EXPLORING ERROR TAXONOMY AND THE RECOVERY PROCESS FOR NURSES INVOLVED IN SERIOUS MEDICAL ERRORS

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Exploring Error Taxonomy and the Recovering Process for Nurses Involved in Serious Medical Errors

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Why medical errors and supporting clinicians following a medical error

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Agenda

- Error Taxonomy – Circumstance of Error
- Recovery Process
- Role of Quality/Risk/Patient Safety Leaders
- Role of Healthcare Leaders
- Apology Following an Error
- Nurse Leader Research – Medical Errors & Caregiver Support

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Background

- Taxonomy of Error – current classification; taxonomy of error root-cause analysis and practice responsibility (TERCAP) established 20 years ago
- The recovery process following an error –
  - Performance issues
  - Feelings of inadequacy
  - Extreme guilt and anxiety
  - Fear of making another error

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A Medical Error by Definition, is not Intentional

Definition of Harm: temporary to permanent harm, which may include any of the following adverse events: increased hospitalization, respiratory distress, allergic reaction, cardiac arrest, or permanent injury to life or limb.

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Research Aim

Primary aim: Therefore, the primary aim was to develop an updated and comprehensive taxonomy that may be used to analyze and address clinical errors. The secondary aim was to explore the emotional ramifications of clinical errors and the subsequent recovery process for those involved in these errors.

Ethical Considerations

- **Approved by: University of Utah IRB**
- **Certificate of Confidentiality, NIH**

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Recruitment

- Utah Division of Professional Licensing database seeking a convenience sample of nurses with at least three years of clinical experience.
- Advanced Practice Nurses were excluded.
- A random sample of 200 RNs was emailed each week, inviting them to participate in the study

Sample

- 36 Nurses were interviewed – 44 errors
  - “Tell me about our experience with a medical error that caused harm to a patient”
  - Additional questions, when necessary, were asked
    1) What was your immediate response
    2) How do you feel now
    3) How much involvement did you have with the patient/family after the error
    4) Is there anything else you would like to tell me

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Data

- This data provided significant details about the following:
  - The context in which errors occurred
  - The discovery of the error
  - Recognition and responsibility for errors
  - Whether errors were public or private
  - Level of harm
  - Patient notification about the error
  - Emotional responses of the nurse involved

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Demographic

- Age range: 28-61 years
- 80.6% were female
- 97.2% were white, and one participant was Hispanic
- 47% had a bachelor's degree, 11.1% had an associate's degree, and 41.7% had a graduate degree
- 60% worked in an acute care hospital
- Length of time from error: mean= 8.8 years, median= 6.5 years

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Circumstance of Error Taxonomy

- Errors from Chaos
- Errors of Incompetence
- Errors of Distraction
- Errors Unrecognized or Unknown
- Errors from External Sources

Errors from Chaos

These are errors that occurred during a frenzied, chaotic situation. Nurses felt pressured to do too much too fast. These types of errors are most likely to happen in an emergency situation involving a cardiac arrest (i.e., *code*) or during a busy shift. Nurses described the workload as a “full-moon” type of shift when changes in a patient's condition or patient assignments resulted in work overload and they were unable meet patients' needs. Typically, these errors occurred when nurses were new or less experienced, and therefore less able than experienced nurses to cope with the situation.

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Errors of Incompetence

These errors were related to a lack of knowledge and skill. Nurses were unsure of what was happening and were unprepared because of their lack of knowledge. Patients were often extremely sick, and nurse skill and knowledge were deficient for the clinical situation. The circumstances of the patient's condition, unfamiliar patient assignment, and/or environment overwhelmed the nurse. Situations were not chaotic, just unfamiliar. Nurses were asked to perform an unfamiliar procedure or administer medication for the first time without supervision. Nurses often stayed silent, afraid to appear incompetent. They were ill-prepared and not oriented to the unit or to the condition of the patient, yet felt obliged to care for the patient.

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Errors of Distraction

These errors were related to nurse complacency—they were working on ‘autopilot.’ Errors of distraction were caused by the nurse mentally not paying attention. These were experienced nurses who may have pulled the wrong medication from the automatic dispensing system, administered an intravenous (IV) medication in the wrong IV line, or routine medication being given, per protocol, to a patient with a known allergy. Nurses might also have been distracted by other events on the unit, or even personal concerns. They were not paying attention and gave medication too quickly, or even passed the physician the wrong medication during a procedure (and the physician did not confirm that this was the right medication).

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Errors Unrecognized or Unknown

These errors were multifaceted and identified by a retrospective review of an unforeseen death or permanent harm, and they were not immediately recognized. Nurses were notified after the fact. Examples of these errors were related to a foreign object being retained in the body following surgery, administration of incorrect medication, and improper assessment and supervision during a procedure. Occasionally errors were discovered when patients returned to the institution for follow-up care. Nurses were called at home or notified during their shift. They felt accused or "*scapegoated.*" They often spent time trying to recall the patient, the incident, and how they may have contributed to the error.

Errors from External Sources

These errors occurred beyond the immediate context/environment (e.g., a pharmacy drug error) and beyond the immediate control of the nurse. Errors from external sources were unforeseen in the unit; the nurse was in the wrong place at the wrong time. The errors involved a system error caused by another provider and were beyond the control of the nurse directly deemed responsible for the error. Sometimes involved other departments, such as error in the preparation and labeling of medication by the pharmacy. Nurses unwittingly administered the incorrectly prepared medications without knowledge of the error until the patient had a negative response. Nurses who carried out orders that caused harm to a patient, discovered previous and ongoing errors involving others who had failed to advocate (to the physician) for needed patient treatment while providing care.

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Impact of the Error – Losing Competency and Reestablishing Competency

Losing Competency

- Discovering the error
- Responding emotionally
- Dissecting the Error-Event
- Losing Self-Esteem

Reestablishing Competency

- Moving past the Error

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Impact of the Error

Error Circumstance / Impact of the Error	**Discovering the Error**	Losing Competency: Responding Emotionally	Losing Competency: Dissecting the Error	Losing Competency: Losing Self-Esteem	Reestablishing Competency: Moving Past the Error
Errors of Chaos	**Untenable situation**	Frozen' mortified	Supportive	Manager support feeling of safety	Slow down; set limits
Errors of Incompetence	**Unable to grasp Error has occurred**	Scared; shocked; sick; mortified or embarrassed	Support; kindness	Debrief; loss of confidence	Weighed down with guilt
Errors of Distraction	**Recognition after the fact**	Ashamed; stupid	Supported; blamed	Shatters belief of self; wants to solve issue	Hypervigilant
Errors Unrecognized or Unknown	**Surprised and/or perplexed**	Confusion; disbelief; anger; bitterness	Supported; blamed	Minimized role in error; no control	Struggled to move past error
Errors from External Sources	**Involved by happenstance**	Powerless; loss of trust; anger at others	Supported; abandoned	Frustrated by lack of investigation	Loss of trust; blamed by others

Impact of the Error

Error Circumstance / Impact of the Error		Losing Competency			Reestablishing Competency
	Discovering the Error	**Responding Emotionally**	Dissecting the Error	Losing Self-Esteem	Moving Past the Error
Errors of Chaos	Untenable situation	**Frozen' mortified**	Supportive	Manager support feeling of safety	Slow down; set limits
Errors of Incompetence	Unable to grasp Error has occurred	**Scared; shocked; sick; mortified or embarrassed**	Support; kindness	Debrief; loss of confidence	Weighed down with guilt
Errors of Distraction	Recognition after the fact	**Ashamed; stupid**	Supported; blamed	Shatters belief of self; wants to solve issue	Hypervigilant
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Impact of the Error

Error Circumstance / Impact of the Error	Losing Competency				Reestablishing Competency
	Discovering the Error	Responding Emotionally	**Dissecting the Error**	Losing Self-Esteem	Moving Past the Error
Errors of Chaos	Untenable situation	**Frozen' mortified**	**Supportive**	Manager support feeling of safety	Slow down; set limits
Errors of Incompetence	Unable to grasp Error has occurred	**Scared; shocked; sick; mortified or embarrassed**	**Support; kindness**	Debrief; loss of confidence	Weighed down with guilt
Errors of Distraction	Recognition after the fact	**Ashamed; stupid**	**Supported; blamed**	Shatters belief of self; wants to solve issue	Hypervigilant
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Errors from External Sources	Involved by happenstance	**Powerless; loss of trust; anger at others**	**Supported; abandoned**	Frustrated by lack of investigation	Loss of trust; blamed by others

Impact of the Error

Error Circumstance / Impact of the Error	Losing Competency				Reestablishing Competency
	Discovering the Error	Responding Emotionally	Dissecting the Error	**Losing Self-Esteem**	Moving Past the Error
Errors of Chaos	Untenable situation	Frozen' mortified	Supportive	**Manager support feeling of safety**	Slow down; set limits
Errors of Incompetence	Unable to grasp Error has occurred	Scared; shocked; sick; mortified or embarrassed	Support; kindness	**Debrief; loss of confidence**	Weighed down with guilt
Errors of Distraction	Recognition after the fact	Ashamed; stupid	Supported; blamed	**Shatters belief of self; wants to solve issue**	Hypervigilant
Errors Unrecognized or Unknown	Surprised and/or perplexed	Confusion; disbelief; anger; bitterness	Supported; blamed	**Minimized role in error; no control**	Struggled to move past error
Errors from External Sources	Involved by happenstance	Powerless; loss of trust; anger at others	Supported; abandoned	**Frustrated by lack of investigation**	Loss of trust; blamed by others

Impact of the Error

Error Circumstance / Impact of the Error	Losing Competency				Reestablishing Competency
	Discovering the Error	Responding Emotionally	Dissecting the Error	Losing Self-Esteem	**Moving Past the Error**
Errors of Chaos	Untenable situation	Frozen' mortified	Supportive	Manager support feeling of safety	**Move through, slow down/ set limits**
Errors of Incompetence	Unable to grasp Error has occurred	Scared; shocked; sick; mortified or embarrassed	Support; kindness	Debrief; loss of confidence	**Share benefit process with others; if concealed weighed down with guilt**
Errors of Distraction	Recognition after the fact	Ashamed; stupid	Supported; blamed	Shatters belief of self; wants to solve issue	**Hypervigilant; emotional response long lasting**
Errors Unrecognized or Unknown	Surprised and/or perplexed	Confusion; disbelief; anger; bitterness	Supported; blamed	Minimized role in error; no control	**Blindsided; struggled to move past error**
Errors from External Sources	Involved by happenstance	Powerless; loss of trust; anger at others	Supported; abandoned	Frustrated by lack of investigation	**Loss of trust; blamed others**

Promoting Personal and Professional Competence

- Institutions must provide additional training for novice nurses
- Novice nurses need to be encouraged to set limits and speak up
- Institutions must provide an environment that supports transition to practice, clinical decision-making, professional competency while reducing situations that lead to errors

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Reducing Cost to the Institution

- Nurses shared experiences of leaving the department and organization after the error or within a year, all remained employed

Policy Development for Quality/Risk/Patient Safety

- Must provide an organizational root-cause analysis, system error identification, and implementation of safety changes
- Nurse support and resources must be offered when interviewing nurses involved in errors

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Nurse Support

- Policies and procedures must support a “just culture” environment
- Must provide emotional support and guidance following an error through consistent, ongoing communication with the nurse, including periodic check-ins
- Educate managers/directors on
  - how to support staff involved in error
  - Immediate reporting and emotional support
  - Long-term support for nurses to restore competence

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Recommendations: Translation to Practice

Error Type	Practice Changes/Organizational Support
Errors of Chaos	Levels of support during chaotic situations, nurse leader support in setting limits
Errors of Incompetence	Staffing models, additional mentoring to increase knowledge and skill, emotional support to relieve guilt
Errors of Distraction	Support and education on avoiding complacency, Creating safety checks and processes to reduce error reoccurrence
Errors Unrecognized/Unknown	Provide support as nurses try to remember and dissect and learn from the error. Create blame-free analysis to reduce anger
Errors from External Sources	Involved providers and departments must be part of a full investigation. There must be communication and apology to the nurse and the patient.

Apologizing for Medical Errors

What is a full apology?

- Expression of regret
- Expression of sorrow
- Accepting responsibility
- Timely and full disclosure of what went wrong
- Commitment to prevent reoccurrence

Opportunity to apologize- 16 out of 44 error experiences

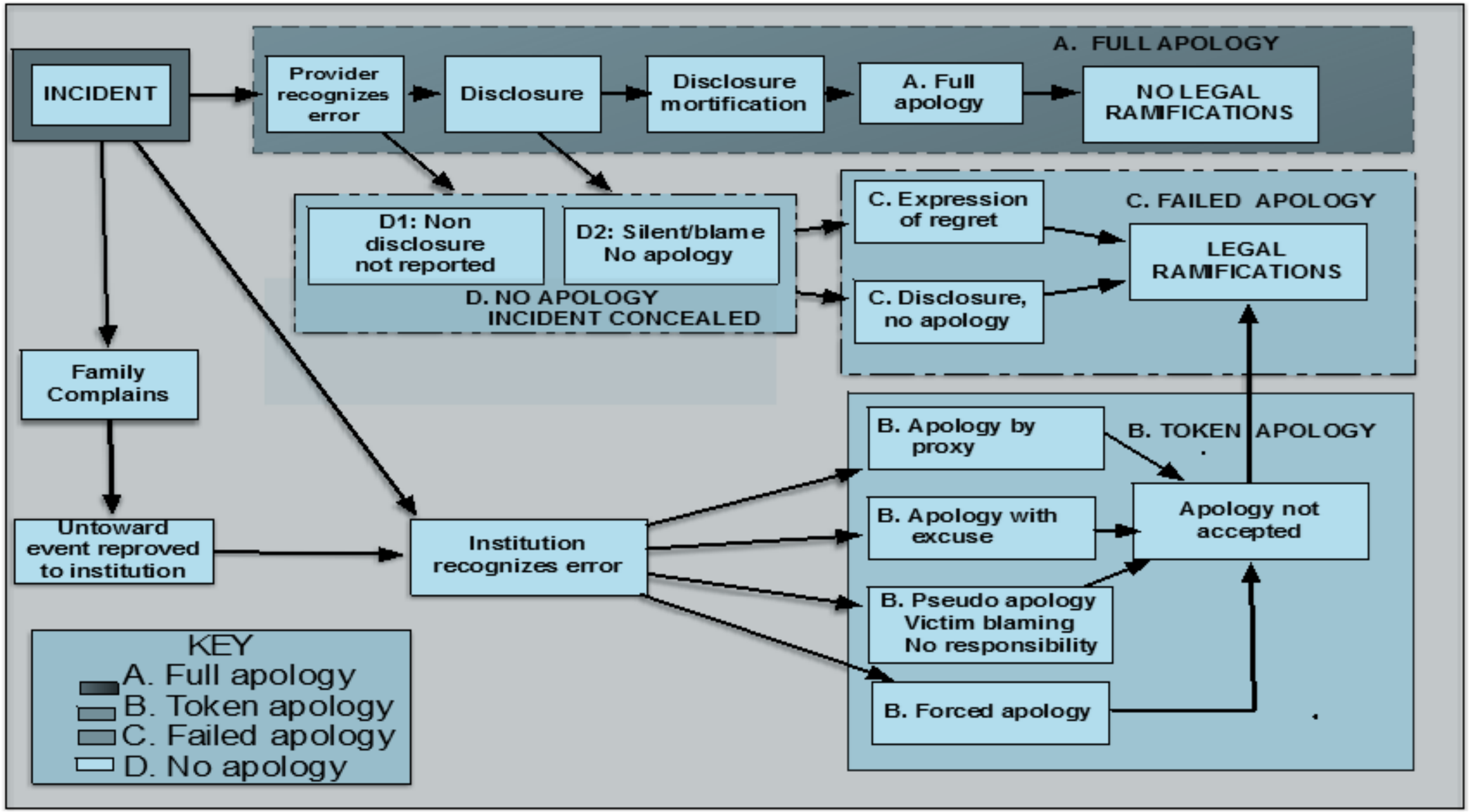
"I told her straight up, I said I am so sorry"

"I wanted to explain and apologize"

"I had a relationship with the patient, which made it easier"

"I just kind of spilled my guts to her and she forgave me and said, "it's okay""

The Full Apology



(Prothero, MM & Morse, JM, 2017)

Additional Research on Nurse Leaders and support following an Error

Nurse Leaders

- Often, the first person nurses may confide in when making an error
- Nurse Leaders are responsible for ensuring the error is fully investigated and the causes for the error mitigated
- Supportive nurse leaders can lessen the negative emotional experience nurses have following an error
- If nurse leaders views on medical errors are geared toward the perfectibility model, their actions may be blaming and no supportive

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Aim of the study

- The Primary Aim: To explore nurse leader (NL) attitudes and beliefs on medical errors. To examine the incidence of formal support programs, NL perspectives on caregiver support, and views on mitigating the nurses' psychological sequelae after an error.

Prothero, MM, Sorhous, M & Huefner, K, 2024. Nurse leader views regarding medical errors. *Journal of Nursing Administration. (accepted)*

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Sample and Setting

A convenience sample of nurse leaders

An invitation to participate in this study was posted on the American Organization for Nursing Leadership(AONL) website, newsletter, and discussion board.

Social media was also used to recruit additional members.

Instrument- Qualtrics Survey

- A demographic questionnaire
- The Medical Error Attitude Scale (MEAS) survey measured attitudes and beliefs on medical errors (Gulec & Intepeler, 2013)

Open-Ended Questions

1. Does your institution have a formal support program to help staff after a serious medical error?
2. Please provide details about your institution's support program.
3. What interventions or steps do you feel are useful in helping nurses recover from making a serious medical error?
4. What interventions or steps have you personally implemented to help nurses recover from an error?
5. What type of training have you received about supporting staff after a serious medical error?

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MEAS questions by subscales

Medical Error Perception
The one that made the medical error is free of guilt
When a medical error is reported, it must be approached with understanding

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MEAS questions by subscales

Medical Error Approach
Medical errors and their causes must be freely discussed with employees
I support the reporting of all errors
I would avoid reporting any medical errors I make
Institution administrators must use an approach that encourages learning from mistakes
Medical errors and their causes must be discussed among administrators
If the medical error was prevented before it occurred, there is no need to report it
Medical errors must be disclosed to patients/patient families

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MEAS questions by subscales

Medical Error Causes
Medical errors are caused by lack of communication of the person who makes them
Medical errors are caused by shortcomings in the system
Medical errors are caused by the lack of knowledge of the person who makes them
High number of patients under care increases the number of medical errors
Long working hours increase medical errors
Most medical errors are results of preventable situations
Reporting of medical errors improve patient safety

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Methods/Data Analysis

Statistical Analysis

- Demographic Data
- MEAS Survey
  - 16-item scale with three subdimensions:
    - Medical error perception
    - Medical error approach
    - Medical error causes
  - Mann-Whitney U Test
    - Nurse leaders with institutional support programs
    - Nurse leaders with experience of a direct report (nurse) committing a medical error
    - Nurse leader job title
- Open-ended questions were analyzed using thematic analysis

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Results: Demographics N=304

Gender	
Male	13.2 %
Female	85.7 %
Prefer Not to Say	1.1 %
Racial Background	
White	88.9%
Black or African American	7.2%
Native Hawaiian or Other Pacific Island	0.4%
American Indian or Alaska Native	1.0%
Asian	0.7%
Other	1.8%
Education Level	
Associates Degree	2.2 %
Bachelor's Degree	13.3 %
Graduate degree or higher	84.6 %
Type of Organization	
Hospital	81.4 %
Home Care	0.4 %
Post-Acute (SNF, Rehab, LTACH)	3.2 %
Academia (University, college, or technical program)	5.7 %
Other	9.3 %
Current Job Title	
Supervisor Manager, Department Manager, Clinical Leader, Director	50.7%
Senior Leader, Executive, C-Suite	34.5 %
Academia, - Clinical Faculty, Professor, Dean	4.9 %
Retired	1.4 %
Other (specify)	8.5%

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70% of NL have had direct reports commit a serious medical error

Results: Medical Errors Attitude Scale

Medical error perception mean: **4.75, SD = .87**

Medical error approach mean: **6.53, SD = .61**

Medical error cause mean: **5.23, SD = .56**

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Results: Medical Error Attitude Scale

Medical error approach was statistically significant

- With or without formal support programs (p =.007)
- Nurse Executive vs. Nurse Director/supervisor (p =.006)
- NL with direct reports (nurses) who had committed an error (p =.003)

Medical error perception was statistically significant

- NL with direct reports (nurses who had committed an error (p =.033)

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Results: NL Training in Supporting Staff After a Serious Medical Error

Nurse leaders reported receiving the following types of training in supporting nurses after errors:

- **No training:** (neither formal nor informal training related to supporting nurses following a medical error, or personal experience)
- **Self-training:** (training from previous employers, online seminars, graduate/doctorate education, research, conferences)
- **Official training:** (formal programs such as RISE, Just Culture, Talk 2 Me, TeamSTEPPS, CANDOR, Zero Harm, High-Reliability, Beta Heart, risk management training, and HR education)

- **No training: N= 100 (42.5%)**
- **Self-training: N= 60 (25.5%)**
- **Official training: N= 75 (31.9%)**

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Results: Formal Support Programs

63% nurse leaders report that their institution had a formal support program to assist staff following a medical error

- **69%** agreed that their support program is effective
- **24%** were neutral
- **7%** disagreed

Nurse leaders described institutions' formal support programs with the following themes:

- ***Peer support, education, error examination, employee assistance,*** **and** ***just culture***.

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Results: NL Support They Believe is Useful in the Nurse's Recovery

Themes:

- Education/retraining
- Psychological safety
- Time off unit
- Identifying system failures
- Nurse involvement in disclosure

"Language used to describe the error is important. It is important to avoid language that is blaming; reinforcing that errors are opportunities to learn about how to improve systems and other factors that impact performance."

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Results: NL Efforts They Have Personally Implemented to Support Nurses

"I personally have shared my own story about being involved in a sentinel event with many nurses to help them realize this event is not the end of their nursing nor their time in the organization."

Themes:

- Psychological safety
- Education/retraining
- Identifying system failures
- Peer support
- Time off unit
- Referral to emotional/spiritual counseling

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Discussion

- This is the first study to use the MEAS with nurse leaders
- Overall, nurse leaders had positive scores on perception, approach, and causes
- Nurse executive scores were significantly higher for medical error perception-
- Nurse leaders from organizations with a formal support program had higher medical error perception
- Medical error approach and perception were higher for nurse leaders who had a direct report experiencing an error

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Nurse Leader Training

- Lack of nurse leader training
- Training– It is unclear if nurse leader training was adequate and if nurse leaders felt prepared to support staff following an error.
- Literature provides no direction on nurse leader training to prepare nurses.

Formal Support Programs

- Peer Support (Vanhaecht et al., 2021; Edrees et al., 2016; White et al., 2015)
- Direct Supervisor Support (Burlison et al., 2021; Prothero, 2020)
- Employee Assistance Programs (Edrees et al., 2017)
- Just Culture (Barkell & Snyder, 2020, Battard, 2017, Marx, 2019)

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Nurse Leader Views on Caregiver Support & Steps Implemented

- Nurse Leaders showed integrity by implementing various strategies to support nurses
- They provided psychological safety by establishing a 'Just Culture" environment

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Limitations

- Convenience Sample of Nurse leaders
- Sample Size
- Additional insight may have been obtained through interviews rather than survey methodology

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Implications for Nursing Management

- Education for nurse leaders is lacking and needs to be provided as part of leadership training on how to support nurses following a medical error
- Despite regulatory body recommendations, formal support programs have not been widely implemented
- Support for nurses involved in errors has not been widely implemented or standardized

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Conclusion

- Nurse Leaders are vital in establishing a nursing culture that promotes patient safety
- Nurse leaders should advocate for training and support programs
- Nurse leaders have the ability to provide psychological safety and support to care givers following an error

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