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Developing a Hospital-Specific Electronic Inpatient Fall Surveillance Program
Phase 1

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Patient falls in hospitals continue to exist as a serious societal problem. The purpose of this study was to analyze nurses' perceptions of patient fall risk factors that may be used to develop an electronic patient decision support system to prevent patient falls. A survey was distributed to 150 nurses in a moderate-size hospital system in Central Florida (200+ beds). Survey questions were developed to identify 3 fall risk factor categories: patient-centered, operational, and critical. Sixty-five surveys (43.3%) were returned. Descriptive statistics such as frequencies and percentages were calculated on all study variables. All participants indicated they were familiar with the circumstances that have contributed to falls or near-falls of patients. Findings included the majority of nurses perceived both patient-centered and operational factors increased the risks for patient falls, with pertinent results indicating a lack of appropriate ambulatory device (90.8%), low to very low nurse staffing levels (87.7%), and a history of a fall within the past year (73.8%) increased the risk for falls. The nurses' perceptions define a standard medical terminology that can be recorded in electronic progress notes and programmed to quickly link to additional sources of fall risk data (eg, laboratory work, medications) housed within the hospital's electronic health record. Further research is needed to assess the feasibility of an electronic health record–based system to prevent hospital falls using risk factors identified in this and other studies. Key words: *falls, EHR, hospital, nursing, research*

HOSPITAL-RELATED PATIENT falls are a preventable public health problem. According to the Centers for Disease Control and Prevention,[1] 1 in every 3 adults 65 years or older experiences falls. Falls can lead to injuries such as head trauma, soft tissue injuries, lacerations, hip fractures, and premature death. In 2000, the direct medical costs related to nonfatal and fatal falls in the United States totaled more than $19 billion, which would equal $28.2 billion for 2010.[1]

Falls are a leading cause of adverse patient events in hospitals.[2] The incidence of falls among hospitalized patients ranges from 2.6 to 7.0 falls per 1000 patient-days, with 23% to 42% of the cases resulting in injury and 2% to 9% resulting in serious injuries including fractures, traumatic brain injuries, or death. Veluswamy and Price,[3] using 2001 data adjusted for inflation, estimated that 30% of hospital-based falls result in serious injury, adding more than $6437 per patient per fall to medical costs with injury and more than $425 without injury. As of October 2008, Medicare no longer reimburses hospitals for costs associated with treatments for hospital-acquired conditions and specifically identifies injuries related to patient falls

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as nonpayable and ''reasonably preventable.''[4] Studies that describe the financial burdens related to patient falls do not adequately reflect the intangible costs of rehabilitation, the reductions in the overall quality of life for the patient, or how the negative effects of patient falls are passed to society in general.[5]

Numerous researchers have identified fall risk factors followed by recommendations to prevent patient falls.[6,7] However, to date, hospital fall-prevention programs demonstrate limited success, which is often attributed to increasing complex patient disorders, functional deficits, inadequate nurse staffing patterns, and lack of adequate internal systems to assist the staff in timely risk assessment to ensure the application of interventions to prevent the falls.[8] Tzeng et al[9] concluded there is an absence of research pinpointing the meaningful use of computerized systems to decrease fall rates. Thede[10] describes with the advent of the electronic health record (EHR) nursing has failed to define a standard terminology of nursing care data into an electronic format to improve nursing decisions and the processes of patient care. Therefore, exploratory research to conceptualize a programmable electronic patient fall surveillance tool is worthy of study.

PURPOSE OF STUDY

The purpose of this study was to analyze nurses' perceptions of patient fall risk factors in a moderate-size hospital system in Central Florida. The reported perceptions may be used to develop an electronic patient decision support system to prevent patient falls that is sensitive to the hospital's falls experience.

METHODS

Research design

The study design is exploratory, descriptive survey research.

Study participants

A survey was distributed to 150 nurses in a moderate-size hospital system in Central Florida (200+ beds). Participants needed to be familiar with the circumstances that have contributed to falls or near-falls of patients and able to identify the nursing unit/floor where they usually worked. The study protocol was approved by the institutional review board of A. T. Still University and by hospital administration.

Materials

No previously validated survey instrument tailored to the purpose of this study was available. Survey questions were developed in 3 risk factor categories: patient-centered, operational, and critical (see Appendix A, pp 368–369). The guidelines specified within the Nursing Diagnoses, Definitions, and Classification system (NANDA) were used to develop patient-centered risk factor questions (eg, signs and symptoms, and observations routinely recorded by nurses such as confusion and dizziness).[11] According to NANDA International,[11] NANDA diagnoses can provide a standard nomenclature for use in the EHR. Operational risk factor questions were based on measures that contribute to falls such as nurse staffing levels, lighting levels, noise levels, and the distance (in rooms) the patients were from the nurses' station. The question related to critical risk factors for falls was developed to allow participants to list the top 5 most critical risk factors for falls in order of importance. Content validity of the survey was established by a small but representative number of nurse management experts within the target hospital prior to the general distribution of the survey.

Patient-centered and operational factors were gathered through a checklist and Likert scale format (see Appendix A, pp 368–369) and critical factors through open-ended response format. Participants identified what they perceived to be the patient fall risk factors within their unit and at what levels the factors contributed to falls.

Procedures

A total of 150 surveys were delivered to the hospital on 3 separate occasions from July to August 2012. Through a coordinating nurse administrator and hospital director, the surveys

were distributed to the study population at staff meetings and to nurse participants working on patient floors. Nurse participants received a letter of invitation along with the instrument in paper format (Appendix A). A small incentive was offered to encourage study participation. Potential respondents were informed that their participation was anonymous (ie, no identifying information was required) and voluntary and would only involve completing the survey. Participants returned surveys in a blank sealed envelope to the receptionist's desk within the Health Information Management Department of the hospital.

Data analysis

Statistical analysis was conducted using IBM SPSS Statistics version 20.0 (International Business Machines Corporation, Armonk, New York). Descriptive statistics such as frequencies and percentages were calculated on all study variables. To address the objectives of the study, the responses to 53 questions from the survey were calculated for frequencies and percentages for the entire sample and separately for 4 distinct groups based on the respondents' designation of hospital unit (medical/surgical, emergency department, critical care, and float). Side-by-side comparisons of the responses between the nurses working within each group were analyzed, and the results were reported through counts and percentages. In addition, the groups were visually compared through frequency tables.

RESULTS

Of the 150 surveys distributed to the target hospital, 65 surveys were returned (response rate = 43.3%). All participants (100%) indicated they were familiar with the circumstances that have contributed to falls or near-falls of patients. All identified the nursing unit/floor where they usually worked.

Survey participants were further grouped by hospital working units into 4 representative groups: medical/surgical, critical care, emergency department, and float. Medical/surgical included nurses who responded with medical/surgical, 3 south, ortho, 3 north, 5 south, postanesthesia care unit, obstetrics, progressive care unit, and oncology. Critical care included nurses who responded with intensive care unit or cardiovascular intensive care unit. Emergency department nurses who responded with ED. Float included nurses who responded with float, roam, rotates, case and risk management, nurse administration, and nurse education. Nurses from medical/surgical represented the largest proportion of respondents (n = 28, 43.1%) (Table 1).

From Table 2 A to D, several patterns emerged. The majority of nurses (82.6%) responded that all the patient-centered fall risk factors identified within the survey contributed to patient falls. The majority of the nurses (95.9%) noted mild to very severe confusion, dizziness, and faintness as being a risk factor, whereas mild to severe hearing and speech deficits received a lower score (59.2%). More nurses rated high to very high patient body mass index (BMI) (69.2%) as a risk factor than those who rated low to very low BMI (52.3%). More nurses rated high to very high patient temperature (58.5%) as a risk factor than those who rated low to very low temperature (43.1%). More nurses rated low to very low patient pulse rate (76.9%) as a risk factor than those who rated high to very high pulse rate (66.2%). The majority of nurses (90.8%) reported that a lack of appropriate ambulatory device was a factor that contributed to the risk of a patient fall. The majority of nurses (75.4%) responded that even having 1 (or more) intravenous (IV) lines contributed to the risk of a patient fall. The majority of nurses (52.3%) identified patient age 70 years or older contributed to a fall risk, and none identified aged 30 to 49 years as a fall risk. The majority of nurses (73.8%) identified that a history of a patient fall occurring

Table 1. Characteristics of Study Participants

Nurse Unit	Frequency	Percent
Critical care	7	10.8%
Emergency department	12	18.5%
Float	18	27.7%
Medical/surgical	28	43.1%
Total	65	100.0%

Table 2. Summary of Nurses' Perceptions for 36 Patient-Centered Fall Risk Factors Measured

A. Patient-Centered Fall Risk Factors

Fall Risk Factors	Not a Factor	Is a Factor: At the Mild to Moderate Level	Is a factor: Only at the Severe to Very Severe Level
Confusion	2 (3.0%)	37 (56.9%)	26 (40.0%)
Dizziness	0 (0.0%)	37 (56.9%)	26 (40.0%)
Agitation	8 (12.3%)	41 (63.1%)	16 (24.6%)
Combative	7 (10.8%)	42 (64.6%)	16 (24.6%)
Noncompliant	10 (15.4%)	37 (56.9%)	18 (27.7%)
Faintness	3 (4.6%)	35 (53.8%)	26 (40.0%)
Difficulty in ambulation	0 (0.0%)	38 (58.5%)	27 (41.5%)
Weakness	1 (1.5%)	41 (63.1%)	22 (33.8%)
Pain	16 (24.6%)	32 (49.2%)	15 (23.1%)
Paleness	22 (33.8%)	26 (40.0%)	14 (21.5%)
Cyanotic	14 (21.5%)	32 (49.2%)	16 (24.6%)
Fecal incontinence	10 (15.4%)	30 (46.2%)	22 (33.8%)
Urinary incontinence	3 (4.6%)	38 (58.5%)	23 (35.4%)
Visual impairment	5 (7.7%)	33 (50.8%)	25 (38.5%)
Hearing deficit	25 (38.5%)	30 (46.2%)	7 (10.8%)
Speech deficit	22 (33.8%)	34 (52.3%)	6 (9.2%)
Nausea and vomiting	21 (32.3%)	32 (49.2%)	10 (15.4%)
Shortness of breath	13 (20.0%)	33 (50.8%)	14 (21.5%)
Tremors	11 (16.9%)	41 (63.1%)	10 (15.4%)
Altered mental status	5 (7.7%)	31 (47.7%)	28 (43.1%)

B. Patient-Centered Fall Risk Factors

Fall Risk Factors	Not a factor	Is a factor
Body mass index		
Low to very low	23 (35.4%)	34 (52.3%)
High to very high	16 (24.6%)	45 (69.2%)
Temperature		
Low to very low	28 (43.1%)	28 (43.1%)
High to very high	19 (29.2%)	38 (58.5%)
Pulse		
Low to very low	7 (10.8%)	50 (76.9%)
High to very high	13 (20.0%)	43 (66.2%)
Respirations		
Low to very low	13 (20.0%)	43 (66.2%)
High to very high	11 (16.9%)	45 (69.2%)

(continues)

Table 2. Summary of Nurses' Perceptions for 36 Patient-Centered Fall Risk Factors Measured, Continued

C. Patient-Centered Fall Risk Factors					
Fall Risk Factors	**Not a Factor**	**Is a Factor: At the Low to Moderate Level**			**Is a Factor: Only at the High to Very High Level**
Use of ambulatory device	6 (9.2%)	36 (55.4%)			18 (27.7%)
Lack of ambulatory device	0 (0.0%)	33 (50.8%)			26 (40.0%)
D. Patient-Centered Fall Risk Factor					
Fall Risk Factors	**Not a Factor**	**Is a Factor**			
Intravenous lines	9 (13.8%)	Hep-Lock to 1 continuous line	≥2 Lines or continuous medication drip		
		35 (53.8%)	14 (21.5%)		
Pulse oxygen (level)		90-95 Spo_2	80-90 Spo_2	70-80 Spo_2	
	10 (15.4%)	10 (15.4%)	31 (47.7%)	8 (12.3%)	
Adult age (years)		18-29 y	30-49 y	50-69 y	≥70 y
	5 (7.7%)	5 (7.7%)	0 (0.0%)	13 (20.0%)	34 (52.3%)
Fall history		>3 y ago	2-3 y ago	1-2 y ago	<1 y ago
	1 (1.5%)	2 (3.1%)	5 (7.7%)	4 (6.2%)	48 (73.8%)

Data are presented as n (%).

Table 3. Summary of Nurses' Perceptions for 12 Operational-Centered Fall Risk Factors Measured

A. Operational-Centered Fall Risk Factors

Fall Risk Factors	Not a Factor	Is a Factor			
Low to very low nurse staffing	2 (3.1%)		57 (87.7%)		
Patient distance from nurse station	9 (13.8%)	As low as 1-5 rooms	>5 Rooms only	>10 Rooms only	
		19 (29.2%)	25 (38.5%)	4 (6.2%)	
Average nurse		As low as 1-3 min	>3 min only	>6 min only	>9 min only
Response time	4 (6.2%)	19 (29.2%)	22 (33.8%)	12 (18.5%)	2 (3.1%)

B. Operational-Centered Fall Risk Factors

Fall Risk Factor	Not a Factor	Is a Factor
Lighting level	13 (20.0%)	46 (70.8%)
Noise level (1st shift)	31 (47.7%)	16 (24.6%)
Noise level (2nd shift)	32 (49.2%)	17 (26.2%)
Noise level (3rd shift)	25 (38.5%)	27 (41.5%)
Housekeeping (1st shift)	28 (43.1%)	24 (36.2%)
Housekeeping (2nd shift)	28 (43.1%)	24 (36.2%)
Housekeeping (3rd shift)	27 (41.5%)	26 (40.0%)
Problem(s) with bed	6 (9.2%)	51 (78.5%)
Problem(s) call button	6 (9.2%)	51 (78.5%)

within the past year increased the risk for a new fall.

From Table 3 A to B, several patterns emerged. A majority of nurses identified low to very low staffing levels contributed to patient falls (87.7%). A majority of nurses identified that as the patient's distance from the nursing station increased (from 1 to >10 rooms), the risk for a fall increased (73.8%). A majority of nurses identified that as the average nurse response time increased (from 1 to >9 minutes), the risk for a fall increased (84.6%). A majority of nurses identified a problem with unit lighting levels was a risk factor that contributed to patient falls (70.8%). A higher percentage of nurses identified a problem with noise levels on the third work shift (41.5%) when compared with the first (24.6%) and second shifts (26.2%). A majority of nurses identified a problem with patients' beds and call buttons as risk factors that contributed to patient falls (78.5%).

Table 4 summarizes the top 5 reported critical risk factors. In addition, several comparisons of the perceptions of patient-centered and operational fall risk factors between the nurses working within the medical/surgical, emergency department, float, and critical care units were measured, and patterns that emerged from the data collected included the following:

When compared with the emergency department and critical care responses, the medical/surgical and float responses indicated a higher percentage of fall risks associated with patient-centered factors measured at the mild to moderate

Table 4. Summary of the Top 5 Reported Critical Risk Factors

Factor	Ranking	Cumulative Percentage
Confusion/disoriented	1	13 (20.0%)
Altered mental status	2	8 (12.3%)
Low staffing	3	6 (9.2%)
Dizziness	4	3 (4.6%)
Problem with call button	4	3 (4.6%)
Lack assist to bathroom	4	3 (4.6%)
No family/sitter	5	2 (3.1%)

Data are presented as n (%).

level for combativeness, noncompliance, pain, paleness, and speech deficit. When compared with the emergency department and critical care responses, the medical/surgical and float responses indicated a higher percentage of fall risks associated with a high to very high BMI. When compared with the medical/surgical and float responses, the emergency department and critical care responses indicated a slightly higher percentage of operational-centered fall risks associated with lighting levels, problems with beds, and problems with call buttons.

DISCUSSION

The main findings of the study demonstrated that patient fall risk factors are multifactorial. Nurses' perceived that both patient-centered and operational factors increased the risks for patient falls. Although there were strong patterns of agreement on many fall risk factors by the majority of nurses, there were also variations in perceptions on whether a factor contributed to a fall and the degree to which any particular factor contributed to a fall. These variances in respondents' perceptions may indicate that true differences in fall risks may occur within a hospital (eg, between nursing units) and between hospitals. Therefore, fall risks may not exist as a static, uniform phenomenon. This is further supported in that the target hospital had adopted a widely used manual fall risk assessment tool (Morse Fall Risk Scale) in its fall-prevention program that had been modified to meet additional needs related to its fall experience and history.

Of the patient-centered variables measured, the majority of nurses indicated patient's age 70 years or older contributed to falls, whereas none of the nurses perceived a fall risk for patient ages 30 to 49 years. This may indicate there was a low risk associated with the 30- to 49-year age group, or this risk was more difficult to evaluate in this setting because the hospital serves higher numbers of elderly than younger patients, and the nurses may not have had as much experience with falls within the 30- to 49-year age group.

Other findings demonstrated some elements of a fall risk can be operational. Of the top 5 reported critical risk factors, low staffing was ranked as number 3. In addition, the majority of nurses responded lack of staffing, increased distance (in rooms) of the patient from the nurse station, and delayed average nurse response time contributed to patient falls. A majority of nurses also reported problems with lighting levels, noise levels, beds, and call buttons; however, the results indicate the emergency department and critical care units have slightly more problems with these operational risk factors than the medical/surgical and float units that tended to have a higher rate of responses indicating patient-centered factors (eg patient combativeness and noncompliance) contributed to patient falls. This may be attributable to lower nurse-to-patient staff ratios within medical/surgical and float units compared with the emergency department and critical care units.

In line with the findings of this study, fall-prevention practices are best understood and facilitated by identifying patient fall risk factors. In a systemic literature review of patient-centered fall factors, Oliver et al[12(p122)] described the patterns of significant fall risks that emerged consistently included gait instability, agitation and confusion, urinary incontinence and frequency, falls history, and the prescription of ''culprit'' drugs, namely, sedatives and hypnotics. According to Giles et al,[13] the risk profile of patients who fall in a hospital is well known in the medical community including patients with cognitive impairment, Parkinson disease, certain at-risk medications, and incontinence. These factors are included on most validated fall risk tools used in clinical practice today. Giles et al[13] also note, however, the unanswered challenge is poor compliance with communicating screening criteria and alleviating the extra time and paperwork required to complete a screening at admission and throughout the patient's hospital stay. A system, therefore, that identifies patients at risk for a fall without the need for extra paperwork or other added work would be attractive and aligned with the purpose of this study as the first phase of that research.

Aside from the patient-centered factors that lead to a fall, operational or contextual factors unique to a hospital can also account for a fall. As an example of contextual factors, Dunton et al[14] demonstrated higher fall rates are associated with fewer nursing hours per patient day and a lower percentage of registered nurses (ie, nursing staff shortages were a predictive factor). In addition, Tzeng et al[8] concluded the level of noise in the environment is a significant hospital-specific contextual factor that positively correlates with patient falls. The authors' assumptions were patients exposed to higher levels of noise were sleep deprived, which related to increased disorientation and agitation, all of which may result in a fall. As noted, the results of this study aligned with prior studies that identified operational factors as contributing to patient falls.

According to Schwendimann et al,[15] various interdisciplinary hospital falls prevention programs have been implemented in the last decades; however, most of the programs had no sustained effects on falls reduction over extended periods. Coussement et al[16] found, via meta-analysis, no significant evidence that current fall-prevention strategies and methods in acute and chronic care hospitals have reduced the number of patient falls, although some individual studies targeting a patient's most important risk factors may be useful on long-term-care units. In their comprehensive review of literature, Hector and Choi[17] found most fall-prevention strategies use multidisciplinary approaches to fall prevention and educate all the staff involved; however, rapidly developing technology to prevent patient falls needs further evaluation. According to Currie[18(p211)] "... to date, most automated risk assessment techniques in the acute care setting are electronic versions of existing fall risk assessment instruments, with limited use of computerized decision support," and therefore, the findings of this study furthered this evaluation.

LIMITATIONS

Because of the format of the survey, we were unable to run tests for significance. Although the small size of the groups was a limitation to the study (medical/surgical $n_1 = 28$, emergency department $n_2 = 12$, critical care $n_3 = 7$, float $n_4 = 18$), because inferential statistics were not conducted, it is the investigators' belief that it did not negatively influence the presentation of the findings.

As there were 53 survey questions, missing responses tended to increase toward the end of the survey likely because of survey fatigue. In addition, only nurses were included, and capturing information from other medical practitioners would be useful for determining a system for preventing hospital-based falls.

CONCLUSIONS

The first step (phase 1) in developing a hospital-specific electronic inpatient fall surveillance program requires the definition of a standard terminology of nursing care data that can be entered into and accessed in an electronic format. Specific (sensitive) to the target hospital, the nurses' perceptions of fall risks identified in this study can be used to form a standard set of terms (key words) associated with falls (eg, patient signs, symptoms, and observations) that are recorded in nurses' electronic progress notes (a component of an EHR). In a separate second phase of study, an EHR interface can be developed that would recognize the standard terms and link them to additional sources of fall-related risk data (both patient-centered and operational), making the results of a robust fall analysis readily available to the nurse and other medical practitioners via computer terminal at the patient's bedside (all points of patient care). Within the reality of reduced health care funding and lowered nurse staffing levels, the improved nurse-EHR interaction can support a multifactorial and "real-time" patient fall assessment. Further research in this area is needed to respond to the need for improvements in patient decision support systems and finding the means to increase nursing productivity, all of which present as ongoing challenges for hospital administrators.

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Appendix A: Survey

SURVEY OF NURSES AND RISK MANAGERS' PERCEPTIONS OF PATIENT FALL RISK FACTORS

(1) Please check if you are a 1 RN 1 LPN; or, 1 RM (risk manager)
(2) Please indicate which nursing unit/floor you usually work on: _____; RM = N/A
(3) From your experience as a nurse (or risk manager), are you familiar with the circumstances that may have contributed to falls or near-falls of patients? ( ) YES ( ) NO.
(4) If your answer is YES to question #3, please complete the survey and return it in the sealed envelope provided to the dropbox at the receptionist's desk within the Health Information Management Department. Thank you so much for your participation!

DIRECTIONS

PART I—PATIENT-CENTERED FACTORS

Step 1. Within the left-sided margin below, please check YES (✔) or check NO (✔) to indicate whether you do or do not believe any of the patient-centered risk factors listed below contribute to a patient fall.

Step 2. From the fall risk factors that you have identified in step 1, in the right-sided-margin, please check (✔) what you believe is the *lowest level* at which the risk factor begins to contribute to a fall.

Check Yes/No	Fall Risk Factors[a] (Patient Centered)	Check (✔) the *Lowest Level* That You Believe the Factor May Begin to Contribute to Fall			
Yes No					
	Confusion (disoriented)	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Dizziness (eg, from meds)	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Agitation (anxious, restless)	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Combative	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Noncompliant	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Faintness	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Difficulty in ambulation/balance	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Weakness	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Pain	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Paleness	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Cyanotic	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Fecal incontinence or urgency	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Urinary incontinence or urgency	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Visual impairment	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Hearing deficit	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Communication/speech deficit	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Nausea and/or vomiting	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Shortness of breath	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Tremors	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Compromised mental state	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	Other (please specify)	Mild ( )	Moderate ( )	Severe ( )	Very severe ( )
	BMI (low)	Low ( )	Very low ( )	N/A	N/A
	BMI (high)	N/A	N/A	High ( )	Very high ( )
	Use of ambulatory device	Low ( )	Moderate ( )	High ( )	Very high ( )
	Lack of appropriate ambulatory device	Low ( )	Moderate ( )	High ( )	Very high ( )
	Use of IV	Hep-Lock ( )	1 cont. IV ( )	2 cont. IV ( )	> 2 cont. IV or cont. med drip ( )
	Blood pressure (low)	Low ( )	Very Low ( )	N/A	N/A
	Blood pressure (high)	N/A	N/A	High ( )	Very high ( )
	Temperature (low)	Low ( )	Very low ( )	N/A	N/A
	Temperature (high)	N/A	N/A	High ( )	Very high ( )
	Pulse rate (low)	Low ( )	Very low ( )	N/A	N/A

Check Yes/No	Fall Risk Factors[a] (Patient Centered)	Check (✓) the *Lowest Level* That You Believe the Factor May Begin to Contribute to Fall			
	Pulse rate (high)	N/A	N/A	High ( )	Very high ( )
	Respiratory rate (low)	Low ( )	Very low ( )	N/A	N/A
	Respiratory rate (high)	N/A	N/A	High ( )	Very high ( )
	Pulse ox	95-100 [N/A]	90-95 ( )	80-90 ( )	70-80 ( )
	Adult age (y)	18-29 y ( )	30-49 y ( )	50-69 y ( )	≥70 y ( )
	History of previous fall	>3 y ago ( )	2-3 y ago ( )	1-2 y ago ( )	<1 y ago ( )
	Other (please specify)	Low ( )	Very low ( )	High ( )	Very high ( )

[a]Excerpted from the guidelines of NANDA (2009-2010 version)—Nursing Diagnoses, Definitions, and Classification Web site: http://www.nandanursingdiagnosislist.org.

PART II—OPERATIONAL FACTORS

Step 1. Within the left-sided margin below, please check YES (✓)or check NO (✓) to identify whether you do or do not believe any of the operational risk factors listed below contribute to a patient fall.

Step 2. From the fall risk factors that you have identified in step 1, in the right-sided-margin, please check (✓) what you believe is the *lowest level* at which the risk factor begins to contribute to a fall.

Check Yes/No		Fall Risk Factors (Operational)	Check (✓) the *Lowest Level* if You Believe the Factor May Begin to Contribute to Fall			
Yes	No					
		Level of staffing	Low ( )	Very low ( )	N/A	N/A
		Patient distance from nurse station	1-5 rooms ( )	>5 rooms ( )	>10 rooms ( )	>15 rooms ( )
		Average nurse response time	1-3 min ( )	>3 min ( )	>6 min ( )	>9 min ( )
		Problem with lighting levels				
		Noise level—1st shift				
		Noise level—2nd shift				
		Noise level—3rd shift				
		Problem with housekeeping—1st shift				
		Problem with housekeeping—2nd shift				
		Problem with housekeeping—3rd shift				
		Problem with bed (rails or sensors)				
		Problem with call button				
		Other (please specify)/				

PART III—CRITICAL FALL RISK FACTORS

Directions: Please identify (fill in below) what you believe are the top 5 critical fall risk factors within their order of importance (#1 being the greatest fall risk factor). These would be fall risk factors you believe might result in an imminent fall.

Critical Risk Fall Factors	
1	
2	
3	
4	
5	