Critical Care Nurses' Beliefs about Management Practices of Adult Patients

BY

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THESIS

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This thesis is dedicated to my husband, Luke, my children, Lindsey and Kyle, and my parents, Kaaren, Larry, and Rich. Their patience, sacrifice, and encouragement enabled me to attain this educational milestone.
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# TABLE OF CONTENTS

## I. INTRODUCTION
A. Background ........................................................................................................... 1  
B. Statement of the Problem .................................................................................. 1  
C. Purpose of the Study .......................................................................................... 1

## II. ELICITING AND EXPLORING RESPONSES: USING VIGNETTES IN RESEARCH WITH PEDIATRIC PAIN EXEMPLAR
A. Vignette Description .......................................................................................... 3  
B. Historical Development ..................................................................................... 4  
C. Vignette Use in Research .................................................................................. 5  
   1. Qualitative ........................................................................................................ 5  
   2. Quantitative ....................................................................................................... 6  
   3. Mixed Method ................................................................................................... 7  
D. Construction of Vignettes ................................................................................... 7  
E. Establishing Validity and Reliability of Vignettes ............................................. 9  
F. Establishing Trustworthiness and Dependability for Qualitative Research ........ 10  
G. Benefits of Vignette Use ................................................................................... 11  
H. Limitations of Vignette Use .............................................................................. 12  
I. Nurses’ Pediatric Pain Management Practices as an Exemplar ........................... 13  
J. Results ................................................................................................................ 13  
   1. Nurses’ Ratings of Children’s Pain and Morphine Administration ................ 14  
   2. Nurses’ Thinking About Assessing Pain and Administering Morphine .......... 14  
   3. Factors Influencing Nurses’ Morphine Choices ............................................ 16  
      a. Smiling child .................................................................................................. 16  
      b. Grimacing child ........................................................................................... 17  
   4. Commonalities and Differences Across Dosage Group .................................. 17  
K. Discussion and Conclusion .............................................................................. 18  
L. References .......................................................................................................... 20  
M. Tables ................................................................................................................. 26

## III. BELIEFS, ATTITUDES, AND INTENTIONS OF CRITICAL CARE NURSES IN ADULT DELIRIUM MANAGEMENT
A. Introduction ........................................................................................................ 29  
B. Literature Review .............................................................................................. 31  
C. Theory of Planned Behavior ............................................................................ 34  
D. Methods ............................................................................................................. 35  
   1. Design .............................................................................................................. 35  
   2. Sample and Setting ......................................................................................... 36  
   3. Measures .......................................................................................................... 36  
      a. Demographic survey .................................................................................... 36  
      b. Vignettes ........................................................................................................ 37  
      c. Interview ....................................................................................................... 38  
      d. Ageism .......................................................................................................... 39  
   4. Procedure ......................................................................................................... 39  
   5. Data Analysis ................................................................................................... 40
TABLE OF CONTENTS (continued)

E. Results .................................................................................................................................40
   1. Nurses’ Characteristics .................................................................................................40
   2. Nurses’ Written Responses to Vignettes .......................................................................41
      a. Identification ...............................................................................................................41
      b. Action ..........................................................................................................................41
      c. Prioritization ...............................................................................................................41
   3. Nurses’ Beliefs in Response to the Older and Younger Adults with Mixed Delirium ........42
      a. Behavioral beliefs .......................................................................................................42
      b. Normative beliefs .......................................................................................................43
      c. Control beliefs ............................................................................................................44
      d. Actual behavioral control ..........................................................................................45
   4. Ageism .............................................................................................................................46
F. Discussion .........................................................................................................................47
G. Conclusion .........................................................................................................................51
H. References .........................................................................................................................53
I. Tables ....................................................................................................................................61

APPENDICES .........................................................................................................................63
   Appendix A IRB Approval Letters .......................................................................................64

VITA ..........................................................................................................................................72
# LIST OF TABLES

<table>
<thead>
<tr>
<th>TABLE</th>
<th>PAGE</th>
</tr>
</thead>
<tbody>
<tr>
<td>I. COMPARISON OF FREQUENCY AND PERCENTAGE OF PAIN LEVELS ON 0-10 SCALE THAT NURSES ASSIGNED TO CHILDREN IN VIGNETTES PRIOR (N=30) AND CURRENT (N=57) STUDY</td>
<td>21</td>
</tr>
<tr>
<td>II. COMPARISON OF FREQUENCY AND PERCENTAGE OF NURSES’ ANALGESIC AND ADMINISTRATIVE CHOICES IN VIGNETTES PRIOR (N=30) AND CURRENT (N=57) STUDY</td>
<td>22</td>
</tr>
<tr>
<td>III. COMPARISON OF FREQUENCY AND PERCENTAGE OF ASSESSMENT AND ANALGESIC ADMINISTRATION FACTORS OF SMILING AND GRIMACING CHILD IN PRIOR (N=30) AND CURRENT (N=57) STUDY</td>
<td>24</td>
</tr>
<tr>
<td>IV. DESCRIPTIVE STATISTICS AND FREQUENCY OF CRITICAL CARE NURSES’ DEMOGRAPHIC DATA (N=30)</td>
<td>50</td>
</tr>
<tr>
<td>V. COMPARISON OF FREQUENCY AND PERCENTAGE OF NURSES’ RESPONSES TO DELIRIUM VIGNETTES BY SUBTYPE AND AGE (N =30)</td>
<td>51</td>
</tr>
</tbody>
</table>
SUMMARY

Delirium is the most frequent complication of hospitalized older adults, and is most prevalent in intensive care units. Negative sequelae of delirium in older adults include increased mortality rates, length of stay, cognitive impairment, functional decline, and decreased quality of life. Nurses are in a position to recognize and manage delirium in patients, yet research has indicated that nurses are neither identifying, nor managing delirium in these patients. The purpose of this study was to explore critical care nurses’ recognition of delirium, beliefs and perceived barriers to the assessment and management of delirium, and to ascertain if ageism towards the older adult is a barrier to delirium recognition and management in the older adult.

We used a qualitative descriptive design with methodology informed by the Theory of Planned Behavior to elicit 30 intensive care unit nurses’ responses to delirium vignettes in order to elicit behavioral, normative, and control beliefs. The vignettes reflect the 3 subtypes of delirium: hyperactive, hypoactive, and mixed. Information on recognition of delirium, intention to act, and prioritization of action were obtained. We used descriptive and content analysis to address the purposes of the study.

Nurses recognized assessment findings associated with delirium but did not use the term “delirium”. The majority of nurses prioritized management of the young adult patient with the mixed subtype of delirium compared to 20% who prioritized the older adult with the same scenario and expressed ageist beliefs towards the older adult, though reportedly it would not impede delirium recognition and management. The majority of nurses made the management of the older adult with hypoactive delirium their lowest priority. Nurses believed that delirium assessment and recognition is important and mainly their role. Nurses reported issues that hinder their ability to assess for and act on delirium include time, staffing, and support. In addition to altering those factors, while further nursing education is needed, incorporating a delirium assessment tool into their usual charting, and having a delirium policy and protocol in place would enable nurses’ delirium assessment and management.

This dissertation is comprised of one original research study, written as two publishable papers.
SUMMARY (continued)

The two manuscripts are presented in this thesis, including references and tables. The first is a methods paper on the use of vignettes in research with original research as an exemplar, while the second is a paper on the delirium research and results. The approval letters from the Institutional Review Boards at the University of Illinois at Chicago and Advocate Health Care, and a letter of approval to recruit participants from the American Association of Critical Care Nurses are included in the appendices. Lastly included, is a copy of my curriculum vitae.
I. INTRODUCTION

A. Background

Delirium is a neuropsychiatric disorder characterized by an acute and fluctuating altered level of consciousness, disorganized thinking, reduced ability to focus, sustain, or shift attention, development of perceptual disturbance, with an underlying physiological or medical cause (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). Though delirium can occur in anyone of any age group, the incidence of delirium is highest in older adults and most prevalent in the intensive care unit (Balas et al., 2007; Bergeron, Dubois, Dumont, Dial, & Skrobik, 2001; Ely et al., 2001; McNicoll et al., 2003; Spronk, Riekerk, Hofhuis, & Rommes, 2009). Delirium is the most frequent complication of hospitalizations in the older adult (Foreman, 1993; Leslie et al., 2005). Delirium’s detrimental effects include: increased mortality rates, functional and cognitive decline, increased length of hospital stay, and often, inability to return home (Ouimet, Kavanagh, et al., 2007; Ouimet, Riker, et al., 2007; Pisani et al., 2009; Robinson et al., 2009; Van Rompaey et al., 2009). These deleterious effects not only decrease quality of life, but drive the cost of healthcare up (Leslie et al., 2008; Milbrandt et al., 2004).

B. Statement of the Problem

Despite valid and reliable tools that have been developed to assess for delirium, research has revealed that these tools are still being underused (Devlin, Fong, et al., 2008; Fick et al., 2007; Steis & Fick, 2008) and that nurses are still not recognizing and acting on patients experiencing delirium (Devlin, Fong, et al., 2008; Fick et al., 2007; Flagg et al., 2010; Lemiengre et al., 2006; McCarthy, 2003a; Steis & Fick, 2008).

C. Purpose of the Study

The purpose of this study was to explore critical care nurses’ recognition of delirium, perceived barriers and behavioral, normative, and control beliefs as defined by Fishbein and Ajzen (2010) about the assessment and management of delirium, and to ascertain if ageism towards the older adult is a barrier to delirium recognition and management. In order to elicit participant responses, we investigated the use of
vignettes in research, and then developed four delirium vignettes as measures based on our research and the delirium literature. The use of vignettes for this study was appropriate because vignettes simulated aspects of real life experience providing stimuli and context to which the participants were asked to respond. The vignettes were the instrument used to measure the participants’ responses. Vignettes have been used to elicit attitudes, beliefs, perceptions, and values through various research designs, and across disciplines (e.g., sociology, nursing, and gerontology) (Hughes, 1998; Schoenberg & Ravdal, 2000; Van Hulle Vincent & Gaddy, 2009; Wang & Mentes, 2009).
II. ELICITING AND EXPLORING RESPONSES: USING VIGNETTES IN RESEARCH WITH PEDIATRIC PAIN EXEMPLAR

Over the years, vignettes have emerged in research as instruments worthy of attention for their usefulness in eliciting data from research participants. Vignettes are used for a wide range of research programs in vastly different venues and fields. It is not surprising that all descriptions and definitions of vignettes are not synonymous in the literature. In addition, the reasons for using vignettes vary greatly in research, as well as the methods through which they are constructed. The purpose of this paper is to review the methodology of vignette use and construction in the literature by exploring the history of vignette use in research, identify the use of vignettes in both qualitative and quantitative research, discuss ways in which vignettes have been constructed and tested with regard to validity and reliability, and summarize the benefits and limitations of implementing vignettes as research instruments. We provide an example of vignettes used as an instrument for data collection in research about nurses’ pain assessment and analgesic administration.

A. Vignette Description

Vignettes have many descriptions in the literature. Similar descriptions of vignettes include anticipating a reaction from the audience to whom the vignette is presented (Finch, 1987; Hughes, 1998; Lanza, 1988). Vignettes provide the context or meaning to the experience. Response to the simulation of a real life experience is a key component to the vignette. It is this response that the researcher is measuring. Descriptions by the following researchers bring these similarities to light. Hughes (1998) described vignettes as aspects of reality that provide stimuli to which participants are asked to respond. Lanza (1988) described the vignette as a “simulation method” through a “written illustration or story” in which details about the setting, language, and behavior of the hypothetical participants are presented (p. 346). And, Finch (1987) described vignettes as “short stories about hypothetical characters in specified circumstances, to whose situation the interviewee is invited to respond” (p.105). For Finch, who implemented vignettes in survey design, the use of vignettes allowed for an indirect, but concrete way to
elicit participants’ beliefs and social norms within a social context given a set of circumstances, instead of in a vacuum, acknowledging that responses are usually situation specific.

The vignette does not always have to be in the form of written text. Other formats in which vignettes can be presented include audiotape, videotape, computer-based, images (artwork and/or photographs), or other art forms (music, literature, film) (Barter & Renold, 1999; Eskelinen & Caswell, 2006; Hughes, 1998; Hughes & Huby, 2002). Synonym terms for vignettes include case stories, case studies, scenarios, simulation methods, and simulated cases (Brauer et al., 2009; Jeffries & Maeder, 2005; Lanza, 1988).

B. Historical Development

The use of vignettes in research has its roots in the social sciences where they were used to provide context to data collected on beliefs, values and norms. Authors have identified Herskovits’ 1950 publication as a sentinel work in introducing the concept of the hypothetical situation into qualitative research (Gould, 1996; Hughes & Huby, 2002). Vignettes became a popular tool for social science investigators using survey design. Social scientists’ used survey methods to collect empirical data on social beliefs, norms, and values, but were criticized because the surveys were not put in any context. In response to criticism of survey methods and result validity, Alves and Rossi (1978) developed and included 50 vignettes which provided social circumstances to their survey on people’s beliefs about the fairness of household resource distribution. Though the vignettes Alves and Rossi developed provided meaning and context to the survey questions, their use of vignettes was criticized because the data they collected were based on hypothetical situations: participants would not necessarily respond the same way to a hypothetical situation as they would in real life (Faia, 1980). This dispute between beliefs and actual actions in the use of vignettes remains unsettled and controversial (Barter & Renold, 2000; Finch, 1987; Hughes, 1998; Lucas, Collins, & Langdon, 2009).

Vignettes continue to be used by investigators to elicit attitudes, beliefs, perceptions, and values through various research designs. Vignettes are used in quantitative and qualitative research and across disciplines (e.g., sociology, nursing, political science, and gerontology) (Hughes, 1998; Jenkins, Bloor,

In addition to their usefulness for investigating attitudes and beliefs, vignettes have also been beneficial measures of knowledge (Fick, Hodo, Lawrence, & Inouye, 2007), behaviors and actions (Hughes, 1998), quality of clinical practice (Peabody et al., 2004), decision-making and clinical judgment (Falzer & Garman, 2009; Loveridge, 2004; Wang & Mentes, 2009), and instructional design (Angelides & Gibbs, 2006; Chau et al., 2001; Devlin, Marquis, et al., 2008; Jeffries & Maeder, 2005; Veal, 2002). The research question, purpose of the study, how the vignette is to be used, and the conclusions drawn after data analysis are of utmost importance to the appropriateness of using vignettes as a research instrument.

C. Vignette Use in Research

1. Qualitative

In qualitative research, vignettes can be used with open-ended interview questions in order to gain rich data (Finch, 1987). Interview data can be analyzed through different approaches based on the research purpose and study design and through content analysis, underlying themes about the collected data can be explored (Hsieh & Shannon, 2005). Hsieh and Shannon (2005) describe three different approaches to content analysis: conventional, directed, and summative.

In conventional content analysis, categories are developed directly from the data. This is generally used when there is limited preexisting data on the phenomenon under investigation. Hellzen, Kristiansen, and Norbergh (2004) used conventional content analysis to analyze the content of responses to a vignette of an older adult with schizophrenia and dementia behavior, which led to the development of themes about the nurses’ views of care of the fictitious patient. Likewise, vignettes can be developed to introduce a phenomenon; interviews followed by open-ended questions and analysis of the resultant transcripts can lead to discovery or authenticate existing themes.
Directed content analysis is beneficial when there is existing research on the phenomenon and categories can be predetermined based on the literature, but when further investigation is needed. Categories are added or revised, based on the continued research, as new findings are revealed. Van Hulle Vincent and Gaddy (2009) implemented directed content analysis when analyzing data collected using open-ended interview questions based on vignettes of children’s pain.

Lastly, in summative content analysis words are counted and evaluated for how they are used, the purpose being to discover the meaning behind the words or content (Hsieh & Shannon, 2005). Reactions to vignettes can be coded using summative content analysis in order for the investigator to understand how specific words are being used by participants. Rashotte et al. (2011) used summative content analysis to analyze documented narrative pain assessments extracted from pediatric patient charts in the Canadian Pediatric Pain Research database.

In addition to elucidating data, vignettes can be used in qualitative research with focus groups to stimulate discussion or as a warm-up exercise (Barter & Renold, 1999). Vignettes can also be used to close an interview, to shift focus from personal to abstract, to break the ice at the onset of an interview by beginning with the abstract and progressing to personal responses, or to compare perceptions of different groups to situations (Barter & Renold, 1999; 2000).

2. Quantitative

In quantitative research, vignettes are used as measures of decision-making, knowledge, and quality of practice, to ascertain quantifiable data (counts, scores, or percentages) (Fick et al., 2007; Jeffries & Maeder, 2005; Patel et al., 2011; Peabody et al., 2004; Pham et al., 2009). Responses to close-ended, open-ended, or multiple choice questions can be collected, scored, and analyzed statistically. For example, Pham et al. (2009) evaluated physician performance in response to clinical vignettes and statistically analyzed the results comparing three different testing formats. Peabody et al. (2004) developed computerized clinical vignettes to measure of quality of clinical practice and compared the vignette use to 2 different standard methods. The investigators concluded that not only are vignettes a valid measure of quality clinical practice, vignettes are inexpensive, easy to use, a viable way to compare
quality among and within sites, and can be used for diverse settings and situations (Peabody et al., 2004). Physicians’ test ordering, prescribing practices, and nurses’ responses to patients’ pain reports have also been measured using vignettes (McDonald, Laporta, & Meadows-Oliver, 2007; Patel et al., 2011; Windak et al., 2010).

3. Mixed Method

A mixed method approach utilizing vignettes can be a natural way of not only assessing knowledge, attitudes, behaviors, beliefs, and intentions, but also understanding the “why” behind the use of that knowledge and factors that impact judgment, decision-making, or actions (Hughes & Huby, 2002; Schoenberg & Ravdal, 2000). Using clinical vignettes, Chan, Chung, Wong, and Yang (2006) compared and evaluated two nursing practice models in light of the challenges faced by Hong Kong nurses during the severe acute respiratory syndrome epidemic. The use of mixed methods enabled the researchers to have more complete comparisons of practice models, based on the qualitative data of participants’ perceptions and quantifiable observational data.

D. Construction of Vignettes

Vignettes are constructed through multiple means such as: review of the literature, scholarly expertise, personal experience on the topic being presented, field notes from non-participant observation, actual or real life cases, previously constructed vignettes from the literature, discussions with members of the population under investigation and professionals working with them, and in collaboration with professionals and specialists in the field (Finch, 1987; Hughes, 1998; Rapaport et al., 2008; Schoenberg & Ravdal, 2000). Other important factors to take into account when constructing vignettes include: the purpose of the research, methods, type of respondents, nature of the content, time available, data collection method, recording of the data, and ethical issues (Richman & Mercer, 2002). Of central importance is that the vignette is a realistic portrayal of the situation to which the participant is invited to respond; the more realistic the scenario, the more sensitive and accurate the instrument (Finch, 1987; Hughes, 1998; Lanza, 1988; Schoenberg & Ravdal, 2000).
The wording and complexity of the vignette may influence how well participants relate to it. Basic unambiguous wording, easily understood by participants of different backgrounds, and not left open to unwarranted assumptions or varying interpretation is ideal (Hughes, 1998; King et al., 2004; Stolte, 1994). In reviewing written vignettes, Jeffries and Maeder (2005) found that vignettes ranged from 25 to 1000 words in length. The longer and more complex vignettes are, the more likely the participant will lose attention and interest (Stolte, 1994). In order to ensure clarity, accuracy, and relevance, the vignettes need to be pretested and then revised as necessary (Hughes, 1998; Paddam, Barnes, & Langdon, 2010; Schoenberg & Ravdal, 2000).

Two different methods of vignette construction have been proposed. The first is described by Paddam et al. (2010) who proposed a vignette development method which includes literature review, discussion with experts, synthesizing themes, creating the vignettes, review by an expert panel, checking inter-rater reliability, revising as necessary, and repeating the last steps until reliable vignettes are developed for use in the research. A second method of vignette construction for decision-making is the factorial study design method proposed by Brauer et al. (2009), in which all relevant factors that define the situation or decision problem are included creating a full factorial data set. A random subset of combinations of predefined criteria are then generated and incorporated into written vignettes (Brauer et al., 2009). An apparent limitation to this method is the large number of combinations of factor categories (thus vignettes) that might be generated. The investigator can limit the combinations, which is known as incomplete factorial study design method (Brauer et al., 2009). Wang and Mentes (2009) also used factorial method to construct twenty vignettes based on four types of behaviors of hospitalized elderly adults with associated clinical characteristics.

Brauer et al. (2009) described three benefits to the factorial study design method for creating vignettes, over the traditional narrative or “storytelling” vignette. First, vignette construction using factorial design includes more realistic and unbiased descriptions of healthcare decisions and issues. Second, the actual influence of the factors in the hypothetical situation can be studied. Lastly, the
construction of vignettes using this method is more statistically efficient than randomizing categories manually (Brauer et al., 2009).

To summarize, vignettes are constructed through multiple means with many factors to take into consideration. A realistic and relative situation for the participants must be portrayed in the vignette. The vignette must be concise, accurate, and unambiguous. Methods for vignette construction depend upon the purpose and design of the research investigation.

E. Establishing Validity and Reliability for Quantitative Research

Once vignettes are constructed, they must be tested for reliability and validity. Reliability of a measure is the extent to which repeated measurement on the same phenomenon yields the same results (Waltz, Strickland, & Lenz, 2005). Validity of a measure refers to the degree to which it achieves its intended purpose (Soeken, 2005). As with any instrument, vignettes used as measures can be reliable, but not valid, therefore both must be present.

Reliability of vignettes can be established through several methods dependent on the research design, purpose of the study, and intended use of the vignette. If the vignettes are the instrument being used to measure classification or categorization, criterion referenced reliability measures, such as test-retest reliability and inter-rater reliability are used (Waltz et al., 2005). For example, Wang and Mentes (2009) constructed 20 vignettes through the use of factorial survey design and reported a Cronbach’s alpha of 0.84, demonstrating internal reliability of the vignettes. Also, based on re-administration of a random selection of the vignettes, a test-retest reliability of 0.74 (p < 0.001) was established. Lanza and Carifio (1992) established reliability through testing their vignettes as well, establishing an inter-rater reliability \( r = 0.94 \) among their 12 judges on the global assessment of assault severity.

Content validity addresses adequate representation of the content domain to be measured (Soeken, 2005). Content validity of vignettes can be established through the review of a panel of experts (Gould, 1996; Lanza & Carifio, 1992). For example, in their development of patient assault vignettes, Lanza and Carifio (1992) established content validity through twelve experts that formed their review panel. The experts were asked to rate the plausibility of five specific categories, specified through the
literature, of the six vignette versions resulting in an alpha coefficient of 0.95, which quantified the extent to which the experts agreed on the ratings (Soeken, 2005). Using a similar approach, Fick et al. (2007) constructed five vignettes related to delirium superimposed on dementia based on the literature and review of a geropsychiatrist, pre-tested the vignettes, and had a panel of four experts rate the diagnosis and delirium subtype of five vignettes with an overall agreement of 84% on content establishing content validity.

Construct validity is important in determining if measures are consistent with the defined theory or concepts (Soeken, 2005). One way to establish construct validity is through the multitrait-multimethod approach which is based on two premises: different measures of the same construct are highly correlated, and measures of different constructs have low correlations, known as convergent and discriminant validity respectively (Soeken, 2005). An example of multitrait-multimethod is Lanza and Carifio (1992) comparison of an item level assessment of their six vignette versions of assault vignettes and the Overt Aggression Scale ($r = 0.56$). When tested, the constructed vignettes demonstrated the ability to discriminate levels of aggressive non-assault and assault behaviors in comparison to the Overt Aggression Scale ($F_{10,2}=23.17; F_{10,2}=28.12, p < 0.0001$) (Lanza & Carifio, 1992).

Internal and external validity are issues related to design. Instrumentation can pose a threat to internal validity (Creswell, 2009). To decrease a threat to internal validity caused by vignette instrumentation, established vignettes should consistently be implemented. The interaction of history and treatment can pose a threat to external validity (Creswell, 2009). By replicating a study using the same vignettes at later times and comparing the study results, the investigator decreases the threat to external validity.

F. Establishing Trustworthiness and Dependability for Qualitative Research

In qualitative research, validity is determined by the trustworthiness of the data and its analysis (Hupcey, 2005). Included in establishing trustworthiness are the concepts of authenticity or credibility, and transferability (Hupcey, 2005). Vignettes can be assessed for authenticity and credibility of content through asking several questions. Does the vignette make sense to the experts and to the participants?
Was the vignette constructed through review of the literature, with experts in the field, and without researchers’ bias (Hupcey, 2005)? The transferability of the findings may not be a priority for the qualitative study using vignettes, because the findings may not extend beyond the participants in the sample (Hupcey, 2005).

Spalding and Phillips (2007) presented ways they established trustworthiness of the vignette created for an action research case study on the improvement of health care professionals’ preoperative teaching strategies for patients undergoing hip replacement. The creation of the vignette was triangulated; three different sources were used in its development: the investigators’ observations of health care professionals’ preoperative teaching, authentication by all presenters of the vignette as an acceptable representation, and through feedback of content experts. The investigators also presented the vignette and data to participants for member checking. One participant remarked that the portrayal of the person in the vignette was so realistic, it could have been her own experience, giving further credibility to the vignette (Spalding & Phillips, 2007).

Hupcey (2005) suggested ways to determine dependability and auditability of qualitative research. Applying these suggestions to use of vignettes, vignettes can be assessed for dependability of the content through asking several questions. Is there consistency of the vignette data when coded? Are coding checks being performed and are they auditable? Are those coding in agreement, or have they come to consensus? Also, would experts in the field agree with the findings generated by the vignette?

G. Benefits of Vignette Use

There are multiple benefits of using vignettes in research, such as decreased time and expense, and increased investigator control. Using vignettes alone or in addition to observation allows for exploration of actions and behaviors and the reasons behind those stated actions (Gould, 1996). Vignettes decrease expense and time in waiting for specific circumstances and situations to occur (Barter & Renold, 2000; Fick et al., 2007; Gould, 1996; Hughes, 1998). This is especially important when the incidence of a specific situation occurring is rare (Hughes & Huby, 2002). Also, in observation, unpredictable circumstances may arise and the researcher may lose data or participants. Vignettes allow for the
researcher to collect data in a systematic manner, providing context for which the participant is asked to respond. King et al. (2004) found that providing context potentially reduced bias, made measurements more cross-culturally comparable, and minimized differences in interpretation of questions and misinterpretation of concepts decreasing error and increasing control in a study. Vignettes can be presented to large groups of participants, and can be presented in a variety of ways, as stated previously. They allow the researcher to be in control, and can allow for experimental or quasi-experimental design to be used, as well as qualitative design. In addition, vignettes allow for the researcher to manipulate variables of interest for purposes of comparison (Chan et al., 2006; Finch, 1987; Lanza & Carifio, 1990; McDonald et al., 2007).

Another benefit of using vignettes in research is the stimulation of discussion (Barter & Renold, 2000; Hughes, 1998; Wilks, 2004). Sensitive subject matter can be investigated in a non-threatening way, by introducing characters into the vignette, or the vignette may stimulate discussion of a participant’s similar experience. Vignettes may open the participant to more in depth discussion of influencing factors on behaviors, attitudes, or beliefs. Vignettes allow for participant exploration, without bias related to social desirability issues, because of the distance that can be created between the hypothetical and the actual experience (Hughes, 1998; Wilks, 2004). Vignettes are also beneficial in initiating discussions, concluding sensitive discussions, and stimulating discussions in venues other than a one on one interview, such as focus groups (Barter & Renold, 2000).

H. Limitations of Vignette Use

The most frequently cited limitation to the use of vignettes is the indeterminate relationship between beliefs and actions; what a participant says they will do in a hypothetical situation is not necessarily what they would do in reality (Barter & Renold, 2000; Fick et al., 2007; Hughes & Huby, 2002; Van Hulle Vincent & Gaddy, 2009; Wang & Mentes, 2009; Wilks, 2004). Making the assumption that a participant’s beliefs are associated with actions has been cited frequently as overstepping the data.

Other limitations to vignette use include satisficing (Stolte, 1994); participants’ lack of prior experience (Hughes, 1998); and inappropriate construction, use as a measure, or design (Barter & Renold,
Stolte (1994) described the phenomenon of satisficing: participants processing the hypothetical situation less carefully and effectively than if it were a real situation. The phenomenon of satisficing occurred more frequently when vignettes were lengthy, complex, and contained difficult vocabulary and abstract imagery, and when participants were under pressure of time constraint, distraction, and did not receive monetary incentive for volunteering (Stolte, 1994). These findings are congruent with previous recommendations cited for vignette construction, but also have implications for the implementation of vignette use in research.

I. Nurses’ Pediatric Pain Management Practices as an Exemplar

Previously, Van Hulle Vincent and Gaddy (2009) reported on 30 pediatric nurses’ responses to vignettes on pain assessment and analgesic administration. In this paper, we report on a replication of that study with 57 additional nurses. The methods including design, data collection procedures, measures, and data analysis were identical to and are fully described in the previous 2009 paper. The exemplar vignettes adapted from the Pediatric Nurses’ Knowledge and Attitudes Survey Regarding Pain (Manworren, 2000, 2001) portray two 10-year-old boys, who are both 1 day post abdominal surgery and reporting a pain level of 8 on a 0 to 10 scale. Both boys are identical except one child is smiling, talking, and joking with visitors, and the other is lying quietly, and grimacing as he turns in bed. Both boys identified a pain level of 2 as acceptable, reported pain levels of 6 to 8 over the last 2 hours, and received a 2 milligram dose of morphine 2 hours ago. The vignettes are brief, less than 100 words, unambiguous, provide sufficient information to prevent unwarranted assumptions and are understandable to the target audience: pediatric nurses.

J. Results

Dependability was established for the vignettes. There was consistency of the coded vignette data among the three investigators. The primary researcher’s coding was audited by the two other investigators, and the three investigators came to consensus on the coded data. In addition, the same vignettes have been used in a prior study with a sample of 30 pediatric nurses implementing the same structured interview guide, which elicited similar results (Van Hulle Vincent & Gaddy, 2009).
Given the information in the vignettes, nurses were asked to assess the child’s pain and to administer morphine. They were asked to talk about their choices with open-ended questions to investigate their perceptions about the children in the vignettes. The nurses’ responses provided not only descriptive data, but qualitative data which provided powerful insights into the nurses’ thinking about analgesic administration. The following results are based on the data collected from an additional 57 pediatric nurses with the same eligibility criteria and demographic pool as the first 30 participants, and compared to the results of the prior study.

1. Nurses’ Ratings of Children’s Pain and Morphine Administration

A comparison to Van Hulle Vincent and Gaddy’s 2009 study revealed consistency between the 2 groups on pain ratings and morphine administration. The majority of the 57 pediatric nurses in the current study rated both the grimacing and smiling children’s pain level an 8 (see Table 1). Nurses were more likely to accept the patient’s self-report of pain (63.3% vs. 77.2%), however there was only a slight change in the percentage of nurses who would medicate the children with the appropriate morphine dose for pain (36.7% vs. 43.9%) (see Table 2). Neither of these changes was significant between the two studies. While 77.2% of the nurses agreed with the smiling child’s self-report of pain in this study, only 43.9% were willing to administer 3 mg of morphine (the appropriate dose) to treat the pain, as opposed to 71.9% who would administer 3 mg of morphine to the grimacing child to treat the same reported level of pain. This is a statistically significant difference between morphine administration to the two children ($X^2 = 10.462, p = 0.001$). In addition, for the smiling child in pain in both studies, approximately 45% (43.3% vs. 45.6%) of the nurses participating would only give 1 mg of morphine or none at all (Van Hulle Vincent & Gaddy, 2009).

2. Nurses’ Thinking About Assessing Pain and Administering Morphine

Factors that nurses considered when assessing the grimacing or smiling child’s pain were consistent in both studies with the exception of ranking. In the current study, vocalization and facial expression ranked higher than vital signs and understanding the scale for the smiling child, respectively.
The factors that nurses considered when assessing the grimacing or smiling child’s pain for both studies are listed in Table 3 and are defined elsewhere (Van Hulle Vincent & Gaddy, 2009).

For the smiling child, nurses most frequently identified current pain rating of 8, mismatch between the child’s self-report and the nurse’s observation of the child’s pain, vocalization, vital signs, and facial expression as factors to consider when deciding on treatment options. In comparison with Van Hulle Vincent and Gaddy’s study (2009), mismatch, vital signs and understanding of the pain scale were not as frequently considered and the differences were statistically significant (see Table 4). Quotes from the nurses on the smiling child’s current pain rating were similar to the previous study with the exceptions of less questioning regarding the child’s understanding of the pain scale, and more positive comments about the mismatch between appearance and the child’s self-reported pain level of 8. One quote, “…he’s a 10-year-old so he understands 0 to 10, 10 being the worst pain and 0 having no pain. So if he says he’s an 8 then that is the rate he rates his pain, an 8” is an example of the nurses having a more affirmative view of the child understanding the pain scale.

Mismatch between the children’s self-reports of pain and observed assessment of pain continued to be a factor almost exclusively identified for the smiling child. In the current study, more nurses attributed the mismatch between self-report of pain and their observed signs of pain to stoicism or individuality in handling pain. Comments such as “We don’t change the reading if we think he’s happy. I mean it seems like he was happy and comfortable, what I think would be comfortable but, you know, he could be a stoic kid and we would, I would, just take it as an 8” were more frequent in this study. Other nurses indicated that because the child’s appearance did not match the rating, they did not believe the pain was severe, for example “…he was smiling, he was talking, and he was joking. His vitals seemed stable….So on that assessment alone I would say that his pain was lower than he actually said”.

For the grimacing child, nurses most frequently identified the current pain rating of 8, facial expression, mobility, and vital signs as factors to consider when deciding on treatment options. In the prior study, vital signs were ranked slightly higher than mobility (Van Hulle Vincent & Gaddy, 2009). Remarks made by nurses about their assessment and analgesic dosing choices included “…plus he’s
grimacing….” and “He is an 8, right….his clinical picture looks different in that he’s actually exhibiting signs of pain…..” These comments were similar to the previous study.

The children’s prior morphine dose was the most frequent factor taken into consideration when determining the next morphine dose for analgesic administration to the smiling and grimacing child. These findings are consistent with those reported by (Van Hulle Vincent & Gaddy, 2009). However, it is important to note that in the current study only 50.9% of nurses considered the prior morphine dose for analgesic administration to the smiling child, as opposed to 70% in the prior study.

3. Factors Influencing Nurses’ Morphine Choices

Nurses most frequently referred to the child’s self-report of pain in discussing their reasoning and rationale for or against morphine administration and dosage choice. Other influencing factors included the prior morphine dose, the child’s acceptable level of pain (“2” on a 0-10 scale), vital signs, and behavior. Nurses also assessed for side effects of morphine: sedation, respiratory depression, and constipation.

a. Smiling child

As compared to the prior study (Van Hulle Vincent & Gaddy, 2009) a greater percentage of nurses administered the correct dose of morphine to the smiling child (43.9% vs. 36.7%). Nurses talked about accepting the child’s pain level as stated, despite the child’s appearance, behavior, and stable vital signs. Nurses who chose to administer 3 mg of morphine also commented on the ineffectiveness of the prior morphine dose, children’s different responses to pain, and trying to stay on top of managing the child’s pain. Nurses who administered 1 or 2 mg of morphine did not believe that the child was in that much pain, citing the child’s behavior, appearance, and stable vital signs, whether they documented the child’s self-report of pain as an 8 or not. Many of these nurses indicated that they would reassess the child frequently to determine if more morphine was needed.

A smaller percent of nurses chose to withhold morphine as compared to nurses in Van Hulle Vincent and Gaddy’s (2009) study. Nurses made statements such as “I don’t really believe that he was in that much pain,” “he didn’t appear as if he needed it,” and “he seems quite comfortable, maybe give him a little longer” in providing rationale for withholding morphine. The nurses who chose not to administer
morphine also indicated that they would recheck the child later for signs of discomfort and try alternative therapies for pain management: hot and cold therapy, repositioning, and distraction. One nurse would wait for the pain “to be a little bit worse so that he doesn’t get addicted at this early stage”.

b. Grimacing child

Nurses who chose to administer the correct dose of morphine to the grimacing child talked about the child’s pain rating, response to the prior morphine dose, and facial expression. Nurses made statements such as “his pain is 6 to 8/10 and it (2 mg) hasn’t helped so he needs the maximum dose,” “I wanted to give him the maximum so he's not in any pain,” and “he's still between 6 and 8, so we need more.” Nurses included assessment for side effects from the prior morphine dose when considering administration of the maximum ordered dose, for example, one nurse said “So if 2 mg didn’t work last time and he’s not experiencing any undue side effects from the drug, why not give him more?” Several nurses indicated the need for other pharmacologic therapy and alternative therapies in addition to the morphine dose. Nurses who chose to administer 2 mg of morphine simply indicated their rationale as “I would give the 2 because that's what was given before.” As in the prior study (Van Hulle Vincent & Gaddy, 2009), nurses administering less than 3 mg seemed to have some misconceptions about morphine as noted in the statements “the 2 mg dose might relieve his pain by now,” and “a couple hours ago he had something like a loading dose of morphine…so we'll start out with the 1 mg.” One nurse chose not to administer morphine indicating that morphine had not worked prior, so other interventions (distraction, hot/cold therapy, and repositioning) were needed.

4. Commonalities and Differences across Dosage Group

Similar commonalities and differences were observed across nurses administering different morphine doses in this study and in the prior study (Van Hulle Vincent & Gaddy, 2009). Mismatch between the children’s self-reports of pain and their behavior/appearance continued to be a strong influential factor in choosing a morphine dose, again, almost solely for the smiling child. Fewer nurses questioned the child’s understanding of the pain scale in this study, though more questioned the child’s understanding in the smiling child than in the grimacing child. However, nurses more readily documented
the smiling child’s self-report of pain as stated, an “8” on a 0-10 scale. An interesting observation in the current study is that while a greater percentage of nurses were willing to document the smiling child’s self-report of pain as stated, the nurses did not act on the smiling child’s self-report as indicated by the discrepancy noted in choice of morphine administration (see Table 2). Nurses continued to under medicate the smiling child as compared to the grimacing child with the same self-reported pain level.

**K. Discussion and Conclusion**

The benefits to vignette use in our investigation included the ability to create an immediate optimal situation, instead of waiting for it to occur in an uncontrolled setting. This expedited the collection of data, and did not interrupt the workflow of the nurses. The use of vignettes provided the nurse time to respond and reflect on choices and actions that were made, and to “think out loud”. The use of vignettes provided consistency and a controlled situation for the participants’ responses. In addition, the use of vignettes allowed for the manipulation of variables, enabling us to focus on the main topic of interest (pediatric nurses accepting children’s self-reported pain rating and acting on it) and differentiate between nurses’ responses and rationales for their choices.

The limitations of vignette use in our investigation included the possible discrepancy between intentions and action. The vignettes only portrayed children in postsurgical pain limiting transferability of the results to other types of pain and other ages of children. In addition, a smaller sample size was used (though larger than the previous study) due to unwieldy amounts of data that could be generated through the qualitative interviews.

Vignettes have been used as instruments in qualitative, quantitative, and mixed method research designs. Investigators have validated their use as beneficial instruments for data collection. Through careful construction and testing, reliability and validity of the vignette as a research instrument can be obtained and enhanced. Based on the research design and method, vignettes can be used alone or in conjunction with other instruments to enrich the data collected for analysis.

We have described the history of vignette use in research, identified use of vignettes in both qualitative and quantitative research, discussed ways in which vignettes have been constructed and tested,
and summarized the benefits and limitations of implementing vignettes as research instruments. In our exemplar, we showed how we used vignettes to further explore pediatric nurses’ analgesic administration choices for children’s pain management. We showed that while nurses are more frequently documenting children’s self-report of pain, the change is not significantly different from previous research. In addition we showed that there continue to be discrepancies between analgesic administration choices made by pediatric nurses based on children’s behavioral manifestations as opposed to pain intensity self-report. Though this study is limited, the results indicate that there continues to be substantial room for improvement in the acceptance and application of the American Pain Society’s (Gordon et al., 2005) recommendations for pain management.
L. References


Windak, A., Gryglewska, B., Tomasik, T., Narkiewicz, K., Yaphe, J., & Grodzicki, T. (2010). The competence of primary care doctors in the investigation of patients with elevated blood pressure:
TABLE I

COMPARISON OF FREQUENCY AND PERCENTAGE OF PAIN LEVELS ON 0-10 SCALE THAT NURSES ASSIGNED TO CHILDREN IN VIGNETTES PRIOR (N=30) AND CURRENT (N=57) STUDY

<table>
<thead>
<tr>
<th>Pain Level</th>
<th>Smiling Child Prior Study n (%)</th>
<th>Smiling Child Current Study n (%)</th>
<th>Grimacing Child Prior Study n (%)</th>
<th>Grimacing Child Current Study n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>1</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>2</td>
<td>2 (6.7)</td>
<td>4 (7)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>3</td>
<td>4 (13.3)</td>
<td>2 (3.5)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>4</td>
<td>2 (6.7)</td>
<td>3 (5.2)</td>
<td>2 (6.7)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>5</td>
<td>0 (0)</td>
<td>1 (1.7)</td>
<td>1 (3.3)</td>
<td>1 (1.7)</td>
</tr>
<tr>
<td>6</td>
<td>2 (6.7)</td>
<td>3 (5.2)</td>
<td>0 (0)</td>
<td>2 (3.5)</td>
</tr>
<tr>
<td>7</td>
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<td>0 (0)</td>
<td>2 (6.7)</td>
<td>2 (3.5)</td>
</tr>
<tr>
<td>8</td>
<td>19 (63.3)</td>
<td>44 (77.2)</td>
<td>25 (83.3)</td>
<td>52 (91.2)</td>
</tr>
<tr>
<td>9</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>10</td>
<td>0 (0)</td>
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<td>0 (0)</td>
<td>0 (0)</td>
</tr>
</tbody>
</table>

Note. The data in columns 2 and 4 are from “Pediatric nurses’ thinking in response to vignettes on administering analgesics,” by C. V. Vincent Van Hulle and E. J. Gaddy, 2009, Research in Nursing & Health, 32, p. 533.
| Morphine Dose (mg) | Smiling Child | | Grimacing Child | |
|-------------------|---------------|-----------------|-----------------|
|                   | Prior Study n (%) | Current Study n (%) | Prior Study n (%) | Current Study n (%) |
| 3                 | 11 (36.7)      | 25 (43.9)      | 23 (76.7)       | 41 (71.9) |
| 2                 | 6 (20)         | 6 (10.5)       | 3 (10)          | 11 (19.3) |
| 1                 | 6 (20)         | 17 (29.8)      | 4 (13.3)        | 4 (7) |
| 0                 | 7 (23.3)       | 9 (15.8)       | 0 (0)           | 1 (1.7) |

Note. The data in columns 2 and 4 are from “Pediatric nurses’ thinking in response to vignettes on administering analgesics,” by C. V. Vincent Van Hulle and E. J. Gaddy, 2009, Research in Nursing & Health, 32, p. 534.
TABLE III

COMPARISON OF FREQUENCY AND PERCENTAGE OF ASSESSMENT AND ANALGESIC ADMINISTRATION FACTORS OF SMILING AND GRIMACING CHILD IN PRIOR (N=30) AND CURRENT (N=57) STUDY

<table>
<thead>
<tr>
<th>Factor Type</th>
<th>Factor</th>
<th>Smiling Child Prior/Current n (%)</th>
<th>Grimacing Child Prior/Current n (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>n (%)/ n (%)</td>
<td>n (%)/ n (%)</td>
</tr>
<tr>
<td>Assessment</td>
<td>Pain rating of 8</td>
<td>30 (100)/ 52 (91.2)</td>
<td>22 (73.3)/ 52 (91.2)</td>
</tr>
<tr>
<td></td>
<td>Mismatch</td>
<td>23 (76.6)/ 30 (52.6)</td>
<td>5 (16.6)/ 3 (5.3)</td>
</tr>
<tr>
<td></td>
<td>Vital signs</td>
<td>17 (56.6)/ 19 (33.3)</td>
<td>19 (63.3)/ 15 (26.3)</td>
</tr>
<tr>
<td></td>
<td>Vocalization</td>
<td>16 (53.3)/ 23 (40.3)</td>
<td>6 (20)/ 3 (5.3)</td>
</tr>
<tr>
<td></td>
<td>Understands scale</td>
<td>16 (53.3)/ 12 (21)</td>
<td>3 (10)/ 2 (3.5)</td>
</tr>
<tr>
<td></td>
<td>Facial expression</td>
<td>12 (40)/ 18 (31.6)</td>
<td>23 (76.6)/ 28 (49.1)</td>
</tr>
<tr>
<td></td>
<td>Mobility</td>
<td>2 (6.6)/ 3 (5.3)</td>
<td>18 (60)/ 16 (28)</td>
</tr>
<tr>
<td>Analgesic administration</td>
<td>Prior morphine dose</td>
<td>21 (70)/ 29 (50.9)</td>
<td>17 (56.6)/ 32 (56.1)</td>
</tr>
</tbody>
</table>

Note. The data in columns 3 and 4 “prior study” rows are from “Pediatric nurses’ thinking in response to vignettes on administering analgesics,” by C. V. Vincent Van Hulle and E. J. Gaddy, 2009, Research in Nursing & Health, 32, p. 534.
II. BELIEFS, ATTITUDES, AND INTENTIONS OF CRITICAL CARE NURSES IN ADULT DELIRIUM MANAGEMENT

A. Introduction

Delirium is a serious condition characterized by four essential diagnostic criteria: a disturbance of consciousness with inattention, in addition to a sudden change in cognition without a pre-existing cause, an acute and fluctuating course of the disturbance of consciousness, and an underlying physiological or medical cause (American Psychiatric Association & American Psychiatric Association Task Force on DSM-IV, 2000). This acute and fluctuating altered level of consciousness, reduced ability to focus, sustain or shift attention, development of perceptual disturbance, and disorganized thinking, is a common secondary health problem of older adults reported in acute care, intermediate care, long term care, palliative care, and home health settings (Holmes, 2009; Kapo, Morrison, & Liao, 2007). The diagnosis of delirium has been further broken down into subtypes: hypoactive, hyperactive, and mixed (Lipowski, 1990; O'Keeffe, 1999; O'Keeffe & Lavan, 1999). This preventable and treatable condition is associated with increased mortality rates in hospitalized elderly and a conservative estimate of $38 billion dollars per year in associated healthcare costs (Inouye, Schlesinger, & Lydon, 1999; Leslie, Marcantonio, Zhang, Leo-Summers, & Inouye, 2008; Lin et al., 2004; Milbrandt et al., 2004; Ouimet, Kavanagh, Gottfried, & Skrobik, 2007).

Delirium has been with us through the ages, but it was not until 1980 that it was clinically standardized as a neuropsychiatric disorder in the American Psychiatric Association’s Diagnostic and Statistical Manual, 3rd edition (DSM-III) (American Psychiatric Association & American Psychiatric Association Work Group to Revise DSM-III, 1987). The literature on delirium has been increasing since the 1980’s, and the research on delirium in the older adult has exponentially increased over the past 10 years (Meagher, 2009). Its incidence has been studied in intensive care, acute care, long-term care, palliative care, and home care settings (Holmes, 2009; Kapo et al., 2007). It has serious implications for patients of all ages, but the older adult is at highest risk for poor health outcomes related to delirium (O’Keeffe & Lavan, 1999). Delirium and its sequelae in the older adult is a global problem being
researched in countries around the world (Morandi et al., 2008). For the past 2 decades researchers have stressed the significance of early recognition and treatment of delirium by healthcare professionals, in particular by nurses (Foreman, 1993; Holmes, 2009; Lipowski, 1990; Morandi et al., 2008). Protocols for assessment and intervention, assessment tools, best practice policies, identification of risk factors, programs for prevention, and educational interventions have been developed based on the literature and research, yet despite the increase in attention by the healthcare community, research indicates that healthcare professionals, including nurses, are still not recognizing delirium and its risk factors at the bedside (Devlin, Fong, et al., 2008; Fick et al., 2007; Flagg, Cox, McDowell, Mwose, & Buelow, 2010; Lemiengre et al., 2006; McCarthy, 2003a; Steis & Fick, 2008).

Interventional studies have been designed to increase nurses’ recognition of delirium by focusing on education of risk factors, signs and symptoms, and the use of instruments for identification of delirium in the older adult (Lemiengre et al., 2006; Lundstrom et al., 2005; Milisen et al., 2001; Tabet et al., 2005). Nurses’ knowledge of delirium has been demonstrated to be lacking (Devlin, Fong, et al., 2008; Fick et al., 2007; Flagg et al., 2010; Lemiengre et al., 2006; McCarthy, 2003a; Steis & Fick, 2008). However, having the knowledge and acting on that knowledge are two different issues. Several studies on nurses’ identification of delirium provide clues to factors other than nursing knowledge that may play a significant role in delirium assessment and intervention, such as nurses’ perceptions of aging, time constraints, and workload (Devlin, Fong, et al., 2008; Devlin, Marquis, et al., 2008; Fick et al., 2007; Flagg et al., 2010; McCarthy, 2003a; McCarthy, 2003b).

In order to ascertain why nurses are still not recognizing delirium, we went back to the source, nurses themselves, to explore delirium recognition, beliefs, and perceived barriers. The purpose of this study was to explore critical care nurses’ recognition of delirium, perceived barriers and behavioral, normative, and control beliefs as defined by Fishbein and Ajzen (2010) about the assessment and management of delirium, and to ascertain if ageism towards the older adult is a barrier to delirium recognition and management.
B. Literature Review

Delirium is the most frequent complication of hospitalizations in the older adult (Foreman, 1993; Leslie et al., 2005). It has been estimated that delirium affects a minimum of 2.4 million patients in the United States annually (Leslie et al., 2005). The incidence of delirium in the hospitalized elderly has been documented from 14% to as high as 56%, and in terminal cancer patients, up to 88% (Leslie et al., 2005), with the incidence ranging from 15-72% post-operatively and 30-60% at the time of hospital discharge (Foreman, Mion, Tryostad, & Fletcher, 1999). Prevalence in medical and surgical intensive care patients has been found to be up to 80%, but even that percentage may be underestimated (Balas et al., 2007; Bergeron, Dubois, Dumont, Dial, & Skrobik, 2001; Ely et al., 2001; McNicol et al., 2003; Spronk, Riekerk, Hofhuis, & Rommes, 2009). One group of researchers determined the incidence of delirium to be as high as 81.7% in patients mechanically ventilated in the ICU (Ely et al., 2004).

Delirium’s potentially preventable occurrence, if unrecognized and untreated, can lead to poor outcomes and further health complications. Delirium has been found to be an independent predictor of increased mortality rates in patients mechanically ventilated (Lin et al., 2004). Mortality rates from 25-33% in hospitalized older adults experiencing delirium have been reported, in addition to increased mortality rates in the ICU overall (Inouye et al., 1999; Lin et al., 2004; Ouimet, Kavanagh, et al., 2007). In a prospective cohort study with longitudinal follow-up (Leslie et al., 2005), 919 patients 70 years and older were tracked during the hospitalization for delirium and then tracked at 1, 6, and 12 months following discharge for mortality. It was concluded that those who experienced delirium during hospitalization had a 62% increased risk of mortality and lost an average of 13% of a year of life compared to those who did not have an episode of delirium. Results of other studies verify the increased mortality rates, both in hospital and up to one year after hospital discharge (Ouimet, Kavanagh, et al., 2007; Ouimet, Riker, et al., 2007; Pisani et al., 2009; Robinson et al., 2009; Van Rompaey et al., 2009).

Other adverse effects to patients experiencing delirium that have been reported include long term cognitive impairment, lower ratings of quality of life in all domains of the Medical Outcomes Study General Health Survey (short form), and functional decline as measured by the Katz Activities of Daily
Living Instrument (Balas, Happ, Yang, Chelluri, & Richmond, 2009; Girard et al., 2010; Van Rompaey et al., 2009). In the intensive care unit, detrimental events occur in patients experiencing delirium, which can prolong healing and increase length of stay. Examples include (but are not limited to) increased post-operative complications, self-extubation from the ventilator, removal of catheters, and falls (Dubois, Bergeron, Dumont, Dial, & Skrobik, 2001; Shi, Wang, Chen, & Gu, 2010).

Adverse effects and detrimental events associated with delirium lead to increased length of ICU and hospital stays which drive up the cost of healthcare. Increased length of ICU and hospital stays have been reported in patients experiencing delirium, as opposed to those who do not experience delirium (Lat et al., 2009; Morandi, Jackson, & Ely, 2009; Ouimet, Kavanagh, et al., 2007; Ouimet, Riker, et al., 2007; Robinson et al., 2009; Shi et al., 2010). The cost of caring for patients who develop delirium is significantly higher than for those who do not, both in and out of the ICU making delirium a public health concern with an extremely conservative estimate of cost ranging from $4 to $38 billion per year (Leslie et al., 2008; Milbrandt et al., 2004). Negative patient outcomes increasing length of stay in the hospital and the ICU drive healthcare costs even higher, but the increasing costs are not just due to increased length of stay. Upon discharge, many of those who experienced delirium have poor cognitive and functional outcomes making it necessary for them to be sent to either sub-acute or long term care facilities, rather than their own homes (Angles et al., 2008; Ouimet, Riker, et al., 2007; Robinson et al., 2009).

Nursing staff are constantly with patients for the sole purpose of assessing, providing care, and performing interventions. Due to the fluctuating course of delirium, physicians coming in to assess patients at one point in the day may miss the patient’s acute confusion upon assessment. Older adults are the majority of the population in intensive care, acute care, sub-acute care, long-term care, palliative care, and home care. In *Retooling for an Aging America: Building the Healthcare Workforce* (Institute of Medicine (U.S.) Committee on the Future Health Care Workforce for Older Americans, 2008), it is recognized that nursing is the largest sector of the healthcare workforce and acknowledges that almost all professional nurses are involved in caring for the older adult. Since the majority of nurses work with older adults, it would be more cost-effective to educate and train this designated and available resource to better
meet the needs of the older adult. The significance of not recognizing delirium and not quickly acting on delirium in older adults is staggering (Angles et al., 2008; Lat et al., 2009; Leslie et al., 2008; Leslie et al., 2005; Milbrandt et al., 2004; Morandi et al., 2009; Ouimet, Kavanagh, et al., 2007; Ouimet, Riker, et al., 2007; Robinson et al., 2009; Shi et al., 2010; Van Rompaey et al., 2009). But is education enough? The evidence is lacking.

There are gaps in the literature related to educating nurses on the management of patients at risk for experiencing delirium, and those actually manifesting delirium. There have been numerous tools developed to assess for delirium, three of which are appropriate for ICU use: the Confusion Assessment Method-ICU (Ely et al., 2001; Inouye et al., 1990), the NEECHAM Confusion Scale (Neelon, Champagne, Carlson, & Funk, 1996), and the Intensive Care Delirium Screening Checklist (Bergeron et al., 2001). Research has revealed that while these tools are valid and reliable, they are still being underused by nurses, and when used by nurses at the bedside resulted in invalid findings, as opposed to their use by trained researchers or medical/psychiatric specialists (Devlin, Fong, et al., 2008; Fick et al., 2007; Steis & Fick, 2008). Researchers demonstrated that once trained to use various instruments to assess and manage the delirious patient, nurses’ recognition improved, and when recognition and management were addressed, patient outcomes improved (Devlin, Marquis, et al., 2008; Lundstrom et al., 2005; Milisen et al., 2001; Tabet et al., 2005). Research that is needed includes longitudinal follow-up after the educational intervention and as Page, Navarange, Gama, and McAuley (2009) identified, nurses’ intentions to intervene or act upon the assessment findings. Foundational beliefs of nurses need to be investigated to determine their intent to continue acting on learned behavior.

Four research studies led to insights on tangible factors which impact nurses’ recognition of delirium (Devlin, Fong, et al., 2008; Devlin, Marquis, et al., 2008; Fick et al., 2007; McCarthy, 2003a). These studies were analyzed for factors influencing the nurse’s recognition of delirium, and some commonalities began to emerge. First, years of nursing experience were determined not to factor into delirium recognition in three of the studies (Devlin, Fong, et al., 2008; Devlin, Marquis, et al., 2008; Fick et al., 2007). Second, knowledge about delirium and appropriate screening tools and their use was
lacking, decreasing delirium recognition, but increasing nurses’ knowledge alone did not improve delirium recognition (Devlin, Fong, et al., 2008; Devlin, Marquis, et al., 2008; Fick et al., 2007; McCarthy, 2003a). Nurses’ perspective (internal factors/beliefs/attitudes) on aging, what they believe constitutes normal aging and their attitude towards delirium impact delirium assessment and management (Fick et al., 2007; McCarthy, 2003a; McCarthy, 2003b). Lastly, barriers (external factors/environmental influences/control beliefs) affect the nurse’s recognition of delirium. Barriers to nurses’ delirium assessment and management reported in the literature include time constraints, workload, complicated screening tools, lack of support (organizational influences/normative beliefs) and lack of action on positive delirium assessment findings (Devlin, Fong, et al., 2008; Devlin, Marquis, et al., 2008; Fick et al., 2007; McCarthy, 2003a). Anecdotal findings from Flagg et al. (2010), indicated that nurses did not assess for delirium if it was not required by policy. Recommendations by the authors included investigating system barriers such as time, communication, and support for assessment in future studies (Flagg et al., 2010).

The findings from one qualitative study of nurses’ attitudes towards older patients in the acute hospital setting identified not only ageist stereotypes towards the patients, but perpetuation of those stereotypes unwittingly by other healthcare providers and the administration of the facility (Higgins, Van Der Riet, Slater, & Peek, 2007). Ageism is defined as “prejudice or discrimination on the grounds of a person’s age” (“Ageism,” 2010). Influences such as these could impact nurses’ delirium identification and management practices.

In summary, the incidence, prevalence, and ramifications of not identifying and managing delirium result in significant healthcare costs and poor patient outcomes. Despite increased education and awareness of delirium, and available delirium assessment tools, nurses are still not consistently identifying delirium. Nurses’ beliefs, attitudes, and intentions related to delirium assessment and management of the older adult need to be further investigated in order to develop a foundation for change.

C. Theory of Planned Behavior

A novel aspect of this study was the use of Fishbein and Ajzen (2010) theory of planned
behavior to inform interview question development and to organize the research findings. The major concepts in the theory of planned behavior include: behavioral beliefs, normative beliefs, control beliefs, attitude toward a behavior, perceived norm, perceived behavioral control, intention, behavior, and actual behavioral control. Behavioral, normative, and control beliefs determine attitude toward a behavior, perceived norm, and perceived behavioral control, respectively (Fishbein & Ajzen, 2010). The latter three concepts determine intention to perform the behavior, and can be modified by skills, abilities, and environmental factors (actual behavioral control) (Fishbein & Ajzen, 2010). Intention leads to behavior; the stronger the intention, the more likely the behavior will be performed. Behavioral beliefs are defined as beliefs about negative or positive consequences that will result from performing the behavior; normative beliefs are beliefs held about how important people or groups expect one to behave, as well as how they themselves would behave; and control beliefs are formed from perceptions of personal and environmental factors that assist or impede behavior (Fishbein & Ajzen, 2010). By focusing on the behavioral beliefs, normative beliefs, and control beliefs of nurses in relation to delirium in the older adult, a foundation for change and the development of an educational strategy to form the basis for intervention can emerge. In this study, we will measure attitudes toward the behavior, the perceived norm, and the perceived behavioral control of assessing for and acting on delirium by eliciting behavioral, normative, and control beliefs from critical care nurses.

D. Methods

1. Design

Using a qualitative descriptive design with methods informed by the theory of planned behavior (Fishbein & Ajzen, 2010), intensive care unit (ICU) nurses were asked to respond to four delirium vignettes for identification, action, and patient prioritization. Nurses were then interviewed referring to two of the vignettes (an 83 year old adult and a 29 year old adult with mixed delirium), in order to elicit their behavioral beliefs, normative beliefs, and control beliefs. According to Fishbein and Ajzen (2010) these beliefs are a function of attitudes, perceived norms, and perceived behavioral control, which are predictors of intentions, and behavior. Once the salient behavioral, normative, and control beliefs are
identified, future research can focus on instrument development for larger correlation and regression studies to predict nurses’ intentions to assess for and act on delirium. More significantly, information of this kind can be used to develop effective interventions to change behavior (Fishbein & Ajzen, 2010).

2. Sample and Setting

A convenience sample of 31 adult critical care nurses was recruited for this study. ICU nurses were chosen because of the high incidence of delirium on intensive care units. ICU staff nurses were chosen because of their constant contact with patients. With permission and IRB approval, the nurses were recruited through three Midwest chapters of critical care nursing societies and two acute care facilities, through flyers, announcement in person, and through listserves. A onetime interview was scheduled at a mutually agreed upon time and place. Inclusion criteria included: registered licensed professional nurses with a minimum of one year of nursing experience and at least six months experience in an adult ICU. Exclusion criteria included: advanced practice nurses, masters’ prepared nurses or higher (with the exception of Graduate Entry Program or Graduate Entry Masters’ nurses), and nurses working less than half-time. The sample size was determined a priori, with the intent of reaching data saturation, as recommended by Hupcey (2005). One participant, who identified him/herself as meeting the screening criteria, was later found to be masters’ prepared on the demographic survey, thus not meeting the inclusion criteria, resulting 30 participants.

3. Measures

We used three measures of the study variables: the demographic survey, delirium vignettes, and the structured interview guide. Each instrument is described in the following sections.

a. Demographic survey

Each participant completed a brief demographic survey. Items included in the survey were: age, gender, race/ethnicity, highest level of education, years of licensed nursing practice, years of adult ICU nursing practice, tenure on current unit, hours worked per week in current unit, advanced certification (CCRN), personal experience working with older adults and children, and continuing education on care of older adults (in-services, conferences, coursework).
b. Vignettes

Critical care nurses’ identification, action, and prioritization of adult patients with delirium were measured by using four vignettes depicting ICU patients with delirium. The rationale for using vignettes to elicit nurses’ beliefs about delirium management practices are that they are cost-efficient, time-efficient, feasible for eliciting the participants’ response to specific patient scenarios, and allow for systematic data collection (Fick et al., 2007; Gould, 1996; Hughes, 1998).

The scenarios were developed based on the literature on delirium subtypes (Lipowski, 1990; Meagher, 2009; O'Keefe, 1999; O'Keefe & Lavan, 1999) and the American Psychiatric Association’s (2000) Diagnostic and Statistical Manual. One vignette depicts an 80 year old patient with the hypoactive delirium subtype: somnolent, psychomotor hypoactivity, inattentive, and disoriented. Another vignette depicts a 76 year old patient with the hyperactive delirium subtype: physical and verbal aggression, psychomotor hyperactivity, hypervigilant, and restless. The last two vignettes depicted two patients with the mixed (hypoactive and hyperactive) delirium subtype: fluctuation between lethargy, psychomotor hypoactivity, and inattentiveness and hypervigilance, psychomotor hyperactivity, and agitation. The two patients with the mixed delirium subtype are identical with the exception of their age: one was an 83 year old adult, and the other was a 29 year old adult. Nurses’ responses to these two vignettes were compared for ageism towards the older adult. The rationale for depicting the young adult with the mixed variant subtype of delirium came from the literature. In their study of 614 critically ill patients, Peterson et al. (2006) found that the mixed variant was the most prevalent delirium subtype in younger adults.

Nurses were asked to read each vignette and respond to two questions about identification of delirium and intervention in each situation. For the first question, nurses were asked to identify what was happening with the patient. An answer of delirium was considered the best response. In the second question, nurses were asked what they would do with the information provided in each vignette. The multiple-choice options were: 1) document and continue to monitor, 2) endorse the information to the next shift, 3) notify the physician to request medication, 4) notify the physician about (fill in the blank), and 5) other (please specify). After reading the four vignettes and answering the questions, nurses were
instructed to prioritize the patients from highest priority to lowest priority responding as if they had been assigned to the four patients in the vignettes on a routine workday.

The vignettes were validated for content by research and gerontology experts, as suggested by Gould (1996) and Lanza and Carifio (1992), and revised based on their feedback. Reliability was supported by testing the vignettes with experts for identification of delirium subtype. An interrater reliability analysis using the kappa statistic was performed to determine consistency among raters. The interrater reliability for two raters was found to be kappa = 0.706 (p < 0.05), 95% CI (0.235, 1.00), which indicates substantial agreement (Landis & Koch, 1977). Using Light’s (1971) recommendation for calculating interrater reliability for more than two raters, kappa was computed for all coder pairs and the arithmetic mean of these estimates provided an overall index of agreement of 0.80.

c. Interview

After reading the vignettes and responding to the written questions, nurses were asked to discuss their patient prioritization choices. Nurses were also asked if there was any other information they would want to obtain for the patients in the ageism vignettes. Nurses’ behavioral, normative, and control beliefs about assessing patients for delirium and about intervening with patients experiencing delirium were measured by their responses to guided interview questions after reading the vignettes depicting adult ICU patients with delirium.

The nurses were asked all of the interview questions about one of the patients (83 year old or 29 year old) in the ageism vignettes, and then asked about the other patient. To elicit behavioral beliefs, nurses were asked about advantages and disadvantages to assessing for and acting on delirium. To elicit their normative beliefs, nurses were asked to identify individuals or groups who would approve or disapprove of assessing for and acting on delirium every 8 hours, and who would or would not be most likely to carry out the actions. To elicit personal and environmental control beliefs, nurses were asked to identify factors or circumstances that enabled assessing for and acting on delirium every 8 hours and factors or circumstances that made it difficult or actually prevented the action. Lastly, nurses were asked if they had the skills and abilities to comprehensively assess for delirium and act on positive delirium...
findings, what those skills and abilities were, and if any environmental factors that they had not previously mentioned would impact their skills and abilities. The questions were formulated through the use of Ajzen’s (2006) guide for eliciting salient behavioral, normative, and control beliefs for future determination of attitude, perceived norm, and perceived behavioral control (Fishbein & Ajzen, 2010) based on the theory of planned behavior.

The structured interview guide was developed, modified after review and feedback provided by research and gerontology experts, and pilot tested with the vignettes by three experienced ICU nurses prior to implementation. One nurse commented “I took care of this patient last night”, indicating face validity. The final interview guide was developed after further modification based on pilot testing and nurses’ feedback.

d. Ageism

Ageism was investigated through comparison of prioritization of care and comparison of the coded interview responses to the two identical mixed delirium vignettes, one with an 83 year old patient and the other, a 29 year old patient. In addition, the patients’ history was intentionally not provided in the vignettes, to determine if nurses held ageist beliefs about older adults related to confusion. Nurses were asked if there was other patient information they would want to obtain. If nurses did not ask for information about the patients’ mental status history prior to admission, this was considered an indicator of ageism- making an assumption that the older adult patient was normally confused. These responses were also coded and compared between the two ageism vignettes.

4. Procedure

After consent was obtained, participants completed the demographic survey, and were asked to read the four vignettes and respond to the written directions. The two vignettes identical in all aspects except age were always placed 1st or 4th in the order, but order effects were controlled for by randomly assigning them as 1st or 4th, and the hypoactive and hyperactive delirium vignettes as 2nd or 3rd. After participants completed the written portion of the vignettes, the digitally audio-recorded interview began.
Only the principal investigator (PI) conducted the interviews. A transcriptionist was hired and trained by the PI. The interviews were transcribed verbatim. As recommended by Sandelowski (1994), transcriptions were compared to the interviews by the PI for dependability of the transcription. The PI compared transcriptions and interviews a final time to check for accuracy.

5. Data Analysis

Descriptive statistics were calculated on the nurses’ demographic data. Frequencies and percentage of responses to the written questions related to the vignettes were calculated.

Directed content analysis was used to analyze data. Directed content analysis is used when existing theory or prior research exists about the phenomena of interest, but thicker or fuller description is needed (Hsieh & Shannon, 2005). The theory of planned behavior provided the framework for the initial coding categories in this study. Text describing beliefs about nurses’ delirium management practices was highlighted and coded into the initial coding categories. If text did not fit, a new category was developed as suggested by Hsieh and Shannon (2005). Atlas.ti v.6.2 software was used for coding the data. A research assistant independently read and coded the transcripts. The research assistant and the PI compared the coded transcripts, discussed any areas of ambiguity in deciding how to code specific text, and came to consensus on the analysis of the content, increasing the dependability of the analysis, as suggested by Hupcey (2005). Through directed content analysis, the percentage and frequencies of the major themes were analyzed. Coded data between the two ageism vignettes were compared.

E. Results

1. Nurses’ Characteristics

As shown in Table 1, the majority of the nurses were female (90%) with a mean age of 42 years ($SD = 10.6$). Sixty-seven percent of the nurses were Caucasian, 26.7% Asian, 3.3% African American, and 3.3% Pacific Islander. The mean years of experience as a registered nurse was 15.2 ($SD = 10.8$) and 11.5 years ($SD = 8.5$) as a critical care nurse. They had worked on their current unit a mean of 9.3 years ($SD = 7.9$), and worked a mean of 36.1 hours ($SD = 4.7$) per two week pay period. Forty-three percent reported having certification as a critical care registered nurse (CCRN). The type of critical care unit the
nurses worked on varied from mixed (46.7%), neurological (20%), surgical (13.3%), and medical (13.3%), to cardiac units (6.7%), at medical centers (63.3%), suburban community (26.7%), and urban hospitals (10%). Only 33.3% reported working at a Magnet designated facility.

2. Nurses’ Written Responses to Vignettes

a. Identification of delirium

When asked, “what do you think is happening with the patient?” only 23.4% to 6.6% of nurses correctly identified delirium (see Table 2). The older adult with mixed delirium subtype was correctly identified most frequently (23.3%). Most nurses (66.7% to 20%) used terms synonymous with delirium to identify what was happening with the patient, including acute confusion, ICU psychosis, psychosis, mental status change, sundowners, ICU confusion, and restlessness. Rather than identifying delirium, over 76% of the nurses discussed several reasons for each patient’s behavior as described in the vignettes (100% for the older adult with the mixed delirium subtype).

b. Action

When asked what they would do with the assessment information provided in the vignettes, nurses’ responses varied (see Table 2). For the older adult with hypoactive delirium, 90% of nurses chose to document and continue to monitor and only 43% would notify the physician about the patient’s status, as opposed to 83.3% and 90% of nurses who would notify the physician about the patient’s status (patient’s status was most frequently written in response) for the older adult with mixed delirium and the younger adult with mixed delirium, respectively. For the older adult with hyperactive delirium, nurses (46.7%) most frequently notified the physician to request medication.

c. Prioritization

In response to prioritization of the patients depicted in the vignettes, 50% of nurses chose the younger adult with mixed delirium as their first priority, and the older adult with hypoactive delirium was most frequently identified as (53.3%) their last priority (see Table 2). Rationale for these choices was found in the nurses’ thinking about patient prioritization.
3. Nurses’ Beliefs in Response to the Older and Younger Adults with Mixed Delirium

a. Behavioral beliefs

For the older adult in the mixed delirium vignette, nurses believed the advantages to assessing for delirium and acting on their findings were being able to establish a baseline, early intervention, prevention of complications, differentiation of causes, improved patient safety, improved outcomes, and decreased length of stay. For example, nurses said “…you can start treating it sooner so that they don’t have all the ill effects and the long-term effects, and they end up having shorter hospital stays.”; “I think it's helpful with hopefully preventing something worse.”; and “Again, prevention, better outcomes, and reducing the hospital stays.” Nurses said “Preventing them from falling.” was an advantage, and “Safety is number one I think because of his age.”

In contrast, while the majority of nurses did not believe assessing the older adult for delirium was disadvantageous, a few commented on “increased agitation, increased risk for pulling things out and harming himself possibly.”; and sleep deprivation “…if I'm waking up a patient and asking them the same questions again and again, that's very annoying to him and contributes to the progression of delirium.” Some nurses said “It's just time consuming.” Potentially overmedicating the patient was a disadvantage to acting on positive delirium findings that nurses discussed. Comments such as “sometimes they're overmedicated” and “I don’t like for them to, like, give them a lot of drugs- I think that makes it worse….“ were made by several nurses. Another disadvantage noted by nurses when acting on delirium findings was the lack of support they received. One nurse remarked: “Calling a doctor, getting them upset is the only disadvantage - you know, having them yell at me, but I take it because…if something’s going on we’ve got to call.”

Nurses’ behavioral beliefs for assessing the younger adult in the vignette for delirium and acting on their findings were similar to those of the older adult. The advantages included: establishing a baseline, early intervention, prevention of complications, differentiation of causes, safety, improving outcomes, and decreasing length of stay. Disadvantages discussed were also similar, but for the younger adult more comments were made related to futility of the assessment, such as “with somebody younger,
like…we do a lot of things just because they tell us to that are a waste of our time and are redundant and not needed.” Also, “The young people get really angry sometimes.” and “A lot of times the younger ones are more resistant to the repetitive questions so they do tend to get a little bit more annoyed with the staff.” Labeling and misdiagnosis were disadvantages related to acting on delirium findings in the younger adult which differed from the older adult. One nurse said “I think delirium sometimes has more of a psychiatric kind of stigma to it.”

b. Normative beliefs

Nurses stated that other nurses, physicians, members of the healthcare team, and administrators would be most likely to approve of delirium assessment and intervention. While some nurses believed families approve of routine delirium assessments, more believed that families disapproved of the assessments, stating “… some families might not like it because they think you're bugging [the patient], but you're really trying to do what's best for them….” and “Actually a lot of times families don’t appreciate [the assessment]… and they try to tell us nothing is wrong. It’s like they’re in denial or they don’t want their loved one labeled.” Nurses also mentioned that some patients disapproved of being assessed for delirium as described by one nurse’s statement “Sometimes families or the patients themselves get agitated when you ask them because they feel like you're talking down to them.”

Nurses consistently identified themselves as actually performing delirium assessment and intervention. Nurses also talked about having a “collaborative team”, making comments such as “This is a collaborative effort….Everybody is involved in this.” Other statements about collaborating included: “I think what we tend to do is get a coworker and say, you know, come here, check this over with me.” and “I’d always ask a seasoned nurse or a charge nurse their opinion or if [the patient’s] physicians are on at that time.” Pharmacists were also included as part of the collaborative team. In addition to the normative beliefs elicited above, geriatric nurse practitioners and gerontologists were specific members of the healthcare team named as approving and performing delirium assessment and management for the older adult.
“Other nurses” were frequently identified as not approving of and not performing delirium assessment and management. Nurses remarked that peers may “find that it's not necessary or more time consuming.” A few nurses implicated newer nurses, for not asking questions and lacking experience, and some implicated older nurses for inflexibility to change.

c. Control beliefs

When asked what factors or circumstances would enable assessing patients for delirium and acting on positive findings, the nurses’ responses were similar between the two mixed delirium vignettes. The main factor that nurses identified as being in their control was more training. For example, one nurse said “With greater awareness and greater understanding of what the triggers are and what findings would point to delirium it would be easier [to identify].” Another nurse said, “…just continuing education, having the staff know what the signs and symptoms are. How do we prevent this?”

The most frequently discussed environmental enabling factors for delirium assessment and action were having: a delirium tool, a protocol in place, adequate time, adequate staffing and load, and collaboration. Nurses said “having a tool would make it easier so that you'd have a list of what to look for every time.” Nurses commented that having a tool was not enough, though. For example, one nurse said “I mean, I think we have the tools already. It’s just a matter of using them.” Nurses said “Well, if it was just part of the electronic assessment.” and “Quick bullet point checklist, easy flow sheets, reminders or popups within EMRs….“ would make the tools more user friendly. In contrast, statements like “There are too many spots to chart in and too much duplicate charting.” and having yet “another piece of paper” were believed to impede delirium assessment and management.

Having a protocol in place for delirium assessment and management paralleled having a delirium assessment tool. Examples of this included “Have it part of the medical record. Have it part of the charting - the electronic charting….an automatic must-do.”, if there were “specific guidelines”, “the standard of care”, and “just part of the electronic assessment.” Another nurse said it would be easier if “the protocols and procedures are set up to be supportive.” Several nurses discussed hindrances related to not having a protocol. One said “If there isn't an acceptance among the other staff that it's being done, an
expectation to be done and if you don’t have some sort of criteria that you’re following that it really is useless information….there has to be a system in place.”

Nurses discussed staffing and having enough time to perform a delirium assessment and manage patients as portrayed in the mixed delirium vignettes as an enabling factor. Some nurses believed adequate time in the ICU was a given: “In ICU I don’t think it’s a problem because we have only two patients. There is no excuse for not be doing those things.” Other nurses described time as being impacted by patient load and staffing. For example, “I think staffing … I have time to go and assess them, be with them more often. I’m splitting my time two ways as opposed to three.” “I think staffing ratios and having continuity of care would make it easier” and “If you are understaffed then it will prevent you from doing those things comprehensively.” were statements made by the nurses related to their beliefs about factors enabling delirium assessment and management.

Nurses believed that collaboration and teamwork enable them to perform delirium assessment and management. Statements like “Everyone kind of collaborating and working together would make it easier.” were common. Nurses indicated that collaboration and teamwork were vital as enabling factors. One nurse said “…having a more progressively-minded staff. Being in the atmosphere where everyone’s doing it would make it easier and would be more encouraging. Whereas, on the other side, being around staff that’s more set in their ways or an institution that’s not pushing forward with evidence-based practice and research would be a hindrance.”

In addition to collaboration and teamwork, nurses made statements relative to the need for institutional support. They believed delirium assessment and management would be hindered if nurses were not supported. One nurse said “I mean upper management is always an affect. If they are not supportive …it’s not going to be effective.” Another remarked “hypothetically speaking, if you don’t get the approval of your manager or the hospital.” this hinders delirium assessment and management.

d. Actual behavioral control

Nurses were asked if they have the skills and abilities to comprehensively assess patients for delirium and act on positive findings. The majority of nurses responded “yes”, 26.6% of nurses responded
“no”, and one was uncertain. Affirmative responses frequently centered on the nurse’s ability to perform a routine neurological assessment and investigate the patients’ history prior to admission. Negative responses frequently centered on the need for more specific training and education about patients with delirium and their management.

In their current work environment, about half of the nurses indicated that they had resources available to them which could enhance their ability to assess for and manage patients with delirium. One third indicated that they were using a delirium assessment tool and were supported by their management and healthcare team. They made statements such as “[The facility’s educators] have been teaching [us] how to do the delirium scale assessment and all.” and “I wish everybody would have teamwork. I think it is the best thing that really helps us.”

4. Ageism

Of the four delirium vignettes, three depicting older adults and one depicting a younger adult, the majority (50%) of nurses chose care for the younger adult with delirium as their first priority. Nurses discussed reasons for prioritizing the younger adult over the older adults with delirium. Statements like “He's young. You would expect him not to be as confused as somebody that's in their 80s.”, “The older people we always right away think of any dementia.”, and “Probably our own conception that everybody old is confused and in dementia….but we can’t assume that.” were made.

Ageist statements related to nurses’ behavioral, normative, and control beliefs were infrequent, though some ageist beliefs were expressed. Overall, nurses believed that assessing the younger and older adult for delirium was advantageous and their rationale was similar between the two patients. Likewise, nurses discussed similar advantages to acting on positive delirium findings in both patients. Disturbing the sleep cycle was more frequently noted by nurses as a disadvantage for assessing the older adult, and misdiagnosing the patient was more frequently noted by nurses as a disadvantage for assessing the younger adult. Several nurses believed that assessing the younger adult for delirium just “made more work”, and “I could see [that] even the nurses would be like, why do I need to do this?” indicating that younger adults do not develop delirium. Nurses also mentioned that some patients disapprove of being
assessed for delirium as described by one nurse’s statement “Sometimes families or the patients
themselves get agitated when you ask them because they feel like you're talking down to them.”, this was
more frequently noted for young adults. One nurse said “He's probably like 80 years old, 83 years old.
Leave him alone.”

The majority of nurses (80%) did not assume that the older adult with mixed delirium was also
confused prior to admission. All nurses except one requested the older adult patient’s history when asked
if there was any other information they would want to obtain, and 50% of nurses requested similar history
for the younger adult. History of substance abuse was questioned by more nurses for the young adult than
the older adult. For the older adult mixed delirium vignette, almost one third of nurses wanted to rule out
dementia as a reason for the behavior.

F. Discussion

The purpose of this study was to explore critical care nurses’ recognition of delirium, beliefs and
perceived barriers to the assessment and management of delirium, and to ascertain if ageism towards the
older adult is a barrier to delirium recognition and management in the older adult. In addition, we used
Fishbein and Ajzen’s (2010) theory of planned behavior to organize our findings. This study provided
foundational information in the form of salient beliefs, which will be further used in questionnaire
development for future studies and ultimately leading to investigations on nurses’ actual actions in
comparison to their intentions to act. We discovered several other important findings.

First, nurses in this study were not using the term delirium to report their assessment findings, and
were not consistently recognizing delirium. However, nurses used terms as synonyms for delirium to
describe the patients’ condition, such as: acute confusion, ICU psychosis, psychosis, mental status
change, sundowners, ICU confusion, agitation and restlessness. These findings are supported by previous
research (Fick et al., 2007; Page & Gough, 2010; Steis & Fick, 2012). The significance of this finding
needs to be further investigated. It is possible that using these terms as synonyms for delirium decreases
the nurse’s perception of importance to act on the findings, for example, one nurse said “change in
behavior after sundown comes from the aged, but delirium is different.”
Second, though nurses did not correctly identify delirium, they recognized assessment findings associated with delirium, and differentiated reasons for each patient’s behavior to act. Reasons stated by nurses for the patients’ behavior in this study were consistent with precipitating factors attributed to the diagnosis of delirium in the literature: sepsis, hypoxia, dehydration, hypovolemia, hypervolemia, electrolyte imbalance, pain, medication, myocardial infarction, anemia, substance withdrawal, and sleep deprivation (Inouye, 1999).

Third, nurses in this study did not recognize hypoactive delirium or choose the patient with hypoactive delirium as their first priority, and in fact, the patient with hypoactive delirium was the last priority for 53.3% of nurses. Nurses most frequently chose to document the findings and continue to monitor the patient with hypoactive delirium and were least likely to notify the physician about his condition. Prior research supports these findings; hypoactive delirium is the most underrecognized delirium subtype (Inouye, Foreman, Mion, Katz, & Cooney, 2001; Rice et al., 2011). In addition, hypoactive delirium has been identified as an independent predictor of nurses’ underrecognition of delirium (Rice et al., 2011).

In contrast to the patient with hypoactive delirium, nurses were most likely to contact the physician to report the status of patients with mixed delirium, and were most likely to contact the physician to request medication for the patient with hyperactive delirium. Most nurses cited safety as rationale for their actions and prioritization, leaving the hypoactive older adult as last priority because he was relatively sedate and least likely to be a safety risk. Though older adults with hypoactive delirium may pose less of a safety risk, investigators have found that adults with hypoactive delirium have poorer outcomes than patients with the other delirium subtypes (Robinson, Raeburn, Tran, Brenner, & Moss, 2011), therefore patients with hypoactive delirium must be made a priority for early recognition and treatment.

Fourth, nurses’ beliefs within the context of the theory of planned behavior revealed several important findings about their behavioral, normative, and control beliefs. In analyzing nurses’ behavioral beliefs, all nurses indicated that assessing for and managing patients with delirium was advantageous. In
fact, most nurses did not believe there were disadvantages to assessing for and managing patients with delirium. In addition, nurses’ normative beliefs were similar. Most nurses believed their peers and other members of the healthcare team (physicians, pharmacists, and therapists), hospital administration, and families would approve of delirium assessment and management, and that nurses would be the main group of professionals to perform delirium assessment and management. Many nurses believed that assessment and management of delirium should involve collaboration of the healthcare team. In contrast, other nurses did not believe that all families, patients, and nurses would approve of the nurse performing delirium assessment and management for various reasons: irritating the patient, disturbing the patient’s sleep, time constraints, and “labeling” the patient. These nurses believed that families not only disapproved of delirium assessment, but also hindered delirium assessment and management. Black, Boore, and Parahoo (2011) investigated the effects of nurse facilitated family participation in prevention of and psychological recovery from delirium in critical illness. Our study begins to provide insights into how the nurses’ normative beliefs about family disapproval of delirium assessment and management could hinder the quality of nurse facilitated family participation and hinder “partnership” with families as described by Rosenbloom-Brunton, Henneman, and Inouye (2010).

Related to control beliefs, nurses most frequently discussed collaboration, staffing, time, and support. Nurses discussed their beliefs about how teamwork, collaboration, and support from hospital and nursing administration and physicians would enable assessment and management of delirium. A few nurses discussed new initiatives to increase collaboration of healthcare teams delirium assessment and monitoring, such as implementation of the Awakening and Breathing Coordination, Delirium Monitoring and Management, and Early Mobilization (ABCDE) bundle developed by Vasilevskis et al. (2010). Balas et al. (2012) described the nurse’s role in the collaborative team, but most nurses in this study had not experienced collaboration to the extent described in these studies. Nurses believed that support from hospital administration and other members of the healthcare team, including their peers, were enabling factors for assessing for and managing delirium. Nurses identified two main enabling factors that would stem directly from support of hospital administration: having a policy or protocol in place for delirium,
and having a standardized tool directly incorporated into their routine assessment documentation. Flagg et al. (2010) noted anecdotally that a few nurses indicated they would not assess for delirium if a protocol was not in place. Control beliefs expressed by nurses in this study expand upon the Flagg et al. finding. In addition to the convenience of having a delirium tool incorporated into the electronic medical record, some nurses also discussed location of computers for documentation, and location of patients for ease in monitoring.

Finally, findings from this study revealed ageist statements towards the older adult were made, but the majority of nurses did not make the assumption that the older adult with mixed delirium was also confused prior to hospital admission. Nurses in this study did not question the older adult’s use of alcohol or other substance, but did question the young adult’s use of alcohol or substance abuse, which indicates ageism. Most nurses prioritized care of the young adult over the older adult with mixed delirium. It is unclear if prioritizing the young adult with delirium is related to ageism towards the older adult, or nurses’ lack of knowledge regarding delirium manifesting in all age groups. Nurses talked about expecting elderly patients to develop delirium, but not young patients (unless it was related to substance abuse), and because delirium was not expected in the younger patient many nurses surmised that the younger patient was more critically ill. This finding was not surprising, as the majority of delirium research does focus on the older adult population with advanced age being a known risk factor; however, all age groups can develop delirium.

A comparison of nurses’ behavioral, normative, and control beliefs between older adult and younger adult patients with mixed delirium did not reveal strong ageist beliefs. The main differences in nurses’ beliefs between the assessment and management of the older and younger delirium patients were: sleep disruption was a disadvantage to assessing the older adult, the younger adult was less likely to cooperate, and some nurses believed assessing for delirium in the young adult was a waste of time, indicating that young adults don’t experience delirium.

The strengths of this study included the use of qualitative descriptive design, the use of vignettes, and the ability to obtain rich data through face-to-face interviews. The study filled in gaps of the existing
literature on nurses’ lack of delirium recognition by eliciting the salient beliefs that nurses hold towards delirium management practices in the older adult, and through identification of beliefs that influence their behavior. Using delirium vignettes provided the nurses with realistic pertinent context from which to respond. The use of vignettes also allowed time for nurses to reflect on similar actual occurrences that they experienced. For the researcher, strengths of the vignettes were its cost-effectiveness and relative time efficiency.

Limitations of this study include the use of vignettes and its small convenience sample of critical care nurses. Though the use of vignettes provided the study with strengths, their use was also a limitation. The longstanding limitation to the use of vignettes is the indeterminate relationship between beliefs and actions; what a participant says they will do in a hypothetical situation is not necessarily what they would do in reality (Barter & Renold, 1999). Due to the small convenience sample, generalizability is limited and the findings must be interpreted with caution.

G. Conclusion

In summary, nurses in this study were not using the term “delirium” to describe their assessment findings, were not consistently recognizing delirium, and were not recognizing nor prioritizing the patient with hypoactive delirium. However, nurses were appropriately identifying precipitating factors attributable to the diagnosis of delirium. Nurses’ behavioral, normative, and control beliefs were elicited and can be used to develop future instruments to investigate nurses’ intentions to assess for and manage patients with delirium. Also, the nurses’ beliefs provide insights into ways hospital and nursing administration can enable nurses’ assessment and management of delirium. Lastly, although nurses did not assume the older adult with mixed delirium was also confused prior to admission and they did act on findings of delirium, they expressed ageist beliefs and prioritized the younger adult over the older adult with delirium which does reflect ageism.

Our findings, when combined with prior research, provide insight into ways to support nurses’ assessment and management of delirium. In addition to education on identifying delirium, nurses need education on correct and consistent terminology to use when communicating delirium findings. Based on
nurses’ control beliefs, hospital administrators can enable critical care nurses’ delirium assessment and management by: integrating a delirium assessment tool into the electronic medical record as part of the overall patient assessment with a standing protocol for patients manifesting delirium, instituting policy on delirium assessment, providing education about delirium subtypes, related patient outcomes, and correct and consistent use of terminology, providing adequate staffing, and fostering a collaborative and interdisciplinary environment.

Education alone is clearly not enough. Behavioral beliefs, normative beliefs, and control beliefs that were elicited from nurses in this study can be used for future development of an instrument to investigate nurses’ intentions to assess for and manage delirium patients on a larger scale. By using the theory of planned behavior and eliciting salient beliefs, future studies may focus on predicting behavior from intention and ultimately facilitate change in behavior (Fishbein & Ajzen, 2010).
**II. References**


### TABLE IV

**DESCRIPTIVE STATISTICS AND FREQUENCY OF CRITICAL CARE NURSES’ DEMOGRAPHIC DATA (N=30)**

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APPENDICES
Appendix A

UNIVERSITY OF ILLINOIS
AT CHICAGO

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Initial Review (Response to Modifications)

June 27, 2011

Kimberly Oosterhouse, BA, BSN, MSN
Nursing
26W039 Marion Ave
Wheaton, IL 60187
Phone: (630) 653-7631

RE: Protocol # 2011-0353
"Critical Care Nurses' Beliefs about Management Practices of Adult Patients"

Dear Ms. Oosterhouse:

Your Initial Review (Response to Modifications) was reviewed and approved by the Expedited review process on June 27, 2011. You may now begin your research

Please note the following information about your approved research protocol:

Approved Subject Enrollment #: 35
Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.
Performance Sites: UIC
Sponsor: None
PAF#: Not Applicable

Research Protocol(s):

a) Critical Care Nurses' Beliefs about Management of Adult Patients Dissertation Proposal; Version 2; 05/22/2011

Recruitment Material(s):

a) Critical Care Nurses' Beliefs, Consent Process, Initial Verbal Screener; Version 2; 05/22/2011
b) Critical Care Nurses' Beliefs, Consent Process, Recruitment Flyer; Version 3; 06/24/2011
c) Critical Care Nurses' Beliefs, Consent Process, E-mail Announcement/Ad; Version 3; 06/24/2011
d) Critical Care Nurses' Beliefs, Consent Process, Meeting Announcement; Version 3; 06/24/2011

Phone: 312-996-1711 http://www.uic.edu/depts/over/oprs/ FAX: 312-413-2929
Appendix A (continued)

Informed Consent(s):

a) Critical Care Nurses' Beliefs about Management of Adult Patients Consent; Version 2; 05/22/2011
b) Waiver of Signed Consent Document granted under 45 CFR 46.117 for the eligibility screening
c) Alteration of Informed Consent granted for the eligibility screening

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes.
(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

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Please remember to:

→ Use your research protocol number (2011-0353) on any documents or correspondence with the IRB concerning your research protocol.

→ Review and comply with all requirements on the enclosure, "UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 996-9299. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

[Signature]

Marissa Benni-Weis, M.S.
IRB Coordinator, IRB # 2
Office for the Protection of Research Subjects
Appendix A (continued)

Page 3 of 3

Enclosure(s):

1. **UIC Investigator Responsibilities, Protection of Human Research Subjects**

2. **Informed Consent Document(s):**
   a) Critical Care Nurses' Beliefs about Management of Adult Patients Consent; Version 2; 05/22/2011

3. **Recruiting Material(s):**
   a) Critical Care Nurses' Beliefs, Consent Process, Initial Verbal Screener; Version 2; 05/22/2011
   b) Critical Care Nurses' Beliefs, Consent Process, Recruitment Flyer; Version 3; 06/24/2011
   c) Critical Care Nurses' Beliefs, Consent Process, E-mail Announcement/Ad; Version 3; 06/24/2011
   d) Critical Care Nurses' Beliefs, Consent Process, Meeting Announcement; Version 3; 06/24/2011

cc: Terri Weaver, Nursing, M/C 802
    Catherine Vincent, Nursing, M/C 802
Appendix A (continued)

Office for the Protection of Research Subjects (OPRS)
Office of the Vice Chancellor for Research (MC 672)
203 Administrative Office Building
1737 West Polk Street
Chicago, Illinois 60612-7227

Approval Notice
Continuing Review (Response To Modifications)

June 11, 2012

Kimberly Oosterhouse, BA, BSN, MSN
Nursing
26W039 Marion Ave
Wheaton, IL 60187
Phone: (630) 653-7631

RE: Protocol # 2011-0353
“Critical Care Nurses' Beliefs about Management Practices of Adult Patients”

Dear Ms. Oosterhouse:

Your Continuing Review (Response To Modifications) was reviewed and approved by the Expedited review process on June 7, 2012. You may now continue your research.

Please note the following information about your approved research protocol:

Approved Subject Enrollment #: 35 (22 subjects enrolled)
Additional Determinations for Research Involving Minors: These determinations have not been made for this study since it has not been approved for enrollment of minors.
Performance Sites: UIC, Advocate Good Samaritan Hospital
Sponsor: College of Nursing
Research Protocol(s):
  a) Critical Care Nurses' Beliefs about Management of Adult Patients Dissertation Proposal; Version 3, 11/07/2011
Recruitment Material(s):
  a) Critical Care Nurses' Beliefs, Consent Process, Initial Verbal Screener; Version 2; 05/22/2011
  b) Critical Care Nurses' Beliefs, Consent Process, E-mail Announcement/Ad; Version 3; 06/24/2011
  c) Critical Care Nurses' Beliefs, Consent Process, Meeting Announcement; Version 3; 06/24/2011
  d) Critical Care Nurses' Beliefs, Consent Process, Recruitment Flyer; Version 4, 11/07/2011
Informed Consent(s):
  a) Critical Care Nurses' Beliefs about Management of Adult Patients Consent; Version 2; 05/22/2011
Phone: 312-996-1711 http://www.uic.edu/depts/ovcr/oprs/ FAX: 312-413-2929
Appendix A (continued)

Page 2 of 3

b) AHCIRB #5306 Consent Form; 03/26/2012 03/26/2012

Your research meets the criteria for expedited review as defined in 45 CFR 46.110(b)(1) under the following specific categories:

(6) Collection of data from voice, video, digital, or image recordings made for research purposes,
(7) Research on individual or group characteristics or behavior (including but not limited to research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

Please note the Review History of this submission:

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Please remember to:

➔ Use your research protocol number (2011-0353) on any documents or correspondence with the IRB concerning your research protocol.

➔ Review and comply with all requirements on the enclosure, "UIC Investigator Responsibilities, Protection of Human Research Subjects"

Please note that the UIC IRB has the prerogative and authority to ask further questions, seek additional information, require further modifications, or monitor the conduct of your research and the consent process.

Please be aware that if the scope of work in the grant/project changes, the protocol must be amended and approved by the UIC IRB before the initiation of the change.

We wish you the best as you conduct your research. If you have any questions or need further help, please contact OPRS at (312) 996-1711 or me at (312) 413-1835. Please send any correspondence about this protocol to OPRS at 203 AOB, M/C 672.

Sincerely,

[Signature]
Kathleen Loviscek, M.S.
IRB Coordinator, IRB #2
Office for the Protection of Research Subjects

Enclosure(s):

1. UIC Investigator Responsibilities, Protection of Human Research Subjects
Appendix A (continued)

Page 3 of 3

2. Informed Consent Document(s):
   a) Critical Care Nurses’ Beliefs about Management of Adult Patients Consent; Version 2; 05/22/2011
   b) AHCIRB #5306 Consent Form; 03/26/2012

3. Recruiting Material(s):
   a) Critical Care Nurses’ Beliefs, Consent Process, Initial Verbal Screener; Version 2; 05/22/2011
   b) Critical Care Nurses’ Beliefs, Consent Process, E-mail Announcement/Ad; Version 3; 06/24/2011
   c) Critical Care Nurses’ Beliefs, Consent Process, Meeting Announcement; Version 3; 06/24/2011
   d) Critical Care Nurses’ Beliefs, Consent Process, Recruitment Flyer; Version 4, 11/07/2011

cc: Terri Weaver, Nursing, M/C 802
    Catherine Vincent (faculty sponsor), Nursing, M/C 802
DATE: March 26, 2012

TO: Kimberly J Oosterhouse, RN, MSN
    Principal Investigator

FROM: Joel Hill, JD, MPH, PhD, Chairman
      Advocate Health Care Institutional Review Board

RE: IRB Protocol #5306: Critical Care Nurses' Beliefs about Management Practices for Adult Patients

The referenced protocol has been reviewed and approved as EXPEDITED with a consent form as authorized in § 46.110 of 45 CFR Part 46 of the federal regulations. This will be reported at the April 12, 2012 meeting of the Advocate Health Care Institutional Review Board. The date stamped approved consent form and recruitment poster are enclosed.

You have met the requirements established by state and federal law to begin enrolling participants into the study.

This IRB approval is for a period of one year ending March 25, 2013*. It is understood that no deviations in the protocol or consent form may be made without prior approval of the IRB.

In addition, you are responsible for ensuring the education and training of any health care professionals or departments required to facilitate the study. This training/education must be completed prior to implementing the study protocol.

By this notice, you have obtained Advocate IRB approval to begin the referenced study. You must also comply with Advocate system policies pertaining to contractual billing, and other responsibilities prior to and during all clinical research conducted at an Advocate site. This includes #90.017.014: Conduct of Clinical Research and #90.005.013: Billing Compliance in Clinical Research Studies, available at Advocate Online. For further information contact the VP of Medical Education and Research at 847.384.3614 and/or the Research Compliance Officer at 630.990.5519.

Any unanticipated problems, protocol deviations, or developments involving risks to human subjects, and any adverse event or death must be reported promptly, by law, to the IRB.

Thank you for your cooperation.

Joel Hill

*You are responsible for submitting an annual review three weeks before March 25, 2013. If the protocol is completed or terminated before the next review, use an annual review form to report this completion/termination before the protocol's next scheduled review.
May 23, 2011

Ms. Kimberly Oosterhouse
26W039 Marion Avenue
Wheaton, IL 60187

Dear Ms. Oosterhouse,

This letter serves as authorization for you to recruit participants through our Chicago area chapters for your research study. If the IRB of UIC requires additional information, they may contact me directly at 800-394-5995, x:313, or by email at karen.certalic@aacn.org. Thank you.

Stand Tall,

Karen Certalic
AACN Chapter Specialist

C: Sheila Coogan, President, Greater Chicago Area Chapter
Joyce Malu, President, Northwest Chicago Area Chapter
Karen Wood, President, Southwest Chicago Chapter
Leslie Collins, Chapter Advisor, Region 10
Curriculum Vitae
Kimberly J. Oosterhouse, PhD, RN, CCRN

EDUCATIONAL PREPARATION

2007-2013 Doctorate of Philosophy in Nursing Science
University of Illinois at Chicago
Chicago, IL

2009 Masters of Science in Nursing
Rush University
Chicago, IL

1989-1992 Bachelors of Science in Nursing
Trinity Christian College
Palos Heights, IL

1982-1986 Bachelors of Science
Hope College
Holland, MI
Major-Psychology
Major-German

MAJOR AREA OF CONCENTRATION IN PRACTICE
Adult Critical Care and Medical Surgical Nursing; Certified Critical Care Registered Nurse

EMPLOYMENT RECORD (ACADEMIC EXPERIENCE)
College of DuPage, Glen Ellyn, IL
2006-present Associate Professor, Nursing
2004-2006 Assistant Professor, Nursing
2001-2004 Instructor, Nursing

University of Illinois at Chicago, College of Nursing, Chicago, IL
2008 Teaching Assistant
Introduction to Research and Statistics

EMPLOYMENT RECORD (PROFESSIONAL EXPERIENCE)
Rush-Presbyterian-St. Luke’s Medical Center, Chicago, IL
2001 Clinical Nurse Specialist, Medical Intensive Care and
Noninvasive Respiratory Care
1994-2003 Clinical Nurse II, Medical Intensive Care

St. Francis Hospital and Health Center, Blue Island, IL
1992-1994 Staff Nurse, Medical Intensive Care

AWARDS AND HONORS
University of Illinois at Chicago, College of Nursing PhD Student Research Award 2012
The Honor Society of Phi Kappa Phi, University of Illinois at Chicago Chapter
Golden Key International Honor Society
Sigma Theta Tau International, Gamma Phi and Alpha Lambda Chapters
Outstanding Faculty Nominee, College of DuPage
Marion Larsen Nursing Leadership Award, Trinity Christian College
Dean's List, Trinity Christian College & Hope College

ASSOCIATION MEMBERSHIP
American Nurses Association/Illinois Nurses Association
American Association of Critical Care Nurses
National Education Association
International Nursing Association for Clinical Simulation and Learning
Sigma Theta Tau International
Midwest Nursing Research Society

RESEARCH AND SCHOLARLY ACTIVITIES
Funded Projects

2011-2012 Beliefs, Attitudes, and Intentions of Critical Care Nurses in Adult Delirium Management.
Primary Investigator. University of Illinois at Chicago, College of Nursing PhD Student Research Award ($1,000). Funded February 2012.

Publications in Preparation

Oosterhouse, K. J., & Vincent, C. V. The Interaction Model of Client Health Behavior: A theoretical analysis and evaluation.

Oosterhouse, K. J., & Vincent, C. V. Eliciting and exploring responses: Using vignettes in research with children’s pain exemplar.

Oosterhouse, K. J., & Vincent, C. V. Beliefs, attitudes, and intentions of critical care nurses in adult delirium management.

Presentations


“Delirium in the ICU” Midwest Conference of the Northwest Chicago Area Chapter, American Association of Critical Care Nurses, March 2012, Itasca, IL.

“A Model for Overcoming Nursing and Faculty Shortages through Community Partnerships”, College of DuPage Satellite Healthcare Summit, March 2005, Glen Ellyn, IL.

Community Activities
Advances in Nursing Education Grant, Tutor- University of Illinois at Chicago, Chicago, IL
Instructor of Advanced Cardiac Life Support- Rush Community Training Center, Chicago, IL
Automatic External Defibrillator Committee- College Church, Wheaton, IL.
Committee Membership
Assessment and Outcomes Committee, Chair
General Education and Outcomes Steering Committee
Learning Resource Committee
Social Committee
Program of Study Committee
Long Term Care Advisory Committee