Back to the Basics: Good Nursing Care Saves Lives

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Quality & Safety Drivers

- Institute for Medicine
  - IOM report
  - Crossing the Quality Chasm
  - Transforming the work culture
- Evidence based practice movement
- Quality organizations
  - Australian Patient Safety Foundation (1989)/Safety &Quality Council (2000)/New Zealand part of Quality Network
  - Patient Safety First Campaign/NPSA/NICE/UK
  - IHI/VHA:100,000 lives campaign /5 million lives campaign
  - Clean Care is Safer Care/WHO
  - Best Care Always
- Regulatory agencies:
  - Create & maintain a safety culture
  - EU Council Recommendations on Patient safety & HAI’s
- Public transparency
- Economics
- Professional Nursing: Back to the Basics

Technology/Medical vs. Fundamental Basic Care Practices

- Prior to 5 Years Ago
  - How was quality nursing care measured?
    - Reduced medication errors
    - Reduced order missed
    - Patient and family satisfaction

Is this the full measurement of the quality of nursing care we deliver?
Behavioral Rationale for Current Environment of Nursing Practice

| Behavior that is recognized and reinforced continues | Behavior that is ignored or not reinforced does not continue |

Quality & Safety Drivers

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International Comparison Data on HAI’s

<table>
<thead>
<tr>
<th></th>
<th>USA</th>
<th>Europe</th>
<th>Japan</th>
<th>India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevalence of HAI’s</td>
<td>2 million per year</td>
<td>4.1 million per year</td>
<td>Resistance Isolation Rate of MRSA: 40-80%</td>
<td>10-30% acquire a HAI</td>
</tr>
<tr>
<td>Excess cost of HAI</td>
<td>4.5-5.7 billion</td>
<td>1 billion pounds</td>
<td>2.4-6 billion Euros</td>
<td>Per event 35,000 yen</td>
</tr>
</tbody>
</table>


Health Care Acquired Infection Data

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>CLA-BSI/per 1000 cath days</td>
<td>Range pooled means 1.16 (CTICU)-17.14 (SICU) Overall: 9.21</td>
<td>Range of pooled means 1.0 (PICU)-5.6 (Burn ICU)</td>
</tr>
<tr>
<td>VAP/per 1000 vent days</td>
<td>Range of pooled means 7.85 (PICU)-40.74 (MICU) Overall: 19.5</td>
<td>Range of pooled means 2.1 (PICU) -10.7 (Burn ICU)</td>
</tr>
<tr>
<td>CA-UTI/per 1000 cath days</td>
<td>Range of pooled means 1.28 (CTICU) – 8.29 (Neuro ICU)</td>
<td>Range of pooled means 3.1 (Med-Surg ICU)-7.7 (Burn ICU)</td>
</tr>
<tr>
<td>Staph aureus Resistance</td>
<td>80.8%</td>
<td>48.1%</td>
</tr>
</tbody>
</table>

INICC Crude Mortality Data: 14.3% CLA-BSI & 27.5% VAP

Components of Successful Long Lasting Change

Factors Impacting the ability to Achieve Quality Nursing Outcomes at the Point of Care

Value

Attitude & Accountability

Nurse Sensitive Outcome Indicators
Notes on Hospitals: 1859

“It may seem a strange principle to enunciate as the very first requirement in a Hospital that it should do the sick no harm.”

-Florence Nightingale

Fortifying Host Defense

Implement Interventional Patient Hygiene

Interventional Patient Hygiene

- Hygiene...the science and practice of the establishment and maintenance of health (Webster)
- Hygiene...refers to practices associated with ensuring good health and cleanliness (Wikipedia)
- Interventional Patient Hygiene...nursing action plan directly focused on fortifying the patients host defense through proactive use of evidence based hygiene care strategies

Progressive Mobility

Hand Hygiene

Incontinence Associated Dermatitis Prevention Program

INTERVENTIONAL PATIENT HYGIENE (IPH)

VAP/HAP

Oral Care/Mobility

HAND

Patient

HYGIENE

Catheter Care

CA-UTI

Skin Care/Bathing/Mobility

CA-BSI

SSI

HASI
Nurse Sensitive Hospital Acquired Injury

- Ventilator-associated pneumonia/Hospital Acquired Pneumonia.....Oral Care
- Prevention of Hospital-acquired skin injuries cause by pressure and moisture...Incontinence management
- MDRO’s
- CA-UTI’s
- CA-BSI’s

Do No Harm

Healthcare Acquired Pneumonia

<table>
<thead>
<tr>
<th>Groups</th>
<th>VAP/per 1000 vent days</th>
</tr>
</thead>
<tbody>
<tr>
<td>INICC 2002-2007 98 ICUS in Latin America, Asia, Africa &amp; Europe*</td>
<td>Range of pooled means 7.85 (PICU)-40.74 (MICU) Overall: 19.5</td>
</tr>
<tr>
<td>VAP rates in Developing Countries from 22 Studies** (Middle east (10), South America (5), Southeast Asia (2), 8 developing countries)</td>
<td>10 (Med-Surg)-41.7 (Oncology ICU)</td>
</tr>
<tr>
<td>NHSN 2006-2007 621 hospitals in US</td>
<td>Range of pooled means 2.1 (PICU) -10.7 (Burn ICU)</td>
</tr>
<tr>
<td>28 ICU’s in Japanese Hospitals &gt; 200 beds</td>
<td>12.6 (71% late onset)</td>
</tr>
<tr>
<td>Canada</td>
<td>10.6 (4000 cases per year)</td>
</tr>
</tbody>
</table>

Sources:
Risk Factor Categories for Health Care Acquired Pneumonia

- Factors that increase bacterial burden or colonization
- Factors that increase risk of aspiration

Oropharyngeal Colonization

Methodology:
- 89 critically ill patients
- Examined microbial colonization of the oropharynx throughout ICU stay
- Used pulse field gel electrophoresis to compare chromosomal DNA

Results:
- Diagnosed 31 VAPs
- 28 of 31 VAP’s the causative organism was identical via DNA analysis

Dental Plaque

Methodology:
- 49 elderly nursing home residents admitted to the hospital
- Examined baseline dental plaque scores & microorganism within dental plaque
- Used pulse field gel electrophoresis to compare chromosomal DNA

Results:
- 14/49 adults developed pneumonia
- 10 of 14 pneumonias, the causative organism was identical via DNA analysis

El-Solh AA. Chest. 2004;126:1575-1582

Oral Care Practices: Large Multi-site Study 2000 vs. 2005

<table>
<thead>
<tr>
<th>Practice</th>
<th>No. (%) of respondents (n = 1200)</th>
<th>% reported by Sole et al.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Frequency of oral suctioning</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every 2 hours</td>
<td>594 (50)</td>
<td>NR</td>
</tr>
<tr>
<td>Every 4 hours</td>
<td>429 (36)</td>
<td>3</td>
</tr>
<tr>
<td>Every 8-12 hours</td>
<td>32 (3)</td>
<td>7</td>
</tr>
<tr>
<td>Only as needed</td>
<td>326 (27)</td>
<td>18</td>
</tr>
<tr>
<td>Rarely or not at all</td>
<td>2 (&lt;1)</td>
<td>NR</td>
</tr>
<tr>
<td>Frequency of tooth brushing</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Every 4 hours</td>
<td>193 (16)</td>
<td>5</td>
</tr>
<tr>
<td>Every 8-12 hours</td>
<td>609 (44)</td>
<td>34</td>
</tr>
</tbody>
</table>

Oral Care Practices are Changing

<table>
<thead>
<tr>
<th>Preventive care practice</th>
<th>No. (%) of respondents (n = 1200)</th>
<th>% reported by Sole et al.*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Antiseptic rinse solution</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chlorhexidine gluconate</td>
<td>309 (26)</td>
<td>20</td>
</tr>
<tr>
<td>Mouthwash</td>
<td>456 (38)</td>
<td>NR</td>
</tr>
<tr>
<td>Hydrogen peroxide</td>
<td>324 (27)</td>
<td>NR</td>
</tr>
<tr>
<td>Other</td>
<td>20 (2)</td>
<td>NR</td>
</tr>
<tr>
<td>None</td>
<td>51 (4)</td>
<td>NR</td>
</tr>
<tr>
<td>Don't know</td>
<td>45 (4)</td>
<td>NR</td>
</tr>
</tbody>
</table>

*Because of missing data and rounding, percentages do not add to 100 total 100.

Abbreviation: NR, not reported.

What Does the Evidence Tell Us?

Brush
CHX rinse alone
CHX rinse in Combination
Swab/Clean/Moisturize
Suction

All of the above

BRUSH & SWAB

• 77% more clean approximal sites with brushing
• 44% more clean crevice sites with brushing
• Benefit of brushing is directly correlated with technique
• Foam swabs could not remove plaque from sheltered areas on or between teeth


Toothbrush; grade D, Swabs; unresolved, Use of flexible suction catheter post oral cleansing; Grade D (Berry AM et al. AJCC, 2007;16:552-563)
Recent Trials Reduction in VAP or Colonization with CHG or Povidone-iodine

- 2004: Grap (CHG via swab)
- 2005: Fourier (CHG) (negative trial)
- 2006: Koeman (CHG or CHG/colistin)
- 2006: Munro (CHG via swab & toothbrushing)
- 2006: Sequin (povidone-iodine)
- 2006: Mori (povidone-iodine)
- 2008: Tantipong (CHG)
- 2009: Tanmay S (CHG) negative trial

CHG & H2O2 have good antibacterial effects against most isolated VAP pathogens in vitro

(Senol G et al. Am J Infec Control, 2007;35:531-7)

Oral Decontamination for the Prevention of Pneumonia in Mechanically Ventilated Patients: Systematic Review and Meta Analysis

Meta Analysis
- 298 articles screened
- 11 randomized controlled trials used
- 3242 patients
- 4 trials (1098 pts) no significant difference with oral antibiotics
- 7 trials (2144 pts) Oral application of antiseptics significantly reduced VAP rates
- No decrease in Mortality, mechanical ventilation or LOS

Comprehensive Oral Care Program

Comprehensive Oral Care Protocol: The Good Shepherd Study

Methodology:

- Retrospective study 10 bed Med-Surg
- Protocol included: Covered Yankauer for non-traumatic oral suctioning, soft-suction toothbrush, Suction Oral Swab, use of a 1.5% $\text{H}_2\text{O}_2$ peroxide mouth rinse for cleansing, subglottic suction catheter used 4x daily, dedicated oral suction line for infection control and ease of use.
- Education provided and presence of clinical champion.

Literature Review: Oral Care Impact of VAP

• Comprehensive Oral Care:
  • Reduction in VAP from 5.6 to 2.2 (Schleder B. et al. J Advocate Health 2002;4(1):27-30)
  • Reduction in VAP from 8.3 to 4.4, vent bundle already being preformed (Garcia R et al AJIC, 2006;34(5):E47-E48)
  • Reduction in VAP from 4.10 (2005) to (2.15) in 2006 with addition of CPC & comprehensive oral care. Vent bundle & rotational therapy already being performed

• Comprehensive Oral Care & CHG:
  • Reduction in VAP to zero for 2 years, vent bundle, mobility, oral care & CHG with comprehensive education preformed (Murray TM et al. AACN Advanced Critical Care. 2007;18(2):190-199)

Literature Review: Oral Care Impact of VAP

Reduction in VAP, vent bundle already in used

![Graph showing reduction in VAP rates with comprehensive oral care and CHG](image)

**Figure 1.** 2005-2007 University of Michigan Hospitals and Health Centers surgical ICU ventilator-associated pneumonia rate.

Dickinson S et al. SCCM Critical Connections, Feb 2008
Oral Suctioning with Position Change

- Prospective time sequenced non-randomized study
  - 237 control (observation phase 9 months)
  - 227 Interventional (7 months interventional)
  - Difference in nursing protocol was oral suctioning prior to position change (11 additional suctions)
  - All other nursing care the same

- Results:
  - VAP: 6.51 to 2.04 per 1000 ventilator days (p<0.002)
  - Vent days: 28.8 ± 17.2 vs. 20.2 ± 4.0 (p <0.009)
  - ICU LOS: 27.6 ± 17 vs. 20.3 ± 4.0 (p < 0.012)
  - Suctioning before positional change only independent factor responsible for VAP decrease (p=0.003)


Types of Hospital Acquired Skin Injury

- Injury caused by pressure
- Injury caused by moisture
- Injury caused by devices
- Injury caused during care activities
Pressure Ulcer Prevalence & Incidence Rates in Acute Care

<table>
<thead>
<tr>
<th></th>
<th>IPPP/USA/2007</th>
<th>Canada</th>
<th>Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Prevalence Rate</strong></td>
<td>10.7-28.6%</td>
<td>25.1%</td>
<td>*5.4-27%</td>
</tr>
<tr>
<td><strong>Incidence Rate</strong></td>
<td>4.8-11.1%</td>
<td>10%</td>
<td>~ 5-6%</td>
</tr>
</tbody>
</table>

Pressure ulcers develop within the first 2 weeks of hospitalization & within 72 hours of ICU admission**

National Pressure Ulcer Advisory Panel, 2001
Victorian Quality Council Pressure Ulcer Point Prevalence Survey 2003
Australian Wound Care Association 2001
Registered Nurses’ Association of Ontario (2005). *Risk assessment and prevention of pressure ulcers (Revised).* Toronto, Canada:
Registered Nurses’ Association of Ontario

Facts about Pressure Ulcers

- Associated with extended LOS
- 60,000 patients are estimated to die each year from complications r/t a hospital-acquired pressure ulcer
- Cost per case where pressure ulcer listed as secondary diagnosis $43,180.00
- Cost per stage IV pressure ulcer A61,230
- Incidence in acute care 7%

Reddy M et al. JAMA 2006;296:974-984
Australian Wound Care Association 2001
Pressure Ulcers – Risk Factors

1. Immobility 87.0%
2. Fecal Incontinence 56.7%
3. Malnutrition 54.4%
4. Decreased Mental Status 50.7%
5. Peripheral Vascular Disease 28.1%
6. Urinary Incontinence 27.0%
7. Diabetes 23.7%


Fortifying Host Defense: Maintaining Skin Barrier Function & Bacteria Load

Maintain Healthy Skin
Minimize Pressure
Manage Moisture: Urinary Incontinence Care
Pressure Ulcers – Risk Factors

“Patients with fecal incontinence were 22 times more likely to have pressure ulcers than patients without fecal incontinence.”

When impaired mobility is combined with fecal incontinence those odds rise to 37.5 times more likely.


Pressure Ulcer Prevention Guidelines for Incontinence Care

- Clean your skin as soon as it becomes soiled.
- Use a protective cream or ointment on the skin to protect it from wetness.
- Use an incontinence pad and/or briefs to absorb wetness away from the skin.

**NPUAP**  
(National Pressure Ulcer Advisory Panel) 1992

**NIH**  
(National Institutes of Health) Standards of Practice 2001

**AHRQ**  
(Agency for Health Care Research and Quality) – formerly AHCPR – 1992

**WOCN**  
(Wound, Ostomy, Continence Nurses Society) 2003
### Challenges of Incontinence Care

- Individually packaged products are not always within reach during incontinence clean up
- Risk of unprotected skin is high
- Cleaning and protection usually done as separate activities
- Washcloths often become disposable when soiled
- Increased risk for contamination
- Not all products have a chemical barrier

### Process Variation

Your incontinence care products don’t work either - if they aren’t being used!
32 State Survey on Perineal Skin Care Protocols

Methodology:
- 76 protocols form Acute and LTC facilities
- Analyzed to determine correlation with evidence-based practices per the literature
- HPIS (Healthcare Products Information Services) data used to evaluated amount sold to each facility
- HPIS data compared to urinary & fecal incontinence prevalence data

Results:
- All 76 protocols lack 1 or more interventions considered important in perineal care
- 75% included use of skin protectants
- Analysis against HPIS data and incontinence data suggests under utilization of skin protectants (< 10 cents per day vs. $1.35)


Evaluating the Efficacy of a Uniquely Delivered Skin Protectant and Its Effect on the Formation of Sacral/Buttock Pressure Ulcers

Methodology:
- Retrospective/prospective quasi-experimental study
- 57 bed LTC
- Data collected 3 months before use & 3 months following conversion
- Demographics comparable between groups
  - Age, LOS, mobility in bed, transfer between surfaces, incontinence of bowel/bladder, BMI, albumin and concurrent disease scale
- Pre-data revealed 12 residents with incontinence developed 15 sacral stage 1 & 2 ulcers.
- Monthly incidence rates over 9 months 4.7%

Clever K. OWM. 2002;48(12): 60-67
Clever et al. “Pressure Ulcer” Study

Evaluating the Efficacy of a Uniquely Delivered Skin Protectant and Its Effect on the Formation of Sacral/Buttock Pressure Ulcers

Average Monthly Incidence of Sacral/Buttock Pressure Ulcers

Old Standard of Care

July 2000 to March 2001

New Standard of Care

May to July 2001
Feb to April 2002

Old standard of care compared to use of Comfort Shield® as preventative*

89% Reduction in Incidence

4.7%

0.5%

*No significant differences in impact variables between groups

Clever K. OWM. 2002;48(12): 60-67

Reducing IAD in the Critical Care Area

• Methodology:
  – Adult patients admitted to the ICU without skin breakdown were included
  – Sample size of 100 for each of the 2 study arms
  – Measured how often appropriate prevention measures for IAD are used
  – Measured rate of skin breakdown in patients with fecal incontinence who were managed with interventional protocol
  – 1st phase examine current practice: skin cleanser and separate barrier and frequency of use
  – 2nd phase introduced an all in one incontinence management system

Driver D. Critical Care Nurse, 2007;27(4):42-46
Reducing IAD in the Critical Care Area

Results:
• Collected data on 131 patients
  – 50% (8/16 incontinent) patients developed perineal dermatitis (skin breakdown)
  – Non-compliance with incontinence skin care protocol
  – Reasons for non-compliance
    • Not easy to apply/not easy to remove
• Collected data on 177 patients post incontinence product change
  – 19% (3/16 incontinent) patients developed perineal dermatitis (skin breakdown)

Driver D. Critical Care Nurse, 2007;27(4):42-46

Bard® FCD™ Fecal Containment Device

• Provides a method for managing fecal incontinence.
• Remains securely attached to ambulatory patients
• Kit contains collection bag, closure clip, drainage bag adapter, powder adhesive and adhesive remover.
Fecal Management System

- Use not indicated for solid or semi-formed stool
- Small amount of leakage may occur, recommend to use skin barrier
- Can irrigate if blockage present
- Not intended for use beyond 29 days

How to Get Started in Your Unit!!!
Development & Implementation of a Care Bundle

• Identify a set of 4 or 6 evidence based interventions that apply to a cohort of pts with a common disease/location
• Develop the will in the provider to deliver the interventions every time as indicated
• Measure compliance as all or nothing
• Redesign the delivery system to make it easy to deliver the bundle/part of the system
• Measure related outcomes to determine effect.


The Vent Bundle…To the VAP Bundle

• Applying evidence-based practice
• 5 activities that when done 100% of the time has shown a reduction in
  – VAP
  – LOS
  – Time on Vent
  – Cost
• HOB 30°, (Peptic Ulcer Disease (PUD) prophylaxis, DVT prophylaxis), Sedation vacation & readiness to wean, Consider for addition: Oral Care & Mobility
SKIN: Ascension Hospitals

- S = Surface selection
- K = Keep Turning
- I = Incontinence management
- N = Nutrition

Post SKIN Bundle Implementation

1.4 per 1000 patient days system wide. 6 of the facilities had no acquired pressure ulcers for over 1 year. No new Stage III & IV acquired btwn 08/04 & 02/06

Ayello EA, Lyder CH. Nursing 2007: October

Development & Implementation of a Care Bundle

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Potential Barriers

- Perception of lack of time or the importance
- Lack of evidence based education...just do it!!!!
- Absence of a define protocol/procedure
- Staff turnover/Replacement staff
- Inaccessibility of needed supplies
- No real clinical lead on the unit
- Lack of feedback on progress
- Lack of accountability/responsibility

Interventions To Ensure Patients Receive Evidence..What can We Do!!!

- Evidence based education
- Recognition of value and reinforcement
- Products/Processes that make it easy for the frontline caregiver to provide the care (make it part of the bundle)
  - Bathing kits
  - Placement on the med record
  - Automated charting with flag reminders
- Frequent rounding/reinforcement of standard
- Setting targets/Celebrating successes
- Placement of new practice/education in orientation
- Attractive signs to outline protocol in the patient rooms near the products
- Compliance program & outcome measurements with feedback

*Westwall S. Nursing in Critical Care, 2008;13(4):203-207
Abbott CA, et al. Worldviews on Evidence Based Practice, 2006:139-152
Development & Implementation of a Care Bundle

- Identify a set of 4 or 6 evidence based interventions that apply to a cohort of pts with a common disease/location
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The things included in the measurement becomes relevant, the things omitted are out of sight out of mind

Peter F. Drucker
In God We Trust!

Everyone else please bring data

WHEN WOULD NOW BE A GOOD TIME TO DO THIS?
CREATE A SAFE PATIENT ENVIRONMENT

Everyday hospital care activities increase the patients risk of INJURY & BACTERIAL INVASION ……

Help reduce that risk by changing the routine ways you provide nursing care & replace it with evidence…Implement Interventional Patient Hygiene

Florence Nightingale .

“I use the word nursing for want of a better. It has been limited to signify little more than the administration of medicines and the application of poultices. It ought to signify the proper use of fresh air, light, warmth, cleanliness, quiet, and the proper selection and administration of diet—all of these at the least expense of vital power to the patient”. The role of the nurse is to put the patient in the best condition for nature to heal them.

Notes on Nursing (1860/1969 p. 8)
Be Courageous

We all are responsible for the safety of our patients……Own the Issues

• “If not this, then what??”
• “If not me, then who??”

Sit it Out or Dance