Zapping VAP at MCCG

Strategies to Reduce Hospital Acquired Infections

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NDNQI Quality Conference: February 2013

Medical Center of Central Georgia - MCCG

- 637 bed, acute-care academic medical center
- 2nd largest hospital in Georgia
- Magnet designation 2005
- Level 1 trauma services
- 142 ICU beds: 5 adult, neonatal, pediatric
- Certified:
  - Hip & Knee replacement programs
  - Stroke program
  - Ventricular assist device (VAD)
  - Chest pain center
  - Palliative care program

Zapping VAP

1. **Designing Actions for Impact**
2. Engagement AND Accountability
3. 2013 & forward

Zapping VAP

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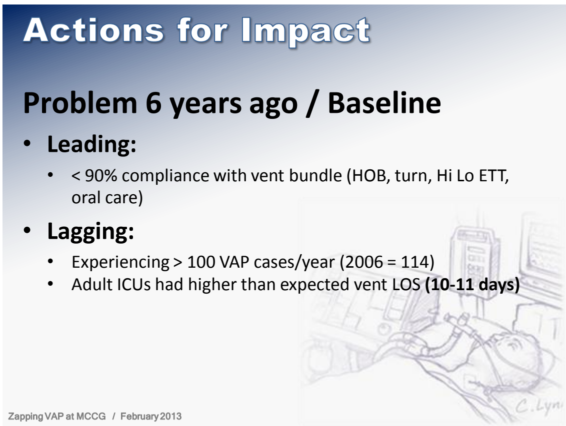
Zapping VAP

1. **Designing Actions for Impact**


Actions for Impact
Problem 6 years ago / Baseline
Leading:
< 90% compliance with vent bundle (HOB, turn, Hi Lo ETT, oral care)
Lagging:
Experiencing > 100 VAP cases/year (2006 = 114)
Adult ICUs had higher than expected vent LOS (10-11 days)
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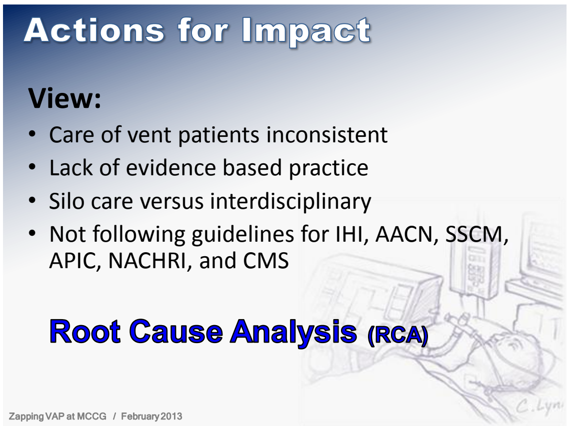
Actions for Impact
View:
Care of vent patients inconsistent
Lack of evidence based practice
Silo care versus interdisciplinary
Not following guidelines for IHI, AACN, SSCM, APIC, NACHRI, and CMS
Root Cause Analysis (RCA)
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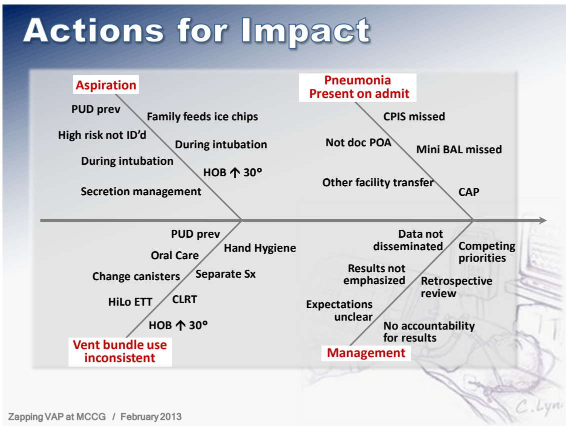
Actions for Impact
Aspiration
PUD prev
Family feeds ice chips
High risk not ID'd
During intubation
During intubation
HOB ↑ 30°
Secretion management
Pneumonia Present on admit
CPIS missed
Not doc POA
Mini BAL missed
Other facility transfer
CAP
PUD prev
Oral Care
Hand Hygiene
Change canisters
Separate Sx
HiLo ETT
CLRT
HOB ↑ 30°
Vent bundle use inconsistent
Data not disseminated
Competing priorities
Results not emphasized
Retrospective review
Expectations unclear
No accountability for results
Management
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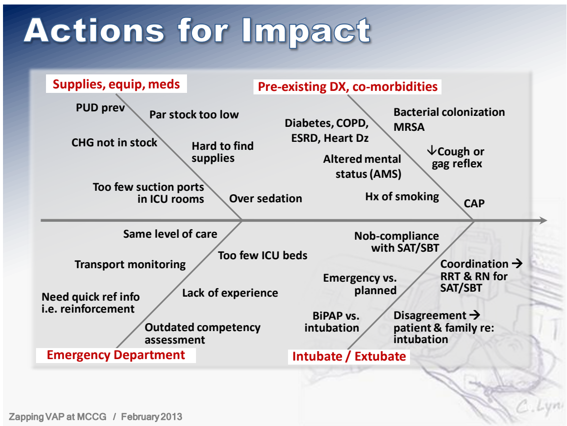
Actions for Impact
Supplies, equip, meds
PUD prev
Par stock too low
CHG not in stock
Hard to find supplies
Too few suction ports in ICU rooms
Over sedation
Pre-existing DX, co-morbidities
Diabetes, COPD, ESRD, Heart Dz
Bacterial colonization MRSA
Altered mental status (AMS)
↓Cough or gag reflex
Hx of smoking
CAP
Same level of care
Transport monitoring
Too few ICU beds
Need quick ref info i.e. reinforcement
Lack of experience
Outdated competency assessment
Emergency Department
Nob-compliance with SAT/SBT
Coordination → RRT & RN for SAT/SBT
Emergency vs. planned
BiPAP vs. intubation
Disagreement → patient & family re: intubation
Intubate / Extubate
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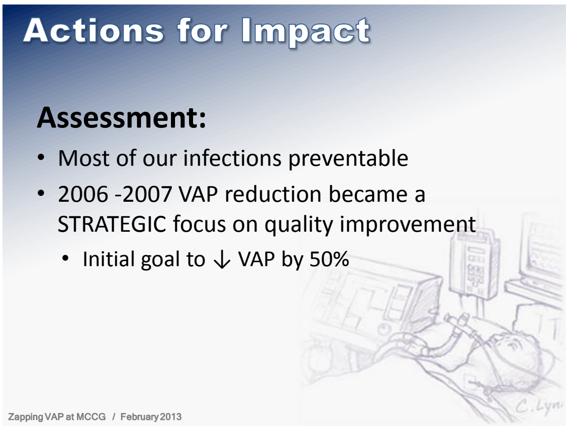
Actions for Impact
Assessment:
Most of our infections preventable
2006 -2007 VAP reduction became a STRATEGIC focus on quality improvement
Initial goal to ↓ VAP by 50%
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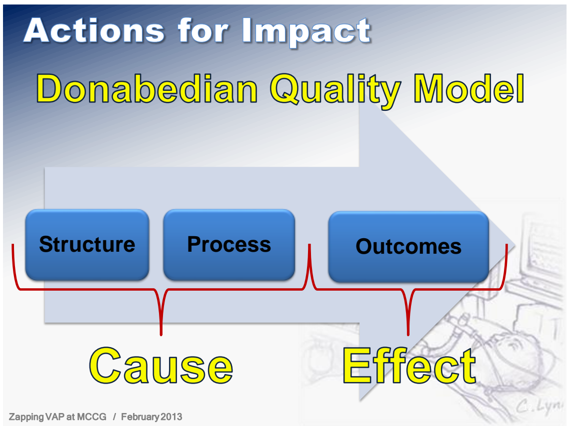
Actions for Impact
Donabedian Quality Model
Structure
Process
Outcomes
Cause
Effect
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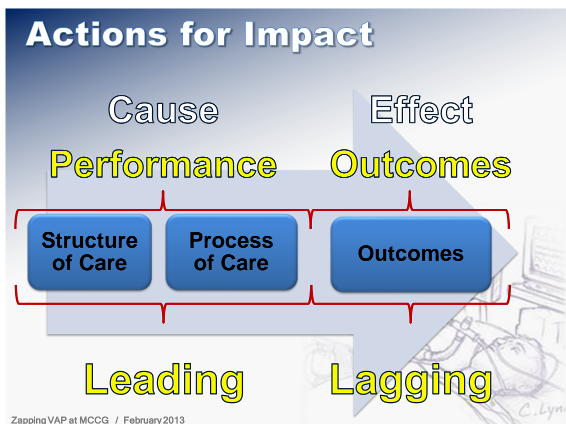
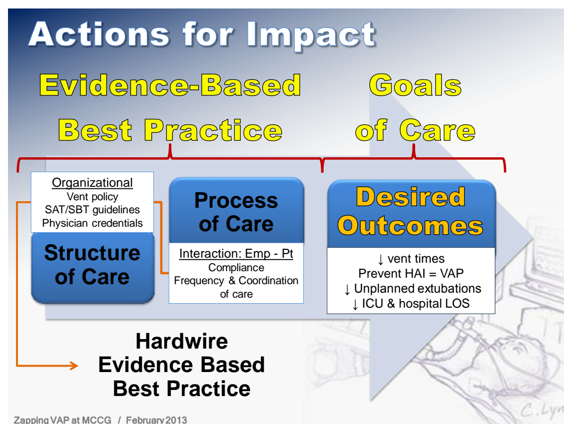




Actions for Impact

Actions for Impact: Recap

Process Structure → Evidence Based, Best Practice

Value of Process = connect to outcome

Hardwire Process → *make right process easy*

Engagement/Accountability

1. Designing Actions for Impact
2. **Engagement AND Accountability**

   Hardwiring the care process

Engagement/Accountability

Adherence & infection rates improve when either

A (Audit & feedback) ADDED to (provider reminder systems)

B (Audit & Feedback) ADDED to (organizational change) AND (provider education)

AHRQ: Prevention of Healthcare-Associated Infections: Closing the Quality Gap
www.effectivehealthcare.ahrq.gov/reports/final.cfm

Engagement/Accountability

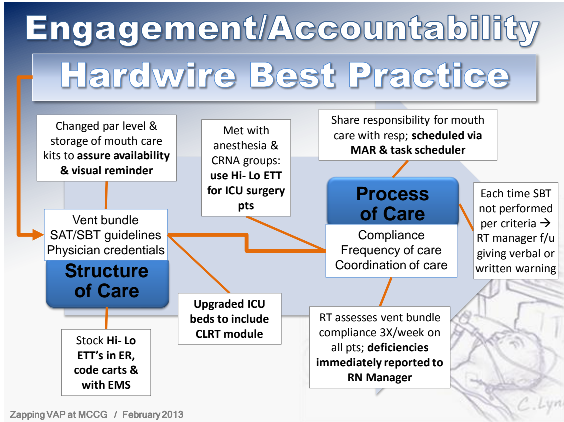
Hardwire Best Practice

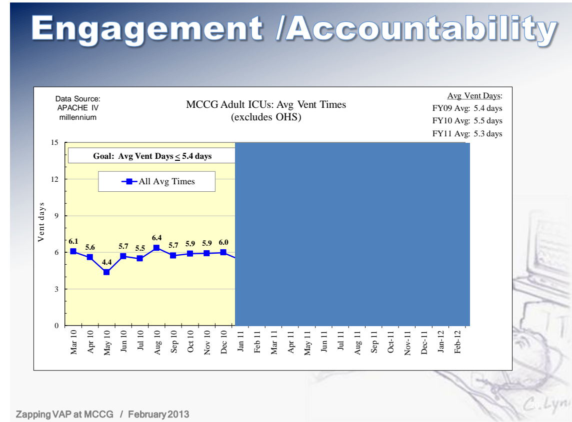
Audit & feedback

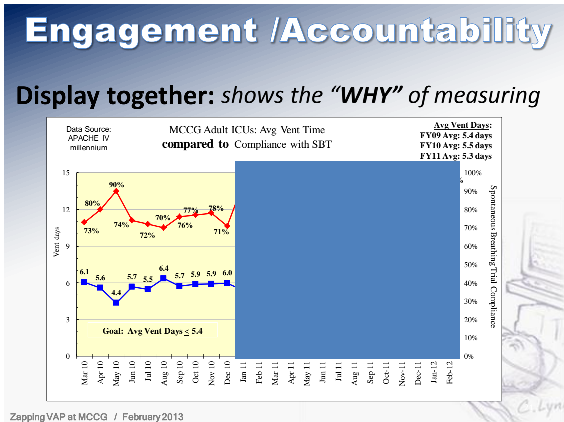
Make delivery of evidence-based, best practice EASY AS POSSIBLE.

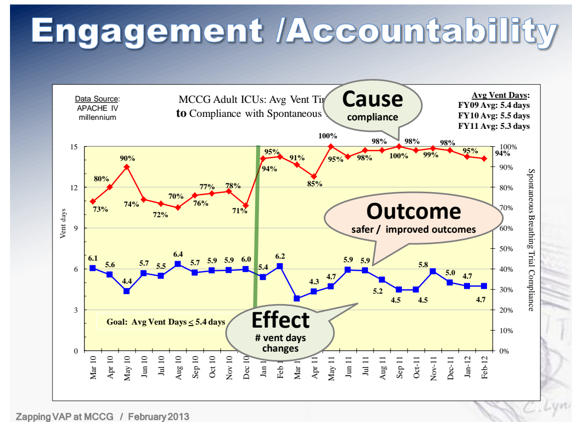
Create alerts (reminders, visual aids, peer pressure) to MAKE POOR CARE DELIVERY DIFFICULT.

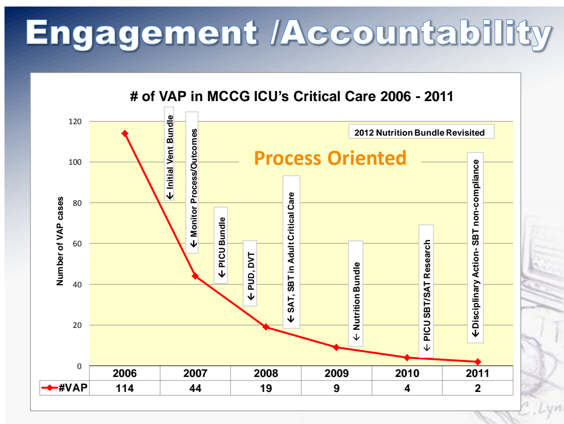
Provider Reminder Systems











	2006	2007	2008	2009	2010	2011
#VAP	114	44	19	9	4	2

Engagement /Accountability

Communicate →**Hardwire** "*ease the path of EBP*"

→**Link Care Process & Outcomes**

Communication with Individuals / Link performance to job

Med Staff Privileges → **vent management: individual or group**

Employee performance → **individual compliance, accountability, warnings, & annual evaluation**

KB & TN

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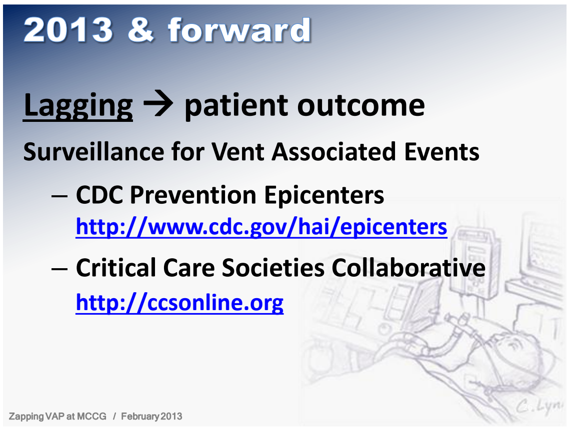
2013 & forward
Lagging → patient outcome
Surveillance for Vent Associated Events
– CDC Prevention Epicenters
http://www.cdc.gov/hai/epicenters
– Critical Care Societies Collaborative
http://ccsonline.org
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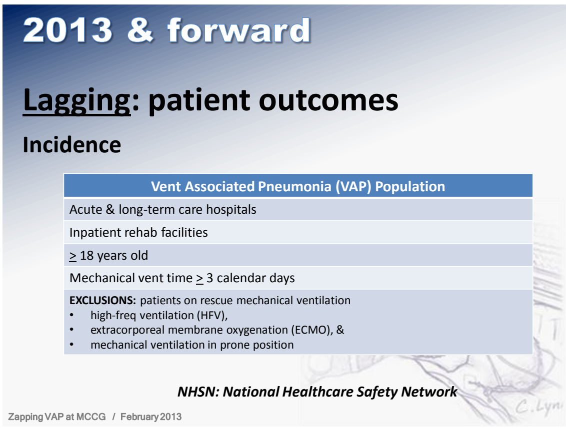
2013 & forward
Lagging: patient outcomes
Incidence
Vent Associated Pneumonia (VAP) Population
Acute & long-term care hospitals
Inpatient rehab facilities
≥ 18 years old
Mechanical vent time ≥ 3 calendar days
EXCLUSIONS: patients on rescue mechanical ventilation
high-freq ventilation (HFV),
extracorporeal membrane oxygenation (ECMO), &
mechanical ventilation in prone position
NHSN: National Healthcare Safety Network
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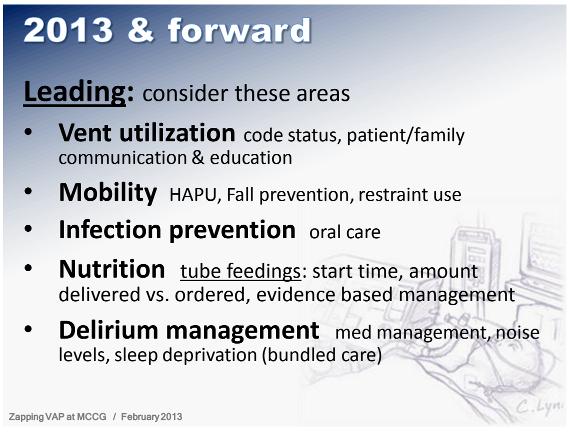
2013 & forward
Leading: consider these areas
Vent utilization code status, patient/family communication & education
Mobility HAPU, Fall prevention, restraint use
Infection prevention oral care
Nutrition tube feedings: start time, amount delivered vs. ordered, evidence based management
Delirium management med management, noise levels, sleep deprivation (bundled care)
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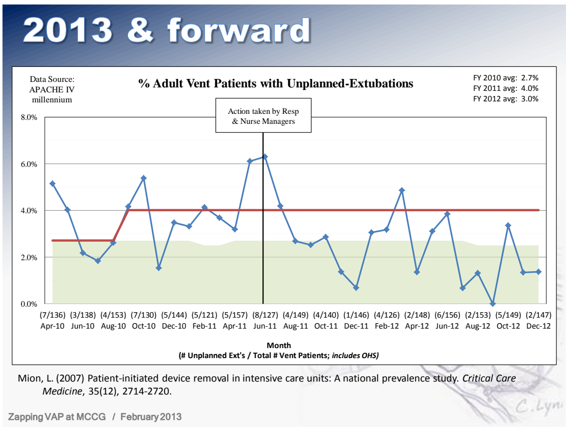
2013 & forward
Data Source: APACHE IV millennium
% Adult Vent Patients with Unplanned-Extubations
FY 2010 avg: 2.7%
FY 2011 avg: 4.0%
FY 2012 avg: 3.0%
Action taken by Resp & Nurse Managers
8.0%
6.0%
4.0%
2.0%
0.0%
(7/136) (3/138) (4/153) (7/130) (5/144) (5/121) (5/157) (8/127) (4/149) (4/140) (1/146) (4/126) (2/148) (6/156) (2/153) (5/149) (2/147)
Apr-10 Jun-10 Aug-10 Oct-10 Dec-10 Feb-11 Apr-11 Jun-11 Aug-11 Oct-11 Dec-11 Feb-12 Apr-12 Jun-12 Aug-12 Oct-12 Dec-12
Month
(# Unplanned Ext's / Total # Vent Patients; includes OHS)
Mion, L. (2007) Patient-initiated device removal in intensive care units: A national prevalence study. Critical Care Medicine, 35(12), 2714-2720.
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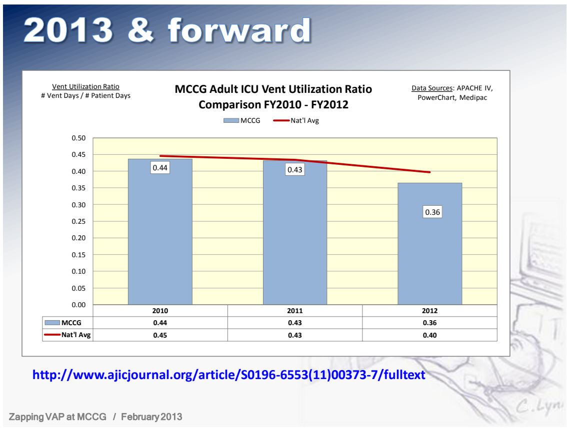
2013 & forward
Vent Utilization Ratio
Vent Days / # Patient Days
MCCG Adult ICU Vent Utilization Ratio
Comparison FY2010 - FY2012
Data Sources: APACHE IV, PowerChart, Medipac
MCCG
Nat'l Avg
0.50
0.45
0.40
0.35
0.30
0.25
0.20
0.15
0.10
0.05
0.00
0.44
0.43
0.36
2010 2011 2012
MCCG 0.44 0.43 0.36
Nat'l Avg 0.45 0.43 0.40
http://www.ajicjournal.org/article/S0196-6553(11)00373-7/fulltext
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2013 & forward

Awareness →**NHSN** - vent utilization

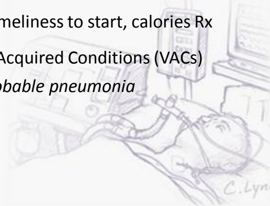
→**Mobility** - slow/stop de-conditioning

→**Delirium** - age, withdrawal (tobacco, Rx, ETOH)

→**Nutrition** - timeliness to start, calories Rx

→**NHSN** - Vent Acquired Conditions (VACs)

possible & probable pneumonia



Recap

1. **Actions for Impact**
   - **Cause →Care →Best Practice**
   - **Effect →Outcomes →Goals of Care**

Recap

1. Actions for Impact
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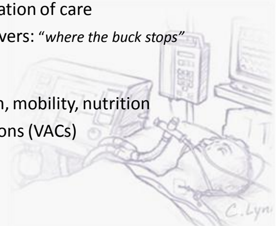
2. **Engagement & Accountability**
   - Engagement → coordination of care
   - Accountability by caregivers: *"where the buck stops"*

Recap

1. Actions for Impact
   - **Cause →Care →Best Practice**
   - **Effect →Outcomes →Goals of Care**
2. Engagement & Accountability
   - Engagement → coordination of care
   - Accountability by caregivers: *"where the buck stops"*
3. **2013 & beyond**
   - Vent utilization, delirium, mobility, nutrition
   - Vent Associated Conditions (VACs)



Quality Approach

I believe a vision for quality must start with *ownership*.

We cannot just do what we are asked, but we must take it further by *looking for what* ***we*** *can do to improve*.

Quality must be integrated into our every day caring.

Betty Brown, MBA, MSN, RN, CPHQ, FNAHQ - VP Quality & PI, TriHealth, Inc.

Resources

Balas, M. (2012) Critical care nurses' role in implementing the ''ABCDE Bundle'' into practice. *Critical Care Nurse*, 32(2), 35-47.

Centers for Disease Control and Prevention. (2011, 12). *National healthcare safety network ventilator-associated event*. Retrieved from http://www.cdc.gov/nhsn/psc_da-vae.html

Dudeck, M. et. al. (2011) National healthcare safety network (NHSN) report, data summary for 2009, device-associated module. *American Journal of Infection Control*, 39(5), 349-367, doi: 10.1016/j.ajic.2011.04.011

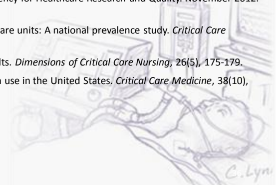
Hillier, B., Wilson, C., Chamberlain, D. , & King, L. (2013) Preventing Ventilator-Associated Pneumonia Through Oral Care, Product Selection, and Application Method. *AACN Advanced Critical Care,* 24(1), 38-58.

Mauger-Rothenberg B. Prevention of healthcare-associated infections. Closing the quality gap: revisiting the state of the science. Evidence report / technology assessment No. 208. (Prepared by the Blue Cross and Blue Shield Association Technology Evaluation Center Evidence-based Practice Center under Contract No. 290-2007-10058-I.) AHRQ Publication No. 12(13)-E012-EF. Rockville, MD: Agency for Healthcare Research and Quality. November 2012. www.effectivehealthcare.ahrq.gov/reports/final.cfm.

Mion, L. (2007) Patient-initiated device removal in intensive care units: A national prevalence study. *Critical Care Medicine*, 35(12), 2714-2720.

Timmerman, R. (2007) A mobility protocol for critically ill adults. *Dimensions of Critical Care Nursing*, 26(5), 175-179.

Wunch, H. (2010) The epidemiology of mechanical ventilation use in the United States. *Critical Care Medicine*, 38(10), 1947-1953.



Questions