A Simple Way to Prevent and Treat Pressure Ulcers

Cincinnati, OH

Aletha W. Tippett, BS, ChE, M.D.

PURPOSE: Evaluate a program of pressure ulcer prevention and treatment in two 150-bed nursing homes with a frail elderly population.

METHOD: Develop and use a standard protocol for prevention and treatment of pressure ulcers. Program development is based on efficacy and simplicity. This involves two key elements: 1. Static air pressure support for mattress, chair and heels, and 2. A medicated hydrogel dressing.

RESULTS AND CONCLUSIONS: In one nursing home, incidence of pressure ulcers in the facility reduces from 17 percent to zero in six months, and remains at less than 1 percent for four years. In the inpatient wound center, all patients (72) with pressure ulcers treated according to the standard protocol over a one year period approaches 95 percent within 12 weeks with average cost savings over $6,000 per patient. Dramatic sustained reductions in pressure ulcer occurrence are achieved with use of static air support surfaces in a population of frail elderly. Equally dramatic treatment and healing of pressure ulcers in this population are achieved with the combined use of static air support surfaces and a medicated hydrogel dressing. These simple yet effective solutions should be examined more thoroughly in other settings.

About these studies

EHOB, Incorporated was founded in 1985 with a special interest in soft tissue research, education and product development. Today, a leading company in pressure ulcer management, EHOB continues to be an innovator of affordable products effective in the prevention and treatment of pressure ulcers – simple products that work!

This catalog represents more than twenty years of product trials and clinical documentation that we proudly offer to you. EHOB is committed to earning the trust and loyalty of the professional health care community by not just saying a product works, but by proving it with these significant patient studies. A summary is provided for each study to use as a quick reference but is in no way meant to replace or discount its full content. We encourage you to read the study in its entirety.

To obtain a full study, contact EHOB at 800.966.3462 or contact your local EHOB Sales Representative. You may also access these studies at www.ehob.com.
EHOB's PVC and PVC/PU Materials Resist Bacterial Growth

Northbrook Laboratories, Inc.

PURPOSE: To test the effectiveness of the antimicrobial agent used in EHOB’s PVC and PVC/PU blended materials.

METHOD: Materials samples are subjected to an Agar Plate Test and inoculated with ten microorganisms commonly found in healthcare facilities.

RESULTS AND CONCLUSIONS: The PVC and PVC/PU blended materials, used in all EHOB products, effectively controlled the growth of each microorganism, including Methicillin-Resistant Staphylococcus Aureus (MRSA).

EHOB products effectively control growth of MRSA

Stage II pressure ulcer rates dropped from 103 to 18 during the five year trial period.

2. Review the facility’s current procedures; 3. Revise where needed; 4. Educate patient care providers.

RESULTS AND CONCLUSIONS: The WAFFLE® Overlay, selected by staff because of its ability to logroll and transfer patients, helps decrease the “per patient” bed charges, “per month” specialty bed placement and “per patient” average days on specialty beds. Over a six month period, skin breakdown decreases by two-thirds and $500,000 is saved.

Keeping Pressure Ulcers at Bay

Rush Foundation Hospital, Meridian, MS
Dianne McCollum RN, CWOCN, ET Nurse

PURPOSE: To become more proactive in our practice of preventing pressure ulcers.

METHOD: Four-Fold Approach implemented: 1. Establish a pressure ulcer task force; 2. Review the facility’s current procedures; 3. Revise where needed; 4. Educate patient care providers.

RESULTS AND CONCLUSIONS: Through program review, education and implementing the WAFFLE® Overlay, Bariatric Cushion, Seat Cushion and the Foot WAFFLE®, the facility’s Stage II pressure ulcer rates dropped from 103 to 18 during the five year trial period.

St. Vincent’s Intensive Care Quality Improvement Committee

St. Vincent Hospital and Health Care Center, Indianapolis, IN

PURPOSE: To discover why the pressure ulcer incidence rate and the usage of specialty beds in an intensive care unit remain high.

METHOD: Patient data is reviewed and collected. Specialty bed criteria is developed to assist staff in choosing the correct bed therapy for patients. New pressure reduction mattresses are purchased and mattress overlay trials are initiated based on skin protection, user friendliness and cost effectiveness to the hospital and patient.

RESULTS AND CONCLUSIONS: The WAFFLE® Overlay, selected by staff because of its ability to logroll and transfer patients, helps decrease the “per patient” bed charges, “per month” specialty bed placement and “per patient” average days on specialty beds. Over a six month period, skin breakdown decreases by two-thirds and $500,000 is saved.

Decreasing Hospital Acquired Pressure Ulcers in the Acutely Ill Med-Surg Patient

Mercy Hospital, Springfield, MA
Margaret-Ann Azzaro RN, MSN

PURPOSE: To decrease HAPU’s in patients with multiple co-morbidities on a 26-bed Respiratory Unit.

METHOD: Formed a Pressure Ulcer Prevention (PUP) Team who instituted a signal system to indicate patients at risk. The at-risk patients were given a strict turning schedule, placed on a WAFFLE® Seat Cushion for an hour each day and fitted with a Foot WAFFLE®.

RESULTS AND CONCLUSIONS: Following the formation of the PUP Program and the implementation of the WAFFLE® products, the facility saw a 83 percent reduction in hospital acquired pressure ulcers.

Ankle Foot Orthoses in Prevention and Treatment of Heel Pressure Ulcers: A Physical Therapy Perspective

Clarian Health, Methodist Hospital-Physical Therapy Wound Management Indianapolis, IN
Sharon Lucich, PT, CWS, and Jaimee Haan, PT, CWS

PURPOSE: The purpose of this case report is to determine the safety and effectiveness of heel pressure relieving ankle foot orthoses.

METHOD: In order to determine the safety and effectiveness of each AFO as outlined above, physical therapists trial each product at home to simulate typical patient usage.

2010 Symposium on Advanced Wound Care Poster Award Winner

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Count Down to Decreasing Pressure Ulcer Prevalence
Barberton Citizens Hospital, Barberton, OH
Deanna Vargo, RN, BSN, CW, FCCWS

PURPOSE: To reduce the 17.4 percent hospital-wide pressure ulcer incidence rate at this facility.

METHOD: Daily documentation of skin inspection and risk assessment are initiated and proper prevention orders are written for all patients at risk. WAFFLE® products are used as part of this protocol (WAFFLE® Overlay, Foot WAFFLE® and WAFFLE® Seat Cushion). A full-time wound care nurse oversees the new protocol.

RESULTS AND CONCLUSIONS: Facility acquired pressure ulcers decrease from 17.4 percent to 1.7 percent in eighteen months as well as a significant savings in specialty bed rental costs.

The Importance of Correct Product Selection While Off-Loading a Heel Pressure Ulcer: Static Air Boot vs. Ankle Foot Orthosis
WellStar Kennestone Hospital - Outpatient Wound Treatment Center, Marietta, GA
Yvette Mier, BSN, RN, CWOCN

PURPOSE: To discuss the use of a static air boot versus an ankle foot orthosis (AFO) to offload a Stage III heel pressure ulcer in a wheelchair dependent patient with contractures and neuropathy in the lower legs.

METHOD: A 53 year old patient with multiple sclerosis presented with a Stage III pressure ulcer to her right heel that had been open for two months. The wound was treated with gel and the Foot WAFFLE was implemented to offload. The Foot WAFFLE did not offer enough protection from the wound rubbing against the wheelchair. An ankle foot orthosis (WAFFLE FootHold) was applied to the patient.

RESULTS AND CONCLUSIONS: While the static air boot is usually effective in non-ambulatory patients, the combination of contracture with leg spasms necessitated the sturdier ankle foot orthosis. The wound closed within three months.

How to Prevent Pressure Ulcers on a Kinetic Therapy Support Surface
Baptist Medical Center South, Montgomery, AL
Michael Byars BSN, RN, CWOCN, Kay Raxter BSN, RN-BC, CWOCN and Ramona Reed-Chism BSN, RN

PURPOSE: Prevention of skin breakdown while patient uses Kinetic Therapy Support Bed.

METHOD: Protocols were instituted for skin assessment every shift, air flow absorbent pads, silicone based dressings placed over sacral skin and the usage of a WAFFLE Seat Cushion under the patients sacral area and under their head.

RESULTS AND CONCLUSIONS: Within four months of beginning the new protocols the incidence rate for PU development was zero for all patients on kinetic therapy support surface beds. By using a combination of absorbent pad, silicone dressing and the WAFFLE Seat Cushion this acute care facility was able to not only decrease their HAPI but were also able to elevate the nursing staff awareness in prevention and promotion of best practice for their kinetic therapy support surface patients.

Determining the Right Mix of Support Surfaces to Minimize Hospital Acquired Pressure Ulcers
University Hospital, Washington, DC
Cynthia J. Sylvia, RN, BSN, CETN

PURPOSE: To examine the effect of the introduction of hospital replacement mattresses and the decreased use of two-inch convoluted foam overlays and static air overlays, on the incidence of hospital acquired pressure ulcers.

METHOD: Initially, hospital replacement mattresses were implemented in the hope of eliminating overlays. This study demonstrates a significant correlation between the decreased number of static air overlays used and an increased number of hospital acquired pressure ulcers during the first two months following introduction of hospital replacement mattresses.

RESULTS AND CONCLUSIONS: Following the reintroduction of static air overlays, the pressure ulcer incidence in the study returns to baseline. The key is the right mix of products to minimize hospital acquired pressure ulcers and to minimize associated costs. The implementation of hospital replacement mattresses does not eliminate the use of static air overlays. Instead, it shows that the prevalence of pressure ulcers cannot be reduced with the sole use of hospital replacement mattresses. With the combined use of hospital replacement mattresses and static air overlays, however, the use of two-inch convoluted foam overlays is totally eliminated.

Taking Pressure Ulcer Incidence to Zero: One Nursing Home’s Experience
Riverview Skilled Nursing Facility, Cincinnati, OH
Aletha W. Tippett, BS, ChE, M.D.

PURPOSE: To report the efforts of one skilled nursing facility to solve its problem of pressure ulcers.

METHOD: A comprehensive wound program is implemented that includes education, evidence-based protocols and a facility wide adoption of the WAFFLE® Overlay, WAFFLE® Seat Cushion and WAFFLE® Heel Elevator.

RESULTS AND CONCLUSIONS: The pressure ulcer incidence is reduced from eleven percent to zero percent in four months. A 0 percent to 1 percent incidence rate is maintained for eight more months and the facility continues to consistently retain a low pressure ulcer incidence.
On a Foot

Foot WAFFLE® Air Cushion - Case Study
VNA of Northern Virginia
Janice Mentz, RN, BSN, CETN

PURPOSE: To report the case study of a fifty-seven year old female with ESRD, diabetes with neuropathy and retinopathy. She has a fractured right tibia ORIF and a non-healing pressure ulcer on her right heel that has been present for three years.

METHOD: Initial treatment starts with Curasoft® Hydrogel wound dressing to soften eschar. A physician requests a Foot WAFFLE® after the soft cast on her right leg is removed. The Foot WAFFLE® conforms to the deformed foot.

RESULTS AND CONCLUSIONS: Remarkable changes are seen in the erythema around the right pressure ulcer within two to three days. The erythema quickly changes from non-blanchable erythema to blanchable erythema. Despite the client’s “failing” condition, the Foot WAFFLE® provides pressure relief and the wound improves within a three-month period of time.

Foot WAFFLE® Heel Cushion - Case Study
VNA of Northern Virginia
Janice Mentz, RN, BSN, CETN

PURPOSE: To report the case study of a seventy-six year old female with a pressure ulcer on the heel.

METHOD: Initial wound care orders are to elevate the heel on a pillow and apply a dressing to cover and protect the area. A WOC nurse assessment finds the periwound area macerated and the use of a pillow ineffective at keeping the heel elevated. Even though the wound cannot be staged until the necrotic tissue is debrided, the clinician suspects the wound to be a shallow Stage III. The revised treatment plan includes the Foot WAFFLE® for heel elevation.

RESULTS AND CONCLUSIONS: The Foot WAFFLE® is effective for heel elevation while the pillow is not. The Foot WAFFLE® facilitates healing for a necrotic heel wound and wounds on the calf.

Foot WAFFLE® Heel Cushion - Case Study
VNA of Northern Virginia
Janice Mentz, RN, BSN, CETN

PURPOSE: To report the case study of an eighty-seven year old female, who is admitted to a local hospital with a yeast infection from the waist down and multiple Stage II &III pressure ulcers. The patient is unable to move the left side of her body from a prior CVA.

METHOD: The yeast infection is treated and a pillow is used to elevate the heel off the bed. The patient is very combative and the pillow is ineffective in elevating the heel off the bed. A more aggressive treatment is started to the left lower extremity including the application of the Foot WAFFLE®.

RESULTS AND CONCLUSIONS: The Foot WAFFLE® corrects a pronated position and provides proper elevation for the heel. The wound on the left heel shows marked improvement within two weeks.

Foot WAFFLE® Heel Cushion - Case Study
VNA of Northern Virginia
Janice Mentz, RN, BSN, CETN

PURPOSE: To report the case study of an eighty-seven year old female with a pressure ulcer on the heel by a Braden score of 18 or less. Retrospective chart review was done 2007 – 2010 to establish pressure ulcer trend and compare outcomes.

METHOD: Outcome of this project supports the evidence-based intervention of providing pressure relief support surfaces to homebound patients at risk for pressure ulcer development.

RESULTS AND CONCLUSIONS: A follow-up prevalence and incidence study identifies an incidence rate of 7.1 percent for acute care and 0 percent for rehabilitation. This is a 59 percent and 100 percent reduction respectively from the previous year. Within the next year the incidence rate of 0 percent for acute care and 0 percent for rehabilitation is realized. Additionally, there is a 49 percent reduction in specialty bed rentals.

Reduction of Pressure Ulcer Incidence and Specialty Bed Rental Dollars Across the Continuum of Care
Memorial Hermann Northwest Hospital, Houston, TX
Jean Stow, RN, MSN,CNS, CWOCN

PURPOSE: To initiate new protocols and guidelines to reduce the pressure ulcer incidence rate 17 percent and 33 percent respectively in a two hundred bed acute care hospital and in the nineteen bed rehabilitation unit. Reducing unnecessary specialty bed expenditures is also addressed.

METHOD: The staff identifies the protocols/guidelines as outdated with no prevention strategies in place. A plan of action includes educating the staff on prevention strategies, methods to enhance healing potential, and how to use products available within the formulary. Also, protocols/guidelines are revised with emphasis on prevention and early intervention strategies. The use of static air technology (WAFFLE® Overlay, WAFFLE® Seat Cushion and Foot WAFFLE®) is implemented into the program.

RESULTS AND CONCLUSIONS: Significant cost savings for agency and greatly improved outcomes for at-risk patients. Pressure ulcer incidence in 2010 was reduced to 2 percent.

Reduction of Community Acquired Pressure Ulcers Using a Static Air Pressure Relief Support System
Atlantic Home Care, Atlantic City, NJ
Stephanie Hill-Brown RN, MSN, CWOCN

PURPOSE: To reduce the rate of community acquired pressure ulcers for patients in the home care setting.

METHOD: Agency WOCN was awarded a grant to purchase 650 pressure relief seat cushions. Visiting Nurses distributed cushions to patients deemed at risk for developing a pressure ulcer by a Braden score of 18 or less. Retrospective chart review was done 2007 – 2010 to establish pressure ulcer trend and compare outcomes.

RESULTS AND CONCLUSIONS: Pressure Ulcer incidence in 2010 was reduced to 2 percent. Significant cost savings for agency and greatly improved outcomes for at-risk patients. Outcome of this project supports the evidence-based intervention of providing pressure relief support surfaces to homebound patients at risk for pressure ulcer development.
Featured Studies

Improving Quality of Life in the LTC Hemodialysis Patient
Sibel Christiasion, RN, Long-Term Care Director

**PURPOSE:** To address a Stage III sacral pressure ulcer in a hemodialysis patient.

**METHOD:** Due to a Stage III sacral pressure ulcer, a long term care, hemodialysis patient must receive treatment at bedside instead of travelling to an outpatient center. The patient becomes depressed because of the confinement. The staff implements the WAFFLE® Chair Pad as a pressure ulcer treatment device and uses it during the patient's transportation to the center and throughout dialysis treatment.

**RESULTS AND CONCLUSIONS:** The patient's wound closes in two months while her quality of life improves due to a simple pressure relieving surface that enables her to be transported to her outpatient dialysis center.

Healing a Stage IV Pressure Ulcer on the Elbow Using a Static Air Boot
Lewis-Gale Medial Center, Salem, VA
Kimberly D. Hall RN, BSN, MSNc, CWCN

**PURPOSE:** To treat an unusual Stage IV pressure ulcer on the elbow in a spinal cord injured adult using a static air support device.

**METHOD:** After several failed attempts to properly treat an ulcer on the patient's elbow, a Foot WAFFLE® was fitted to the patient's arm, with the 'foot' portion cradling the elbow. The 'leg' area of the Foot WAFFLE® protected the patient's forearm.

**RESULTS AND CONCLUSIONS:** The alternate use of the Foot WAFFLE® helped heal the patient's elbow ulcer 100 percent over a twelve week period.

Taking the Pressure Off in the ICU
High Point Regional Health System, High Point, NC
Susan Dunzewiller, RN, CWCN, Wound Care Patient Care Coordinator, Karen Gammons, RN, Director of Collaborative Patient Care Management and Laura Hinson, RN, Pulmonary Patient Coordinator

**PURPOSE:** To decrease the risk, incidence and prevalence of nosocomial pressure ulcers in the adult ICU.

**METHOD:** Subject sample consisted of ICU patients who qualified with certain conditions for using the WAFFLE® Overlay and Foot WAFFLE. Weekly charts, audits and rounds were performed by the CWCN and the Project Champion to monitor the effectiveness of the static air products. An objective data collection tool was utilized.

**RESULTS AND CONCLUSIONS:** There were no HAPU on any patient using the WAFFLE Overlay. The Foot WAFFLE results were not as conclusive due to 50 percent of the patients who had an existing pressure ulcer. A 21 percent nosocomial pressure ulcer rate was reduced to 0 percent in three months.

Comparison of two heel devices

The Effectiveness of Two Heel Pressure Reduction Devices for the Heel Pressure Ulcer Prevention
Hospital of St. Raphael, New Haven, CT
Anne Aquila, MSN, RN, CS and Deborah Ferretti, MS, RN, CS

**PURPOSE:** To compare the effectiveness of the Foot WAFFLE® and the Stryker® Air-Shu Boot in reducing tissue interface pressures at the heel and in the prevention of heel ulcers. This research will be utilized to make product selection decisions at the hospital.

**METHOD:** Thirty-four adult patients are selected based on pre-established inclusion criteria. Each patient wears a Foot WAFFLE® on the right foot and a Stryker® Boot on the left foot. Pressure readings are taken on pre-determined areas (heel, Achilles, calf) at pre-determined intervals. Subjective data is also collected.

**RESULTS AND CONCLUSIONS:** The Foot WAFFLE® has lower readings on the heel than the Stryker® Boot. The Foot WAFFLE® readings on the Achilles and calf are slightly higher, but are not statistically significant, nor do the clinicians want any changes to the Foot WAFFLE®. The patients prefer the Foot WAFFLE® over the Stryker® Boot.

A 3-Year Retrospective Analysis Comparing the Effectiveness of Medical Devices to Non-Medical Devices in the Treatment of Heel Pressure Ulcers
Kathi Whitaker, ET, MSN, CNS, Glenda Motta RN, ET, MPH, and Anand Vidadshankar, Ph.D

**PURPOSE:** To compare the clinical outcomes of heel pressure reduction devices, pillows and no devices.

**METHOD:** A retrospective study of one hundred patients with heel ulcers is conducted. The data review reveals various types of therapeutic management, including multiple, commercially available heel products.

**RESULTS AND CONCLUSIONS:** The use of medical devices as part of the treatment plan for heel ulcers increases the rate of wound closure. The rate of wound closure is significantly faster for subjects receiving a device than for subjects receiving a pillow. The rate is also significantly faster for subjects receiving the Foot WAFFLE® than for all other subjects grouped together.

Heel Pressure Ulcer Prevention
Duke University Hospital, Durham, NC
Penny Jones, RN, MN, CW, and Nancy Payne, RN, BSN, CWOCN

**PURPOSE:** To evaluate and select a pressure ulcer prevention device with the goal of reducing the nosocomial heel ulcer rate within the facility.

**METHOD:** The surgical intensive care unit and two post surgical units are identified as having the highest nosocomial heel ulcer rate and are selected to participate in the nursing trial. A tool is developed to identify patients at risk. Multiple, commercially available heel pressure reduction devices are evaluated based on effectiveness, ease of application, cost, durability, flexibility of application using dressings and more.

**RESULTS AND CONCLUSIONS:** Based on the trial, the Foot WAFFLE® is the product that best meets the criteria and is implemented throughout the hospital. In the five months following the trial, the heel nosocomial pressure ulcer rate for the identified units decreases to 1.58 percent for the SICU and zero percent for the post surgical units.
Heel ulcers reduced in hip fracture population

Incidence rate to zero on heel

Reducing Heel Ulcer Incidence Among Hip Fracture Patients by Introducing a Clinical Algorithm
Phelps County Regional Medical Center, Rolla, MO
Retta Sutterfield, RN, BSN, CWOCN

PURPOSE: There is an estimated 25 percent incidence of Stage I and II heel ulcers at this acute care facility. This study examines the effectiveness of a traumatic hip fracture algorithm, including use of the Foot WAFFLE®, in the prevention of heel ulcers among patients with hip fractures.

METHOD: The algorithm is designed to standardize and improve the quality of prevention being delivered with high-risk patients. It focuses on nutrition, mobility, proper use of the Braden Scale for all orthopedic admissions, as well as required use of the Foot WAFFLE® immediately after surgery.

RESULTS AND CONCLUSIONS: The implementation of the Foot WAFFLE® in a heel ulcer prevention protocol for patients with hip fractures reduces heel ulcer development, while increasing patient and staff satisfaction and overall cost of care.

Prevention of Heel Ulcers Among Hip Fracture Patients
Greater Niagara General Hospital, Niagara Falls, Ontario, Canada
Joanna Mataya, BHSC, OT

PURPOSE: To determine if the introduction of the Foot WAFFLE® reduces the fifty-three percent incidence rate of heel ulcers in the fractured hip patients admitted to this facility.

METHOD: During a seven month time period, sixty hip fracture patients are admitted to this facility. Each patient is given a Foot WAFFLE® per the new prevention program. All patients are between sixty-one and ninety-two years of age.

RESULTS AND CONCLUSIONS: All sixty patients utilize the Foot WAFFLE® and no pressure ulcers develop. The incidence rate drops to 0 percent.

Prevention of Heel Pressure Ulcers in Fractured Hip Patients
Columbus Regional Hospital, Columbus, IN
Lena McCubbin, MS, RN, CWOCN, Donna Smith, RN, UBCM and Kathy Jackson, BSN, RN, CRNN

PURPOSE: To examine the effectiveness of early intervention to prevent heel ulcers in hip fractured patients.

METHOD: The authors hypothesize that air overlays help prevent post-fracture heel ulcers. Patient populations are evaluated in a before and after group study. Standard practice to protect the heel in the before group is pillows for prevention and heel boots for treatment. The after group is evaluated using only static overlay mattresses.

RESULTS AND CONCLUSIONS: Nosocomial heel ulcers drop from 5.6 percent to 0 percent by using no other heel device, following protocols and placing hip fracture patients on static air overlays within eight hours of admission. In addition, no sacral ulcers are identified in the after group.

Pressure Ulcers Patient Outcomes on a KinAir® Bed or EHOB Mattress
Brook Army Medical Center, Ft. Sam Houston, TX
Gladys A. Cobb, RN, MSN, CETN, LTC Linda H. Yoder, RN, MBA, PhD, AOCN, and Joseph B. Warren, RN, BSN,CNRN

PURPOSE: To evaluate the clinical use and cost of preventing pressure ulcers in high-risk patients with specific focus on the KinAir® Low Air Loss Bed and WAFFLE® Overlays.

METHOD: Over a 14 month period, 123 adult volunteers without a pre-existing ulcer, assessed as “high-risk” are enrolled in the study. This study addresses the following research questions: 1.) What is the demographic profile of the patient? 2.) Is there a difference in the number of pressure ulcers or the seriousness of pressure ulcers that develop among high-risk patients when the KinAir® Low Air Loss specialty beds are used compared to WAFFLE® Overlays? 3.) Is there a difference in cost related to the two products?

RESULTS AND CONCLUSIONS: There is no statistically significant difference between the two surfaces in reduction of pressure ulcers. For most high-risk patients a low-tech, less expensive mattress overlay is found to be as effective as a high-tech, high-cost specialty bed. Costs for pressure ulcer prevention and treatment are significantly different when comparing the surfaces. The facility implements a pressure ulcer prevention program utilizing the WAFFLE® Overlay.

Skin Failure What Happens When This Organ System Fails?
Indianapolis, IN
James G. Spahn, MD, FACS, Lisa Hobbs, RN, BSN, CWOCN, and Christie Sprinkle, RN, BSN, CWOCN

PURPOSE: To examine why some pressure ulcers are unavoidable.

METHOD: A seventy-three year-old patient has a medical history of gastrointestinal bleed and Parkinson’s disease. A motor vehicle accident leaves him with multiple fractures and a closed head injury. He develops respiratory failure and has twenty-six nosocomial wounds before he dies. An autopsy reveals that Multiple Organ Dysfunction Syndrome (MODS) is the cause of death.

RESULTS AND CONCLUSIONS: Multiple Organ Dysfunction Syndrome (MODS) makes tissue necrosis inevitable. Until clinicians fully understand the pathophysiology of MODS-like occurrences and have the capability to diagnose, prevent and treat them, pressure ulcer formation cannot be completely avoided.
Protocols for Prevention of Pressure Ulcers in Home Care
Battle Creek, MI
Linda Warren, RN, CETN, MSN, FNP-C

PURPOSE: To give a nurse a step by step protocol to assess and initiate care based on the pressure ulcer risk factors of the patient. The criteria is based on Braden Scale, Homecare Guidelines and AHCPR Guidelines.

METHOD: Support surface protocols include the WAFFLE® Overlay for Group 1 and Hill-Rom® Products for Group 2 & 3 support surfaces.

RESULTS AND CONCLUSIONS: The protocols decrease the number of pressure ulcers, improve the compliance of the nurses to initiate early steps to prevent pressure ulcers and provide the nurses with a tool to select the appropriate support surface based on the risk factors of the patient.

A Clinical Study of Hospital Replacement Mattresses
Pittsburgh and McKeesport, PA
Gwen Johnson, RN, BSN, CETN, Carol Daily, RN, BSN, CETN and Veronica Francis, RN, BSN, CETN, MA

PURPOSE: To explore the performance of various hospital replacement mattresses (HRMs) in the hospital setting and to determine if they provide pressure-relieving capabilities that are sufficient enough to eliminate or decrease mattress overlays such as foam, gel or air.

METHOD: Four Pittsburgh hospitals participate in a study of seven HRMs from seven companies. Fifty-five patients participate in the study with a total of thirty pre-existing pressure ulcers.

RESULTS AND CONCLUSIONS: It is recommended that institutions consider eliminating use of the two-inch foam mattress, since it is appropriate only as a comfort device. Any higher quality overlays, such as the static air mattresses, which are often used for the patient at higher risk, should be kept on hand until it is certain that the HRM chosen by a facility can replace the established need for these. The heel area should be assessed frequently, and it may be necessary to use additional products such as heel protectors to elevate the heels above the mattress surface at all times.

Effectiveness of an Air Mattress Overlay and Seat Cushion for the Prevention of Pressure Ulcers
Shore Health System, a division of University of Maryland Medical System, Easton, MD
Amy B. Stafford, MSN, RN, CMSRN and Jeanne Brower, MSN, RN, BC

PURPOSE: This study investigated whether the use of an air mattress overlay and seat cushion on all patients admitted to the 3 East Surgical Unit would decrease the incidence of pressure ulcers as defined by the National Pressure Ulcer Advisory Panel.

METHOD: This study compares a one-day snapshot survey of patients with standard pre­vention strategies and a one-day snapshot survey after usage of an air mattress overlay and seat cushion, education for the patient, families and nursing staff.

RESULTS AND CONCLUSIONS: The use of an air mattress overlay and seat cushion, along with education for the patient, families and nursing staff results in positive patient outcomes. The nursing clinical implications of this study show that the use of an air mattress overlay and seat cushion significantly reduces hospital acquired pressure ulcers.
Decreasing Pressure Ulcer Nosocomial Rates at a Large Metropolitan Teaching Hospital
Clarian Health Partners, Indianapolis, IN
Lisa Hobbs, RN, BSN, CWOCN and Michelle Klengner, RN, BSN, CWOCN

PURPOSE: To decrease the high pressure ulcer incidence rate in the intensive care unit of a large teaching facility.

METHOD: The WOCN Team identifies contributing factors to skin breakdown among ICU patients and uses this information to develop protocols. They pay close attention to nutrition, heel evaluation and they place a WAFFLE® Overlay on top of a Total Care® treatment surface.

RESULTS AND CONCLUSIONS: Education, support surface selection, skin care rounds and the WOC nurse contribute to preventative measures and documentation that lead to a lower nosocomial rate in this facility.

Pressure Ulcer Care for a Terminally Ill Patient Being Cared for at Home
Jerra-Marie Sullivan, RN, BSN, CETN and Dianne Mackey, BSN, PHN, CETN

PURPOSE: To demonstrate the challenges to both caregiver and patient when addressing pressure ulcers.

METHOD: A sixty-six year old terminally ill patient is cared for in the home by his wife and a visiting home health nurse. Due to the severity of the patient’s condition, pressure ulcers develop and ET nurses are consulted. A new care plan is implemented to address the patient’s multiple health issues while honoring his request to remain at home in the last stages of life. The WAFFLE® Overlay provides comfort and pressure ulcer treatment.

RESULTS AND CONCLUSIONS: The goals of the patient and caregiver are ultimately met in the home using hospice care.

In-Vivo (CT Scan) Comparison of Vertical Shear in Human Tissue Caused by Various Support Surfaces
Department of Biology, Indiana University-Purdue University, Columbus, IN
Lisa M. Conner, PhD, and James W. Clack, PhD

PURPOSE: To research deep tissue shear as a significant factor in the formation of pressure ulcers by using human tissue in-vivo derived from CT scans.

METHOD: Pelvic CT scans of three subjects are examined lying upon three depths of foam mattress overlays and an air mattress overlay commonly used in the prevention of pressure ulcers. A comparison of subject to support surface contact area is made by measuring the line of contact between the subject’s skin and the mattress overlay.

RESULTS AND CONCLUSIONS: Human tissue is prone to both compression (pressure) and shear force (vertical shear). The combination of an air mattress overlay on at least three-inches of foam has the lowest degree of tissue shear and provides the greatest area of contact between surface support and subject when compared with foam. Tissue shear decreases as the area of the load increases. Vertical shear is reduced with the air mattress thus decreasing the risk of pressure ulcer development.

Effects of a Support Surface on Homeostasis
Keep It Simply Scientific
Indianapolis, IN
James G. Spahn, MD, FACS and Christie Sprinkle, RN, BSN, CWOCN

PURPOSE: To explain the pathophysiology behind pressure ulcer development and assist caregivers in choosing support surfaces that facilitate the body’s ability to maintain a stable internal environment (homeostasis).

METHOD: A literature review examines the key mechanical and physiologic factors relating to tissue necrosis and pressure ulcer development.

RESULTS AND CONCLUSIONS: The true culprit in tissue ischemia necrosis (pressure ulcer) is endothelial damage. The laws of physics show that flotation therapy provides volumetric support of soft tissue. Understanding the pathophysiology of support surface-induced ischemia will lead clinicians to choose support surface products that prevent endothelial damage and facilitate the autoregulation functions of the body (homeostasis).

Support Surface Principles – Based on Scientific Fact
Indianapolis, IN
James G. Spahn, MD, FACS, Lisa Hobbs, RN, BSN, CWOCN, and Christie Sprinkle, RN, BSN, CWOCN

PURPOSE: To clarify misconceptions relating to effective support surface management of pressure ulcers.

METHOD: Facts and myths with supporting scientific data are used to demonstrate the mechanical forces of pressure ulcer formation and the physiologic consequences of placing a body on a support surface.

RESULTS AND CONCLUSIONS: (1) Pressure ulcers do not occur from pressure alone (2) Soft tissue distortion is caused by PresShear™ forces created by the support surface (3) Bony prominence impaling into soft tissue leads to distortion, ischemia and necrosis. (4) The type of material the support surface is made of dictates what type of stress is placed on the body (5) Flotation therapy is based on the weight of the body being unloaded in the fluid media. (6) All types of ischemia are best prevented by a static fluid system.
The Effect of WAFFLE® Polyvinyl and Foam Polyurethane Mattress Materials on the Growth of Escherichia Coli Pseudomonas Aeruginosa, and Staphylococcus Aureus
Reid Hospital and Health Care Services, Richmond, IN
David Velazco, Ph.D., Clinical Director of Microbiology

PURPOSE: To examine polyvinyl material used in WAFFLE® Overlays and polyurethane used in foam mattresses to determine their effect on the growth of bacteria often associated with skin infections.

METHOD: Each piece of mattress material (polyvinyl and polyurethane) is placed in a test tube containing either bacteria (E. Coli, Pseudomonas, and Staphylococcus Aureus) or sterile saline. The tubes are incubated for different time periods.

RESULTS AND CONCLUSIONS: The antimicrobial formula used in the polyvinyl of WAFFLE® Overlays kills E. Coli. Polyurethane actually supports the growth of E. Coli and Pseudomonas and delays the death of Staphylococcus Aureus. WAFFLE®’s polyvinyl can be easily decontaminated with disinfectant, thus it appears to have an advantage over foam in reducing the risk to patients for developing infections.

A Lift Team’s Approach to Selecting Transferring and Positioning Devices
Clarian Health, Indianapolis, IN
Terry Hobbs, RN, BSN, MSA

PURPOSE: To examine equipment choices by the Indiana University Hospital (IUH) Lift Team, and to chart injury reduction outcomes while transferring and positioning patients on the chosen products.

METHOD: The IUH Lift Team chose five pieces of equipment to assist with transfers, positioning and lifting – WAFFLE®, Liftem® floor lift, gait belt, Slipp®, and AirPal®. Each piece of equipment was evaluated for six months while patient handling injuries were documented.

RESULTS AND CONCLUSIONS: The annual cost of patient handling injuries decreased from 283,861 to 56,988 over the evaluation period. And, among lift team members, WAFFLE® was deemed the most useful turning and transferring device available. In August, 2006 the IUH critical care units adopted a policy of placing every patient on either a WAFFLE® or specialty bed for decubitis ulcer prevention.

Wound Treated With Static Air Overlays
Cincinnati, OH
Aletha W. Tippett, BS, ChE, M.D.

PURPOSE: To report the case study of seven patients with wounds considered to be untreatable and whose wounds had failed various standard treatments.

METHOD: Patient’s are treated with static air overlays, medicated hydrogel wound dressings and weekly high-voltage pulsed current electrical stimulation therapy.

RESULTS AND CONCLUSIONS: With WAFFLE® products along with the medicated hydrogel and wound dressings the wounds on the case study patients healed within 12 weeks, with a total cost saving of $47,033.99.

Methodist Hospital Pressure Ulcer Prevalence Survey
Quality Improvement Skin Care Task Force
Methodist Hospital, Indianapolis, IN
Sheely Lancaster, RN, MSN

PURPOSE: To decrease the incidence of nosocomial pressure ulcers throughout the hospital by increasing staff knowledge about skin care and promoting risk assessment and prevention of pressure ulcers throughout the hospital.

METHOD: Indiana’s fifth largest hospital’s nosocomial rate increases following the discontinuation of WAFFLE® Overlays and the implementation of new dynamic sleep surfaces and pressure reducing mattress replacements. Methodist Hospital reinstates the WAFFLE® Overlays as part of the hospital protocol and experiences the lowest prevalence rate during the study.

RESULTS AND CONCLUSIONS: WAFFLE® products play a significant role in decreasing the facility’s nosocomial pressure ulcer rate and save the institution millions of dollars over several years in specialty bed rentals.

Case Series Studying Nosocomial Pressure Ulcers in the Post-Operative CABG Patient
Central Baptist Hospital, Lexington, KY
Jeremy Honaker, RN, BSN, CWON and Emily Davis, RN, MSN, CWOCN

PURPOSE: To decrease the incidence of pressure ulcers among Coronary Artery Bypass Graft (CABG) patients post-operatively in the Cardiothoracic Intensive Care Unit.

METHOD: Facility implements a protocol requiring the immediate use of a static air overlay for all post-op CABG patients upon transfer to ICU from the operating room. Secondly, nurses are educated in three tiers: 1) Affirms prior knowledge regarding prevention of pressure ulcers and clearly identifies the problem in their area. 2) Reviews pressure ulcer prevention guidelines and policy changes. 3) Conveys to staff recent advances in the field of pressure ulcer staging, development and treatment.

RESULTS AND CONCLUSIONS: This simple and low cost intervention dramatically reduces nosocomial pressure ulcer occurrence in a post-operative CABG population. This combination of protocols set into place and staff education elevates the nurses’ awareness of skin integrity changes thus providing them with tools to diminish the incidence of pressure ulcers.