PfP NJ 2.0 Pressure Ulcer Prevention Learning Action Group Webinar #3: Reducing Pressure Injuries from Medical Devices

August 23, 2016

New Jersey Hospital Association Institute for Quality & Patient Safety

Hosted by New Jersey Hospital Association

Lauren Rava, MPP

Collaborative Faculty

Peggy Kalowes, RN, PhD, CNS, FAHA

Director, Nursing Research, Innovation and Evidence Based Practice

Long Beach Memorial

Miller Children's & Women's Hospital, Long Beach

New Jersey Hospital Association
Institute for Quality & Patient Safety

Agenda

- Partnership for Patients-NJ 2.0 updates
- Presentation: Reducing Pressure Injuries from Medical Devices
- Q&A
- Next steps

New Jersey Hospital Association
Institute for Quality & Patient Safety

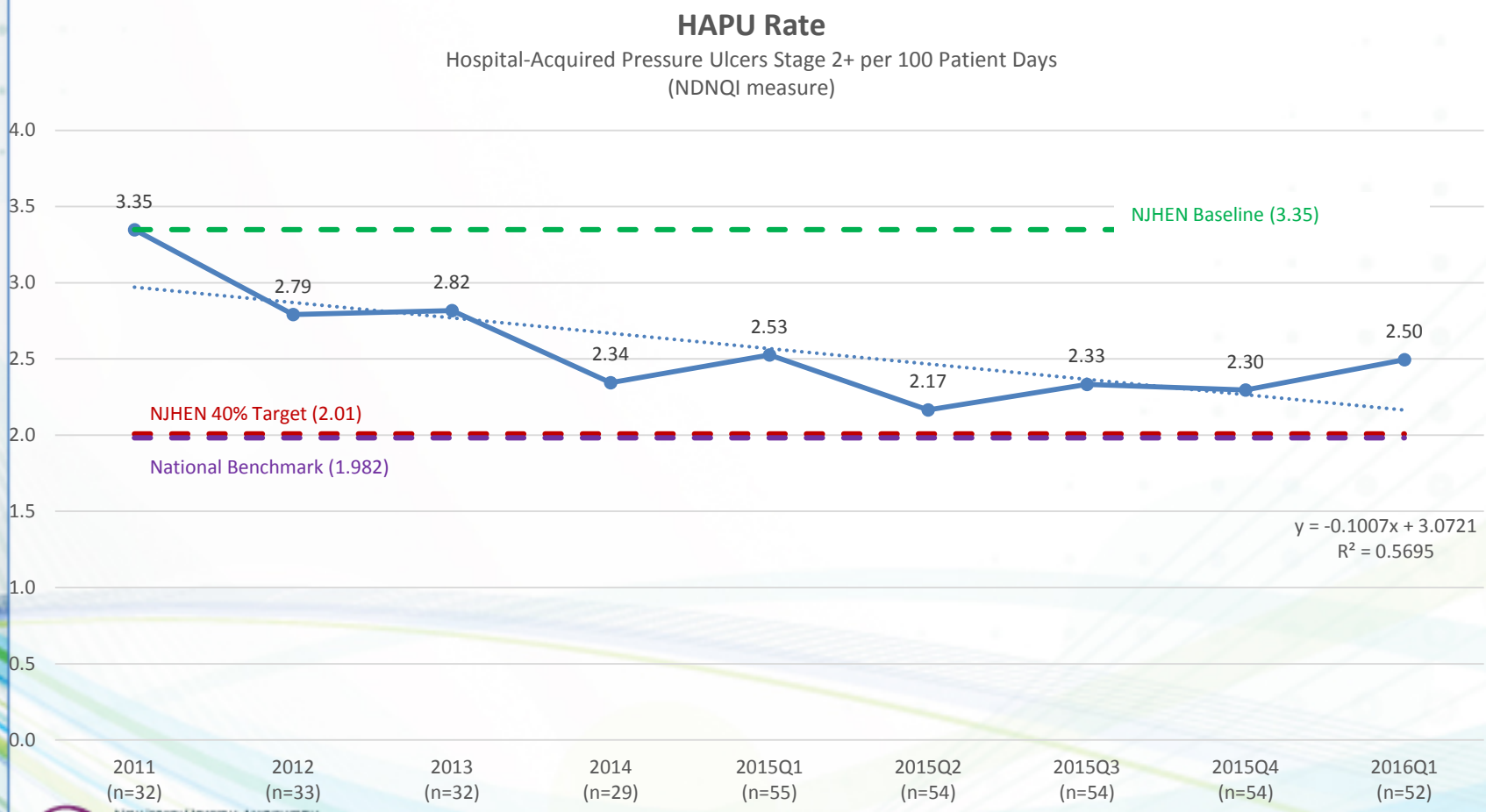
Goals

- Reduce HACs 40% from 2010 baseline
- Reduce preventable readmissions 20% from 2010 baseline

*It is important to note a data anomaly for the fall and falls with injury rates for first quarter 2015. The data shows a dramatic increase in rates. There are a couple of possibilities. One, 2015 was a particularly harsh winter and this could have possibly led to increase in falls due the effect with the elderly population. Or two, the data is misrepresented. We are currently investigating the issue and will update with our findings.

New Jersey Hospital Association Institute for Quality & Patient Safety

Project Updates



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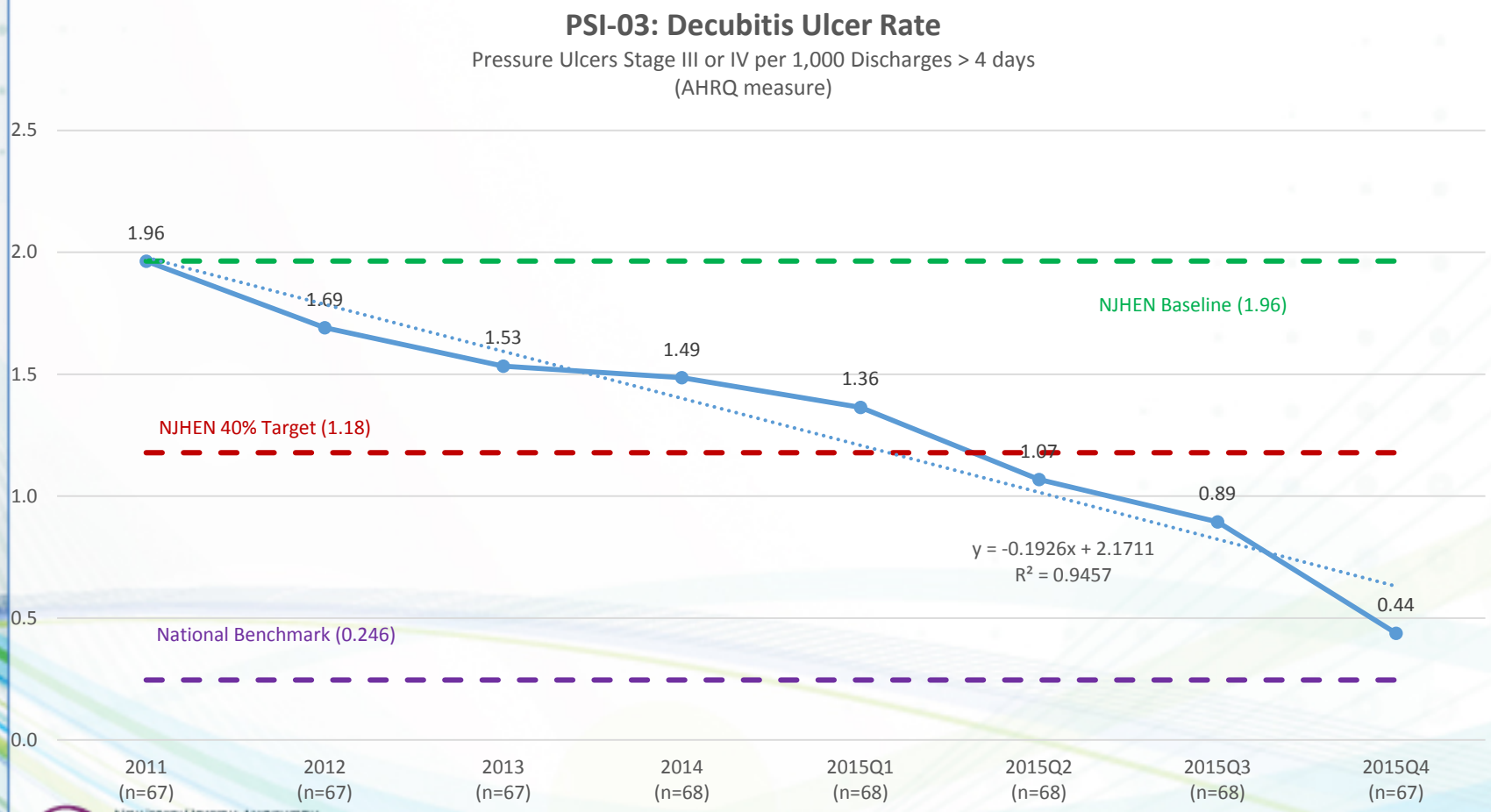
Project Updates



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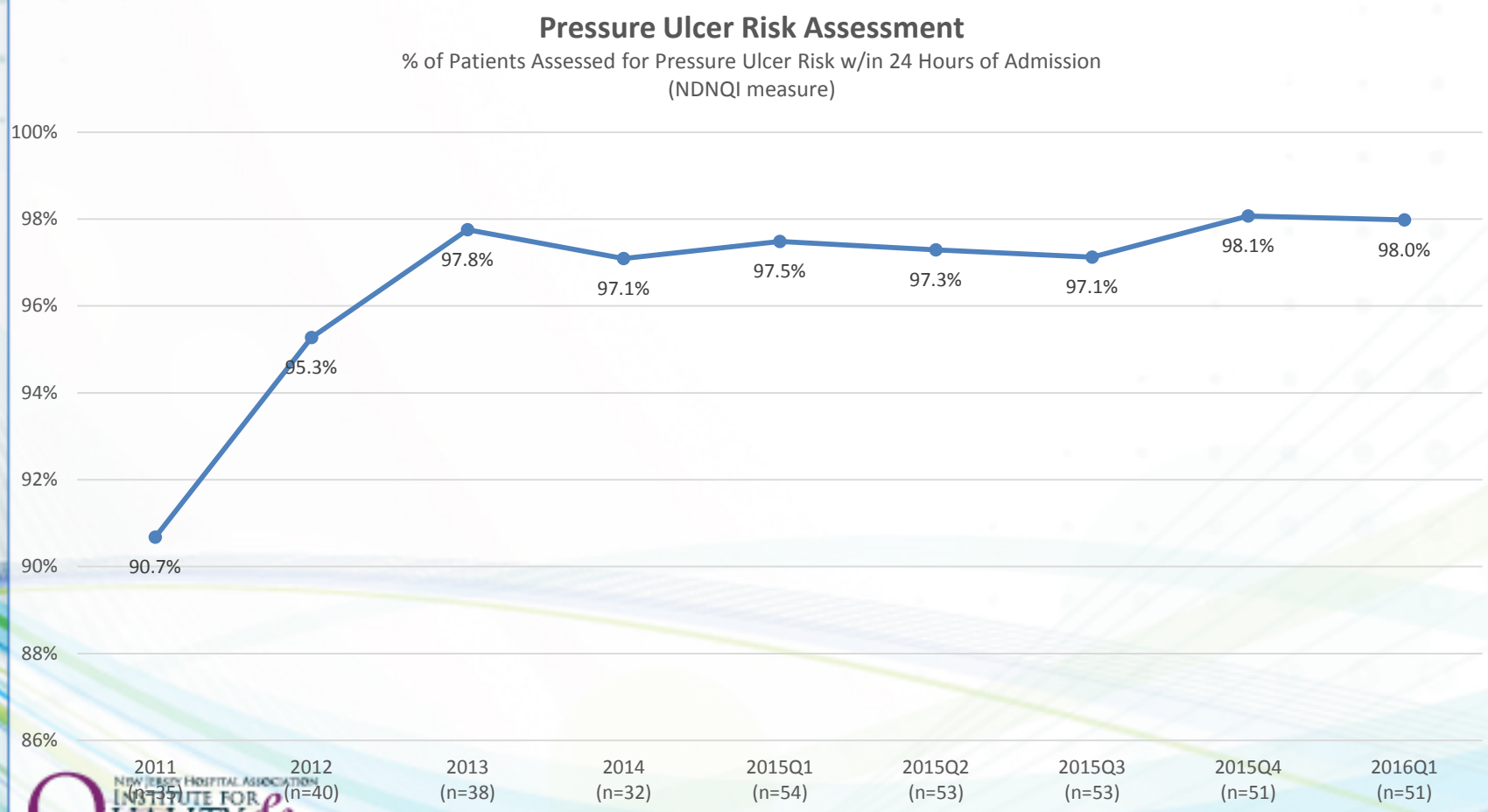

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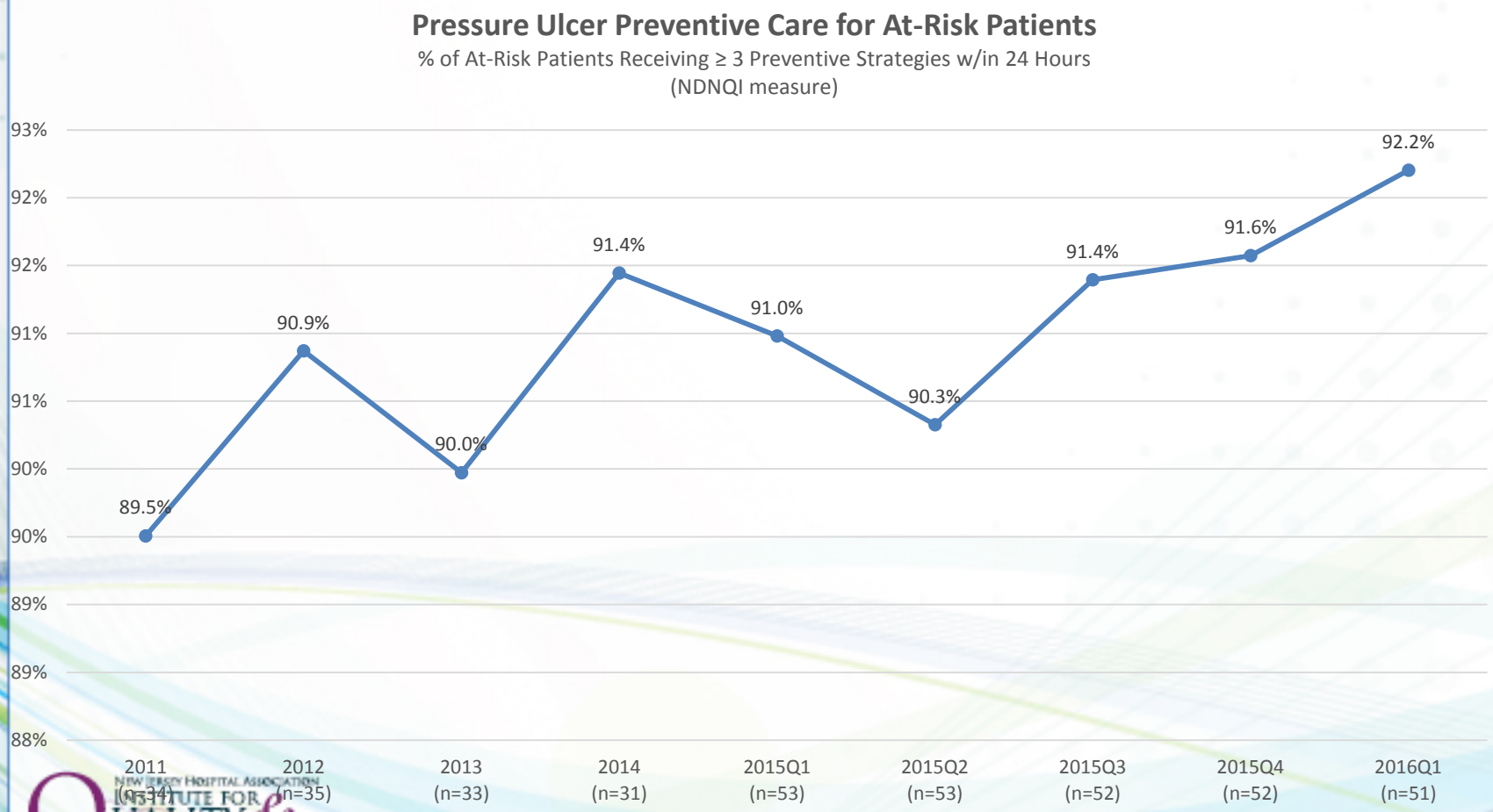

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Pressure Injury Prevention Program to Reduce Harm and Improve Organizational Reliability

Pressure Ulcer Learning Action Group Webinar Series:

Reducing Pressure Injuries from Medical Devices

August 23, 2016

Peggy Kalowes PhD, RN, CNS, FAHA

Director, Nursing Research and Innovation,

Long Beach Memorial Miller Children's & Women's Hospital

pkalowes@memorialcare.org

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Learning Objectives

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1. Describe recent recommended changes of National Pressure Ulcer Advisory Panel (NPUAP) and how that impacts terminology, prevention, assessment, staging and management.
2. Describe organizational steps to direct hospitals through the change process to achieve high reliability and zero harm.
3. Describe new evidence and best practice interventions according to the 2014 NPUAP/EPUAP International Pressure Ulcer Guidelines, in reducing incidence of pressure injuries, including medical device related (PIs) in an acute care setting.
4. Define key tactics which health care organizations can use to engage care providers in best practices to reduce harm/injury to maintain high reliability.
5. Inspire make at least one change in your clinical practice based on the evidence presented.

What/Where is MemorialCare?
Southern California

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ABOUT US.....

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Long Beach Memorial, Miller Children's and Women's Hospital, Long Beach
MemorialCare Health System
569-bed, Academic, Level III Trauma Center, Level I, NICU (100-bed) Long Beach, California

Community Hospital Long Beach, MemorialCare Health System
100-bed, Acute Care; 30-bed in-patient Behavioral Health; and Outpatient Services, Long Beach, CA

Saddleback Memorial Medical Center
MemorialCare Health System
Laguna Hills, CA 92653

Orange Coast Memorial
120-bed, Acute Care Hospital; and Heart Institute
Fountain Valley, CA

Creating Strategic Linkage

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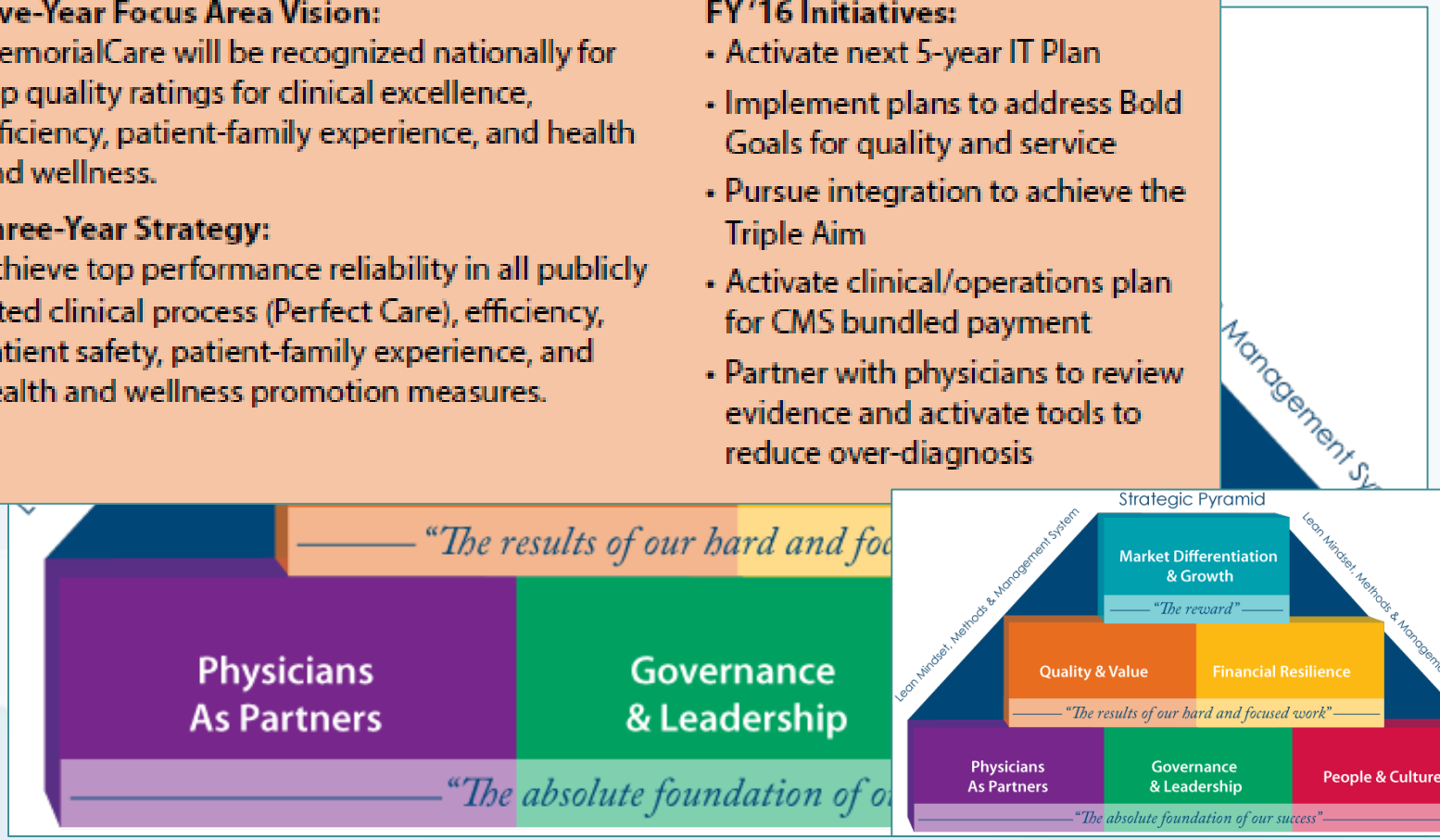
Quality & Value

Five-Year Focus Area Vision:
MemorialCare will be recognized nationally for top quality ratings for clinical excellence, efficiency, patient-family experience, and health and wellness.

Three-Year Strategy:
Achieve top performance reliability in all publicly rated clinical process (Perfect Care), efficiency, patient safety, patient-family experience, and health and wellness promotion measures.

FY '16 Initiatives:
- Activate next 5-year IT Plan
- Implement plans to address Bold Goals for quality and service
- Pursue integration to achieve the Triple Aim
- Activate clinical/operations plan for CMS bundled payment
- Partner with physicians to review evidence and activate tools to reduce over-diagnosis



Aiming High, Aiming Wide for High Reliability

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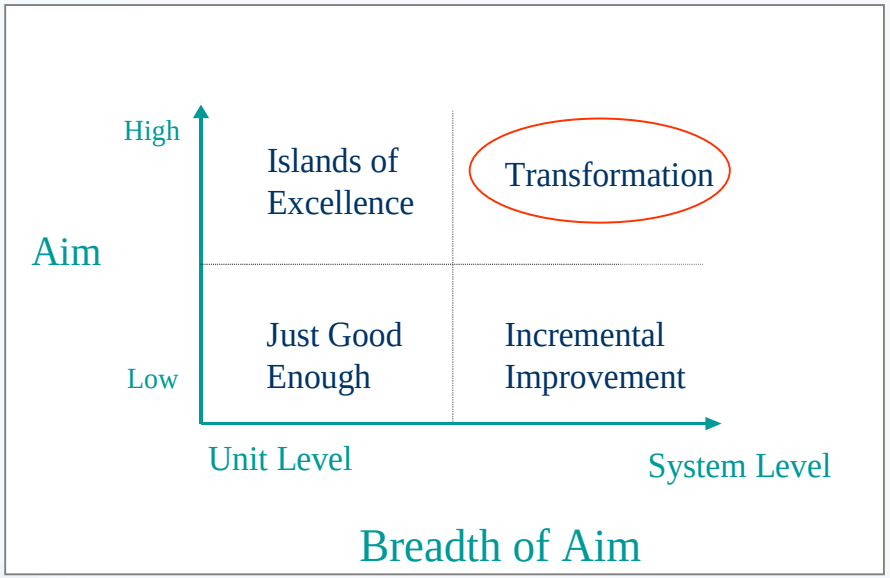

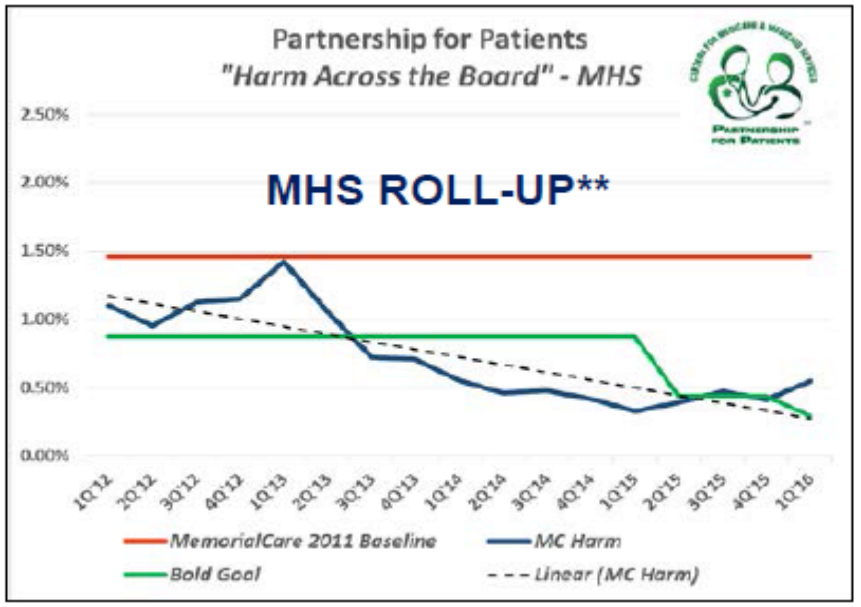

MHS partnership with the HEN2

Creating Highly Reliable Healthcare

★**Every patient**

★**Every time!**

MemorialCare's Bold Goals today for Safety FY17

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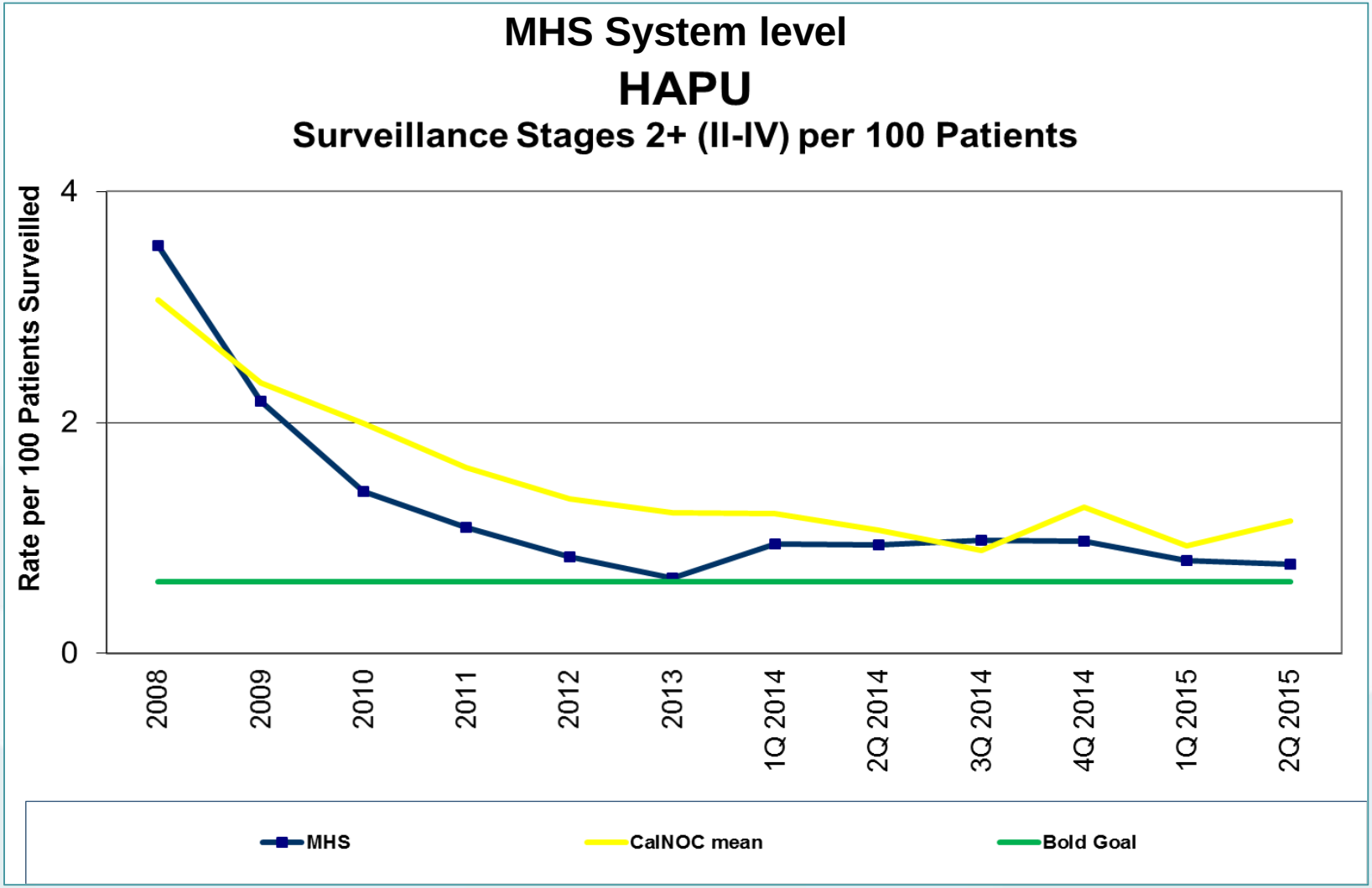
- Reduce **mortality**
  - Reduce **sepsis** mortality by 70%
  - Reduce **code blue** emergencies outside of the ICU by 50%
- Achieve **"perfect care"** of 95%
  - **Core Measure** sets – all diagnoses/bundles
  - **Medication Reconciliation**
- Reduce **harm** to Zero Zone
  - Hospital acquired **infections** (HAI)
  - **HA pressure injuries**
  - **Patient falls** with injury
  - Reduce **Harm Across the Board** by 70%
- Promote **Population Health** ≥ top 90th
  - **Medical Foundation** goals
    - Childhood immunizations, breast cancer screening, colorectal cancer screening, diabetes care, overall generic prescribing




Bold Goal – Get to Zero Harm



High Reliability Definitions

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- **Reliability** – A probability that a system will yield a specified result.
- **HRO** – An organization that is involved in a complex and high risk environment that delivers exceptionally safe and consistently high quality service/care over time.
  - Nuclear Power Plant, Aircraft Carrier, Airline Flight, Amusement Park, Hospitals??

How safe are our Patients in the Hospital? Airlines vs. Health Care

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- IOM "To Err is Human" estimate
  - 44,000-98,000 deaths in hospitals due to errors in care
  - 34.4 million hospitalizations per year
  - Rate = 1300-2800 deaths per million hospitalizations
- US Airlines: 2002-2012
  - Rate = 1.74 deaths per million flights
- Hospital care is 750-1600 times less safe

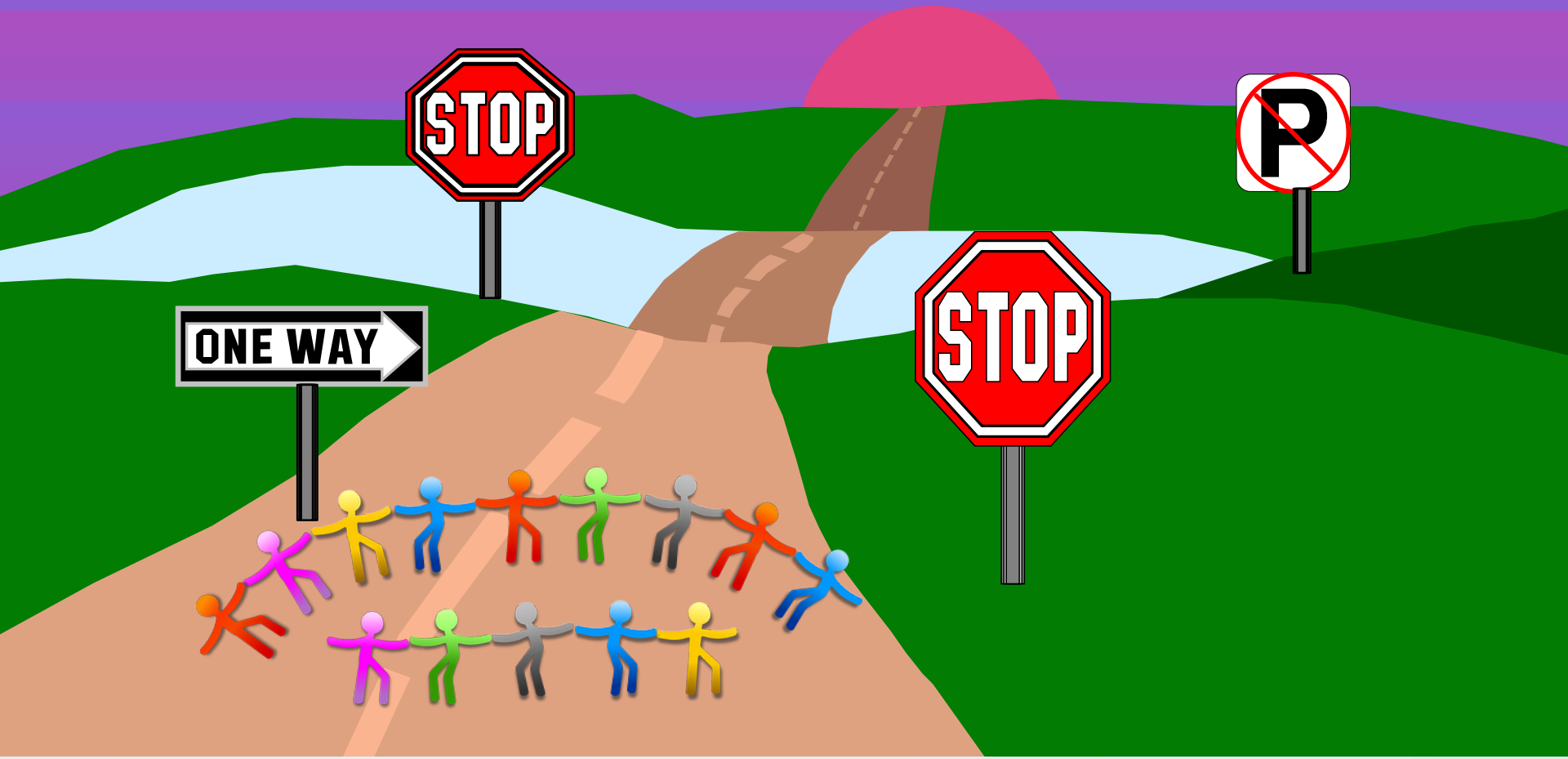
How Do Serious Safety Events

Deviations from best-practice care → causing → Significant Patient Harm = Serious Safety Event

Serious Safety Events include errors that result in death, permanent loss of function, or injury, such as:

- Transfusion reaction
- Medication error
- Misdiagnosis
- Hospital-Acquired Infection
- Treatment error
- Delay in treatment
- Wrong site/side surgery or procedure
- Fall with serious injury
- others…

High Reliability Journey to Reduce Harm to 'Zero Zone' from Hospital Acquired Pressure Injuries



Our Journey……
Reviewing Some Facts

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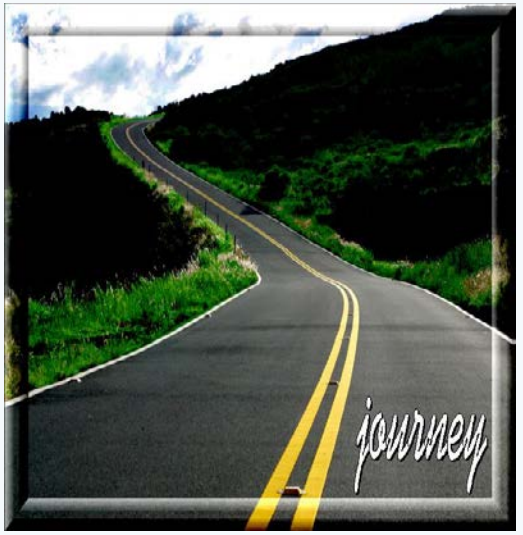
- **By 2030, 1 in 5 Americans will be 65yrs old or greater than (72 million people).**



- Challenge of delivering quality care to aged w/multiple comorbidities at best will be extremely complex and challenging.

- **Interrelationship between medical -decision making and legality issues r/t to Pressure Injury care has never been greater or more treacherous.**[5]

Facts……

- **Number affected by PIs:** 2.5 million patients per year

- **Cost:** In United States, pressure injury care is estimated to be $9.1 to $11 billion annually, a cost of between $20,900 and >$151,700 per individual pressure injury (PI) [11]
  - **Cost of treating is 2.5 times the cost of preventing**

- **Death:** 60,000+ people die annually from complications of PIs.[2]

- **Development of PIs is complex and multifactorial:** In intensive care and telemetry units, PIs are a additional comorbid threat in this compromised population.[5,10]

- **PIs Cause Harm:** Severe pain, infections and extended length of stay (LOS); personal burdens (physical/psychological); and involve legal / liability issues.[3]

1. **National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014**.
2. Alderden, J, Whitney, JD, Taylor, SM, Zaratkiewicz. Risk Profile Characteristics Associated with Outcomes of Hospital-Acquired Pressure Ulcers: A Retrospective Review, 2011. Critical Care Nurse, 31:4, 30-40.

FACTS: New Definitions by NPUAP

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- **New NPUAP Definition- Pressure injury as** localized damage to the skin and/or underlying soft tissue usually over a bony prominence or related to a medical or other device. The injury can present as intact skin or an open ulcer and may be painful. The injury occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. Tolerance of soft tissue for pressure /shear may also be affected by *microclimate, nutrition, perfusion, co-morbidities & condition of the soft tissue.*[1]

- **NPUAP Definition: Medical Device Related Pressure Injury: This describes an etiology.**
  Medical device related pressure injuries result from the use of devices designed and applied for diagnostic or therapeutic purposes. The resultant pressure injury generally conforms to the pattern or shape of the device. The injury should be staged using the staging system. Incidence ranges for MDR PI 7.8 to 67%, depending on medical device[5]

- **Mucosal Membrane Pressure Injury:** Mucosal membrane pressure injury is found on mucous membranes with a history of a medical device in use at the location of the injury. Due to the anatomy of the tissue these ulcers cannot be staged.

Who and Where are our High Risk Patients? Is This Familiar?

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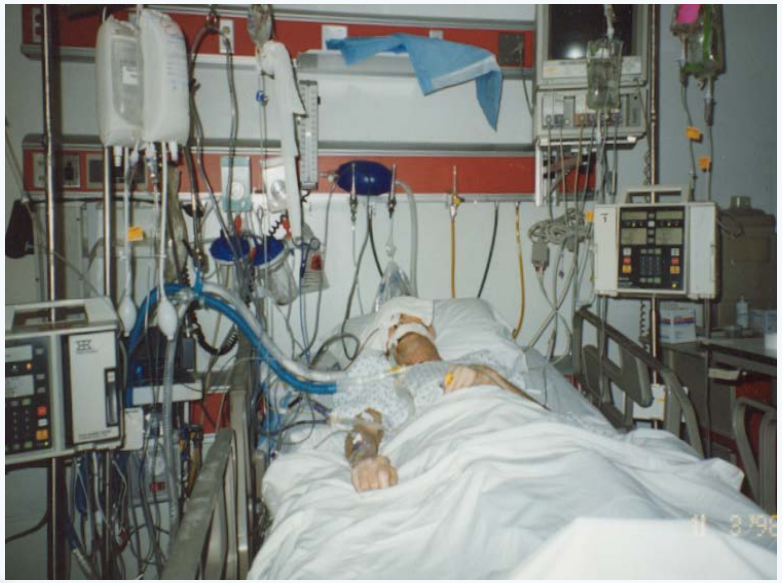

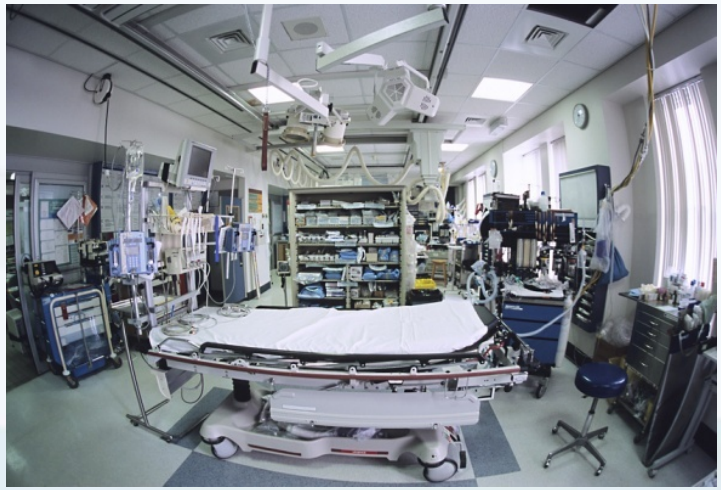

SKIN EXPOSED TO PRESSURE, FRICTION AND MOISTURE

More Facts. Did you Know?

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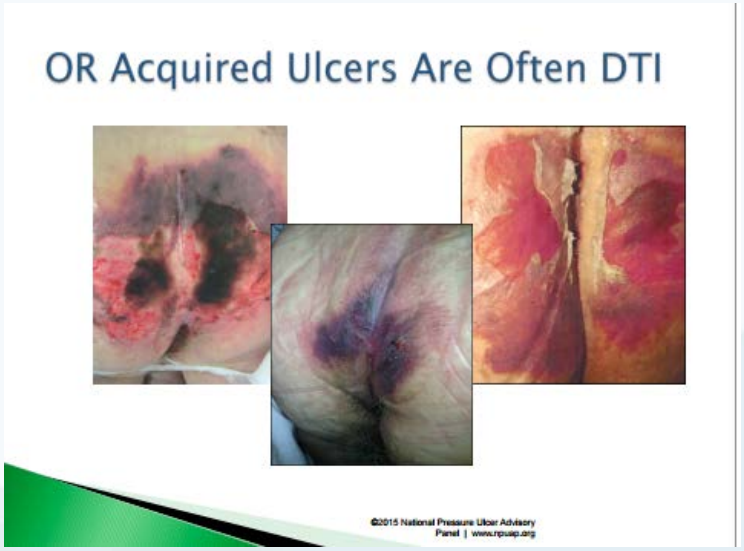
Pressure ulcer prevalence and incidence (adapted from NPUAP, EPUAP and PPPIA. 2014)		
Setting / Population	**Prevalence Rates**	**Incidence and Facility Acquired Rates**
Acute care	0-46%	0-12%
Critical Care	13.1-45.5%	3.3-53.4%
Aged Care	4.1-32.2%	1.9-59%
Pediatric Care	0.47-72.5%	0.25-27%
Operating Room Setting	9-21%	5-53.4%

Pressure Injury Incidence by Surgery Type	
Cardiac	**29.5%**
Orthopedic	**20-55%**
General/Thoracic	**13-29.3%**
Vascular	**9.8-16%**
(Chen, 2012)	



Pressure Injuries: Three Perioperative Areas / Contributing Factors (NPUAP Webinar, 2014)

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Pre-operative (Intrinsic) Factors

Age* >62
- Age & co-morbidity
- Low Albumin level*
- Body mass index <19 or >40
- Recent significant weight loss
- Race
- ASA Scores*
- Diabetes*
- Cardiac disease*
- Vascular disease*
- Pulmonary disease*
- Renal Insufficiency
- Time to surgery

*Statistically Significant Factors in Multiple Studies

Intra-Operative "Extrinsic" Factors

Time on the table*
- Type of Surgery*
- Surgical position & devices
- Negativity – layers
- Warming blanket
- Hypotensive episodes
- Heat - Hypothermia
- Decreased H&H*
- Cardiopulmonary Circulation
- Table pad construction*
- Shear/Friction
- Lateral transfers
- Anesthesia (General/spinal)
- Medications
- Moisture - Maceration

Post-Operative Factors

Post-operative
- Days in the bed*
- Total time of immobility
- Success of Recovery
  - Early mobilization
  - Hemodynamic status
  - Respiratory (Hypoxia)
- Nutrition*
- Skin assessment
- Pressure redistribution
- Pain Control
- Device related ulcers
  - Cervical Collars
  - Tubing

12. AORN (2015). Guidelines for Perioperative Practice. Denver, CO. 563-580.
13. Baron, S. & Mac Farlane, G. (2009). Reducing pressure ulcer risk in operating room.

The Impact of Pressure Injuries

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Patient suffering increases

- Increased pain and distress
- Creates body image disturbance (occipital wound --permanent alopecia)
- Reduced QoL
- Increased risk of infections
- Increased mortality risk

- **Cost of care increases**
  - Increased length of stay
  - Increased nurse time
  - Increased cost of consumables
  - Increased cost of pharmaceuticals
  - Stage 3 and 4 and unable to stage pressure ulcers are state reportable.
  - **One of CMS never events**

High Reliability Organization

Pressure Injury Data and Long Beach Memorial

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- **2014 EPUAP/NPUAP Prevention and Treatment of Pressure Ulcer Practice Guideline, reported on trends in hospital acquired PI development from 2000-2010**:
  - **7**% to 13% in acute-care patients and 29% to 32% in Long term care settings
  - ICUs remains high, ranging from 5.2% to 42%.[1]
  - Numbers do vary widely, depending on number of patients being examined, type of unit, risk assessment and overall research methodology.[1-4]

- Pressure Injury Baseline Data (2011-2012)
- **Hospital Acquired Pressure Injuries (prior to randomized trial) was 2.6% to 6.5% (all units); and ICUs (3.57–6.90)**
- **Operating Room (5-12%) incidence**

AHRQ Improvement Puzzle- Six Steps for Change to Eliminate Harm Caused by Pressure Injuries

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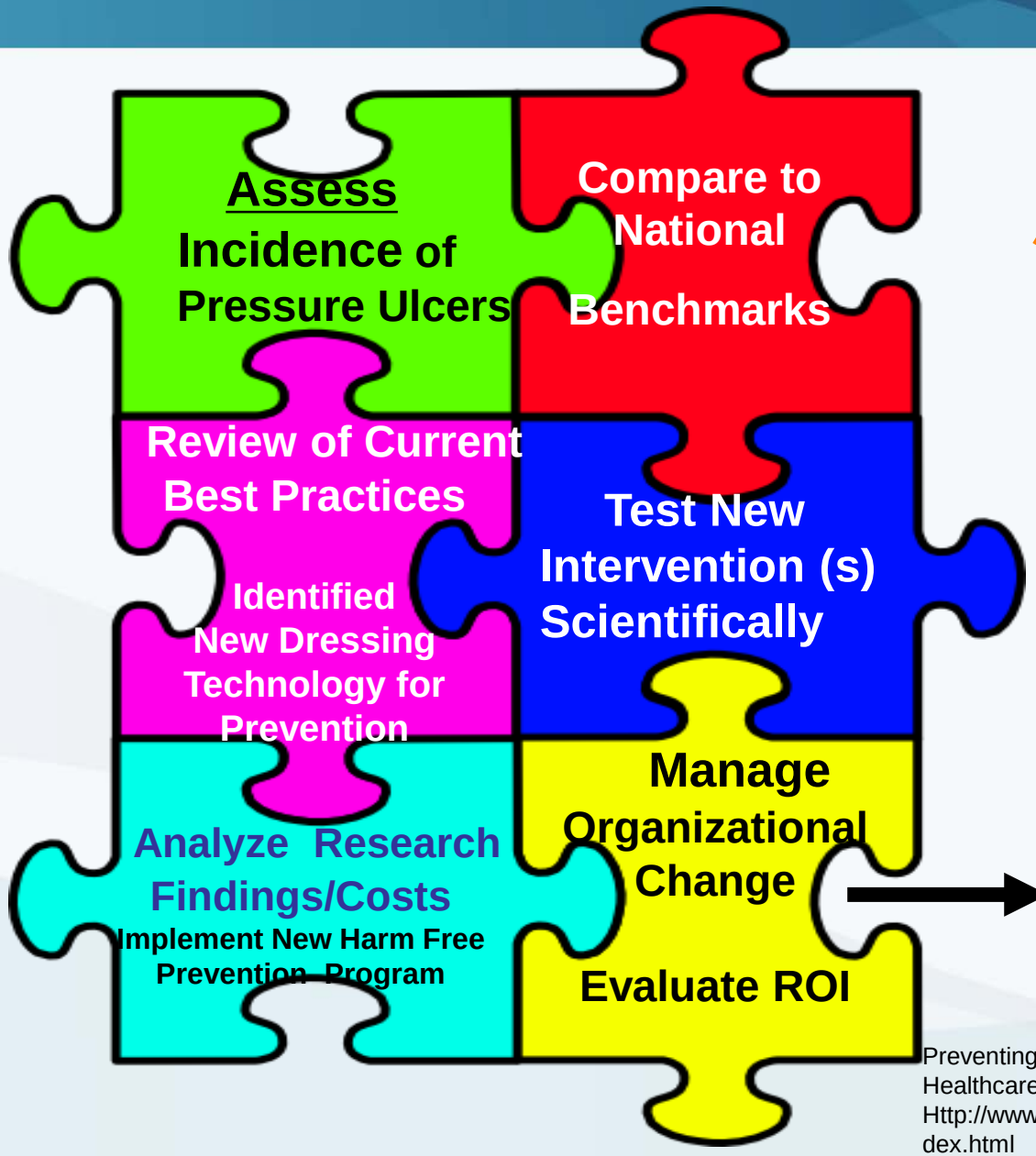

Quality & Value

Sustain Highly Reliable Practices

Preventing Pressure Ulcers in Hospitals. October 2014. Agency for Healthcare Research and Quality, Rockville, MD. Http://www.ahrq.gov/professionals/systems/hospital/pressureulcertoolkit/index.html

AHRQ's Six-Step Guide

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1. **Assess the organizational readiness for this change?**
   (Is organizational leadership in full support of initiative; everyone understands 'WHY')

2. **How will each organization 'MANAGE' change?**
   (new PI/Research Project; whose responsible?)

3. **What are the best practices in pressure injury prevention that we want to use? (need comprehensive ROL; national EBGs)**

4. **How should those practices be organized in our hospital?**
   (Rollout-how; when; where; evaluation)
5. **How do we MEASURE our pressure injury rates and practices?**
   (measure incidence and prevalence)

Pressure Injury Prevention

Steps 1-2 *Assessing/Managing Change*

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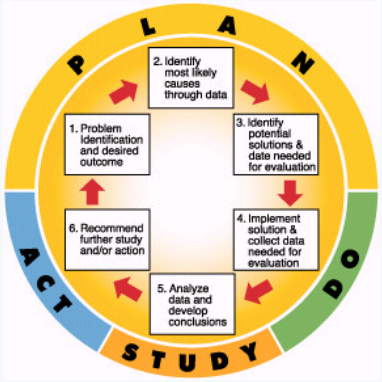
- Using PDSA as our Framework developed actionable plan to sustain improvement - **Plan** (change) **Do** (change) **Study** (analyze results) **Act** (results-next steps)



- **Team conducted extensive review of literature**; and considered our existing standard of care; SKIN Bundle; and procedures/practices

- **Manage Change – Nursing Research Study was warranted to validate the new wound dressing.** Identify NR (Implementation) Team (critical knowledge of the care processes)

- **DO (Action Plan):** Conduct a nursing randomized clinical trial (RCT) to test efficacy of a **novel new dressing** for prevention PIs.

Use of a Soft Silicone Bordered Foam Dressing to Reduce Pressure Ulcer Formation in High Risk Patients: A Randomized Clinical Trial

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Investigative Study Team

Peggy Kalowes RN, PhD, CNS, FAHA

Principal Investigator

Melanie Li RN, MSN, NP, CWON

Co-Investigator

Carole Carlson RN, BSN, CWON

Leslie Carr, RN, BSN, CWON

Leonora Llantero RN, BSN

Diana Lukaszka RN, BSN, CWON

Lety Sia-McGee, RN, BSN

Valerie Messina RN, BSN, CWCN

Rowena Tan-Manrique, RN

Kelly Martinez RN, BSN

MAGNET RECOGNIZED
AMERICAN NURSES CREDENTIALING CENTER

Long Beach Memorial and Miller Children's & Women's Hospital, (569-bed), Academic, Level III Trauma Center, Long Beach, CA

Kalowes P, Messina V, Li M. Five-Layered Soft Silicone Foam Dressing to Prevent Pressure Ulcers in the Intensive Care Unit. A Randomized Clinical Trial. *American Journal of Critical Care,* November, 2016

Aim / Hypothesis

Study Aim:

To investigate the prophylactic use of a Silicone Border Sacrum Dressing (***Intervention****) in* reducing the incidence of pressure injuries in ICU patients, compared to a ***(Control)*** group receiving usual care (Evidence Based SKIN Bundle)

Hypothesized

- The rate of pressure injury incidence will be significantly lower in the intervention group treated with Mepilex® Border Sacrum Dressing compared to patients in control group receiving standard care.

METHODS

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Design

- A prospective, experimental, design was used to randomize (1:1 basis) a total of **366** patients.
  - ❖ **(N=184)** enrolled in intervention group (IG) receiving the SKIN BUNDLE* and application of the soft, Silicone Border Sacrum dressing and;
  - ❖ **(N=182)** Control Group (CG) receiving usual care, including SKIN BUNDLE.

Setting - ICUs 31-bed Med /Surgical/Trauma; and 23-bed (CCU)

Inclusion Criteria -

- Adult patients >18 years old, admitted to the ICUs with a Braden Scale [9] Score ≤13, and intact skin

Exclusion Criteria - Braden Scale Score ≥14; Existing sacral PIs or moisture related skin damage; and patients receiving end of life (EOL) care or withdrawal of life-sustaining treatments

INTERVENTION GROUP (IG)

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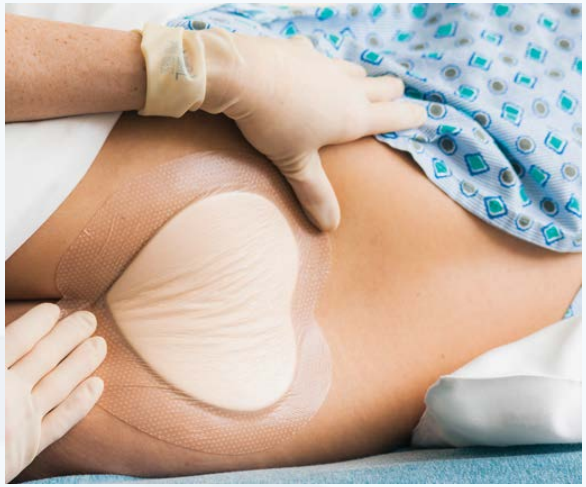
Usual care (SKIN Bundle) plus Soft Silicone Border Sacrum dressing*

Applied in ICU/CCU, skin inspected daily, dressing changed every 3 days/or as needed



*Mepilex® Border Sacrum Dressing, Mölnlycke Health Care, Inc, US, LLC, Norcross, GA,

MÖLNLYCKE HEALTH CARE

Patient Flow thru Study

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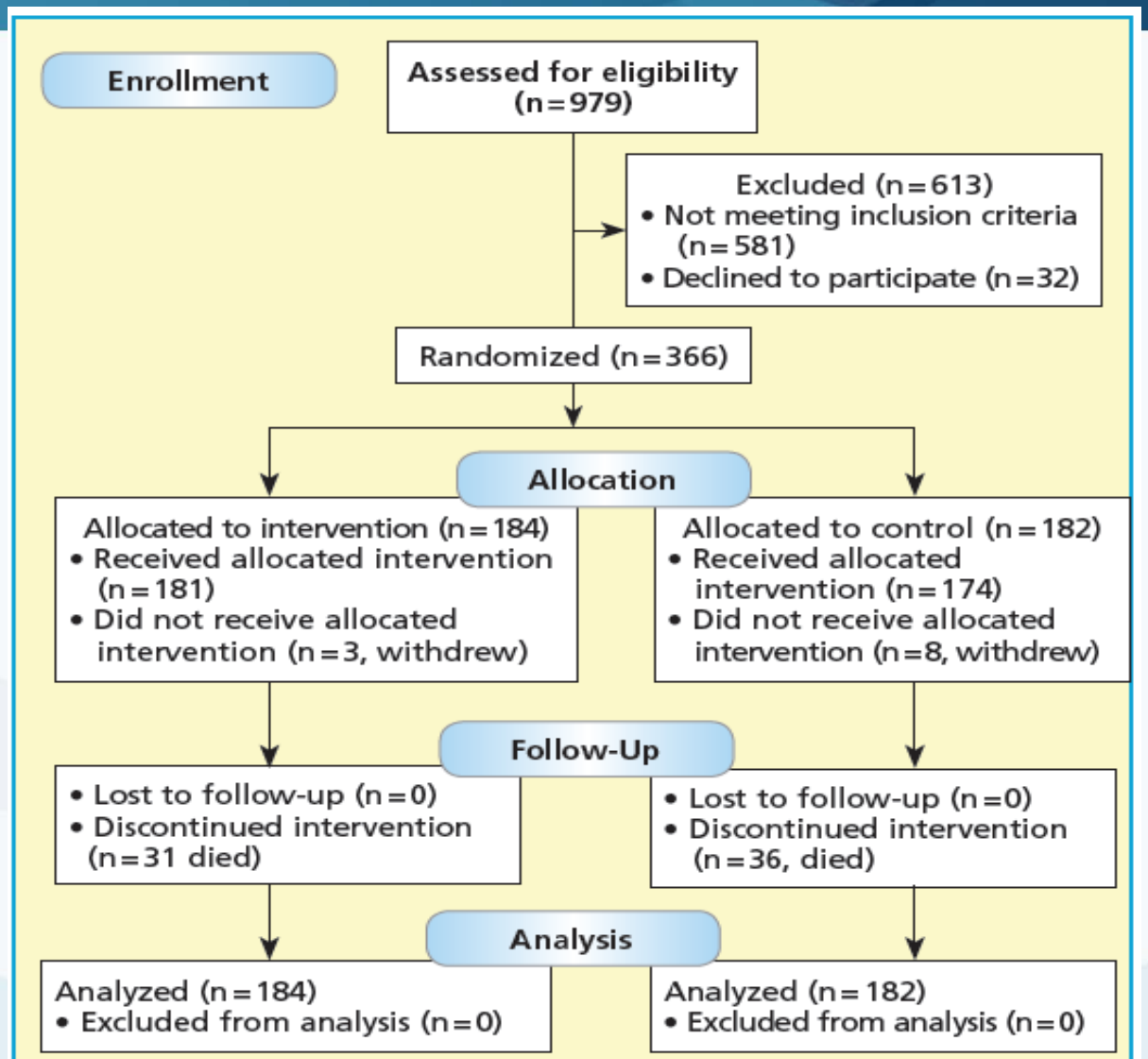

Figure 1 CONSORT diagram of patient flow through study.

SKIN** Bundle

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Protect Your Patient's SKIN
Pressure Injury Prevention

Surface: Specialty Mattress: Z-flo, Waffle cushion

Keep Turning: Reposition at least every two hours
Heels offloaded
Mepilex Border® Sacrum Dressing (2012)

Incontinence: Perineal care every two hours
Moisture barrier; Avoid diapers except for excessive stool, urine

Nutrition: Dietary consult for nutritional deficits; Carry out orders

TISSUE INJURY MORE THAN SKIN DEEP

**Gibbons et al. Eliminating facility-acquired pressure injuries at Ascension Health. *Joint Commission Journal on Quality and Patient Safety*. 2006;32:488-496.

RESULTS:

Study Characteristics

Table 1
Characteristics of patients in the study

Characteristic[a]	Overall (N = 366)	Intervention group (n = 184)	Control group (n = 182)	P[b]
Age, mean (SD), y	65.9 (17.0)	64.6 (17.7)	67.3 (16.2)	.14
Sex				.84
Male	203 (55.5)	103 (56.0)	100 (54.9)	
Female	163 (44.5)	81 (44.0)	82 (45.1)	
Race				.12
White	152 (44.3)	78 (45.1)	74 (43.5)	
African American	73 (21.3)	35 (20.2)	38 (22.4)	
Hispanic	61 (17.8)	27 (15.6)	34 (20.0)	
Asian/Pacific Islander	47 (13.7)	24 (13.9)	23 (13.5)	
Other/not specified	10 (2.9)	9 (5.2)	1 (0.6)	
Braden score (baseline), mean (SD)	11.9 (1.4)	11.8 (1.3)	11.9 (1.4)	.32
≥4 Comorbid conditions	133 (36.3)	66 (35.9)	67 (36.8)	.85
APACHE III score, mean (SD)	52.5 (26.2)	58.6 (29.3)	49.5 (23.6)	
Length of stay, median (interquartile range), d				
Hospital	14.0 (8-25)	15.0 (8-26)	13.0 (8-24)	.67
Intensive care unit	7.0 (4-13)	8.0 (4-14)	7.0 (4-13)	.53
Risk factors				
Pulmonary edema	15 (4.1)	10 (5.4)	5 (2.8)	.20
Mechanical ventilation	226 (61.9)	105 (57.1)	121 (66.9)	.05
Sedation	120 (32.9)	59 (32.1)	61 (33.7)	.74
Vasopressor	266 (72.9)	135 (73.4)	131 (72.4)	.83
Past pressure ulcer	3 (0.8)	2 (1.1)	1 (0.6)	.51[c]
Traction	1 (0.3)	1 (0.5)	0 (0.0)	.50[c]
Bed rest	352 (96.4)	177 (96.2)	175 (96.7)	.80
Dialysis	27 (7.4)	14 (7.6)	13 (7.2)	.88
Quadriplegia	3 (0.8)	2 (1.1)	1 (0.6)	.58
Restraint	154 (42.3)	81 (44.0)	73 (40.6)	.50
Supine position	49 (13.4)	28 (15.2)	21 (11.6)	.31
SKIN bundle compliance	366 (100)	184 (100)	182 (100)	—
Analysis of patients with pressure ulcers (characteristics)				
Total number of patients who had pressure ulcers develop[c]	8 (2.2)	1 (0.5)	7 (3.8)	.01[c]
Pressure ulcer stage				
I	0 (0)	0 (0)	0 (0)	
II	4 (50)	0 (0)	4 (57)	
III	0 (0)	0 (0)	0 (0)	
IV	0 (0)	0 (0)	0 (0)	
Unstageable	2 (25)	0 (0)	2 (29)	
Deep tissue injury	2 (25)	1 (100)	1 (14)	
Pressure ulcer location				
Coccyx/sacrum	6 (75)	1 (100)	5 (71)	
Buttocks	2 (25)	0 (0)	2 (29)	
Occiput	0 (0)	0 (0)	0 (0)	
Hand	0 (0)	0 (0)	0 (0)	
Wrist	0 (0)	0 (0)	0 (0)	
Elbow	0 (0)	0 (0)	0 (0)	
Heel	0 (0)	0 (0)	0 (0)	
Ischium	0 (0)	0 (0)	0 (0)	

Abbreviations: APACHE, Acute Physiology and Chronic Health Evaluation; SKIN, surfaces, keep patients turning, incontinence management, nutrition.

[a] Values in columns 2 through 4 are number (valid percentage) of patients unless otherwise indicated in this column. Because of rounding, percentages may not total 100.

[b] Chi-square test for categorical factors, independent t test for normally distributed continuous variables, and Mann-Whitney U test for skewed continuous variables showed no significant between-group differences (expected because of the randomized controlled study design).

[c] Poisson regression.

Risk Factors PU Development

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Pressure ulcers were more likely to develop in patients who had received mechanical ventilation, sedation, vasopressors, or dialysis.

Table 2
Pressure ulcer development by risk factors with adequate power to investigate

Risk factor	Patients (N=366)	Pressure ulcer cases (N=8)	Person days at risk[a]	Incidence rate (95% CI)[b]	Incidence rate ratio (95% CI)	P^c (LR)	P^d (Wald)
Mechanical ventilation						.06[e]	—
No	140	0	503	0.0	Not applicable		
Yes	226	8	2032	3.9 (2.0-7.9)			
Sedation						.02[e]	.06
No	246	1	1336	0.7 (0.1-5.3)	0.13 (0.02-1.04)		
Yes	120	7	1199	5.8 (2.8-12.2)	Reference		
Vasopressor						.11[f]	.18
No	100	1	950	1.1 (0.1-7.5)	Reference		
Yes	266	7	1585	4.4 (2.1-9.3)			
Bed rest						.57	—
No	14	0	50	0.0	Not applicable		
Yes	352	8	2485	3.2 (1.6-6.4)			
Dialysis						.06	.04
No	339	5	2240	2.2 (0.9-5.4)	0.22 (0.05-0.92)		
Yes	27	3	295	10.2 (3.3-31.5)	Reference		
Restraint						.64	.64
No	211	4	1476	2.7 (1.0-7.2)	0.72 (0.18-2.86)		
Yes	154	4	1056	3.8 (1.4-10.1)	Reference		

[a] Person days at risk for each patient, defined by time from study enrollment to appearance of pressure ulcer, discharge from intensive care unit, or day 28 in intensive care unit. Overall: 2559 person days.
[b] *P* value based on Poisson regression (LR statistic for type 3 analysis tested significance of relationship between factor and outcome). Overall incidence rate, mean (95% CI): 3.1 (1.6-6.3). Incidence is reported per 1000 patient days.
[c] Contrast estimate by using logistic regression (LR) to test significance of incidence rate ratio, comparing specific factor level against reference category showed significance.
[d] Contrast estimate by using Wald statistic to test significance of incidence rate ratio, comparing specific factor level against reference category showed significance. Dash indicates zero cell value.
[e] Significant at $P \leq .05$.
[f] Significant at $P \leq .01$.

Hypothesis: Rate of PI incidence would be significantly lower in the IG treated with 5-Layered Border Sacrum Dressing compared to patients in CG receiving standard care.

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Table 3. Pressure Ulcer Incidence Rate and Incidence Ratio

Variable	Intervention group (n=184)	Control Group (n=182)
No. of patients who had a pressure ulcer develop	1	7
Person days at risk	1374	1185
Incidence rate,[a] mean (95% CI)	0.7 (0.1-5.2)	5.9 (2.8-12.4)
Incidence rate ratio, mean (95% CI)	0.12 (0.02,1.00), P = .01	

[a] incidence rate is reported per/1000 patient days

Hazard Ratio

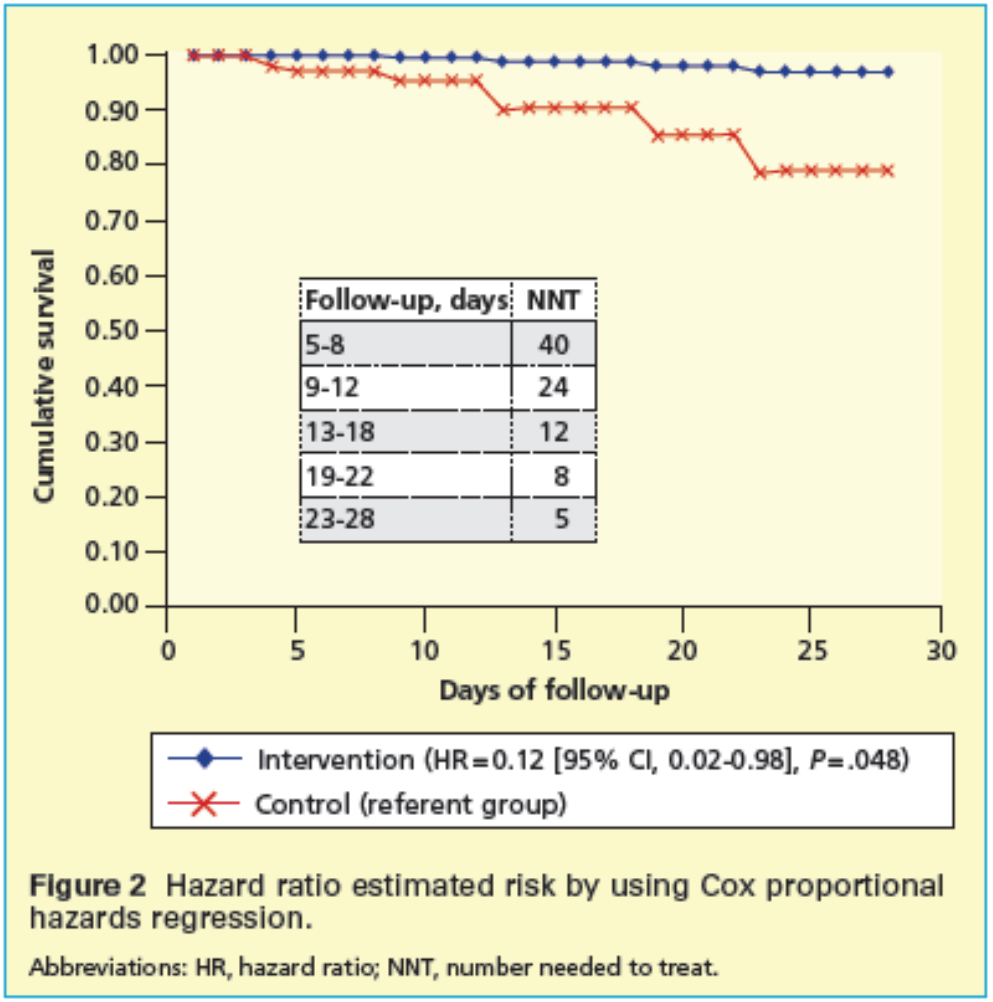

Figure 2 Hazard ratio estimated risk by using Cox proportional hazards regression.

Abbreviations: HR, hazard ratio; NNT, number needed to treat.

Cumulative probability patient will survive without developing a pressure injury with each day of follow-up in the ICU by treatment group. Hazard ratio estimated using cox proportional hazards regression. **Intervention Group had an 88% reduced hazard of a pressure injury (p=.048).**

End Points from the RCT

Steps 3-4 -Sustainability and Accountability

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- **Post-dissemination of study data**- LBM/MCH Research team presented the RCT findings to MemorialCare leaders; purchasing and Wound Care Best Practice Team (BPT). **Decision made to adopt new dressing as part of PI preventive practice.**
  - **Study findings of RCT have been presented nationally and internationally in three countries.**
- **Our five-hospital system** has incorporated prophylactic use of Mepilex® Border dressings as part of our EB SKIN Bundle for all patients who are at high-risk for pressure injury e.g. (ED, ICU, Med/Surg units; Operating Room/OP Diagnostics)
- **Evidence-Based Guideline** was developed to aid clinicians on how to rate a patient's risk factors- - When to apply the dressings in all care areas.

COST SAVINGS HAVE BEEN SIGNIFICANT

- 3-years post-adoption across the system, using the Mepilex® Border dressings for PI prevention, >**over 2.5 million dollar savings has been amortized**, after dressing purchase. *Doesn't include legal fees to defend HAPUs.*
- **Annual costs of prophylactic dressings are ($180,000/year, includes 70% prevention and 30% treatment).**

Journey to High Reliability
Sustainability of 'Zero' range PIs

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- **Our robust 'PREVENTION PROGRAM' including the prophylactic dressing, has yielded a PI incidence (all stages) ranging from '*zero*' to 0.3 over past 3yrs, across hospital settings.**
- **Post-Clinical Trial Strategies**
  - Updated our MemorialCare SKIN Bundle to include new evidence.
  - Updated our P & P on Assessment and Prevention of Skin Injury
  - Developed an education module on pathophysiology of PUs; risk assessment, staging, and a Dressing Alogrithm to guide clinicians in placement of Mepilex prophylactically for prevention

New Evidence – 2014 NPUAP / EPUAP Guidelines Recommends

Use of Prophylactic Dressings for prevention

1. National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014.
2. Santamaria N, Gerdtz M, Sage S, McCann J, Freeman A, Vassiliou T, DeVincentis S, Ng AW, Manias E, Liu W, Knott J. A randomised controlled trial of the effectiveness of soft silicone multi-layered foam dressings in the prevention of sacral and heel pressure injuries in trauma and critically ill patients: the border trial. Int Wound J. 2013.
3. Clark M, Black J, Alves P, Brindle CT, Call E, Dealey C, Santamaria N. Systematic review of the use of prophylactic dressings in the prevention of pressure ulcers. *Int Wound J.* 2014;11(5):460-471.

Dressing Algorithm

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MEPILEX® BORDER DRESSING ALGORITHM
Mepilex® Dressing Aids in Prevention of Pressure Ulcers (PUs) by Protecting Skin from Moisture, Friction and Shear in Combination with Comprehensive PU SKIN Bundle

High Risk Inclusion Criteria, if Any Present Apply Mepilex® Border Silicone Dressing:	If Patient Meets 3 or More Criteria, Apply Mepilex® Border Silicone Dressing
❑ **All** ICU patients are 'high risk' for PUs, including medical device related (MDRPU). **Apply** Mepilex® Border Sacrum; and/or Mepilex Transfer®/Lite® to prevent MDRPU. ❑ Braden® scale ≤ 13 ❑ Mechanical ventilation ❑ Recent cardiac arrest (CA) ❑ Hemodynamically unstable ❑ Vasopressor medications for 48 hours ❑ Altered level of consciousness (LOC) ❑ SHOCK (septic, hypovolemic, cardiogenic) ❑ Quadriplegic, paraplegic, or hemiplegic ❑ Traction (Skeletal) ❑ On a Roto Prone or Roto Rest bed ❑ Anticipated operative, cath lab or interventional procedure lasting >4 hours References: 23, 24, 27, 29, 30, 34, 45, 51	❑ BMI below 20 for age 65 or above ❑ Weeping edema or anasarca in upper or lower extremities ❑ Age >65 years old ❑ Diabetes mellitus ❑ Renal or liver failure ❑ Under nutrition (recent unintended weight loss, decreased PO intake 1 week) ❑ Nothing by mouth (NPO) >3 days ❑ Albumin ≤ 2.5 or prealbumin ≤ 18 g/dL ❑ Prolonged bed rest 2-4 hours, AND patient unable to shift weight independently ❑ Hip surgery or lower extremity pinning ❑ Restraints ❑ Fecal/urinary incontinence ❑ Metastatic cancer

Figure 3 Algorithm for use of Mepilex dressings (Mölnlycke Health Care AB).

Journey to High Reliability
Continuous Improvement is Necessary

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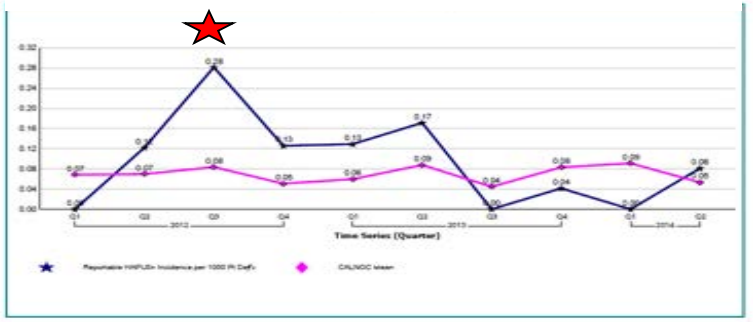
3 year period- LBM/MCH hospital reduced our incidence of PIs (**sacral, coccyx, heel**) from **5.9** to '***zero to 0.2%'*** using the Skin Bundle/ 5-Layered Dressing—**a new problem emerged** –Medical Device Related Pressure Injuries (MDR PIs) appeared to increase, becoming more transparent secondary to decrease in traditional Pressure Injuries.

NEW PROBLEM:

In 2012-13, we examined our **CALNOC** nursing data, and noted **a surge of MDR PUs** >benchmark in Pediatrics/Adult units.

Devices	# of Patients	Devices	# of Patients
NG tube	3	Chest tube	1
Collar	3	Abdominal binder	1
Cast	2	Splint	1
IV hub /tubing	2	Endotracheal tube	1
NIVM	2	Tracheostomy tube	1
Orthotic	2	EKG cable	1
		ECMO	1



STUDY: ROOT CAUSE ANALYSIS (RCA)
Drill down on cause of MDR-PIs

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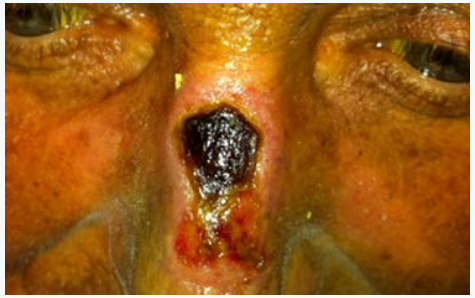
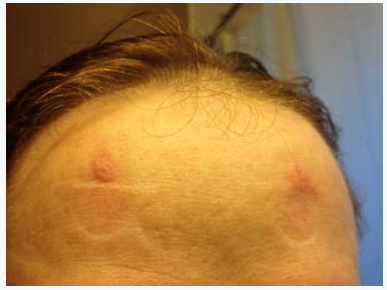
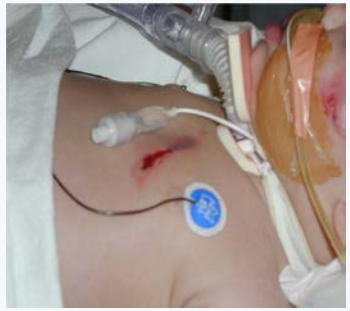
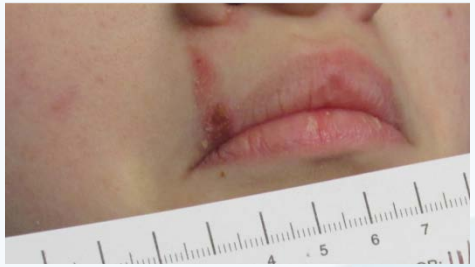
- **As "Traditional Pressure Ulcer" rates decreased MDR PIs more apparent**
- **Discovered MDR PIs often were misidentified**
- **MDR PIs wasn't typically tracked, trended and reported (now required to report by CALNOC)**
- **Often more complicated than preventing usual PIs as device may be an essential diagnostic / therapeutic component of Tx**
- **Few surgeons still suturing new Trachs**









Strategy

- **Developed a 'Prevention Model' in late 2013**, to include MDR PI elements on the Bundle with EB interventions,—frequent skin /device assessments, moisture -reducing device interface and pressure-free device interface (Mepilex® Transfer; Mepilex® Lite; Mepilex® Border

A 2nd Call To Action

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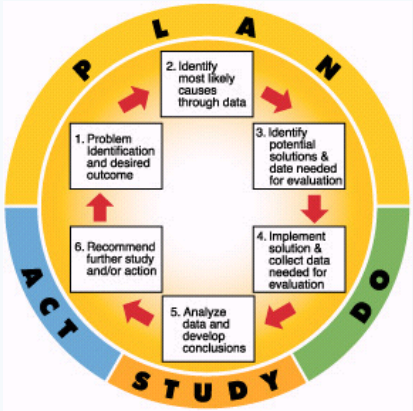
ACT-using PDSA

- Re-evaluate the actionable plan to sustain pressure injury improvement - **Act** (analyze results-next steps)

New Objective

- **PLAN:** Establish an interprofessional team (Peds CNS; Director of Nursing Research, RNs, MDs, PT and Wound Program Director) to further design a more robust prevention approach including additional strategies for prevention MDR PIs.



DO - Initiate small tests of change

- **Widespread testing** (immediately deployed Mepilex Border®; Mepilex Lite® or Mepilex Transfer®) beneath all tracheostomy plates and other respiratory devices, particularly in NICU/PEDS.

- **Began work to re-conceptualize our Pressure Ulcer Prevention Program** to have a more Comprehensive Assessment & Preventive approach for MDR PIs.

Staff Education Poster
Common High-Risk Devices

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Check for potential skin breakdown under areas with the following devices:

- ❑ Arterial lines and securement devices
- ❑ Central venous & dialysis catheters
- ❑ Compression leg devices/stockings
- ❑ Drain Devices (any type)
- ❑ GI / GU Devices ☸
- ❑ Intra-aortic balloon pumps
- ❑ Line device (tubing, or any securement device of any kind)
- ❑ Monitoring devices ❍
- ❑ Oxygen Delivery Devices ❖
- ❑ Orthopedic / Neuro Device■
- ❑ Soft restraints (ankle/wrist)
- ❑ Velcro straps

Oxygen Delivery Type ❖
- BIPAP
- CPAP
- Endotracheal tube
- Face mask
- Nasal cannula
- Trach plate
- Oxygen tubing/nasal cannula

GI/GU Devices☸
- Abdominal Binder
- Fecal tube/pouch
- G or J Tube
- NG Tube
- Ostomy equipment
- PEG tube
- Urinary catheter

Monitoring Equipment ❍
- Blood Pressure Cuffs
- Electrodes
- Pulse Oximeter

Other
- Arm Bands

Orthopedic / Neuro Devices■
- Any splints for immobilization
- Brace
- Cervical collars
- Orthotic foot splints
- External Fixation
- Halos

Adapted from: National Pressure Ulcer Advisory Panel, European Pressure Ulcer Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Ulcers: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014; CPM Resource Center, 2012, Clinical Practice Guidelines (LBM Miller Children's & Women's Hospital. February 2015

Pressure Injury Prevention Model©

LONG BEACH MEMORIAL
Miller Children's & Women's Hospital Long Beach

Goal: Adult and pediatric patients will be free of pressure injuries (PIs) and skin injury
Strategy: Conduct a comprehensive pressure injury assessment on admission/reassessment every shift
Prevention: Evaluate risk for pressure injury [Braden Scale/Braden Q/NSRAS], include those caused by Medical Devices (MDs)

In-patient Algorithm

Patient Admitted

Risk assessment/documentation
Conduct a comprehensive risk and skin assessment, [Adult-Braden Scale; Pediatric -Braden Q; Neonatal Skin Risk Assessment Scale (NSRAS)]

- Assess for fragile Skin and pressure points, (sacrum, coccyx, buttocks, heels, ischium, trochanters, elbows/ under medical devices
- Reduced mobility/activity; skin changes (redness/blanching or erythema/dryness); prematurity
- History of PIs; Poor circulation related to diabetes, PVD, Smoking
- Increased skin moisture (incontinence, perspiration)
- Assess nutritional status/weight
- Extremely low birth weight neonates (<1200g)
- Age (>65 years) in the presence of other risk factors (e.g. loss of sensation or ability to report discomfort due to sedatives or poor cognitive function
- Use of sedatives, dopamine, oxygen use and postoperative steroid therapy

No / Yes

Is Patient at Risk?

Interprofessional team develops integrated Pressure Injury (PI) prevention plan of care (POC) using MHS EB SKIN Bundle

1. **Specific to risk profile for each patient.**
2. **Implement SKIN**

- **Support surface** — select appropriate pressure-relieving/redistribution equipment or devices to protect vulnerable skin/bony prominences
- **Skin inspection** — regular Q Shift assessment of entire skin/ document
- **Keep moving** — implement turn/reposition schedule that optimizes independent movement & reduces friction/shear
- **Incontinence/moisture** management (incontinence, perspiration or exudate)
- **Use skin barrier products to manage moisture** next to the skin in conjunction with a skin care routine to keep skin clean and dry

- **Nutrition and hydration** —Check patient's weight & monitor changes. Encourage patients to eat and drink regularly to maintain a good nutritional status. If indicated, check nutritional status with assessment tool [e.g. Nutrition Risk Screen (NRS)] consult dietician for nutrition problems.

3. **Document all interventions/communicate team.**
4. **Provide education for patient and caregivers.**
5. **Assess risk for PIs, if patient has medical device(s). If yes, assess type, and deploy Mepilex Border® / Mepilex Transfer® or Lite®**

Medical Device(s) Related to Pressure Injuries
Check for Pressure & Skin Breakdown Under:

- ○ Arterial Lines/securement devices
- ○ Central venous & dialysis catheters; securement devices
- ○ Compression leg devices/stockings
- ○ Gastro intestinal/Genital urinary Devices
- ○ Drain Devices (any type)
- ○ Line device (tubing /securement)
- ○ Monitoring Equipment
- ○ Oxygen Delivery Devices
- ○ Intra-aortic balloon pumps
- ○ Orthopedic / Neuro Devices

Safe Transitions of Care
Interprofessional; Nurse-to-Nurse *"Handoff"* and *documentation.*

- Discharge or transfer of care. Interfacility communication
- Patient./Family teaching

Wound Evaluation and Treatment, Including Documentation of Intervention

Is there evidence of skin alteration or wound?

Yes

Rigorous PI / Wound Evaluation

Yes

Document scope and photograph the PI/wound according to guidelines.[1] Obtain consult (WOCN; MD)

All-inclusive patient assessment/wound appraisal

- H & P
- Wound stage, description
- Etiology of PI/Wound
- Nutritional status
- Bacterial colonization/infection
- Psychosocial needs

Identify evidence based treatment goals and referrals as needed

Implement interventions and document

- Appropriate wound healing dressing
- Moist wound bed
- Topical treatments
- Debridement's
- Adjunct therapies
- Pain management
- Nutrition
- Surgical repair
- Education
- PI Offloading Regimen

Adapted from:
1. National Pressure Injury Advisory Panel, European Pressure Injury Advisory Panel and Pan Pacific Pressure Injury Alliance. Prevention and Treatment of Pressure Injuries: Clinical Practice Guideline. Emily Haesler (Ed.). Cambridge Media: Osborne Park, Western Australia; 2014.
2. CPW Resource Center; 2012. Clinical Practice Guidelines (LBMMH Children's & Women's Hospital)
3. Copyright Long Beach Memorial. Author Peggy Kalowes RN, PhD, CNS, FAHA, February 2016

Resources

1. Black, J. RN, PhD, Kalowes, P. RN, PhD, CNS, FAHA. Reducing Medical Device Related Pressure Ulcers: An Interprofessional Approach To Creating Solutions, Using Data and Innovation. *Chronic Wound Care Management and Research* 2016:3 1–9.
1. Kalowes P, Messina V, Li M. Use of a Soft Silicone Bordered Foam Dressing to Reduce Pressure Ulcer Formation in High Risk Patients: A Randomized Clinical Trial. *American Journal of Critical Care* ,November, 2016

Pressure Ulcer Prevention Model©
New Evidence-Based Tactics

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- ACT (Results)

- Pressure Ulcer Prevention Model© was instituted at LBM/MCH hospital by end of 2013 – beginning of 2014; and shared with other hospitals. It is undergoing it's 2nd revision to simplify algorithm. We closely tracked incidence to see direct impact on MDR PIs following the Mepilex dressing intervention in the immediate 4 quarters follow this change. We also tracked compliance with SKIN Bundle.

- **Results- Absolute reduction of MDR PIs from 0.06% incidence of stage 3+ MDR HAPU's per 1000 patient days to *"zero"* in Pediatrics (benchmark 0.0 – 0.04%)**
- **Among adults from 0.28% incidence to *"zero"* zone with (benchmark 0.05-0.09 %,) after 'Prevention Model' with EB Bundle strategies.**
- **Conduct continuous staff education on how to place the dressing under various medical devices.**

Where Are We Today Across the Board

- Since implementation of a more comprehensive PI/MDR prevention program, we have sustained a 'zero zone' 00.0 -0.03% among adult/pediatric patients. Note: Across MemorialCare we have seen PIs/and MDR ulcers occur sporadically. However, the 'zero zone" has been sustainable.

New Evidence-Based Tactics
"Skin Surveillance Team"

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- **Interdisciplinary "Skin Surveillance Team"**
  - Reviews/discusses patients that are at high risk for skin breakdown. Team meets / rounds two days a week in peds/adult settings. This practice is consistent across MemorialCare. **Team Members:** WOCN, CNS, Clinical Educator, Wound Care Champions (RNs), PT, Dietitian, Specialty bed rep.
- Patient/family education is provided regarding preventative measures to protect skin during the hospitalization and at home

Patient Selection: Pts with a Braden score of ≤18/Braden Q score ≤16

- Patients with an existing pressure injury or wound
- Patients who are immobile on a specialty support surface
- Patients with multiple medical devices
- Patients with moisture related skin damage

What Occurs During Skin Surveillance Rounds?

- Team inspects patient's skin on bony prominences with the primary RN (including the removal of devices, if appropriate)
- Assists primary RN with repositioning patient; Starts/DCs use of specialty support surfaces; Evaluates accuracy of SKIN bundle documentation

STAFF EDUCATION

Assess and record risk: Admission, Daily, Change in Patient Condition

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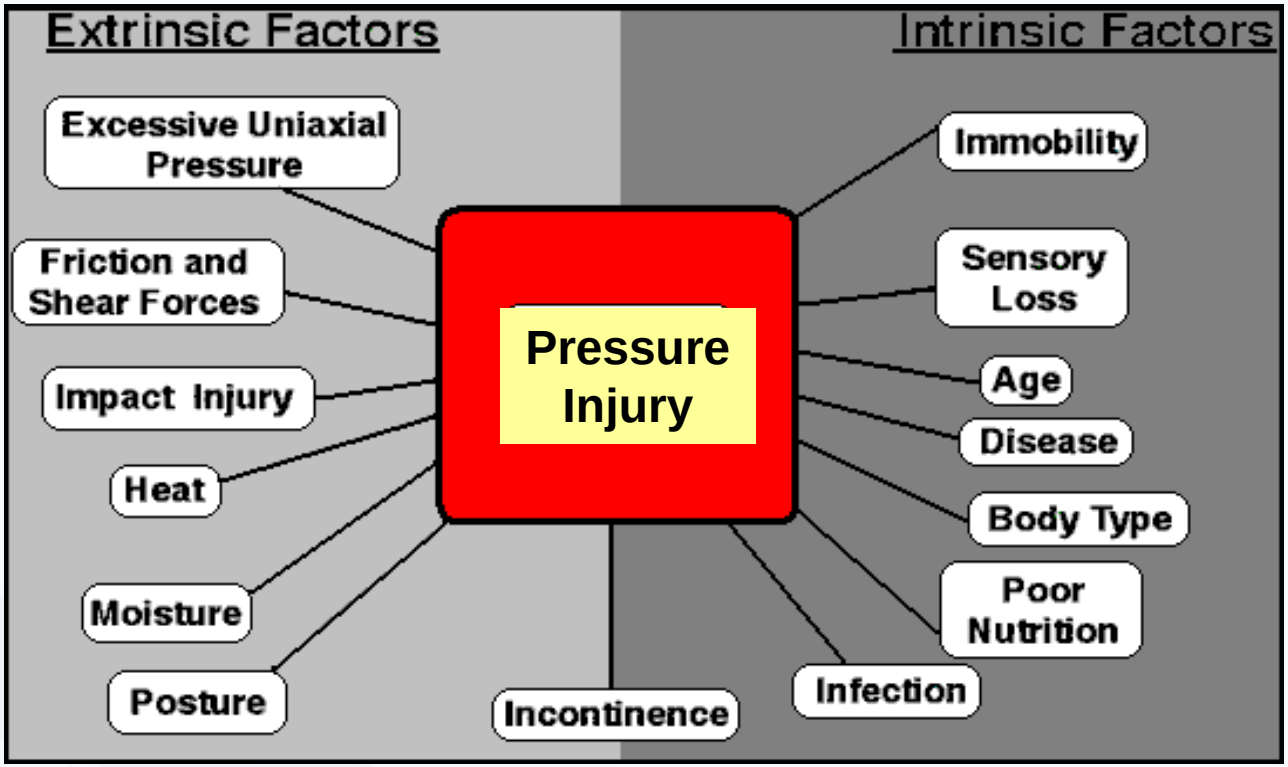
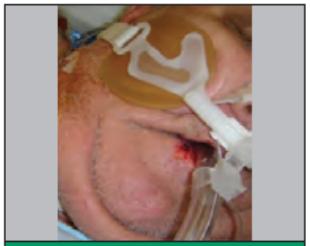


MANY RISK TOOLS: Braden Scale (Sub-Scale more sensitive in ICU)
PEDIATRICS- Braden-Q
Neonatal – NSRAS; • Glamorgan scale; • Starkid Skin Scale

NATIONAL PRESSURE ULCER ADVISORY PANEL

Best Practices for *Prevention* of *Medical Device-Related* Pressure Ulcers

- ✔ **Choose** the correct size of medical device(s) to fit the individual
- ✔ **Cushion** and protect the skin with dressings in high risk areas (e.g., nasal bridge)
- ✔ **Remove** or move the device daily to assess skin
- ✔ **Avoid** placement of device(s) over sites of prior, or existing pressure ulceration
- ✔ **Educate** staff on correct use of devices and prevention of skin breakdown
- ✔ **Be aware** of edema under device(s) and potential for skin breakdown
- ✔ **Confirm** that devices are not placed directly under an individual who is bedridden or immobile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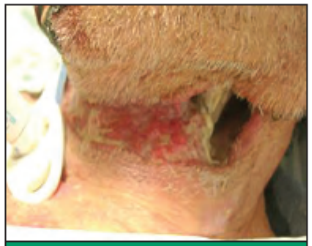
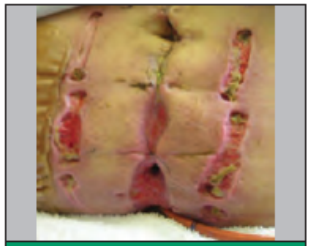
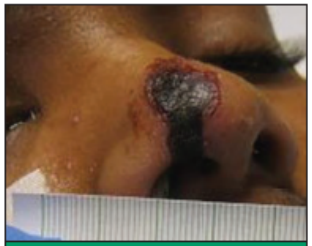
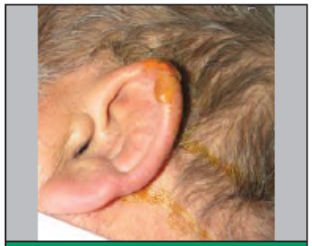
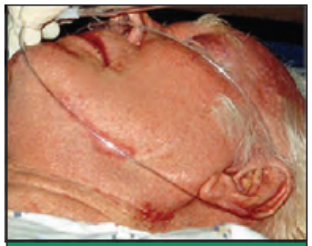

Trach Ties


Retention Sutures


NG Tube


O_2 Saturation Probe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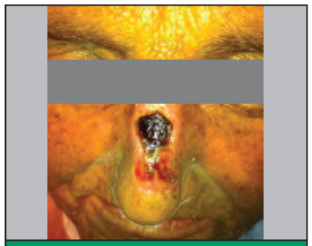
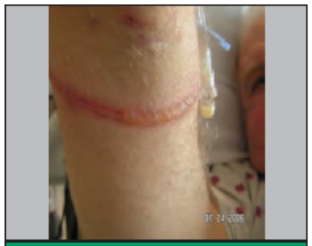
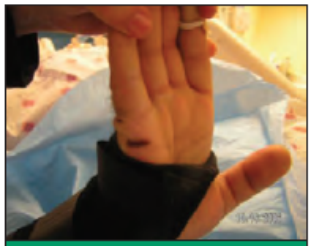

CPAP Mask


Bedpan


Arterial Line


Wrist Splint

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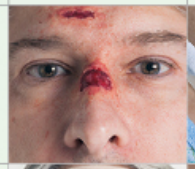
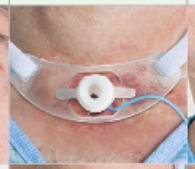
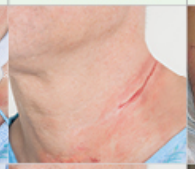
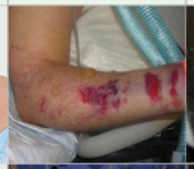
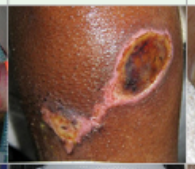
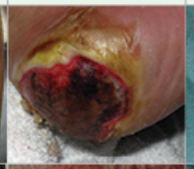
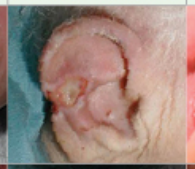
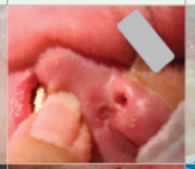
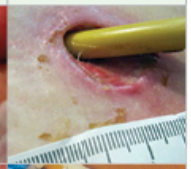
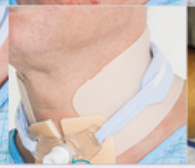
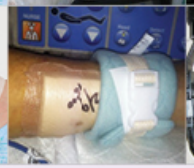
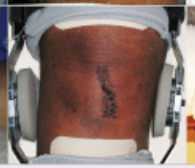
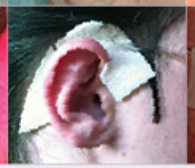
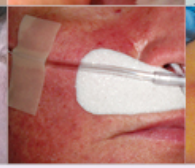
Memorial Care Health System

Protecting Against Device Related Pressure Ulcers

Device	CPAP/BiPAP	Tracheostomy Care	Tracheostomy Tie Irritation	Restraints Skin Damage	Braces	Rigid Casts/ Splints/Traction	Nasal Cannulae with ear protection	Nasal Cannulae: Nose	Tubes/Catheters
Problem									
Protection									
Protect tissue and minimize friction, shear and moisture from fixed devices									
Directions	Apply dressing to protect bony prominences and skin that will be in contact with NIVM (non invasive ventilation mask)	Apply dressing to skin under trach plate. Drain sponges may be placed on top to catch secretions.	Apply dressing to skin under trach ties.	Apply dressing to skin at risk from friction or shear under restraint.	Apply dressing to protect bony prominences and skin that will be in contact with brace.	Apply dressing to protect bony prominences and skin that will be in contact with a rigid cast, splint, or traction support strap	Apply dressing to the contact points of the ears, or behind the ears.	Apply dressing to skin under the nares.	Apply dressing to skin under bumper or drain. Anchor device.
Suggested Products	Mepilex® Lite Mepilex® Transfer (for NICU)	Mepilex® Lite	Mepilex® Lite	Mepilex® Lite or Mepilex® Border	Mepilex® Lite or Mepilex® Border	Mepilex® Lite or Mepilex® Border	Mepilex® Lite	Mepilex® Lite	Mepilex® Lite

Notations

- Fenestrate/cut Mepilex® Lite PRN to accommodate tube sites
- When cutting Mepilex® Lite, leave backing film in place. Cut to desired shape
- Products listed on this guide are not suitable for fixation of life sustaining devices
- DO NOT CUT Mepilex® Border
- Wear time: Up to 7 days, if dressing intact
- Dressings with Safetac® technology DO NOT require use of skin barrier products

The information provided herein is not to be construed as the practice of medicine or substituted for the independent medical judgment of a patient's treating clinician. This information, including but not limited to suggestions for product wear time, product selection and suggested use is based on generalizations and does not consider the unique characteristics of an individual's wound. Each patient's clinician shall remain solely responsible for assessing the severity of patient wounds, determining the appropriate treatment, and managing treatment of the wound. For additional information, please refer to the applicable product insert or contact Mölnlycke Health Care at 1-800-843-8497.

The suggested topical management options and change rates are the treatment choice of your facility and may not reflect the opinions of Mölnlycke Health Care or in the case of products manufactured by a company other than Mölnlycke Health Care, the manufacturer's recommended usage guidelines.

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Other Evidence-Based Tactics

Patient / Family Pressure Ulcer Prevention Toolkit

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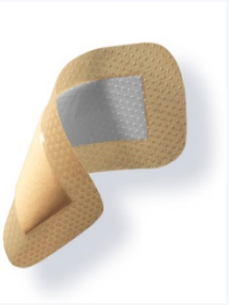
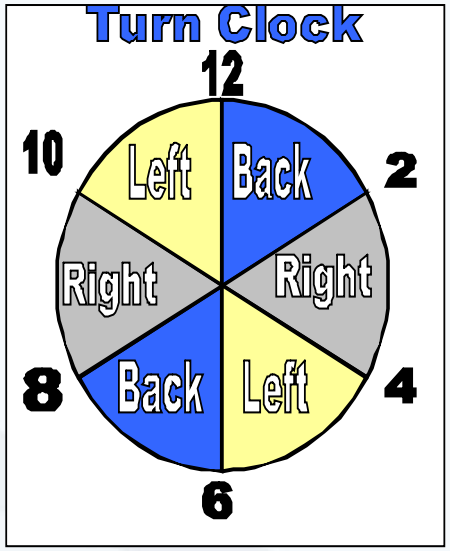


Mepilex® Border Dressings

Mepilex® Lite



Toolkit Bag Trial 250 Adults/250 Pediatric Families (N=500)

- **Evaluation = Post-Discharge Satisfaction Survey (30-Days); and Tracking Re-Admissions within 30-days for PIs at admission.**

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It's Time to Take the Pressure Off!
An Information Booklet for Preventing Skin Injury for Patients and Families©

(Booklet -English, Spanish)

HIGH REILIABILITY PRACTICES:
System Practice Outcomes

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- Findings from our original RCT and translation of this work to practice; and wide dissemination of results (locally, nationally / internationally)- supported our journey to Magnet® designation at Long Beach Memorial, Miller Children's & Women's Hospital (January 2013)

- October, 2013, 2014, 2015 – LBM/MCH received a Sustained Excellence Award from Collaborative Alliance for Nursing Outcomes (CALNOC), an organization that benchmarks nursing sensitive indicators, for sustaining '*zero zone*' for the past 3-years in CA.

- Orange Coast Memorial/and Saddleback Memorial were also awarded the Sustained Excellence award in 2014; 2015.

- **Across the system we continue to *sustain excellence*** *thru prevention of harm—with a combined PI* rate ranging from *zero to 0.4%*

Harm Across the Board (HAB)

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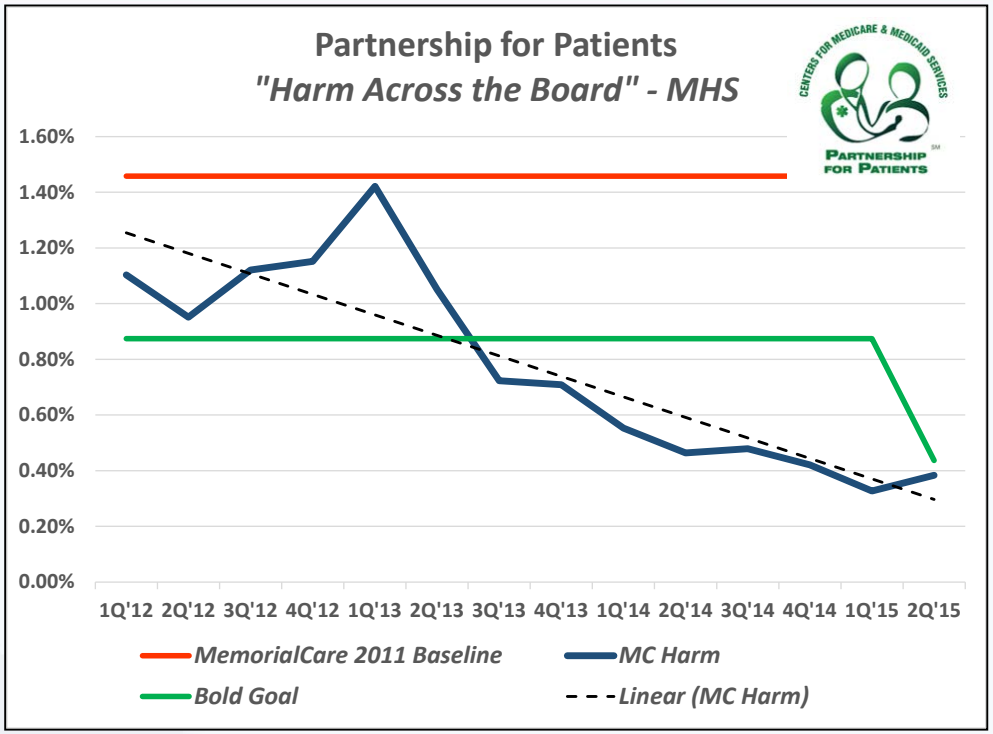
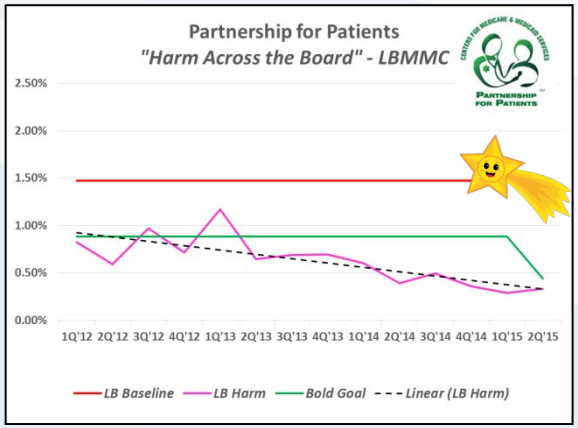
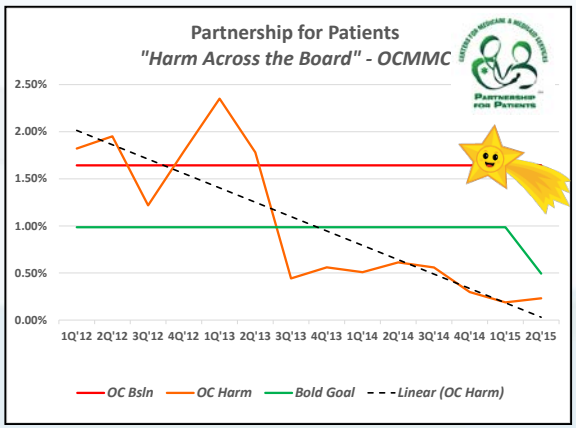
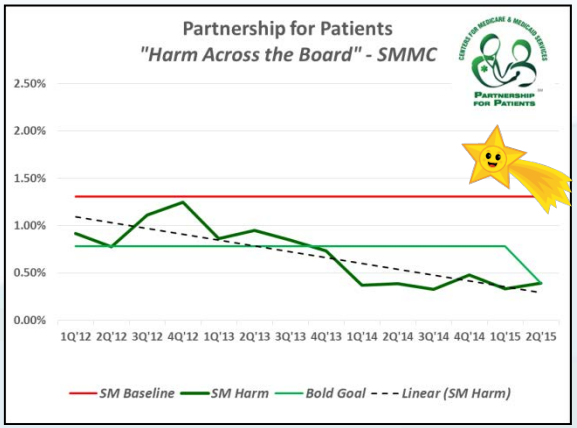


Harm Across the Board (HAB):
Includes:

- ***Adverse Drug Events for Warfarin (High INR >6)***
- ***CAUTI-ICU***
- ***CLABSI-ICU***
- ***Early Elective Delivery***
- ***Falls with Injury (All)***
- ***Pressure Injuries (All Stages)***
- ***Surgical Site Infections (All)***
- ***VAPs***
- ***Blood Clots (VTE6)***
- ***Peds (Ohio HEN)***







Reaching High Reliability

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Reliability: *Not By Process Design Alone*

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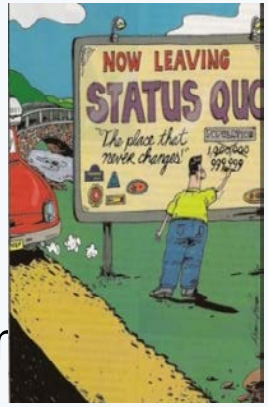
Reliability 2.0: Making Reliability a Reality

Key Steps to Prevent Patient Harm



1. Overall organizational goal of "zero zone" preventable harm. Administrators; Nurse executives/managers (C-Suite) lead way.
2. **TEAMWORK -** House wide Interprofessional PI Prevention team \ **Unit-Based Data Driven Dashboards** / Visibility Boards.
3. **Audit the use of the SKIN Bundle**; Skin Surveillance rounds/ Daily Huddles in all units; Skin champions.
4. **Application of Soft, Silicone Border** dressings per protocol.
5. **Hourly Intentional Rounding** (comfort and safety checks; patient / family education)
6. **Measuring PI rates & practices** *(*If you can't measure it, you can't improve it).
7. **PI program—must track performance—**Is care improving, staying the same, or even getting worse?
8. We **Celebrate Successes** across all our campuses.

HIGH REILIABILITY PRACTICES:
Summary of Keys to Success

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There is no “silver bullet” to completely eliminate risk, but there are steps that can be taken to create a culture of safety and develop a high reliability organization (HRO)

#1 Culture of Safety Permeates the Organization

- ❑ Systems, structures and procedures are in place conducive to safety and reliability
- ❑ Safety and reliability are examined prospectively for all the organization’s activities
- ❑ Organizational learning by retrospective analysis of accidents/incidents is aggressively pursued.
- ❑ Potential for Patient Harm and Injury can occur in all clinical settings, **TEAMWORK** is essential

#2 Think out of the box.

- ❑ What can your institution do to create a Center of Excellence in Pressure Injury Prevention to Avoid Patient Harm & Injury?

END NOTE
Future of Pressure Injury Care

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- Escalation of prevention for very high risk groups (Use New Risk Prediction Models); use 'Big Data' to identify population
- Implementation/validation of new technologies
- Improved device approval methodology by FDA
- Understanding microclimate, pressure, and shear forces in pressure injury
- Early detection with improved diagnostic tools: biomarkers for DTI and healing
- Improved understanding of unavoidable PIs and Skin Changes at End of Life (SCALE)
- Modifying quality measures to account for unavoidable PIs
- Improved EB research for healing modalities
- Improved organization of wound care as a multidisciplinary specialty

Source: AHRQ, 2014, NPUAP, 2016


Thank you!


Q & A

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Appendix A

NPUAP Pressure Injury Stages

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Stage 1 Pressure Injury: Non-blanchable erythema of intact skin
Intact skin with a localized area of non-blanchable erythema, which may appear differently in darkly pigmented skin. Presence of blanchable erythema or changes in sensation, temperature, or firmness may precede visual changes. Color changes do not include purple or maroon discoloration; these may indicate deep tissue pressure injury.

Stage 2 Pressure Injury: Partial-thickness skin loss with exposed dermis
Partial-thickness loss of skin with exposed dermis. The wound bed is viable, pink or red, moist, and may also present as an intact or ruptured serum-filled blister. Adipose (fat) is not visible and deeper tissues are not visible. Granulation tissue, slough and eschar are not present. These injuries commonly result from adverse microclimate and shear in the skin over the pelvis and shear in the heel. This stage should not be used to describe moisture associated skin damage (MASD) including incontinence associated dermatitis (IAD), intertriginous dermatitis (ITD), medical adhesive related skin injury (MARSI), or traumatic wounds (skin tears, burns, abrasions).

Stage 3 Pressure Injury: Full-thickness skin loss
Full-thickness loss of skin, in which adipose (fat) is visible in the ulcer and granulation tissue and epibole (rolled wound edges) are often present. Slough and/or eschar may be visible. The depth of tissue damage varies by anatomical location; areas of significant adiposity can develop deep wounds. Undermining and tunneling may occur. Fascia, muscle, tendon, ligament, cartilage and/or bone are not exposed. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.

Stage 4 Pressure Injury: Full-thickness skin and tissue loss
Full-thickness skin and tissue loss with exposed or directly palpable fascia, muscle, tendon, ligament, cartilage or bone in the ulcer. Slough and/or eschar may be visible. Epibole (rolled edges), undermining and/or tunneling often occur. Depth varies by anatomical location. If slough or eschar obscures the extent of tissue loss this is an Unstageable Pressure Injury.

Unstageable Pressure Injury: Obscured full-thickness skin and tissue loss
Full-thickness skin and tissue loss in which the extent of tissue damage within the ulcer cannot be confirmed because it is obscured by slough or eschar. If slough or eschar is removed, a Stage 3 or Stage 4 pressure injury will be revealed. Stable eschar (i.e. dry, adherent, intact without erythema or fluctuance) on the heel or ischemic limb should not be softened or removed.

Deep Tissue Pressure Injury: Persistent non-blanchable deep red, maroon or purple discoloration
Intact or non-intact skin with localized area of persistent non-blanchable deep red, maroon, purple discoloration or epidermal separation revealing a dark wound bed or blood filled blister. Pain and temperature change often precede skin color changes. Discoloration may appear differently in darkly pigmented skin. This injury results from intense and/or prolonged pressure and shear forces at the bone-muscle interface. The wound may evolve rapidly to reveal the actual extent of tissue injury, or may resolve without tissue loss. If necrotic tissue, subcutaneous tissue, granulation tissue, fascia, muscle or other underlying structures are visible, this indicates a full thickness pressure injury (Unstageable, Stage 3 or Stage 4). Do not use DTPI to describe vascular, traumatic, neuropathic, or dermatologic conditions.

NATIONAL PRESSURE ULCER ADVISORY PANEL

Medical Device Related Pressure Injury: This describes an etiology.
Medical device related pressure injuries result from the use of devices designed and applied for diagnostic or therapeutic purposes. The resultant pressure injury generally conforms to the pattern or shape of the device. The injury should be staged using the staging system

Mucosal Membrane Pressure Injury
Mucosal membrane pressure injury is found on mucous membranes with a history of a medical device in use at the location of the injury. Due to the anatomy of the tissue these ulcers cannot be staged.

PfP NJ 2.0 Pressure Ulcer *Learning Action* Group Structure

- Subject-Based Presentations:
  - Quality Improvement Frameworks to Implement Evidence-based Practices for Pressure Ulcer Prevention
  - Pressure Ulcer Prevention in Vulnerable Elders
  - **Reducing Pressure Ulcers from Medical Devices**
  - Inside Look into Pressure Ulcer Prevention with NJ Best Practice Hospitals
  - Pressure Ulcers and Nutrition

New Jersey Hospital Association Institute for Quality & Patient Safety

Questions?

Next Steps

- Please complete survey to receive your attendance certificate
- Continue to submit data
- Next webinar: August 30 - Inside Look into Pressure Ulcer Prevention with NJ Best Practice Hospitals

New Jersey Hospital Association Institute for Quality & Patient Safety