

An Evaluation and Comparison of Clinical Judgment
in Junior and Senior Nursing Students

Corrine Stone

An Honors Thesis Presented in Partial Fulfillment of the Requirements for the Degree of
Bachelor of Science in Nursing with Distinction

The Ohio State University College of Nursing

Honors Thesis Committee

Esther Chipps PhD, RN, Advisor

Celia E. Wills PhD, RN

Abstract

While the majority of nursing research about clinical judgment has focused on the decision-making of experienced RNs, there is a scarcity of current research available on the development of clinical judgment in student nurses. Little is known about when clinical judgment begins and how clinical judgment develops throughout the course of education. In order to understand whether student nurses are equipped to participate in error mitigation we must begin with an empirically based understanding of how student nurses judge and classify errors. The specific aims of this study were to: (1) determine if nursing students judgments about errors (severity, level of risk, and contributing risk factors) changes after a year of clinical experience; and, (2) explore the perception of student nurses regarding promotion of safe environments and their perceived ability to participate in risk reduction and error mitigation practices in the clinical setting. The sample (n=43) consisted of junior (65.1%) and senior (34.9%) students of a baccalaureate-nursing program at a large Midwestern university. A cross sectional descriptive survey design was used in which each participant was given an envelope with a questionnaire presenting four clinical scenarios with instructions to: (1) rate the severity of the error (2) rate the perceived risk of the error and (3) identify potential contributing factors leading to the error. Descriptive and correlational analyses were used to summarize and compare responses. Across the four vignettes judgments about error classification were highly variable. There were differences between juniors and seniors in the severity of classification of the clinical errors and the probabilities that these errors occur. The results of this study have the potential to contribute valuable insight into the development of clinical judgment over time

in student nurses, and can indirectly shed light upon the clinical judgment of new graduate nurses entering practice.

Chapter I: Literature Review

The majority of nursing research about clinical judgment has focused on the decision-making of experienced RNs. By contrast, there is a scarcity of current research available on the development of clinical judgment in student nurses. Newly licensed graduates represent approximately 10% of the current nursing staff, with this 10% being relatively inexperienced when compared to the whole (Berkow & Verkstis 2008). Undergraduate nursing programs provide skills and competencies built on the foundations of pathophysiology, human bioscience, and nursing theory and utilize clinical internship/residency, and simulations in order to prepare students for professional practice. Little is known about if these efforts foster clinical judgment in student nurses, when clinical judgment begins, and how clinical judgment is developed throughout the course of education.

Students are transitioning into the RN role unaware of the high level of critical thinking and decision making that will be required of them as RNs in order to respond to acute clinical scenarios and participate in error mitigation (Etheridge 2007). In a recent study examining the critical thinking abilities of new graduate nurses 25% of new graduate nurses did not meet expectations in regard to independent nursing interventions (97.2%), differentiation of urgency (67%), reporting essential clinical data (65.4%), anticipating relevant medical orders (62.8%), providing relevant rationale to support decisions (62.6%) and problem recognition (57.1%) – all of which rely upon critical thinking abilities (Fero, Witsberger, Wesmiller, Zullo & Hoffman, 2008). In 2006 The National Council of State Boards of Nursing published a research brief on transition to practice for new graduate nurses – which exhibits the reality of this gap in new graduate critical thinking. When asked if they had ever been involved in actual errors or

potential errors, 53% of the nurses indicated that they had either made errors themselves, supervised others making errors, or had been the one to discover errors made by others (Kenward & Zhong, 2006).

An integrative review of over 75 articles related to novice nurse error and clinical decision making identified, “critical thinking and experience [as] common themes in most of the errors evaluated” (p. 358) in their review of novice nurse errors. Employers recognize this gap in new graduate nurse ability (Saintsing, Gibson, and Pennington, 2011). In a national survey of employers (including hospitals, home health agencies, and nursing homes) less than 50% of the employers reported new graduate nurses as being prepared to provide safe and effective care (Smith and Crawford, 2004). This is a very concerning and undesirable finding, as nursing demands a high level of cognitive ability and advanced decision making skills in order to promote patient safety.

The WHO’s World Alliance for Patient Safety identifies patient safety as a key concept of relevance in its International Patient Safety Classification (ISPC) system. The aim of patient safety practice, as outlined by ISPC, is to “[reduce the]...risk of unnecessary harm associated with healthcare to an acceptable minimum” (Runciman, Hibbert, Thomson, Van der Schaaf, Sherman & Lewalle, 2009). Upon graduation student nurses will be expected to promote safety practices and participate in error mitigation through clinical judgment in risk assessment, enabling them to identify, prevent, and subsequently, reduce the occurrence of medical errors and promote patient safety (Rogers et al., 2008; Jeffs et al., 2009).

In January 2014 Tella et al. (2014) published an integrative literature review of twenty studies appraising the content of patient safety in pre-licensure nursing curricula. Patient safety was identified within curricula related to learning from errors, individual and inter-professional teamwork, anticipatory action in complex environments, and patient-safety centered nursing. In addition to the material presented in an academic setting, patient safety was also identified within inter-professional simulation scenarios, using critical thinking checklists, and practice with web-based hazard and near miss reporting systems in clinical. Following comprehensive review of these twenty studies Tella et al. (2014) concluded that “if patient safety was not evident as a subject in the nursing curricula but rather integrated in several modules, it could disappear” (p. 10). Furthermore, Tella et al. (2014) concluded that formal education does not guarantee that students improve in their understanding of patient safety. However, in their concluding discussion Tella et al. (2014) recognize the important role curricula plays in demonstrating patient safety principles and practices. They recommend that patient safety content within pre-licensure program’s curricula is “clear and explicit” and that patient safety content is incorporated into both academic settings and clinical practice settings (Tella, Liukka, Jamookeeah, Smith, Partanen & Turunen, 2014).

A study of clinical decision making during the transition from student to RN concluded that clinical decision making skills need to be taught in pre-licensure courses in the classroom and clinical (Standing, 2007), giving further support to Tella et al.’s findings. The prescriptive decision making model in nursing, endorsed by the American Nurses Association (ANA), is the nursing process – assess, diagnose, outcomes/planning, intervention, and evaluation (International Council of Nurses, 2005). Every nursing student knows and uses the nursing

process in planning patient care, but its applicability with unexpected decisions is debated, being criticized for being too systematic (Standing, 2007). Unfortunately, there is currently a lack of evidence for how to design a curriculum and foster a learning environment that aids in developing clinical judgment largely because the process of how students learn to make clinical judgments is not fully understood (Bowles, 2000; Grealish, 2000). While cognitive ability and academic success seem to be positive indicators, excellent students do not always develop excellent clinical judgment (Botti & Reeve, 2003). A study on students in their final year of nursing school suggests additional factors seem to be required in fostering clinical judgment. Results of a self-assessment questionnaire exploring personal confidence and understanding of clinical decision-making demonstrated that most students believe that experience was a helpful factor in learning decision-making skills. However, the same study found only limited evidence linking the application of decision-making theory to practice. Instead, the study's findings suggest that the majority of student nurses view clinical judgment in terms of applying fixed decision making pathways or templates based on prior experience (Garrett, 2005).

Numerous studies have been conducted over the last ten years exploring the perceived competence of graduating student nurses. When exploring the perception of final year nursing students at an Irish university, Doody et al. (2012) found that 53% of respondents reported themselves to be adequately prepared to take on the role of an RN, 31% were neutral towards their level of preparation, and 16% disagreed that they were prepared to transition to being an RN. This study also evaluated the student's perception of course relevance in relation to the transition to being an RN – 62% of respondents agreed that course content was relevant to this transition, while 19% were neutral and 17% disagreed. In Lofmark et al.'s (2006) study of self-

perceived competence in final year nursing students, the highest level of competency reported by students was in ethical awareness and patient communication and interaction (2006). Hengstberger-Sims et al. (2008) had newly graduated nurses complete a questionnaire that used the 2001 Australian Nurse Competency Standards, the Nurse Competency Scale, and Visual Analogues to self assess perceived competency and the frequency with which these areas are engaged. Planning and making decision related to patient care were identified among the lowest level of competency in newly graduated student nurses (2008). Wangenstein et al. (2012) also used the Nurse Competency Scale to assess newly graduated nurses self-perceived competence and found ensuring quality patient care as a lower area of competence. The findings of these studies are rather disturbing as they imply that students recognize their own incompetence in critical thinking and decision making in regards to planning and providing safe and quality patient care. This may be due to students underestimating the preparation needed to independently take on the RN's role (Newton and McKenna, 2007) or it could be a result of gaps in pre-licensure curricula as suggested by Tella et al. (2014). In order to understand whether student nurses are equipped to participate in error mitigation and promote patient safety we must begin with an empirically based understanding of how student nurses judge and classify errors. The aim of this study is to: (1) determine if nursing students judgments about errors (severity, level of risk, and contributing risk factors) changes after a year of clinical experience; and, (2) explore the perception of student nurses regarding promoting safe environments and their perceived ability to participate in risk reduction and error mitigation practices in the clinical setting.

Chapter II: Methods

Design

A descriptive cross-sectional survey design was used in which junior and senior level nursing students completed a questionnaire on perceived judgment of the classification and risk level of patient care errors.

Setting

This study took place at a large Midwestern University College of Nursing.

Sample

A convenience sample of junior and senior students was recruited from a baccalaureate-nursing program at a large Midwestern university. A total of 15 juniors and 28 seniors were completed the questionnaire. Participants were recruited on a voluntary basis through visiting five lectures over the course of one semester and explaining the aims of the study and what participation would entail.

Data Collection Procedure

Approval for all study procedures was received from the university Institutional Review Board prior to data collection. Surveys were distributed in envelopes prior to junior and senior level lectures. Students were instructed to return the surveys in a sealed envelope within three weeks to a designated sealed collection box in the lobby of the College of Nursing.

Instrument

A previously-developed validated questionnaire was used in this study (Chipps, Wills,

Tanda, Patterson, Elfrink, Brodnik, Schweikhart & Ryan-Wenger, 2011). The questionnaire presents four clinical vignettes that the students will read and were then instructed to: (1) rate the severity of the error (2) rate the perceived risk of the error and (3) identify potential contributing factors leading to the error. These vignettes were created from actual errors identified during in-depth individual interviews and focus groups conducted with experienced practicing nurses (Chippis, Wills, Tanda, et al., 2011). Each vignette describes a complex clinical situation in which an error is made by an acute care RN. These vignettes have been confirmed as complex clinical situations based on the review and analysis of content experts. Each vignette was followed by a perceived error severity scale, perceived probability of error scale, and perceived contributing factors (see Appendix A).

Perceived error severity

In 1996 the National Coordinating Council for Medication Error and Reporting and Prevention (NCC MERP) index was developed in an effort to establish a taxonomy for medication error classification. Numerous hospital based risk management programs use adaptations of this scale. The index is made up of nine categories that describe error severity and the level of harm associated with said error. The index begins with no error (level A), increases to error, no harm (levels B-D), then to error, harm (levels E-H) and ends with death (level I). For each vignette the participant was asked to classify nursing care error severity using the NCC MERP error classification index.

Perceived probability of error

In order to assess the perceived risk of the error a risk assessment scale was adapted

from Resource Engineering Inc. for use in the questionnaire. This risk assessment scale is based upon principles of failure mode and effects analysis and assigns increasing levels of risk from 1 to 7, with 1 being the lowest probability of risk and 7 being a certain probability of risk.

Participants rated the probability of the event in each vignette occurring in the practice setting using this scale.

Perceived contributing factors

The prior research compiled a list of potential contributing factors leading to errors based upon a theoretical framework on human factors – resulting in 15 final factors. These 15 factors were divided into the following three categories by content experts: (1) nurses' knowledge and experience, (2) nurses' clinical practice, and (3) work environment. For each vignette participants reviewed all 15 factors and checked the factors they believed contributed to the error.

Additional data were collected (8 items) on individual characteristics of the participants including other degrees or areas of study, current employment status during school (position, job title, setting, and number of hours per week), current clinical experience, previous clinical experience, and experience using the event reporting system.

Data Analysis

Because there were small response frequencies for some categories of the NCC MERP index and risk occurrence scales used by the respondents, the scales were collapsed. The NCC MERP categories were reduced from 9 to 4 categories including (1) Error, No Harm (B-C); (2)

Error, No Harm, Required Monitoring (D); (3) Error, Temporary Harm (E-F); and (4) Error, Permanent Harm (H-I). The risk occurrence scale was reduced from 7 to 3 categories including (1) low probability of risk that either never occurs or occurs once per year; (2) moderate risk in which chances of occurrence are from once per 3 months to once per month; and (3) high risk in which chances of occurrence are once per week or more.

Each vignette was analyzed using descriptive statistics to calculate the frequency of the ratings for each scale and contributing factors. Chi-square analysis was used to test for the presence of statistically significant differences in questionnaire ratings between junior and senior nursing students.

Chapter III: Results

33 juniors and 42 seniors were offered participation. Of the 75 students invited to complete the questionnaire, a total of 43 students actually completed the questionnaire (45.5% juniors and 66.7% seniors), yielding a response rate of 55.1%. A demographic profile of the respondents is summarized in Table 1.

Table 1

Demographic Profile

Sample Demographics (n=43)			
Grad Date	Spring 2013 65.1% (28)	Winter 2014 2.3% (1)	Spring 2014 32.6% (14)
Other Degree	Yes 9.3% (4)		No 90.7% (39)
Currently Employed in Health Care	88.4% (38)		11.6% (5)
Past Health Care Employment	2.3% (1)		97.7% (42)
Clinical Patient Population	Current Clinical Rotation	Completed Clinical Rotation	
Med/Surg	18.6% (8)	100% (43)	
Womens Health/Peds	27.9% (12)	93% (40)	
Critical Care	25.6% (11)	74.4% (32)	
Psych	7% (3)	65.1% (28)	
Community	16.3% (7)	65.1% (28)	
Other	4.7% (2)		

Results for each vignette were analyzed individually. Results are organized by vignette with a discussion of the overall results following the vignette.

Vignette 1

Vignette 1 describes an incident where a nurse who is caring for a tracheostomy patient is called away to care for a coding patient, during which time the RN forgets to put the tracheostomy patient back on the pulse oximeter. An hour later the tracheostomy patient is

found unresponsive, a code is called, resulting in the patient needing to be transferred for further care in the intensive care unit. Table 2 illustrates the responses for Vignette 1.

Table 2

Vignette 1

Error Classification and Risk Level	Vignette 1		
	Juniors	Seniors	
Error Classification			
Error, no harm	0 (0%)	0 (0%)	
Error, monitoring	0 (0%)	0 (0%)	
Error, temporary harm	4 (26.7%)	2 (7.1%)	
Error, permanent harm	11 (73.3%)	26 (92.9%)	
			$\chi^2=3.1, p=.08$
Risk Level			
Low	1 (6.7%)	2 (7.1%)	
Moderate	11 (73.3%)	26 (92.9%)	
High	3 (20.0%)	0 (0%)	
			$\chi^2=6.0, p=0.05$

While this vignette did not yield any statistically significant results ($\chi^2=3.1, p=.08$) when comparing junior and senior nursing students' assessment of the error classification, it did yield significant results ($\chi^2=6.0, p=0.05$) in risk level. Twenty-six (92.9%) of the senior students believe this error has a moderate probability of occurrence, and 2 (7.1%) seniors believe there is a low probability of occurrence. However, data collected from the junior students does not show such a high level of consensus on the moderate probability of occurrence. Eleven (73.3%) of the juniors believe that there is a moderate probability of occurrence, 3 (20%) believe there is a high probability of occurrence, and 1 (6.7%) believes there is a low probability of occurrence.

Vignette 2

Vignette 2 describes a nurse who is new to the unit and has to collect potassium levels on 2 patients. She places both patient labels in her pocket, collects the labs at bedside, but neglects to double check the labels with her patients’ identification bands and mislabels the specimens. As a result, the patient with a normal potassium level receives an un-necessary replacement dose of potassium. By the next day both patients’ potassium levels return to normal. Table 2 illustrates the responses for Vignette 2.

Table 3

Vignette 2

Error Classification and Risk Level	Vignette 2		
	Juniors	Seniors	
Error Classification			
Error, no harm	0 (0%)	0 (0%)	
Error, monitoring	9 (60%)	18 (64.3%)	
Error, temporary harm	2 (13.3%)	9 (32.1%)	
Error, permanent harm	4 (26.7%)	1 (3.6%)	
			$X^2=5.9, p=0.05$
Risk Level			
Low	1 (6.7%)	6 (21.4%)	
Moderate	14 (93.3%)	21 (75%)	
High	0 (0%)	1 (3.6%)	
			$X^2=2.2, p=0.33$

Although comparison of junior and senior students in this vignette did not demonstrate any significant difference ($X^2=2.2, p=0.33$) in risk level, the results for error classification did yield a significant result ($X^2=5.9, p=0.05$). Nearly the same percent of junior (60.0%) and senior (64.3%) students thought believed no harm occurred, but that the patient would require monitoring. The remaining juniors and seniors did not agree on the level of harm. Nine (32.1%)

of the seniors believed there was temporary harm to the patient and 1 (3.6%) of the seniors believe there was permanent harm done.

Vignette 3

Vignette 3 describes a charge nurse who is working with two patients with very similar names in a gastroenterology procedure area. The charge nurse confuses the two patients' names and the patient in need of an emergent procedure is not treated, resulting in a fluid resuscitation effort. Table 4 illustrates the responses for Vignette 3.

Table 4

Vignette 3

Error Classification and Risk Level	Vignette 3		
	Juniors	Seniors	
Error Classification			
Error, no harm	1 (6.7%)	0 (0%)	
Error, monitoring	1 (6.7%)	2 (7.1%)	
Error, temporary harm	8 (53.3%)	18 (64.3%)	
Error, permanent harm	5 (33.3%)	8 (28.6%)	
			$X^2=2.1, p=0.54$
Risk Level			
Low	3 (20%)	14 (50%)	
Moderate	12 (80%)	14 (50%)	
High	0 (0%)	0 (0%)	
			$X^2=3.7, p=0.06$

Results for error classification in this vignette were not significantly different between junior and senior students ($X^2=2.1, p=0.54$), perceived risk level was found to be nearing statistical significance ($X^2=3.7, p=0.06$). Of the juniors, 12 (80%) believed that there was a moderate probability of error occurrence and 3 (20%) believe that there is a low probability of occurrence. However, the seniors were split with 14 (50%) that believed there was a low

probability of occurrence and 14 (50%) that believed there was a moderate probability of occurrence.

Vignette 4

Vignette 4 involves a new graduate nurse who gives a patient’s insulin two hours late and forgets to mention this in report to the oncoming nurse. As a result, the oncoming nurse gives an extra dose of fast-acting insulin to cover a higher than expected blood sugar level. This extra dose of insulin results in a hypoglycemic episode that is treated. Table 5 illustrates the responses for Vignette 4.

Table 5

Vignette 4

Error Classification and Risk Level	Vignette 4		
	Juniors	Seniors	
Error Classification			
Error, no harm	0 (0%)	0 (0%)	
Error, monitoring	0 (0%)	3 (10.7%)	
Error, temporary harm	11 (73.3%)	18 (64.3%)	
Error, permanent harm	4 (26.7%)	7 (25%)	
			$\chi^2=1.7, p=0.42$
Risk Level			
Low	1 (6.7%)	3 (10.7%)	
Moderate	13 (86.7%)	24 (85.7%)	
High	1 (6.7%)	1 (3.6%)	
			$\chi^2=0.4, p=0.83$

Results of this vignette comparing junior and senior students in error classification ($\chi^2=1.7, p=0.42$) and risk level ($\chi^2=0.4, p=0.83$) were not significant, showing that the junior and senior level nursing students were similar overall in their judgments of error classification and risk level.

Chapter IV: Discussion

The majority of research that is available on clinical judgment is focused on the decision-making models of experienced RNs or newly licensed RNs. There is a lack of current research on how clinical judgment develops in nursing students. This study demonstrated significant differences in junior and senior nursing students' perceptions of error classification and risk level.

In all four vignettes a majority (>50%) of juniors and seniors agreed on error classification and risk assessment. Though majority agreement was reached in each vignette, agreement among the juniors and the seniors was less than optimal and highly variable.

In Vignette 1, 26 (92.9%) of the 28 senior students agreed on the pulse oximeter error having a moderate risk level. This is an optimal response showing low variability in the senior students. For the juniors 11 (73.3%) of the 15 students agreed on a moderate risk level, 1 (6.7%) student for low risk level, and 3 (20%) students for a high risk level. The variability among the junior students here was found to be significantly different ($\chi^2=6.0$, $p=0.05$) in comparison to the results for the seniors. The juniors were more likely to rate this error as having a higher probability of occurrence. One explanation for this difference between junior and senior students could be the factor of time and experience. It is possible that over the course of senior year clinicals and lectures that the senior students have received more exposure to tracheostomy patients or have learned more about safety concerns for this patient population. It could be possible that the junior students are rating this error as having a higher probability of occurrence due to their lack of experience and are assuming it to be the safer option to overestimate occurrence. If this difference were related to a lack of experience as hypothesized, it

would support Garrett's (2005) suggestion that most student nurses view clinical judgment in light of prior clinical experience.

In Vignette 2, nearly the same proportion of juniors (60%) and seniors (64.3%) agreed that the lab label error required further monitoring of the patient. However, the responses of the remaining junior and senior students on error classification were highly variable and significantly different ($\chi^2=5.9$, $p=0.05$). For the juniors, 2 (13.3%) students perceived the error to cause temporary harm and 4 (26.7%) students perceived the error to cause permanent harm. For the seniors, 9 (32.1%) perceived the error to cause temporary harm and 1 (3.6%) student perceived the error to cause permanent harm. In comparing the remaining junior and senior students, there appears to be a higher degree of variability in the remaining junior students' responses and less variability in the remaining senior students' responses. It is interesting that a higher percentage of juniors rated this error as causing permanent harm in comparison to seniors. When completing the error classification for each vignette the students are actually anticipating orders and beginning to plan care. They are being asked to decide if the patient will need monitoring, an intervention, or a life sustaining intervention. In a self-perceived competency assessment of new graduate nurses planning and decision-making were identified as the lowest level of competency in patient care (Hengstberger-Sims, C., Cowin, L.S., Eagar, S.C., Gregory, L., Andrew, S., Rolley, J., 2008). The significant differences between juniors and seniors on error classification in this vignette may be an early reflection of a lack of competency in decision-making.

In Vignette 3, the results for risk level revealed majority agreement when comparing juniors and seniors. Vignette 3 revealed more variability in the seniors than with any other

vignette. Twelve (80%) of the 15 juniors believe there is a moderate probability of a name mix-up error occurring and the remaining 3 (20%) juniors believe there is a low probability of this error occurring. Whereas the seniors are split directly down the middle with 14 (50%) seniors that see this error as having a low probability and 14 (50%) seniors that see this error as having a moderate probability. This data is nearing statistical significance ($\chi^2=3.7$, $p=0.06$) and is especially interesting to consider in light of the risk assessment results from the seniors from Vignettes 1, 2, and 4. In Vignette 1 there were 26 (92.9%) seniors in agreement of moderate risk, in Vignette 2 there were 21 (75%) seniors in agreement of moderate risk, and in Vignette 4 there were 24 (85.7%) seniors in agreement on moderate risk. Vignette 3 revealed the highest degree of variability in the senior students' risk assessment. In Vignette 2 there was more variability in risk assessment with the seniors than there was with the juniors. When the errors were less severe, as in Vignettes 2 and 3 the data on risk assessment appeared to be less uniform for seniors in comparison to juniors. These results support Fero et al.'s findings that identified a deficit in the new graduate nurse's ability to differentiate the urgency of patient situations (Fero, Witsberger, Wesmiller, Zullo & Hoffman, 2008).

This study raises questions about the apparent differences in clinical judgment of junior and senior nursing students. There is a need for further research to investigate the reason for these differences between juniors and seniors and to work towards less variability in the error perception of student nurses. Data collected by the National Council of State Boards of Nursing revealed that 53% of new graduate nurses had either made errors themselves, supervised others making errors, or had discovered errors made by others (Kenward & Zhong, 2006). This

is a startling reality that becomes even more startling when considering how many errors occur that are not reported or identified.

There are several limitations to this study. First, the sample size is small and is only reflective of nursing students enrolled in a baccalaureate nursing program. Second, data collected from this study only allows for identification of statistically significant differences, and does not provide the data need to make inferences about cause. Additionally, this data only reflects a single time point, whereas a longitudinal study following a junior into their senior year would reveal more of the student's progression over time. Third, while vignettes are beneficial in terms of utilization, standardization, low cost, and the ability to represent cues that would be difficult to duplicate in practice, the extent to which respondents would react to vignettes in a real clinical scenario is unknown. Finally, the NCC MERP has only been used to classify medication errors in the research published to date and has not been used to classify other errors like the errors used in Vignettes 1, 2, 3, and 4.

Chapter V: Conclusions

Despite the increasing interest in investigating the readiness of new graduate nurses for error mitigation and safe practice, little is known about how clinical judgment begins and how it can be fostered in student nurses. The findings of this study emphasize the complexity of error and risk perception. Future studies should focus on the progression of clinical judgment through longitudinal studies. Future studies should also focus on identifying and incorporating curricula, experiences, or teaching styles that catalyze clinical judgment development in students. A future study comparing the results for senior students and the results of new graduate nurses from Chipps et al.'s (2011) study could yield interesting differences.

Waiting for experience to build the clinical judgment of new graduate nurses is a costly approach and could result in unnecessary harm to patients. Working to foster clinical judgment in student nurses is proactive and further research could affect real change in health care quality.

References

- Botti, M., & Reeve, R. (2003). Role of knowledge and ability in student nurses' clinical decision-making. *Nursing and Health Sciences*, 5(1), 39-49.
- Bowles, K. (2000). The relationship of critical-thinking skills and the clinical-judgment skills of baccalaureate nursing students. *Journal of Nursing Education*, 39, 373-376.
- Chippis, E., Wills, C., Tanda, R., Patterson, E., Elfrink, V., Brodник, M., Schweikhart, S., & Ryan-Wenger, N. (2011). Registered nurses' judgments of the classification and risk level of patient care errors. *Journal of Nursing Care Quality*, 26(4), 302-310.
- Doody, O., Tuohy, D., & Desay, C. (2012). Final-year nursing students' perceptions of role transition. *British Journal of Nursing*, 21(11), 685. Retrieved from <http://www.nurse2nurse.ie/Upload/NA7059BJN.pdf>
- Etheridge, S. (2007). Learning to think like a nurse: Stories from new nurse graduates. *The Journal of Continuing Education in Nursing*, 38(1), 24-30. Retrieved from [http://nurs460.pbworks.com/w/file/fetch/50316676/Learning to Think Like a Nurse.pdf](http://nurs460.pbworks.com/w/file/fetch/50316676/Learning%20to%20Think%20Like%20a%20Nurse.pdf)
- Fero, L., Witsberger, C., Wesmiller, S., Zullo, T & Hoffman, L. (2009) Critical thinking ability of new graduate and experienced nurses. *Journal of Advanced Nursing* 65(1), 139–148 doi: 10.1111/j.1365-2648.2008.04834.x
- Garrett, B. (2005). Student nurses' perceptions of clinical decision making in the final year of adult nursing studies. *Nurse Education in Practice*, 5(1), 30-39. doi: 10.1016/j.nepr.2004.03.003
- Grealish, L. (2000). The skills of coach are an essential element in clinical learning. *Journal of Nursing Education*, 39, 231-233.

- Hengstberger-Sims, C., Cowin, L.S., Eagar, S.C., Gregory, L., Andrew, S., Rolley, J. Relating new graduate nurse competence to frequency of use. *Collegian*, 15 (2) (2008), pp. 69–76
- Jefferis L, MacMillan K, Maione M. Leveraging safer nursing care conceptualizing near misses as recovery process. *Journal of Nursing Care Quality*. 2009;24(2):166-171.
- Kenward K. & Zhong E. (2006) Report of Findings from the Practice and Professional Issues Survey: Fall 2004. National Council of State Boards of Nursing, Chicago, IL.
- Löfmark, A., Smide, B., Wikblad, K. (2006) Competence of newly-graduated nurses — a comparison of the perceptions of qualified nurses and students. *Journal of Advanced Nursing*, 53 (6) (2006), pp. 721–728.
- Newton, J.M. & McKenna, L. (2007) The transitional journey through the graduate year: a focus group study. *International Journal of Nursing Studies* 44 pp 1231-1237
doi:10.1016/j.ijnurstu.2006.05.017
- Rogers AE, Dean GE, Hwang WT, Scott LD. Role of registered nurses in error prevention, discovery, and correction. *Quality and Safety in Health Care*. 2008;17(2):117-121.
- Runciman, W., Hibbert, P., Thomson, R., Van der Schaaf, T., Sherman, H., & Lewalle, P. (2009). Towards an international classification for patient safety: key concepts and terms. *International Journal for Quality in Health Care*, 21(1), 18-26. doi: 10.1093/intqhc/mzn057
- Saintsing, D., Gibson, L., & Pennington, A. (2011). The novice nurse and clinical decision making: how to avoid errors. *Journal of Nursing Management*, 19, 354-359.
- Smith, J. & Crawford, L. (2004b). Report of Findings from the 2003 Employers Survey. Chicago: National Council of State Board of Nursing.

- Standing, M. (2007). Clinical decision making skills on the developmental journey from student to registered nurse: a longitudinal study. *Journal of Advanced Nursing*, 60(3), 257-269. doi: 10.1111/j.1365-2648.2007.04407.x
- Sutcliffe KM. Defining and classifying medical error: lessons for learning. *Quality and Safety in Health Care*. 2004;13(1):8-9.
- Tella, S., Liukka, M., Jamookeeah, D., Smith, N., Partanen, P., & Turunen, H. (2014). What do nursing students learn about about patient safety? An integrative literature review. *Journal of Nursing Education*, 53(1), 7-13. doi: 10.3928/01484834-20131209-04
- Wangensteen, S., Johansson, I.S., Björkström, M.E., Nordström, G. Newly graduated nurses' perception of competence and possible predictors: a cross-sectional survey. *Journal of Professional Nursing*, 28 (3) (2012), pp. 170–181

Appendix A

Student Nurses' Judgments of the Classification and Risk Level of Patient Care Errors

Thank you for considering participation in this study. The title of this study is "New Graduate Nurses' Judgments of the Classification and Risk Level of Patient Care Errors: The Challenge in the First Year of Practice". This study has been funded by the Josie King Foundation. This study has received Institutional Review Board approval from The Ohio State University. Your completion and submission of this survey will serve as your consent. Your participation in this study is voluntary. The decision not to participate will not lead to any penalty or loss of benefits to which you are otherwise entitled. You may withdraw participation at any time, or choose not to answer any questions without penalty or loss of benefits.

We are interested in studying new graduate nurses and student nurses. The purpose of this study is to learn about how new graduate nurses and student nurses think about nursing practice errors and patient safety. If you agree to participate you will be asked to complete a survey and return it in a sealed envelope to a designated location. The survey consists of four vignettes (stories) involving a bedside nurse. These vignettes were developed following a series of interviews with staff nurses. They are representations and are not actual events. After reading each vignette, you will be asked to provide three opinions on each vignette: 1. give your opinion on the severity of the error using the National Coordinating Council for Medical Error Reporting and Prevention categories, 2. identify potential contributing factors to that might have led to the error, and 3. give your opinion as to the probability of such an event occurring in a "real practice" situation. At the end of the survey, you will be asked to provide additional information related to nursing school, and your clinical experiences during nursing school .

While the survey results may not directly benefit you, we hope that this information will be the building block for a better understanding of nurses' judgment about potential errors in practice that compromise patient safety. We estimate that each survey will take approximately 30 minutes.

For questions, concerns, complaints, or if you feel you have been harmed as a result of study participation please contact Esther Chipps PhD, RN, at (614) 292-8029. For questions about your rights as participant in this study or to discuss other study related concerns or complaints with someone who is not part of the research team, you may contact the Office of Responsible Research Practices at 1-800-678-6251.

**Warm regards,
Esther Chipps PhD, RN
Principal Investigator
Clinical Nurse Scientist
Ohio State University Health System
614-292-8029
esther.chipps@osumc.edu**

VIGNETTE 1 - PART 1

Please read the following vignette. Try and envision this scenario occurring in a real clinical situation. Following the vignette, you will be asked a series of questions.

Mrs. May has been on a medical surgical unit for emphysema for 48 hours. She is currently receiving oxygen via tracheostomy mask. She was transferred from the medical intensive care unit two days ago where she had been on a ventilator. Mrs. May is being monitored on a continuous pulse oximeter.

The medical surgical unit where Mrs. May has been transferred has had several ill calls and the charge nurse is working on getting some additional staffing. In the interim, Nurse Adam, a nurse with 20 years medical surgical experience has agreed to work overtime. He has just worked from 7:00 PM-7:00 AM and will stay until 12:00 noon today. Adam is assigned Mrs. May at 7:00 AM. While providing her AM care, Adam turns off Mrs. May's oximeter alarm. While finishing Mrs. May's tracheostomy care, Adam receives a stat page from another nurse, and is notified that one of his other patients is about to code. He quickly calls the patient care assistant into Mrs. May's room to finish the care, instructs the patient care assistant to complete Mrs. May's AM care, adjusts the tracheostomy mask of Mrs. May, but forgets to put the pulse oximeter alarm back on.

For the next hour, the unit is very busy with the patient who has just coded. Adam is busy preparing to transfer the patient who just coded to the intensive care unit. Approximately one hour after Adam left Mrs. May to manage the coding patient, he receives a call from the Unit Clerk that the respiratory therapist has walked into the room and found Mrs. May with a pulse but unresponsive. The physician team and respiratory therapist are stat paged and respond immediately. Adam recognizes immediately that he had not put the pulse oximeter alarm back on.

Ms. May is transferred to the Intensive Care Unit and placed back on a ventilator. She remains in the Intensive Care Unit in critical condition.

VIGNETTE 1 - PART 2: ERROR CLASSIFICATION SYSTEM

Based on the outcome described in the vignette on the previous page, please choose an error level that you think best describes the error that has occurred in this vignette.

(Note: Harm is defined as impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting from an event.)

- () **No Error - Level A:** Circumstances or events that have capacity to cause error.
- () **Error but no Harm - Level B:** An error occurred but the error did not reach the patient.
- () **Error but no Harm - Level C:** An error occurred that reached the patient but did not cause patient harm.
- () **Error but no Harm - Level D:** An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm.
- () **Error, Harm - Level E:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention.
- () **Error, Harm - Level F:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization.
- () **Error, Harm - Level G:** An error occurred that may have contributed or resulted in permanent patient harm.
- () **Error, Harm - Level H:** An error occurred that required intervention necessary to sustain life.
- () **Death - Level I:** An error occurred that may have contributed to or resulted in the patient's death.

VIGNETTE 1 - PART 3: CONTRIBUTING FACTORS

Below is the list of factors that could have potentially contributed to the error described in the vignette you have just read. Please mark as many boxes that in your opinion apply to this vignette.

- Clinical knowledge of the nurse was inadequate
- Clinical experience of the nurse was inadequate
- Failure to follow acceptable standards of nursing practice and/or policies
- Poor clinical decision-making
- Compromised physical state while providing care of the nurse (eg. Hunger, fatigue)
- An overconfident attitude
- Faulty/Broken equipment or misuse of equipment
- An unexpected change in the workload
- Poor teamwork and communication
- Poor handoff
- Automatic or habitual response to a clinical situation by the nurse
- Stressful working environment, more than usual
- Excessive workload, more than usual
- A disruption or interruption in the workflow
- Errors occurring outside of the control of the nurse (eg pharmacy, blood bank)

VIGNETTE 1 - PART 4: PROBABILITY OF OCCURRENCE CLASSIFICATION

Based on your general knowledge of nursing practice, please mark the box that you think best represents the probability of this error occurring among nurses working in a setting similar to that described in this vignette.

7 - Certain probability of occurrence (Failure occurs at least once per week OR failure occurs 1 in every 5 times the situation arises)

6 - Failure is almost inevitable (Failure occurs every 3 to 4 days OR Failure occurs 1 in every 10 times the situation arises)

5 - Very high probability of occurrence (Failure occurs once per week OR Failure occurs 1 in every 50 times the situation arises)

4 - Moderately high probability of occurrence (Failure occurs once per month OR Failure occurs 1 in every 100 times the situation arises)

3 - Moderately probability of occurrence (Failure occurs once per every 3 months OR Failure occurs 1 in every 500 times the situation arises)

2 - Low probability of occurrence (Failure occurs once per year OR Failure occurs 1 in every 1000 times the situation arises)

1 - Remote probability of occurrence (Failure almost never occurs; no one remembers last failure)

VIGNETTE 2 - PART 1

Please read the following vignette. Try and envision this scenario occurring in a real clinical situation. Following the vignette, you will be asked a series of questions.

Patient A has had extensive abdominal surgery. Suzy, a new nurse on the unit, has five post-operative patients on this day shift. Suzy has two blood draws this morning and goes to the nursing station, grabs the pre-printed specimen labels for the two patients and puts them in her pocket. About an hour later she draws Patient A's blood and sends it off to the lab. She then draws the blood on Patient B.

Several hours later, Suzy receives a call from the laboratory indicating that Patient A's Potassium is 2.7 meq/dl. Suzy contacts the Nurse Practitioner who orders IV potassium boluses and a repeat serum chemistry (*Normal Potassium is 3.5 to 5 meq/dl*). After the 2 intravenous boluses of potassium, the lab calls with a critical value of 6.0 meq/dl. Suzy immediately calls the Nurse Practitioner to report this value.

Suzy begins to retrace her busy morning and thinks about what was going on in the unit when Patient A's chemistry was drawn. Suzy begins to consider the possibility that she had mislabeled the blood specimens and swapped the labels with Patient B. Suzy quickly calls the NP covering the unit and explains the situation. A stat potassium level is drawn on Patient B. The lab calls the unit indicating that the critical value on Patient B is 2.5 meq/dl. Suzy informs the covering NP that she thinks that she has mislabeled the specimens of these two patients. Patient B receives the necessary additional Potassium. Patient A has additional blood drawn to monitor the Potassium level.

By 8:00 am the following day, both patients had potassium levels within normal limits and experienced no sequelae from the mislabeled blood specimens.

VIGNETTE 2 - PART 2: ERROR CLASSIFICATION SYSTEM

Based on the outcome described in the vignette on the previous page, please choose an error level that you think best describes the error that has occurred in this vignette.

(Note: Harm is defined as impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting from an event.)

- () **No Error - Level A:** Circumstances or events that have capacity to cause error.
 - () **Error but no Harm - Level B:** An error occurred but the error did not reach the patient.
 - () **Error but no Harm - Level C:** An error occurred that reached the patient but did not cause patient harm.
 - () **Error but no Harm - Level D:** An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm.
 - () **Error, Harm - Level E:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention.
 - () **Error, Harm - Level F:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization.
 - () **Error, Harm - Level G:** An error occurred that may have contributed or resulted in permanent patient harm.
 - () **Error, Harm - Level H:** An error occurred that required intervention necessary to sustain life.
 - () **Death - Level I:** An error occurred that may have contributed to or resulted in the patient's death.
-

VIGNETTE 2 - PART 3: CONTRIBUTING FACTORS

Below is the list of factors that could have potentially contributed to the error described in the vignette you have just read. Please mark as many boxes that in your opinion apply to this vignette.

- Clinical knowledge of the nurse was inadequate
 - Clinical experience of the nurse was inadequate
 - Failure to follow acceptable standards of nursing practice and/or policies
 - Poor clinical decision-making
 - Compromised physical state while providing care of the nurse (eg. Hunger, fatigue)
 - An overconfident attitude
 - Faulty/Broken equipment or misuse of equipment
 - An unexpected change in the workload
 - Poor teamwork and communication
 - Poor handoff
 - Automatic or habitual response to a clinical situation by the nurse
 - Stressful working environment, more than usual
 - Excessive workload, more than usual
 - A disruption or interruption in the workflow
 - Errors occurring outside of the control of the nurse (eg pharmacy, blood bank)
-

VIGNETTE 2 - PART 4: PROBABILITY OF OCCURRENCE CLASSIFICATION

Based on your general knowledge of nursing practice, please mark the box that you think best represents the probability of this error occurring among nurses working in a setting similar to that described in this vignette.

7 - Certain probability of occurrence (Failure occurs at least once per week OR failure occurs 1 in every 5 times the situation arises)

6 - Failure is almost inevitable (Failure occurs every 3 to 4 days OR Failure occurs 1 in every 10 times the situation arises)

5 - Very high probability of occurrence (Failure occurs once per week OR Failure occurs 1 in every 50 times the situation arises)

4 - Moderately high probability of occurrence (Failure occurs once per month OR Failure occurs 1 in every 100 times the situation arises)

3 - Moderately probability of occurrence (Failure occurs once per every 3 months OR Failure occurs 1 in every 500 times the situation arises)

2 - Low probability of occurrence (Failure occurs once per year OR Failure occurs 1 in every 1000 times the situation arises)

1 - Remote probability of occurrence (Failure almost never occurs; no one remembers last failure)

VIGNETTE 3 - Part 1:

Please read the following vignette. Try and envision this scenario occurring in a real clinical situation. Following the vignette, you will be asked a series of questions.

Laura Goldberg (patient 1), was admitted to the gastroenterology service of the hospital for gastrointestinal (GI) bleeding on a general medical unit. *Mrs. Goldberg* is scheduled for the first case esophago-gastro-duodenoscopy (EGD) in the morning. Orders are written that evening for the procedure and she is made NPO for the night. *Lucy Goldstein* (patient 2) is admitted to another general medical unit in the hospital for GI bleeding. Although vital signs are stable, AM lab shows *Mrs. Goldstein's* (patient 2) hemoglobin has dropped by 2 grams, and it is determined that she needs an emergent EGD in the AM.

Jackie is the Charge Nurse for the GI Procedure area that day. She looks at the morning procedure sheet and sees that *Mrs. Laura Goldberg* (patient 1) is scheduled as the first case of the day in room A. Jackie then receives a phone call from a medical resident indicating that *Ms. Goldstein's* (patient 2) condition is worsening this morning, and that she will be coming down now. Jackie then tells the nursing staff in Suite A that the patient scheduled in Suite A has now become increasingly ill. Jackie does not recognize that the names of the two patients were different.

Ms. Goldberg (patient 1) arrives to the endoscopy suite (she is on the schedule but not emergently ill) and she is quickly rushed into Suite A. A procedure verification and time out is done as per hospital policy. *Mrs. Goldberg* (patient 1) verification and time out matches correctly as she is on the schedule in suite A. The endoscopy is started.

Ms. Goldstein (patient 2) is in the holding area. While she waits there, she becomes increasingly lethargic and her BP is now 80/palpation. The nurse immediately pages the medical resident. The resident evaluates the patient and quickly realizes that Jackie, the Charge Nurse, did not recognize in their early phone conversation that *Mrs. Goldberg* and *Mrs. Goldstein* were different patients. *Mrs. Goldstein* (patient 2) is given an extra fluid bolus and her blood pressure is stabilized and she is quickly rushed to Suite B for an emergent EGD. Both patients received an EGD as was scheduled, despite the patient mis-identification.

VIGNETTE 3 - PART 2: ERROR CLASSIFICATION SYSTEM

Based on the outcome described in the vignette on the previous page, please choose an error level that you think best describes the error that has occurred in this vignette.

(Note: Harm is defined as impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting from an event.)

- () **No Error - Level A:** Circumstances or events that have capacity to cause error.
 - () **Error but no Harm - Level B:** An error occurred but the error did not reach the patient.
 - () **Error but no Harm - Level C:** An error occurred that reached the patient but did not cause patient harm.
 - () **Error but no Harm - Level D:** An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm.
 - () **Error, Harm - Level E:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention.
 - () **Error, Harm - Level F:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization.
 - () **Error, Harm - Level G:** An error occurred that may have contributed or resulted in permanent patient harm.
 - () **Error, Harm - Level H:** An error occurred that required intervention necessary to sustain life.
 - () **Death - Level I:** An error occurred that may have contributed to or resulted in the patient's death.
-

VIGNETTE 3 - PART 3: CONTRIBUTING FACTORS

Below is the list of factors that could have potentially contributed to the error described in the vignette you have just read. Please mark as many boxes that in your opinion apply to this vignette.

- Clinical knowledge of the nurse was inadequate
 - Clinical experience of the nurse was inadequate
 - Failure to follow acceptable standards of nursing practice and/or policies
 - Poor clinical decision-making
 - Compromised physical state while providing care of the nurse (eg. Hunger, fatigue)
 - An overconfident attitude
 - Faulty/Broken equipment or misuse of equipment
 - An unexpected change in the workload
 - Poor teamwork and communication
 - Poor handoff
 - Automatic or habitual response to a clinical situation by the nurse
 - Stressful working environment, more than usual
 - Excessive workload, more than usual
 - A disruption or interruption in the workflow
 - Errors occurring outside of the control of the nurse (eg pharmacy, blood bank)
-

VIGNETTE 3 - PART 4: PROBABILITY OF OCCURRENCE CLASSIFICATION

Based on your general knowledge of nursing practice, please mark the box that you think best represents the probability of this error occurring among nurses working in a setting similar to that described in this vignette.

7 - Certain probability of occurrence (Failure occurs at least once per week OR failure occurs 1 in every 5 times the situation arises)

6 - Failure is almost inevitable (Failure occurs every 3 to 4 days OR Failure occurs 1 in every 10 times the situation arises)

5 - Very high probability of occurrence (Failure occurs once per week OR Failure occurs 1 in every 50 times the situation arises)

4 - Moderately high probability of occurrence (Failure occurs once per month OR Failure occurs 1 in every 100 times the situation arises)

3 - Moderately probability of occurrence (Failure occurs once per every 3 months OR Failure occurs 1 in every 500 times the situation arises)

2 - Low probability of occurrence (Failure occurs once per year OR Failure occurs 1 in every 1000 times the situation arises)

1 - Remote probability of occurrence (Failure almost never occurs; no one remembers last failure)

VIGNETTE 4 - PART 1

Please read the following vignette. Try and envision this scenario occurring in a real clinical situation. Following the vignette, you will be asked a series of questions.

Mary, a new graduate RN with six months experience is working evening shift on the renal unit. She has her usual patient load with five medical patients. One of her patients is scheduled to receive his 10 units NPH (*intermediate acting*) insulin at 8am and 9:30pm. Following two unexpected admissions, which are not uncommon, Mary recognizes that she had forgotten to give the 9:30pm NPH dose. At 11:30 pm, Mary administers the NPH and charts that the dose was given at 11:30 pm.

Mary then gives report to the oncoming night shift nurse. Mary does not tell the night shift nurse that the patient received NPH insulin two hours late.

The night shift nurse then gives report to the oncoming day shift nurse. The day shift nurse is informed by the patient care assistant that the patient's AM finger/glucose stick was 210. Based on his AM glucose reading, the patient receives an additional 4 units Humalog (regular fast acting insulin) in addition to his AM dose of NPH. At 10am, the day shift RN enters the patient's room to find him sweating, cold and clammy. Suspicious that he may be hypoglycemic, she checks his blood glucose to find that it is 25. She quickly administers a glass of orange juice and pages the physician. The physician orders 1 amp Dextrose 50 stat, repeat bedside glucose 15 minutes after Dextrose 50 is administered and report results to physician.

The patient quickly recovers from the hypoglycemic episode. However, later in the day, the physician anticipating that the current insulin regime is no longer effective reviews his insulin medication regime and discovers that his NPH had been given two hours later than scheduled. Based on this discovery, the physician decides NOT to change the insulin regime.

VIGNETTE 4 - PART 2: ERROR CLASSIFICATION SYSTEM

Based on the outcome described in the vignette on the previous page, please choose an error level that you think best describes the error that has occurred in this vignette.

(Note: Harm is defined as impairment of the physical, emotional, or psychological function or structure of the body and/or pain resulting from an event.)

- () **No Error - Level A:** Circumstances or events that have capacity to cause error.
 - () **Error but no Harm - Level B:** An error occurred but the error did not reach the patient.
 - () **Error but no Harm - Level C:** An error occurred that reached the patient but did not cause patient harm.
 - () **Error but no Harm - Level D:** An error occurred that reached the patient and required monitoring to confirm that it resulted in no harm to the patient and/or required intervention to preclude harm.
 - () **Error, Harm - Level E:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required intervention.
 - () **Error, Harm - Level F:** An error occurred that may have contributed to or resulted in temporary harm to the patient and required initial or prolonged hospitalization.
 - () **Error, Harm - Level G:** An error occurred that may have contributed or resulted in permanent patient harm.
 - () **Error, Harm - Level H:** An error occurred that required intervention necessary to sustain life.
 - () **Death - Level I:** An error occurred that may have contributed to or resulted in the patient's death.
-

VIGNETTE 4 - PART 3: CONTRIBUTING FACTORS

Below is the list of factors that could have potentially contributed to the error described in the vignette you have just read. Please mark as many boxes that in your opinion apply to this vignette.

- Clinical knowledge of the nurse was inadequate
- Clinical experience of the nurse was inadequate
- Failure to follow acceptable standards of nursing practice and/or policies
- Poor clinical decision-making
- Compromised physical state while providing care of the nurse (eg. Hunger, fatigue)
- An overconfident attitude
- Faulty/Broken equipment or misuse of equipment
- An unexpected change in the workload
- Poor teamwork and communication
- Poor handoff
- Automatic or habitual response to a clinical situation by the nurse
- Stressful working environment, more than usual
- Excessive workload, more than usual
- A disruption or interruption in the workflow
- Errors occurring outside of the control of the nurse (eg pharmacy, blood bank)

VIGNETTE 4 - PART 4: PROBABILITY OF OCCURRENCE CLASSIFICATION

Based on your general knowledge of nursing practice, please mark the box that you think best represents the probability of this error occurring among nurses working in a setting similar to that described in this vignette.

- () **7 - Certain probability of occurrence** (Failure occurs at least once per week OR failure occurs 1 in every 5 times the situation arises)
- () **6 - Failure is almost inevitable** (Failure occurs every 3 to 4 days OR Failure occurs 1 in every 10 times the situation arises)
- () **5 - Very high probability of occurrence** (Failure occurs once per week OR Failure occurs 1 in every 50 times the situation arises)
- () **4 - Moderately high probability of occurrence** (Failure occurs once per month OR Failure occurs 1 in every 100 times the situation arises)
- () **3 - Moderately probability of occurrence** (Failure occurs once per every 3 months OR Failure occurs 1 in every 500 times the situation arises)
- () **2 - Low probability of occurrence** (Failure occurs once per year OR Failure occurs 1 in every 1000 times the situation arises)
- () **1 - Remote probability of occurrence** (Failure almost never occurs; no one remembers last failure)
-

Additional Questions:

1. What month and year are you planning on graduating from your nursing program?

- Spring 2013
- Winter 2013
- Spring 2014
- Winter 2014

2. Do you have a degree/license/certification in another discipline/area of study?

No

Yes

If yes:

Major area of study: _____

Degree received: _____

3. What type of patients are you currently taking care of in your clinical?

Medical Surgical rotation

Woman's Health/Pediatrics

Critical Care

Psychiatry/Mental Health

Community Health

Other _____

4. Please check the rotations that you have COMPLETED in school to date:

Medical Surgical rotation

Woman's Health/Pediatrics

- Critical Care
- Psychiatry/Mental Health
- Community Health
- Other _____

5. Are you currently employed in a healthcare setting during the course of nursing school?

- No (skip to question #6)
- Yes

If yes, what was the setting?

Please check all that apply

- Acute care hospital
- Long term care facilities
- Ambulatory clinic
- Othe

If yes, what is your job title/role in this position (eg. Student nurse assistant):

If yes, Approximately how many years/months/weeks have you been employed in a healthcare setting? _____

If yes, On average, how many hours per week are you employed in a healthcare setting ? _____ (average hours)

If yes, approximately how many years/months/weeks have you been employed in

a healthcare setting? _____

If you are employed, how would you best describe your current clinical practice setting?

- General Surgery
- General Medicine
- Mixed Medical-Surgical
- Critical Care Unit/Intensive Care Unit
- Step Down Unit/Progressive Care Unit/Intermediate Unit
- Other: _____

6. If you are not currently employed in a health care setting, have you been employed in a healthcare setting any time in the past?

Yes

If yes, what type of health care setting? _____

7. Was there any content in your nursing program which specifically addressed patient safety?

No

Yes

If yes, was this content discussed in (check all that apply)

Clinical rotations only

In small group discussions

In lecture/classroom

Other: _____

8. In your past experiences, have you used the event reporting system?

- Yes
- No

Please feel free to share any comments/suggestions that you might have related to quality improvement and safety education in your nursing education program

Thank you again for your time and effort in participating in this study. It is greatly appreciated.
