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Advancing Consistency & High Reliable Care: Why is it Important & How to We Do This

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Objectives

- Understand the impact of harm on hospitalized patients
- Review international data on certain hospital acquired conditions
- Discuss evidence supporting use of bundles and checklists to improve patient safety
- Outline the processes at Vinmec that have been implemented to improve patient safety in the ICU

WHO

- 1 out of 10 patients are harmed in hospitals in high income countries
- 134 million adverse events occur each year in hospitals in LMICs, contributing to 2.6 million deaths annually due to unsafe care
- Medication errors cost an estimated 42 billion USD annually

Hospital Acquired Conditions

- Hospital acquired Infections
  - VAP
  - CAUTI
  - CLABSI
- Pressure Injuries

INICC Data-2013-2018

- 664 ICU
- 133 cities
- 45 countries

VAP-CLABSI-CAUTI

Infection	LMIC	USA
CLABSI per 1000 CL days	5.3	.83
VAP per 1000 MV days	11.47	1.3
CAUTI per 1000 UC days	3.16	.754

Impact of HAI's in LMIC: ↑HLOS 5-30 days, 2x mortality & costs US $5000 to $12,000

Rosenthal VD, et al. Am J Infect Control. 2021;49(10):1267-1274.
https://www.cdc.gov/hai/data/archive/2019-HAI-progress-report.html

Incidence of Pressure Injuries in Critical Care

- 22 studies, 10 reported cumulative incidence of PI
- Incidence: 10-25.9%
- Prevalence: 16.9-23.8%
- Excluding Stage 1 Incidence: 0.0 to 23.8%
- Location: 5 studies (406 patients)
  - Sacrum: 26.9-48%
  - Buttock: 4.1-46%
  - Heel: 18.5-38.9%
  - Hips: 10.9-15.7%
  - Ears: 4.3-19.7%
  - Shoulders: 0.0-40.2%

1 out of every 4-5 patients in the ICU will develop a PI

Chaboyer WP, et al. Crit Care Med, 2018 Nov;46(11):e1074-e1081

DecubICUs Study: International Prevalence, Risk & Outcomes

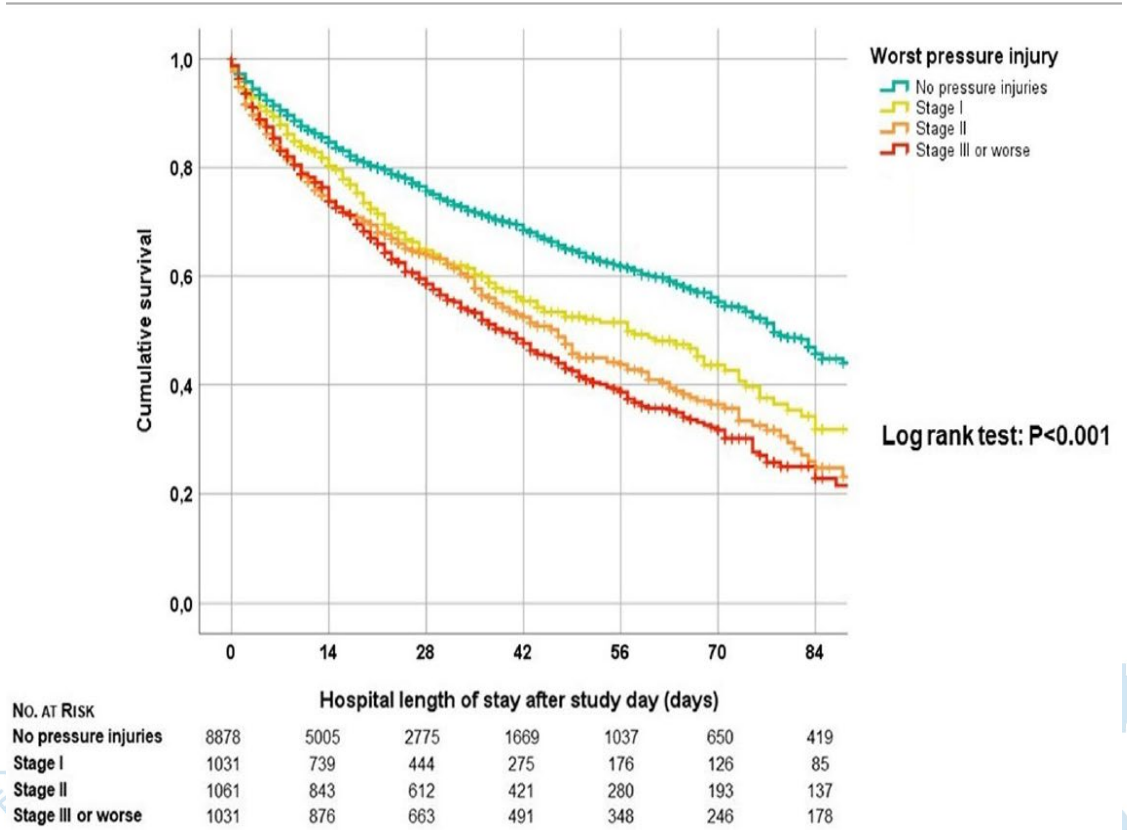
- Methodology
  - International 1-day prevalence
  - Follow up for outcome assessment until hospital d/c
  - Assess factors associated with ICU acquired pressure injuries
  - Hospital mortality

- Risk factors for ICU acquired PI
  - Older age
  - Male
  - Under weight
  - Emergency surgery
  - Higher APACHE score
  - Braden >19
  - ICU stay > 3days
  - Organ support (MV, CRRT)

Labeau SO, Afonso E, Benbenishty J, et al. *Intensive Care Med*. 2021;47(2):160-169.

DecubICUs Study: International Prevalence, Risk & Outcomes

	All *n* = 13,254	Europe *n* = 5632	North America *n* = 1507
	Number of patients (percentage) 95% confidence interval		
Overall prevalence	3526 (26.6) 25.9–27.3	1630 (28.9) 27.8–30.1	344 (22.8) 20.8–25
ICU-acquired prevalence	2145 (16.2) 15.6–16.8	1124 (20) 18.9–21	200 (13.3) 11.7–15.1
Proportion ICU-acquired prevalence (%)	60.8	69.0	58.1



Labeau SO, Afonso E, Benbenishty J, et al. *Intensive Care Med*. 2021;47(2):160-169.

What is Patient Safety?

Patient safety was defined by the IOM as “the prevention of harm to patients.” Emphasis is placed on the system of care delivery that:

- prevents errors
- learns from the errors that do occur
- is built on a culture of safety that involves health care professionals, organizations, and patients.

Aspden P, Corrigan J, Wolcott J, et al., editors. Patient safety: achieving a new standard for care. Washington, DC: National Academies Press; 2004.

High Reliability Organizations

- High Reliability: consistent performance at high levels of safety over long periods of time
- Possess “Collective mindfulness”
  - Individuals & teams are acutely aware that even small failures in safety protocols or processes can lead to catastrophic adverse events.
  - Eliminate deficiencies in safety processes using powerful tools to improve their processes
  - Create an organizational culture that focuses on safety, remaining constantly aware of the possibility of failure

Chassin & Loeb, Health Affairs, April 2011

High Reliability Organization – What Does It Mean?

A Leader where we stand

Role model right behavior

Correct the wrong behavior

How Do We Get There?

- It's a JOURNEY
- Examine your current framework for achieving health care quality
- 3 Critical Changes Must Take Place
  - Leadership commitment
    - Must focus on the journey from low to high reliability by making it their highest priority and requiring all levels of management to do the same
  - Safety Culture
    - Frontline workers trust each other in order to feel safe to identify and report problems
    - When a problem is reported it will be fixed
    - Reported problems lead to safety improvements
  - Robust Process Improvement
    - Six Sigma, Lean and Change Management

Health Care Quality-A Framework

STRUCTURE

- Having the right things in place

PROCESS

- Doing the right things

OUTCOME

- Having the right things happen

Quality of care is represented by an entire systemic integration from structure to process and to outcome, but not by one or the other independently

Why Critical Care Nurses Knowledge Is Essential

- To consistently achieve essential critical care practice standards, a well-educated nursing workforce is mandatory.
- Gaining knowledge raises an awareness of personal and professional accountability and the dilemmas of practice.
- Knowledge is what improves care if the nurse is aware of the best knowledge or evidence to use in practice and reduces variation in practice.
- The Essentials of Critical Care Orientation (ECCO) program is recognized as a premier interactive web-based tool to help develop knowledge and skills in the fundamentals of critical care nursing.
- Structure program and team learning helps to create consistency in information taught

Anderson J et al. Critical Care Nursing Quarterly , 2009; 32 (1), 1 - 9.
Monforto K. et al. *Crit Care Nurse* 1 August 2020; 40 (4): 54–64.

The ECCO Program and Progress

- Recruited 50 staff nurses
- Duration: 1 year
- Measurement: Pretest and posttest.
- Method: Online platform, interactive
  - Self learning followed by group discussion
- Adult Learning: Case studies (Assessment – Symptom management – Plan of care – Discharge plan – Patient education).
- 2/3 journey has been done

Standardized Work Paradigm

Old Paradigm - I know you'll be able to figure it out. Just get it done the best way you can.

New Paradigm - In order to have consistent results we must do things the same way every time.

Robust Processes of Care Create Consistency & Reliability

On any given day in the ICU, the typical patient will require 178 interactions in their care

- Care Bundles
  - Grouping of care elements for particular symptoms, procedures or treatments
  - Strong science, good methodology, poor process
  - Bundle characteristics
    - Solid evidence
    - Relatively easy & inexpensive
    - Individual components defined well
    - Process not defined well

- Checklists
  - A checklist standardizes the process to ensure that all elements or actions are addressed.
  - The structure and predictability of checklists facilitate the careful and systematic delivery of care and reduces variability
  - Improve the reliable translation of information so the same knowledge is available

Winters BD, et. al. *Crit Care*. 2009;13(6):210.

Impact of Bundles & Checklists

- Bundles
  - CLABSI insertion & maintenance bundles reduce infection and mortality[3]
  - VAP Bundle: Reduce Infection & mortality[4]
  - CAUTI Bundle: 60% decrease in infections[5]

- Checklists
  - BSI insertion check list (reduction of CLABSI's)[1]
  - Surgical safety checklist (reduction in errors regarding surgical site)[2]

Teams are Critical For Implementation
- Intensivist
- Critical care RN
- Pharmacy
- Physical Therapy

Intervention Results Using INICC Multidimensional Approach.

Country	Pre-Intervention Rate/1000 central line days	Post-Intervention Rate/1000 central line days	% Decrease	Reference
Argentina	46.63	11.10	76%	Rosenthal et al., 2003
Colombia	12.9	3.9	73%	Alvarez-Moreno et al., 2016
Mexico	46.3	19.5	58%	Higuera et al., 2005
Turkey	22.7	12.0	47%	Leblebicioglu et al., 2013
India	6.4	3.9	39%	Jaggi et al., 2013
Saudi Arabia	6.9	3.1	55%	Al-Abdely et al., 2017
15 countries	14.7	9.7	34%	Rosenthal et al., 2010
5 countries (Pediatric ICU)	10.7	5.2	51%	Rosenthal et al., 2012
4 countries (Pediatric ICU)	21.4	9.7	55%	Rosenthal et al., 2013
Argentina (ICU)	9.6	4.1	57%	Rosenthal et al., 2018

1. Pronovost P, et al. N Engl J Med. 2006;355:2725–2732.
2. Makary MA, et al. *J Am Coll Surg.* 2007;**204**:236–243
3. Lutwick L et al. International Journal fo Infectious disease. 2019;84:22-29
4. Pileggi C, et al. *Crit Care Med* 2018;46:1167-74.
5. Soundaram GV,et. al.. *Indian J Crit Care Med*. 2020;24(7):544-550

VAP bundle

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BẢNG KIỂM PHÒNG NGỪA VIÊM PHỔI LIÊN QUAN ĐẾN THỞ MÁY
PREVENT VENTILATOR ASSOCIATED PNEUMONIA CHECKLIST

PID

Họ và tên/*Patient's name:* _____ **Ngày sinh**/*D.O.B:* __ / __ /___ **Giới**/*Sex:* _____

Chẩn đoán/*Diagnosis* _____

Ngày/ Date *Tích thực hiện (✓) vào các ô tương ứng*		__ / __ / ___		__ / __ / ___		__ / __ / ___		__ / __ / ___		__ / __ / ___		__ / __ / ___		__ / __ / ___	
		D	N	D	N	D	N	D	N	D	N	D	N	D	N	D	N
Tư thế đầu cao 30-45^0 *HoB Elevation 30-45^0*																	
Vệ sinh răng miệng *Daily Oral Care with Chlorhexidine*																	
Đánh giá an thần cai thở máy *Daily Sedative Interruption and Daily Assessment of Readiness to Extubate*																	
Phòng ngừa huyết khối TM sâu *DVT Prophylaxis*	*Máy bóp chân Veinflow hoặc/và*																
	Thuốc chống đông																
Phòng viêm loét dạ dày *PUD Prophylaxis*																	
Hoạt động kiểm tra/giám sát/đi buồng *Perform Team ward around*																	
Tên các thành viên *Participator's name*	ĐD/ *Nurse*																
	BS/*Doctor*																
	DS/*Pharmacist*																

Ghi chú cách ghi chép: *Có thực hiện/áp dụng (✓); Không áp dụng (NA); không thực hiện (0)*

CAUTI bundle

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BẢNG KIỂM THỰC HIỆN CAUTI BUNDLE

PID

Khoa: _____ Ngày đặt: ___ / ___ / ___ Ngày rút sonde tiểu: ___ / ___ / ___

Ngày/ Date														
	D	N	D	N	D	N	D	N	D	N	D	N	D	N
Đánh giá sự cần thiết / Xem xét chỉ định rút sonde tiểu														
Đảm bảo sonde được cố định, hệ thống ống thông tiểu kín- không hở														
Dẫn lưu nước tiểu thông tốt – không bị tắc, gập, xoắn.														
Túi nước tiểu luôn để thấp hơn so với bàng quang, túi nước tiêu không chạm sàn nhà.														
Xả túi đựng nước tiểu thường xuyên, sử dụng bô chứa riêng biệt, sạch cho mỗi BN														
Vệ sinh bộ phận sinh dục hàng ngày														
Rửa tay trước và sau khi động chạm vào ống thông tiểu														
Mang găng tay khi động chạm tới ống thông tiểu hoặc túi lưu nước tiểu														
Sốt > 38^{0}C														
Đau trên khớp vệ														
Tiểu thường xuyên, tiểu gấp, khó tiểu														
KQ cây nước tiểu (10^{5}CFU / mL)														
Tên Điều dưỡng Nurse' name														

*** *Tích (✓) vào các ô tương ứng*

CLABSI bundle

BẢNG KIỂM CHĂM SÓC CATHETER MẠCH MÁU TRUNG TÂM

PID

Khoa: _____ Ngày đặt: ___ / ___ / ___ Ngày rút catheter: ___ / ___ / ___

Ngày/Nội dung đánh giá												
	D	N	D	N	D	N	D	N	D	N	D	N
Đánh giá sự cần thiết tiếp tục lưu catheter mạch máu trung tâm												
Tắm cho NB (trên 2 tháng tuổi) hàng ngày bằng Chlohexidine 4%												
Cổng tiêm truyền được đóng kín bằng nắp hoặc van một chiều												
Mang khẩu trang, VST và găng tay VK khi thay cổng truyền hoặc van một chiều												
Sát trùng cổng tiêm truyền hoặc van một chiều bằng CHG trong 15 giây trước và sau khi kết nối												
Thay dây truyền, cổng truyền và van 1 chiều theo đúng thời gian khuyến cáo (*)												
Đường truyền ổn định, thông tốt, không gập, không căng												
Thay băng theo đúng khuyến cáo (**)												
Băng khô không thấm dịch, có nhãn phù hợp (***)												
Vị trí đặt catheter không dấu hiệu nhiễm trùng (sưng, nóng, đỏ)												
Tên Điều dưỡng												

Importance of Handoff Communication

- Joint Commission International Patient Safety Goal, required “a standardized approach to handoff communications”
  - Standardized, structured handoffs improve communication and patient safety.
  - I-PASS is a handoff program that decreases medical errors and preventable patient harm (from TeamStepps)
  - The I-PASS mnemonic is defined as illness severity, patient information, action list, situational awareness and contingency plans, and synthesis by receiver. (medical handover)-adapted to nursing
  - Resulted in perceived handoff error reduction post implementation

Blazin LJ,et. al.. *Pediatr Qual Saf*. 2020;5(4):e323.

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Checklist For Nursing Handoff

Do điều dưỡng hoàn thành/ *Completed by nurse*

Situation – Tình huống			Patient's label
☐ Tên, ngày sinh, PID người bệnh/*Patient's name, DOB, PID*			
☐ Chẩn đoán, tên phẫu thuật thủ thuật/*Diagnosis, name of surgery, procedure*			
☐ Tên bác sỹ điều trị, phẫu thuật viên/*Physician, surgeon's name*			
☐ Lý do chuyển/*Reason for transfer*			
Nội dung/*Content*	**No**	**Yes**	Điền thông tin chi tiết (nếu cần)/ *Fill up detailed information (if necessary)*
Background – Diễn biến			
Dị ứng/*Allergy*			
Yêu cầu KSNK, cách ly/ *Infection control, isolation precaution required*			☐ Không khí/*Airborne* ☐ Giọt bắn/*Droplet* ☐ Tiếp xúc/*Contact*
Hỗ trợ hô hấp/*Respiratory support*			☐ Thở oxy/*Oxygen* ☐ Bóp bóng/*Manual ventilator* ☐ Máy thở/*Ventilator* ☐ Nội khí quản/*Endotracheal tube* ☐ Mở khí quản/*Tracheotomy*
Đường truyền trung tâm *Central line catheter*			☐ Động mạch/*Artery* ☐ Tĩnh mạch/*Vein* ☐ Cổng truyền/*Ports*
Đường truyền ngoại vi *Peripheral line*			☐ Thuốc/*Medication* ☐ Dịch truyền/*Infusion* ☐ Máu, chế phẩm/*Blood and/or blood products* ☐ Lưu kim/*IV saline lock*
Biến chứng gây mê/*Anesthesia complication*			
Biến chứng của thủ thuật *Operation, procedure complication*			
Vị trí phẫu thuật, thủ thuật *Surgical site*			☐ Đầu/*Head* ☐ Cổ/*Neck* ☐ Ngực/*Thorax* ☐ Bụng trên/*Upper abdomen* ☐ Bụng dưới/*Lower abdomen* ☐ Lưng/*Back* ☐ Khung chậu/*Pelvic* ☐ Tay trái/*Left arm* ☐ Tay phải/*Right arm* ☐ Chân trái/*Left leg* ☐ Chân phải/*Right leg*
Dẫn lưu/*Drains* (Tổng số/ *No.....*)			☐ Sonde dạ dày/*Nasogastric tube* ☐ Sonde tiểu/*Urinary catheter* ☐ Khác/*Other:* .....
Băng ép/gạc chèn cầm máu/ *Compression bandage/gauze*			Loại, số lượng, vị trí (ghi cụ thể)/ *Type, total no. of bandage/gauze and location (specify):* .....
Thiết bị cấy ghép/*Implant device(s)*			
Kết quả cận lâm sàng đã có *Diagnostic's results*			
Assesment – Đánh giá			
Dấu hiệu sinh tồn/*Vital signs*			
Nguy cơ ngã/*Fall risk*			
Đau/*Pain*			- Điểm đau/*Pain score:* ..... - Biện pháp giảm đau/*Reduce pain:* ☐ Không/*No* ☐ Có/*Yes* ☐ Tê TK ngoại vi/*Peripheral nerve block* ☐ Tê tủy sống/*Spinal anesthesia* ☐ Catheter ngoài màng cứng/*Epidual* ☐ Hậu môn/*Rectal* ☐ Catheter giảm đau vết mổ/*Wound infiltraton catheter* ☐ Tĩnh mạch/*IV*
Tri giác/*Conciousness*			☐ Tỉnh/*Alert* ☐ Lơ mơ/*Drowsy* ☐ Hôn mê/*Unconscious*
Tình trạng đặc biệt khác *Other special status*			
Recommendation – Đề xuất			
Chăm sóc tiếp theo/*Follow up care*			
Y lệnh thuốc/*Medical order*			
Vết mổ/*Wound*			
Chảy máu/*Bleeding*			
Xét nghiệm cận lâm sàng chưa có/ *Pending diagnostic test(s)*			☐ Xét nghiệm/*Laboratory* ☐ Chẩn đoán hình ảnh/*Diagnostic imaging*
Tài sản NB/*Patient's property*			
HSBA/*Medical record*			
Khác/*Others*			

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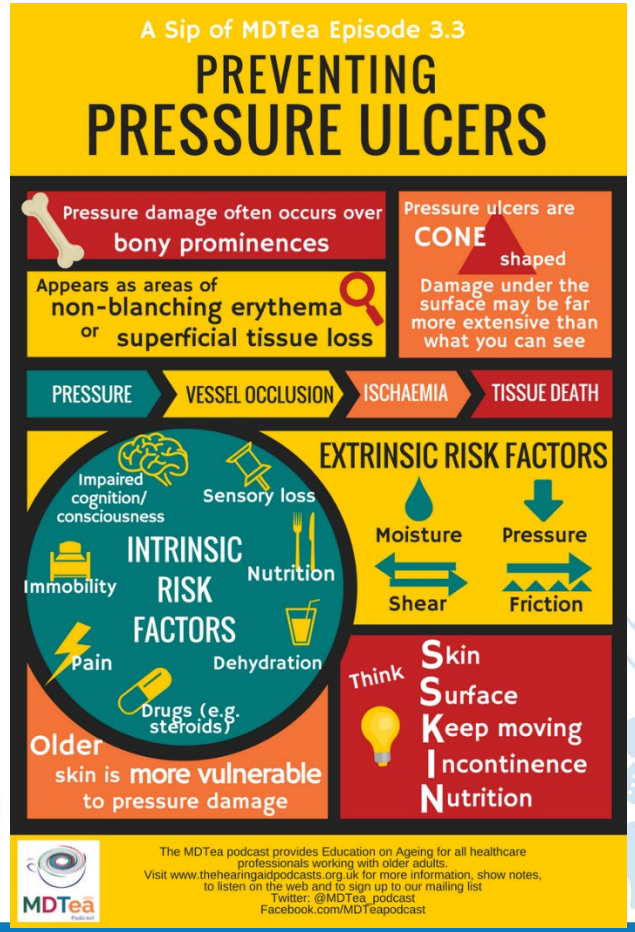
Announcing the Pressure Injury Bundle

- Pressure Reduction Strategies
- Moisture Reduction Strategies
- Surface choice
- Nutrition



Conclusion

Bundles & checklists help to drive consistency in care and improved outcomes

Allows for delivery of the evidence-each patient, each encounter

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