Use of Sacral Mepilex in Preventing Pressure Ulcers in the ICU Patient:

An Evidence-Based Project

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**Introduction**

**Problem**

Patients in the Intensive Care Unit (ICU) setting are at an increased risk of acquiring pressure ulcers. Pressure ulcers, also known as pressure sores, bedsores or decubitus ulcers (McCance & Huether, 2010), can be defined as “lesions caused by unrelieved pressure resulting in damage of underlying tissue” (p. 1647). The risk of developing pressure ulcers is increased in the ICU population as these patients spend the majority of their stay in bed, increasing the exposure to “friction,” “shear,” “moisture” and “pressure” (McCance & Huether, 2010, p. 1647), the factors that lead to pressure ulcer formation. According to Kaitani, Tokunaga, Matsui, and Sanada (2010), up to 40% of patients in a critical care setting develop pressure ulcers. The cost of care to those patients who develop a pressure ulcer while in the hospital critical care setting is immense in the United States of America alone. Due to changes accompanying healthcare reform, patients who develop ulcers may not be covered by medical insurance. This results in additional cost of care to the patient and facility. Additionally, pressure ulcers result in an increased length of stay, increased morbidity and mortality, and increased suffering for the patient (Elliot, McKinley & Fox, 2008). Pressure ulcer prevention is necessary in the ICU patient.   
**Purpose**

Patients must be assessed for their risk of pressure ulcer formation on admission to the hospital. This is necessary in order to develop a tailored plan of care focusing on pressure ulcer preventive strategies. Identifying risk factors for the Inpatient can decrease hospital stay and out of pocket cost to the patient. While the use of appropriate skin care techniques such as repositioning, reducing friction and shear, and pressure relieving mattresses may reduce the risk of pressure ulcers, pressure ulcers can still develop (McCance & Huether, 2010). Because of this, additional measures should be considered. In effort to reduce the incidence of pressure ulcers, select ICUs in the Midwest have recently begun placing sacral mepilex on the lower back region of patients when they are admitted. This dressing provides a moisture proof barrier to the skin that does not allow bacteria or viruses to penetrate (Molnlycke Health Care, 2011), reducing the moisture component that promotes pressure ulcer formation. The purpose of this evidence-based project is to determine if Mepilex sacral border dressings successfully reduce the risk of pressure ulcers in the ICU.

**Background description of topic**

Pressure ulcers remain “one of the five most common causes of harm to patients” (Elliott, McKinley, & Fox, 2008, p. 329), and can lead to significant morbidity and mortality for patients. Furthermore, "it is estimated that 5% of the total ICU budget is spent on the prevention and treatment of pressure ulcers, and that the nursing workload increases by around 50% once the ulcer develops" (Compton et al., 2008 p. 417). Pressure ulcers are staged depending on the levels of tissue affected. These levels include “‘Stage I: Non-blanchable erythema’, ‘Stage II: Partial thickness’, ‘Stage III: Full thickness skin loss’, ‘Stage IV: Full thickness tissue loss’, ‘Unstageable/Unclassified: Full thickness skin or tissue loss-depth unknown’, and ‘Suspected deep tissue injury: depth unknown"' (National Pressure Ulcer Advisory Panel, 2009, pp. 8-9). Because of the varying levels of tissue damage that can occur, prevention methods are essential. These methods may include turning the patient at least every four hours, floating heels with pillows under legs, using specialty sacrum padding (Mepilex), and utilizing specialty mattresses, which can prevent pressure ulcer formation. Furthermore the methods of prevention are largely the responsibility of the nursing staff.   
 **Theory/model description and connection to PICO (T)**

Many models have been identified in order to maintain or improve holistic patient care. . For instance, Levine’s Conservation Model (1973) can be used as a theoretical framework for wound management. Levine’s model identifies the importance of maintaining “the wholeness of the individual” the patient’s personal integrity, worth, self-esteem and physical body (Alligood & Tomey, 2010, p. 299). The nurse is challenged to provide the individual with appropriate care while respecting the individual’s integrity.

“Conservation of structural integrity” (Alligood & Tomey, 2010, p. 229), a focus of Levine’s conservational model, relates to this evidence based research. "Healing is a process of restoring structural and functional integrity through conservation in defense of wholeness" (Alligood & Tomey, 2010, p. 229). Nursing’s role is to maintain or re-establish skin integrity to ICU patients by preventing physical breakdown to the body and promote healing. Nursing can help limit the amount of tissue damaged through detailed assessment and identification of risk factors on admission (Alligood & Tomey, 2010). Evaluation tools, such as the Braden Scale, assist in determining a patient’s risk for impaired skin integrity and developing a pressure ulcer (Braden & Maklebust, 2005). The Braden Scale allows for identification of the patient’s risk level for pressure ulcer development based on “sensory perception, mobility, activity, moisture and nutrition” (Braden & Makelbust, 2005, p. 70). The categories of the Braden Scale are scored based on patient findings and allow clinicians to identify the amount of attention that should be focused toward preventative skin care measures for a patient (Braden & Makelbust, 2005). Using the results of this scale, high risk patients that may benefit from the application of sacral mepilex on admission to the hospital setting can be identified.

**Significance of the topic/Overall importance**

The prevention of pressure ulcers is essential in the hospital setting. From a patient perception, pressure ulcers “increase a patient’s length of stay, morbidity, and cost,” as well as decrease a patient’s overall “quality of life” (Campbell, Woodbury, & Houghton, 2010, p. 28). In October of 2008, the Centers for Medicare and Medicaid Services (CMS) stopped providing financial reimbursement to hospitals for pressure ulcers developed within the hospital (United States Department of Health and Human Services, 2011, para 1). Nursing staff must document an existing pressure ulcer within 48 hours of the patient arriving to the facility or the cost for treating this wound will not be repaid to the facility (Meehan, 2009). Most pressure ulcers can be prevented when appropriate risk factors are recognized and actions are taken (Lavrencic, 2011, p. 6). Typical pressure ulcer prevention methods include adequate positioning, nutritional status, and repositioning. In addition, new techniques such as additional skin barriers are being examined for effectiveness.  
**PICOT**

In an attempt to further reduce the incidence of pressure ulcers in ICU Patients, the following PICOT will be addressed. (P) In Adult Intensive Care Unit patients, (I) does the application of Sacral Mepilex (or like dressing) to lower back/coccyx/sacral area, (C) when compared to no use of Sacral Mepilex on the lower back/coccyx/sacral area, (O) lead to a decreased incident of pressure ulcer formation in the coccyx/sacral area (T) throughout the patient’s ICU stay.  
**Setting(s) Discussion**

Patients in the ICU are at a greater risk for pressure ulcers than the general population (*American Journal of Critical Care*, 2008). While these patients are not always immobilized, they are sedated, lack proper nutrition, typically are of an advanced age, and lack appropriate sensation (American Journal of Critical Care, 2008). All of these risk factors can lead to an increased prevalence of pressure ulcers. Because of the increased risk for pressure ulcers development in the ICU, the use of sacral mepilex will be examined as a method to prevent pressure ulcers.

**Stakeholders Discussion**

Numerous stakeholders can be identified for this question. The National Pressure Ulcer Advisory Panel (1992) states “Responsibility for pressure ulcer prevention is shared by health care professionals, bedside caregivers, patients, and families (Para 7).” Patients are of primary concern and their skin should be protected with any method possible in order to prevent skin breakdown. Patients do not want to have an increased length of stay, increased medical cost, or the increased pain associated with the pressure ulcer. Nursing staff would also be prime stakeholders. Lovins and Boliek (2008) state “Never in the history of the profession have the basics of nursing care been more relevant to positive patient outcomes than now (Para 1).” Nursing is responsible for assuring their patients are cared for appropriately. Additionally, nursing has the opportunity to control numerous aspects of patients skin care. Physicians would also be major stakeholders. As patients develop pressure ulcers, the length of stay increases. With increased length of stay, the patient becomes more complicated, has an increased risk for infection and requires more personnel to attempt to heal the sore.

Hospitals, in general, would be major stakeholders due to the funding aspect. Insurance companies that pay for pressure ulcer care could also be stakeholders, as they would prefer to not pay to treat the pressure ulcer, but rather prevent it.

**Potential/Actual cost benefits/effectiveness**

The cost of treating a patient with a hospital acquired pressure ulcer is estimated to range from “$2,000 to $70,000 per wound” (Courtney, Ruppman, & Cooper, 2006, p. 1). These numbers pale in comparison to the estimated national costs of “$1.3 and $3.5 billion annually” for treatment (Courtney, Ruppman, & Cooper, 2006, p. 1). Since a pressure ulcer can range from an area of reddened skin that can be healed with a minimal intervention, to an ulcer that develops and causes septicemia and possibly death, the price for treatments vary significantly. With effective interventions, such as the sacral mepilex which cost $22 online, one can assume the cost of prevention far outweighs the cost of treatment (Metro Medical Online, 2011).

**Desired outcomes for specific (your) setting**

The desired outcome for this evidence-based project is to analyze the literature and determine if the mepilex can reduce the incidence of pressure ulcers in the ICU patient.

1. **Search Plan Method**

**Search Methods**

Evidence-based research and nursing practice relies heavily on the most accurate and current information available. Library databases, which provide current information and up-to-date research results, can be extremely helpful in finding appropriate research (Melnyk & Fineout-Overholt, 2011). Textbooks can also be utilized to provide basic information; however the information may not be as current as journals nor are these an appropriate source for research. To supplement for this shortcoming, current journal articles should also be considered (Melnyk & Fineout-Oveholt, 2011). Because numerous databases and sources can provide a diversity of information, various methods of obtaining evidence were utilized for this PICOT. The PICOT search was completed using a library computer search, a web-based search and a hand search of current nursing literature. The initial computer search was completed using of the Cumulative Index to Nursing and Allied Health Literature (CINAHL) Plus with Full Text database. As Melnyk & Fineout-Overholt (2011) discuss, databases such as CINAHL “contain the largest number and widest variation of articles describing clinical research” (p. 45). Once again to assure current information was obtained, a Google Scholar Internet search was also completed. This search was then complemented with a hand search of the 2011 journal *Critical Care Nurse*. This journal was identified because of the link to the population in this evidence-based research. These three methods were utilized to obtain the most comprehensive and current search on literature surrounding the PICOT.

**Database Search Terms and Strategy**

The search terms utilized in the CINHAL Plus with Full Text included: (P) Adult, intensive care unit, hospitalized patient, patient, inpatient, (I) mepilex, sacral dressing, coccyx dressing, pressure dressing, foam dressing, back dressing, (O) pressure ulcer and pressure sore (see Table 1).

T**able 1. PICOT Search Terms**

|  |  |  |  |
| --- | --- | --- | --- |
| **P** | **I** | **C** | **O** |
| Adult\* | Mepilex\* | (none entered) | Pressure Ulcer\* |
| OR | OR |  | OR |
| Intensive Care Unit\* (and ICU) | Sacral N4 Dressing\* |  | Pressure Sore\* |
| OR | OR |  |  |
| Hospitalized Patient | Coccyx N4 Dressing\* |  |  |
| OR | OR |  |  |
| Patient or Inpatient | Pressure N4 Dressing\* |  |  |
|  | OR |  |  |
|  | Foam N4 Dressing\* |  |  |
|  | OR |  |  |
|  | Back N4 Dressing\* |  |  |

**\* truncation**

The search terms for the Population were first entered into the CINAHL Plus with Full Text database. The key words of “Adult,” “Inpatients,” and “Intensive Care Unit” were entered. The method of truncation was also used for each of the terms to include various endings for the search term. For example Adult\* was expected to yield results of Adult or Adults. Next, a Boolean search was completed utilizing the word “or” to identify the possible population results. This Boolean search yielded 514448 results.

The intervention was the next topic that was entered into the CINAHL database. The key terms “Mepilex,” “Sacral Dressing,” “Coccyx Dressing,” “Pressure Dressing,” “Foam Dressing,” and “Back Dressing” were entered into the database. A proximity search was completed for the key words coccyx dressing, pressure dressing, foam dressing, and back dressing. The term “N4” was entered between the two key words in each search. The results that were expected included any article in which the two words of the search were anywhere within four words of one another in an article. After these individual results were obtained, a Boolean search was completed using the operator “or” and yielded a total of 2279 results. The comparison group was not entered due to the nature of this PICOT.

The outcome search was then completed. The key term “Pressure Ulcer” was searched as a main heading. Additionally the search term “Pressure Sore” was entered. A Boolean search was again completed using the Boolean operator “or.” This produced a total of 14952 results. A Boolean search was then completed to combine all of the search terms. The results from the Population, Intervention and Outcome search were combined utilizing the Boolean operator “and” to assure articles would be relevant to the PICOT. This allowed for 205 results.

Limiters were then placed on the search. These limiters included articles published between 2000 and 2011, the articles must be peer reviewed, a research article, and in English. With the limiters set, 67 articles were identified that met criteria, while 138 articles were excluded due to being older than 2000, not peer reviewed, not a research article or in a language other than English.

The web-based search was next completed using Google Scholar. The key terms Sacral mepilex and pressure ulcer were entered. This search produced 24 articles. Limiters were then set including articles published between 2000 and 2011, written in English, and appropriate correlation to the PICOT. Twenty-three articles were excluded based on this criteria while one article met criteria for the PICOT. Critical Care Nurse (2011) was then searched by hand. Of the five articles in this journal, four were excluded due to inadequate correlation to the PICOT. One article met inclusion criteria. Appendix A provides a graphic of the results of this search. These results were further evaluated and excluded based upon irrelevance to the PICOT.

**Inclusion/Exclusion Criteria**

Inclusion criteria included articles from the CINAHL database that were peer reviewed, research article, and English Language. Additionally, articles were examined from 2000 to present. Exclusion criteria included articles that were not peer reviewed those that were not research articles, older than 2000, and those in a language other than English. Articles were further searched based upon relevance to the PICOT. Those articles that pertained to the PICOT were included, while those that were irrelevant were excluded. Inclusion criteria for the Google Scholar search included articles from 2000 to present.

**Articles Meeting Criteria**

The CINAHL database search established sixty seven articles to be reviewed. Twenty two articles were further excluded due to inadequate correlation to setting (outside of intensive care unit) and/or body area. Thirty-five were excluded due to inadequate correlation to intervention (sacral dressing) or outcomes (decreased incidence of pressure ulcer formation). After all exclusion criteria were applied, three articles from the CINAHL database were left for critical appraisal.

The Google Scholar search resulted in 24 articles that were excluded based on inadequate correlation to the PICOT, languages other than English, and overly specific patient populations. Of these, one article was appropriate as this article discussed sacral Mepilex as a method to prevent pressure ulcer formation. The hand search of *Critical Care Nurse* (2011) revealed five total articles, one article which fit inclusion criteria. Four articles were excluded because of irrelevance to the PICOT.

**Critical Appraisals**

Critical appraisals were completed on five articles that met the search criteria for the PICOT question. The level of evidence table established by Polit and Beck (2008) was used to analyze and rank each article depending on the strength of evidence. Critical appraisals were completed on these articles to identify the validity, reliability, adaptability and trustworthiness of the articles as well as the significance the studies may have to the PICOT. Each article has noted areas of strength and weakness. The articles appraised look at various factors related to pressure ulcer development.

**Critical Appraisals of Individual Studies**

**Study One: Incidence, prevention and treatment of pressure ulcers in intensive care patients: A longitudinal study.**

Shahin, Dassen, and Halfens (2009) completed a level VI quantitative longitudinal study identifying the prevalence of pressure ulcers, the risk factors for pressure ulcer development, and the evolution of pressure ulcers in the intensive care unit (ICU). The study followed 121 adults admitted to two different intensive care units. Participants were assessed for pressure ulcers upon admission to the ICU and again upon discharge, death or two weeks as a patient in the intensive care unit.

Tools used to collect data included an author-developed questionnaire, the European Pressure Ulcer Advisory Panel grading system, the Braden Scale, and the APACHE II scale. The findings identified an overall pressure ulcer incidence of 3.3% in the ICU population with the most common site for pressure ulcer development on the “sacrum, heel, ischium” (p. 416). Patients with Braden skin assessment scores between 14-18 were identified as higher risk of pressure ulcer development. Nursing care practices of skin inspection, repositioning the patient and massage were identified as methods to reduce the risk of pressure ulcers as well as facilitate healing of pressure ulcers in this particular setting.

**Study Two: Outliers to the Braden Scale: Identifying high-risk ICU patients and the results of prophylactic dressing use.**

Brindle (2010) conducted a Level VII, performance improvement to test the effectiveness of a prophylactic sacral dressing in preventing pressure ulcers. The study followed 93 patients admitted into a Surgical Intensive Care Unit over a period of three months from August to November 2008. These 93 patients were assessed for risk factors for skin breakdown based on a tool developed by the author and nursing staff on this specific Surgical Intensive Care unit. Forty one patients were identified as “high risk.” Sacral mepilex was used on these “high risk” patients and changed every three days as a prophylactic measure for pressure ulcer prevention.

Of the 41 patients with Mepilex applied, none developed pressure ulcers during their ICU stay. Three patients who were not identified as high risk and did not have sacral mepilex applied during their ICU stay developed pressure ulcers. An additional 3 patients that were high risk developed pressure ulcers following discharge or transfer from the ICU. However, according to the author, “a more in-depth study is needed to ascertain whether the proper use and applications of a prophylactic dressing prevent sacral pressure ulcer formation” (p. 7).

**Study Three: Risk profile characteristics associated with outcomes of hospital-acquired pressure ulcers: A retrospective review.**

Alderden, Whitney, Taylor, & Zaratkiewicz (2011) conducted a Level IV, single observational study identifying the correlation between the risk factors for and development of pressure ulcers. The results showed a definite increase in ulcer development or nonhealing and risk factors. The review examined 87 hospitalized patients who developed pressure ulcers over a six-month period. Data collection was completed through the HAPU Subjects Characteristic Tool, developed by the researcher. This tool extensively identifies factors related to the patient’s hospital stay as well as pressure ulcer development. Data collection was completed by a certified wound nurse using the author developed tool and the Braden Scale with each patient chart to stage pressure ulcers (Alderde, Whitney, Taylor & Zarathkiewicz, 2011). Patients who had been given an intravenous vasopressor medication, or who had sustained a spinal trauma injury, and patients aged 40 or older were noted to have unhealed pressure ulcers at discharge/death. Furthermore, from the data analysis, patients receiving vasopressors were 5 times more likely to have an unhealed pressure ulcer (p<0.01) while patients over the age of 40 were 7 times more likely to have an unhealed pressure ulcer showed significant (Alderden, Whitney, Taylor, & Zaratkiewicz, 2011, p. 37). Conclusions of the research noted that nurses that have knowledge of the risk factors for developing a pressure ulcer, take aggressive preventive measures to prevent or reduce tissue damage.

**Study Four: Use of a new, flexible lipidocolloid dressing on acute and chronic wounds: Results of a clinical study.**

Meaume, Perez, Descamps, Voinchet, Jault, Saunier & Bohbot (2011) conducted a level VI single descriptive study to evaluate the effectiveness of the Urgotul flex dressing compared to the use of the older Urgotul dressing. The Urgotul products are non-adhesive, non-absorbent hydrocolloid and petroleum jelly impregnated dressing used on acute and chronic wounds to reduce the surface area of tissue injury. The purpose of the study was to document the performance of Urgotul flex in efficacy, tolerability and patient acceptance with wound care. Evaluation of ease of use, pain level and adherence of the dressing to the wound site during dressing changes was also evaluated. Data was collected by a wound nurse with every dressing change. Wounds were measured to evaluate the reduction in surface area with each wound. Product was replaced and each dressing change was assessed by patient reaction and nurses ease of use.

Forty-four patients participated in the clinical study. Each patient received weekly follow-up with evaluation of the Urgotul Flex effectiveness. Weekly documentation showed a significant reduction in surface ulcer area in wounds. There was no difference in pain scores reported related to the type of dressing used, however Urgotul Flex was identified by the wound nurse as easier to use during the dressing change.

**Study Five: An observational study of the use of a soft silicone silver dressing on a variety of wound types.**

Meuleneire (2008) conducted a Level VI, single descriptive study to evaluate the effectiveness of Mepilex Ag, a polyurethane foam dressing, on various types of wounds. The objective of Meuleneire’s research was to evaluate the effect of Mepilex Ag on “clinical signs of local wound infection…, wound-related pain and progression towards healing…, and patient acceptance of the dressing” (Meuleneire, 2008, p.535). The tools used in this study were the visual analog scale, an author developed qualitative visual assessment to collect observational data on wound healing, and self-reporting from patients of acceptance of dressing. All measurements were subjectively collected by one tissue viability nurse specialist.

The results demonstrated that the use of Mepilex Ag may be beneficial to wounds requiring topical therapy. Of the 30 patients studied, 27 had eliminated signs of local wound infection and a statistically significant pain reduction was noted from prior to initial dressing change.

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**Graphic 1: Search Strategy**

**Appendix A**

**CINAHL DATABASE SEARCH**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **#** | **Query** | **Limiters/Expanders** | **Last Run Via** | **Results** | **Action** |
| S16 | S4 and S11 and S14 | Limiters - Published Date from: 20000101-20111231; Peer Reviewed; Research Article; English Language Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 67 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl00$linkEditSearch',''))S16 |
| S15 | S4 and S11 and S14 | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 205 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl01$linkEditSearch',''))S15 |
| S14  O | S12 or S13 | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 14952 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl02$linkEditSearch',''))S14 |
| S13 | pressure sore\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 4552 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl03$linkEditSearch',''))S13 |
| S12 | pressure ulcer\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 12998 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl04$linkEditSearch',''))S12 |
| S11  I | S5 or S6 or S7 or S8 or S9 or S10 | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 2279 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl05$linkEditSearch',''))S11 |
| S10 | coccyx n4 dressing\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 12 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl06$linkEditSearch',''))S10 |
| S9 | back n4 dressing\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 124 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl07$linkEditSearch',''))S9 |
| S8 | "Mepilex\*" | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 128 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl08$linkEditSearch',''))S8 |
| S7 | foam n4 dressing\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 1084 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl09$linkEditSearch',''))S7 |
| S6 | pressure n4 dressing\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 1184 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl10$linkEditSearch',''))S6 |
| S5 | sacral n4 dressing\* | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 40 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl11$linkEditSearch',''))S5 |
| S4  P | S1 or S2 or S3 | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 514448 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl12$linkEditSearch',''))S4 |
| S3 | (MH "Inpatients") | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 49203 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl13$linkEditSearch',''))S3 |
| S2 | (MH "Intensive Care Units") | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 14871 | [Edit](javascript:__doPostBack('ctl00$MainContentArea$printSearchHistoryControl$HistoryRepeater$ctl14$linkEditSearch',''))S2 |
| S1 | (MH "Adult") | Expanders - Also search within the full text of the articles Search modes - Boolean/Phrase | Interface - EBSCOhost Search Screen - Advanced Search Database - CINAHL Plus with Full Text | 465640 |  |