AN ONLINE MIXED-METHODS STUDY ASSESSING NURSES’ TRAINING, ATTITUDES, KNOWLEDGE, SKILL/ABILITY, AND PERCEIVED BARRIERS WITH REGARD TO ADHERENCE TO THE NATIONAL PRESSURE ULCER ADVISORY PANEL’S CLINICAL PRACTICE GUIDELINES

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ABSTRACT

AN ONLINE MIXED-METHODS STUDY ASSESSING NURSES’ TRAINING, ATTITUDES, KNOWLEDGE, SKILL/ABILITY, AND PERCEIVED BARRIERS WITH REGARD TO ADHERENCE TO THE NATIONAL PRESSURE ULCER ADVISORY PANEL’S CLINICAL PRACTICE GUIDELINES

Elsie Anorkor Laryea

The problem this study addresses is the need for nurses to adhere to guidelines on pressure ulcer prevention and treatment, so patients best possible health outcomes. This study created and utilized a new tool to assess nurses’ training, attitudes, knowledge, and skill/ability for adhering to practice guidelines of the National Pressure Ulcer Advisory Panel. The study sought to identity significant predictors of Personal Knowledge Rating Scale (TPKRS-101) and Personal Skill/Ability Rating Scale (TPS/ARS-101). The online study’s convenience sample of nurses (n=190) was 80.5% (n=153) female, 59.5% (n=113) Black, and 18.4% (n=35) Asian—with mean age of 40.27 years (min 23, max 73, SD=10.95). Some 53.2% (n=101) were not born in the US, while 16.8% (n=32) were from Ghana, 7.9% (n=15) from Jamaica, and 7.4% (n=14) from Philippines. Annual household income mean was $50,000 to $99,999 (mean=4.43, category 4, min=2, max=10, SD=1.00). Mean years working in nursing was 8-10 years (mean=4.34, category 4, min=1, max=9, SD=2.14).

Nurses rated themselves “good” for performing pressure ulcer care tasks, as follows: (a) Nursing Training Rating Scale (TNRS-101) with global mean of 4.11 (SD=0.60, min= 1.94, max=5.00), or good; (b) Personal Knowledge Rating Scale (TPKRS-101) with global mean of 4.15 (SD=0.57, min=2.79, max=5.00), or good; and,
(c) Personal Skill/Ability Rating Scale (TPS/ARS-101) with global mean of 4.13 (SD=0.62, min=2.56, max=5.00), or good.

Higher Personal Knowledge Rating Scale (TPKRS-101) scores were significantly predicted by: more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (b = .067, SE_B = .029, p = .022); and, higher level of Social Desirability (13 items) (b = .030, SE_B = .013, p = .023). For this regression model, R^2=.063, and AdjR^2=.053, meaning that 5.3% of the variance was explained by model.

Personal Skill/Ability Rating Scale (TPS/ARS-101) scores were significantly predicted by: higher level of Social Desirability (13 items) (b = .051, SE_B = .014, p = .000). For this regression model, R^2=.064, and AdjR^2=.059, meaning that 5.9% of the variance was explained by model.

Finally, the quantitative data were augmented by qualitative findings for barriers nurses experience to pressure ulcer prevention and treatment, as follows: Category I-External Barriers; and, Category II-Internal Barriers.
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Chapter I
INTRODUCTION

Pressure ulcer is defined as “localized skin tissue damage” that is often assessed “over a bony prominence, caused by unrelieved pressure” in the region; and that eventually results in interruption in blood supply to tissues resulting in skin breakdown (Jocelyn, Thiara, Lopez, & Shorey, 2017, p. 225). Hospital-acquired pressure ulcers are an adverse occurrence because patients present to the hospital with a medical issue they need treated or managed and end up with a pressure ulcer, which may prolong the length of stay as well as cause irreparable damages like “permanent disabilities” (p. 225). Pressure ulcers may result in patients experiencing unnecessary pain from the wound site, “infection,” as well as “decreased quality of life” (p. 225).

The main risk factors for pressure ulcers are being elderly, “especially those with impaired mobility and skin integrity” (Jocelyn et al., 2017, p. 225). Pressure ulcers are sometimes unavoidable, depending on the comorbidities of individual patients; for the most part, pressure ulcers may be prevented when “quality and standard of key evidenced-based practices (EBP)” are maintained (p. 226). Such practices involve turning and positioning, “pressure ulcer-relief devices, maintaining adequate nutrition and moisture,” and pressure ulcer risk assessment (p. 226).

Pressure ulcers cause “emotional problems in patients” who have to experience the pain, as well as the prolonged hospital stay, as a result of this injury to their skin (Ünver, Findik, Özkan, & Sürücü, 2017, p. 277). Pressure ulcer prevention involves a
multidisciplinary approach. The help of physical therapists and their use of “advanced
techniques to redistribute pressure” to prevent ulcers is optimal (p. 278). The role of
dietitians monitoring patients’ “nutritional status” cannot be underestimated (p. 278). The
role of nurses in the prevention of pressure ulcers is invaluable, since they “have a great
responsibility” in patient care (p. 278). Of note, “many studies have been conducted to
evaluate nurses’ knowledge” about the prevention of pressure ulcers; however,
“improved knowledge was not consistently linked with improved care” (p. 278).
However, “there was a significant correlation” noted between “the application of
adequate prevention and the attitudes” of nurses (p. 278).

Thus, just as much as the acquisition of knowledge is crucial to pressure ulcer
prevention, “nurses’ attitudes” are equally important “in pressure ulcer prevention”—if
not more important (Ünver et al., 2017, p. 278). In order to implement evidenced-based
practice protocols in acute care settings, it is prudent to determine the attitude of the
nursing staff concerning pressure ulcer prevention. This is because “negative attitudes
towards pressure ulcer prevention” may unfavorably “affect preventative care strategies”
(p. 278). If “negative attitudes are the principal barriers to evidenced-based practice,”
then identifying such attitudes may go a long way in helping the fight against hospital-
aquired pressure ulcer formations (p. 278).

Beyond attitudes, other factors impacting adherence to pressure ulcer prevention
guidelines may include “numerous barriers” or challenges, such as “insufficient
resources” for the implementation of pressure ulcer preventive measures (Moya-Suárez,
Morales-Asencio, Aranda-Gallardo, de Luna-Rodríguez, & Canca-Sánchez, 2017,
pp. 260-261). This includes internal or external barriers. The main external barriers are
“insufficient time, absence of leadership and/or feedback,” as well as “change-resistant
organizational environments” (p. 261). Attitude has been found to be “the most
significant” internal barrier to pressure ulcer prevention (p. 261). This may include
“insufficient motivation and resistance to change” (p. 261). Most pressure ulcer
prevention strategies focus on impacting knowledge of healthcare professionals, especially nurses and other ancillary staff members. For example, teachings on how to turn and position every two hours or less and the use of pressure relieving mattresses and skin barrier protectants are all ways to reduce or prevent further complications. It is crucial to assess what is causing “non-adherence by healthcare professionals” to recommended guidelines for pressure ulcer prevention, whether attitudes or other barriers (p. 261).

The Importance of Risk Assessment Tools

Preventive measures cannot be implemented unless those at increased risk are identified, utilizing some of the “many tools” developed to support such an objective (Fletcher, 2017, p. 18). While these tools are structured to identify patients at increased risk of pressure ulcer formation, they do have their shortcomings; the clinical judgment of the healthcare professional providing care should not be underrated (p. 18). Professionals can play a vital role in pressure ulcer prevention. The overall consensus on pressure ulcers is that they are “largely preventable” (p. 18). Thus, assessment is critical.

Risk assessment tools such as the Braden Scale have associated flaws, including the fact that “use of a risk assessment tool may not improve patient outcomes” (Fletcher, 2017, p. 25). There is a “missing link between assessment, care planning and provision,” which is a fundamental flaw (p. 25). It is recommended that, in order to effectively prevent pressure ulcers, risk assessment tools should be re-evaluated. Nurses are encouraged to utilize a “combination of clinical judgment” as well as risk assessment tools, in order to help establish “a more focused assessment” and optimal plan of care (p. 25). Thus, the focus of pressure ulcer prevention should not simply be adopting the best risk assessment tools (p. 25).
Significance of Clinical Practice Guidelines

There are guidelines on the prevention and treatment of pressure ulcers put forth by the National Pressure Ulcer Advisory Panel (NPUAP, 2014). These clinical practice guidelines were formulated in conjunction with the European Pressure Ulcer Advisory Panel (EPUAP) and the Pan Pacific Pressure Injury Alliance (PPPIA) (NPUAP, 2014). The clinical guidelines were based on “rigorous scientific” appraisal of evidence-based research and recommendations; as a result, the clinical guidelines mirror the evidence gathered from scientific research (para. 1). The NPUAP serves as the reliable voice in improving pressure ulcer prevention and treatment outcomes in patients through channels such as education, public policy, and research. The clinical practice guidelines include 575 clearly documented recommendations on “risk assessment; skin and tissue assessment; preventive skin care; prophylactic dressings,” as well as “nutrition, repositioning, early mobilization,” and education, in an effort to maintain the skin integrity of clients (NPUAP, 2014, para. 2).

Salient recommendations have been categorized into numerous categories, for example: Risk Assessment, Skin Care, Nutrition, Education, Repositioning, and Mobilization. Some of the recommendations under Risk Assessment include the use of structured risk assessment tools, such as the Braden Scale, to enable the identification of patients who are at high risk of pressure ulcer development within eight hours of admission. The risk assessment tool should be utilized frequently based on the acuity of the patient; patients in acute care settings should be assessed every shift (NPUAP, 2016a). Based on the results of risk assessment, the recommendation is for a plan of care to be constructed based on the patient’s area of risk, rather than on the risk assessment total score. A client with malnutrition, for example, needs a care plan that involves a nutritional consult, whereas an immobilized client’s plan of care should focus on frequent turning and positioning, as well as use of a supportive surface (NPUAP, 2016a).
Relevant Research Findings

Moya-Suárez et al. (2017) aimed to develop and validate an “instrument to evaluate nurses’ adherence to the main recommendations published for the prevention of pressure ulcers” (p. 261). The instrument included three sections, which were “questionnaire, vignettes and characteristics of respondents” (p. 261). The study showed that the “questionnaire to evaluate nurses’ adherence to recommendations for preventing pressure ulcers (QARPPU)” showed “conceptual validity”; and, as such, “its psychometric properties make it suitable for use in hospital care” (p. 269). One of the strengths of this study was the researchers' inclusion of nurses from different clinical specialties, rather than limiting the study to one specialty.

Gadd and Morris (2014) aimed to assess “whether pressure ulcer preventative” measures were initiated once a total Braden Scale Score demonstrated a patient to be at increased risk of pressure ulcer development (p. 535). Braden scales are performed for each patient who is admitted to the hospital, and daily after admission. A cumulative Braden scale score of 18 or less indicates that a patient is at increased risk of pressure ulcer development; a score greater than 18 indicates that the patient is not at risk. Despite “suboptimal” subscale scores, some 20% of the preventive measures did not occur for patients who were at risk of pressure ulcer development, because their cumulative Braden Scale scores were more than 18 (p. 538). The researchers concluded that “including evaluation of subscale scores” in the planning of interventions to address hospital-acquired pressure ulcers is critical in the quest to prevent this adverse event from occurring.

A cross-sectional study conducted by Barakat-Johnson, Barnett, Wand, and White (2018) assessed the knowledge and “attitude of nurses towards pressure injury prevention,” since “an understanding of knowledge and attitudes” of nurses towards pressure injury prevention is critical in the identification of “opportunities to improve
education and practice” (p. 233). Participants included registered nurses working in acute, rehabilitation, and medical units located in five community health centers and four hospitals in Sydney, Australia. The study evaluated the relationship between knowledge, attitudes, and years of experience in pressure ulcer incidence. The results revealed that there was a statistically significant “positive correlation between nurses’ years of experience and attitudes,” suggesting that “the more years of experience a nurse has,” the more likely he or she will have a positive attitude towards pressure injury prevention (p. 236). A statistically significant positive relationship was also noted between attitudes and knowledge, and “greater knowledge about pressure injuries” was associated with “more positive attitudes toward” pressure injury prevention (p. 236).

Ham, Schoonhoven, Schuurmans, Veugelers, and Leenen (2015) assessed the pressure ulcer “identification and classification skills” of nurses and physicians who work in emergency rooms, in an attempt to “evaluate the short-term effect of an educational intervention” (p. 43). The educational intervention consisted of a 20-minute lecture in which “the classification system was explained and illustrated” (p. 45). Significant improvements in scores were seen from the pre-test to the post-test. The nurses’ and physicians’ ability to correctly identify pressure ulcers, as well as their ability to identify the correct pressure ulcer category/stage, improved significantly post-intervention.

Bredesen, Bjørø, Gunningberg, and Hofoss (2016) developed an e-learning educational program for the purpose of pressure ulcer risk assessment and classification (p. 191). The intervention offered entailed an e-learning program in comparison to the classroom lecture, which the control group received (p. 192). Pre-test and post-test revealed the short-term effect of the e-learning program. Accuracy of pressure ulcer classification was greater in the interventional group that received the e-learning program than those who received the classroom lecture in the control group.

Nuru, Zewdu, Amsalu, and Mehretie (2015) assessed the “knowledge, practice and factors” that are “associated with pressure ulcer prevention” among the nurses in Gondar
University Hospital in Ethiopia (p. 1). The results of the study revealed that “91.1% of the nurses had not received any formal training” in pressure ulcer prevention, whereas “233 (89.9%) of them were not using any existing guidelines” about how to perform “risk assessment and prevention of pressure ulcers” (p. 3). More than half “(54.4%) of the respondents were found to have good knowledge,” while nearly half “(48.4%) of the respondents had good practice” on pressure ulcer prevention (p. 3). Nuru et al. also found that work experience, educational status, and formal training in pressure ulcer prevention “were significantly associated with knowledge on prevention of pressure ulcer” (p. 1). In terms of barriers, “staff shortage and inadequate facilities and equipment” had significant association with how the nurses practiced pressure ulcer prevention (p. 1). Consequently, the knowledge and practice of pressure ulcer prevention “was found to be inadequate” (p. 1). Nuru et al. recommended “in-service training and upgrading courses” as some of the ways in which to “improve nurses’ knowledge and practice” toward pressure ulcer prevention (p. 1).

In a cross-sectional multi-center study, Etafa, Argaw, Gemechu, and Melese (2018) sought to “explore nurses’ attitudes toward” pressure ulcer prevention and “identify staff nurses’ perceived barriers to pressure ulcer prevention” in Addis Ababa, Ethiopia (p. 2). Results showed that more than half of the sample size (n=116) had a negative attitude toward pressure ulcer prevention. Only 2% of participants experienced no “challenge for preventing pressure ulcer,” while the majority of nurses (98%) reported “different challenges” (p. 4). Recurrent barriers, according to most participants (n=185), involved heavy workload and lack of staff (p. 4). The second most cited barrier (n=150) involved the “shortage of pressure relieving devices” (p. 4). As demonstrated in the resource-limited settings above, provider attitude may be necessary, but not alone sufficient, to address pressure ulcer prevention.
Statement of the Problem

The problem that this study addresses is the need for nurses to adhere to guidelines on pressure ulcer prevention and treatment in order for their patients to have the best possible health outcomes.

Purpose of the Study

The purpose of the study is to determine the internal consistency of each of the three scales of a new tool created for this study (i.e., the Pressure Ulcer Prevention and Treatment Survey for Nurses [PU-PAT-S-FN-101]), while using the new tool to identify the significant predictors of nurses having a high level of knowledge—i.e., high scores on Scale 2: Personal Knowledge Rating Scale (TPKRS-101). Thus, the study’s two outcome variables/dependent variables are:

- **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)** of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)
- **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)** of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)

The study’s independent variables include the following:

- Selected demographic and background characteristics of the nurses, including their years of experience taken from the study survey’s Part I: Basic Demographics (BD-12)
- Nurses’ attitudes toward practice guidelines, in general, and specifically, the relevance to their work as nurses, taken from the study survey’s Part II: Attitudes Regarding Practice Guidelines—Relevance Scale (ARPG-R-5)
- The extent to which they may provide socially desirable responses (i.e., taken from the study survey’s Part III: More About You (Social Desirability) (MAY-13))
Research Questions

Given a sample of nurses (n=190) who have worked with patients in a healthcare setting within the past six months, and responded to an invitation to participate in this online study (i.e., “Go to < to https://tinyurl.com/NURSESPressureUlcerSurvey> to take the Nurse’s Survey on Pressure Ulcer Prevention and Treatment for a chance to win 1 of 3 $100 Amazon gift cards”), the following research questions were answered:

1. What were the nurses’ demographics and background characteristics (e.g., age, gender, level of education, annual household income, etc.), including years of experience in the field of nursing? (Part I: Basic Demographics-BD-12)

2. What were the nurses’ attitudes toward practice guidelines? (Part II: Attitudes Regarding Practice Guidelines--Relevance Scale-ARPG-R-5)

3. To what extent did the nurses provide socially desirable responses? (Part III: More About You (Social Desirability-MAY-13)

4. With regard to established practice guidelines for the prevention and treatment of pressure ulcers that embody relevant behaviors/nursing tasks, how did the nurses rate their (a) Nursing Training for performing those behaviors/nursing tasks, (b) Personal Knowledge Level for performing those behaviors/nursing tasks, and (c) Personal Skill/Ability Level for performing that behavior or nursing task? [Note: the study’s two outcome variables/dependent variables are: Scale 2: Personal Knowledge Rating Scale-TPKRS-101, and Scale 3: Personal Skill/Ability Rating Scale-TPS/ARS-101 of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101).] (Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses-PU-PAT-S-FN-101)
5. Were there any significant relationships between the two study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines)?

6. What were the significant predictors of the study’s two outcome variables/dependent variables (i.e., Scale 2: Personal Knowledge Rating Scale-TPKRS-101 and Scale 3: Personal Skill/Ability Rating Scale-TPS/ARS-101 of the Pressure Ulcer Prevention and Treatment Survey for Nurses [PU-PAT-S-FN-101])?

7. What did nurses report, within the qualitative portion of the study, when given the opportunity to respond to an open-ended question regarding the barriers they experience to pressure ulcer prevention and treatment—whether internal (e.g., motivation, stress) or external (e.g., staff shortages, inadequate facilities and equipment, etc.)?

**Study Rationale**

There is a rationale for investigating nurses’ self-ratings of personal knowledge for engaging in pressure ulcer prevention and treatment. While some research reflects nurses as being knowledgeable in the area of pressure ulcer prevention, others “report low levels,” or even inadequate levels, of pressure ulcer prevention knowledge (Barakat-Johnson et al., 2018, p. 233; Nuru et al., 2015). A better understanding of the knowledge of nurses is “critical to identifying opportunities to improve education and practice” (Barakat-Johnson et al., 2018, p. 233).

Also, there is a rationale for investigating nurses’ self-ratings of their attitudes toward practice guidelines. This follows from how others found that “greater knowledge about pressure injuries” was also associated with “more positive attitudes toward” pressure injury prevention (Barakat-Johnson et al., 2018, p. 236).
There is a rationale to include a focus in the present study on nurses’ ratings of not only their attitudes and knowledge, but also their skill/ability levels. Others have gone beyond assessing attitudes and knowledge to also include an assessment of skills among medical students in training (e.g., Marzan, 2008; Washington, 2015), as well as dental students (Lassiter, 2009). Others reported findings with regard to medical professionals’ clinical skills in identifying pressure ulcers (Bredesen et al., 2016; Ham et al., 2015).

Further, there is a rationale for investigating nurses’ ratings of their nursing training with regard to pressure ulcer prevention and treatment. Research illustrates the value of the role of training, and nurses’ ratings of their training, as in the study by Nuru et al. (2015) that found “91.1% of the nurses had not received any formal training” in pressure ulcer prevention; thus, not surprisingly, 89.9% of nurses “were not using any existing guidelines” about how to perform “risk assessment and prevention of pressure ulcers” (p. 3).

In addition, there is a rationale for exploring the role of additional demographic and background factors in this study, such as their years of experience, as others found an association between “years of experience and knowledge and attitude scores” (Barakat-Johnson et al., p. 234). In addition, Nuru et al. (2015) found that work experience, educational status, and formal training in pressure ulcer prevention “were significantly associated with knowledge on prevention of pressure ulcer” (p. 1).

There is also a rationale for having a qualitative portion of the study that allows nurses to respond to an open-ended question about any barriers they experience to pressure ulcer prevention and treatment. Consider how Nuru et al. (2015) investigated barriers, finding that “staff shortage and inadequate facilities and equipment” had significant association with how the nurses practiced pressure ulcer prevention (p. 1).
Delimitations

The study was delimited to nurses who are at least age 22, have worked with patients within the past six months, and completed the study survey.

Limitations

The study limitations included: use of a convenience sample of nurses who responded to the invitation to participate in an online study; the length of the survey (40-50 minutes), which may have resulted in participant fatigue and dropout; the need for participants to complete the survey online, necessitating access to a computer and the Internet; and the provision of potentially socially desirable responses, even as this was controlled in the regression.

Definition of Terms

The following definitions of terms are hereby provided as a guide for the reader.

- **Pressure ulcer** - is defined as “localized damage to the skin” as well as its “underlying soft tissue” (NPUAP, 2016b, para. 3). This damage usually occurs over bony prominences, or could be caused by a medical device. This injury results due to “intense and/or prolonged pressure or pressure in combination with shear” (para. 3).

- **High acuity** - patients are severely ill and require more care than stable patients.

- **Erythema** - is when there is redness to the skin (National Institute of Health [NIH], 2019).

- **Blanchable redness** - is when skin becomes pale or white when finger pressure is applied to the region, but quickly returns to its usual color (NPUAP, 2016c).

- **Non-blanchable redness** - is when skin remains red even after finger pressure is applied to the region (NPUAP, 2016c).
**Eschar** - are “dark patches of dead skin” on the surface of a wound, which can usually be found in full thickness wounds (Advanced tissue, 2014a, para. 1).

**Slough** - is dead skin tissue that is usually yellowish in color (NPUAP, 2016b).

**Bony prominences** - are areas of the skin that are most susceptible to pressure ulcer development (Model Systems Knowledge Translation Center, 2019).

**Shear force** - is when there is an application of a “mechanical force” to a particular region of the skin in a “direction” that is “parallel to the body’s surface” (Hess, 2004, p. 222). This compromise in “blood supply creates ischemia” eventually leads to “cellular death” (p. 222).

**Friction** - occurs when the skin is “dragged across” a surface that is “coarse,” such as “bed linens” (Hess, 2004, p. 222).

**Stage 1 pressure ulcer** - is defined as non-blanchable redness to the skin caused by continuous pressure to the skin. In stage 1, the skin remains intact (NPUAP, 2016b).

**Stage 2 pressure ulcer** - is defined as a break in the dermis of the skin. In stage 2, there is partial thickness dermis loss (NPUAP, 2016b).

**Stage 3 pressure ulcer** - there is full thickness skin loss in stage 3, in which “adipose (fat) is visible in the ulcer” (NPUAP, 2016b, para. 6). There is often the presence of granulation and epibole, or “rolled wound edges” (para. 6).

**Stage 4 pressure ulcer** - there is full thickness skin loss where the muscle, tendon, bone, ligament, cartilage, and fascia may be exposed. There is often an occurrence of tunneling, epibole, and undermining (NPUAP, 2016b).

**Unstageable pressure ulcer** - there is full thickness skin loss as well as tissue loss. The extent of the damage to the tissue is “within the ulcer” and “cannot be confirmed” because it is “obscured by slough or eschar” (NPUAP, 2016b, para. 8).

**Deep tissue injury** - is when the skin may be intact or not intact, but the skin has a purple maroon discoloration over a pressure point (NPUAP, 2016b).
Medical device related pressure injury - is when pressure injury is caused by medical devices “designed and applied for diagnostic or therapeutic purposes” (NPUAP, 2016b, para. 10).

Undermining - is when there is destruction to some or all of the underlying tissue of a wound. This occurs underneath the edge of a wound. Individuals with undermining may need to be referred to specialists for surgical intervention (Gary, Enoch, & Harding, 2006).

Tunneling - are wounds that have channels that “extend from a wound into and through subcutaneous tissue or muscle” (Barnes, 2009, para. 1). This can develop “in pressure ulcers” because of “high volume of pressure being forced upon many tissue layers” (Advanced tissue, 2014b, para 2). This kind of forceful pressure “prompts the layer to become less voluminous” in comparison to “surrounding tissue,” which in turn produces a “sinkhole-like effect in the skin” (Advanced tissue, 2014b, para. 2).

Foot drop - is a condition whereby the front part of the foot has lost its muscle strength, causing paralysis or weakness to that area of the foot (NIH, 2018).

Conclusion

This chapter introduced the dissertation topic and provided introductory research on pressure ulcers and nursing training, knowledge, skills, attitudes, and perceived barriers to pressure ulcer prevention. The chapter also included a statement of the problem, the purpose of the study, research questions, rationale for the study, anticipated findings, delimitations, limitations, and definition of terms. Chapter II will provide a review of the literature on nurses and pressure ulcer prevention and treatment. Chapter III will cover the methods of this study. Chapter IV will present the results obtained from analysis of the data. Discussion of the results, including implications of the findings and future research recommendations, will be provided in Chapter V.
Chapter II

REVIEW OF THE LITERATURE

This chapter will present a relevant literature review for this study. The review of literature will cover these topics: (1) pressure ulcer prevalence and mortality; (2) accreditation requirements and patient safety; (3) pressure ulcer prevention and treatment guidelines; (4) pressure ulcer prevention programs; (5) provider-level facilitators and barriers to pressure ulcer prevention; (6) achieving optimal patient outcomes; and (7) the theoretical framework guiding this research.

Pressure Ulcer Prevalence and Morbidity

Morbidity associated with pressure ulcers remains staggering. In the United States alone, 3 million adults are affected annually by pressure ulcers (Mervis & Phillips, 2019, p. 2). Despite an increase in resource allocation toward the prevention and treatment of pressure ulcers, “the prevalence … has largely remained unchanged,” even though “associated costs of care continue to increase” (p. 2). The reported prevalence of pressure ulcers among patients who are hospitalized varies significantly based on the specialty of the unit. The overall prevalence rate of pressure ulcer is 5-15% (p. 6). The National Pressure Ulcer Prevalence Survey conducted in 1999 included “over 350 acute care facilities and 42,000 patients” (p. 7). This survey found that the “overall prevalence of pressure ulcers was 14.8%,” while 7.1% of such ulcers occurred after hospital admission (p. 7). The prevalence of pressure ulcers in intensive care units (ICUs) was found to be
21.5%. Highest risk was seen in the elderly, with a prevalence of 29% among those ages 71 to 80 years (p. 7). Indeed, the National Pressure Ulcer Prevalence Survey was conducted five times over the period of 1999 through 2005 (p. 7). The cumulative analysis of data from 1999 through 2005 showed that the overall prevalence of pressure ulcers remained “constant around 15%,” while the prevalence for ICUs was 25% (p. 7). The highest prevalence was in long-term care facilities at 23-27% (p. 7).

Børsting et al. (2018) aimed to “describe the prevalence of pressure ulcers among” middle-aged as well as “older-aged patients” in three general medical hospitals located in Norway (p. 535). Børsting et al. also sought to describe the “association between pressure ulcers and potential risk factors,” which were additional to the “Braden risk score” (p. 535). This cross-sectional study was implemented “as part of a research project conducted between” September 2012 through May 2014 (p. 535). Since patients who were mostly at increased risk of developing pressure ulcers were “often of advanced age,” participants included in this study were those who were 52 years old or older (p. 537). Most participants had more than one comorbidity, which further increased their risk for pressure ulcer development. The sample size in this study was 255.

Data collection occurred in the form of patient self-reported questionnaires about comorbidities (Børsting et al., 2018, p. 537). Collection of data was also conducted by registered nurses and nursing students. Training was conducted prior to the beginning of the study to standardize the registered nurses’ and students’ “performance of skin examination” classification of pressure ulcers and “use of [a] pressure ulcer risk screening tool” (p. 537). The nurses and nursing students utilized the Braden Scale as a tool to measure pressure ulcer risk. Skin assessment was conducted and classified as “normal or as indicative of pressure ulcer according to the definitions” stipulated by the National Pressure Ulcer Advisory Panel’s pressure ulcer staging guidelines (p. 535). Analysis of the data was conducted using data from 242 participants, as 13 people did not complete the skin examination (p. 538).
The results revealed that the prevalence of pressure ulcer was “14.9% in this sample” (Børsting et al., 2018, p. 538). The factors associated with pressure ulcer development were “higher age, underweight, diabetes and worse Braden scores,” suggesting that older adults are at an increased risk of developing pressure ulcers; older adults are at increased risk not only due to their age, but also because of their age-related comorbidities (p. 535).

Nakashima, Yamanashi, Komiya, Tanaka, and Maeda (2018) sought to “estimate the prevalence of pressure injuries per 1000 adults and per 1000 older people” in Goto, a rural city in Japan (p. 1). This cross-sectional study occurred from August through September of 2017. The population of Goto, Japan was 37,855; those who were 5 years of age or older accounted for 37.7% of the population (p. 3). A total of 1,126 participants were assessed in order to calculate the “age-specific number of people with pressure injuries” (p. 1). Nakashima et al. calculated the number of adults with pressure injuries “based on the proportion of pressure injuries in specific age categories” (p. 1). Of the 1,126 participants, the estimated number of adults with pressure injuries was 310, while 10% (n=113) “had one or more pressure injuries” (p. 2). The prevalence rate of pressure injuries was “20.3 per 1000 population in adults” aged 65 years or more, and “40.6 per 1000 population in adults” aged 80 years or more (p. 2). This study uncovered a high “population-based prevalence of pressure injuries” in a specific geographic location; it was one of the first studies conducted in Japan to evaluate “population-based prevalence of pressure injuries” in adults and older adults (p. 9). It is vital to plan and allocate resources to areas based on region-specific pressure injury prevalence.

Carreyer et al. (2017) also examined the prevalence of pressure injuries, seeking to understand four “problems among older” adults in “nursing home facilities” (p. 555). These problems included pressure injuries, incontinence, malnutrition, and falls—“important indicators of the quality of care in healthcare settings” (p. 555). This cross-
sectional study was conducted in New Zealand including a sample of 276 individuals aged 65 years and older; participants resided in 13 nursing homes (p. 556).

Results revealed that the prevalence for pressure injuries among this sample was 8% overall; incontinence of urine was 57%, malnutrition was 19.9%, and falls were 13% (Carryer et al., 2017, pp. 558-559). These results suggest that as people “age, complex health issues can lead to increasing care dependency” as well as “more debilitating and costly health problems” such as pressure injuries (p. 561). Remaining cognizant and measuring the prevalence of “basic care problems” faced by older adults holds potential to monitor the implementation and “effectiveness of national and international guidelines” (p. 555).

Accreditation Requirements and Patient Safety

The Joint Commission (2019), an “independent, not-for-profit organization,” is responsible for accrediting and certifying over “21,000 healthcare organizations and programs” in the United States (para. 1). An accreditation from the Joint Commission is acknowledged “nationwide as a symbol of quality,” which is a reflection of an “organization’s commitment to meeting certain performance standards” (para. 1). The Joint Commission’s mission involves the evaluation of “health care organizations and inspiring them to excel” in the provision of safe effective care “of the highest quality and value” (para. 2).

The Joint Commission has been accrediting healthcare organizations for over 50 years; the standards to accredit an institution are quite rigorous (Kaiser Foundation Hospital, 2016). The “Consumer Assessment of Healthcare Providers and Systems Hospital Survey (CAHPS)” is a tool used by hospitals to assess patient perspectives about care received while in the hospital setting (p. 3). This survey is “a standardized, nationwide measure of” clients’ viewpoints (p. 3). Since most pressure ulcers can be
prevented, it is essential to “[identify] at-risk patients and [use] preventive measures” (p. 4). While important, pressure ulcer prevalence is only one of many “indicators of inpatient quality of care” requiring further attention (p. 4).

To offer higher quality care, the Joint Commission developed the National Patient Safety Goals. One such goal involves the prevention of healthcare-related pressure ulcers. Beginning in 2007, this “safety initiative” was developed to “hold hospitals more accountable for the development of pressure ulcers” (Black, 2006, p. 1). The Joint Commission included pressure ulcer prevention as an accreditation threshold, because pressure ulcers pose a burden to the safety of patients and healthcare systems; thus, healthcare facilities must create a “pressure ulcer risk reduction” plan (p. 1).

**Pressure Ulcer Prevention and Treatment Guidelines**

As stated by the National Academy of Medicine, “clinical practice guidelines (CPGs) are statements that include recommendations” that are “intended to optimize patient care” (Kottner et al., 2019, p. 52). Clinical practice guidelines are informed by “systematic review of the evidence” in conjunction with “an assessment of the benefits and harms of alternative care options” (p. 52). Pressure ulcer CPGs are intended for use by healthcare professionals as a guide to prevent and treat pressure ulcers and are used widely to “support clinical decision making” and to “improve patient care and outcomes” (p. 52). The NPUAP, which serves as the authoritative body for healthcare professionals on effective ways to prevent and treat pressure ulcers, formulated CPGs for pressure ulcers by appraising evidenced-based research and recommendations (NPUAP, 2014).

Haesler, Kottner, and Cuddigan (2017) discussed the “methodology used” in the development of the “Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline (2014)” (p. 1515). The guidelines were carefully “selected and adapted” in order to produce “a high quality international clinical guideline” (p. 1524). Recall from
above that pressure ulcer “prevalence and incidence” are also “recognized as indicators of quality and safety” in the delivery of healthcare (p. 1527). These recommendations also “provide a guidance to clinicians working in specific clinical settings” such as critical care, palliative care, pediatrics, and the operating room (p. 1527). The “evidence-based clinical care” promoted by these guidelines is “invaluable” (p. 1528). Implementation of these guidelines should be done with “consideration to local context,” as well as the “individual’s preferences and needs” (p. 1515).

**Pressure Ulcer Prevention Programs**

Han, Kim, Hwang, Lee, and Song (2018) conducted a study to “provide basic information” on pressure ulcer prevention by “analyzing PU-related characteristics,” as well as indicating the predictors of pressure ulcers (p. 3780). The Joint Commission “included PU management in its National Patient Safety Goals in 2016” (p. 3781). Recall that more and more individuals “develop” pressure ulcers; thus, it was important for the Joint Commission to add pressure ulcer occurrence as a “standard for hospital certification” (p. 3781). This descriptive study was conducted by analyzing “electronic medical records of university hospital” patients in Seoul, South Korea (p. 3780). The sample size included 34,287 participants (p. 3781). Inclusion criteria involved in-patients who were older than 65 years, “those who had PU risk evaluation,” and those “hospitalized between January 1, 2001-December 31, 2015” (p. 3781).

Numerous studies have concluded that there is a “correlation between pressure ulcers and gender,” nutrition, incontinence, and consciousness level (Han et al., 2018, p. 3781). Identification of pressure ulcer risk is also a predictor of pressure ulcer development. Screening tools like a Braden Scale score may be effective in identifying patients who are at an increased risk. Advanced age is another predictor; “older adult
inpatients aged over 65 years is the population group” that is often afflicted with pressure ulcer (p. 3781).

Results revealed that pressure ulcers were indeed influenced by gender, Braden Scale, consciousness status, and age (Han et al., 2018, p. 3780). The variable found to be “most important” among the predictors was “consciousness” (p. 3780). Individuals who were drowsy or less conscious “were 3.77 times more likely” to develop pressure ulcers than those who were “alert” (p. 3780). In order to help prevent pressure ulcers in older patients, “the level of consciousness” of these adults “should be assessed, and appropriate interventions” applied (p. 3780).

De Meyer, Van Hecke, Verhaeghe, and Beeckman (2018) evaluated the “effectiveness of tailored repositioning and turning and repositioning system” on a number of factors, including “nurses’ compliance to repositioning frequencies,” the patient’s body posture after repositioning, “the nurses’ and patients’ preferences, comfort and acceptability of the interventions,” pressure ulcer incidence, and “incontinence-associated dermatitis” (p. 1085). This multicenter cluster “three-arm, randomized, controlled pragmatic trial” used a convenience sample of 277 patients at increased risk of pressure ulcer development (p. 1087). Data collection occurred from February 2016 through December 2017, with recruitment at “29 wards in 16 hospitals” (p. 1085). Wards were randomly assigned to either a control or an experimental group. The patients assigned to the experimental groups received the intervention, including “repositioning frequency” and body posture “tailored to individual patient risk factors” (p. 1087).

The results conveyed that the compliance of nurses “to repositioning frequencies increased significantly” with those in the experimental groups (De Meyer et al., 2018, p. 1085). There were also “fewer pressure ulcer” occurrences with the “tailored repositioning” system (p. 1085). While results were in “favor of the interventions,” there is a need for “follow-up and education” related to these interventions (p. 1096).
Chaboyer et al. (2016) sought to “evaluate the effectiveness of a pressure ulcer prevention care bundle” in the prevention of “hospital-acquired pressure ulcers” among at-risk patients (p. 63). “INTroducing A Care bundle To prevent pressure ulcers (the INTACT trial)” was a “pragmatic cluster randomized trial” conducted in eight hospitals in Australia (p. 64). The sample size was 1600 patients who were 18 years or older and at risk of pressure ulcer development due to limited mobility (p. 63). The method utilized in this study included stratification of hospitals into two groups. Hospitals with recent pressure ulcer rates were randomized into either a “pressure ulcer prevention care bundle or standard care” (p. 65). Patients in the intervention group were provided with messages that read: “keep moving; look after your skin; and eat a healthy diet” (p. 63). The nurses involved in the intervention group were “trained in partnering with patients” when providing care for pressure ulcer prevention (p. 63). Standard care was provided to patients in both the intervention and control groups (p. 65).

The primary outcome of the study was the “incidence of new HAPU,” defined as the “number of new PU of any stage” occurrence “per 1000 patient follow up days” (Chaboyer et al., 2016, p. 66). The follow-up days for patients varied due to the open cohort (p. 66). The measurement of the primary outcome was done “by daily skin inspection” (p. 63). The incidence of hospital-acquired pressure ulcers was “measured using the gold standard skin inspection method” (p. 68). Secondary outcomes were “severity of HAPU” and “patient participation” in pressure ulcer prevention (p. 66). Hospital-acquired pressure ulcer severity was compared between the intervention and control groups using a “cluster-adjusted chi-square test” (p. 66). Patient participation in the prevention of pressure ulcers was done using “cluster adjusted independent t–test” between the groups (p. 66).

The results revealed that 49 (6.1%) of the patients in the intervention group developed pressure ulcers, while 84 (10.5%) of the patients in the control group developed pressure ulcers (Chaboyer et al., 2016, p. 67). There was a “52% reduction in
the risk of hospital-acquired pressure ulcer development in the intervention group compared to the control group, although it wasn’t statistically significant (p. 67). Secondary outcomes were also not significantly different between the intervention and control groups. Even though the “pressure ulcer prevention care bundle” was related to a “large reduction in the hazard of ulceration,” the degree of uncertainty is high “around this estimate and the difference was not statistically significant” (pp. 63-64). The sample size could be a “possible explanation for this non-significant finding” (p. 64).

Whitty et al. (2017) aimed to assess the “cost-effectiveness of a patient-centered pressure ulcer prevention” bundle, compared to standard of care (p. 35). The study design involved the “analyses of pressure ulcer prevention” using the data “collected alongside a cluster-randomized trial” (p. 35). The setting for this study was in Australia; the sample size was 1,600 participants who were at risk for pressure ulcer (p. 36).

Results revealed that the patient-centered pressure ulcer prevention care bundle cost “more per patient” than the standard of care (Whitty et al., 2017, p. 38). The contributing factors to the cost increase included nurses’ time spent on “repositioning and skin inspection” (p. 35). However, components of best nursing practice include frequent “repositioning and skin inspection” (p. 36). The findings of this study suggest that even though the pressure ulcer prevention care bundle “may encourage good nursing practice,” it is not “cost-effective in preventing” hospital acquired pressure ulcers (p. 41).

Bredesen et al. (2016) aimed to “develop and test an e-learning program” for an “assessment of pressure ulcer risk and pressure ulcer classification” (p. 191). Participants were randomly assigned into a control or intervention group; the total sample included 44 nurses across two hospitals and four nursing homes. An e-learning program was provided to those in the intervention group, while the control group underwent a classroom lecture training. A pretest/posttest method was utilized to assess the effectiveness of the provided programs. The first test was a pretest before training; first posttest occurred immediately after the training, and the second posttest occurred three months post-training. Data
collection occurred between May and December of 2012. Test variables “were
dichotomized into correct or incorrect answers” (p. 194). Comparison between groups
occurred using a Chi-square test. The Mann-Whitney U test was used to analyze
continuous variables (p. 194).

Results conveyed that the e-learning program offered in the intervention group had
“greater effect on the accuracy of pressure ulcer classification” in the short term when
compared to the classroom lecture training (Bredesen et al., 2016, p. 191). The authors
recommended that future studies assess the potential long-term advantages of such
educational programs (p. 191).

**Provider-Level Facilitators and Barriers to Pressure Ulcer Prevention**

**Nurses’ Knowledge and Attitudes**

Rafiei et al. (2014) assessed the knowledge base of trauma nurses in relation to
pressure ulcer “prevention, classification and management” (p. 135). This cross-sectional
exploratory study was conducted in two top level-one trauma teaching hospitals in Iran.
The 185 registered nurses who worked in the emergency rooms of these hospitals were
invited to participate in the study; the final sample size was 159 nurses. The study
revealed that nurses’ knowledge was highest “in the section about wound characteristics,”
but lowest in the “section about pressure ulcer onset” (p. 138). Results revealed that these
nurses did not possess adequate knowledge about how to prevent, manage, and classify
pressure ulcers. The authors recommended enhanced “educational programs” for nurses
(p. 140). The nurse managers were also encouraged to provide a supportive environment
for their staffs to “improve their knowledge” on pressure ulcer prevention (p. 141).

Gul, Andsoy, Ozkaya, and Zeydan (2017) also evaluated the pressure ulcer
“prevention/risk, staging, and wound description knowledge” of nurses (p. 40). This
descriptive cross-sectional study took place in an acute care hospital in the European side
of Istanbul, Turkey. The survey instrument was a “modified and translated version” of the “Pieper Pressure Ulcer Knowledge Test” (PUKT) (p. 40). The duration of the study was May through June 2015 (p. 41). Three hundred eight nurses participated in the study. Data analysis was done using SPSS version 21.0; descriptive statistics were used in the analysis of the PUKT items. Pearson correlation was used to test for correlation between the “quantitative variables, and the Mann-Whitney U and Kruskal-Wallis test” was done to differentiate the “mean scores of independent groups” (p. 42).

Results revealed that the “knowledge scores were significantly higher” for those nurses who had attended “at least 1 lecture/conference/course on” preventing pressure ulcers in the last year (Gul et al., 2017, p. 40). The outcome also showed that there were “significant knowledge gaps regarding” pressure ulcer prevention “risk, staging, and wound description” among nurses (p. 43). Both education and experience “caring for patients who are at risk” for pressure ulcers or have pressure ulcers were found to “affect nurses’ knowledge” (p. 40). Future studies “examining nurse’s knowledge” can help with the “development of much-needed educational programs” (p. 40).

Tulek, Polat, Ozkan, Theofanidis, and Togrol (2016) evaluated the “validity and reliability of the Turkish version” of the “Pressure Ulcer Prevention Knowledge Assessment Instrument” (PUPKAI-T) (p. 201). This instrument was designed to help in the assessment of pressure ulcer prevention knowledge using multiple choice questions (p. 201). The study assessed the “linguistic validity of the instrument” and the “psychometric properties of the translated version of the instrument” (p. 202). Data collection occurred in a tertiary hospital in Istanbul, Turkey from April through July 2014. The sample size included 150 nurses who worked as medical-surgical nurses and also volunteered to be participants of the study. Data collection occurred over a single session, and “re-testing of the instrument” was conducted on “46 nurses from the same sample” after a two-week interval (p. 202). Analysis was done using SPSS version 21.0; Kuder-Richardson 20 was used to determine “internal consistency of the instrument”
Descriptive statistics, as well as non-parametric statistical tests that included the “Mann Whitney U test and Spearman correlation … were employed” (p. 202).

Results revealed that the PUPKAI-T was “valid and reliable” in the evaluation of nurses’ knowledge on prevention of pressure ulcers (Tulek et al., 2016, p. 201). This is an invaluable tool for “nursing education, research and practice” to evaluate individuals’ knowledge concerning pressure ulcer prevention (p. 208). In-service programs may adopt this tool as a “pre-post-test to evaluate efficacy of training” (p. 208). Low-score thematic areas could guide development of targeted pressure ulcer interventions tailored toward nurses’ specific educational needs (p. 208).

Pressure ulcers result in “increased healthcare costs,” “high morbidity and mortality rates,” and “prolonged hospitalization and emotional problems in patients” (Ünver et al., 2017, p. 277). As such, Ünver et al. assessed the attitude of surgical nurses concerning the prevention of pressure ulcers, and how that attitude “may affect preventative care strategies” (p. 277). Review of the literature revealed that improved knowledge of nurses was not “consistently linked with improved care” (p. 278). Therefore, knowledge alone is not sufficient to prevent pressure ulcers, especially as “nurses’ attitudes were important in pressure ulcer prevention” (p. 278).

This descriptive, cross-sectional study was conducted at a university hospital in Eastern Thrace, Turkey. Convenience sampling included 101 nurses. The instruments utilized in data collection involved two forms, the “Nurse Information Form” and the “Attitude towards Pressure Ulcer Prevention Instrument” (Ünver et al., 2017, p. 278). Analysis of the data occurred using the Mann-Whitney $U$ test, Pearson’s chi-square, independent samples $t$-tests, and correlation tests. SPSS software version 21.0 was used for data coding. The results showed that the “mean total attitude score” of the nurses was “80.5%”; thus, nurses exhibited positive attitudes toward pressure ulcer prevention (p. 279). One key limitation involved generalizability, given a convenience sample from only one hospital (p. 279).
Barakat-Johnson et al. (2018) also assessed the knowledge and “attitude of nurses towards pressure injury prevention,” as “an understanding of knowledge and attitudes” of nurses is crucial in recognizing “opportunities to improve education and practice” related to pressure ulcer prevention (p. 233). This study sought to discover whether “there was a relationship between knowledge, attitude,” and years of experience regarding increased incidence of pressure ulcer injury “across 1 hospital district in Sydney, Australia” (p. 233). This cross-sectional multisite study included registered nurses who worked on rehabilitation, medical, and acute units. While some studies “show that nurses are knowledgeable in this area,” other research reflects otherwise (p. 233).

Data were collected from December 2015 through April 2016. Two validated instruments were used to measure the data; one instrument was a modified version of the PUKT, which assessed nurses’ knowledge, while the other was the Moore and Price Staff Attitude Scale, which measured nurses’ attitudes about pressure ulcers. Registered nurses were contacted through their work email and invited to participate in the study. The completion of the surveys occurred in two ways: online through “the local health district’s RedCap system,” an electronic system for handling online surveys, and via a paper survey accessed through nurse managers in the various participating facilities (Barakat-Johnson et al., 2018, p. 234). Each nurse was allotted one month to complete the survey, facilitated through email reminders. Data collected online were analyzed using SPSS version 2, while data acquired through paper versions were entered into an electronic database and analyzed (p. 234). Higher scores on both scales reflected higher knowledge about pressure ulcer prevention, or positive attitude on pressure ulcer prevention. Correlation between variables was conducted using the Pearson correlation test, assessing the association between “years of experience and knowledge and attitude scores” (p. 234).

Of the 3,123 surveys distributed, 998 nurses (32%) responded; one-third of the participants had 5 to 10 years of nursing experience. Eighty percent of the respondents
scored “33/47 or more on the knowledge survey,” and the mean score for the attitude test indicated a positive attitude towards pressure injury prevention” (Barakat-Johnson et al., 2018, p. 235). There was a statistically significant positive association between nurses’ years of experience and attitude. This suggests that “the more years of experience a nurse has,” the likelihood of having a positive attitude about pressure ulcer prevention increases (p. 236). There was also a significant positive association between knowledge and attitude, which conveys that “greater knowledge about pressure injuries” is correlated with “more positive attitudes toward” prevention of pressure injury (p. 236).

Tolulope, Akinwande, Funmilayo, and Obialor (2018) assessed the “pressure ulcer knowledge” and also “attitude of nurses” in regard to the prevention of pressure ulcers in a tertiary health institution located in Nigeria (p. 24). This descriptive cross-sectional study was conducted over a “period of 2 months” (p. 24). A questionnaire collected data about “demographic information,” knowledge about pressure ulcers, and “the attitude of nurses” in relation to prevention of pressure ulcers (p. 24). The sample size was 90 nurses, of which 60 were females (p. 24).

Analysis of data was done using SPSS version 20.0. The majority (76.7%) of the nurses who completed the questionnaire “had received special training” on the prevention of pressure ulcers “since they started their nursing practice” (Tolulope et al., 2018, p. 25). Altogether, 64.4% (n=58) of nurses had “adequate knowledge about pressure ulcer etiology, prevention, care,” the influence of staff on pressure ulcer prevention, legal implications, and “recent pressure ulcer prevention practices” (p. 25). Overall, the majority of nurses (n=67) “had a positive attitude … toward pressure ulcer prevention” (p. 25). However, 62.2% of participants did not consider the importance of screening patients who they felt were not “at risk of developing pressure ulcer” (p. 26). Thus, education is needed to orient nurses “to the fact that screening all patients” who have “limited mobility and implementing” strategies to prevent pressure ulcer development are “an integral part of” nursing practice (p. 26).
Generalizability of these findings is limited due to the sample size, but “other studies involving larger samples” with “more health institutions” may help increase understanding around pressure ulcer prevention as related to nurses’ attitudes (Tolulope et al., 2018, p. 26). Additional research is needed to “assess actual nursing practices,” as well as healthcare professionals’ and clients’ adherence to “pressure ulcer prevention guidelines” (p. 26).

Charalambous et al. (2018) also assessed “the knowledge and attitudes of nurses” in relation to pressure ulcer prevention (p. 40). This descriptive cross-sectional study was conducted in a major public hospital in Cyprus. Data collection occurred from December 2014 through February 2015. Convenience sampling was used; the sample included 102 nurses. The nurses received envelopes on-site containing an “anonymous self-completion questionnaire” and informed consent (p. 41). Completed questionnaires “were collected in specific boxes located in the wards” (p. 41). Data analysis was done using SPSS 17.0. Parametric and non-parametric t-tests, as well as the Mann Whitney U, were utilized. Pearson tests of correlation were used to test the relationship between nurses’ knowledge and attitudes on pressure ulcer prevention.

Results revealed that the majority of participants reported “it had been more than 4 years since they updated their knowledge” in regard to pressure ulcer prevention (Charalambous et al., 2018, p. 41). Sixty participants acknowledged that they had read the pressure ulcer prevention and treatment national guidelines in the past. There was a statistically significant positive correlation between knowledge and attitude on pressure ulcer prevention and treatment. Charalambous et al. (2018) suggested that, based on this positive correlation, “there is the possibility” that if knowledge levels are enhanced through educational programs, “it is possible to succeed at even further improvement” in nurses’ attitudes (p. 44).

Tirgari, Mirshekari, and Forouzi (2018) aimed to “examine the knowledge and attitudes of nurses” regarding pressure injury prevention (p. 1). This cross-sectional,
descriptive analysis study was conducted in intensive care units (ICUs). All nurses working in the ICUs of hospitals “affiliated with Zahedan University of Medical Sciences” in Iran were asked to participate; the final sample size was 89 nurses (p. 2). Participants were asked to fill out a 3-part questionnaire that asked for “background information” and “knowledge about pressure injuries” (p. 2). Nurses’ attitudes were also examined. The PUKT was used to assess nurses’ knowledge; the Attitude towards Pressure ulcer Prevention (APuP) instrument was used to assess nurses’ attitudes on pressure injury prevention (p. 3).

Analysis of the data was done using SPSS version 19. The variables were normally distributed, as indicated by a Kolmogorov-Smirnov test (Tirgari et al., 2018, p. 3). Correlation between knowledge and attitudes was analyzed using the Pearson test. A t-test was utilized to compare nurses’ knowledge and attitude scores “between 2 demographic variables,” such as gender and “previous exposure to pressure injury education” (p. 3). ANOVA was used in comparing three or more variables, such as years of experience in the ICU, age, employment status, and educational level (p. 3).

The results showed a statistically significant relationship between “pressure injury knowledge and attitudes” (Tirgari et al., 2018, p. 1). Yet participants were found to possess inadequate knowledge “about pressure injury prevention” (p. 4). Having “ongoing and up-to-date knowledge” on pressure injury prevention is the “most effective way to prevent them” (p. 4). In an effort to help improve nursing care, administrators and nurse managers should focus on improving the “knowledge and attitudes” of nurses by dissemination of guidelines (p. 8). Nursing instructors should also be involved in training programs; these programs will help keep staff up-to-date on the best scientific evidence available for pressure injury prevention and “transmit to nursing students” such knowledge (p. 8).

Etafa et al. (2018) sought to “explore nurses’ attitudes toward” prevention of pressure ulcers and “identify staff nurses’ perceived barriers to pressure ulcer prevention”
This cross-sectional multi-center quantitative study occurred in April of 2015. The total sample included 222 nurses in 6 out of 13 public referral hospitals in Addis Ababa, Ethiopia; hospitals were selected through lottery. Sixty-three percent of the nurses (n=140) had their bachelor’s degree, while 24 nurses were enrolled in Master of Science degree programs in nursing. A self-reported questionnaire was used to collect data. SPSS version 20 was used in data analysis.

Only “7.2% (n=16) of the nurses reported receiving any training” on pressure ulcer prevention, while 66.7% (n=148) reported they had “never received any training” on pressure ulcer prevention (p. 3). Further, 116 nurses were found to hold negative attitudes toward the prevention of pressure ulcers. Strikingly, 98% of nurses reported “different challenges” faced in the prevention of pressure ulcers (p. 4). According to 185 participants, the barriers to pressure ulcer prevention and treatment included lack of staffing and heavy workload; the “shortage of pressure relieving devices” was the second most cited barrier (p. 4). The findings of this study suggest that “Addis Ababa nurses hold a negative attitude to pressure ulcer prevention,” likely due to lack of training and multiple cited barriers to providing optimal care (p. 4).

Nurses’ Adherence to Recommended Guidelines

Moya-Suárez et al. (2017) aimed to produce and validate an “instrument to evaluate nurses’ adherence” to “published” pressure ulcer prevention and treatment “recommendations” (p. 261). Despite numerous recommendations available to prevent the occurrence of pressure ulcers, healthcare personnel still “face numerous barriers in this respect” (p. 260). Two such barriers include “insufficient motivation and resistance to change,” and “inadequate knowledge of the guidelines” (p. 261). This study was conducted in two phases. In the first phase, an instrument was designed “based on the main recommendations” of pressure ulcer prevention as “published in various clinical practice guidelines,” and its contents validated (p. 260). The instrument included three
sections: “questionnaire, vignettes and characteristics of respondents” (p. 261). In the second phase from June 2015 to July 2016, a psychometric validation—to test for construct validity and reliability of the instrument—occurred in nine hospitals located in Spain. The online questionnaire was sent to nurses in these nine hospitals.

Statistical analysis was performed using the Kolmogorov-Smirnov test, Student t-test, Mann-Whitney U test, chi-square test, and ANOVA on SPSS version 22 and AMOS 21. Of a total sample of 228 nurses, 182 were female and 46 were male, with an age range between 24 and 63 years old. The construct validity performed provided a KNO index score of 0.922 (Moya-Suárez et al., 2017). Results revealed that the “questionnaire to evaluate nurses’ adherence to recommendations for preventing pressure ulcers (QARPPU),” an instrument specifically designed to measure nurses’ adherence to pressure ulcer prevention recommendations, does present “conceptual validity” (p. 269). The utilization of this instrument is “suitable for use in hospital care” because of “its psychometric properties” (p. 269).

Lavallée, Gray, Dumville, and Cullum (2018) conducted a study to gain an understanding of “the context of pressure ulcer prevention in nursing homes” and to investigate the “potential barriers and facilitators to evidence-informed practices” (p. 79). This qualitative study used “individual semi-structured interviews” to gather data (p. 81). Purposive sampling was utilized to recruit registered nurses, “healthcare assistants working in nursing homes,” and nursing wound care specialists (p. 81). The study took place in nursing homes in the North West of England, identified through an online search. After conducting mail and phone recruitment, six nursing home managers, one national health service manager, and four “tissue viability nurses” were interested and asked to circulate participation information (p. 81). The final sample size included 25 participants. Face-to-face interviews were then conducted. One researcher conducted all the interviews “to ensure consistency” (p. 81). The length of the interview was approximately 50
minutes. The interviews were “audio-recorded, transcribed verbatim and proof-read” (p. 81).

Analysis of data occurred utilizing a “framework analysis,” and domains were also “identified as salient” based on factors such as “frequency and the potential strength of their impact” (Lavallée et al., 2018, p. 79). The findings of this study revealed “seven domains as relevant” in pressure ulcer prevention in nursing homes (p. 79). Some of the barrier domains identified included knowledge, social influences, and physical skills. Some of the facilitators identified included social influences, environmental context and resources, beliefs about capabilities, and professional role identity. Insight into these barriers and facilitators to guideline adherence provides “theoretical understanding of the complexities” involved in the prevention of pressure ulcers, including individual- and social-level factors (p. 79).

Smith, Ashby, Thomas, and Williams (2018) aimed to “compare the change in prevalence” in pressure injuries (PIs) “from 2008 to 2014” in “relation to staff behavior in acute/sub-acute inpatient care settings” (p. 95). Specifically, Smith et al. focused on “the initiatives” taken by “the Hunter and New England Local Health District (HNELHD)” in order to “implement best practice” on pressure ulcer prevention and treatment (p. 96); the HNELHD is a “public healthcare organization” tasked with providing services to “658 000 people” in Australia (p. 96). HNELHD found out in 2008 that “the prevalence of PIs was 24.9% across inpatient services” (p. 96). Practitioners of the HNELHD designed a multifactorial model—the Crystal Model—as a “strategic approach to reduce” PI prevalence (p. 96). The model has now evolved to ensure that it “reflects international guidelines” (p. 96).

The Crystal Model invented by the HNELHD was “reviewed annually using data” acquired from an “annual point prevalence survey” (Smith et al., 2018, p. 97). This point prevalence survey was conducted because it “captures the proportion of patients with PIs” who are “within a specified time and population” (p. 97); its use is commonly
adopted in epidemiological studies “to monitor the rate of a disease or condition” (p. 97). This “cross-sectional retrospective quantitative” study analyzed data on pressure ulcer prevalence and management “between 2008, 2010 and 2014” (p. 98). The sample size totaled 3,937 participants—1,407 participants in 2008, 1,331 participants in 2010, and 1,199 participants in 2014 (p. 98).

Data were analyzed to assess the impact that the Crystal Model had on practice and to “identify similarities and pair comparable questions” (Smith et al., 2018, p. 99). Expression of the data was done using “means and percentages of categorical and numerical data” (p. 99). Descriptive statistics were used to distinguish “changes and patterns in the data” (p. 99). Results revealed that from the year 2008 to 2014, “there was a 15.7% decrease in percentages of patients” who acquired pressure ulcers in the hospital setting (p. 95). Further, documentation of pressure injury risk assessment, “the documentation of repositioning,” as well as the “implementation of pressure-relieving equipment increased” (p. 95). These results show that a strategic, multifactorial model may help “reduce the prevalence of pressure injuries in acute inpatient settings” (p. 95).

Gadd and Morris (2014) evaluated “whether pressure ulcer preventative” measures were established once the score of a Braden Scale indicated a high-risk patient for pressure ulcer formation (p. 535). In this retrospective study, a chart review was “conducted in a medical records department” of an acute care setting in Kentucky (p. 536). The collection of the data was done by a wound, ostomy, continence (WOC) nurse between the months of April and June of 2011. All records of patients who had acquired hospital pressure ulcers were reviewed. The number of patient charts retrieved totaled 63, of which 20 charts were “systematically selected for review by choosing every third chart” (p. 536). The sample included “12 men and 8 women with a median age of 68 years” (p. 537).

The WOC nurse’s data collection included daily Braden Scale scores and subscale scores. Recall that Braden Scales are performed for each patient admitted to the hospital,
and daily after admission; a cumulative score of 18 or less indicates a patient at increased risk of pressure ulcer development. When a cumulative Braden Scale score indicates an increase in pressure ulcer formation, the protocol involves placing pressure ulcer prevention in a patient’s chart. Gadd and Morris (2014) found that preventive measures were not triggered or implemented when a patient had a cumulative Braden Scale score of more than 18 but “1 or more Braden Scale subscale scores is low,” which is justification for “tailored interventions for pressure ulcer prevention” (p. 536).

Descriptive data analysis was conducted using SPSS version 18.0, and bivariate data were analyzed using SAS. Nineteen percent of the 322 patient days showed cumulative Braden Scale scores of no risk for pressure ulcer formation, even though the “low subscale scores indicted the patient” needed a “tailored preventative intervention” (Gadd & Morris, 2014, p. 537). About 20% of preventive measures were not implemented for those patients who were at risk of developing pressure ulcers, since their cumulative Braden Scale scores were more than the required cutoff point of 18, although their subscale scores were “suboptimal” (p. 538). It is thus recommended to include an “evaluation of subscale scores” when planning hospital intervention programs (p. 538).

**Achieving Optimal Patient Outcomes**

Bauer, Rock, Nazzal, Jones, and Qu (2016) aimed to “evaluate the impact of pressure ulcers on short-term outcomes” and to distinguish the characteristics associated with patients who have “1 or more pressure ulcers” (p. 30). The database of the “US Nationwide Inpatient Sample (NIS)” was analyzed with the help of the “International Classification of Disease, 9th Revision Clinical Modification (ICD-9 CM)” codes for diagnosis (p. 30). The ICD-9 CM was used as a “screening tool” for all the inpatient “pressure ulcers recorded from 2008 to 2012” (p. 30). Statistical analysis of the data was conducted in which “group comparisons” were done “using t-test or ANOVA test”
The “differences between groups” were assessed using nonparametric tests. Linear regression and logistic regression were used to analyze “possible risk factors” for outcomes, such as length of stay and in-hospital mortality (p. 31). SPSS version 21 was used in the statistical analysis of the data (p. 31).

Results revealed 670,767 patients with one or more pressure ulcers in the United States between 2008 and 2012, or an “average overall rate of 1.8%” (p. 30). Individuals with pressure ulcers were statistically significantly older compared to those “without pressure ulcers” (p. 31). Men had a “significantly higher rate than women” in pressure ulcer formation (p. 31). African Americans also “had a significantly higher rate” of pressure ulcer formation in comparison to “other races” (p. 31). The highest risk factor for pressure ulcer formation was noted to be malnutrition; other risk factors included incontinence, hypotension, and diabetes. The median length of stay for individuals with pressure ulcers was seven days, compared to three days for those without pressure ulcers (p. 30). The rate of mortality was 9.1% for those with pressure ulcers, and 1.8% for those without pressure ulcers (p. 30). These findings “confirm the importance of prevention initiatives” in an attempt to alleviate the “negative impact of pressure ulcers on patient outcomes” in addition to “costs of care” (p. 30).

With the prevalence of pressure ulcers being high among frail older people, it is prudent to educate nurses on the importance of initiating preventive measures to help with this target population. Barry and Nugent (2015) aimed to explain the “importance of pressure ulcer prevention in older people,” provide a description on how to “prevent pressure ulcer in frail” older adults, delineate the significance of education on prevention of pressure ulcers, and explore the importance of “leadership and teamwork” in this effort (p. 50). Preventing pressure ulcers in older adults is essential, as it can have a “substantially negative effect” on their quality of life (p. 53).

Healthcare professionals, especially nurses who provide direct care to patients, need to be “equipped with the knowledge and skills” to facilitate effective decision-
making when it comes to preventing and treating pressure ulcers (Barry & Nugent, 2015, p. 54). In order to prevent pressure ulcers in frail older adults, “a standardized approach” must be implemented in clinical practice (p. 54). Noticing erythema during skin assessment is crucial, because it is an “early indicator of pressure damage” (p. 54). With implementation of nursing educational programs, the prevalence of hospital-acquired pressure ulcers decreased (p. 54).

Stadnyk, Mordoch, and Martin (2018) sought to “understand which factors facilitate” prevention of pressure ulcers among those who are “65 years-of-age receiving care in healthcare facilities” (p. S4). This was a critical literature review with articles retrieved from PubMed, CINHAL, and MEDLINE (p. S6). A total of 850 articles were identified using key words such as pressure injury prevention, pressure sore prevention, and bed sore prevention program; the number was reduced to 390 articles by “limiting the years and language” (p. S6).

After the synthesis of the literature, “the Factors Facilitating Pressure Ulcer Prevention Model (FFPUPM) was developed” (Stadnyk et al., 2018, p. S6). This model depicts five “multilevel factors for” the prevention of pressure ulcers in “older adults in health-care facilities” (p. S6). The multilevel factors include “senior leadership, education, ongoing quality improvement, clinical practice, and unit level champions” (p. S6). The FFPUPM provides the needed “guidance to facilitate PU prevention” and to identify “key factors of a preventative organizational culture” (p. S9). An organization that practices the five factors of the FFPUPM “possesses the factors necessary to achieve positive patient outcomes” (p. S9).

A study conducted by Ramundo, Pike, and Pittman (2018) sought to examine “the evidence and provide recommendations” related to the “effectiveness of prophylactic foam dressings” to reduce heel pressure injuries in acute care settings (p. 75). A “systematic search of the literature” was conducted via CINHAL, PubMed, and EMBASE databases (p. 76). Inclusion criteria were pressure injury/pressure ulcers,
available in English, and either “randomized control trials (RCTs), controlled clinical trials … cross-sectional studies,” and “quasi-experimental studies” (p. 76). Thirteen studies were included in the final review (p. 76). Results showed that the use of “prophylactic multilayer foam dressings applied to the heels” was effective in the prevention of pressure injury of the heel when combined with an “evidenced-based pressure injury prevention program” (p. 81).

**Theoretical Framework**

This study was informed by three theoretical constructs. The three theories guiding this study were the Health Belief Model, Social Cognitive Theory, and Theory of Planned Behavior. These theories are as follows:

**The Health Belief Model**

The Health Belief Model (HBM) is a theoretical framework that helps to understand human health behavior. The HBM “hypothesizes that health-related action” is determined by the “simultaneous occurrence of three classes of factors” (Rosenstock, Strecher, & Becker, 1988, p. 177). These factors include the “existence of sufficient motivation” to make “health issues salient or relevant” (p. 177). Another factor is perceived threat, which is the belief that “one is susceptible (vulnerable) to a serious health problem” (p. 177). The last factor is the perceived benefit one believes will reduce “the perceived threat, and at a subjectively-acceptable cost” (p. 177). Cost in this context is the “perceived barriers” one must “overcome in order to follow” a particular “health recommendation” (p. 177).

The relevance of the HBM in this study was to help understand the perceived barriers of nurses in implementing the recommended pressure ulcer prevention and
treatment guidelines in their practice, as prescribed by the National Pressure Ulcer Advisory Panel.

**Social Cognitive Theory**

Bandura’s Social Cognitive theory (SCT) “holds that behavior is determined by expectancies and incentives” (Rosenstock et al., 1988, p. 176). Expectancies may be sorted into three categories; these include expectancies about “environmental cues … consequences of one’s own actions,” as well as “one’s own competence to perform the behavior needed to influence outcomes” (p. 176). The third type of expectancy is “termed efficiency expectation (i.e., self-efficacy)” (p. 176). Incentives include the “value” associated with a “particular object outcome” (p. 176). The outcome may be many things, such as economic gain, health status, approval from others, and physical appearance (p. 176).

SCT holds that one’s behavior is “regulated” by reinforcements or consequences from such behavior, “but only as those consequences are interpreted and understood by the individual” (Rosenstock et al., 1988, p. 176). Thus, individuals will only make the effort to change their lifestyles when there are “perceived effects” or incentives to such changes in behavior (p. 176). If there is the understanding that one’s “current lifestyle” does pose a threat to “personally valued outcome, such as health or appearances,” a change in behavior is viewed as a way of removing or reducing such threat; this is understood as outcome expectation (p. 176). The capability a person might have of “adopting” a behavior is referred to as “self-efficacy” (p. 176).

The relevance of including the SCT as one of the guiding theories in this study was to assess nurses’ self-efficacy in relation to the implementation of pressure ulcer prevention guidelines, via assessing one’s rating of his or her ability/skill level to prevent and treat pressure ulcers as stipulated by the National Pressure Ulcer Advisory Panel’s guidelines. This is an important concept, since “efficacy expectations … is the conviction
that one can successfully execute” the required behavior needed to “produce” certain outcomes (Rosenstock et al., 1988, p. 178).

**Theory of Planned Behavior**

The Theory of Planned Behavior is useful for “understanding, predicting, and changing human social behavior” (Ajzen, 2012, p. 455). The application of this theory has allowed “investigators to identify” crucial “psychological determinants of socially significant behaviors” (p. 455). People “generally hold a number of behavioral beliefs,” and those “beliefs” link such behaviors to outcomes (p. 441). There is also “subjective value” placed on those outcomes (p. 441). The combination of “beliefs and outcome evaluations” produce “an overall positive or negative attitude towards” a given behavior (p. 441). Thus, the “subjective value” or outcome evaluation “contributes to the attitude in direct proportion to the person’s subjective probability” that such behavior will “produce the outcome in question” (p. 441).

Subjective norms, which are “normative beliefs regarding different social referents,” produce “an overall perceived social pressure” (Ajzen, 2012, p. 443). Conceptually, subjective norms are “independent of attitudes towards” behavior (p. 443). This is because individuals can have “favorable attitudes towards” a specific behavior and “yet perceive social pressure not to perform it” (p. 443). The opposite could be the case also, where one could hold a negative attitude toward a behavior and have “favorable subjective norms” (p. 443).

In the Theory of Planned Behavior, the extent or degree to which an individual believes that he or she “can perform a given behavior if” he or she is “inclined to do so” is a concept called “perceived behavioral control” (Ajzen, 2012, p. 446). Perceived behavioral control can “influence performance of difficult behaviors” through its “effect on perseverance” (p. 447). People are more likely to “persevere and therefore … succeed” in their performance of a specific behavior when they “believe that they have
the capacity to perform” such intended behavior (p. 447). The relevance of this theory in this study is to help understand nurses’ attitudes toward practice guidelines, as well as any influencing social factors.

**Conclusion**

This chapter presented a relevant literature review for this study. The review of literature covered these topics: (1) pressure ulcer prevalence and mortality; (2) accreditation requirements and patient safety; (3) pressure ulcer prevention and treatment guidelines; (4) pressure ulcer prevention programs; (5) provider-level facilitators and barriers to pressure ulcer prevention; (6) achieving optimal patient outcomes; and (7) the theoretical framework guiding this research.

The next Chapter, III, will provide a detailed description of the methods utilized in this study.
Chapter III

METHODS

This chapter provides an outline of the methods and procedures that were utilized in this study. These include an overview of the study design and procedures, including the recruitment of participants as well as description of the research instrumentations used. The treatment of and analysis of data are be outlined in this chapter as well.

Overview of Study Design and Procedures

This study implemented a cross-sectional design through an online survey utilizing Qualtrics technology dispensed to a convenience sample of nurses. This section will provide a detailed overview of the study procedures utilized.

Institutional Review Board Approval

IRB approval was received for all the activities of the study from Teachers College, Columbia University Institutional Review Board (IRB) as Protocol #19-128 (see Appendix A for IRB Approval Letter) in late January 2019. An exempt IRB classification was received for this mixed method online study. The study’s data collection began only after IRB approval was obtained. All participants of the study were asked to provide an electronic signature to indicate that they had reviewed the Informed Consent for the study and were willing to be participants in the study.
Participant Recruitment

Participant recruitment began on February 3, 2019 and ended on March 2, 2019. The standard online research protocol of the Research Group on Disparities in Health (RGDH) was utilized. A social media campaign using Facebook, Twitter, LinkedIn, e-mail list-serves, text messaging, as well as snowballing, was used in order to recruit nurses. The recruitment message widely disseminated was as follows:

Go to <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the Nurse’s Survey on Pressure Ulcer Prevention and Treatment for a chance to win 1 of 3 $100 Amazon gift cards.

The link of the study was distributed as follows: through text messaging. Known nursing associates were sent text messages inviting them to participate in the study and also to share the link with other nurses. Daily reminders were sent out to potential participants about the survey and to remind them to share. Individuals who texted back that they had completed the survey were no longer contacted about the study. The link was also distributed online through Facebook. The link was posted on a Facebook wall the day the study launched as well as daily for the duration of the study. Groups were also searched on Facebook that catered to nurses. Such groups included Registered Nurse, Govt Nursing JOBS, Johnson & Johnson Nursing, NurseGroups.com, Black Nurses Rock, Nurses Association, New York Nurses Association (NYSNA), and Nurse.com. The link was posted on the walls of some of these groups, and private messages were sent to the members of the group to invite them to participate by providing them with the link and encouraging them to share the link as well (Tettey, 2011). These individual messages were sent by spacing them out about 5 to 10 minutes apart to prevent getting blocked from such groups (Tettey, 2011).

The link was also shared on Twitter, and friends were asked to post the link to the survey and re-tweet the survey message (Tettey, 2011). Groups such as SUNnurses, RN-INC, Registered Nurse Jobs, United Advanced Practice Registered Nurses (UAPRN), Nurse Jamie, Pressure Ulcer Game, Pressure Ulcer Care, Pressure Ulcers, Pressure Ulcer
Champ, Pressure Ulcer Prevention, Stop Pressure Ulcers, and the Visiting Nurses Service of New York were tweeted with the link to the survey.

The flyer to the study was also posted in churches, physical therapist offices, and doctors' offices. LinkedIn was used to recruit members by joining groups affiliated with nurses and posting the study link on their pages. Such groups were the Nursing Professionals, Nursing Crossing, Critical Care Nursing, and Emergency Nurses Association. Emails were sent out to nurses and healthcare professionals who have access to nurses to forward the link in order to provide them the opportunity to participate in the study. Snowballing ensued when individuals shared the link to the survey with others.

**The Screening Tool Questions: Inclusion-Exclusion Criteria**

Potential study participants had to answer “Yes” to all the study’s Screening Tool. The study’s Screening Tool (see Appendix F) suggests the study inclusion-exclusion criteria, shown here:

1) Are you a nurse?  
   ___Yes ___No  
2) Have you had direct contact with patients during service delivery in a healthcare setting within the past six months (e.g. hospital or medical center, emergency room, outpatient clinic, outpatient primary care practice office, private practice, mobile medical van, etc…)?  
   ___Yes ___No  
3) Are you at least 22 years of age?  
   ___Yes ___No  
4) Are you willing to spend approximately 40 - 45 minutes answering a survey for a chance of winning 1 of 3 $100 Amazon gift card?  
   ___Yes ___No  

If they answered YES to all of the above questions they access survey.

If they answered NO to any of the above questions they receive this message: Thank you for your time, but, unfortunately you are not qualified to participate in this study.

Feel free to invite other others who may qualify to participate in this study. Please send them the study link* that you used to access this survey.  
THANK YOU!
Study Incentive: Generating Prizes for Survey Completers

For all who completed the survey and entered their e-mail address via a program created by the RGDH webmaster (i.e., Dr. Rupananda Misra), study participants were entered into an anonymous drawing for the chance to win a gift certificate in the amount of $100 for use on www.Amazon.com. The program created by the RGDH webmaster permitted generating the prizes in such a manner that the researcher could not access any e-mail addresses submitted; thus, all study participants in the drawing remained anonymous, and the winner remained unknown to the researcher.

Research Instrumentation

The study measure included several parts, as described in this section. The measures and instruments utilized in this study were carefully developed under the direction of Professor Barbara Wallace and the Principal Investigator as part of the activities of the Research Group on Disparities in Health (RGDH). Special focus was placed upon the methods followed for the creation of the new measure for this study—which appears as survey Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) (see Appendix G).

Part I. Basic Demographics (BD-12)

The Basic Demographics (BD-12) scale follows a standard scale used by the Research Group on Disparities in Health, as used in Montecalvo (2013), for example. This scale has 12 items. The Basic Demographics (BD-12) enabled the collection of data that could be used to describe the participants of the study, such as age, race/ethnicity, employment status, and level of education.
Part II: Attitudes Regarding Practice Guidelines—Relevance Scale (ARPG-R-5)

The Attitudes Regarding Practice Guidelines—Relevance Scale (ARPG-R-5) arises from the work of Quiros, Lin, and Larson (2007). Quiros et al. described the Attitudes Regarding Practice Guidelines tool, which was based on a prior tool by Elovainio, Eccles, and Makela (1999). Quiros et al. (2007) performed a factor analysis, while also producing a “shorter, easy to administer” tool (p. 6). The new shorter tool was found to have “sound psychometric properties when used in a large sample of ICU staff” (n=1,359) that included 74% (n=1,003) nurses (p. 6). Quiros et al. found that nurses and ICU staff with more positive attitudes were more likely to implement guidelines.

Thus, Quiros et al. (2007) produced a final survey with 12 items (possible scores from 0 to 60) with a Cronbach’s alpha coefficient of .83. Quiros et al. identified through factor analysis three final factors of relevance, motivation, and outcome expectancy. More specifically, Quiros et al. “recommend this tool to others interested in studying attitudes toward guidelines who could then adapt it for their own use” (p. 6). Hence, the present study only used the relevance sub-scale with the items, shown below, using a 7-point Likert scale (1=Strongly disagree; 2=Disagree; 3=Disagree Somewhat; 4=Neither agree or disagree; 5=Agree Somewhat; 6=Agree; 7=Strongly Agree):

1-There are so many guidelines available that it is nearly impossible to keep up.
2-I don’t have time to stay informed about available guidelines.
3-Guidelines are too “cookbook” and prescriptive.
4-Generally, practice guidelines are cumbersome and inconvenient.
5-Guidelines are difficult to apply and adapt to my specific practice.

This study will provide through statistical analysis the mean, SD, percentage, and frequency data—as well as Cronbach’s alpha for the scale’s internal consistency.
Part III. More About You (Social Desirability) (MAY-13)

This study uses a short form, arising from the original work of Crowne and Marlowe (1960). Participants who respond to “anonymous survey instruments” as well as interviews can “experience great concern over coming off in a favorable light” (Ya Azibo, Arnold, & Dale, 2006, p. 121).

Crowne and Marlowe (1960) presented a measure of social desirability that had 33 items, as well as a short form with 13 questions. It was found that the original scale had good reliability using the Kuder-Richardson formula (0.88), as well as a good test-retest correlation (0.89).

This study uses the short-form, called here the MAY-13. Subjects indicate if the 13 statements are True or False. For scoring of the MAY-13, questions # 5, 7, 9, 10, and 13 are True, as socially desirable responses, and questions # 1, 2, 3, 4, 6, 8, 11, and 12 are False, as socially desirable responses. Each socially desirable responses is scored 1, leading to a possible high score of 13. The scale also gives rise to a mean, SD, minimum, and maximum score.

Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)

Study methods for survey creation. The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) is a tool developed by the Principal Investigator and her dissertation sponsor, Professor Barbara Wallace, Teachers College, Columbia University. The development of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) followed procedures for converting organizational standards into survey items developed by Professor Wallace, and was first utilized in creating a survey for a study with medical students by Marzan (2008)—with that emergent measure also utilized with medical students by Washington (2015), and adapted for a study with dental students by Lassiter (2009).
Specifically, following Professor Wallace’s procedures for converting organizational standards into survey items, together Professor Wallace and the Principal Investigator created this new tool for first-time use in this study. The survey items were created based on the guidelines formulated by the National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAP), and the Pan Pacific Pressure Injury Alliance (PPPIA)—as put forth in the publication by the NPUAP (2014).

As a first step, the Principal Investigator codified all of the NPUAP (2014) recommendations into individual statements that were listed under 13 topics—this appears in Appendix H as the Pressure Ulcer Prevention and Treatment Guidelines Formulated by the NPUAP/EPUAP/PPPIA, as per the NPUAP (2014) publication.

As a next step, the statements were converted into survey items that constituted nursing behaviors/tasks. This was done by adjusting the statements so that they began with action verbs, in an effort to identify nursing behaviors/tasks. For example, consider, below, sample original individual statements (A) from the NPUAP (2014) and how they became (B) nursing behaviors/tasks introduced with action verbs to be evaluated using the study’s three (a, b, c) rating scales [i.e., For (a) I rate my Nursing Training for this, (b) I rate my Personal Knowledge Level for this, and (c) I rate my Personal Skill/Ability Level for this ____ (i.e., nursing behavior/task___, using the Likert scale 1=very poor, 2=poor, 3=fair, 4=good, 5=very good, 6=excellent)]:

**Sample Conversion of NPUAP (2014) Recommendation to Survey Item # 3**

**A-Original NPUAP (2014) Recommendation Statement:** Include a comprehensive skin assessment as part of every risk assessment to evaluate any alterations to intact skin.

**B-This Became a Nursing Behavior/Task Survey Item:**

3—FOR: Including a comprehensive skin assessment as part of every risk assessment to evaluate any alterations to intact skin.
a-I rate my **Nursing Training** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

**Sample Conversion of NPUAP (2014) Recommendation to Survey Item # 5**

**A-Original NPUAP (2014) Recommendation Statement:** Develop and implement a risk based prevention plan for individuals identified as being at risk of developing pressure ulcers

**B-This Became a Nursing Behavior/Task Survey Item:**

**5—FOR:** Developing and implementing a risk based prevention plan for individuals identified as being at risk of developing pressure ulcers.

a-I rate my **Nursing Training** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

After the first round of survey item creation, the dissertation sponsor reviewed the items, caught typos, and made minor edits. The survey was then piloted, and the administration time was about 40 minutes with a total of 118 survey items distributed across 13 topics. With such an outcome, the dissertation sponsor then advised the Principal Investigator to review items to determine which could be combined, or eliminated if deemed redundant. This task was then completed by the Principal Investigator. The dissertation sponsor reviewed the resultant recommendations for combinations/eliminations and approved some changes, rejected a few, and made additional recommendations for combining other items. The results included a more
streamlined and shorter survey, as a total of 17 items were deleted—resulting in a shorter survey with a resulting administration time of about 30 minutes for a total of 101 survey items distributed across 13 topics. To illustrate this process, consider some examples:

**Example 1-The First Survey Round of Creating Items (Under Topic 1)**

1-Conducting a structured risk assessment as soon as possible, but within a maximum of eight hours after admission, in order to identify individuals at risk of developing pressure ulcers.

2- Repeating the risk assessment as often as required by the individual’s acuity.

**Example 1-The Second Survey Round of Creation Items—Combining 2 Items into One Item**

1-Conducting a structured risk assessment as soon as possible, but within a maximum of 8 hours after admission, in order to identify individuals at risk of developing pressure ulcers—and, repeating the risk assessment as often as required by the individual’s acuity.

**Example 2-The First Survey Round of Creating Items (Under Topic 5)**

1-Repositioning all individuals at risk of, or with existing pressure ulcers, unless contra-indicated

2-Determining the frequency of repositioning with consideration to the individual’s: tissue tolerance, level of activity and mobility, general medical condition, overall treatment objectives, skin condition, and comfort.

**Example 2-The Second Survey Round of Creation Items—Combining 2 Items into One Item**

1-Repositioning all individuals at risk of, or with existing pressure ulcers, unless contra-indicated—including determining the frequency of repositioning with consideration to the individual’s tissue tolerance, level of activity and mobility, general medical condition, overall treatment objectives, skin condition, and comfort.
Example-3-The First Survey Round of Creating Items (Under Topic 5)

1-Repositioning the individual in such a way that pressure is relieved or redistributed

2-Avoiding the positioning of individuals on bony prominences with existing non-blanchable erythema.

Example 3-The Second Survey Round of Creation Items—Combining 2 Items into One Item

1-Repositioning the individual in such a way that pressure is relieved or redistributed—while avoiding the positioning of individuals on bony prominences with existing non-blanchable erythema.

What emerged from these procedures as the final Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) was a shorter survey with 101 items. The emergent Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) has three scales, each with 101 items, as follows:

Scale 1: Nursing Training Rating Scale (TNRS-101)

Scale 2: Personal Knowledge Rating Scale (TPKRS-101)

Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)

Participant instructions for taking the survey. When taking the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101), study participants were asked to follow the instructions, below:

Survey Instructions:

This survey includes a number of topics on pressure ulcer prevention and treatment, including several behaviors or nursing tasks for that topic. Under each topic and for each behavior or nursing task, you are asked to make ratings, as follows:

(a) your **Nursing Training** to perform that behavior or nursing task

(b) your **Personal Knowledge Level** for performing that behavior or nursing task

(c) your **Personal Skill/Ability Level** for performing that behavior or nursing task:
Please use this rating scale

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

The 13 topics or subscales of the survey. The 101 items in the survey fall under 13 topics—also known as subscales. The subscales or topics are abbreviated “T.” The topic name is also abbreviated (e.g., CSRS for Conducting a Structured Risk Assessment), and each subscale or topic has a specified number of items for that topic (e.g., 8). A description of each subscale or topic follows:

Topic 1—Conducting a Structured Risk Assessment (T1-CSRS-8). This subscale contains 8 items on the topic of assessing pressure ulcer assessment.

Topic 2—Adhering to Skin Assessment Policy (T2-ASAP-9). This subscale contains 9 items on the topic of conducting a prompt and thorough assessment of the skin upon admission and the duration of the patient’s stay in the healthcare setting.

Topic 3—Practicing Preventive Skin Care (T3-PPSC-6). This subscale contains 6 items on the topic of skin care for clients, such as keeping the clients’ skin dry, using moisturizer to maintain hydration, etc.

Topic 4—Including Nutrition in Pressure Ulcer Prevention and Treatment (T4-INPUPPT-8). This subscale contains 8 items on the topic of nutrition, as it helps in skin integrity maintenance as well as pressure ulcer healing.

Topic 5—Conducting Frequent Repositioning (T5-CFR-26). This subscale contains 26 items on the topic of frequent turning and repositioning to help alleviate
pressure on the skin, which helps to prevent pressure ulcers or helps to heal already existing ulcers.

**Topic 6—Positioning Individuals who have Existing Pressure Ulcers (T6-PIEPU-11).** This subscale contains 11 items on the topic of positioning individuals who already have pressure ulcers, in order to help with the healing process.

**Topic 7—Positioning Devices for Pressure Ulcers (T7-PDPU-1).** This subscale contains 1 item on the topic of which devices are acceptable to use for positioning to prevent pressure ulcers, and which devices are not acceptable.

**Topic 8—Including Mobility in Pressure Ulcer Prevention and Treatment (T8-IMPUP-2).** This subscale contains 2 items on the topic of mobility, given the need for early and increased mobility based on evaluations.

**Topic 9—Selecting Appropriate Support Surfaces and Usage (T9-SASSU-6).** This subscale contains 6 items on the topic of selecting and utilizing support surfaces for either the prevention or treatment of pressure ulcers.

**Topic 10—Seating Support Surfaces to Prevent Pressure Ulcers (T10-SSSPPU-3).** This subscale contains 3 items on the topic of seating and support surfaces for individuals to prevent pressure ulcers.

**Topic 11—Seating Support Surfaces for Individuals with Existing Pressure Ulcers (T-11-SSSIEPU-3).** This subscale contains 3 items on the topic of seating and support surfaces for individuals with existing pressure ulcers.

**Topic 12—Preventing Medical Device-Related Pressure Ulcers (T12-PMDRPU-9).** This subscale contains 9 items on the topic of preventing medical device-related pressure ulcers.

**Topic 13—Conducting Pressure Ulcer Assessment (T13-CPUA-9).** This subscale contains 9 items on the topic of conducting pressure ulcer assessment, while paying attention to numerous factors.
The three scales of the survey: Scoring and data analysis. The final Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) with three scales, each with 101 items, was scored using a Likert scale of 1=very poor, 2=poor, 3=fair, 4=good, 5=very good, and 6=excellent. The three scales of the PU-PAT-S-FN-101 are as follows:

- **Scale 1: Nursing Training Rating Scale (TNRS-101)**—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.

- **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)**—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.

- **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)**—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.

Data analysis included using descriptive statistics on each scale to produce a mean and SD, as well as frequency and percentage data. The internal consistency of each scale was also determined using Cronbach’s Alpha.

**Treatment of the Data**

**Data Management**

Data were downloaded from Qualtrics. The data were then transferred to SPSS version 25.00 and analyzed. The study’s two outcome/dependent variables are Scale2: Personal Knowledge Rating Scale (TPKRS-101) and, Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101). Data analysis was conducted utilizing the data analysis plan below.

**Data Analysis Plan**

Given a sample of nurses (n=190) who have worked with patients in a healthcare setting within the past six months and who responded to an invitation to participate in this online study (i.e., “Go to <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the
Nurse’s Survey on Pressure Ulcer Prevention and Treatment for a chance to win 1 of 3 $100 Amazon gift cards”), the following research questions were answered—using the data analysis plan shown in italics:

1-What were the nurses’ demographics and background characteristics (e.g. age, gender, level of education, annual household income, etc.), including years of experience in the field of nursing?

**Part I: Basic Demographics (BD-12)**
*Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages*

2-What were the nurses’ attitudes toward practice guidelines?

**Part II: Attitudes Regarding Practice Guidelines--Relevance Scale (ARPG-R-5)**
*Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages; and, Cronbach’s alpha to determine internal consistency of the new 5 item scale*

3-To what extent did the nurses provide socially desirable responses?
[Note: the regression controlled for social desirability]

**Part III: More About You (Social Desirability) (MAY-13)**
*Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages*

4-With regard to established practice guidelines for the prevention and treatment of pressure ulcers that embodies relevant behaviors/nursing tasks, how did the nurses rate their (a) **Nursing Training** for performing those behaviors/nursing tasks, (b) **Personal Knowledge Level** for performing those behaviors/nursing tasks, and (c) **Personal Skill/Ability Level** for performing that behavior or nursing task?

[Note: the study’s two outcome variables/dependent variables are: **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)** and, **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)** of The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)]

**Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)**
*Data Analysis Plan: Descriptive statistics, including means, standard deviations, frequencies, and percentages; and, Cronbach's alpha to determine internal consistency of the 3 scales of this new tool*
5-Were there any significant relationships between the two study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines)?

*Data Analysis Plan: Inferential statistics, including via Pearson’s correlations and t-tests*

6-What were the significant predictors of the study’s two outcome variables/dependent variables (i.e., Scale 2: Personal Knowledge Rating Scale (TPKRS-101) and Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) of The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101))?

*Data Analysis Plan: Backward stepwise regression.*

7-What did nurses report, within the qualitative portion of the study, when given the opportunity to respond to an open-ended question regarding the barriers they experience to pressure ulcer prevention and treatment—whether internal (e.g., motivation, stress) or external (e.g., staff shortages, inadequate facilities and equipment, etc.)?

*Data Analysis Plan: Qualitative data analysis for emergent themes and categories.*

The qualitative data analysis followed a standard protocol provided to fellows of the Research Group on Disparities in Health (RGDH) according to the instructions of Director of the RGDH, Professor Barbara Wallace. These steps involved: organization of the qualitative data from Qualtrics into one file. Quotes that stood out were highlighted in yellow. Emergent themes were written under the highlighted quotes. A document was created that listed emergent themes, wherein quotes were copied and pasted. This was done for the first 20 quotes. Action phrases were created to capture the emergent themes. The same process was repeated for the next 21-40 quotes in order to capture and expand on emergent themes. Once all the emergent themes were listed, the data were classified by the list of emergent themes. A table was then created that organized the list of emergent themes by categories that encompassed groups of themes. Sample quotes were finally provided to demonstrate the emergent themes. Dr. Wallace then reviewed the table.
created of the participants’ responses to assess the analysis of the data that was conducted after following these steps.

**Conclusion**

Chapter III described in detail the methods used in the present study. This included an overview of the study design and procedures, recruitment of participants, study incentives, and description of research instrumentation. The chapter concluded with how data were managed and analyzed. Chapter IV will present the results of the study.
Chapter IV
RESULTS

This chapter provides the results of the study as obtained from data analysis. First, data about the basic demographics of the sample are presented. Accordingly, the results are presented by research question, including the formulation of tables to help summarize the findings.

Data Analysis Results by Study Question

Results for Research Question #1

*What were the nurses’ demographics and background characteristics (e.g., age, gender, level of education, annual household income, etc.), including years of experience in the field of nursing? (Survey Part -Part I)*

The study recruited in total 318 nurses who qualified for the study. However, only 266 of those nurses proceeded to take the survey. Of those 266 who started the survey, 76 were excluded for not completing the survey sufficiently to have data for both of the study outcome variables—leaving a sample size of N=190.

Among the study’s convenience sample of nurses (n=190), 80.5% (n=153) were female, 59.5% (n=113) were Black/African American, and 18.4% (n=35) were Asian—with a mean age of 40.27 years (min 23, max 73, SD=10.95). Some 22.1% (n=42) were in the 26-30 age category. The majority of participants (53.2%, n=101) were not born in the US, while the top three countries from which foreign-born nurses came were 16.8% (n=32) from Ghana, 7.9% (n=15) from Jamaica, and 7.4% (n=14) from the Philippines.
The mean household yearly income was 4.43, which is category 4 for $50,000 to 99,999 (min=2, max=10, SD=1.00). The mean number of years working in nursing was 4.34, which is category 4 for 8-10 years (min=1, max=9, SD=2.14). For example, 27.4% (n=52) were in the 5-7 years category. Also, 71.2% (n=135) worked in a hospital or medical center, while 15.3% (n=29) worked in a skilled nursing facility (see Table 1).

Table 1. Basic Demographics (BD-12) (N=190)

<table>
<thead>
<tr>
<th>Gender (N=190)</th>
<th>N</th>
<th>%</th>
<th>Household yearly income (N=190)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>153</td>
<td>80.5</td>
<td>2) $20,000 to $39,000</td>
</tr>
<tr>
<td></td>
<td>37</td>
<td>19.5</td>
<td>3) $40,000 to $49,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4) $50,000 to 99,999</td>
</tr>
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<td></td>
<td></td>
<td>5) $100,000 to 199,999</td>
</tr>
<tr>
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<td></td>
<td>6) $200,000 to 299,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7) $300,000 to 399,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8) $400,000 to 499,000</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>10) $ 800,000 or more</td>
</tr>
<tr>
<td>Male</td>
<td>37</td>
<td>19.5</td>
<td></td>
</tr>
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</table>

Age (N=190)

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<tr>
<th>Age (N=190)</th>
<th>N</th>
<th>%</th>
<th>Mean age=40.27, SD=10.95</th>
</tr>
</thead>
<tbody>
<tr>
<td>22-25</td>
<td>4</td>
<td>2.1</td>
<td>Min=23, Max=73</td>
</tr>
<tr>
<td>26-30</td>
<td>42</td>
<td>22.1</td>
<td></td>
</tr>
<tr>
<td>31-35</td>
<td>33</td>
<td>17.3</td>
<td></td>
</tr>
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<td>36-40</td>
<td>33</td>
<td>17.3</td>
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<td>41-45</td>
<td>22</td>
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<td>46-50</td>
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<td>3.5</td>
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<td>56-60</td>
<td>13</td>
<td>6.9</td>
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<td>61-65</td>
<td>7</td>
<td>3.7</td>
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<td>66-70</td>
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<td>71-75</td>
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Race/Ethnicity (N=190)

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<th>Race/Ethnicity (N=190)</th>
<th>N</th>
<th>%</th>
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<tbody>
<tr>
<td>Black/African American</td>
<td>113</td>
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</tr>
<tr>
<td>Asian</td>
<td>35</td>
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<tr>
<td>White/Caucasian/European A.</td>
<td>28</td>
<td>14.7</td>
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<tr>
<td>Hispanic/Latino</td>
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<td>7.4</td>
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<td>American Indian/Alaska Native</td>
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</tr>
<tr>
<td>Native Hawaiian/Pacific Islander</td>
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<td>0.5</td>
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Top 4 Non- US Born Countries

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<thead>
<tr>
<th>Country</th>
<th>N</th>
<th>%</th>
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</thead>
<tbody>
<tr>
<td>Ghana</td>
<td>32</td>
<td>16.8</td>
</tr>
<tr>
<td>Jamaica</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>Philippines</td>
<td>14</td>
<td>7.4</td>
</tr>
<tr>
<td>India</td>
<td>11</td>
<td>5.8</td>
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Employment status (N=190)

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<th>Status</th>
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<tbody>
<tr>
<td>Full Time</td>
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<td>87.9</td>
</tr>
<tr>
<td>Part Time</td>
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</tr>
<tr>
<td>Per Diem</td>
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Born in the US (N=190)

<table>
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<th>Born in the US (N=190)</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>89</td>
<td>46.8</td>
</tr>
<tr>
<td>No</td>
<td>101</td>
<td>53.2</td>
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Table 1 (continued)

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<tr>
<th>Years working in nursing (N=190)</th>
<th>N</th>
<th>%</th>
<th>Type of healthcare setting (N=190)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) 1 year or less</td>
<td>5</td>
<td>2.6</td>
<td>Hospital or Medical center</td>
<td>135</td>
<td>71.1</td>
</tr>
<tr>
<td>2) 2-4 years</td>
<td>30</td>
<td>15.8</td>
<td>Skilled nursing facility</td>
<td>29</td>
<td>15.3</td>
</tr>
<tr>
<td>3) 5-7 years</td>
<td>52</td>
<td>27.4</td>
<td>Nursing rehabilitation center</td>
<td>6</td>
<td>3.2</td>
</tr>
<tr>
<td>4) 8-10 years</td>
<td>28</td>
<td>14.7</td>
<td>Emergency room</td>
<td>8</td>
<td>4.2</td>
</tr>
<tr>
<td>5) 11-15 years</td>
<td>30</td>
<td>15.8</td>
<td>Outpatient medical clinic</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>6) 16-20 years</td>
<td>12</td>
<td>6.3</td>
<td>Outpatient medical office</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>7) 21-25 years</td>
<td>10</td>
<td>5.3</td>
<td>Other</td>
<td>7</td>
<td>3.7</td>
</tr>
<tr>
<td>8) 26-30 years</td>
<td>8</td>
<td>4.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9) more than 30 years</td>
<td>15</td>
<td>7.9</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Mean years=4.34, SD=2.14
Min=1, Max=9

Some subjects endorsed more than one item in some cases, hence N>190
Key: European A. stands for European American

Internal Consistency of the Study Scales

Before proceeding to answer the remaining research questions, there was value in presenting the internal consistency of study scales. Several scales were evaluated for their internal consistency using Cronbach’s Alpha, revealing that all scales had values ranging from .798 to .994, or good to excellent. For example, the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) had a Cronbach’s Alpha of .886. The Nursing Training Rating Scale (TNRS-101) had a Cronbach’s Alpha of .994. The study outcome variable #1 of scale 2: Personal Knowledge Rating Scale (TPKRS-101) had a Cronbach’s Alpha of .993. The study outcome variable #2 of scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) had a Cronbach’s Alpha of .994 (see Appendix J).

Results for Research Question #2

What were the nurses’ attitudes toward practice guidelines? (Survey Part -Part II)

Fifty-eight nurses (30.5%) indicated that they agreed somewhat to practice guidelines. The mean global score for the Attitudes Regarding Practice Guidelines-
Relevance Scale (ARPG-R-5) was 4.91 (SD=1.39, min=1.40, max=7.00), or closest to agree somewhat (see Table 2).

Table 2. Details of Mean Global Scores for the Attitudes Regarding Practice Guidelines—Relevance Scale (ARPG-R-5) (N=190)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Strongly disagree</td>
<td>2</td>
<td>1.1</td>
</tr>
<tr>
<td>2) Disagree</td>
<td>22</td>
<td>11.5</td>
</tr>
<tr>
<td>3) Disagree Somewhat</td>
<td>26</td>
<td>13.7</td>
</tr>
<tr>
<td>4) Neither agree or disagree</td>
<td>26</td>
<td>13.7</td>
</tr>
<tr>
<td>5) Agree Somewhat</td>
<td>58</td>
<td>30.5</td>
</tr>
<tr>
<td>6) Agree</td>
<td>42</td>
<td>22.1</td>
</tr>
<tr>
<td>7) Strongly Agree</td>
<td>14</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Mean for Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) =4.91, SD=1.39, Min=1.40, Max=7.00

For example, for individual items for their attitude toward practice guidelines, responses to item # 5 showed that 46.3% (n=88) disagreed to guidelines being too difficult to apply and adapt to their specific practice (see Table 3).

Table 3. Individual Item Data for the Attitudes Regarding Practice Guidelines—Relevance Scale (ARPG-R-5) (N=190)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. There are so many guidelines available that it is nearly impossible to keep up.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Strongly disagree</td>
<td>28</td>
<td>14.7</td>
</tr>
<tr>
<td>2) Disagree</td>
<td>37</td>
<td>19.5</td>
</tr>
<tr>
<td>3) Disagree Somewhat</td>
<td>16</td>
<td>8.4</td>
</tr>
<tr>
<td>4) Neither agree or disagree</td>
<td>21</td>
<td>11.1</td>
</tr>
<tr>
<td>5) Agree Somewhat</td>
<td>47</td>
<td>24.7</td>
</tr>
<tr>
<td>6) Agree</td>
<td>32</td>
<td>16.8</td>
</tr>
<tr>
<td>7) Strongly Agree</td>
<td>9</td>
<td>4.7</td>
</tr>
<tr>
<td>2. I don’t have time to stay informed about available guidelines.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Strongly disagree</td>
<td>39</td>
<td>20.5</td>
</tr>
<tr>
<td>2) Disagree</td>
<td>66</td>
<td>34.7</td>
</tr>
<tr>
<td>3) Disagree Somewhat</td>
<td>20</td>
<td>10.5</td>
</tr>
<tr>
<td>4) Neither agree or disagree</td>
<td>12</td>
<td>6.3</td>
</tr>
<tr>
<td>5) Agree Somewhat</td>
<td>35</td>
<td>18.4</td>
</tr>
<tr>
<td>6) Agree</td>
<td>15</td>
<td>7.9</td>
</tr>
<tr>
<td>7) Strongly Agree</td>
<td>3</td>
<td>1.6</td>
</tr>
</tbody>
</table>
Table 3 (continued)

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>3. Guidelines are too “cookbook” and prescriptive.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Strongly disagree</td>
<td>26</td>
<td>13.7</td>
</tr>
<tr>
<td>2) Disagree</td>
<td>68</td>
<td>35.8</td>
</tr>
<tr>
<td>3) Disagree Somewhat</td>
<td>18</td>
<td>9.5</td>
</tr>
<tr>
<td>4) Neither agree or disagree</td>
<td>22</td>
<td>11.6</td>
</tr>
<tr>
<td>5) Agree Somewhat</td>
<td>36</td>
<td>18.9</td>
</tr>
<tr>
<td>6) Agree</td>
<td>16</td>
<td>8.4</td>
</tr>
<tr>
<td>7) Strongly Agree</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>4. Generally, practice guidelines are cumbersome and inconvenient.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1) Strongly disagree</td>
<td>33</td>
<td>17.4</td>
</tr>
<tr>
<td>2) Disagree</td>
<td>84</td>
<td>44.2</td>
</tr>
<tr>
<td>3) Disagree Somewhat</td>
<td>19</td>
<td>10.0</td>
</tr>
<tr>
<td>4) Neither agree or disagree</td>
<td>10</td>
<td>5.3</td>
</tr>
<tr>
<td>5) Agree Somewhat</td>
<td>29</td>
<td>15.3</td>
</tr>
<tr>
<td>6) Agree</td>
<td>15</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Mean for relevance of practice guidelines=4.91, SD=1.39
Min=1.40, Max=7.00

Results for Research Question #3

To what extent did the nurses provide socially desirable responses?
(Survey Part -Part III)

The sample’s (13-item) social desirability mean was 9.51 (SD=3.06, min=0, max=13), suggesting a moderately high level of social desirability. The study also used a new single-item measure of (1-item) social desirability, which produced a mean of 6.61 (SD= 3.07, min=0, max =10) for a moderately high level of social desirability. Of note, the study’s regression analyses will control for level of social desirability, using the standard 13-item social desirability tool in one model; and using the new 1-item social desirability tool in another model.
Results for Research Question #4

With regard to established practice guidelines for the prevention and treatment of pressure ulcers that embody relevant behaviors/nursing tasks, how did the nurses rate their (a) Nursing Training for performing those behaviors/nursing tasks, (b) Personal Knowledge Level for performing those behaviors/nursing tasks, and (c) Personal Skill/Ability Level for performing that behavior or nursing task? (Survey Part -Part IV)

The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) has three scales (a, b, c), of which the Nursing Training Rating Scale is Scale a. (Scale a) The Nursing Training Rating Scale (TNRS-101). The mean global nursing training rating score was 4.11 (SD=0.60, min= 1.94, max=5.00), or good.

The 13 mean subscale scores for the Nursing Training Rating Scale (TNRS-101 topics) (i.e., on pressure ulcer prevention and treatment) ranged from 3.89 to 4.23, for closest to a good rating to a good rating, as shown in Table 4.

Table 4. Mean Scores for the 13 Topics/13 Subscales for Scale 1: Nursing Training Rating Scale (TNRS-101) (N=190)

<table>
<thead>
<tr>
<th>Topics</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conducting a Structured Risk Assessment</td>
<td>4.15</td>
<td>0.62</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>2. Adhering to Skin Assessment Policy</td>
<td>4.07</td>
<td>0.66</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>3. Practicing Preventive Skin Care</td>
<td>4.23</td>
<td>0.61</td>
<td>1.83</td>
<td>5.00</td>
</tr>
<tr>
<td>4. Including Nutrition in Pressure Ulcer Prevention and Treatment</td>
<td>4.02</td>
<td>0.64</td>
<td>1.88</td>
<td>5.00</td>
</tr>
<tr>
<td>5. Conducting Frequent Repositioning</td>
<td>4.13</td>
<td>0.62</td>
<td>1.92</td>
<td>5.00</td>
</tr>
<tr>
<td>6. Positioning Individuals who have Existing Pressure Ulcers</td>
<td>4.13</td>
<td>0.65</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>7. Positioning Devices for Pressure Ulcers</td>
<td>4.00</td>
<td>0.81</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>8. Including Mobility in Pressure Ulcer Prevention and Treatment</td>
<td>4.01</td>
<td>0.76</td>
<td>1.00</td>
<td>5.00</td>
</tr>
</tbody>
</table>
Table 4 (continued)

<table>
<thead>
<tr>
<th>Topics</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>9. Selecting Appropriate Support Surfaces and Usage</td>
<td>4.04</td>
<td>0.73</td>
<td>1.17</td>
<td>5.00</td>
</tr>
<tr>
<td>10. Seating Support Surfaces to Prevent Pressure Ulcers</td>
<td>3.91</td>
<td>0.83</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>11. Seating Support Surfaces for Individuals with Existing Pressure Ulcers</td>
<td>3.89</td>
<td>0.91</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>12. Preventing Medical Device-Related Pressure Ulcers</td>
<td>4.21</td>
<td>0.63</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>13. Conducting Pressure Ulcer Assessment</td>
<td>4.09</td>
<td>0.69</td>
<td>1.78</td>
<td>5.00</td>
</tr>
</tbody>
</table>

Global Mean Nursing Training Score

<table>
<thead>
<tr>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.11</td>
<td>0.60</td>
<td>1.94</td>
<td>5.00</td>
</tr>
</tbody>
</table>

For example, 55.8% (n=106) of the nurses rated their nursing training on the prevention and treatment of pressure ulcers (i.e. as it pertains to the NPUAP/EPUAP/PPPIA guidelines) as good (see Table 5).

Table 5. Details of Mean Global Score on Scale 1: Nursing Training Rating Scale (TNRS-101) (N=190)

<table>
<thead>
<tr>
<th>Scale 1: Nursing Training Rating Scale (TNRS-101)</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Very Poor</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>2) Poor</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>3) Fair</td>
<td>62</td>
<td>32.7</td>
</tr>
<tr>
<td>4) Good</td>
<td>106</td>
<td>55.8</td>
</tr>
<tr>
<td>5) Excellent</td>
<td>17</td>
<td>8.9</td>
</tr>
</tbody>
</table>

Mean Global Score of Scale 1: Nursing Training Rating Scale (TNRS-101) = 4.11, SD=0.60, Min=1.94, Max=5.00

(Scale b) Personal Knowledge Rating Scale (TPKRS-101). Second, the study outcome variable #1 of scale 2: Personal Knowledge Rating Scale (TPKRS-101) had a mean global knowledge score of 4.15 (SD=0.57, min=2.79, max=5.00, for good.
The **13 mean sub-scale scores for the outcome variable #1 of scale 2: Personal Knowledge Rating Scale (TPKRS-101)** (i.e., on pressure ulcer prevention and treatment) ranged from 3.91 to 4.29, for **closest to a good rating to a good rating**, as shown in Table 6.

**Table 6. Mean Scores for the 13 Topics/13 Subscales for Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) (N=190)**

<table>
<thead>
<tr>
<th>Topics</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conducting a Structured Risk Assessment</td>
<td>4.16</td>
<td>0.59</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>2. Adhering to Skin Assessment Policy</td>
<td>4.11</td>
<td>0.64</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>3. Practicing Preventive Skin Care</td>
<td>4.29</td>
<td>0.57</td>
<td>3.00</td>
<td>5.00</td>
</tr>
<tr>
<td>4. Including Nutrition in Pressure Ulcer Prevention and Treatment</td>
<td>4.05</td>
<td>0.62</td>
<td>2.38</td>
<td>5.00</td>
</tr>
<tr>
<td>5. Conducting Frequent Repositioning</td>
<td>4.18</td>
<td>0.59</td>
<td>2.69</td>
<td>5.00</td>
</tr>
<tr>
<td>6. Positioning Individuals who have Existing Pressure Ulcers</td>
<td>4.18</td>
<td>0.62</td>
<td>2.09</td>
<td>5.00</td>
</tr>
<tr>
<td>7. Positioning Devices for Pressure Ulcers</td>
<td>4.05</td>
<td>0.80</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>8. Including Mobility in Pressure Ulcer Prevention and Treatment</td>
<td>4.03</td>
<td>0.73</td>
<td>1.50</td>
<td>5.00</td>
</tr>
<tr>
<td>9. Selecting Appropriate Support Surfaces and Usage</td>
<td>4.07</td>
<td>0.66</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>10. Seating Support Surfaces to Prevent Pressure Ulcers</td>
<td>3.96</td>
<td>0.77</td>
<td>1.67</td>
<td>5.00</td>
</tr>
<tr>
<td>11. Seating Support Surfaces for Individuals with Existing Pressure Ulcers</td>
<td>3.91</td>
<td>0.84</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>12. Preventing Medical Device-Related Pressure Ulcers</td>
<td>4.25</td>
<td>0.62</td>
<td>2.33</td>
<td>5.00</td>
</tr>
<tr>
<td>13. Conducting Pressure Ulcer Assessment</td>
<td>4.14</td>
<td>0.65</td>
<td>2.22</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Global Knowledge Score</strong></td>
<td>4.15</td>
<td>0.57</td>
<td>2.79</td>
<td>5.00</td>
</tr>
</tbody>
</table>
For example, more than half of the nurses (57.9%, n=121) rated their knowledge on pressure ulcer treatment and prevention as good (see Table 7).

Table 7. Details of Mean Global Score on Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) (N=190)

<table>
<thead>
<tr>
<th>Rating</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Very Poor</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2) Poor</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>3) Fair</td>
<td>53</td>
<td>33.7</td>
</tr>
<tr>
<td>4) Good</td>
<td>121</td>
<td>57.9</td>
</tr>
<tr>
<td>5) Excellent</td>
<td>14</td>
<td>7.4</td>
</tr>
</tbody>
</table>

Mean Global Score for the Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) = 4.15, SD = 0.57, Min = 2.79, Max = 5.00

(Scale c) Personal Skill/Ability Rating Scale (TPS/ARS-101). Third, for the study outcome variable #2 of scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) nurses had a mean global personal skill/ability score of 4.13 (SD = 0.62, min = 2.56, max = 5.00), or good.

The 13 mean subscale scores for study outcome variable #2 of scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) (i.e., on pressure ulcer prevention and treatment) ranged from 3.89 to 4.26, for closest to a good rating to a good rating, as shown in Table 8.
Table 8. Mean Scores for the 13 Topics/13 Subscales for Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) (N=190)

<table>
<thead>
<tr>
<th>Topics</th>
<th>Mean</th>
<th>SD</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Conducting a Structured Risk Assessment</td>
<td>4.14</td>
<td>0.64</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>2. Adhering to Skin Assessment Policy</td>
<td>4.09</td>
<td>0.68</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>3. Practicing Preventive Skin Care</td>
<td>4.26</td>
<td>0.62</td>
<td>2.50</td>
<td>5.00</td>
</tr>
<tr>
<td>4. Including Nutrition in Pressure Ulcer Prevention and Treatment</td>
<td>4.04</td>
<td>0.65</td>
<td>2.25</td>
<td>5.00</td>
</tr>
<tr>
<td>5. Conducting Frequent Repositioning</td>
<td>4.15</td>
<td>0.63</td>
<td>2.69</td>
<td>5.00</td>
</tr>
<tr>
<td>6. Positioning Individuals who have Existing Pressure Ulcers</td>
<td>4.16</td>
<td>0.68</td>
<td>2.09</td>
<td>5.00</td>
</tr>
<tr>
<td>7. Positioning Devices for Pressure Ulcers</td>
<td>4.09</td>
<td>0.82</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>8. Including Mobility in Pressure Ulcer Prevention and Treatment</td>
<td>4.04</td>
<td>0.75</td>
<td>2.00</td>
<td>5.00</td>
</tr>
<tr>
<td>9. Selecting Appropriate Support Surfaces and Usage</td>
<td>3.95</td>
<td>0.80</td>
<td>1.67</td>
<td>5.00</td>
</tr>
<tr>
<td>10. Seating Support Surfaces to Prevent Pressure Ulcers</td>
<td>3.96</td>
<td>0.77</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>11. Seating Support Surfaces for Individuals with Existing Pressure Ulcers</td>
<td>3.89</td>
<td>0.89</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>12. Preventing Medical Device-Related Pressure Ulcers</td>
<td>4.23</td>
<td>0.65</td>
<td>2.33</td>
<td>5.00</td>
</tr>
<tr>
<td>13. Conducting Pressure Ulcer Assessment</td>
<td>4.12</td>
<td>0.70</td>
<td>2.22</td>
<td>5.00</td>
</tr>
<tr>
<td><strong>Global Skill/Ability Score</strong></td>
<td>4.13</td>
<td>0.62</td>
<td>2.56</td>
<td>5.00</td>
</tr>
</tbody>
</table>

For example, 58.4% (n=111) of nurses rated their **personal skill/ability** to perform pressure ulcer prevention and treatment as **good** (see Table 9).
Table 9. Details of Mean Global Score for Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) (N=190)

<table>
<thead>
<tr>
<th>Rating</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Very Poor</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2) Poor</td>
<td>7</td>
<td>3.7</td>
</tr>
<tr>
<td>3) Fair</td>
<td>57</td>
<td>30</td>
</tr>
<tr>
<td>4) Good</td>
<td>111</td>
<td>58.4</td>
</tr>
<tr>
<td>5) Excellent</td>
<td>15</td>
<td>7.9</td>
</tr>
</tbody>
</table>

Mean Global Score for the Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) = 4.13, SD = 0.62, Min = 2.56, Max = 5.00

Results for Research Question #5

Were there any significant relationships between the two-study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines)?

Pearson correlations. The data analysis explored the relationship between selected variables (i.e., age, yearly household income, years worked in the field of nursing, etc.) and two outcome/dependent variables of (1) study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), and (2) study outcome variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101). There were six independent variables, so the Bonferroni Adjustment Significance (.05/6 = 0.008) involved the higher significance level of .008.

First, when exploring Pearson correlations between selected variables and the study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), there were two noteworthy trends, as follows:

The higher the score on study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), then:

- The more favorable the attitude towards the relevance of Practice Guidelines (r = .192, p = .008)—as a non-significant trend, given Bonferroni Adjustment Significance (p < .008).
• The higher their social desirability (13 items) score \( (r = .191, p = .008) \)—as a non-significant trend, given Bonferroni Adjustment Significance \( (p < .008) \).

See Table 10.

Table 10. Pearson Correlations Between Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) and Selected Variables

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>N</th>
<th>Pearson Correlation</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>190</td>
<td>.072</td>
<td>.321</td>
</tr>
<tr>
<td>Yearly household income</td>
<td>190</td>
<td>.037</td>
<td>.609</td>
</tr>
<tr>
<td>Years worked in the field of Nursing</td>
<td>190</td>
<td>.113</td>
<td>.119</td>
</tr>
<tr>
<td>Attitude towards the relevance of Practice Guidelines</td>
<td>190</td>
<td>.192</td>
<td>.008**</td>
</tr>
<tr>
<td>Social Desirability (13)</td>
<td>190</td>
<td>.191</td>
<td>.008**</td>
</tr>
<tr>
<td>Social Desirability (1)</td>
<td>190</td>
<td>.079</td>
<td>.278</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001, Bonferroni Adjustment Significance (.05/6=.008)

Second, when exploring Pearson correlations between selected variables and study outcome variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101), there was a significant correlation found, as follows.

The higher the study outcome variable # 2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101), then:

• the higher Social Desirability the score (13) \( (r = .254, p = .000) \)

See Table 11.
Table 11. Pearson Correlations Between Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) and Selected Variables

<table>
<thead>
<tr>
<th>Selected Variables</th>
<th>N</th>
<th>Pearson Correlation</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>190</td>
<td>.050</td>
<td>.493</td>
</tr>
<tr>
<td>Yearly household income</td>
<td>190</td>
<td>.018</td>
<td>.802</td>
</tr>
<tr>
<td>Years worked in the field of Nursing</td>
<td>190</td>
<td>.102</td>
<td>.159</td>
</tr>
<tr>
<td>Attitude towards the relevance of Practice Guidelines</td>
<td>190</td>
<td>.166</td>
<td>.022*</td>
</tr>
<tr>
<td>Social Desirability (13)</td>
<td>190</td>
<td>.254</td>
<td>.000***</td>
</tr>
<tr>
<td>Social Desirability (1)</td>
<td>190</td>
<td>.119</td>
<td>.101</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001, Bonferroni Adjustment Significance (.05/6=.008)

Independent sample t-tests comparing dichotomous groups on study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale. For all dichotomous independent variables (i.e., 1-gender, 2-race/ethnicity, 3-born in the US), t-tests were conducted, comparing selected groups on each of the two study outcome variables: i.e., (1) Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), and (2) Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101). Given three group comparisons, this meant a Bonferroni Adjustment Significance level of .0166 (0.05/3, p=.0166).

Findings showed no statistically significant group differences in the Study Outcome Variable # 1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) (see Table 12).
Table 12. Independent Sample T-tests Comparing Dichotomous Groups on Study Outcome Variable # 1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101) (N=190)

<table>
<thead>
<tr>
<th>Personal Knowledge Rating Scale (TPKRS-101)</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>1-Female</td>
<td>153</td>
</tr>
<tr>
<td>2-Male</td>
<td>37</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>1- Black/African American</td>
<td>113</td>
</tr>
<tr>
<td>2- Not Black/African American</td>
<td>77</td>
</tr>
<tr>
<td><strong>Born in the US</strong></td>
<td></td>
</tr>
<tr>
<td>1-Yes</td>
<td>89</td>
</tr>
<tr>
<td>2- No</td>
<td>101</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001, Bonferroni Adjustment Significance (.05/3, p=.0166) Note: Thus all p values above .0166 are considered non-significant and only those below .0166 are considered statistically significant.

Findings also showed no statistically significant group differences in the Study Outcome Variable # 2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)
(see Table 13).

Table 13. Independent Sample T-Tests Comparing Dichotomous Groups on Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) (N=190)

<table>
<thead>
<tr>
<th>Personal Knowledge Rating Scale (TPKRS-101)</th>
<th>t-test</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
</tr>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>1-Female</td>
<td>153</td>
</tr>
<tr>
<td>2-Male</td>
<td>37</td>
</tr>
<tr>
<td><strong>Race/Ethnicity</strong></td>
<td></td>
</tr>
<tr>
<td>1- Black/African American</td>
<td>113</td>
</tr>
<tr>
<td>2- Not Black/African American</td>
<td>77</td>
</tr>
<tr>
<td><strong>Born in the US</strong></td>
<td></td>
</tr>
<tr>
<td>1-Yes</td>
<td>89</td>
</tr>
<tr>
<td>2- No</td>
<td>101</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001, Bonferroni Adjustment Significance (.05/3, p=.0166) Note: Thus all p values above .0166 are considered non-significant and only those below .0166 are considered statistically significant
Results for Research Question #6

What were the significant predictors of the study’s two outcome variables/dependent variables (i.e. Scale 2: Personal Knowledge Rating Scale (TPKRS-101) and Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) of The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101))? The purpose of this analysis was to identify any statistically significant predictors of the two study outcome variables of interest: (1) Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), and (2) Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101).

The eight independent variables. The regression analysis included eight independent variables: (1) Participant's gender; (2) If participant was Black/African American; (3) If born in the US; (4) participant age; (5) yearly income; (6) number of years worked in the field of nursing; (7) attitude toward relevance of practice guidelines; and (8) social desirability score.

Backward stepwise regression analysis. The regression model did start with the full set of eight independent variables all in one model. Then, the least significant variable was removed and the running of the model was repeated. This removal of one variable at a time was done until all the variable(s) remaining in the model were significantly associated with the study outcome/dependent variable. This was done while controlling for the independent variable of the social desirability score. The model stopped removing variables when all the variables remaining were significant (p<.05). Social desirability was controlled for in all regression analyses. In contrast to other independent variables in the backward stepwise regressions, social desirability was kept in the regression model, regardless of its significance level.

1-Backward stepwise regression analysis results for (1) study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101). Using backward stepwise regression analysis, using the standard 13-item social desirability tool for
controlling for social desirability, higher personal knowledge scores were significantly predicted by

- **More Positive Attitude for Relevance of Practice Guidelines** \((b = .067, SE_B = .029, p = .022)\)
- **Higher Level of Social Desirability (13 items)** \((b = .030, SE_B = .013, p = .023)\)

For this regression model for personal knowledge rating scale, \(R^2 = .063\), and the \(\text{AdjR}^2 = .053\), meaning that *5.3% of the variance was explained by the model.*

See Table 14.

**Table 14. Backward Stepwise Regression Analysis Predicting Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101)—Using the Standard 13-Item Social Desirability Scale (N=190)**

<table>
<thead>
<tr>
<th>Variables</th>
<th>(b)</th>
<th>(SE_B)</th>
<th>(p)</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Positive Attitudes Regarding Practice Guidelines-Relevance Scale</td>
<td>.067</td>
<td>.029</td>
<td>.022*</td>
</tr>
<tr>
<td>Higher Level of Social Desirability (13 items)</td>
<td>.030</td>
<td>.013</td>
<td>.023*</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001, \(F=6.295\) \((p = .002)\)

\(R^2 = (0.063), \text{Adjusted } R^2 = (0.053) – \text{meaning 5.3\% of variance was explained by this model.}\

**2-Backward stepwise regression analysis results.** Using the new 1-item social desirability tool to control for social desirability, higher personal knowledge rating was significantly predicted by:

- **More Positive Attitudes Regarding Practice Guidelines-Relevance Scale**
  \((b = .075, SE_B = .030, p = .012)\)
- **Higher Level of Social Desirability (1 item)** \((b = .009, SE_B = .013, p = .513)\)

For the regression model for personal knowledge rating scale, \(R^2 = .039\), and the \(\text{AdjR}^2 = .029\), meaning that *2.9\% of the variance was explained by model* (see Table 15).
Table 15. Backward Stepwise Regression Analysis Predicting Study Outcome Variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101)—Using the New 1-Item Social Desirability Scale (N=190)

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>SE_B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Positive Attitudes Regarding Practice</td>
<td>.075</td>
<td>.030</td>
<td>.012*</td>
</tr>
<tr>
<td>Guidelines-Relevance Scale</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Higher Level of Social Desirability (1 item)</td>
<td>.009</td>
<td>.013</td>
<td>.513</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001,
F=3.800 (p=.024)
R² = (0.039), Adjusted R² = (0.029) – meaning 2.9% of variance was explained by this model.

3-Backward stepwise regression analysis results for (1) study outcome variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101). Using backward stepwise regression analysis, using the standard 13-item social desirability tool, higher personal skill/ability scores were significantly predicted by:

- Higher Level of Social Desirability (13 items) (b = .051, SE_B = .014, p = .000)

For the regression model for personal skill/ability rating scale, R²=.064, and the AdjR²=.059, meaning that 5.9% of the variance was explained by model (see Table 16).

Table 16. Backward Stepwise Regression Analysis Predicting Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)—Using the Standard 13-Item Social Desirability Scale (N=190)

<table>
<thead>
<tr>
<th>Variable</th>
<th>b</th>
<th>SE_B</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Level of Social Desirability (13 items)</td>
<td>.051</td>
<td>.014</td>
<td>.000**</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001,
F=12.935 (p=.000)
R² = (0.064), Adjusted R² = (0.059) – meaning 5.9% of variance was explained by this model.

4-Backward stepwise regression analysis results. Using the new 1-item social desirability tool and controlling for social desirability found that higher personal skill/ability rating was significantly predicted by:
• **More Positive Attitudes Regarding Practice Guidelines-Relevance Scale**  
  \( b = .066, \ SE_B = .032, \ p = .041 \)

• **Higher Level of Social Desirability (1)**  
  \( b = .019, \ SE_B = .015, \ p = .200 \)

For the regression model for personal skill/ability rating scale, \( R^2 = .036 \), and the \( \text{Adj}R^2 = .026 \), meaning that 2.6% of the variance was explained by model (see Table 17).

### Table 17. Backward Stepwise Regression Analysis Predicting Study Outcome Variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)—Using New 1-Item Social Desirability Scale (N=190)

<table>
<thead>
<tr>
<th>Variables</th>
<th>b</th>
<th>SEB</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>More Positive Attitudes Regarding Practice Guidelines-Relevance Scale</td>
<td>.066</td>
<td>.032</td>
<td>.041*</td>
</tr>
<tr>
<td>Higher Level of Social Desirability (1 item)</td>
<td>.019</td>
<td>.015</td>
<td>.200</td>
</tr>
</tbody>
</table>

*p<.05, **p<.01, ***p<.001,  
\( F=3.509 \) (\( p = .032 \))  
\( R^2 = (0.036), \text{ Adjusted } R^2 = (0.026) \) – meaning 2.6% of variance was explained by this model.

### Results for Research Question #7

*What did nurses report, within the qualitative portion of the study, when given the opportunity to respond to an open-ended question regarding the barriers they experience to pressure ulcer prevention and treatment—whether internal (e.g., motivation, stress) or external (e.g., staff shortages, inadequate facilities and equipment, etc.)?*

**Qualitative results for the barriers nurses experience to pressure ulcer prevention and treatment.** The quotes submitted by participants revealed two categories of emergent themes, indicating both external and internal barriers, as follows:

Category I-External Barriers included:

• Theme I-A – Perceiving inadequate staffing as a barrier  
• Theme I-B – Recognizing heavy workload as a barrier  
• Theme I-C– Identifying the lack of available time  
• Theme I-D–Lack of needed supplies and staffing  
• Theme I-E– Identifying knowledge and staffing shortage as barriers  
• Theme I-F– Recognizing the lack of training as one of the barriers

See Table 18.
Table 18. Perceived Barriers to Pressure Ulcer Prevention and Treatment—External Barriers as Emergent Themes

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergent Themes</th>
<th>Sample Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Category I- External barriers</td>
<td>“Staff shortage is the biggest barrier towards the effective treatment of pressure ulcers.”</td>
<td></td>
</tr>
<tr>
<td>I-A-Perceiving Inadequate Staffing as a barrier</td>
<td>“Constant short staffing. No limit to the amount of patients we get.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“I would say staff shortage. Sometimes when not enough staff is available it’s hard to do assessments correctly.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Inadequate staff.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“It is always a must to carry out pressure ulcer prevention. It is difficult to do these things when you don't have adequate staffing.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Yes. If there is not enough staff then patient will not be able to be turned and positioned as often as they should be.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Yes. There's always a shortage of staff and when that happens patients tend to suffer.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Yes, in my experience a lot of times it's not the lack of knowledge, guidelines or nurses' skill that prevents the proper management of pressure ulcers. It is the lack of enough staff other resources that is barrier to pressure ulcer management.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Lack of staff to spend time w pt require to perform pressure ulcer care.”</td>
<td></td>
</tr>
<tr>
<td>I-B- Recognizing heavy workload as barrier</td>
<td>“Heavy workload can be stressful at times.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“I had an experience wherein we were short-staffed and I was unable to clean the incontinent patient as soon as possible, and also turning the patient Q1H as per hospital policy was a bit too much for me to handle especially when I have 6-7 patients a shift.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“If there is a heavy patient load and it is busy it can be near impossible to shift positions every two hours to prevent ulcers.”</td>
<td></td>
</tr>
</tbody>
</table>
Table 18 (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergent Themes</th>
<th>Sample Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>I-C-Identifying the lack of available time</strong></td>
<td>“Yes, usually due to work load and staff shortage.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Work can be stressful at times with heavy workloads.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“The ratio of caregiver to patient/resident in a long term, rehabilitation and skilled Nursing facility is to high. 1:20 overnight shift is ridiculous; there by leading to neglect of their responsibilities. Which may most likely results to pressure ulcer.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“patient to nurse ratio sometimes can be overwhelming so turning the patient can be difficult at times every 2 hours.”</td>
</tr>
<tr>
<td></td>
<td><strong>I-D-Lack of needed supplies and staffing</strong></td>
<td>“Time constraints and patient ratios make it harder to provide care.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“There’s isn’t enough time to provide quality nursing treatment in caring for wounds.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“There is so much to do with very little time. Staffing is a major problem.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“There are so many policies to follow and not enough time.”</td>
</tr>
<tr>
<td></td>
<td><strong>I-E-Identifying Knowledge and staffing shortage as barriers</strong></td>
<td>“yes often times my job has insufficient supplies and inadequate staffing to perform the basic principles of pressure ulcer preventive care.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“yes not enough skin care products ie; soaps barrier creams and sprays short staffed and lack of linen.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“LACK OF ADEQUATE TREATMENT SUPPLIES.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Inadequate supplies.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“How to properly stage pressure ulcers.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Working in a fast paced environment does not permit the time to be concerned with pressure ulcers. My area of work is more so stabilizing patients not so much skin maintenance.”</td>
</tr>
</tbody>
</table>
Table 18 (continued)

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergent Themes</th>
<th>Sample Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-F</td>
<td>Recognizing the lack of training as one of the barriers</td>
<td>“From my personal experience on the floor as a nurse, I noted many times that lack of knowledge on pressure ulcer prevention on the part of nurses, inadequate staffing lack of team effort, nurse burnout all lead to pressure ulcers. Hospital equipment use is also a factor when it comes to pressure ulcers.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Inadequate training of neonatal nurses who did not want to identify a pressure ulcer in a neonate caused by oxygen delivering equipment. Subsequent treatment was therefore inadequate until the wound care team was involved once the ulcer was identified as such.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“I do think we would benefit from a quick wound care/pressure ulcer care workshop or in-service.”</td>
</tr>
<tr>
<td></td>
<td></td>
<td>“Inadequate in-service.”</td>
</tr>
</tbody>
</table>

Category II-Internal Barriers included:

- Theme II-A—A lack of motivation
- Theme II-B—Identifying stress related to workload

See Table 19.

Table 19. Perceived Barriers to Pressure Ulcer Prevention and Treatment—Internal Barriers as Emergent Themes

<table>
<thead>
<tr>
<th>Category</th>
<th>Emergent Themes</th>
<th>Sample Quotes</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Category II-Internal barriers</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>II-A- A lack of motivation</td>
<td>“…They also become less motivated because of this as well.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“No Motivation R/T stress at times.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“No motivation.”</td>
<td></td>
</tr>
<tr>
<td>II-B-Feeling stress related to workload</td>
<td>“Stress at work and staff shortage.”</td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Stressful Workload.”</td>
<td></td>
</tr>
</tbody>
</table>
Conclusion

Chapter IV presented the results of the data analysis conducted for each research question. Results were presented for both the quantitative and qualitative research portions of the study. The use of tables was adopted to help present the findings.

Chapter V will present a summary of the study and provide a discussion of results. Chapter V will also present the study implications, recommendations for future research, and the final conclusion of the study.
Chapter V
SUMMARY, DISCUSSION, IMPLICATIONS, RECOMMENDATIONS, AND CONCLUSION

This chapter will provide a summary as well as a discussion of the dissertation research. This will include the results, implications, and recommendations for future research. This chapter will also discuss the limitations of this research and provide a final conclusion.

Summary of the Research Study

Pressure ulcer is an adverse occurrence in the healthcare setting, and patients who are afflicted with it tend to suffer unnecessarily. Pressure ulcers can be prevented and treated, and it is also an indicator of the quality care patients receive from healthcare settings. Nurses who are direct care professionals play an integral role in the provision of quality care, and the quality of care they provide can be manifested in the reduction of pressure ulcers. The NPUAP/EPUAP/PPPIA has formulated practice guidelines for healthcare professionals to be followed in order to reduce the prevalence of pressure ulcers. The training, skill/ability, knowledge, and barriers nurses face in the prevention and treatment of pressure ulcers were reviewed in the literature. In response to this health disparity, the online study for nurses on pressure ulcer prevention and treatment was created using the practice guidelines from the NPUAP/EPUAP/PPPIA. This study was hosted on https://tinyurl.NURSESPressureUlcerSurvey.
This study involved an online sample of nurses (n=190) who met the inclusion criteria. Among the study’s convenience sample of nurses (n=190), 80.5% (n=153) were female, 59.5% (n=113) were Black/African American, and 18.4% (n=35) were Asian—with a mean age of 40.27 years (min 23, max 73, SD=10.95). Some 53.2% (n=101) were not born in the US, while 16.8% (n=32) were from Ghana, 7.9% (n=15) from Jamaica, and 7.4% (n=14) from the Philippines. The mean household yearly income was (category 4) 4.43, which is for $50,000 to 99,999 (min=2, max=10, SD=1.00). The mean number of years working in nursing was (category 4) 4.34, for 8-10 years (min=1, max=9, SD=2.14). Also, 71.15% (n=135) worked in a hospital or medical center, while 15.3% (n=29) worked in a skilled nursing facility.

Several scales were evaluated for their internal consistency using Cronbach’s Alpha, revealing that all scales had values ranging from .798 to .994, or good to excellent. For example, the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) had a Cronbach’s Alpha of .886. The Nursing Training Rating Scale (TNRS-101) had a Cronbach’s Alpha of .994. The study outcome variable #1 of scale 2: Personal Knowledge Rating Scale (TPKRS-101) had a Cronbach’s Alpha of .993. The study outcome variable #2 of scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101) had a Cronbach’s Alpha of .994.

The mean global score for the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) was 4.91 (SD=1.39, min=1.40, max=7.00), or closest to agree somewhat.

The sample’s (13-item) social desirability mean was 9.51 (SD=3.06, min=0, max=13), suggesting a moderately high level of social desirability. The study also used a new single-item measure of (1-item) social desirability, which produced a mean of 6.61 (SD=3.07, min=0, max=10) for a moderately high level of social desirability.

With regard to established practice guidelines for the prevention and treatment of pressure ulcers, for performing those tasks, nurses rated their (a) Nursing Training,
(b) Personal Knowledge Level, and (c) Personal Skill/Ability Level, as follows: (Scale a) The Nursing Training Rating Scale (TNRS-101) with the mean global nursing training rating score of 4.11 (SD=0.60, min=1.94, max=5.00), or good; (Scale b) Personal Knowledge Rating Scale (TPKRS-101) with the mean global knowledge score of 4.15 (SD=0.57, min=2.79, max=5.00, or good; and, (Scale c) Personal Skill/Ability Rating Scale (TPS/ARS-101) with the mean global personal skill/ability score of 4.13 (SD=0.62, min=2.56, max=5.00), or good.

Next, data analysis explored significant relationships between the two-study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines). First, when exploring Pearson Correlations, the higher the score on the study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), then: the more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (r =.192, p=.008)—as a non-significant trend, given Bonferroni Adjustment Significance (p < .008); and the higher their social desirability (13 items) score (r =.191, p=.008)—as a non-significant trend, given Bonferroni Adjustment Significance (p < .008). Second, when exploring Pearson correlations, the higher the score on study outcome variable # 2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101), then: the higher Social Desirability the score (13) (r=.254, p=.000). For independent t-tests, findings showed no statistically significant group differences.

The backward stepwise regression analysis revealed a higher knowledge level was predicted by more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (b=.067, SE_b=.029, p=.022). Additionally, the backward stepwise regression analysis revealed a higher skill/ability level to be associated with higher relevance scores (b=.066, SE_b=.032, p=.041).

From the qualitative data, two categories of themes emerged: external and internal barriers to pressure ulcer prevention and treatment. There were six themes identified
under Category I: external barriers and two themes identified under Category II: internal barriers.

**Summary of the Statement of the Problem**

Pressure ulcer, which is largely preventable, affects 3 million individuals annually in the United States alone (Mervis & Phillips, 2019, p. 2). Pressure ulcers do cause “emotional problems” in clients since they have to experience the pain that comes with such an affliction (Ünver et al., 2017, p. 277). The NPUAP’s (2014) practice guidelines are formulated based on “rigorous scientific” assessment of evidence-based practice (para. 1). Adherence to these guidelines is crucial to the reduction of pressure ulcer occurrence. Review of the literature has shown that there are numerous barriers to pressure ulcer prevention and treatment. Some of these include knowledge as well as the attitude of nurses on practice guidelines. Another barrier to adherence of practice guidelines may include “insufficient resources” (Moya-Suárez et al., 2017, pp. 260-261). Assessment of what is causing such “non-adherence by healthcare professionals” to practice guidelines is crucial for the prevention and treatment of pressure ulcers (p. 261).

The problem that this study addressed is the need for nurses to adhere to guidelines on pressure ulcer prevention and treatment in order for their patients to have the best possible health outcomes.

**Summary of the Purpose and Objectives**

The purpose of the study was to determine the internal consistency of each of the three scales of a new tool created for this study (i.e., The Pressure Ulcer Prevention and Treatment Survey for Nurses—PU-PAT-S-FN-101), while using the new tool to identify the significant predictors of nurses having a high level of knowledge—i.e., high scores on
Scale 2: Personal Knowledge Rating Scale (TPKRS-101). Thus, the study’s two outcome variables/dependent variables were:

- **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)** of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)
- **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)** of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)

### Summary of the Research Questions

Given a sample of nurses (n=190) who have worked with patients in a healthcare setting within the past six months and who responded to an invitation to participate in this online study (i.e., “Go to [https://tinyurl.com/NURSESPressureUlcerSurvey](https://tinyurl.com/NURSESPressureUlcerSurvey) to take the Nurse’s Survey on Pressure Ulcer Prevention and Treatment for a chance to win 1 of 3 $100 Amazon gift cards”), the following research questions were answered for the quantitative portion of the study:

1. What were the nurses’ demographics and background characteristics (e.g., age, gender, level of education, annual household income, etc.), including years of experience in the field of nursing?
2. What were the nurses’ attitudes toward practice guidelines?
3. To what extent did the nurses provide socially desirable responses? [Note: the regression controlled for social desirability]
4. With regard to established practice guidelines for the prevention and treatment of pressure ulcers that embodies relevant behaviors/nursing tasks, how did the nurses rate their (a) **Nursing Training** for performing those behaviors/nursing tasks, (b) **Personal Knowledge Level** for performing those behaviors/nursing tasks, and (c) **Personal Skill/Ability Level** for performing that behavior or nursing task? [Note: the study’s two outcome variables/dependent variables
are: **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)** and, **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)** of The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)]

5. Were there any significant relationships between the two study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines)?

6. What were the significant predictors of the study’s two outcome variables/dependent variables (i.e., **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)** and **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)**) of the Pressure Ulcer Prevention and Treatment Survey for Nurses—PU-PAT-S-FN-101)?

The **qualitative portion** of this study utilized the research question below:

7. What did nurses report, within the qualitative portion of the study, when given the opportunity to respond to an open-ended question regarding the barriers they experience to pressure ulcer prevention and treatment—whether internal (e.g., motivation, stress) or external (e.g., staff shortages, inadequate facilities and equipment, etc.)?

**Summary of the Literature Review**

Hospital-acquired pressure ulcers are an adverse occurrence because patients present to the hospital with a medical issue they need treated or managed, and they end up with a pressure ulcer, which may prolong the length of stay as well as cause irreparable damages like “permanent disabilities” (Jocelyn et al., 2017, p. 225). Pressure ulcers can result in patients experiencing unnecessary pain from the wound site, “infection” as well as “decreased quality of life” (p. 225).
The main risk factors for pressure ulcers are being elderly, “especially those with impaired mobility and skin integrity” (Jocelyn et al., 2017, p. 225). Pressure ulcers are sometimes unavoidable, depending on the comorbidities of individual patients; but for the most part, pressure ulcers can be prevented when “quality and standard of key evidenced-based practices (EBP)” are maintained (p. 226). Such practices involve turning and positioning, “pressure ulcer-relief devices; maintaining adequate nutrition and moisture” and pressure ulcer risk assessment (p. 226).

Nurses' adequate knowledge on pressure ulcer prevention and treatment is important, but there are other factors that matter as well. Thus, just as much as the acquisition of knowledge is crucial to pressure ulcer prevention, “nurses’ attitudes” are equally important “in pressure ulcer prevention”—if not more important (Ünver et al., 2017, p. 278).

There was a rationale for including a focus in the present study on nurses’ ratings of not only their attitudes and knowledge, but also their skill/ability levels. Studies (e.g., Bredesen et al., 2016. Ham et al., 2015) have reported findings with regard to medical professionals’ clinical skills in identifying pressure ulcers. Suggestive of investigating skill/ability level, others investigated practice among nurses, finding that nearly half of nurses (48.4%) “had good practice” on pressure ulcer prevention (Nuru et al, 2015, p. 3); yet, the knowledge and practice “of the nurses regarding” pressure ulcer prevention “was found to be inadequate” (p. 1).

Beyond training, knowledge, skill/ability, and attitudes, other factors impacting adherence to pressure ulcer prevention guidelines may include “numerous barriers” or challenges in relation to pressure ulcer prevention; for example, “insufficient resources” for the implementation of pressure ulcer preventive measures (Moya-Suárez et al., 2017, pp. 260-261).

Preventive measures cannot be implemented unless those at increased risk are identified, utilizing some of the “many tools” developed to support such an objective
(Fletcher, 2017, p. 18). It is recommended that, in order to effectively prevent pressure ulcers, risk assessment tools should be re-evaluated; and nurses are encouraged to utilize a “combination of clinical judgment,” as well as risk assessment tools, in order to help establish “a more focused assessment,” which can eventually lead to an optimal plan of care (p. 25). Thus, the focus on pressure ulcer prevention should not be simply on adopting the best risk assessment tools (p. 25).

Research illustrates the value in considering the role of training and nurses’ ratings of their training, as in this study; this follows from a study by Nuru et al. (2015) that found “91.1% of the nurses had not received any formal training” in pressure ulcer prevention; thus, not surprisingly, 89.9% of nurses “were not using any existing guidelines” about how to perform “risk assessment and prevention of pressure ulcers” (p. 3).

There are guidelines on the prevention and treatment of pressure ulcers put forth by the National Pressure Ulcer Advisory Panel (NPUAP, 2014). These clinical practice guidelines were formulated in conjunction with the European Pressure Ulcer Advisory Panel (EPUAP) and the Pan Pacific Pressure Injury Alliance (PPPIA) (NPUAP, 2014).

The salient recommendations have been categorized into numerous topics on a survey tool in the present study, for example: Risk assessment, Skin Care, Nutrition, Education, Repositioning, and Mobilization. The risk assessment tool should be utilized frequently based on the acuity of the patient—such as for patients who are in acute care settings such as hospitals where assessment should occur on every shift (NPUAP, 2016a).

The Health Belief Model with a focus on barriers to action and self-efficacy (Rosenstock et al., 1988) and Bandura’s (1977) Social Cognitive Theory and Self-Efficacy (as in rating one’s skill/ability level) were two of the main theories used in guiding this study, as well as the Theory of Planned Behavior (Ajzen, 2012).
Summary of the Research Sample and Procedures

The study utilized a convenience sample of nurses (n=190) who all met the inclusion criteria of being 22 years old or above, and having had direct contact with patients during service in a healthcare setting within the past six months. Participants were recruited using a social media campaign. A social media campaign using Facebook, Twitter, LinkedIn, e-mail list-serves, text messaging, as well as snowballing, was used in order to recruit nurses. The recruitment message widely disseminated was as follows: “Go to <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the Nurse’s Survey on Pressure Ulcer Prevention and Treatment for a chance to win 1 of 3 $100 Amazon gift cards.” Collection of data for the study began on February 3, 2019 and ended on March 2, 2019. The snowballing ensued when individuals shared the link to the survey with others.

Summary of the Research Instrumentation

The following measures were utilized in this study:

- **Part I: Basic Demographics (BD-12)**
- **Part II: Attitudes Regarding Practice Guidelines--Relevance Scale (ARPG-R-5)**
- **Part III: More About You (Social Desirability) (MAY-13)**
- **Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)**
- **Scale 1: Nursing Training Rating Scale (TNRS-101)—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.**
- **Scale 2: Personal Knowledge Rating Scale (TPKRS-101)—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.**
• **Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)**—using descriptive statistics, produced a mean and SD, as well as frequency and percentage data.

**Summary and Discussion of Results by Research Question**

This section will include a summary of the research question and then discuss the findings.

**Summary and Discussion for Research Question #1**

*What were the nurses’ demographics and background characteristics? (Part I: Basic Demographics—BD-12)*

**Summary.** The study recruited 318 nurses who qualified for the study, while only 266 of those nurses proceeded to take the survey, and 76 were excluded for not completing the survey sufficiently to have data for both of the study outcome variables—leaving a sample size of N=190. Of note, independent t-tests comparing subjects who completed the survey to those who did not found no significant difference between the groups for age, annual household income, or years worked in the field of nursing.

Among the study’s convenience sample of nurses (n=190), 80.5% (n=153) were female, 59.5% (n=113) were Black/African American, and 18.4% (n=35) were Asian—with a mean age of 40.27 years (min 23, max 73, SD=10.95). Some 53.2% (n=101) were not born in the US, while 16.8% (n=32) were from Ghana, 7.9% (n=15) from Jamaica, and 7.4% (n=14) from the Philippines. The mean household yearly income was 4.43 (category 4) for $50,000 to $99,999 (min=2, max=10, SD=1.00). The mean number of years working in nursing was 4.34 (category 4) for 8-10 years (min=1, max=9, SD=2.14, while 71.15% (n=135) worked in a hospital or medical center, and 15.3% (n=29) worked in a skilled nursing facility.
Discussion. The 76 being excluded from the analysis might be due to their not being able to complete the entire survey due to the length of the survey (40-45 minutes). Susteren (2019) stated that audiences across the United States were asked using SurveyMonkey “what really” annoyed them when taking surveys, and some 60% of the respondents did not want to take surveys that were longer than 10 minutes. The length of the survey could have caused significant attrition from the study, as in those 76 participants who started but did not complete the entire survey.

The sample being majority of female (n=153) to male (n=37) in ratio in this study is consistent with the study conducted by Moya-Suárez et al. (2017); out of the 228 total participants, 182 were female and 46 were male. The age range in that study was 24 to 63, which is close to the age range in this study of 23 to 73.

A majority of the nurses in the present study had their bachelor’s degree, or specifically, 46.8% (n=89) of the nurses had their BSN. This result is consistent with the majority (63%, n=140) of nurses in Addis Ababa, Ethiopia who had their bachelor’s degree (Etafa et al., 2018, p. 3).

In addition, according to the United States Bureau of Labor Statistics (2017), the mean annual wages for registered nurses was $72,180. The mean yearly income of the nurses in the present study was 4.43, which is category 4 ($50,000 to $99,999). This result is consistent with the national average income for nurses, since $72,180 is within the mean average found in the present study.

The mean years worked in the field of nursing in the present study was 4.34, which is category 4 for 8-10 years (SD=2.14, min 1=which is 1 year or less, max 9=more than 30 years). This can be compared to the study by Barakat-Johnson et al. (2018) where one-third of the 998 study participants had 5-10 years of experience in nursing (p. 236).
Summary and Discussion for Research Question #2

What were the nurses’ attitudes toward practice guidelines? (Part II: ARPG-R-5)

Summary. First, attitudes were explored, finding the mean global score for the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) was 4.91 (SD=1.39, min=1.40, max=7.00), or closest to agree somewhat. Fifty-eight nurses (30.5%) indicated that they agreed somewhat to practice guidelines. The Cronbach’s Alpha of the ARPG-R-5 scale was .886.

Discussion. A majority of the nurses in this study had a positive attitude concerning practice guidelines on pressure ulcer prevention and treatment, and the relevance of pressure ulcer prevention and treatment guidelines. These findings are comparable to studies like the following: Ünver et al. (2017) and Tolulope et al. (2018). In Tolulope et al. (2018), a majority of the nurses (n=67) out of a sample of 90 “had a positive attitude … toward pressure ulcer prevention” (p. 25). Another study is consistent with the results of the present study; specifically, the study by Ünver et al. (2017) had results showing that the “mean total attitude score” of the nurses involved in the study was “80.5%” (p. 279). Thus, the nurses exhibited a positive attitude toward pressure ulcer prevention, just as the nurses did in this study.

However, this study’s results are not comparable to the study conducted in Addis Ababa, Ethiopia, where the findings of the study suggested that “Addis Ababa nurses” held a “negative attitude” toward “pressure ulcer prevention” (Etafa et al., 2018, p. 4). This negative attitude toward pressure ulcer prevention and treatment could be attributed to the barriers they reported. That is, 98% of the nurses reported “different challenges” they face in the prevention of pressure ulcers (p. 4). According to 185 participants, the barriers to pressure ulcer prevention and treatment they faced included a lack of staffing and heavy workload (p. 4). The “shortage of pressure relieving devices” was the second most cited barrier (p. 4).
Summary and Discussion for Research Question #3

To what extent did the nurses provide socially desirable responses?  
(Part III: MAY-13)

Summary. The sample’s (13-item) social desirability mean was 9.51 (SD=3.06, min=0, max=13), suggesting a moderately high level of social desirability. The study also used a new single-item measure of (1-item) social desirability, which produced a mean of 6.61 (SD= 3.07, min=0, max =10) for a moderately high level of social desirability.

Discussion. This result can be compared to the study by Ya Azibo et al. (2006), where participants in the study were of African descent. The social desirability scale used in that study was the “Marlowe-Crowne Social Desirability Scale (M-C SD scale)” as the 33-item original version of the scale (p. 128). The results revealed a social desirable mean score of 17.62 (SD= 4.95). On the other hand, the present study has a moderately high social desirability score, using the 13-item short form of the Marlowe-Crowne with a Social Desirability mean score of 9.51 (SD=3.06, min=0, max=13). Yet, the study sample for Ya Azibo et al. has a much higher level of social desirability than the present study.

Using the same 13-item short form of the Marlowe-Crowne Social Desirability Scale, Tirhi (2019) found with a Muslim American sample a social desirability mean score of 8.76 (min 1, max 13, SD=2.822), suggesting a moderate level of social desirability, similar to the present study.

Summary and Discussion for Research Question #4

With regard to established practice guidelines for the prevention and treatment of pressure ulcers that embodies relevant behaviors/nursing tasks, how did the nurses rate their (a) Nursing Training for performing those behaviors/nursing tasks, (b) Personal Knowledge Level for performing those behaviors/nursing tasks, and (c) Personal Skill/Ability Level for performing that behavior or nursing task? (Part IV: PU-PAT-S-FN-101)

Summary. The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101) has three scales. With regard to established practice guidelines for
the prevention and treatment of pressure ulcers, for performing those tasks, nurses rated themselves “good” on all three of those scales (a, b, c), as follows: (Scale a) The Nursing Training Rating Scale (TNRS-101) with the mean global nursing training rating score of 4.11 (SD=0.60, min= 1.94, max=5.00), or good; (Scale b) Personal Knowledge Rating Scale (TPKRS-101) with the mean global knowledge score of 4.15 (SD=0.57, min=2.79, max=5.00, or good; and (Scale c) Personal Skill/Ability Rating Scale (TPS/ARS-101) with the mean global personal skill/ability score of 4.13 (SD=0.62, min=2.56, max=5.00), or good.

Discussion. In the present study, the mean global nursing training rating score was 4.11 (SD=0.60, min= 1.94, max=5.00), or good. Thus, there was exposure to training, just as in Tolulope et al. (2018), where the majority of the nurses (76.7%) “had received special training” on the prevention of pressure ulcers “since they started their nursing practice” (p. 25). On the other hand, in the study by Nuru et al. (2015), “91.1% of the nurses had not received any formal training” in pressure ulcer prevention (p. 3). Similarly, Etafa et al. (2018) indicated that only “7.2% (n=16) of the nurses reported receiving any training” on pressure ulcer prevention, while 66.7% (n=148) reported that they had “never received any training” on pressure ulcer prevention (p. 3).

Concerning knowledge level, the mean global knowledge score was 4.15 (SD=0.57, min=2.79, max=5.00, or good in the present study. This is similar to the study by Nuru et al. (2015), where more than half (54.4%) “of the respondents were found to have good knowledge” on pressure ulcers (p. 3). Also, the present study’s finding is consistent with those by Tolulope et al. (2018), where 64.4% (n=58) of nurses were revealed to have “adequate knowledge about pressure ulcer etiology, prevention, care,” as well as “recent pressure ulcer prevention practices” (p. 25).

The present study’s good level of knowledge stands in contrast to other studies that revealed nurses’ lack of adequate knowledge on pressure ulcer prevention and treatment (e.g., Barakat-Johnson et al., 2018; Gul et al., 2017; Rafiei et al., 2014). Barakat-Johnson
et al. (2018) conducted a study on nurses and reported “low levels” of knowledge on pressure ulcer prevention among nurses (p. 233). Rafiei et al. (2014) found that nurses did not possess adequate knowledge on how to prevent, manage, and classify pressure ulcers; the recommendation was to improve the knowledge of nurses with “educational programs” (p. 140). Gul et al. (2017) conducted a study to assess the knowledge of nurses on pressure ulcer risk, staging, and description of wound. The outcome of the study showed that there were “significant knowledge gaps regarding” pressure ulcer prevention “risk, staging, and wound description” among the nurses (p. 43).

Summary and Discussion for Research Question #5

Were there any significant relationships between the two study outcome variables/dependent variables and selected demographic and other variables (e.g., attitudes toward practice guidelines)?

Summary. The data analysis explored the relationship between selected variables (i.e., age, yearly household income, years worked in the field of nursing, etc.) and two outcome/dependent variables of (1) study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), and (2) study outcome variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101). There were six independent variables, so the Bonferroni Adjustment Significance (.05/6=0.008) involved the higher significance level of .008.

First, when exploring Pearson Correlations, the **higher the score on the study outcome variable #1 of Scale 2: Personal Knowledge Rating Scale (TPKRS-101), then: the more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (r = .192, p = .008)—as a non-significant trend, given Bonferroni Adjustment Significance (p < .008); and the higher their Social Desirability (13 items) score (r = .191, p = .008)—as a non-significant trend, given Bonferroni Adjustment Significance (p < .008). Second, the **higher the score on study outcome variable #2 of Scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101), then: the higher Social**
Desirability the score (13) \((r = .254, p = .000)\). For independent t-tests, findings showed no statistically significant group differences.

**Discussion.** Consider how Tirgari et al. (2018) found a statistically significant relationship between “pressure injury knowledge and attitudes” toward prevention of pressure injury (p. 1). Barakat-Johnson et al. (2018) also found that a significant positive association between knowledge and attitude that conveys “greater knowledge about pressure injuries” is correlated with “more positive attitudes toward” prevention of pressure injury (p. 236). Similarly, this study suggests a relationship between knowledge and attitudes (i.e., higher the knowledge score, then the more positive Attitudes Regarding Practice Guidelines-Relevance Scale—ARPG-R-5).

Another study by Charalambous et al. (2018) found a statistically significant positive correlation between knowledge and attitude on pressure ulcer prevention and treatment. Charalambous et al. concluded their study by suggesting that, based on the positive correlation between knowledge and attitudes, “there is the possibility” that if knowledge levels are enhanced through educational programs, “it is possible” to achieve “an even further improvement” in the nurse’s attitude levels (p. 44).

**Summary and Discussion for Research Question #6**

*What were the significant predictors of the study’s two outcome variables/dependent variables of the Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)?*

**Summary.** Significant predictors were sought for the study’s two outcome variables/dependent variables, using backward stepwise regression, while each of the following four models has independent variables that account for only an extremely small amount of variance in the model (i.e., none accounting for more than 6% of the variance explained by the model), as shown below:

**First, using the standard 13-item social desirability tool to control for social desirability, higher personal knowledge scores were significantly predicted by:** more
positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (b = .067, SEb = .029, p = .022); and higher level of Social Desirability (13 items) (b = .030, SEb = .013, p = .023). For this regression model for personal knowledge rating scale, R²=.063 and the AdjR²=.053, meaning that 5.3% of the variance was explained by model.

Second, using the new 1-item social desirability tool to control for social desirability, higher personal knowledge scores were significantly predicted by: more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) (b = .075, SEb = .030, p = .012); and higher level of Social Desirability (1 item) (b = .009, SEb = .013, p = .513). For the regression model for personal knowledge rating scale, R²=.039, and the AdjR²=.029, meaning that 2.9% of the variance was explained by model.

Third, using the standard 13-item social desirability tool to control for social desirability, higher personal skill/ability scores were significantly predicted by: higher level of Social Desirability (13 items) (b = .051, SEb = .014, p = .000). For the regression model for personal skill/ability rating scale, R²=.064, and the AdjR²=.059, meaning that 5.9% of the variance was explained by model.

Fourth, using the new 1-item social desirability tool for controlling for social desirability, higher personal skill/ability rating was significantly predicted by: more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) Scale (b = .066, SEb = .032, p = .041); and higher level of Social Desirability (1) (b = .019, SEb = .015, p = .200). For the regression model for personal skill/ability rating scale, R²=.036, and the AdjR²=.026, meaning that 2.6% of the variance was explained by model.

Discussion. First, the results provided by the backward stepwise regression revealed that higher personal knowledge scores were significantly predicted by more positive (i.e., higher score on the Attitudes Regarding Practice Guidelines-Relevance Scale—ARPG-R-5). Thus, nurses who had high knowledge scores had more positive
attitudes toward practice guidelines. This result is consistent with those derived from other studies (e.g. Barakat-Johnson et al., 2018; Tirgari et al., 2018). Barakat-Johnson et al. (2018) reported that there was a significant positive association between knowledge and attitude; this conveys how “greater knowledge about pressure injuries” is associated with “more positive attitudes toward” prevention of pressure injury (p. 236). Tirgari et al. (2018) also reported a statistically significant relationship between “pressure injury knowledge and attitudes” toward prevention of pressure injury (p. 1). Another study with comparable results to the present study was conducted by Charalambous et al. (2018); they found a statistically significant positive correlation between knowledge and attitude on pressure ulcer prevention and treatment (p. 40). However, in contrast to the findings of the current study, Nuru et al. (2015) found that work experience, educational status, and formal training in pressure ulcer prevention “were significantly associated with knowledge on prevention of pressure ulcer” (p. 1).

Second, regression in the current study showed that higher skill/ability scores were significantly predicted by *more positive Attitudes Regarding Practice Guidelines-Relevance Scale*. Perhaps most comparable, Ünver et al. (2017) found that “there was a significant correlation” noted between “the application of adequate prevention and the attitudes” of nurses (p. 278). Those nurses who were able to apply or practice adequate prevention of pressure ulcers had favorable attitudes.

**Summary and Discussion for Research Question #7**

What did nurses report, within the qualitative portion of the study, when given the opportunity to respond to an open-ended question regarding the barriers they experience to pressure ulcer prevention and treatment?

**Summary.** Finally, the quantitative data was augmented by *qualitative findings* for the barriers nurses experience to pressure ulcer prevention and treatment, as follows: **Category I-External Barriers** included: *theme I-A – Perceiving inadequate staffing as a barrier; theme I-B – Recognizing heavy workload as a barrier; theme I-C–
Identifying the lack of available time; theme I-D—Lack of needed supplies and staffing; theme I-E—Identifying knowledge and staffing shortage as barriers; and theme I-F Recognizing the lack of training as one of the barriers; and Category II-Internal Barriers included: theme II-A—a lack of motivation; and theme II-B—feeling stress related to workload.

Discussion. Qualitative data analysis revealed categories and emergent themes. For the barriers nurses experience to pressure ulcer prevention and treatment, participants indicated Category I-External Barriers or Category II-Internal barriers. The External Barriers included: perceiving inadequate staffing as a barrier, recognizing heavy workload as a barrier, identifying the lack of available time, lack of needed supplies and staffing, identifying knowledge and staffing shortage as barriers, and recognizing the lack of training as one of the barriers. The Internal Barriers included lack of motivation and identifying stress related to workload. Some of the emergent themes from the current study are consistent with some of the barriers to pressure ulcer prevention and treatment indicated by nurses in previous studies (Etafa et al., 2018; Moya-Suárez et al., 2017; Nuru et al., 2015).

For example, Moya-Suárez et al. (2017) identified the main external barriers impacting adherence to pressure ulcer prevention as “insufficient resources” and “insufficient time” (p. 261). The nurses in the current study indicated the lack of needed supplies and the lack of available time as some of the barriers they experience in pressure ulcer prevention and treatment.

In the study by Etafa et al. (2018), the recurrent barriers to pressure ulcer prevention according to most participants (n=185) involved heavy workload as well as lack of staff (p. 4). The second most cited barrier (n=150) involved the “shortage of pressure relieving devices” (p. 4). These barriers are similar to some of the barriers reported in the present study. Shortage of staffing, heavy workload, and the lack of needed supplies were all barriers cited by the participants of the current study. Nuru et al.
(2015) also found that in terms of barriers, “staff shortage and inadequate facilities and equipment” had significant association with how the nurses practiced pressure ulcer prevention (p. 1). These barriers to pressure ulcer prevention and treatment are consistent with the barriers identified in the current study.

Implications and Recommendations for Practitioners, Educators, and Researchers

This study has implications and recommendations for the fields of nursing and healthcare, as well as public health and health education. Practitioners as well as researchers may take action, based on this study’s methodology and main findings.

Research Methodology and Scales Using “Practice Guidelines Protocol”

Through this study, a health education lens has applied a specific research methodology that also gives rise to new scales for research in multiple fields. The research methodology and study scales arise from what is a now standard practice guidelines protocol of the Research Group on Disparities in Health (RGDH), Department of Health and Behavior Studies, Teachers College, Columbia University (Director, Barbara C. Wallace, PhD)—to a nursing care issue that is linked to morbidity and mortality. Specifically, the practice guidelines protocol of the RGDH has been followed before (i.e., Lassiter, 2009; Marzan, 2008; Washington, 2015) and involves: (1) taking published practice guidelines that establish standards of practice in a field such as medicine, dentistry, or nursing; (2) turning them into survey items in scales for research with those who practice in that field of focus, or are training to do so; and (3) conducting research using those scales with those currently practicing in the field, or training to do so—and determining things such as practitioners’ adherence to key practice guidelines, as well as their attitudes, knowledge, skill ability, and rating of training for preparing them for practice.
Of note, the practice guidelines protocol of the RGDH has now been followed in prior research with medical students (i.e., Marzan, 2008; Washington, 2015), dental students (Lassiter, 2009), physical education teachers (Lynch, 2013)—and now, with nurses, as per the present study.

In the case of the present study, the practice guidelines protocol provides a new research methodology, along with new research tools; these are scales with mostly excellent internal consistency that can be used in research, while embodying practice guidelines that establish standards of practice in the nursing field. Thus, it is recommended that others follow the practice guidelines protocol and create new tools, as per what has been advanced here with nurses, and elsewhere with medical students (i.e., Marzan, 2008; Washington, 2015) and dental students (Lassiter, 2009), as well as physical education teachers (Lynch, 2013).

The result can be new lines of research that arise in many different fields, while sharing common use of the practice guidelines protocol and also creating new tools. The resultant tools pioneered using this protocol, including the present study with nurses, can form the basis of future lines of research, meaning that the following studies and this study now have tools that can be used with similar populations: with medical students (i.e. Marzan, 2008; Washington, 2015), with dental students (Lassiter, 2009), and with physical education teachers (Lynch, 2013).

**Good Knowledge and Good Skills/Ability: Predictor of Positive Attitudes**

A majority of the participants of the current study rated their knowledge on pressure ulcer prevention and treatment to be good, and also rated their training in the nursing field on this topic to be good. Their skill/ability to perform such duties (i.e., recommended practice guidelines from the NPUAP) was also rated to be good. For both nurses’ personal knowledge scores and personal skill/ability, scores were significantly predicted in separate regression models by the common independent variable of more
positive scores on the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5).

A main implication is that training can be provided to nurses that is good, as found in the present study; and both nurses’ personal knowledge and personal skill/ability may emerge as good, while attitudes may be more positive about practice guidelines and their relevance—for those exposed to quality or good training.

Future Research Using the Study Tools

This study provides new tools of value in research that evaluates nursing training or special continuing education on pressure ulcer prevention and treatment. The tools all have excellent internal consistency also. The new tools for future research are as follows:

- **Nursing Training Rating Scale (TNRS-101)*** had a Cronbach’s Alpha of .994 for excellent internal consistency. The study outcome variable #1 of scale 2: Personal Knowledge Rating Scale (TPKRS-101)*** had a Cronbach’s Alpha of .993 for excellent internal consistency. The study outcome variable #2 of scale 3: Personal Skill/Ability Rating Scale (TPS/ARS-101)*** had a Cronbach’s Alpha of .994 for excellent internal consistency.

- Also, for the already existing tool from the work of Quiros et al. (2007), the Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5)*** had a Cronbach’s Alpha of .886, or very good internal consistency. Quiros et al. produced a final survey with 12 items (possible scores from 0 to 60) with a Cronbach’s Alpha coefficient of .83, while the present study only used the relevance scale.

- All of these tools may be used in future research, ideally using major grant funding, that replicates the study with a large nationally representative sample of nurses, including having greater racial and ethnic diversity (i.e., more Whites) in the study sample. In addition, future evaluation research could create online video training modules on pressure ulcer prevention and treatment—and use the above four tools, used in the
present study, as pre- and post-evaluation tools. Evaluating existing training curriculum could also involve use of these tools pre- and post-training.

**Vital Role of Quality Training for Nurses—Including Continuing Education**

Thus, training is an important component in pressure ulcer prevention, globally, in contemporary times. In the study conducted in Addis Ababa, Ethiopia, only “7.2% (n=16) of the nurses reported receiving any training” on pressure ulcer prevention, while 66.7% (n=148) reported they had “never received any training” on pressure ulcer prevention (Etafa et al., 2018, p. 3). In an effort to prevent pressure ulcers, nurses cannot be expected to provide effective care to their patients when they haven’t been trained to do so.

The study by Moya-Suárez et al. (2017) revealed how the nurses had “inadequate knowledge of the guidelines” (p. 261). In the present study, 57.9% (n=121) of the nurses rated their knowledge on pressure ulcer prevention according to the NPUAP guidelines as good.

In another study, it was revealed that there were “significant knowledge gaps regarding” pressure ulcer prevention “risk, staging, and wound description” among the nurses (Gul et al., 2017, p. 43). The results obtained from the study also revealed that the “knowledge scores were significantly higher” for those nurses who had attended “at least 1 lecture/conference/course on” preventing pressure ulcers in the last year (p. 40). This is an indication that continuing education, and educating nurses about pressure ulcers, is important.

However, according to Fletcher (2017), there is a “missing link between assessment, care planning and provision,” which is a grave fundamental flaw (p. 25). One factor may be barriers to the provision of care in the medical setting.

In this regard, the qualitative data revealed themes on the barriers to provision of care for pressure ulcers. **The Category I-External barriers included:** *theme I-A –*
Perceiving inadequate staffing as a barrier; theme I-B –Recognizing heavy workload as a barrier; theme I-C–Identifying the lack of available time; theme I-D–Lack of needed supplies and staffing; theme I-E–Identifying knowledge and staffing shortage as barriers; and, theme I-F–Recognizing the lack of training as one of the barriers. There is a need for institutions or organizations to recognize these barriers that nurses are experiencing.

There are practice guidelines available, but such guidelines cannot be implemented if the human resources are not available or the supplies needed are lacking. A main implication of the findings is that all hospitals, medical centers, skilled nursing facilities, and other nursing homes and settings take action to remove barriers to pressure ulcer prevention and treatment. This is strongly recommended, as removing such barriers can help improve the nurse’s ability to practice pressure ulcer prevention and treatment.

Training and education on pressure ulcer prevention and treatment still need to be tailored, based on the characteristics and needs of the particular population—whether nurses in a hospital setting, new nurses in training, or nurses receiving continuing education training while working within a variety of settings. For example, nurses on site at hospital who need more training should be provided training, and those who are lacking in knowledge should be provided the base knowledge they need to prevent and treat pressure ulcers.

**Research that Includes Doctors, Nurse Practitioners, Physician Assistants**

The inclusion of doctors, nurse practitioners, and physician assistants is also a recommendation for future research. These professionals are essential more so in the treatment aspect of pressure ulcers. They are tasked with prescribing specialty mattresses, pressure relieving support devices, as well as cushions and supplies that help in pressure ulcer prevention. Their training, knowledge, as well as skill/ability could also be assessed in relation to treating pressure ulcers. Are they familiar with the stages of pressure ulcer, and what treatment is recommended for each stage based on the practice guidelines?
Such information could be gathered in an effort to improve pressure ulcer treatment and prevention. Data could be gathered as to whether these healthcare providers are prescribing the recommended treatments based on pressure ulcer stages.

**International Studies Needed**

International studies could also be implemented globally to assess the nursing training, knowledge, skill/ability, attitude, and barriers toward practice guidelines. Pressure ulcer occurs globally, and it would be interesting to assess the similarities as well as the differences in attitudes or barriers from one nation to the other, or from one continent to the other—or factors related to training, knowledge, and skill by geographic region. These guidelines here formulated by the National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAP), and the Pan Pacific Pressure Injury Alliance (PPPIA). It is valid to pursue an international assessment of nurses for adherence to the practice guidelines; and this study contributes new scales for use in research to assess training, knowledge, skill/ability, and barriers to implementing practice guidelines. This line of research would be a great addition to health improvement research and practice on a global scale. This would also be a great opportunity to replicate the use of the new tools utilized in this study. Ideally, grant funding would support such research.

**Toward a Shorter Survey, Paper Survey, and Funded Study in Future Research**

The length of the survey could also be reduced in order to facilitate participants’ completion of the survey. Fatigue could have been a factor that contributed to 76 individuals who met the study’s eligibility criteria dropping out before completion of the survey. A shorter survey is needed. Future research can engage in a factor analytic study, potentially identifying factors or subscales.

The survey could also be offered online as well as via paper questionnaires. It was observed during recruitment that certain individuals were not willing to take the survey
online; but they would have preferred if it was a paper questionnaire. Potential
participants were lost due to this factor. Future research could be conducted to
accommodate or appeal to such individuals as well.

A funded study could help in the recruitment of a large nationally representative
sample size of nurses, which would improve generalizability of study results. Or, an
international study that is funded could be representative of nurses more globally.

Limitations

This study utilized a convenience sample (190) of nurses who responded to the
invitation to participate in an online study, suggesting the influence of participants being
volunteers. The length of the survey was 40-50 minutes, which was one of the biggest
limitations of the study, potentially serving as a deterrent for participants completing the
study—given participant fatigue and dropout. Seventy-six participants met eligibility but
did not complete the survey.

The need for internet access and computer/technological devices could be viewed
as introducing selection bias issues into the study. Only those with such resources had the
opportunity to participate.

The provision of potential socially desirable responses was a study limitation; thus,
a measure of social desirability was used to control for it in the regression; and a 1-item
even shorter measure of social desirability was introduced to see if in future research it
might reduce the response burden when the 13-item version of social desirability is used.
In this regard, of note, the two regressions each predicting personal knowledge scores
suggest a common outcome using the 1-item and 13-item versions.

The use of an online study and online social media could be viewed as limitations.
Nurses who were not active online or with social media may have lost the opportunity to
be participants.
Conclusion

Although there have been numerous resources allocated to the prevention and
treatment of pressure ulcers, the prevalence has remained largely unchanged. According
to Mervis and Phillips (2019), pressure ulcers affect 3 million individuals annually in the
United States, alone (p. 2). The NPUAP/EPUAP and PPPIA formulated practice
guidelines, based on scientific assessment of the evidence in order to recommend the best
practice available.

The problem this study addressed is the need for nurses to adhere to guidelines on
pressure ulcer prevention and treatment, so patients can achieve the best possible health
outcomes. Using a new tool, the study sought to identity significant predictors of the
Personal Knowledge Rating Scale (TPKRS-101) and Personal Skill/Ability Rating
Scale (TPS/ARS-101). The online study’s convenience sample of nurses (n=190) was
80.5% (n=153) female, 59.5% (n=113) Black, and 18.4% (n=35) Asian—with a mean
age of 40.27 years (min 23, max 73, SD=10.95). Some 53.2% (n=101) were not born in
the US, while 16.8% (n=32) were from Ghana, 7.9% (n=15) from Jamaica, and 7.4%
(n=14) from the Philippines. Annual household income mean was 4.43 (category 4), or
$50,000 to $99,999 (min=2, max=10, SD=1.00). The mean number of years working in
nursing was 4.34 (category 4), or 8-10 years (min=1, max=9, SD=2.14).

With regard to established practice guidelines for the prevention and treatment of
pressure ulcers, nurses rated themselves “good” for performing those tasks, as follows:
(a) Nursing Training Rating Scale (TNRS-101) with global mean of 4.11 (SD=0.60,
min= 1.94, max=5.00), or good; (b) Personal Knowledge Rating Scale (TPKRS-101)
with global mean of 4.15 (SD=0.57, min=2.79, max=5.00), or good; and (c) Personal
Skill/Ability Rating Scale (TPS/ARS-101) with global mean of 4.13 (SD=0.62,
min=2.56, max=5.00), or good.
Higher Personal Knowledge Rating Scale (TPKRS-101) scores were significantly predicted by: more positive Attitudes Regarding Practice Guidelines-Relevance Scale (ARPG-R-5) \((b = .067, SE_B = .029, p = .022)\); and higher level of Social Desirability (13 items) \((b = .030, SE_B = .013, p = .023)\). For this regression model, \(R^2=.063\), and the \(AdjR^2=.053\), meaning that 5.3% of the variance was explained by the model.

Personal Skill/Ability Rating Scale (TPS/ARS-101) scores were significantly predicted by: higher level of Social Desirability (13 items) \((b = .051, SE_B = .014, p = .000)\). For this regression model, \(R^2=.064\) and the \(AdjR^2=.059\), meaning that 5.9% of the variance was explained by model.

Finally, the quantitative data were augmented by qualitative findings for the barriers nurses experience to pressure ulcer prevention and treatment, as follows:

The Category I-External Barriers included: theme I-A—Perceiving inadequate staffing as a barrier; theme I-B—Recognizing heavy workload as a barrier; theme I-C—Identifying the lack of available time; theme I-D—Lack of needed supplies and staffing; theme I-E—Identifying knowledge and staffing shortage as barriers; and theme I-F—Recognizing the lack of training as one of the barriers. The Category II-Internal Barriers included: theme II-A—A lack of motivation; and theme II-B—feeling stress related to workload.

The results include providing a host of implications and recommendations that have the potential to nurture lines of research using the practice guidelines protocol and related measures introduced through this study. Further, the qualitative data can drive practical action on the part of healthcare settings to eliminate barriers to nurses performing pressure ulcer prevention and treatment.
REFERENCES


Montecalvo, M. M. (2013). *Toward the delivery of culturally competent care to patients who are lesbian, gay, bisexual, transgender (LGBT) and men who have sex with men (MSM): An online investigation with healthcare providers.* Unpublished doctoral dissertation, Teachers College, Columbia University.


Appendix A

IRB Approval Letter

Teachers College IRB

Exempt Study Approval

To: Elsie Laryea
From: Myra Luna Lucero, Research Compliance Manager
Subject: IRB Approval: 19-128 Protocol
Date: 01/30/2019

Thank you for submitting your study entitled, "AN ONLINE MIXED-METHODS STUDY ASSESSING NURSES’ TRAINING, ATTITUDES, KNOWLEDGE, SKILL/ABILITY, AND PERCEIVED BARRIERS WITH REGARD TO ADHERENCE TO THE NATIONAL PRESSURE ULCER ADVISORY PANEL’S CLINICAL PRACTICE GUIDELINES;" the IRB has determined that your study is Exempt from committee review (Category 2) on 01/30/2019.

Please keep in mind that the IRB Committee must be contacted if there are any changes to your research protocol. The number assigned to your protocol is 19-128. Feel free to contact the IRB Office by using the “Messages” option in the electronic Mentor IRB system if you have any questions about this protocol.

Please note that your Consent form bears an official IRB authorization stamp and is attached to this email. Copies of this form with the IRB stamp must be used for your research work. Further, all research recruitment materials must include the study’s IRB-approved protocol number. You can retrieve a PDF copy of this approval letter from the Mentor site.

Best wishes for your research work.

Sincerely,

Dr. Myra Luna Lucero
Research Compliance Manager
IRB@tc.edu

Attachments:
- 2-Elsie Laryea-FN-REV-CONSENT FORM_FINAL.pdf
Appendix B

Recruiting E-mail Message

NURSES! PLEASE VOLUNTEER!

TAKE A CONFIDENTIAL SURVEY ON PRESSURE ULCERS

IRB Protocol Number 19-128

The Research Group on Disparities in Health (RGDH) within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York, New York is conducting a study to assess nurses’ training, attitudes, knowledge, skill/ability, and perceived barriers with regard to adherence to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines.

- Participation in this survey is limited to the first 250 nurses
- Completing the online survey takes about 40-45 minutes
- Those who complete the survey will have a 3 in 250 chance of winning 1 of 3 $100 Amazon gift card.
- Please click on the link below to view the informed consent, learn about your rights as a participant and proceed to the survey.
- We also invite you to forward this email to other nurses you know, or to text message, or tweet the message, below:

GO TO <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the pressure ulcer survey for nurses for chance to 1 of 3 $100 Amazon gift card

NOTE: Participants have a 3 in 250 chance of winning 1 of 3 $100 Amazon gift card

THANK YOU FOR YOUR PARTICIPATION!

If you have any questions or would like to have additional information about the study, please contact:

Elsie Laryea, MSN, Doctoral Candidate, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; eal2198@tc.columbia.edu;

BANBARA C. WALLACE, Ph.D., Director, Research Group on Disparities in Health, Professor of Health Education, Clinical Psychologist, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; bcw3@tc.columbia.edu; Study Contact Number: 267-269-7411
Appendix C

Recruiting Text Message/Tweet

**GO TO** <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift card

OR

*Click here to take the* pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift card
Appendix D

Recruiting Flyer

NURSES! PLEASE VOLUNTEER!

TAKE A CONFIDENTIAL SURVEY ON PRESSURE ULCERS

IRB Protocol Number 19-128

The Research Group on Disparities in Health (R&DH) within the Department of Health and Behavior Studies at Teachers College, Columbia University, in New York, New York is conducting a study to assess nurses’ training, attitudes, knowledge, skill/ability, and perceived barriers with regard to adherence to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines.

➢ Participation in this survey is limited to the first 250 nurses
➢ Completing the online survey takes about 40-45 minutes
➢ Those who complete the survey will have a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards.
➢ Please tear off a tab, below. Click on the link below to view the informed consent, learn about your rights as a participant and proceed to the survey.
➢ We also invite you to share this information with other nurses you know, including via text message, or tweet, using this message below:

GO TO https://tinyurl.com/NURSESPressureUlcerSurvey to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift cards

(NOTE: Participants have a 3 in 250 chance of winning 1 of 3 $100 Amazon gift cards)

THANK YOU FOR YOUR PARTICIPATION!

Elke Lamy, MSN, Doctoral Candidate, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; call 212-938-1127; eml207@tc.columbia.edu. * BARBARA C. WALLACE, Ph.D., Director, Research Group on Disparities in Health, Professor of Health Education, Clinical Psychologist, Department of Health and Behavior Studies, Teachers College, Columbia University, Box 114, 525 W. 120th Street, New York, NY 10027; Bcw2@columbia.edu. Study Contact Number: 212-362-5111.

Tear-off tab with the link to the survey and spread the word!

GO TO https://tinyurl.com/NURSESPressureUlcerSurvey to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift cards

GO TO https://tinyurl.com/NURSESPressureUlcerSurvey to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift cards

GO TO https://tinyurl.com/NURSESPressureUlcerSurvey to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift cards
Appendix E

Informed Consent

Teachers College, Columbia University
525 West 120th Street
New York NY 10027
212 678 3000

INFORMED CONSENT

IRB Protocol Number 19-128

Protocol Title: An Online Mixed-Methods Study Assessing Nurses’ Training, Attitudes, Knowledge, Skill/Ability, and Perceived Barriers with Regard to Adherence to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines

Principal Investigator: Elsie Laryea, MSN, Teachers College, Columbia University, 917-650-3757, eal2198@tc.columbia.edu

INTRODUCTION

You are being invited to participate in this research study called “An Online Mixed-Methods Study Assessing Nurses’ Training, Attitudes, Knowledge, Skill/Ability, and Perceived Barriers with Regard to Adherence to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines.” You may qualify to take part in this research study if you: are a nurse, have you had direct contact with patients during service delivery in a healthcare setting within the past six months; and, are age 22 or above. Approximately 250 people will participate in this study, and it will take approximately 40-45 minutes of your time to complete.

WHY IS THIS STUDY BEING DONE? This study is being done to assess nurses’ training, attitudes, knowledge, skill/ability, and perceived barriers with regard to adherence to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines.

WHAT WILL I BE ASKED TO DO IF I AGREE TO TAKE PART IN THIS STUDY? If you decide to participate in the study, you will answer a series of questions online. The questions will cover the following: your personal background and training as a nurse; and questions about your attitudes, knowledge, skill/ability level, and nursing training in relation to the National Pressure Ulcer Advisory Panel’s Clinical Practice Guidelines. Finally, you can answer an open-ended question about any barriers you experience to engaging in pressure ulcer prevention and treatment during your work as a nurse.

WHAT POSSIBLE RISKS OR DISCOMFORTS CAN I EXPECT FROM TAKING PART IN THIS STUDY? This is a minimal risk study, which means the harms or discomforts that you may experience are not greater than those you would ordinarily encounter if you were completing paperwork during the course of your nursing duties.
However, a participant may find questions about patients’ pressure ulcers to be uncomfortable, or answering some questions about your knowledge level for preventing and treating pressure ulcers to be embarrassing or stressful. Or, you may find the time it takes to answer questions to be a burden. You do not have to answer any questions or share anything you do not want to share. Participation in this study is completely voluntary. You can discontinue participation in this study at any time. Simply exit the study, and delete the link to the study.

WHAT POSSIBLE BENEFITS CAN I EXPECT FROM TAKING PART IN THIS STUDY? There is no direct benefit to you for participating in this study. The findings may be of value in improving the future training of nurses in pressure ulcer prevention and treatment.

WILL I BE PAID FOR BEING IN THIS STUDY? You will not be paid to participate. However, when you complete the survey you will be invited to enter your email address and to hit a “submit” button—so that you are officially entered into a drawing for a chance to receive a prize (i.e., there will be 3 bar coded Amazon gift certificates for $100 each). You do not have to enter the lottery drawing to complete the survey. Once you submit your email address, then it will automatically be entered into a private and secure data base that even the principal investigator cannot access. Once 250 people have completed the entire survey, you will have a 3 in 250 chance of winning one of the 3 bar coded Amazon gift certificates for $100 each. The www.Amazon.com gift certificates will be sent to three randomly chosen e-mail accounts using a secure online program. This occurs without in any way linking your identity to the survey results. The principal investigator is not able to view any of the e-mail addresses to which the gift certificates are sent. Only the 3 winners will be contacted.

WHEN IS THE STUDY OVER? CAN I LEAVE THE STUDY BEFORE IT ENDS? The study is over when you have completed the online survey. However, you can discontinue answering the survey questions at any time. You can exit the study at any time and delete the link to the study.

PROTECTION OF YOUR CONFIDENTIALITY The study does not involve collecting any of your personal identifying information, such as your name or address, allowing you to remain anonymous. Teachers College, Columbia University has determined that www.Qualtrics.com provides a secure platform for the online survey you will take. The survey data files will also be saved on the primary researcher’s password protected computer. Regulations require that research data be kept for at least three years.

For quality assurance, the study team, and/or members of the Teachers College Institutional Review Board (IRB) may review the data collected from you as part of this study. Otherwise, all information obtained from your participation in this study will be held strictly confidential and will be disclosed only with your permission or as required by U.S. or State law.
HOW WILL THE RESULTS BE USED? The results of this study will be published in journals and presented at academic conferences. This study is being conducted as part of the doctoral dissertation of the principal investigator.

WHO CAN ANSWER MY QUESTIONS ABOUT THIS STUDY? If you have any questions about taking part in this research study, you should contact the principal investigator, Elsie Laryea, at eal2198@tc.columbia.edu or at 917-650-3757. You can also contact the sponsor/supervisor of this research study, Dr. Barbara Wallace, at bcw3@tc.columbia.edu or 267-269-7411.

If you have questions or concerns about your rights as a research subject, you should contact the Institutional Review Board (IRB) (the human research ethics committee) at 212-678-4105 or email IRB@tc.edu. Or you can write to the IRB at Teachers College, Columbia University, 525 W. 120th Street, New York, NY 10027. Box 151. The IRB is the committee that oversees human research protection for Teachers College, Columbia University.

PARTICIPANT’S RIGHTS

• I have read the Informed Consent Form and have been offered the opportunity to discuss the form with the researcher.
• I have had ample opportunity to ask questions about the purposes, procedures, risks and benefits regarding this research study.
• I understand that my participation is voluntary. I may refuse to participate or withdraw participation at any time without penalty.
• The researcher may withdraw me from the research at his or her professional discretion. I understand that if I take the survey more than once I will be eliminated from the study.
• If, during the course of the study, significant new information that has been developed becomes available which may relate to my willingness to continue my participation, the researcher will provide this information to me.
• Any information derived from the research study that personally identifies me will not be voluntarily released or disclosed without my separate consent, except as specifically required by law.
• I should receive a copy of the Informed Consent Form document. (I understand that I can download it)

My electronic signature means that I agree to participate in this study

Provide your electronic signature:

__________________________________________ Date: ____________
Appendix F

Screening Survey

DETERMINING STUDY PARTICIPATION

1) Are you a nurse?
   ___Yes ___No

2) Have you had direct contact with patients during service delivery in a healthcare setting within the past six months (e.g. hospital or medical center, emergency room, outpatient clinic, outpatient primary care practice office, private practice, mobile medical van, etc…)?
   ___Yes ___No

3) Are you at least 22 years of age?
   ___Yes ___No

4) Are you willing to spend approximately 40 - 45 minutes answering a survey for a chance of winning 1 of 3 $100 Amazon gift card?
   ___Yes ___No

If you answered “No” to any of the above questions, then please STOP here. This study opportunity is not for you. You can forward the survey link to others you know who may meet the study criteria for participation. Please send prospective study participants the following message:

“Go to <https://tinyurl.com/NURSESPressureUlcerSurvey> to take the pressure ulcer survey for nurses for a chance to win 1 of 3 $100 Amazon gift card”
Appendix G

Study Survey

PRESSURE ULCER PREVENTION AND TREATMENT
SURVEY FOR NURSES (PU-PAT-S-FN-101)

Part I: Basic Demographics (BD-12)
1-My gender is:
   a. ___Female   b. ___Male   c. ___Transgender

2-My age is: ____

3-I am currently:
   a. ___Single   b. ___Married   c. ___Separated   d. ___Divorced
   e. ___Widowed   f. ___In Domestic Partnership   g. ___Living with Significant
   Other

4. My race/ethnicity is as follows: (Please check all that apply, or specify as you like.)
   White / Caucasian / European American q
   Black / African American q
   Hispanic / Latino (including Puerto Rican, Mexican, Mexican American, Chicano,
   Cuban, other Spanish) q
   Asian (Asian Indian, Chinese, Filipino, Japanese, Korean, Vietnamese, or other Asian) q
   American Indian / Alaska Native q
   Native Hawaiian / Pacific Islander q
   Arab American / Middle Eastern q
   Other group(s) (specify) q

5-Were you born in the United States?   a. ___Yes   b. ___No
   If you answered “Yes,” what part of the US were you born in?
   City__________________ State__________
   If you answered “No,” please indicate the country in which you were born
   b-1. Country of_______________________________________

6-My yearly household income is:
   $10,000 to $49,000 q
   $50,000 to $99,999 q
   $100,000 to $199,999 q
   $200,000 to $299,000 q
   $300,000 to $399,000 q
   $400,000 to $499,000 q
   $500,000 to $799,000 q
   $800,000 or More q
7-My highest education level/degree obtained is:
   ___Certificate Program
   ___Nursing Diploma.
   ___A.A./A.S
   ___B.S./B.A.
   ___M.A
   ___M.S.N
   ___MPH
   ___MSW
   ___Nurse Practitioner (NP, FNP, ANP, GNP, etc…)
   ___Physician Assistant (PA)
   ___M.D.  (Medical Doctor)
   ___DO (Doctor of Osteopathic Medicine)
   ___DDS (Dentist)
   ___PharnD (Pharmacist)
   ___Ph.D.
   ___Ed.D.
   ___Other (Please explain______________)

8-My current job title is:

   _______________________________________________________

9-My employment status is:  a. ___Full Time      b. ___Part Time      c.__Per Diem
c. ___ Unemployed for a period of ___________
d. ___ Retired for a period of ____________

10-Have you had contact with patients in a healthcare setting within the past 6 months as an employee who was either delivering or observing healthcare?       a. ___Yes
b. ___No [NO → exclude from sample → exit page]

11-In terms of the type of healthcare setting in which I work, it may best be described as a
   ___Hospital or medical center
   ___Skilled nursing facility
   ___Nursing rehabilitation center
   ___emergency room
   ___outpatient medical clinic
   ___outpatient medical primary care practice office
   ___outpatient community clinic
   ___outpatient private practice
   ___outpatient mobile medical van
   ___other (explain)________________
12. I have worked in the field of nursing for a period of
   __1 year or less
   __2-4 years
   __5-7 years
   __8-10 years
   __11-15 years
   __16-20 years
   __21-25 years
   __26-30 years
   __more than 30 years
   __Not applicable/I do not work in the field of nursing

**Part II: Attitudes Regarding Practice Guidelines—**
**Relevance Scale (ARPG-R-5)**

1-There are so many guidelines available that it is nearly impossible to keep up.
   1__Strongly disagree   2__Disagree   3__Disagree Somewhat   4__Neither agree or disagree
   5__Agree Somewhat 6__Agree 7__Strongly Agree

2-I don’t have time to stay informed about available guidelines.
   1__Strongly disagree   2__Disagree   3__Disagree Somewhat   4__Neither agree or disagree

3-Guidelines are too “cookbook” and prescriptive.
   1__Strongly disagree   2__Disagree   3__Disagree Somewhat   4__Neither agree or disagree

4-Generally, practice guidelines are cumbersome and inconvenient.
   1__Strongly disagree   2__Disagree   3__Disagree Somewhat   4__Neither agree or disagree

5-Guidelines are difficult to apply and adapt to my specific practice
   1__Strongly disagree   2__Disagree   3__Disagree Somewhat   4__Neither agree or disagree
   5__Agree Somewhat 6__Agree 7__Strongly Agree

**Part III: More About You (Social Desirability) (MAY-13)**
*Read each item below and decide whether the statement is true or false as it pertains to you personally. Circle T for True or F for false.*

1. It is sometimes hard for me to go on with my work if I am not encouraged.        T  F
2. I sometimes feel resentful when I don’t get my way.                 T  F
3. On a few occasions, I have given up doing something because I thought too little of my ability.                                T  F
4. There have been times when I felt like rebelling against people in authority even though I knew they were right.                  T  F
5. No matter who I’m talking to, I’m always a good listener.              T  F
6. There have been occasions when I took advantage of someone.                          T  F
7. I’m always willing to admit it when I make a mistake.               T  F
8. I sometimes try to get even rather than forgive and forget. T F
9. I am always courteous, even to people who are disagreeable T F
10. I have never been irked when people expressed ideas very different from my own. T F
11. There have been times when I was quite jealous of the good fortune of others. T F
12. I am sometimes irritated by people who ask favors of me. T F
13. I have never deliberately said something to hurt someone’s feelings T F

Part IV: The Pressure Ulcer Prevention and Treatment Survey for Nurses (PU-PAT-S-FN-101)

Instructions:
This part of the survey includes a number of topics on pressure ulcer prevention and treatment, including several behaviors or nursing tasks for that topic. Under each topic and for each behavior or nursing task, you are asked to make ratings, as follows:
(a) your Nursing Training to perform that behavior or nursing task
(b) your Personal Knowledge Level for performing that behavior or nursing task
(c) your Personal Skill/Ability Level for performing that behavior or nursing task:

Please use this rating scale
a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent

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Topic 1- Conducting a Structured Risk Assessment (T1-CSRS-8)
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1-- FOR: Conducting a structured risk assessment as soon as possible, but within a maximum of 8 hours after admission, in order to identify individuals at risk of developing pressure ulcers—and, repeating the risk assessment as often as required by the individual’s acuity.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __5 Excellent
2 -- FOR: Conducting a reassessment if there is any significant change in the individual’s condition.

   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

3--FOR: Including a comprehensive skin assessment as part of every risk assessment to evaluate any alterations to intact skin.

   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

4--FOR: Documenting all risk assessments.

   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

5--FOR: Developing and implementing a risk based prevention plan for individuals identified as being at risk of developing pressure ulcers.

   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
6--FOR: Utilizing a structured approach to risk assessment that is refined through the use of clinical judgment and informed by knowledge of relevant risk factors—and, includes assessment of activity/mobility and skin status.

   a-I rate my Nursing Training for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   b-I rate my Personal Knowledge Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   c-I rate my Personal Skill/Ability Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

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7--FOR: Examining the impact of these factors on one’s risk of developing pressure ulcer: poor nutritional status; perfusion and oxygenation; and increased skin moisture.

   a-I rate my Nursing Training for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   b-I rate my Personal Knowledge Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   c-I rate my Personal Skill/Ability Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

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8--FOR: Examining the potential impact of the following factors on an individual’s risk of pressure ulcer development: increased body temperature; advanced age; sensory perception; hematological measures and; general health status

   a-I rate my Nursing Training for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   b-I rate my Personal Knowledge Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   c-I rate my Personal Skill/Ability Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

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**Topic 2- Adhering to Skin Assessment Policy (T2-ASAP-9)**

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1--FOR: Ensuring that a complete skin assessment is part of the risk assessment screening policy in place in all healthcare settings.

   a-I rate my Nursing Training for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   b-I rate my Personal Knowledge Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent

   c-I rate my Personal Skill/Ability Level for this:
       _ 1 Very Poor  _ 2 Poor  _ 3 Fair  _ 4 Good  _ 5 Excellent
2--FOR: Educating health professionals on how to undertake a comprehensive skin assessment that includes the techniques for identifying blanching response, localized heat, edema, and induration.

   a-I rate my Nursing Training for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Conducting a comprehensive skin assessment for individuals at risk of pressure ulcers: as soon as possible but within 8 hours of admission (or first visit in community settings), as part of every risk assessment, and ongoing based on the clinical setting and the individual’s degree of risk (e.g. deteriorating condition), and prior to the individual’s discharge.

   a-I rate my Nursing Training for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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4--FOR: Inspecting skin for erythema in individuals identified as being at risk of pressure ulceration.

   a-I rate my Nursing Training for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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5--FOR: Differentiating the cause and extent of erythema.

   a-I rate my Nursing Training for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
         _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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6--FOR: Using the finger or the disc method to assess whether skin is blanchable or non-blanchable.

a-I rate my Nursing Training for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

7--FOR: Including the following factors in every skin assessment: skin temperature; edema; and change in tissue consistency in relation to surrounding tissue.

a-I rate my Nursing Training for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

8--FOR: When conducting a skin assessment in an individual with darkly pigmented skin prioritize assessment of: skin temperature; edema; and change in tissue consistency in relation to surrounding tissue.

a-I rate my Nursing Training for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

9--FOR: Assessing localized pain as part of every skin assessment.

a-I rate my Nursing Training for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
b-I rate my Personal Knowledge Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
**Topic 3- Practicing Preventive Skin Care (T3-PPSC-6)**

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1--FOR: Avoiding the positioning of individuals on areas of erythema whenever possible.

   a-I rate my **Nursing Training** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   b-I rate my **Personal Knowledge Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   c-I rate my **Personal Skill/Ability Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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2--FOR: Keeping the skin clean and dry.

   a-I rate my **Nursing Training** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   b-I rate my **Personal Knowledge Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   c-I rate my **Personal Skill/Ability Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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3--FOR: Making sure not to massage or vigorously rub skin that is at risk of pressure ulcers.

   a-I rate my **Nursing Training** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   b-I rate my **Personal Knowledge Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   c-I rate my **Personal Skill/Ability Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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4--FOR: Developing and implementing an individualized continence management plan.

   a-I rate my **Nursing Training** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   b-I rate my **Personal Knowledge Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   c-I rate my **Personal Skill/Ability Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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5--FOR: Protecting the skin from exposure to excessive moisture with a barrier product in order to reduce the risk of pressure damage.

   a-I rate my **Nursing Training** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   b-I rate my **Personal Knowledge Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

   c-I rate my **Personal Skill/Ability Level** for this:
   
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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6--FOR: Considering the use of a skin moisturizer to hydrate dry skin in order to reduce risk of skin damage.
   a-I rate my **Nursing Training** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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**Topic 4 - Including Nutrition in Pressure Ulcer Prevention and Treatment (T4-INPUPT-8)**

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1--FOR: Screening the nutritional status for each individual at risk of or with a pressure ulcer: at admission to a healthcare setting; with each significant change of clinical condition; and/or when progress toward pressure ulcer closure is not observed.
   a-I rate my **Nursing Training** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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2--FOR: Using a valid and reliable nutrition screening tool to determine nutritional risk.
   a-I rate my **Nursing Training** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Referring individuals screened to be at risk of malnutrition and individuals with an existing pressure ulcer to a registered dietitian or an interprofessional nutrition team for a comprehensive nutrition assessment.
   a-I rate my **Nursing Training** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
4--FOR: Assessing the weight status of each individual to determine weight history and identify significant weight loss (≥ 5% in 30 days or ≥ 10% in 180 days).
   a-I rate my Nursing Training for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

5--FOR: Assessing the individual’s ability to eat independently.
   a-I rate my Nursing Training for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

6--FOR: Assessing the adequacy of total nutrient intake (i.e., food, fluid, oral supplements and enteral/parenteral feeds).
   a-I rate my Nursing Training for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

7--FOR: Developing an individualized nutrition care plan for individuals with or at risk of a pressure ulcer.
   a-I rate my Nursing Training for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

8--FOR: Providing individualized energy intake based on underlying medical condition and level of activity.
   a-I rate my Nursing Training for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
Topic 5- Conducting Frequent Repositioning (T5-CFR-26)

---FOR: Repositioning all individuals at risk of, or with existing pressure ulcers, unless contra-indicated—including determining the frequency of repositioning with consideration to the individual’s tissue tolerance, level of activity and mobility, general medical condition, overall treatment objectives, skin condition, and comfort.

a-I rate my Nursing Training for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
b-I rate my Personal Knowledge Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
c-I rate my Personal Skill/Ability Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent

---FOR: Considering the condition of the individual and the pressure redistribution support surface in use when deciding if repositioning should be implemented as a prevention strategy.

a-I rate my Nursing Training for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
b-I rate my Personal Knowledge Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
c-I rate my Personal Skill/Ability Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent

---FOR: Establishing pressure relief schedules that prescribe the frequency and duration of weight shifts.

a-I rate my Nursing Training for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
b-I rate my Personal Knowledge Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
c-I rate my Personal Skill/Ability Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent

---FOR: Repositioning the individual in such a way that pressure is relieved or redistributed—while avoiding the positioning of individuals on bony prominences with existing non-blanchable erythema.

a-I rate my Nursing Training for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
b-I rate my Personal Knowledge Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
c-I rate my Personal Skill/Ability Level for this:
1 Very Poor  2 Poor  3 Fair  4 Good  5 Excellent
5--FOR: Avoiding subjecting the skin to pressure and shear forces.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

6--FOR: Using manual handling aids to reduce friction and shear—and lift and not drag
the individual while repositioning.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

7--FOR: Using a split leg sling mechanical lift when available to transfer an individual
into a wheelchair or bedside chair when the individual needs total assistance to transfer.
Removing the sling immediately after transfer.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

8--FOR: Making sure not to leave equipment for moving and handling the individual
under them after use—unless the equipment is specifically designed for such purpose.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

9--FOR: Avoiding the positioning of individuals directly onto medical devices, such as
tubes, drainage systems or other foreign objects.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
10--FOR: Making sure not to leave the individual on a bedpan longer than necessary.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

11--FOR: Using the 30° tilted side-lying position (alternately, right side, back, left side)
   or the prone position if the individual can tolerate this and her/his medical condition
   allows.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

12--FOR: Encouraging individuals who can reposition themselves to sleep in a 30° to
   40° side-lying position or flat in bed if not contraindicated.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

13--FOR: Avoiding to position individuals in postures that increase pressure, such as the
   90° side-lying position, or the semirecumbent position.
   a-I rate my Nursing Training for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
     __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
14--FOR: Limiting head-of-bed elevation to 30° for an individual on bedrest unless contraindicated by medical condition or feeding and digestive considerations.

a-I rate my **Nursing Training** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

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15--FOR: Avoiding head-of-bed elevation that places pressure and shear on the sacrum and coccyx if sitting in bed is necessary.

a-I rate my **Nursing Training** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

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16--FOR: Using a pressure redistribution surface to offload pressure points on the face and body while in the prone position.

a-I rate my **Nursing Training** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

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17--FOR: Assessing other body areas at each rotation, (i.e., breast region, knees, toes, penis, clavicles, iliac crest, symphysis pubis) that may be at risk when individuals are in the prone position—including the face for facial pressure ulcers.

a-I rate my **Nursing Training** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

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18--FOR: Ensuring that the heels are free of the surface of the bed.

a-I rate my **Nursing Training** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

b-I rate my **Personal Knowledge Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:
   _1 Very Poor_ _2 Poor_ _3 Fair_ _4 Good_ _5 Excellent
19--FOR: Using heel suspension devices that elevate and offload the heel completely in such a way as to distribute the weight of the leg along the calf without placing pressure on the Achilles tendon.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

20--FOR: Using a foam cushion under the full length of the calves to elevate heels.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

21--FOR: Ensuring the patients’ knee is in slight (5° to 10°) flexion.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

22--FOR: Removing the heel suspension device periodically to assess skin integrity.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

23--FOR: Positioning the individual so as to maintain stability and his or her full range of activities.

a-I rate my Nursing Training for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

b-I rate my Personal Knowledge Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

c-I rate my Personal Skill/Ability Level for this:
  __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
24--FOR: Providing adequate seat tilt to prevent sliding forward in the wheelchair or chair, and adjust footrests and armrests to maintain proper posture and pressure redistribution.
   a-I rate my Nursing Training for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

25--FOR: Ensuring that the feet are properly supported either directly on the floor, on a footstool, or on footrests when sitting (upright) in a bedside chair or wheelchair.
   a-I rate my Nursing Training for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

26--FOR: Limiting the time an individual spends seated in a chair without pressure relief.
   a-I rate my Nursing Training for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

Topic 6- Positioning Individuals who have Existing Pressure Ulcers (T6-PIEPU-11)

1--FOR: Making sure not to position an individual directly on a pressure ulcer.
   a-I rate my Nursing Training for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   b-I rate my Personal Knowledge Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
      __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent
2--FOR: Positioning the individual off area(s) of suspected deep tissue injury with intact skin; and, if pressure over the area cannot be relieved by repositioning, consider selecting an appropriate support surface.

a-I rate my Nursing Training for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

b-I rate my Personal Knowledge Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

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3--FOR: Continuing to turn and reposition the individual regardless of the support surface in use. Establishing a turning frequency based on the characteristics of the support surface and the individual’s response.

a-I rate my Nursing Training for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

b-I rate my Personal Knowledge Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

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4--FOR: Inspecting the skin for additional damage each time the individual is turned or repositioned. Making sure not to turn the individual onto a body surface that is damaged or still reddened from a previous episode of pressure loading, especially if the area of redness does not blanch (i.e., Category/Stage I pressure ulcer).

a-I rate my Nursing Training for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

b-I rate my Personal Knowledge Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

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5--FOR: Relieving pressure under the heel(s) with Category/Stage I or II pressure ulcers by placing legs on a pillow to ‘float the heels’ off the bed or by using heel suspension devices.

a-I rate my Nursing Training for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

b-I rate my Personal Knowledge Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor  __2 Poor  __3 Fair  __4 Good  __5 Excellent

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**6--FOR:** For Category/Stage III, IV and unstageable pressure ulcers, placing the leg in a device that elevates the heel from the surface of the bed, completely offloading the pressure ulcer—and, considering a device that also prevents footdrop.

a-I rate my **Nursing Training** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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**7--FOR:** Considering periods of bed rest to promote ischial and sacral ulcer healing.

a-I rate my **Nursing Training** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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**8--FOR:** Sitting should be limited to three times a day in periods of 60 minutes or less if sitting in a chair is necessary for individuals with pressure ulcers on the sacrum/coccyx or ischia; and, consulting a seating specialist to prescribe an appropriate seating surface and/or positioning techniques to avoid or minimize pressure on the ulcer should be considered.

a-I rate my **Nursing Training** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

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**9--FOR:** Making sure to avoid seating an individual with an ischial ulcer in a fully erect posture (in chair or bed).

a-I rate my **Nursing Training** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

b-I rate my **Personal Knowledge Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent

c-I rate my **Personal Skill/Ability Level** for this:

__1 Very Poor  __2 Poor  __3 Fair  __4 Good __ 5 Excellent
10--FOR: Making sure to modify sitting time schedules and re-evaluating the seating surface and the individual’s posture if the ulcer worsens or fails to improve.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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11--FOR: Recording the repositioning regimes, specifying frequency and position adopted, and including an evaluation of the outcome of the repositioning regimen.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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Topic 7 - Positioning Devices for Pressure Ulcers (T7-PDPU-1)

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1--FOR: Avoiding the use of the following ‘devices,’ for example, to elevate heels: cutout, ring, or donut-type devices; intravenous fluid bags; water-filled gloves; or synthetic sheepskin pads (while natural sheepskin pads might assist in preventing pressure ulcers)

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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Topic 8 - Including Mobility in Pressure Ulcer Prevention and Treatment (T8-IMPUPT-2)

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1--FOR: Developing a schedule for progressive sitting according to the individual’s tolerance and pressure ulcer response.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
**2--FOR:** Increasing activity as rapidly as tolerated.

a-I rate my Nursing Training for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Knowledge Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

c-I rate my Personal Skill/Ability Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

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**Topic 9 - Selecting Appropriate Support Surfaces and Usage (T9-SASSU-6)**

**1--FOR:** Choosing a support surface that is compatible with the care setting; and, examining the appropriateness and functionality of the support surface on every encounter with the individual.

a-I rate my Nursing Training for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Knowledge Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Skill/Ability Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

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**2--FOR:** Making sure to identify and prevent potential complications of support surface use.

a-I rate my Nursing Training for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Knowledge Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Skill/Ability Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

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**3--FOR:** Limiting the amount of linen and pads placed on the bed with the support surface.

a-I rate my Nursing Training for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Knowledge Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent

b-I rate my Personal Skill/Ability Level for this:

1 Very Poor  
2 Poor  
3 Fair  
4 Good  
5 Excellent
4--FOR: Use an active support surface (overlay or mattress) for individuals at higher risk of pressure ulcer development when frequent manual repositioning is not possible.
   a-I rate my Nursing Training for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

5--FOR: Using a high specification reactive foam mattress or nonpowered pressure redistribution support surface for individuals with Category/Stage I and II pressure ulcers.
   a-I rate my Nursing Training for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

6--FOR: Selecting a support surface that provides enhanced pressure redistribution, shear reduction, and microclimate control for individuals with Category/Stage III, IV, and unstageable pressure ulcers—or with suspected deep tissue injury
   a-I rate my Nursing Training for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

Topic 10- Seating Support Surfaces to Prevent Pressure Ulcers (T10-SSSPPU-3)

1--FOR: Selecting a stretchable/breathable cushion cover that fits loosely on the top surface of the cushion and is capable of conforming to the body contours.
   a-I rate my Nursing Training for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
2--FOR: Assessing the cushion and cover for heat dissipation; and, selecting a cushion and cover that permit air exchange to minimize temperature and moisture at the buttock interface.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Using a pressure redistributing seat cushion for individuals sitting in a chair whose mobility is reduced.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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Topic 11- Seating Support Surfaces for Individuals with Existing Pressure Ulcers (T-11-SSSIEPU-3)

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1--FOR: Referring individuals to a specialist seating professional for evaluation if sitting is unavoidable.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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2--FOR: Selecting a cushion that effectively redistributes the pressure away from the pressure ulcer.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Using alternating pressure seating devices judiciously for individuals with existing pressure ulcers; and, weighing the benefits of off-loading against the potential for instability and shear based on the construction and operation of the cushion.

   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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**Topic 12- Preventing Medical Device Related Pressure Ulcers (T12-PMDRPU-9)**

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1--FOR: Inspecting the skin under and around medical devices at least twice daily for the signs of pressure related injury on the surrounding tissue.

   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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2--FOR: Removing medical devices that are potential sources of pressure as soon as medically feasible.

   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Keeping skin clean and dry under medical devices.

   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
4--FOR: Repositioning the individual and/or the medical device to redistribute pressure and decrease shear forces.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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5--FOR: Making sure not to position the individual directly on a medical device unless it cannot be avoided.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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6--FOR: Repositioning the individual to redistribute pressure and shear forces created by the medical device.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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7--FOR: Rotating or repositioning medical devices when possible.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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8--FOR: Providing support for medical devices as needed to decrease pressure and shear forces.

a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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9--FOR: Considering the use of a prophylactic dressing for the prevention of medical device related pressure ulcers.
   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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**Topic 13- Conducting Pressure Ulcer Assessment (T13-CPUA-9)**

1--FOR: Assessing the pressure ulcer initially and re-assessing it at least weekly
   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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2--FOR: Conducting an initial assessment, including factors that may affect healing such as impaired perfusion, impaired sensation, systemic infection, nutrition and pain related to pressure ulcers.
   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent

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3--FOR: Reassessing the individual, the pressure ulcer and the plan of care if the ulcer does not show signs of healing within 2 weeks despite appropriate local wound care, pressure redistribution, and nutrition.
   a-I rate my Nursing Training for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _1 Very Poor _2 Poor _3 Fair _4 Good _5 Excellent
4--FOR: Observing the pressure ulcer for signs that indicate a change in treatment is required (e.g., wound improvement, wound deterioration, more or less exudate, signs of infection, or other complications) with each dressing change.
   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

5--FOR: Assessing and documenting physical characteristics of the wound, including:
   location, Category/Stage, size, tissue type(s), color, periwound condition, wound edges,
   sinus tracts, undermining, tunneling, exudate, and odor.
   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

6--FOR: Selecting a uniform, consistent method for measuring wound length and width
   or wound area to facilitate meaningful comparisons of wound measurements across time.
   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent

7--FOR: Using the findings of a pressure ulcer assessment to plan and document interventions that will best promote healing.
   a-I rate my Nursing Training for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   b-I rate my Personal Knowledge Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
       __1 Very Poor __2 Poor __3 Fair __4 Good __ 5 Excellent
8--FOR: Using clinical judgment to assess signs of healing such as decreasing amount of exudate, decreasing wound size, and improvement in wound bed tissue.
   a-I rate my Nursing Training for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent

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9--FOR: Considering the use of baseline and serial photographs to monitor pressure ulcer healing over time.
   a-I rate my Nursing Training for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent
   b-I rate my Personal Knowledge Level for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent
   c-I rate my Personal Skill/Ability Level for this:
   _______1 Very Poor _______2 Poor _______3 Fair _______4 Good _______5 Excellent

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Appendix H

Pressure Ulcer Prevention and Treatment Guidelines

*These guidelines were formulated by the National Pressure Ulcer Advisory Panel (NPUAP), European Pressure Ulcer Advisory Panel (EPUAD), and the Pan Pacific Pressure Injury Alliance (PPPIA)—as put forth in the publication by the NPUAP (2014), the guidelines are as follows:

**Recommendation on Structured Risk Assessment**

- A structured risk assessment should be conducted as soon as possible once a patient is admitted (the maximum recommended time is within eight but with the maximum of eight hours of admission) in order to identify those individuals who are at risk of developing pressure ulcers.
- Repeat the risk assessment as often as required by the individual’s acuity.
- Undertake a reassessment if there is any significant change in the individual’s condition.
- Include a comprehensive skin assessment as part of every risk assessment to evaluate any alterations to intact skin.
- Document all risk assessments.
- Develop and implement a risk based prevention plan for individuals identified as being at risk of developing pressure ulcers.
- Use a structured approach to risk assessment that is refined through the use of clinical judgment and informed by knowledge of relevant risk factors.
- Use a structured approach to risk assessment that includes assessment of activity/mobility and skin status.
- Examine the impact of these factors on ones risk of developing pressure ulcer: poor nutritional status; perfusion and oxygenation; and increased skin moisture.
- Examine the potential impact of the following factors on an individual’s risk of pressure ulcer development: increased body temperature; advanced age; sensory perception; hematological measures and; general health status

**Recommendations for Skin Assessment Policy**

- Ensure that a complete skin assessment is part of the risk assessment screening policy in place in all healthcare settings.
- Educate health professionals on how to undertake a comprehensive skin assessment that includes the techniques for identifying blanching response, localized heat, edema, and induration.
• In individuals at risk of pressure ulcers, conduct a comprehensive skin assessment: as soon as possible but within eight hours of admission (or first visit in community settings), as part of every risk assessment, ongoing based on the clinical setting and the individual’s degree of risk, and prior to the individual’s discharge.
• Increase the frequency of skin assessments in response to any deterioration in overall condition.
• Inspect skin for erythema in individuals identified as being at risk of pressure ulceration.
• Differentiate the cause and extent of erythema.
• Use the finger or the disc method to assess whether skin is blanchable or non-blanchable.
• Include the following factors in every skin assessment: skin temperature; edema; and change in tissue consistency in relation to surrounding tissue.
• When conducting a skin assessment in an individual with darkly pigmented skin prioritize assessment of: skin temperature; edema; and change in tissue consistency in relation to surrounding tissue.
• Assess localized pain as part of every skin assessment.
• Inspect the skin under and around medical devices at least twice daily for the signs of pressure-related injury on the surrounding tissue.

Recommendations on Preventative Skin care

• Avoid positioning the individual on an area of erythema whenever possible.
• Keep the skin clean and dry.
• Do not massage or vigorously rub skin that is at risk of pressure ulcers.
• Develop and implement an individualized continence management plan.
• Protect the skin from exposure to excessive moisture with a barrier product in order to reduce the risk of pressure damage.
• Consider using a skin moisturizer to hydrate dry skin in order to reduce risk of skin damage.

Recommendations on Nutrition and Pressure Ulcer Prevention and Treatment

• Screen nutritional status for each individual at risk of or with a pressure ulcer: at admission to a healthcare setting; with each significant change of clinical condition; and/or when progress toward pressure ulcer closure is not observed.
• Use a valid and reliable nutrition screening tool to determine nutritional risk.
• Refer individuals screened to be at risk of malnutrition and individuals with an existing pressure ulcer to a registered dietitian or an interprofessional nutrition team for a comprehensive nutrition assessment.
• Assess the weight status of each individual to determine weight history and identify significant weight loss (≥ 5% in 30 days or ≥ 10% in 180 days).
• Assess the individual’s ability to eat independently.
• Assess the adequacy of total nutrient intake (i.e., food, fluid, oral supplements and enteral/parenteral feeds).
• Develop an individualized nutrition care plan for individuals with or at risk of a pressure ulcer.
• Provide individualized energy intake based on underlying medical condition and level of activity.

Recommendations on Repositioning

• Reposition all individuals at risk of, or with existing pressure ulcers, unless contra-indicated.
• Consider the condition of the individual and the pressure redistribution support surface in use when deciding if repositioning should be implemented as a prevention strategy.
• Consider the pressure redistribution support surface in use when determining the frequency of repositioning.
• Determine repositioning frequency with consideration to the individual’s: tissue tolerance, level of activity and mobility, general medical condition, overall treatment objectives, skin condition, and comfort.
• Establish pressure relief schedules that prescribe the frequency and duration of weight shifts.
• Regularly assess the individual’s skin condition and general comfort. Reconsider the frequency and method of repositioning if the individual is not responding as expected to the repositioning regime.
• Reposition the individual in such a way that pressure is relieved or redistributed.
• Avoid positioning the individual on bony prominences with existing non-blanchable erythema.
• Avoid subjecting the skin to pressure and shear forces.
• Use manual handling aids to reduce friction and shear. Lift — don’t drag — the individual while repositioning.
• Use a split leg sling mechanical lift when available to transfer an individual into a wheelchair or bedside chair when the individual needs total assistance to transfer. Remove the sling immediately after transfer.
• Do not leave moving and handling equipment under the individual after use, unless the equipment is specifically designed for this purpose.
• Avoid positioning the individual directly onto medical devices, such as tubes, drainage systems or other foreign objects.
• Do not leave the individual on a bedpan longer than necessary.
• Use the 30° tilted side-lying position (alternately, right side, back, left side) or the prone position if the individual can tolerate this and her/his medical condition allows.
• Encourage individuals who can reposition themselves to sleep in a 30° to 40° side-lying position or flat in bed if not contraindicated.
• Avoid lying postures that increase pressure, such as the 90° side-lying position, or the semirecumbent position.
• Limit head-of-bed elevation to 30° for an individual on bedrest unless contraindicated by medical condition or feeding and digestive considerations.
• If sitting in bed is necessary, avoid head-of-bed elevation or a slouched position that places pressure and shear on the sacrum and coccyx.
• Use a pressure redistribution surface to offload pressure points on the face and body while in the prone position.
• At each rotation, assess other body areas (i.e., breast region, knees, toes, penis, clavicles, iliac crest, symphysis pubis) that may be at risk when individuals are in the prone position.
• At each rotation, assess individuals placed in the prone position for evidence of facial pressure ulcers.
• Ensure that the heels are free of the surface of the bed.
• Use heel suspension devices that elevate and offload the heel completely in such a way as to distribute the weight of the leg along the calf without placing pressure on the Achilles tendon.
• Use a foam cushion under the full length of the calves to elevate heels.
• The knee should be in slight (5° to 10°) flexion.
• Remove the heel suspension device periodically to assess skin integrity.
• Position the individual so as to maintain stability and his or her full range of activities.
• Select a seated posture that is acceptable for the individual and minimizes the pressures and shear exerted on the skin and soft tissues.
• Provide adequate seat tilt to prevent sliding forward in the wheelchair or chair, and adjust footrests and armrests to maintain proper posture and pressure redistribution.
• Ensure that the feet are properly supported either directly on the floor, on a footstool, or on footrests when sitting (upright) in a bedside chair or wheelchair.
• Limit the time an individual spends seated in a chair without pressure relief.

Recommendations on Positioning Individuals Who Have Existing Pressure Ulcers

• Do not position an individual directly on a pressure ulcer.
• Position the individual off area(s) of suspected deep tissue injury with intact skin. If pressure over the area cannot be relieved by repositioning, select an appropriate support surface.
• Continue to turn and reposition the individual regardless of the support surface in use. Establish turning frequency based on the characteristics of the support surface and the individual’s response.
• Inspect the skin for additional damage each time the individual is turned or repositioned. Do not turn the individual onto a body surface that is damaged or still reddened from a previous episode of pressure loading, especially if the area of redness does not blanch (i.e., Category/Stage I pressure ulcer).
• Relieve pressure under the heel(s) with Category/Stage I or II pressure ulcers by placing legs on a pillow to ‘float the heels’ off the bed or by using heel suspension devices.
• For Category/Stage III, IV and unstageable pressure ulcers, place the leg in a device that elevates the heel from the surface of the bed, completely offloading the pressure ulcer. Consider a device that also prevents footdrop.
• Minimize seating time and consult a seating specialist if pressure ulcers worsen on the seating surface selected.
• Consider periods of bed rest to promote ischial and sacral ulcer healing.
• If sitting in a chair is necessary for individuals with pressure ulcers on the sacrum/coccyx or ischia, limit sitting to three times a day in periods of 60 minutes or less. Consult a seating specialist to prescribe an appropriate seating surface and/or positioning techniques to avoid or minimize pressure on the ulcer.
• Avoid seating an individual with an ischial ulcer in a fully erect posture (in chair or bed).
• Modify sitting time schedules and re-evaluate the seating surface and the individual’s posture if the ulcer worsens or fails to improve.
• Record repositioning regimes, specifying frequency and position adopted, and include an evaluation of the outcome of the repositioning regime.
Recommendations on Positioning Devices

- Do not use ring or donut-shaped devices.
- The following ‘devices’ should not be used to elevate heels: synthetic sheepskin pads; cutout, ring, or donut-type devices; intravenous fluid bags; and water-filled gloves.
- Natural sheepskin pads might assist in preventing pressure ulcers.

Recommendations on Mobility

- Develop a schedule for progressive sitting according to the individual’s tolerance and pressure ulcer response.
- Increase activity as rapidly as tolerated.

Recommendations for Support Surfaces

- Select a support surface that meets the individual’s needs. Consider the individual’s need for pressure redistribution based on following factors: level of immobility and inactivity; need for microclimate control and shear reduction; size and weight of the individual; risk for development of new pressure ulcers; and number, severity, and location of existing pressure ulcer(s).
- Choose a support surface that is compatible with the care setting.
- Examine the appropriateness and functionality of the support surface on every encounter with the individual.
- Identify and prevent potential complications of support surface use.
- Verify that the support surface is being used within its functional life span, as indicated by the manufacturer’s recommended test method (or other industry recognized test method) before use of the support surface.
- Continue to reposition individuals placed on a pressure redistribution support surface.
- Choose positioning devices and incontinence pads, clothing and bed linen that are compatible with the support surface. Limit the amount of linen and pads placed on the bed.
- Use a high specification reactive foam mattress rather than a non high specification reactive foam mattress for all individuals assessed as being at risk for pressure ulcer development.
- Review the characteristics of foam mattresses used in the facility for pressure ulcer prevention to ensure they are high specification.
• Use an active support surface (overlay or mattress) for individuals at higher risk of pressure ulcer development when frequent manual repositioning is not possible.
• Consider using a high specification reactive foam mattress or nonpowered pressure redistribution support surface for individuals with Category/Stage I and II pressure ulcers.
• Select a support surface that provides enhanced pressure redistribution, shear reduction, and microclimate control for individuals with Category/Stage III, IV, and unstageable pressure ulcers.
• Select a support surface that provides enhanced pressure redistribution, shear reduction, and microclimate control for individuals with suspected deep tissue injury if pressure over the area cannot be relieved by repositioning.

**Recommendations on Seating Support Surfaces In Order to Prevent Pressure Ulcers**

• Select a stretchable/breathable cushion cover that fits loosely on the top surface of the cushion and is capable of conforming to the body contours.
• Assess the cushion and cover for heat dissipation. Select a cushion and cover that permit air exchange to minimize temperature and moisture at the buttock interface.
• Use a pressure redistributing seat cushion for individuals sitting in a chair whose mobility is reduced.

**Recommendations on Seating Support Surfaces for Individuals With Existing Pressure Ulcers**

• Refer individuals to a specialist seating professional for evaluation if sitting is unavoidable.
• Select a cushion that effectively redistributes the pressure away from the pressure ulcer.
• Use alternating pressure seating devices judiciously for individuals with existing pressure ulcers. Weigh the benefits of off-loading against the potential for instability and shear based on the construction and operation of the cushion.
Recommendations on How to Prevent Medical Device Related Pressures Ulcers

- Inspect the skin under and around medical devices at least twice daily for the signs of pressure related injury on the surrounding tissue.
- Remove medical devices that are potential sources of pressure as soon as medically feasible.
- Keep skin clean and dry under medical devices.
- Reposition the individual and/or the medical device to redistribute pressure and decrease shear forces.
- Do not position the individual directly on a medical device unless it cannot be avoided.
- Reposition the individual to redistribute pressure and shear forces created by the medical device.
- Rotate or reposition medical devices when possible.
- Provide support for medical devices as needed to decrease pressure and shear forces.
- Consider using a prophylactic dressing for preventing medical device related pressure ulcers.

Pressure Ulcer Assessment

- Complete a comprehensive initial assessment of the individual with a pressure ulcer. An initial assessment includes factors that may affect healing (e.g., impaired perfusion, impaired sensation, systemic infection); Nutrition and Pain related to pressure ulcers.
- Assess the pressure ulcer initially and re-assess it at least weekly.
- Expect some signs of pressure ulcer healing within two weeks.
- Reassess the individual, the pressure ulcer and the plan of care if the ulcer does not show signs of healing as expected despite appropriate local wound care, pressure redistribution, and nutrition.
- With each dressing change, observe the pressure ulcer for signs that indicate a change in treatment is required (e.g., wound improvement, wound deterioration, more or less exudate, signs of infection, or other complications).
- Assess and document physical characteristics including: location, Category/Stage, size, tissue type(s), color, periwound condition, wound edges, sinus tracts, undermining, tunneling, exudate, and odor.
- Select a uniform, consistent method for measuring wound length and width or wound area to facilitate meaningful comparisons of wound measurements across time.
• Use the findings of a pressure ulcer assessment to plan and document interventions that will best promote healing.
• Use clinical judgment to assess signs of healing such as decreasing amount of exudate, decreasing wound size, and improvement in wound bed tissue.
• Consider using baseline and serial photographs to monitor pressure ulcer healing over time.
Appendix I

Independent T-tests Comparing Subjects Who Completed the Survey
Versus Those Who Did Not

Independent T-Tests comparing subjects who completed the survey versus those who did not.

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Appendix J

Internal Consistency of Study Scales

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