

KAP MEDICAL PRSS CASE STUDY

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Wounds: Different types, different causes, common goals

Wounds and pressure ulcers are painful and potentially life-threatening complications in persons of altered states of health. They can be surgical, complicating (pressure ulcers), or traumatic. Their affects are well-known and documented throughout the world, causing discomfort and slowing or preventing a patient in returning to his or her baseline state of health. Wound treatments are as varied as the wound causes. Utilization of a PRSS (Pressure Reducing Support Surface) should reduce pressure, friction, shearing while promoting comfort, dryness, and cooling. Pressure ulcer prevention was one of Joint Commission's 2008 National Patient Safety Goals and continues as a prominent focus among healthcare issues. All healthcare facilities and providers are faced with the same challenge: provide the best possible outcome for their clients for the best economic value. A quality PRSS, along with knowledgeable application and timely service can be a major contributor in wound prevention or wound healing, and patient comfort.

PURPOSE

Did the PRSS utilized on the patient promote the desired outcomes of wound healing or wound prevention, and patient comfort. Data collection and analysis can be easily biased or skewed based upon inadequate measurements that are not individualized for a patient's unique situation. Many case studies of this type measure few parameters, reporting data that may not always be relevant in light of individual patient circumstances and therefore, not necessarily reflective of the effectiveness of a product in achieving a particular outcome. Utilizing a higher number of parameters, along with more deeply researched, detailed, and individualized assessments will allow for a more valid and realistic evaluation of KAP Medical Pressure Reducing Support Surfaces in this study.

Influencing Clinical Factors

Challenges in today's skilled nursing facilities are complex, diverse, & directly impacted by the level of care & intervention desired by patient and/or family. A patient's plan of care is developed, implemented, and evaluated in a team approach by a patient (if capable), and the family (if able & interested), and representatives of all healthcare providers involved in the patient's care. A PRSS is an easy and economical intervention in promoting comfort in the high risk for skin breakdown patient. The costs of treating a wound or other complication caused by increased friction, pressure, or discomfort is easily outweighed by the cost of prevention. The patient/family may elect to limit or discontinue any interventions at anytime. The most influential of these interventions to this case study were discontinuation of laboratory monitoring, antibiotic therapies, surgical wound debridements, and dietary supplementations. Mostly, these changes were made as patients'/families decided to move the plan of care to "comfort measures only" as medical interventions became progressively unsuccessful in light of patients' deteriorating conditions. Numerous complicating factors from multiple disease processes

combine to produce unrecoverable states of health. Under these circumstances, it may no longer be realistic to prevent skin breakdown or heal a wound. In this situation, a PRSS can still achieve a desirable purpose in promoting comfort at the end of life.

Often data noted in case studies, when analyzed w/out the benefit of a patient's individual context can be misinterpreted and therefore misleading in either a positive or negative way. Outcomes are often derived from absolute numbers which can be significant in some patients and insignificant in others. For example, whether or not weight loss is significant depends on evaluating multiple pieces of data, involving several disciplines, within the medical record. Weight loss in an obese patient, due to increased physical activity and food intake control while in the facility, can be beneficial to their overall health; including a "10% wt. loss indicator over the previous 60 days" from a facility's MDS sheet can be misinterpreted a negative nutritional outcome, when actually it is a positive one. Another example may be the development of a Stage 2 wound to their leg while in the facility. The patient may have obtained the wound while trying to push their own wheelchair, an activity they now have the strength to do since their sleep and thus their nutrition and protein intake improved once placed on the PRSS. The wound development was not as a result of the ineffectiveness of the PRSS but rather a consequence and accident due to the effectiveness of it. In other words, correctly collecting and interpreting the data involves assessing the patient as a whole, looking at the patient's individual health status and their responses to interventions in order to determine whether or not the product assisted towards the goals of wound prevention or healing, and patient comfort

Risk factors for skin breakdown are best described using what is known as the Braden Scale. This scale measures impairment in mobility, elimination, nutrition, sensory perception, skin moisture, activity level, & the potential for friction & shear. Even mild impairment in any of these areas usually indicates the need for a PRSS to assist in the prevention of skin breakdown or to facilitate healing in the presence of wounds and to promote comfort. Abnormal lab values are a significant component of the impairment in nutrition category that increases the likelihood of skin breakdown or delays wound healing. Low protein status is a major factor in this process, indicating malnutrition, and is sometimes a very difficult one to correct when a patient is not capable of sufficient protein intake to promote new cell growth for healing. Insufficient intake is frequently seen in patients with swallowing problems, refusal to eat or very poor intake, and Stage 3 & 4 pressure ulcers (the higher the Stage, the more protein per kg of weight is required, almost double normal requirements). Elevated blood glucose, a sign of poorly -controlled diabetes, is another culprit in the non-, delayed healing scenario. Bacteria feed off the extra sugar in the blood stream and circulation to all parts of the body is decreased due to blood vessel damage caused by elevated blood sugars.

Speed of healing can also be a misleading comparison. Not all patients heal at a predictable or steady rate, especially the population of a nursing home. Nursing home patients often range from those that were in relatively good health for their age/condition, but need short-term rehab for recovery from a fracture, major acute illness, or surgery to patients who have been very debilitated for quite some time, were usually residents of

another facility, & are being discharged from the hospital for further care/treatment at a nursing home/rehab facility. A patient's slow rate of healing may be perfectly acceptable given their particular low protein levels, infection, or high blood sugar levels. Correcting the myriad of patient conditions that complicate healing takes time. Sometimes, the conditions can only be partially corrected, and sometimes, not at all.

METHODOLOGY

Study Duration: 6 months

Study Setting: 228 bed skilled nursing facility w/ onsite ARNP (Advanced Registered Nurse Practitioner) under physician supervision providing/directing all wound care.

Population: All patients placed on a KAP Medical PRSS during the study time period were included. 36 patients (13% of facility residents) were evaluated for inclusion in this case study. 32 (89%) out of the 36 patients were included; 4 were not included related to lack of access to the medical records due to re-hospitalization or death shortly after admission. The case study included 11 males and 21 females, ranging in age from 62 years to 102 years. Major diagnoses included cardiovascular disease, CHF (congestive heart failure), HTN (hypertension), cerebral vascular accidents (stroke), dysphagia (swallowing difficulties), diabetes, pneumonia, COPD, anemia, peripheral vascular disease, pressure ulcers, amputations, MRSA, cellulites, advanced dementia/Alzheimer's disease, psychosis, osteoporosis, degenerative joint disease, hip fractures, Parkinson's disease, cataracts, blindness, kidney disease, & bladder/bowel incontinence. All wounds Stages 1-4 were included since Stage I wounds have a significant likelihood of progression to a higher stage in the compromised, debilitated patient. Utilization of PRSS therapy early in wound management can speed wound healing and minimize wound progression. Therefore, assessing all wounds is a more useful indication of PRSS's effectiveness. In a 2004 Resident Survey for Nursing Home Abuse and Neglect Report, 14% of this facility's population experienced pressure ulcers

Equipment: KAP Medical Pressure Reducing Support Surfaces utilized were 25 (79%) KAP K-4, 2 (6%) KAP K-0, 3 (9%) KAP K2-OEM, and 2 (6%) KAP K-1.

Length of time on the PRSS ranged from 7 days to 6 months. Some patients had been on a KAP Medical Support surface before the study time period.

Control Group: Traditional control groups (patients identified as high risk for skin breakdown that were not placed on a PRSS) were also not practical for the purpose of this study since all patients in this facility that were identified as a high risk for skin breakdown were placed on a PRSS by the nurse practitioner. Patients whose PRSS was discontinued but remained in the facility were followed for the duration of the study time period to monitor for wound re-emergence or development of new wounds.

Data Acquisition: Complete facility medical records reviewed on all study patients including all H&Ps (History & Physical), physician orders & progress notes, nurses notes, aide notes, Physical, Occupational, & Speech Therapy notes, Dietician assessments & notes, laboratory reports, wound care notes, and recent medical records from other

facilities (hospitals, wound care centers, etc.), MDS (Material Data Set) & RAP (Resident Assessment Profile) sheets, MARs (Medication Administration Records), & weight flowsheets.

Parameters Measured/Assessed:

A higher number of parameters were measured in this study in order to gain a more realistic, individualized measurement of PRSS effectiveness.

- Patient age, sex
- Major diagnoses, secondary diagnoses
- All physician orders, changes in levels of care, initiation of comfort measures only care, hospice care, withdrawals of care, ineligibility for additional wound care treatment due to co-morbidities
- Wound(s) absence/presence, hospital/outside current facility acquired, facility acquired, wound (s) type, location, stage, description
- Wound treatments, changes in wound treatments
- Wound healing progression or deterioration
- Medications relevant to wound healing or impacting Braden Scale risk factors
- Medication allergies (relevant to wound healing/risk factor treatments)
- Wt. gain/loss amount, %, positive or negative influence to wound healing, diet, & average % intake.
- Vital signs as monitored.
- Laboratory results relevant to wound healing or impacting Braden Scale risk factors; monitoring frequency of key laboratory studies relevant to wounds
- Date of PRSS initiation, make & model used, initial settings, & dates of setting adjustments
- Documentation of patient comfort/discomfort/pain, either verbal &/or non-verbal
- Hospital readmission dates, diagnoses
- DNR status

FINDINGS / CONCLUSIONS

Documentation

Medical record reviews demonstrated 96% completeness in documentation of study parameters. Some documentation, such as patient comfort levels, frequently required verification from a variety of sources.

Diagnoses, both major and secondary, were identified in all records. Wound identification, assessment, treatment, & progression documentation were determined to be timely and appropriate for the needs of the patient in all reviewed records. The ARNP wound care documentation was thorough and contained sufficient information to determine if a wound was improving or deteriorating. Medications and med allergies were documented and antibiotics, supplements, and meds impacting Braden Scale criteria met standards of care and were adjusted as the patients' needs changed. Weights were measured on admission and then monthly basis. Weight flowsheets were occasionally marked as "resident refused". Nutritional evaluations were made by Registered

Dieticians, and diet adjustments according to patients' needs, wishes, and tolerances were well documented. Dietary supplements of protein, vitamins, and minerals were addressed as well. Laboratory values relevant to protein status, infection, and healing, such as serum albumin levels, serum protein levels, Vitamin B levels, CBC (complete blood cell count reflective of infection, anemia, etc.), and glucose levels were timely and consistently measured in accordance with the level of care ordered or intervention desired by the patient &/or family. Additional diagnostic testing such chest x-rays, Doppler blood flow studies in affected extremities were also performed timely, with appropriate interventions ordered based upon results.

Admission mental states and reassessments were documented in accordance with Medicaid/Medicare guidelines. Mild confusion, various levels of dementia, including disruptive behavior, memory deficits, self-care deficits, & poor safety awareness often contributed to a breakdown in skin integrity and contributed to or complicated wound care in this study population as well. Medical records documentation demonstrated medical and nursing efforts to mediate or diminish their impact to the extent possible and reflected realistic goals for the patients' evolving states of health. Sometimes these goals were not to return to baseline health, but to an increased level of participation in their care. Some patients ended this vicious cycle by choosing comfort measures only. They refused advanced treatments, re-hospitalizations, sometimes even refusing antibiotic therapies, yet they still needed and desired skilled nursing and comfort measures in their end-of-life care.

This study demonstrated out of 32 patients placed on KAP Medical PRSS mattresses due to a high risk for skin breakdown, 11 patients of the study group (34%) had Stage 1-4 wounds. 3 of the 11 patients (27%) experienced study facility-acquired wounds (9% of study population), 1 of which was not pressure related. Of the 11 patients on the KAP Medical PRSS, 8 (74 %) were maintained at a Stage 1-2 level with no wound progression & subsequently healed without re-emergence. 3 (27%) had Stage 3-4 ulcers. 2 (18%) of the 3 had ongoing ulcers at the end of the study time period. One of the 3 had his wound reduced to a minimal size and was discharged home. The other 2 patients had significant and multiple co-morbidities such as advanced dementia, resistance to care, bowel & bladder incontinence, very low protein levels, and ineligibility for surgical wound debridement due cardiac conditions. Of the 32 study population, only 2 patients (6%) of the study group on a KAP Medical PRSS showed no wound resolution at the end of the study. Patients whose wounds resolved, 8 out of 11 patients (72%), healed within a 7 day to 40 day time frame, the average length of wound healing time being 18 days. 30 out of the 32 study patients had documentation of positive patient comfort and lack of verbal and non-verbal pain indicators, such as facial grimacing or moaning apart from dressing changes. During the 6 month study timeframe, 29 (90%) of the study group experienced no weight loss or actual (desired) weight gain. The other 3 residents lost no more than 5 lbs. while on a KAP Medical PRSS.

In conclusion, wound care involving the use of a PRSS can be preventative, healing, and palliative. An effective PRSS can promote healing and return to baseline health status for some and it can support the needs of the dying by focusing on alleviating symptoms.

Many skilled nursing facility residents have multiple disease processes in various states of progression. In addition, natural degenerative processes often speed up in the presence of these co-morbidities, thus pre-disposing the patient to wounds and discomfort. Rapidly advancing technology can prolong a patient's trek through increasingly complex chronic disease processes. The more complex and debilitating the journey, the more likely a patient is to develop complications such as wounds. The PRSSs utilized in this study demonstrated the ability to facilitate progress and achievement of skin care goals of the clients they served, be it prevention, healing, comfort or all three.