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Improving Moisture Associated Skin Damage in a Veteran Unit

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Nursing 670- Internship

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Section I. Abstract

Problem: Moisture-associated skin damage (MASD) has always been a problem, regardless of the setting is an I.C.U., Med-Surg, or long-term care. Evidence suggests prevalence rates can range from 5.2% to 46%, depending on the facility. The highest rates of incontinence-associated damage (IAD) occurred in long-term acute settings (Kayser et al., 2019).

Context: The veterans of the Community Living Center (CLC) have an increased risk for skin breakdown. Currently, of the fifteen residents, six residents (40%) have MASD, two of which have chronic MASD (13%). MASD can be a common occurrence for adults with limited mobility or cognitive diseases. MASD may cause burning sensations and pain around the wound, especially when additional urine or feces touches the wound (Woo et al., 2017). These adults may not be able to clean themselves or know to tell staff members when they need to be cleaned.

Intervention: To mitigate this problem and enhance the quality of life for veterans, a structured skin care regimen (SSCR) will be implemented and include an initial skin assessment and biweekly skin checks by RNs caring for veterans in the CLC. The SSCR will be implemented through staff in-services and will consist of the following: skin cleansing and drying of the peri area during ADL care with Sage wipes twice a shift and as needed after every bowel and incontinent event; use of skin barrier cream; and use of only one breathable disposable underpad (BDU) while in bed.

Measures: Data on MASD was obtained from a chart review of RN skin assessment for initial skin assessment, post-in-services biweekly skin assessments, and a final skin assessment at three months post-in-services with the goal to decrease MASD rates to below 6%. Specific data such as the Braden scale, skin temperature, skin turgor, skin color, and skin integrity will be monitored on the CLC admits. Pre- and post-questionnaires for staff in-services and MASD rates will also be part of the measured outcomes.

Result: At the end of month two, MASD rates fell below 6%, and all residents had their MASD healed. There was one case of reoccurrence with a patient that had chronic MASD. Towards the end of month three, staff shortage became an issue, and the unit had to be closed. The residents and staff were absorbed into other units until adequate staffing was available.

Conclusion: Implementation of SSCR and skin monitoring practices met the expected outcome by decreasing MASD to below 6%. Due to interventions becoming part of daily routine, the quality improvement project will maintain sustainability in this unit.

Section II. Introduction

Skin is the body's largest organ and is the first defense line against the outside world full of opportunistic organisms. The average pH of an adult's skin is 4-6, meaning it is slightly acidic for our body's normal bacteria to flourish and keep harmful bacteria at bay (Kuo et al., 2020). When skin is wet, the skin's pH changes to become more alkaline. Adult patients in acute care, long-term care, rehabilitation facilities, etc., all have a prevalence of MASD in their facilities.

Moisture-associated skin damage is the umbrella term for different skin damage caused by moisture. Examples of MASD are incontinence-associated dermatitis (IAD) caused by prolonged exposure to urine and feces; and gluteal intertriginous dermatitis (ITD), also known as intertrigo. MASD is often misclassified as pressure injuries as they may look similar, leading to confusion, inconsistencies in clinical practice, and inadequate record-keeping (Parnham et al., 2020). The veterans within the long-term care unit have predisposing diagnoses such as Dementia, dysphagia, traumatic brain injuries, Diabetes Mellitus Type II, and spinal cord injuries that may cause limitations on moisture perception. With limited moisture perception, the veterans may have prolonged fecal and urine exposure that can cause skin breakdown.

Problem Description

Of the fifteen residents in the Veteran’s CLC, six (40%) have MASD, two of which have chronic MASD (13%). Out of the fifteen residents, only two are entirely independent mobility-wise, meaning only two residents can walk around by themselves. Eight of the residents (53%) are limited in bed mobility or stand-by assist, meaning they can shift their positions or move while in bed. Five residents (33%) are total assist and cannot move their bodies themselves. Eleven (73%) of the fifteen are incontinent, and of those, seven are unable to notify staff members they need to be changed due to their medical conditions.

The solution for MASD is to manage moisture to prevent it from happening. The current solution for most facilities is to have beds lined with plastic incontinent pads (PIP) to help soak up the moisture from urine and feces. However, prolonged exposure to feces and urine will affect the skin's pH. Increased moisture to the epidermis can overhydrate the skin, leading to maceration (Parnham et al., 2020). When the skin integrity is compromised, it is easier for microorganisms to penetrate and move into the body resulting in an increased risk for infection. Infections may be harder to fight for residents in long-term facilities due to their other preexisting diagnoses.

Available Knowledge

PICOT Question

The PICOT questions help guide the search for new evidence-based practice and knowledge. The PICOT question guiding the search was, in adults residing in a skilled nursing facility, how do SSCR and BDU compare to current practice affect skin integrity in three months?

Search Strategy

An electronic search using online databases was conducted with CINAHL and PubMed. The literature search focused on systematic review or meta-analysis, critically appraised research studies, and individual research studies between the years 2015 to 2021. Search terms or keywords included: *incontinence, skin integrity, breathable vs. plastic, skin maceration, incontinence briefs, and skin pH.* A total of 31 articles came back between 2015-2021 publication and in English, and seven articles were selected for review. For the appraisal of evidence, refer to Appendix A.

Synthesis of Literature

MASD has always been a problem, regardless of whether the setting is an ICU, Med-Surg, or long-term care. Evidence suggests prevalence rates can range from 5.2% to 46%, depending on the facility. The highest prevalence of IAD occurred in long-term acute settings (Kayser et al., 2019), whereas critical care had a lower prevalence. This literature has guided this project to challenge prevalence rates and to minimize IAD/MASD.

For adults with limited mobility or cognitive diseases, MASD can be a common occurrence. MASD may cause burning sensations and pain around the wound, especially when additional urine or feces touches the wound (Woo et al., 2017). These adults may not be able to clean themselves or know to tell staff members when they need to be cleaned. Urine and feces become trapped between the skin and the incontinent pads, incontinent brief, or underwear. According to Parnham et al. (2020), The urea in urine then converts to ammonia, which causes an alkaline environment. The bowel movements also contain protein and lipid digesting enzymes, raising pH further. Opportunistic organisms take advantage of the increased pH and flourish without the acidic environment holding growth back (Parnham et al., 2020). With many veterans having multiple comorbidities, opportunistic organisms can cause detrimental harm; therefore, this literature supported the goal of improving MASD in the veteran unit.

The BDUs significantly reduce the skin's temperature and humidity (Falloon et al., 2018). The cloth-like material helps air pass through, leading to less heat build-up, and the absorbent core can quickly lock in the fluid to prevent prolonged exposure to moisture. BDU can assist in lifting and repositioning patients up to 300 pounds. Most PIP requires draw sheets below the PIP to assist in moving the resident as they cannot hold the resident's weight without breaking. With the understanding that BDUs can reduce skin temperature and humidity, BDUs were selected for this project.

Rationale

Preventing and reducing the incidence of MASD relates to the Quality Improvement, teamwork and collaboration, and Evidence-Based Practice categories of Quality and Safety Education for Nurses or QSEN competency (2020). The BDU uses current evidence with clinical expertise to help nurses and the care team deliver optimal patient care. Implementing a new tool may not always be easy; therefore, teamwork and collaboration are needed to provide quality patient care effectively. By fostering open communication, mutual respect, and shared decision-making, it will be easier to know if the project is working or if improvements need to be made. BDU also relates to quality improvement because this tool can help monitor the outcome of care processes and is designed to improve the quality of care for the patients at the facility.

Lewin's Change Theory

Complacency for people is hard to get out of and change. For someone who has been making patient beds the same way for years will not always be receptive to change. Lewin's Model of Change theory (Mitchell, 2013) can help with this project. Unfreezing is when change is needed, as seen by skin breakdown in residents. Moving is when we change the complacency in staff members to lower the incidences of MASD. Refreezing is when the changes are established, and equilibrium is achieved—possibly having the change become the new normal.

Project Aim

This project aims to decrease MASD within the veteran long-term care facility from 40% to less than 6% within three months by using BDU and implementing an evidence-based skin care regimen for nursing staff.

Section III. Methods

Context

Five P’s Assessment

Healthcare as a system is complex. A high-performing microsystem has a structured organizational process that involves personnel planning and executing a continuous flow of improvements to provide quality health care that meets or exceeds expectations. Continuous Quality Improvements (CQI) combine the efforts of healthcare professionals, patients, and their families, payers, and educators to make changes that may lead to better patient outcomes, system performance, and professional development. CQI involves localized improvement efforts, organizational learning, process reengineering, and evidenced-based practice and management (Johnson & Sollecito 2020). By understanding the 5 Ps of the microsystem and the patterns of the patients (see Appendix B), the clinical nurse leader (CNL) can help improve the quality of life for all patients in microsystems.

Purpose/Patients

The purpose of the CLC is to provide long-term care nursing homes for veterans with varying diseases such as Dementia, neurocognitive disorders, post-traumatic stress disorder, traumatic brain injury, and psychiatric disorders such as personality disorders and schizophrenia (see appendix B). The specific microsystem has a 17-bed capacity but only has 15 residents or patients above 55 years old. Admissions do not happen regularly; most residents have been in 360F for a minimum of over a year to over 20 years.

Professionals

Full staffing includes one Registered Nurse as the Charge Nurse (CN), two Licensed Vocational Nurses (LVN) as medication nurses, three Certified Nursing Assistants (CNA), one medical support assistant (MSA), and one environmental services staff. Medical providers cover multiple units and are usually Nurse Practitioners. The CN works with the interdisciplinary team of providers, physical therapists, occupational therapists, dietitians, pharmacy, clinical psychologists, recreational therapists, speech therapists, and social workers to plan and develop care plans to create a tailored plan for each veteran.

Admissions rarely happen as this CLC is very limited in capacity. Unless a resident passes away, new admissions will not occur. However, readmissions from residents sent to the hospital occur on a case-by-case basis and happen more often. The readmissions process is that providers are first to know and then inform the CNs. The MSA will arrange transportation when readmission is confirmed. The CN will inform the CNAs to ensure the room is ready, and when

the resident arrives back at the facility, the CN will complete a full head-to-toe skin assessment and all the necessary paperwork.

Process

The nursing staff works eight-hour shifts, and there is a half an hour overlap between each shift change to complete nursing handoff. During the change of shift report, there is a huddle with all licensed and non-licensed nursing staff members. During the huddle, the CN goes over the watch list of the day, residents under hourly rounding, last fall, last assault, last hospital-acquired pressure injury, announcements, and non-licensed staff complete another handoff at each resident's room. CN and LVNs stay in the nursing station to complete a more in-depth handoff to the next shift

Patterns

Patterns come from the processes within the unit, such as the minimum staffing requirements. The morning shift will always need five staff members, evening shifts will always have four staff members, and night shifts will always have three staff members. Each team member will have the role they need to fulfill for the unit to run smoothly for the day. These patterns are not limited to staffing, as the residents have their practices in daily care which determines the plan of care for the whole unit.

Daily patterns are tailored to each resident as the staff provides care for them. Each resident will have a bowel and bladder (BB) log and a sleep tracker that all shifts will fill out a week after admission. The BB log will help determine when the veteran will need to be toileted to prevent prolonged exposure to urine and feces and avoid the need to rush to the restroom, which may lead to falls. The sleep tracker will help determine the resident's sleep patterns and the best time to provide care. The BB log is of interest to the quality improvement project as the project is on reducing MASD within the unit.

SWOT Analysis

A strengths, weaknesses, opportunities, and threats (SWOT) analysis (see Appendix C) was utilized to examine the strengths and weaknesses of the microsystem that may impact the CNL project. Strengths are that staff are willing to improve patient satisfaction and well-being and are encouraged to participate in the shared decision-making process. Weaknesses are that the unit may be short-staffed, and floater staff may be unaware of the CNL project. Opportunities are

that staff will be involved in the decision-making process. The threat is the complacency and resistance to change a staff member may have for the SSCR.

Cost-Benefit Analysis

Financial analysis was utilized to determine whether SSCR and BDUs will be cost-effective for the CLC. The CLC is funded federally by the Military Construction, Department of Veterans Affairs, and Related Agency, including $58.9 billion for FY 2022 for medical services specifically (VA, 2021). The hospital submits annual budgets to the Senate appropriations committee to vote on whether the budget will pass. Thus, the CLC is not concerned with profits or statistical budgets such as patient referrals, admissions, patient days, length of stays, and occupancy rates (Penner, 2017).

For each veteran to be changed at the minimum twice per shift, about 90 chuxs are needed a day. As detailed in Appendix D (Table-1a), one bag or case of chux containing 200 will last about two days. Plastic incontinence pads (PIP) are approximately $46.99 per case of 200, which comes out to be $0.23 per PIP. The BDU is roughly $39.78 per case of 200, which is $0.20 per BDU. One year of PIP for a unit can cost approximately $7,622.82, whereas BDU can cost roughly $6,453.20. Therefore, by switching to BDUs, there will be $1169.62 saved in one year. Year one and year two savings will be the same as there will not be any changes between the years.

In addition to the BDU, there are cost savings with the SSCR, such as using the usual barrier creams (Sensicare#3) the unit already uses. Treatment items, including cleansing wipes and Sensicare#3, can cost approximately $22.03 per patient per day (Raepsaet et al., 2020). MASD can take about one to two weeks to heal, meaning roughly $154.21 to $308.42 per patient. In the unit, six residents with MASD, equal to $925.25 to $1850.52 for wound duration as outlined in Appendix D (Table-1b). Two residents have chronic, reoccurring MASD, which costs approximately $8040.95 per resident. Depending on the size of the injury, the Sensicare#3 can run out in about two days or more than the wound needs for healing.

As detailed in Appendix D (Table-1c,) in-services will require all nursing staff to attend two-hour initial training regarding correctly identifying MASD and pressure injuries, etiology, and treatment. Hourly wages are from Glassdoor averages of the hospital. The average hourly salary for an RN is $63, LVN is $37, and CNA is $24. The initial training will be two hours; therefore, for one RN, one LVN, and one CNA, the total cost would be $248 per shift. Paper

stationery will also be necessary for staff members and residents to do pre-and post-questionnaires. However, the price is already included in the regular supply budget and does not require additional money.

With the implementation of BDUs over one year, we can effectively save $1169.62 in purchasing incontinence pads for the CLC. Additionally, with MASD rates falling to zero, we have avoided $8040.95 of annual treatment costs. The two-hour in-service for all three shifts cost a total of $248. Subtracting the $248 from the total cost avoidance of $9210, as detailed in Appendix D (Table 1d) will be a total cost savings of $8963 per year.

Interventions

An SSCR uses current evidence (see Appendix A) with clinical expertise to help ensure nurses and the care team deliver optimal healthcare. Implementing a new tool may not always be easy; therefore, teamwork and collaboration are needed to provide quality patient care effectively. By fostering open communication, mutual respect, and shared decision-making, it will be easier to know if the project is working or if improvements need to be made. The education plan will target the nursing staff or the core staff of the CLC that will be patient-facing on SSCR to reduce MASD based on the CNL teaching plan outlined in Appendix E. The intervention will address SMART or specific, measurable, achievable, relevant, and time-based goals, and the visual, aural, read/write, and kinesthetic (VARK) (VARK, n.d.) learning preferences will also be incorporated into the teaching plan. The implementation will follow the project timeline as outlined in Appendix E.

Registered nurses (RN) will be required to attend a two-hour training on correctly identifying MASD and pressure injuries, etiology, and treatment. RN will also be re-educated on skin assessments and the Braden scale. RN will also be responsible for the initial skin assessment and bi-weekly skin assessments to include but are not limited to Braden scale, skin color, temperature, turgor, moisture, integrity, resident's history of pressure injuries, abnormalities, wounds, and description of skin breakdown if present. The RN will ensure they include the SSCR in their unit huddle and debriefs. Including the SSCR in the unit huddle and debriefs can help re-establish awareness and reinforce the importance of the SSCR, focus on breaking down barriers, and follow up with any questions or feedback staff members may have.

Licensed vocational nurses (LVN) and nursing assistants (NA) will have an initial two-hour training to include the importance of the SSCR bundle and how MASD can affect patients.

The in-service for the LVN and NA will also include the steps of the SSCR, such as a minimum of two rounds of peri-care a shift and, as needed after each incontinent occurrence, use of Sage wipes instead of soap and water, and use of one layer of breathable underpads. Sage wipes are rinse-free and pH balanced to restore the pH imbalances from urine and feces. Sage wipes can also be warmed per patient preference (Stryker, n.d.). The LVN will also serve as skin champions to monitor the unit for compliance and report to the RN if any skin breakdown in between skin assessments is found.

Study of the Intervention

RN will use the check-back method of teamSTEPPS (AHRQ,2014) to ensure they retain the information. RN will be able to identify MASD and pressure injuries correctly. RN, LVN, and NA will use the teach-back method (Stanhope & Lancaster, 2018) at the end of the session to accurately demonstrate the SSCR and set the bed with breathable chuxs. At the end of the class, the nursing staff will be able to state two reasons why the SSCR and prevention of MASD are crucial. Pre-implementation and post-implementation questionnaires will be provided to staff and residents of CLC.

Measures

The primary outcome of this project, as outlined in the Project Charter found in Appendix F, is to decrease the prevalence of MASD within the CLC during the project timeline, as indicated in the Project Timeline/Gannt Chart found in Appendix G. As shown in Appendix H, data will be obtained from a chart review of RN skin assessment for current rates of MASD. Data will be collected with an additional program's initial skin assessment, biweekly skin assessments, and a final skin assessment at three months. The population criteria will be the patients admitted to the CLC. Specific data such as the Braden scale, skin temperature, skin turgor, skin color, and skin integrity will be among the data that will be monitored. There will also be pre- and post-questionnaires for staff before and after the in-services and at the end of the project. Most importantly, MASD rates will be collected monthly.

Ethical Considerations

This project is approved by the University of San Francisco (USF) as an evidence-based project. This project has also met the criteria of the Non-Research Determination Form (see Appendix I). This project is entirely research-based; therefore, approval was not needed by the Institutional Review Board (IRB). Preventing and reducing the incidence of MASD relates to the

Quality Improvement, teamwork and collaboration, and Evidence-Based Practice categories of QSEN competency (2020). This project relates to USF Jesuit Core values that include "people for others" that uphold men and women for others (USF, 2019).

This project also correlates with the ethical principles that nurses must adhere to, such as benevolence, meaning to do good and the right thing for the patient; non-maleficence, suggesting to do no harm, whether intentionally or unintentionally; and fidelity, meaning to keep our promises and responsibilities by providing high quality and safe patient-centered care. Incorporating TeamSTEPPS to ensure staff work together to establish, maintain, and continue to improve clinical practice to improve patient care and experience is part of the code of ethics of the American Nurses Association (ANA, 2015).

Section IV

Results

Before the CNL project, MASD rates were at 40%. NAs would wash the residents with soap and water and wipe the water dry. Beds were lined with plastic incontinence pads. When the CNL project began, NAs began to use SAGE wipes during each incontinence occurrence and at least twice a shift. Beds were made with only one BDU to promote airflow. Residents did not notice the difference in care and enjoyed the warmed wipes. Staff feedback was positive, and they enjoyed not needing to run water to wait for the water to get hot. With the wipes, they were already warmed in the warmer and ready to go. The BDU. directly replaced the plastic incontinence pads; the staff was initially skeptical it could hold the resident's weight. After using the BDU in the unit, they realized it was easier to set the bed with one less layer for the draw sheet.

The CLC MASD rates fell below 6% during the evidence-based improvement project timeline. The six residents with MASD had their MASD resolved by month two. One resident with chronic MASD had a recurrent episode during mid-month two that may have been attributed to warmer weather and the resident's history of perspiring. At the beginning of month three, the resident with the recurrent MASD began to heal. Towards the end of month three, staff shortage became an issue, and the unit had to be closed. The residents and staff were absorbed into other units until adequate staffing was available.

Discussion

Summary

Currently, the unit is closed. It was a sudden closure for staff, residents, and residents' families, and they were notified either one day before or the day of closure. The CNL project did not continue due to participants being moved to different units. In-services for four additional units were not feasible during the staffing shortage and towards the end of the project. However, seeing the rates of MASD drop below 6% by month two, management would like to continue the project facility-wide when adequate staffing is available.

Conclusions

Adult patients in acute care, long-term acute care, rehabilitation facilities, etc., all have a prevalence of MASD in their facilities. Though it is such a prevalent problem, not many people actively take steps to prevent it from happening, whether from lack of staffing, complacency, or not being aware. Implementation of evidence-based practice of SSCR and skin monitoring met the expected outcome, with MASD decreasing to below 6%. Due to interventions becoming part of daily routine, the quality improvement project can maintain the sustainability of this facility-wide.

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Appendix A

Evaluation Table

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Falloon et al., 2018	None identified	**Design:** Review **Method:** No date restrictions applied, but only accepted publications in English or Spanish. Publications were further reduced by examining abstracts for relativity. *Keywords: Absorbent incontinence products, Breathability , Fecal incontinence, Humidity, Incontinence -associated dermatitis , Microclimate , Occlusion, Skin health, Temperature, Urinary incontinence*	**Sample:** Not indicated **Setting:** Not indicated	**Independent Variables:** Overhydration of skin, effect of pH, skin temperature, skin barrier function, mechanical considerations, skin care, materials of absorbent incontinence products **Dependent Variables:** IAD	Not indicated	Not indicated	IAD is a common problem with high costs. Encouraging quick product change seems likely to yield measurable benefits in reducing IAD incidents as the technology develops. To date, published work suggests considerable potential for products to be engineered to play a significant role in lowering IAD among users.	**JHNEBP Critical Appraisal Tool Rating:** Level III B **Strengths:** Not indicated **Limitations:** Not indicated

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Kayser et al., 2019	None identified	**Design:** Retrospective analysis **Method:** IAD prevalence was calculated among all incontinent patients. A logistic regression examined risk factors for IAD. *Keywords: Perineal Epidemiology; Dermatitis, Perineal Risk Factors; Middle Aged: 45-64 years; Aged: 65+ years; Aged, 80 & over; Female*	**Sample:** 56,209 adult patients **Setting:** Acute care, long-term acute care, long-term care, and rehabilitation	**Independent Variables:** Incontinence type (urine, no fecal; fecal, no urine; urine and fecal; fecal management system **Dependent Variables:** IAD	Retrospective analysis of data collected from the 2016 International Pressure Ulcer Prevalence survey.	Logistic regression	Incontinence-associated dermatitis prevalence among all patients was highest in long-term acute care settings and lowest in acute care settings.	**JHNEBP Critical Appraisal Tool Rating:** Level III B **Strengths:** Not indicated **Limitations:** Data from the survey was not monitored for accuracy. There may have been misclassification of IAD and superficial pressure injuries.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Parnham et al., 2020	None identified	Design: Case Reports Methods: To illustrate the use of a structured treatment strategy using Medi Derma barrier products and the principles of TBP to provide a cost-effective solution for the prevention and management of skin compromised by MASD.	**Sample:** Three case studies of women ages 71-83 years old living at home. Setting: Home environment	**Independent Variable:** Application of Medi-Derma products to affected skin areas **Dependent Variable:** Skin Integrity Multiple products in the skincare line	Not described in case studies	Not described in case studies	A structured skin care regimen alleviated complications with non-infected IAD in case study patients.	**JHNEBP Critical Appraisal Tool Rating:** Level V C **Strengths:** Not indicated by authors **Limitations:** Not indicated by the authors Worth to Practice: The S.M.A.R.T. resource is a helpful tool for identifying skin damage (MASD) and reaffirms the need for a structured skin care regimen to benefit at-risk patients.

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Variables Studied and Their Definitions	Measurement	Data Analysis	Findings	Appraisal: Worth to Practice
Woo et al., 2017	Not identified	Design: Scoping Review Methods: Searched published and unpublished studies between 2000 and July 2015. ***Keywords*** *moisture-associated skin damage, skin damage, incontinence-associated dermatitis, irritant contact dermatitis, scoping review, intertriginous dermatitis*	**Sample:** 37 articles were considered and consisted of meta-analysis, RCTs, case-control studies, case series, and case studies. **Setting:** any setting or clinical population of any age	**Independent Variable:** Barrier ointment, liquid polymers, and cyanoacrylates **Dependent Variable:** MASD	Not described	Reviewers were instructed to include articles even when there was insufficient information to determine their relevance. When disagreements on study inclusion emerged, discrepancies were resolved through discussion.	The findings from these articles provided functional definitions and prevalence rates of the 4 types of MASD, assessment scales for each, and 7 evidence-based strategies for the management of MASD	**JHNEBP Critical Appraisal Tool Rating:** Level III B **Strengths:** Not indicated by the authors **Limitations:** Reviewers were instructed to include articles even when there was insufficient information to determine their relevance.

Appendix B

Long Term Care (VA CLC) Facility Profile

A. Purpose: Why does your unit exist? To provide a home- and community-like environment to care for veterans

Site Contact: Jeanne Glass | Date: 09/26/2021
Nurse Director: Jeanne Glass | Medical Director: Dr. Maria Farooqi

B. Know Your Patients: Take a close look into your unit, create a "high-level" picture of the PATIENT POPULATION that you serve. Who are they? What resources do they use? How do the patients view the care they receive?

Est. Age Distribution of Pts:	%
19-50 years	0
51-65 years	6.6%
66-80 years	86.6%
80+ years	6.6%
% Females	

List Your Top 10 Diagnoses/Conditions	
1. Diabetes Mellitus II	6. Neurocognitive Disorder
2. PTSD	7. COPD
3. Dementia	8. Spinal Cord Injury
4. Hypertension	9. Congestive Heart Failure
5. Schizophrenia	10. Traumatic Brain Injury

Patient Satisfaction Scores	% Always
Nurses	93.3%
Doctors/NP	100%
Environment	100%
Pain	93.3%
Discharge	N/A % Yes
Overall	96.65 % Excellent

Living Situation	%
Married	20%
Domestic Partner	0
Live Alone	46%
Live with Others	20%
Skilled Nursing Facility	6%
Nursing Home	6%
Homeless	

Patient Type	LOS avg.	Range
Medical		
Surgical		
Mortality Rate		

Point of Entry	%
Admissions	100
Clinic	0
ED	0
Transfer	100
Discharge Disposition	**%**
Home	N/A
Home with Visiting Nurse	N/A
Skilled Nursing Facility	N/A
Other Hospital	6%
Rehab Facility	N/A
Transfer to ICU	6%

Pt Population Census: Do these numbers change by season? (Y/N)	Y/N
Pt Census by Hour	N
Pt Census by Day	N
Pt Census by Week	N
Pt Census by Year	N
30 Day Readmit Rate	N
Our patients in Other Units	N/A
Off Service Patients on Our Unit	N
Frequency of Inability to Admit Pt	N

Complete "Through the Eyes of Your Patient", pg 8

C. Know Your Professionals: Use the following template to create a comprehensive picture of your unit. Who does what and when? Is the right person doing the right activity? Are roles being optimized? Are all roles who contribute to the patient experience listed?

Current Staff	Day FTEs	Evening FTEs	Night FTEs	Weekend FTEs	Over-Time by Role
MD/NP Total	1	0	0	0	N
Nurse Managers	4	0	0	0	N
RN/Charge	1	1	1	1	Y
LVNS	1	1	1	1	Y
CNA	3	2	1	3/2/1	Y
Unit Clerk	1	0	0	0	N
Social Worker	1	0	0	0	N

Admitting Medical Service	%
Internal Medicine	0
Hematology/Oncology	0
Pulmonary	0
Family Practice	0
ICU	0
Other	100

Supporting Diagnostic Departments
(e.g. Respiratory, Lab, Cardiology, Pulmonary, Radiology)
lab and dental on site, if veterans need additional sup appointments are made to larger VA hospital

Do you use Per Diems?	Yes	X	NO
Do you use Travelers?	Yes	X	NO
Do you use On-Call Staff?	Yes	X	NO
Do you use a Float Pool?	Yes	X	NO

Staff Satisfaction Scores		%
How stressful is the unit?	% Not Satisfied	75
Would you recommend it as a good place to work?	% Strongly Agree	80

Each staff member should complete the Personal Skills Assessment and "The Activity Survey", pgs 10 - 12

D. Know Your Processes: How do things get done in the microsystem? Who does what? What are the step-by-step processes? How long does the care process take? Where are the delays? What are the "between" microsystems hand-offs?

1. Create flow charts of routine processes.
a) Overall admission and treatment process
b) Admit to Inpatient Unit
c) Usual Inpatient care
d) Change of shift process
e) Discharge process
f) Transfer to another facility process
g) Medication Administration
h) Adverse event

Do you use/initiate any of the following?
Check all that apply
☐ Standing Orders/Critical Pathways
☐ Rapid Response Team
☒ Bed Management Rounds
☒ Multidisciplinary/with Family Rounds
☒ Midnight Rounds
☒ Preceptor/Charge Role
☐ Discharge Goals

Capacity # Rooms 13 # Beds 17
 # Turnovers/Bed/Year N/A
Linking Microsystems
(e.g. ER, ICU, Skilled Nursing Facility)
Veterans Administration Palo Alto Division

2. Complete the Core and Supporting Process Assessment Tool, pg 14

E. Know Your Patterns: What patterns are present but not acknowledged in your microsystem? What is the leadership and social pattern? How often does the microsystem meet to discuss patient care? Are patients and families involved? What are your results and outcomes?

- Does every member of the unit meet regularly as a team? Yes
- How frequently? Twice a shift
- What is the most significant pattern of variation? Floating
- Do the members of the unit regularly review and discuss safety and reliability issues? Yes
- What have you successfully changed?
- What are you most proud of?
- What is your financial picture?

Complete "Metrics that Matter", pgs 20 & 21

Appendix C

SWOT Analysis

Appendix D

Budget

Table-1a

Comparison Between Breathable Underpads and Plastic Incontinent Pads			
Material	**Per box of 200**	**Per chux**	**One year**
Plastic Incontinence Pads	$46.99	$0.23	$7622.82
Breathable disposable Underpads	$39.78	$0.20	$6453.20
Cost Savings	$7.21	$.03	$1169.62

Table-1b

Improved Healing Time due to Structure Skin Care Regimen			
	One week	**Two weeks**	**Yearly Cost Savings**
per patient	$154.21	$308.42	$8040.95
360F (6 with MSAD)	$925.26	$1850.52	

Table-1c

In-service teaching			
	Hourly Pay	Initial Training	Yearly Refresher
RN	$63	$126	$63
LVN	$37	$74	$37
CNA	$24	$48	$24
total	$124	$248	$124

Table-1d

Total Savings of MASD Project				
	1st Month	2nd Month	3rd Month	Total Cost Savings
BDU Savings	302.82	302.82	302.82	-908.46
Treatment savings	1850.52	1542.1	1850.52	-5243.14
Two-hour in-service cost	248	0	0	248
Total Savings	**-1905.34**	**-1844.92**	**-2153.34**	**-5903.6**

Appendix E

Teaching Plan for RN: Structured Skin Care Regimen Bundle

1. **Learning Needs Assessment and Data Evaluation**
   - Prevalence rates of MASD can range from 5.2%-46%. This CLC unit is at 40%
   - There is a need for staff education regarding the SSCR bundle and MASD.
   - MASD is also often misclassified as pressure injuries as it may look similar
   - This education plan will target the nursing staff of the CLC that will be patient-facing on SSCR to reduce MASD

2. **Learning Objectives**
   - Learners will be able to define at least one reason why it is crucial to decrease MASD
   - Learners will be able to differentiate between MASD and pressure injuries

3. **Evaluating the Evidence**
   - A structured Skin Care Regime is vital in decreasing MASD
     - Kayser et al. (2019)
     - Parnham et al. (2020)
     - Woo et al. (2017)

4. **Implementation of Project**
   - CNL to meet with unit leaders and appropriate facility administration for approval

- (Re)Education for RN (skin assessment, Braden scale, and wound education series for RNs. Implementation of skincare bundle.
- Initial and biweekly skin assessments completed by RN to include but are not limited to Braden scale, skin color, temperature, turgor, moisture, integrity, resident's history of pressure injuries, abnormalities, wounds, and description of skin breakdown if present. RN oversight on core staff on SSCR.
- Re-evaluation of SSCR at
- CNL to meet with facility administration/sponsors to determine if the plan will continue
- Continue and develop standard work for the whole facility or terminate the plan

5. **Evaluation**
    - Pre- and post-tests
    - Skin inspections (initial, biweekly, and in the third month)
    - Facility administration/sponsors to determine if the plan will continue

Adapted from: CNL teaching plan. (n.d.). Retrieved from https://lmscontent.embanet.com/USF/MSN/N655/Docs/CNL_TeachingPlan.pdf

Appendix F

Project Charter: Improving Moisture Associated Skin Damage (MASD) in the Veteran Unit
Global Aim: To standardize the implementation of a structured skin care regimen and use of breathable disposable underpads (BDU) in the veteran long-term care unit in a community living center (CLC) by 2023.
Specific Aim: This project aims to decrease MASD within the veteran long-term care unit to less than 6% within three months by using BDUs and implementing a structured skin care regimen.

Background:
MASD has always been a problem, regardless of the setting is an ICU, Med-Surg, or long-term care. Evidence suggests prevalence rates can range from 5.2% to 46%, depending on the facility. The highest prevalence of MASD occurred in long-term acute settings (Kayser et al., 2019), whereas critical care had a lower prevalence. The veterans in the CLC most have limited mobility and cognitive diseases; MASD can be a common occurrence. MASD may cause burning sensations and pain around the wound, especially when additional urine or feces touches the wound (Woo et al., 2017). The veterans may not be able to clean themselves or know to tell staff members when they need to be cleaned. Urine and feces become trapped between the skin and the incontinent pads, incontinent brief, or underwear. According to Parnham et al. (2020), the urea in urine then converts to ammonia, which causes an alkaline environment. The bowel movements also contain protein and lipid digesting enzymes, raising pH further. Opportunistic organisms take advantage of the increased pH and flourish without the acidic environment holding growth back (Parnham et al., 2020).

Sponsors

Medical Director	Dr. Farooqi
Chief Nursing Officer	Joy Abby
Clinical Nurse Specialist/Educator	Sophie Mace

Goals
To provide a standardized approach to skincare regimen and use of BDU to decrease the prevalence of MASD in the veteran population that includes the following:

1. Skin assessment, Braden scale, and wound education series for RNs.
2. Bundle introduction and education for nursing staff
3. Identification and education for skin champions
4. Implementation of skincare bundle and BDU
5. Initial and biweekly skin assessments completed by RN to include but are not limited to Braden scale, skin color, temperature, turgor, moisture, integrity, resident's history of pressure injuries, abnormalities, wounds, and description of skin breakdown if present.
6. Meet with facility administration/sponsors to determine if the plan will continue
7. Continue and develop standard work for the whole facility or terminate the plan

Measures

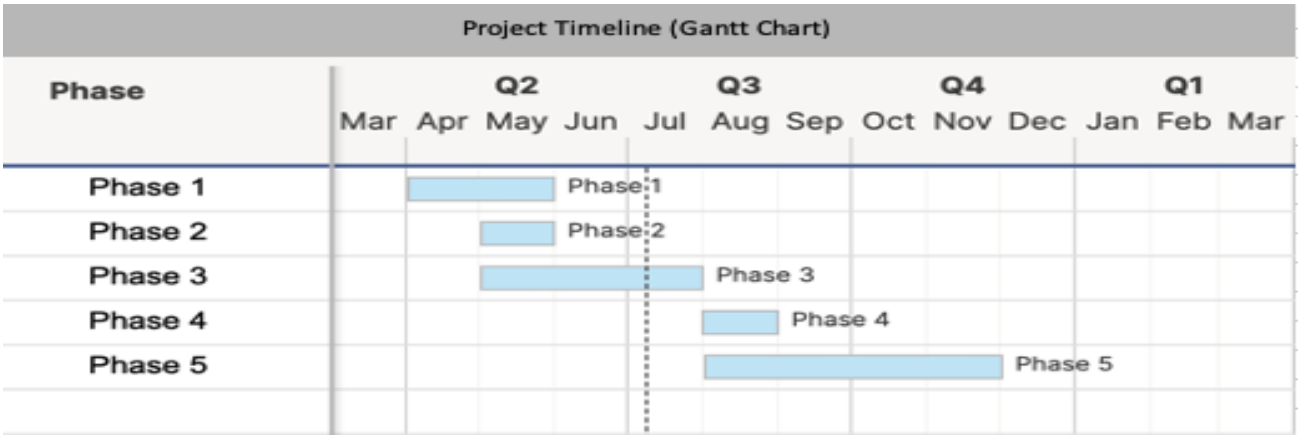
Measure	Data Source	Target
Outcome		
To reduce the prevalence and prevent the reoccurrence of	Chart Review RN skin assessment	<6%

MASD. Currently, of the fifteen residents, six residents (40%) have MASD		
Process		
Initial skin assessment Biweekly skin assessment Three-month skin assessment	Chart Review RN Skin assessment	<6%
Balancing		
No Increase in MASD	RN Skin assessment Excel spreadsheet tracking via the agency's shared drive	<2/month

Team

CNS/Educator	
Nurse Leadership	
Registered Nurse	
Skin Champion	
Nursing Staff	

Appendix G



Phase 1: Meet with unit leaders and appropriate facility administration
Phase 2: If the budget is approved, have central supply order new supplies and distribute
Phase 3: Evaluation stage; gather data, synthesize data
Phase 4: Meet with unit leaders and appropriate facility administration to determine if the plan will continue.
Phase 5: Continue or terminate the plan

Appendix H

Measurement Strategy

Background (Global Aim) To standardize the implementation of a structured skin care regimen and use of BDU in the veteran long-term care unit in a community living center (CLC) by 2023.

Population Criteria: Patients admitted to the CLC unit

Data Collection Method: Data will be obtained from a chart review of RN skin assessment for current rates of MASD. Data will be collected with an additional program's initial skin assessment, biweekly skin assessments, and a final skin assessment at three months.

Data Definitions

Data Element	Definition
Braden Scale	A standardized scale used to predict pressure sore risk
temperature	Warmth or coolness can indicate skin damage
Skin turgor	Can indicate dehydration
Skin color	Can indicate skin problems (i.e., pressure injuries, rash, infection, etc.)
MASD	Moisture-associated skin damage
Skin integrity	If the skin is intact or not

Measure Description

Measure	Measure Definition	Data Collection source	Goal
MASD present	N=# patients with MASD D=# patients admitted	Chart review/ skin assessments	<6%
Staff feedback	S=satisfactory NS=not satisfactory	Pre-/post-questionnaires	satisfactory

Appendix I

CNL Project: Statement of Non-Research Determination Form

Student Name: Beverly Chen

Title of Project: Implementing a Skin Care Regimen to Decrease Moisture Associated Skin Damage in a Long-Term Care Facility

Brief Description of Project:

A) Aim Statement: This project aims to decrease moisture-associated skin damage (MASD) within the veteran long-term care facility from 40% to less than 6% within three months by using breathable disposable underpads (BDU) and implementing an evidence-based skin care regimen for nursing staff.

B) Description of Intervention: The veterans of the long-term care facility (LTCF) have an increased risk for skin breakdown. Currently, of the fifteen residents, six residents (40%) have MASD, two of which have chronic MASD (13%). To mitigate this problem and enhance the quality of life for veterans, the skin care regimen will be implemented and will include an initial skin assessment and biweekly skin checks by RNs of veterans of LTCF. The care regimen will be implemented through staff in services and will consist of the following:

- skin cleansing and drying of the peri area during ADL care with Sage wipes twice a shift and as needed after every bowel and incontinent event
- use of skin barrier cream
- and use of only one BDU while in bed.

C) How will this intervention change practice? Staff will be better informed on how to maintain skin integrity. Staff will see an improvement in skin integrity for patients.

D) Outcome measurements:

- Biweekly skin checks will be completed by RN to document the BRADEN scale, skin color, temperature, turgor, moisture, integrity, resident's history of pressure injuries, abnormalities, wounds, and description of skin breakdown if present.
- Pre-/post- questionnaires for staff in services

- MASD rates

To qualify as an Evidence-based Change in Practice Project rather than a Research Project, the criteria outlined in federal guidelines will be used:
(http://answers.hhs.gov/ohrp/categories/1569)

☐ This project meets the guidelines for an Evidence-based Change in Practice Project as outlined in the Project Checklist (attached). Student may proceed with implementation.

☐ This project involves research with human subjects and must be submitted for IRB approval before project activity can commence.

Comments:

*EVIDENCE-BASED CHANGE OF PRACTICE PROJECT CHECKLIST **

Instructions: Answer YES or NO to each of the following statements:

Project Title:	**YES**	**NO**
The aim of the project is to improve the process or delivery of care with established/ accepted standards, or to implement evidence-based change. There is no intention of using the data for research purposes.	**X**	
The specific aim is to improve performance on a specific service or program and **is a part of usual care**. ALL participants will receive standard of care.	**X**	
The project is **NOT** designed to follow a research design, e.g., hypothesis testing or group comparison, randomization, control groups, prospective comparison groups, cross-sectional, case control). The project does **NOT** follow a protocol that overrides clinical decision-making.	**X**	
The project involves implementation of established and tested quality standards and/or systematic monitoring, assessment or evaluation of the organization to ensure that existing quality standards are being met. The project does **NOT** develop paradigms or untested methods or new untested standards.	**X**	
The project involves implementation of care practices and interventions that are consensus-based or evidence-based. The project does **NOT** seek to test an intervention that is beyond current science and experience.	**X**	
The project is conducted by staff where the project will take place and involves staff who are working at an agency that has an agreement with USF SONHP.	**X**	
The project has **NO** funding from federal agencies or research-focused organizations and is not receiving funding for implementation research.	**X**	
The agency or clinical practice unit agrees that this is a project that will be implemented to improve the process or delivery of care, i.e., **not** a personal research project that is dependent upon the voluntary participation of colleagues, students and/ or patients.	**X**	

If there is an intent to, or possibility of publishing your work, you and supervising faculty and the agency oversight committee are comfortable with the following statement in your methods section: *"This project was undertaken as an Evidence-based change of practice project at X hospital or agency and as such was not formally supervised by the Institutional Review Board."*	**X**	

ANSWER KEY: If the answer to **ALL** of these items is yes, the project can be considered an Evidence-based activity that does NOT meet the definition of research. **IRB review is not required. Keep a copy of this checklist in your files.** If the answer to ANY of these questions is **NO**, you must submit for IRB approval.

*Adapted with permission of Elizabeth L. Hohmann, MD, Director and Chair, Partners Human Research Committee, Partners Health System, Boston, MA.

STUDENT NAME (Please print): Beverly Chen

Signature of Student: _Beverly Chen (electronically signed) **DATE_4/14/2022, 6/5/2022_**

SUPERVISING FACULTY MEMBER NAME (Please print):
Francine Serafin-Dickson, DNP, MBA, BSN, CNL_

Signature of Supervising Faculty Member: _____ **_DATE 6-5-22__**