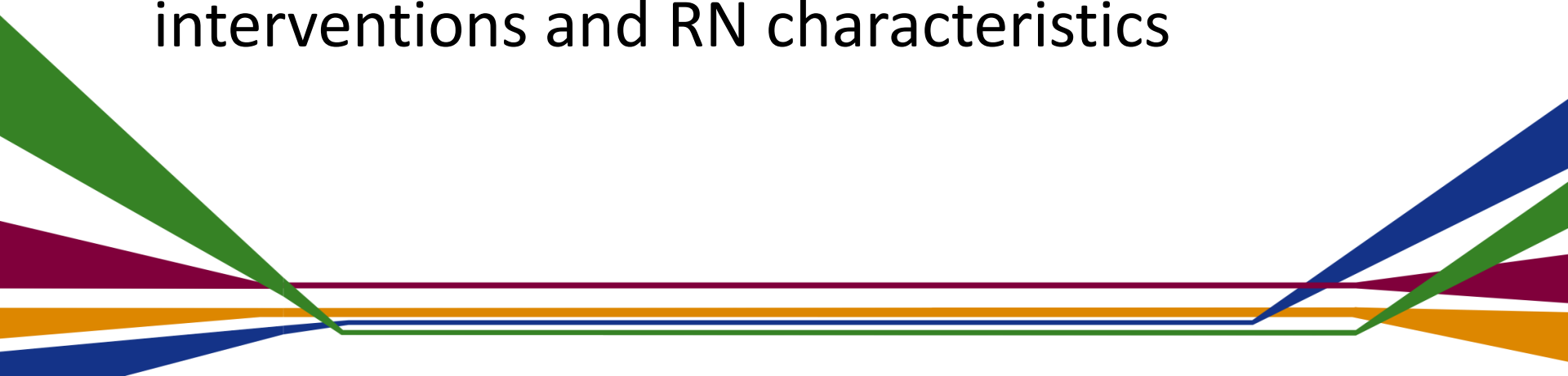
■ Insulin

Type of PINCH Medication Error

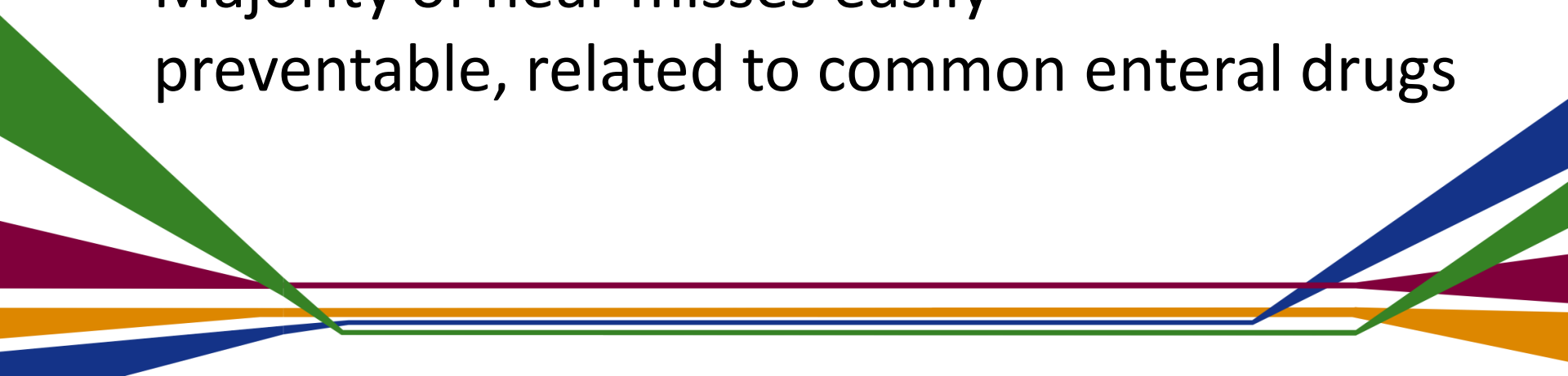


Results

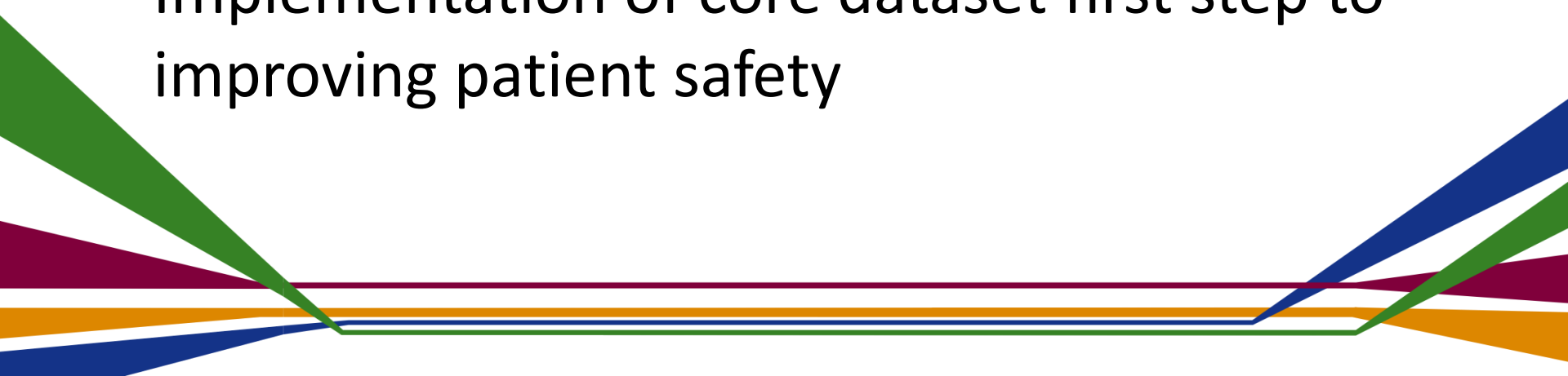
- 38 RNs
 - 31-50 years old (45%), RNs (63%)
 - critical care qualification (47%)

 - No significant relationships between nurse interventions and RN characteristics
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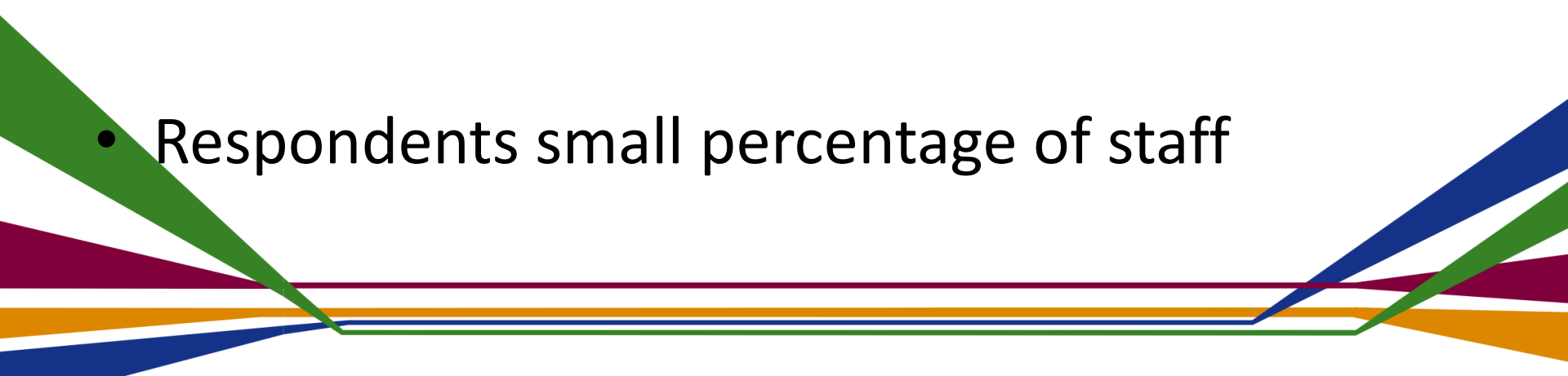
Discussion

- Clinical experience has little bearing on near miss detection
 - Majority of near misses easily preventable, related to common enteral drugs
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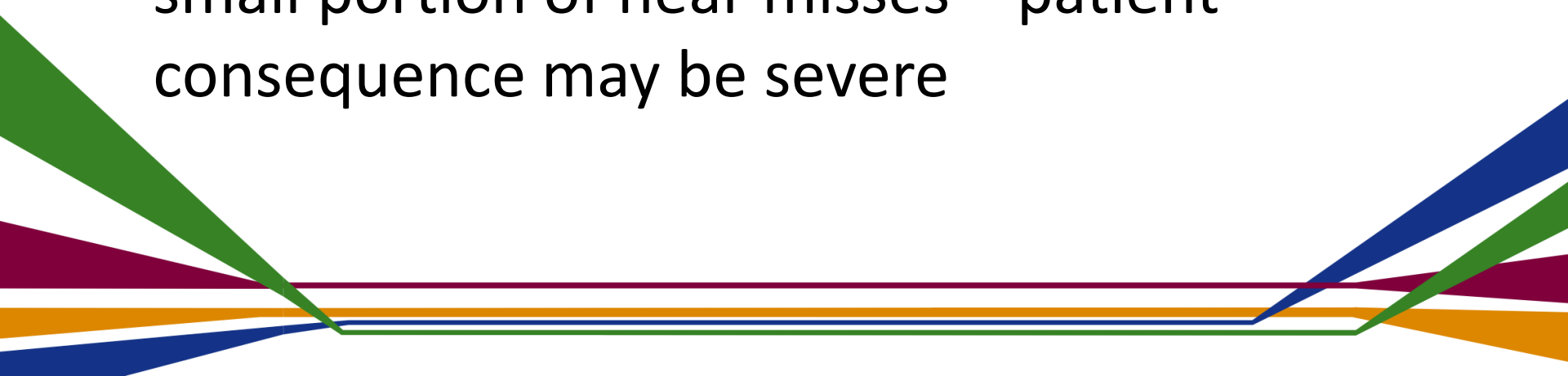
Discussion

- Educational deficit for all staff on importance of identifying and reporting near misses
 - Until full scale of problem identified, interventions cannot be expected to be effective
 - Implementation of core dataset first step to improving patient safety
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Limitations

- Self reports
 - Paper vs electronic reporting mechanisms
 - Reporting is time dependent
 - Respondents small percentage of staff
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Conclusions

- ICU and cardiac nurses prevent prescribing, dispensing and administration medication adverse events
 - Critical care/high risk drugs comprise only a small portion of near misses – patient consequence may be severe
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