

Zapping VAP at MCCG

Strategies to Reduce Hospital Acquired Infections

Tracy Johns , RN, BSN, CPHQ

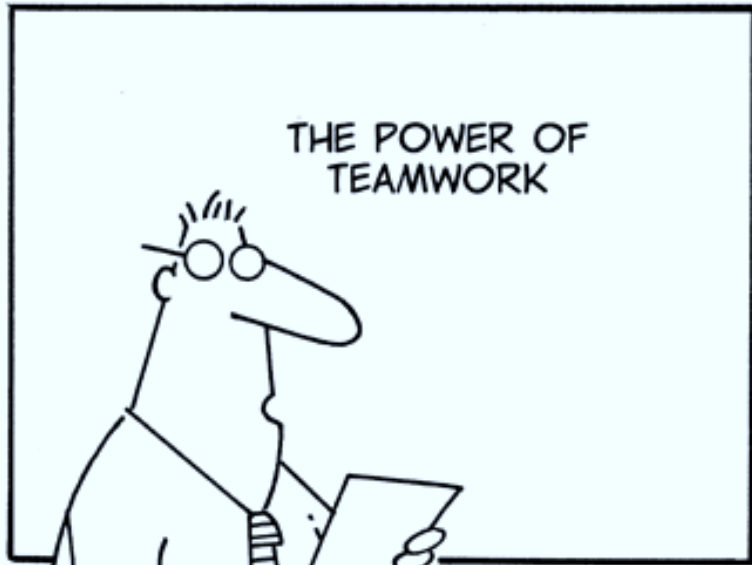
Medical Center of Central Georgia

NDNQI Quality Conference: February 2013



Zapping VAP

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"My presentation will be nothing but long, boring gibberish. It's up to you to interpret it as informative and inspiring. That's teamwork!"

- **informative**
- **relevant**
- **applicable**

**Think
strategically**



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

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Zapping VAP

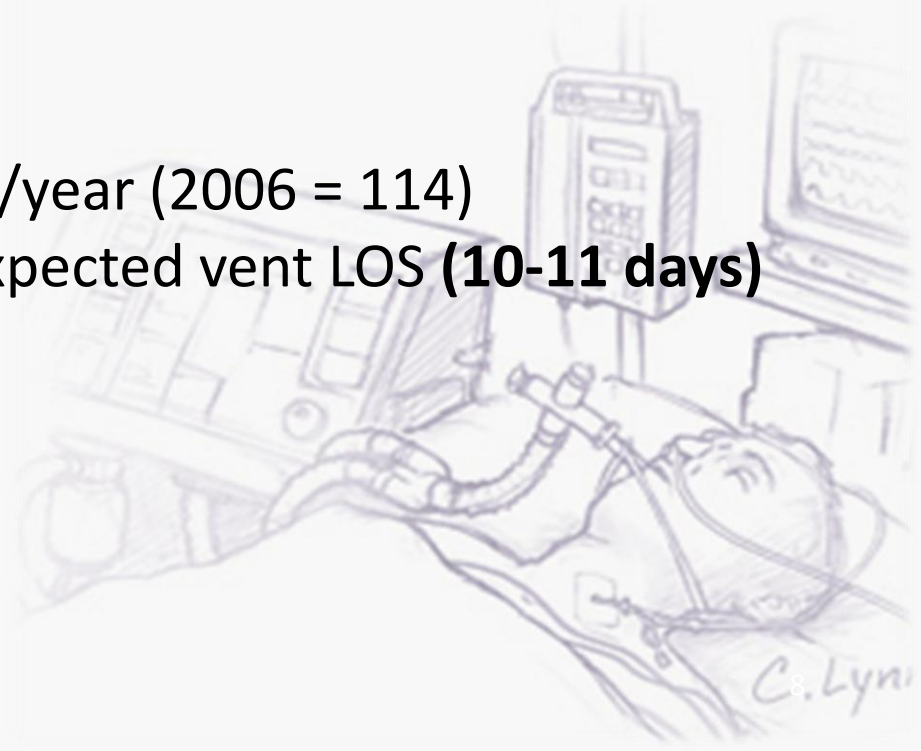
1. Designing Actions for Impact



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**)

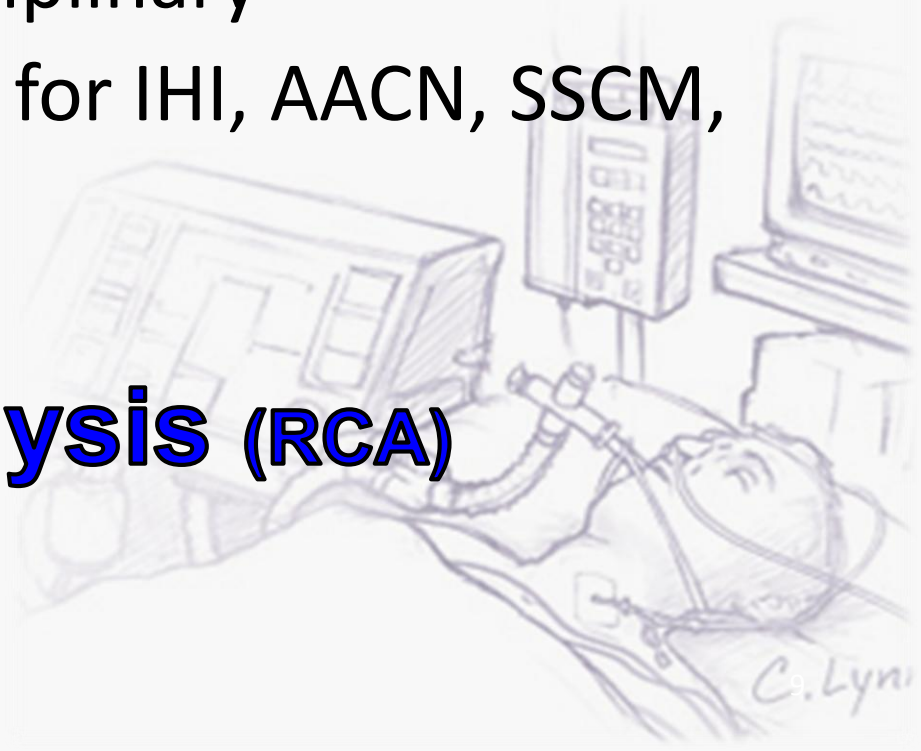


Actions for Impact

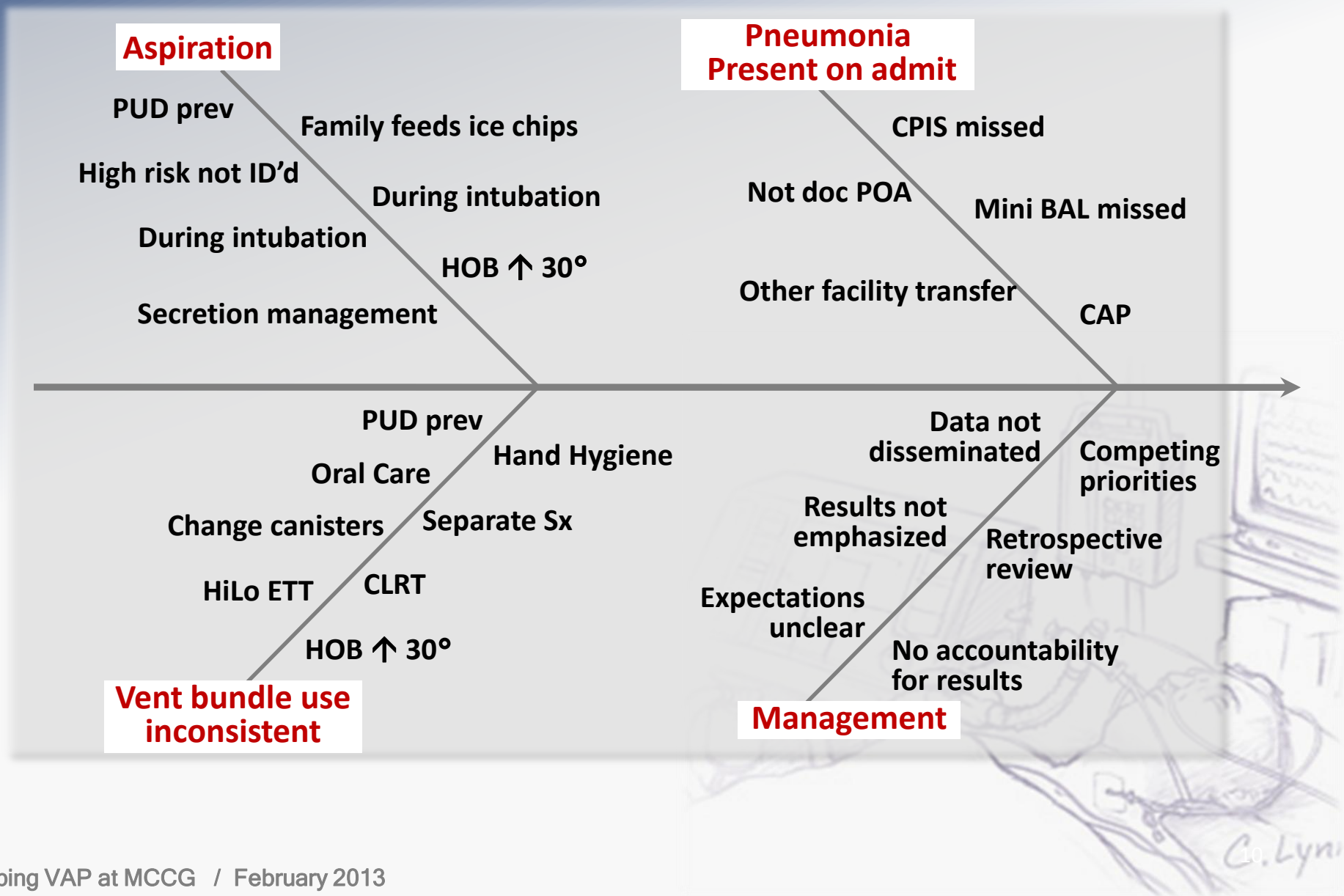
View:

- 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

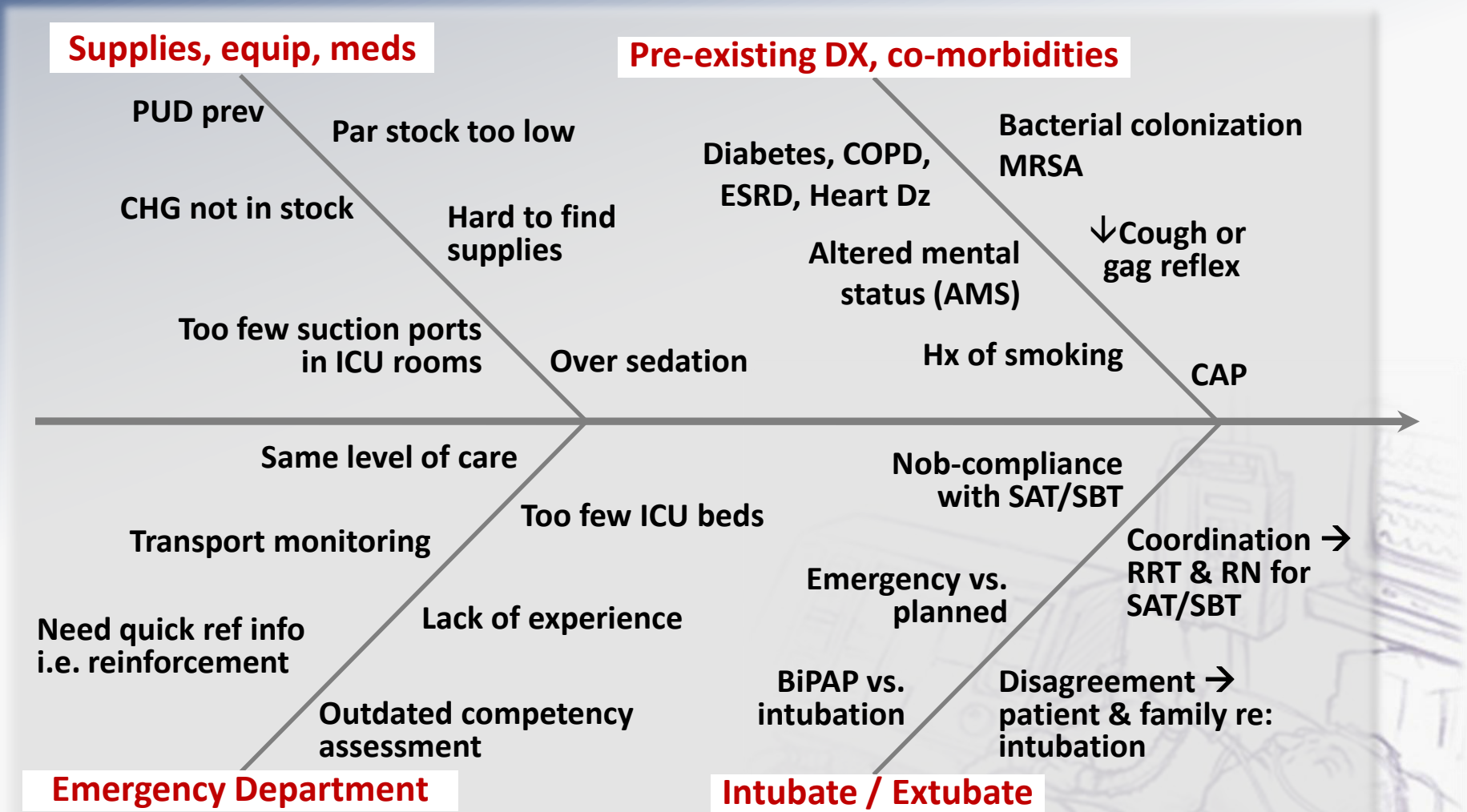
Root Cause Analysis (RCA)



Actions for Impact



Actions for Impact

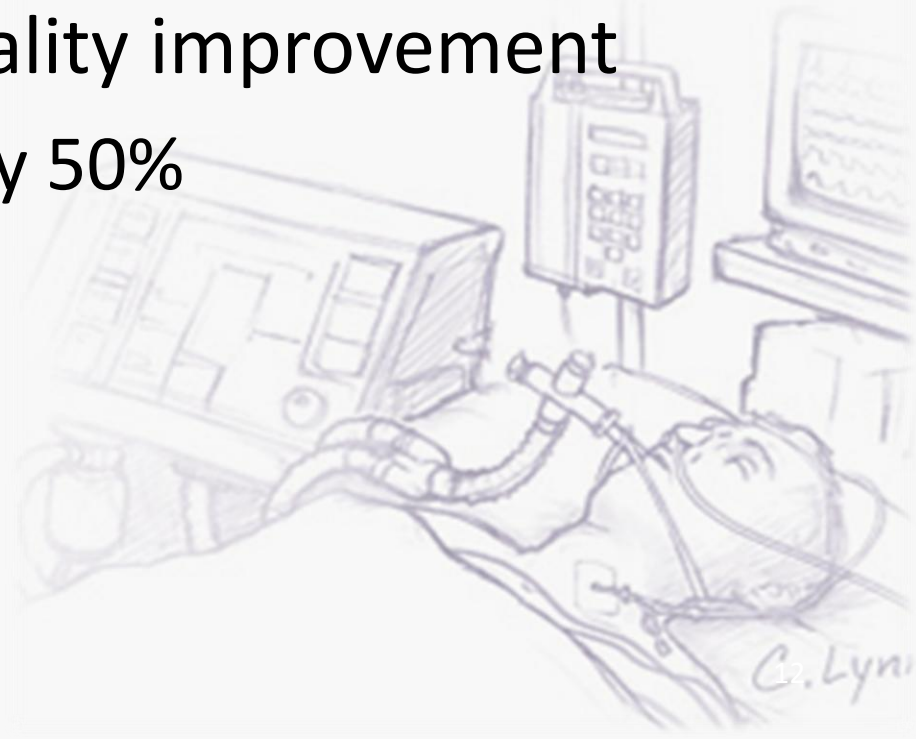


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Actions for Impact

Assessment:

- Most of our infections preventable
- 2006 -2007 VAP reduction became a STRATEGIC focus on quality improvement
 - Initial goal to ↓ VAP by 50%



Actions for Impact

Donabedian Quality Model

Structure

Process

Outcomes

Cause

Effect

Actions for Impact

Cause

Effect

Performance

Outcomes

Structure
of Care

Process
of Care

Outcomes

Leading

Lagging

Actions for Impact

Evidence-Based Best Practice

Goals of Care

Organizational
Vent policy
SAT/SBT guidelines
Physician credentials

**Structure
of Care**

**Process
of Care**

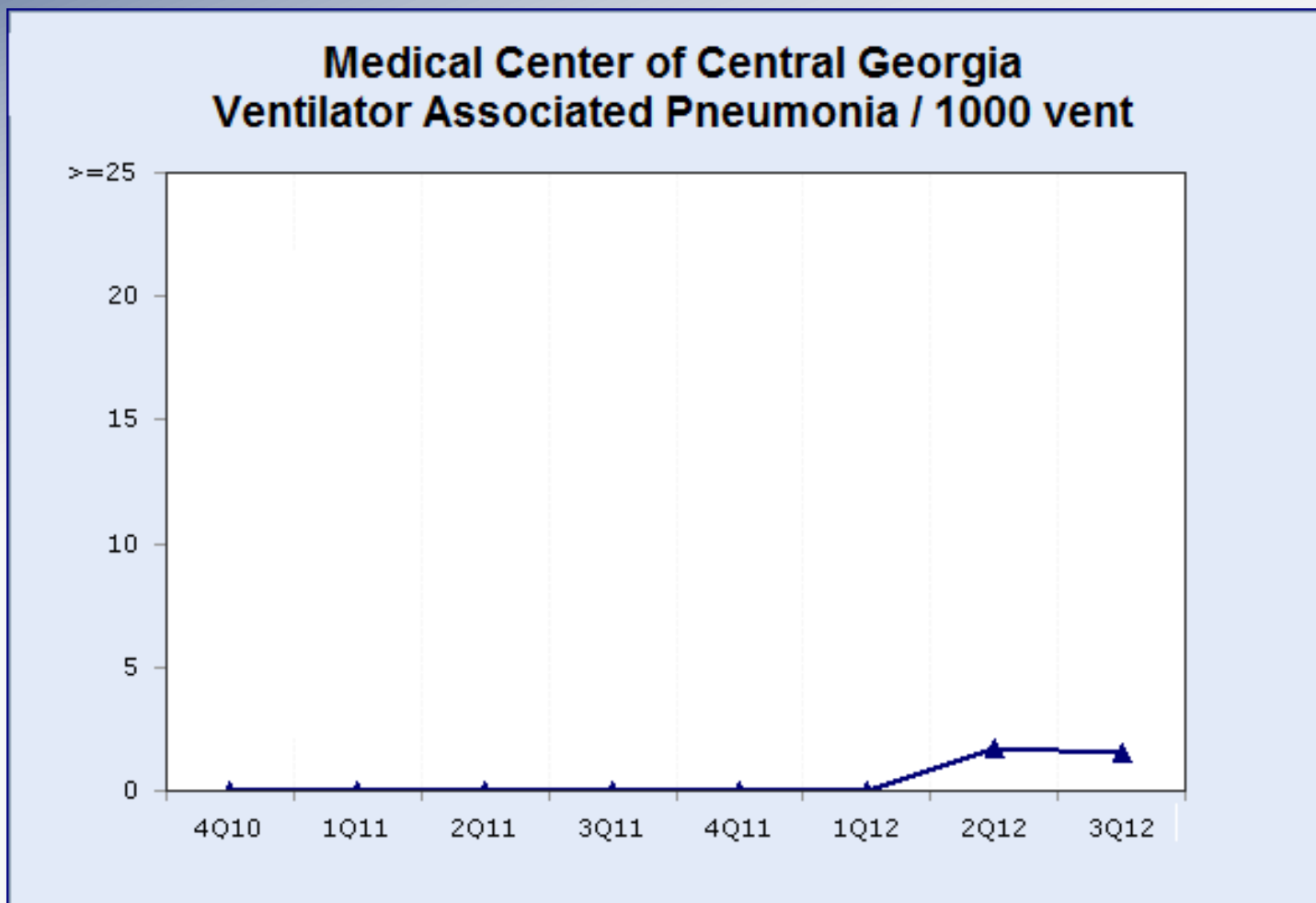
Interaction: Emp - Pt
Compliance
Frequency & Coordination
of care

**Desired
Outcomes**

↓ vent times
Prevent HAI = VAP
↓ Unplanned extubations
↓ ICU & hospital LOS

**Hardwire
Evidence Based
Best Practice**

Actions for Impact



Actions for Impact

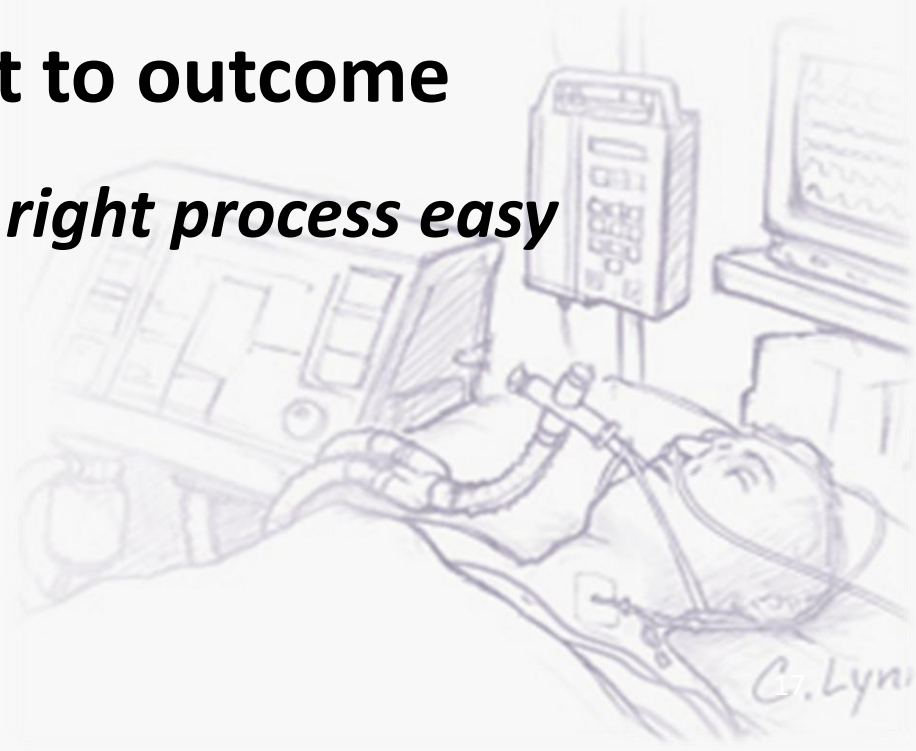
Actions for Impact: Recap

Process Structure → Evidence Based, Best Practice

Monitor Process effect on Outcome (Donabedian)

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



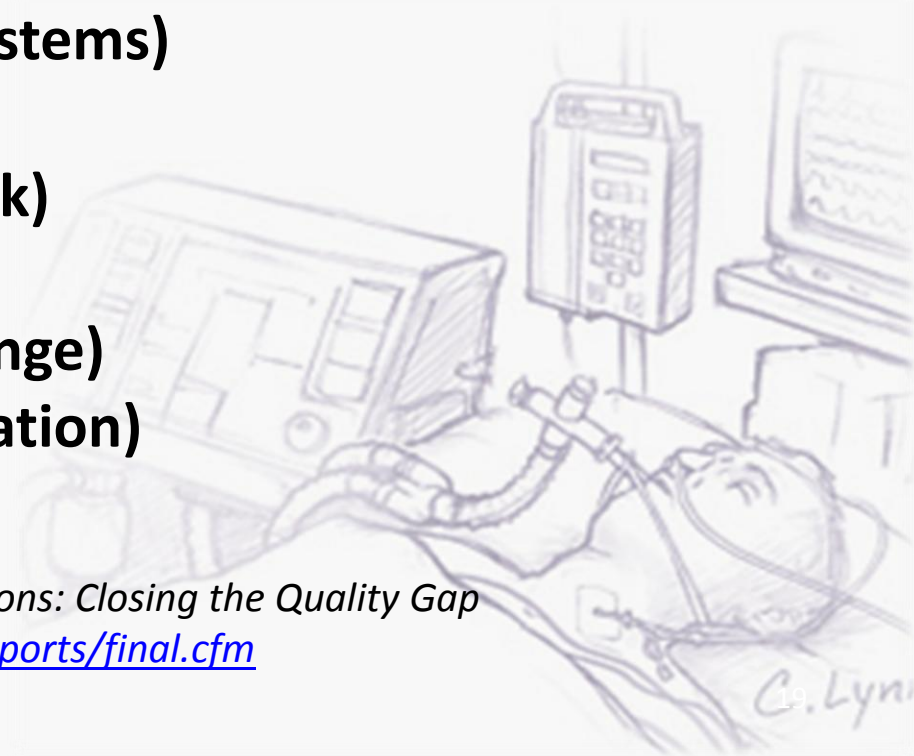
Engagement/Accountability

**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

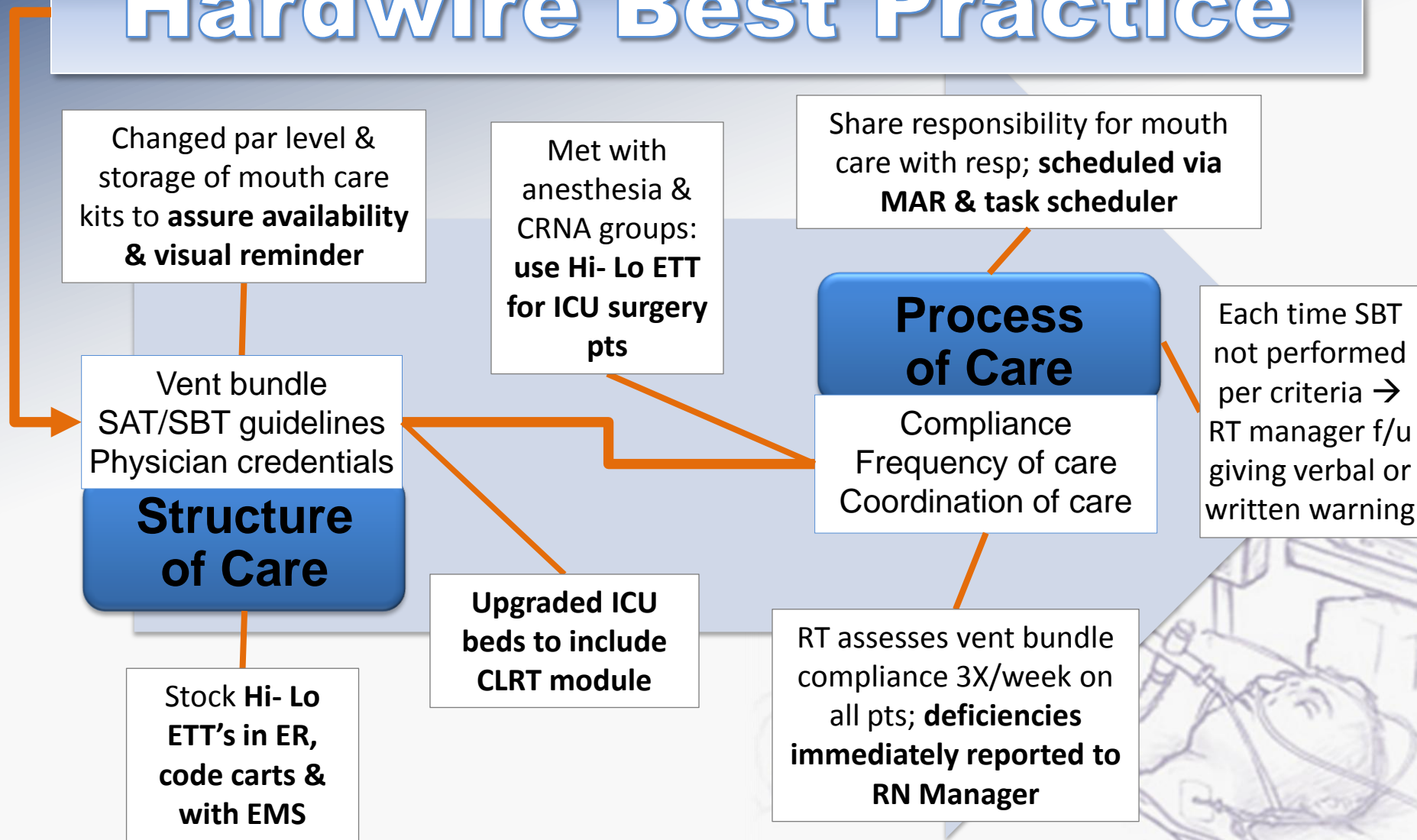
Make delivery of evidence-based, best practice **EASY AS POSSIBLE.**

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

Provider Reminder Systems

Engagement/Accountability

Hardwire Best Practice



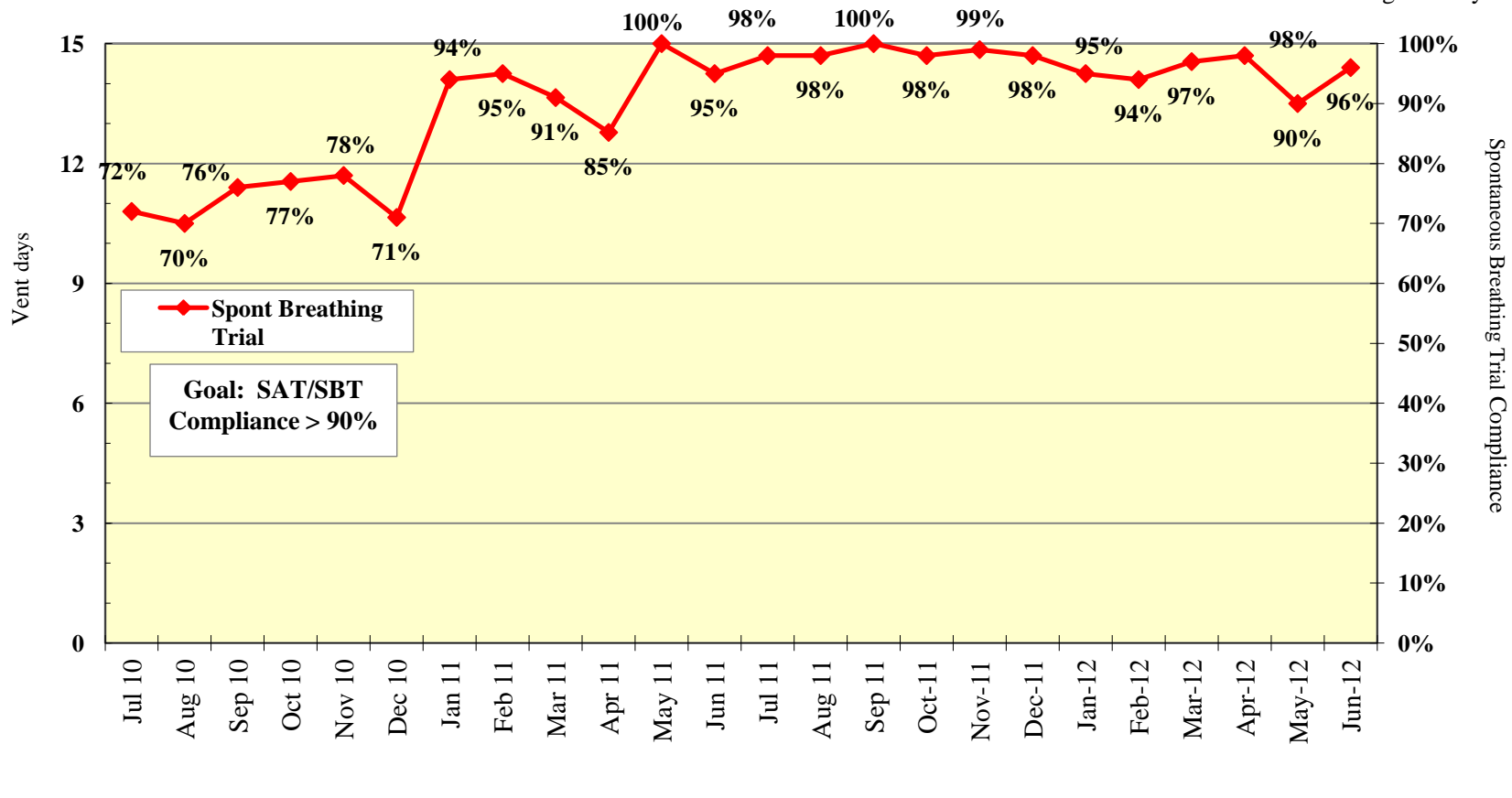
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Engagement / Accountability

Data Source:
APACHE IV
millennium

**MCCG Adult ICUs: Avg. Compliance with SAT/GBT
(excludes (OHS))**

Avg Vent Days:
FY09 Avg: 5.4 days
FY10 Avg: 5.5 days
FY11 Avg: 5.3 days

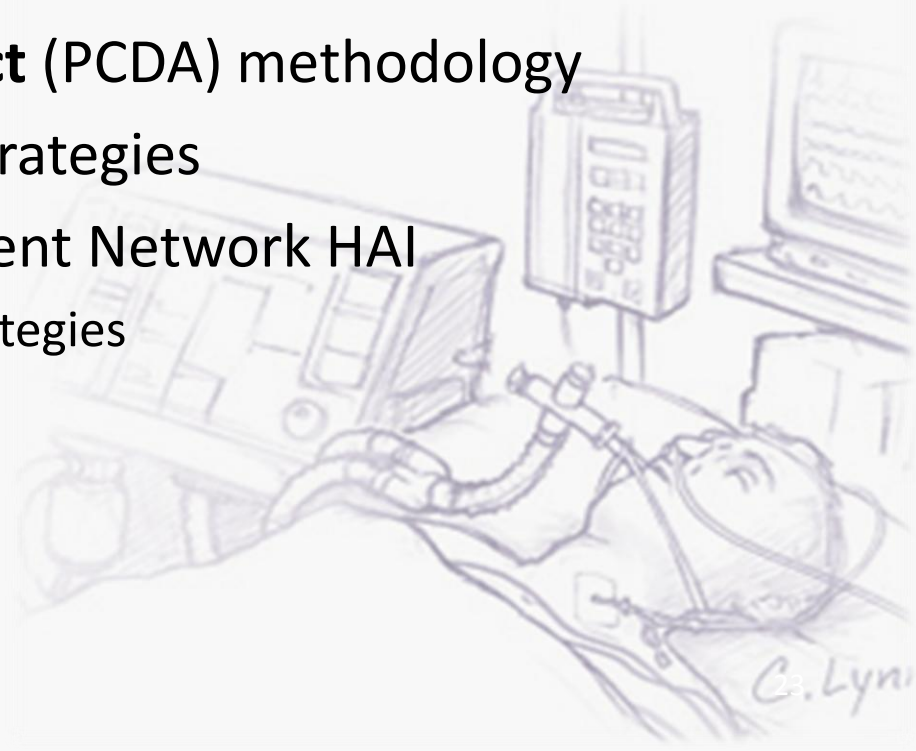


Spontaneous Breathing Trial Compliance

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Actions for Impact

- Increased the rigor of goals
 - **2006:** process perfection
 - **2013:** process value → connected to outcome
 - **Interdisciplinary frontline** → Board involvement
 - Utilized the **Plan–Do–Check–Act** (PCDA) methodology
 - Continue to implement new strategies
 - Joined GHA Hospital Engagement Network HAI
 - continue to implement new strategies

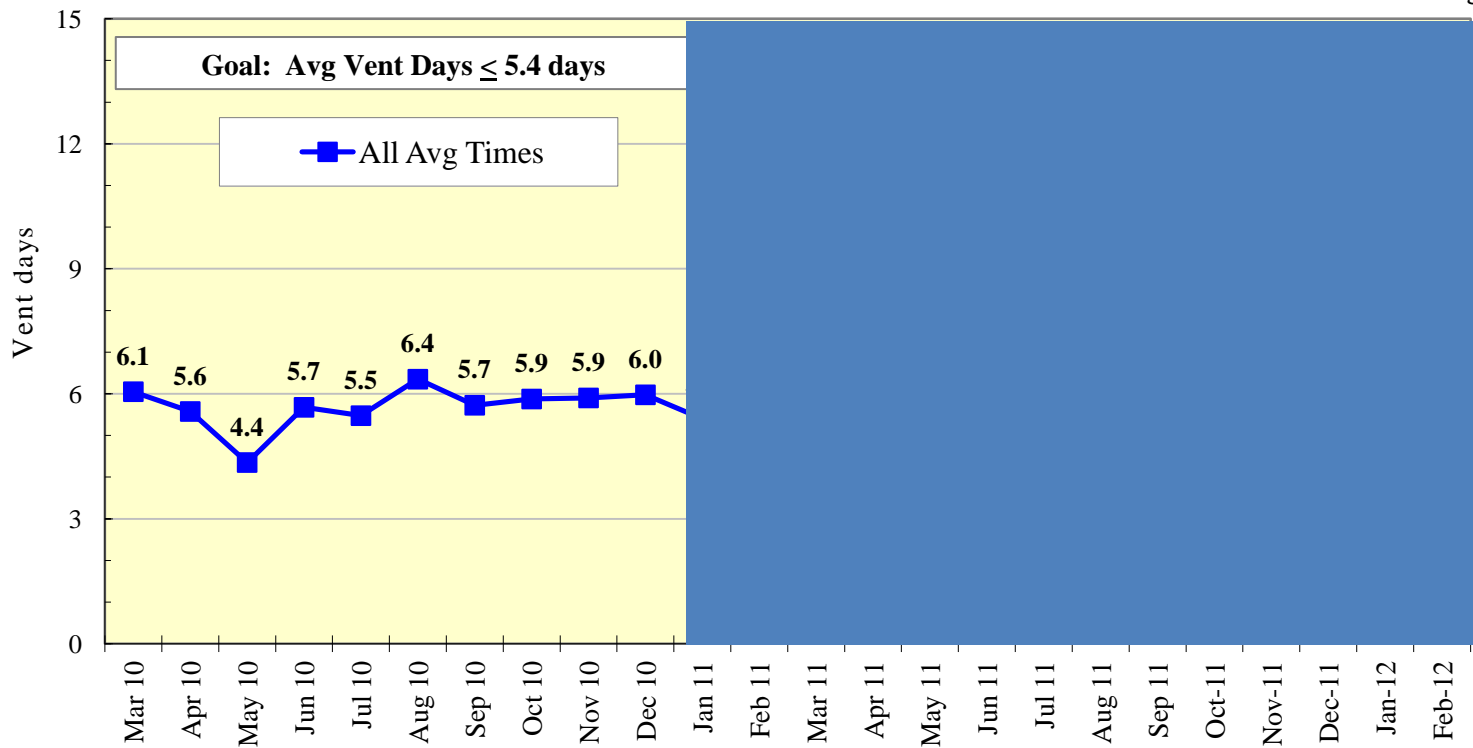


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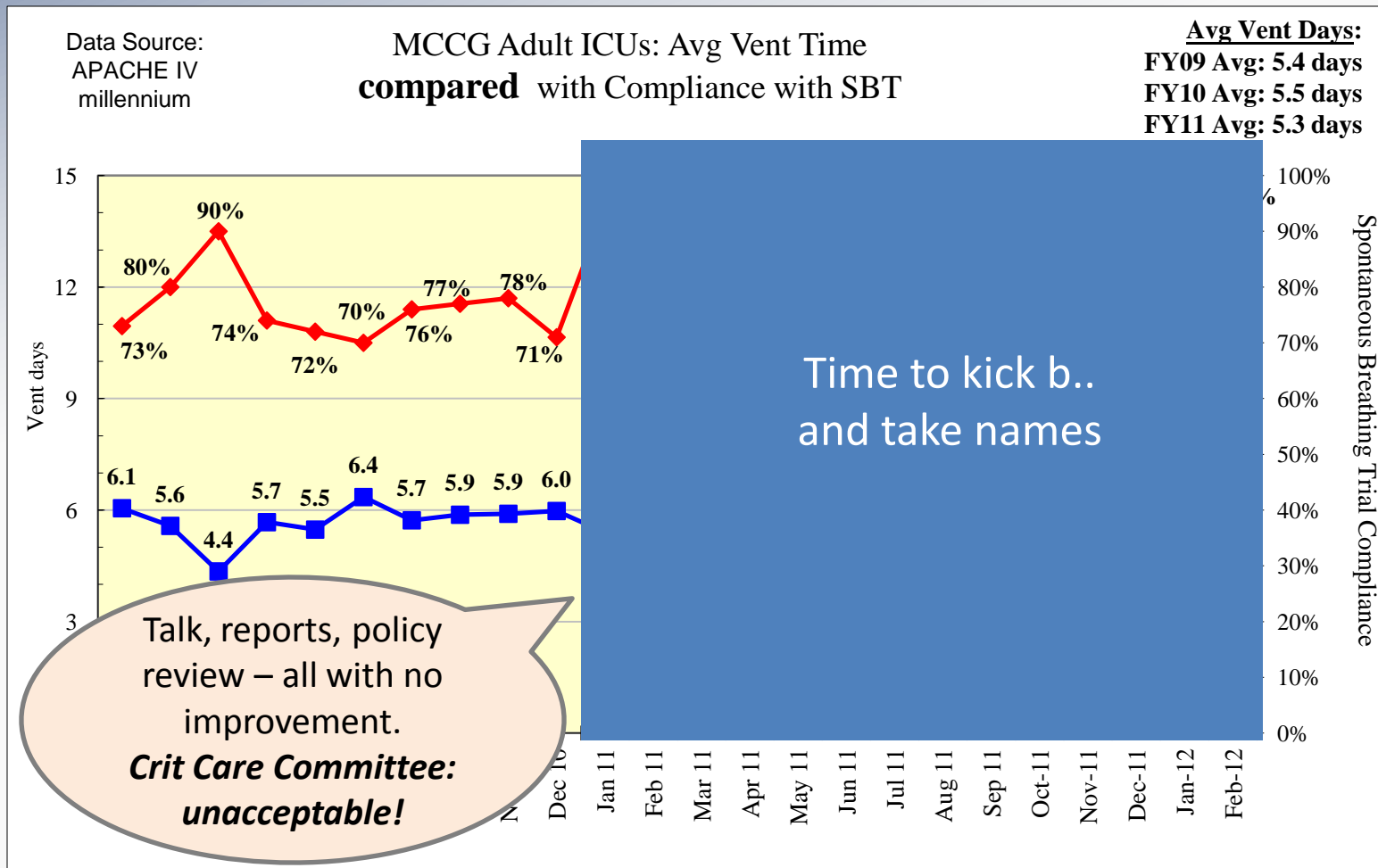
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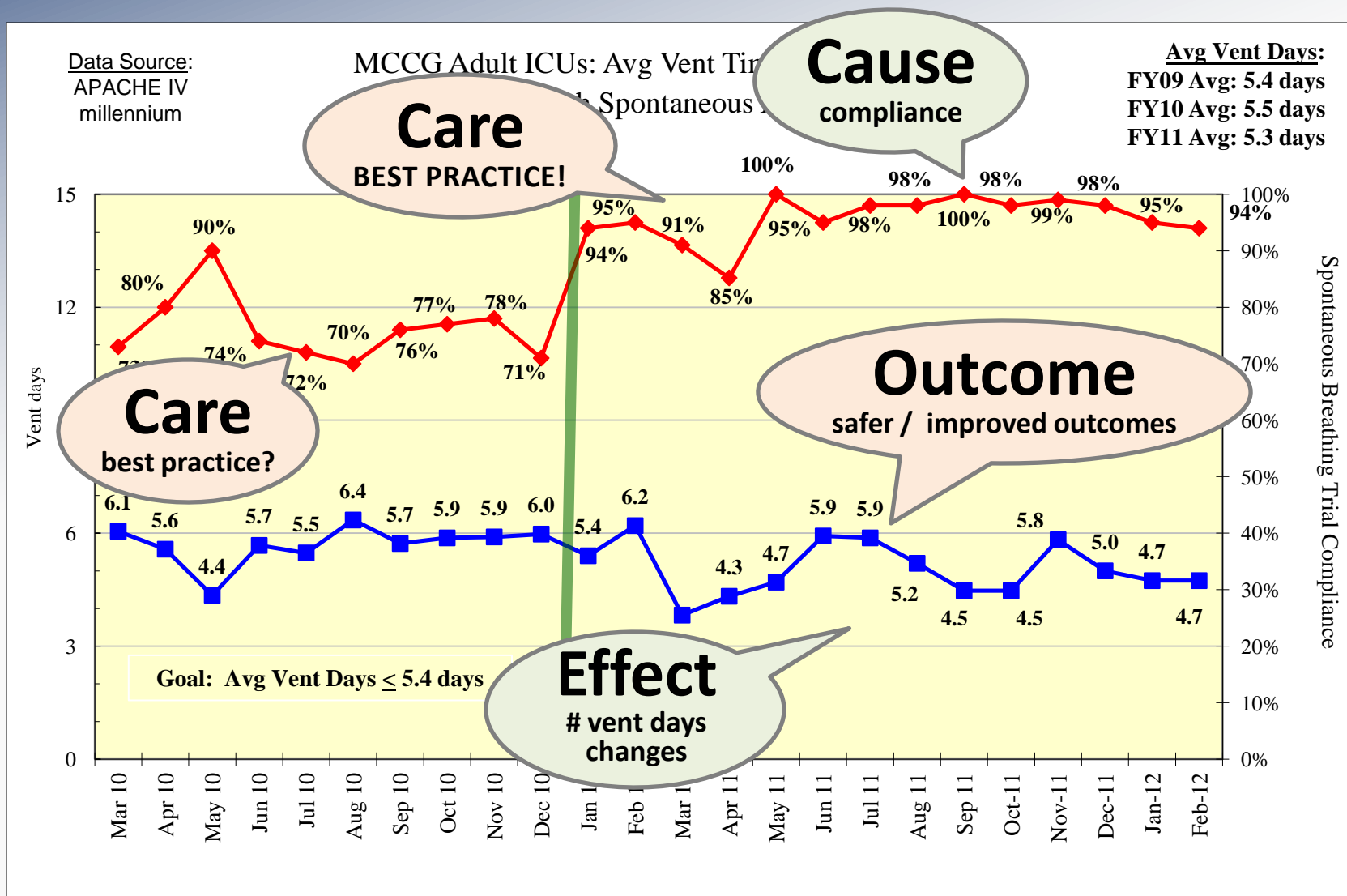
Engagement / Accountability

Display together: *shows the “WHY” of measuring*



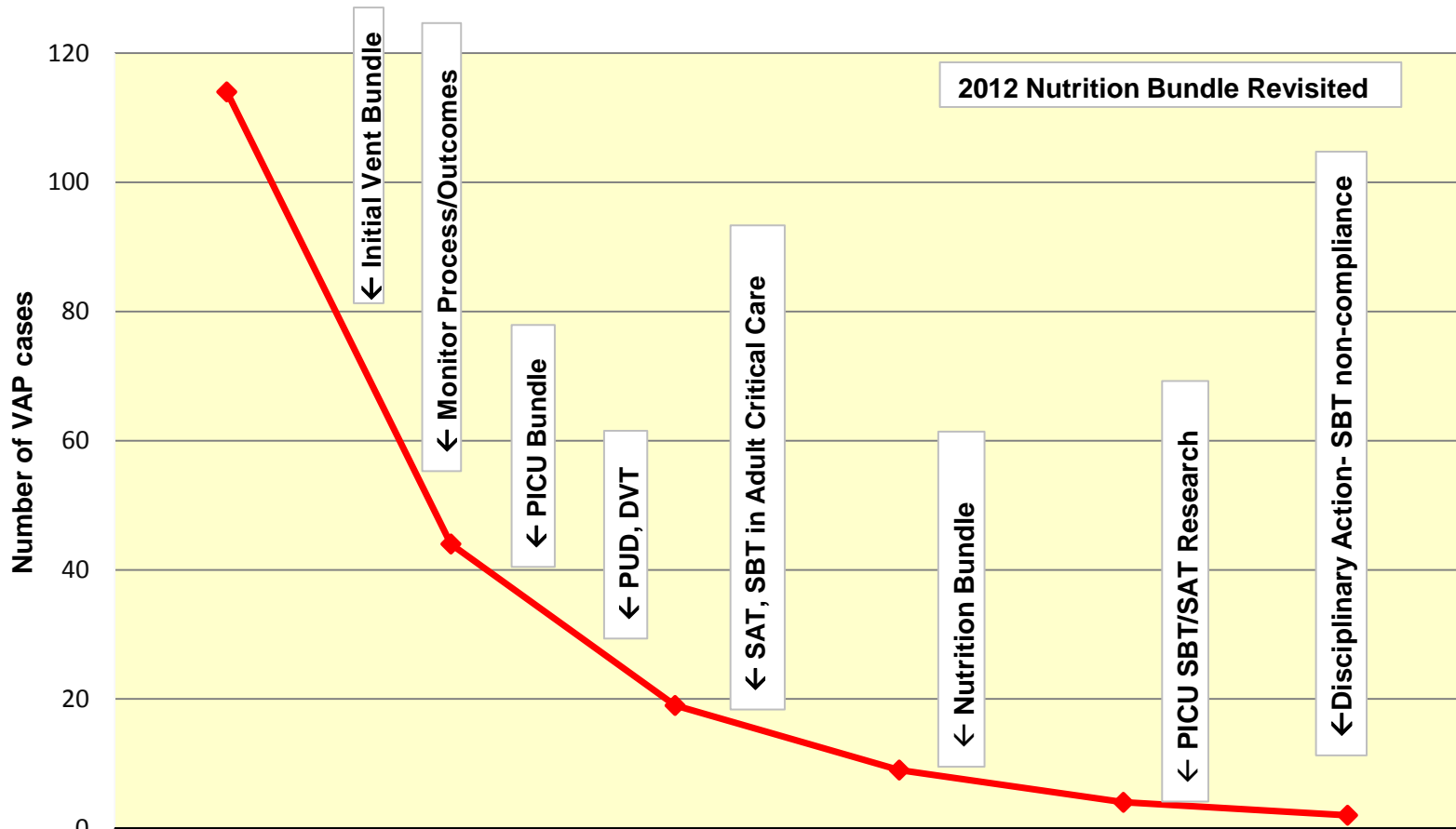
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Engagement / Accountability



Engagement / Accountability

of VAP in MCCG ICU's Critical Care 2006 - 2011



◆ #VAP

2006

114

2007

44

2008

19

2009

9

2010

4

2011

2



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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



Zapping VAP

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



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>



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 <ul style="list-style-type: none">• high-freq ventilation (HFV),• extracorporeal membrane oxygenation (ECMO), &• mechanical ventilation in prone position |

NHSN: National Healthcare Safety Network

2013 & forward

Lagging: patient outcomes

Probable VAP Public Reporting Definition

On or after **calendar day 3 of mechanical ventilation** AND within 2 calendar days before or after onset of **worsening oxygenation** ONE of the following is met:

Purulent respiratory secretions AND one of the following

- (+) culture of endotracheal aspirate ($\geq 10^5$ CFU/ml or equivalent)
- (+) culture of bronchoalveolar lavage ($\geq 10^4$ CFU/ml or equivalent)
- (+) culture of lung tissue ($\geq 10^4$ CFU/ml or equivalent)
- (+) culture of protected specimen brush ($\geq 10^3$ CFU/ml or equivalent)

If no purulent secretions, then one of the following:

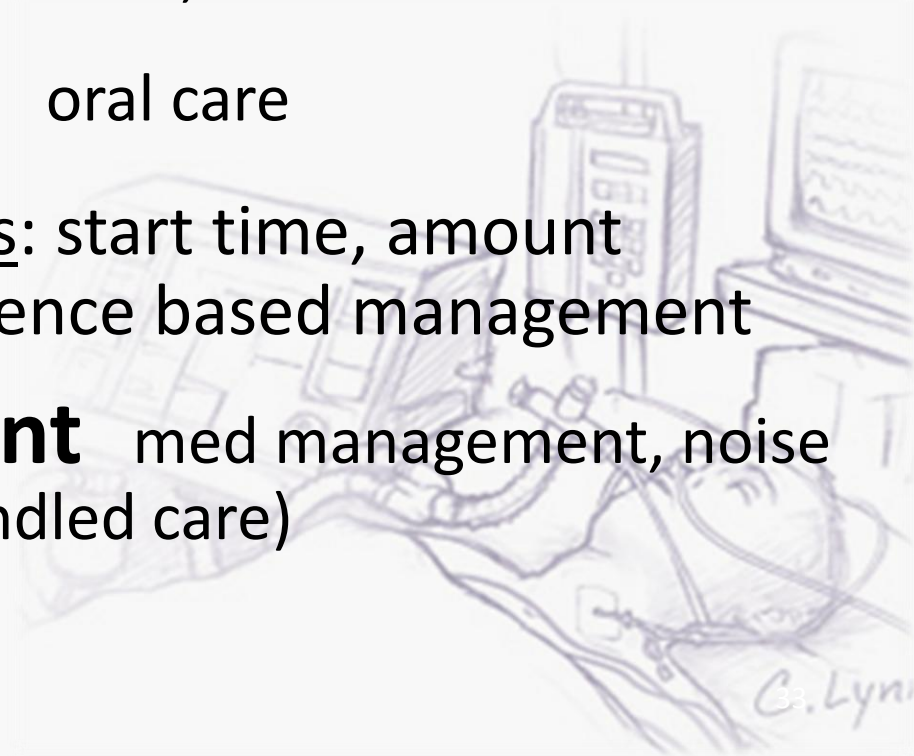
- (+) pleural fluid culture
- (+) lung histopathology
- (+) diagnostic test for *Legionella* spp.
- (+) diagnostic test for flu virus, RSV, adenovirus, parainfluenza virus

NHSN: National Healthcare Safety Network

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)



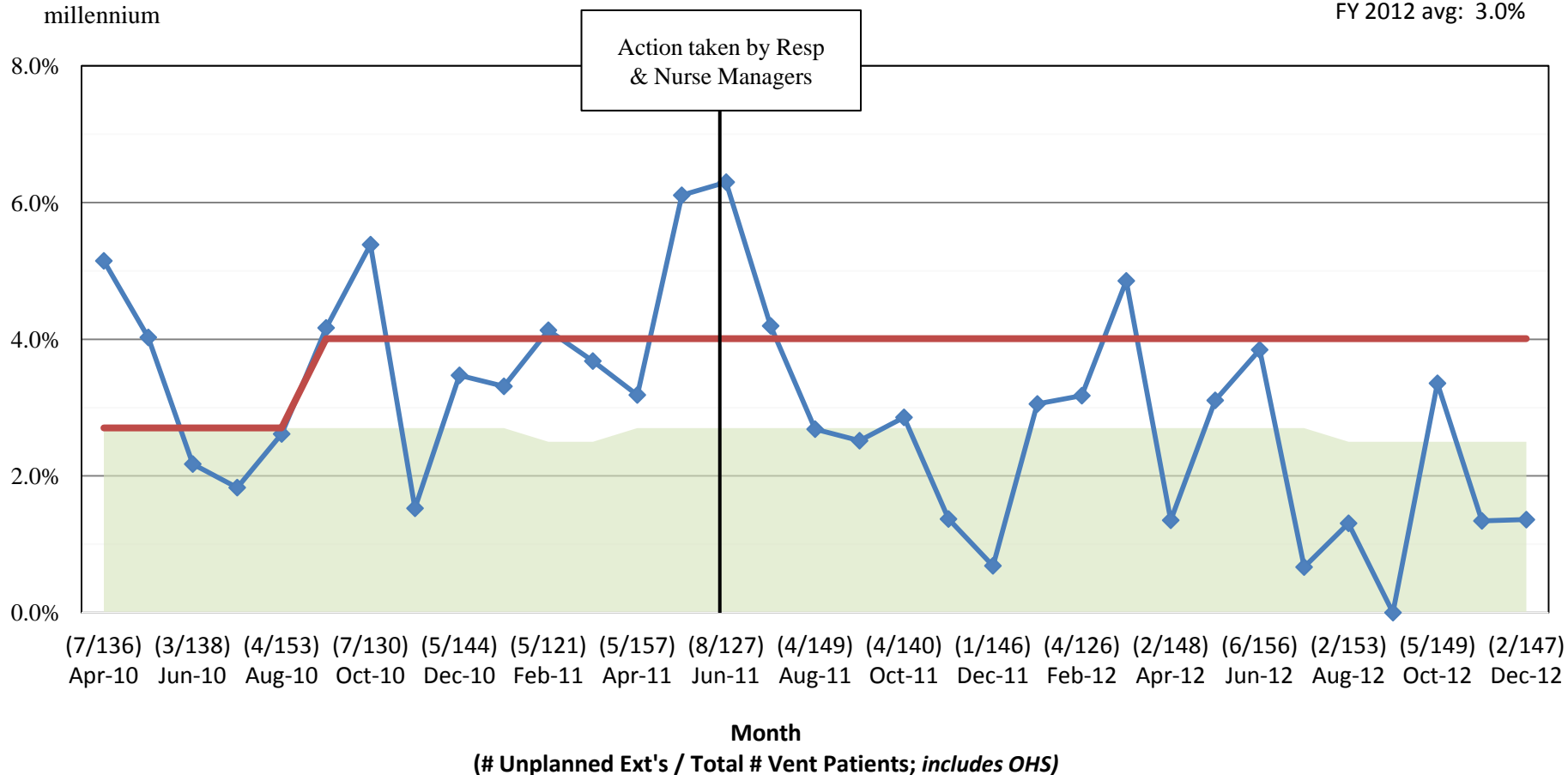
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2013 & forward

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%



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

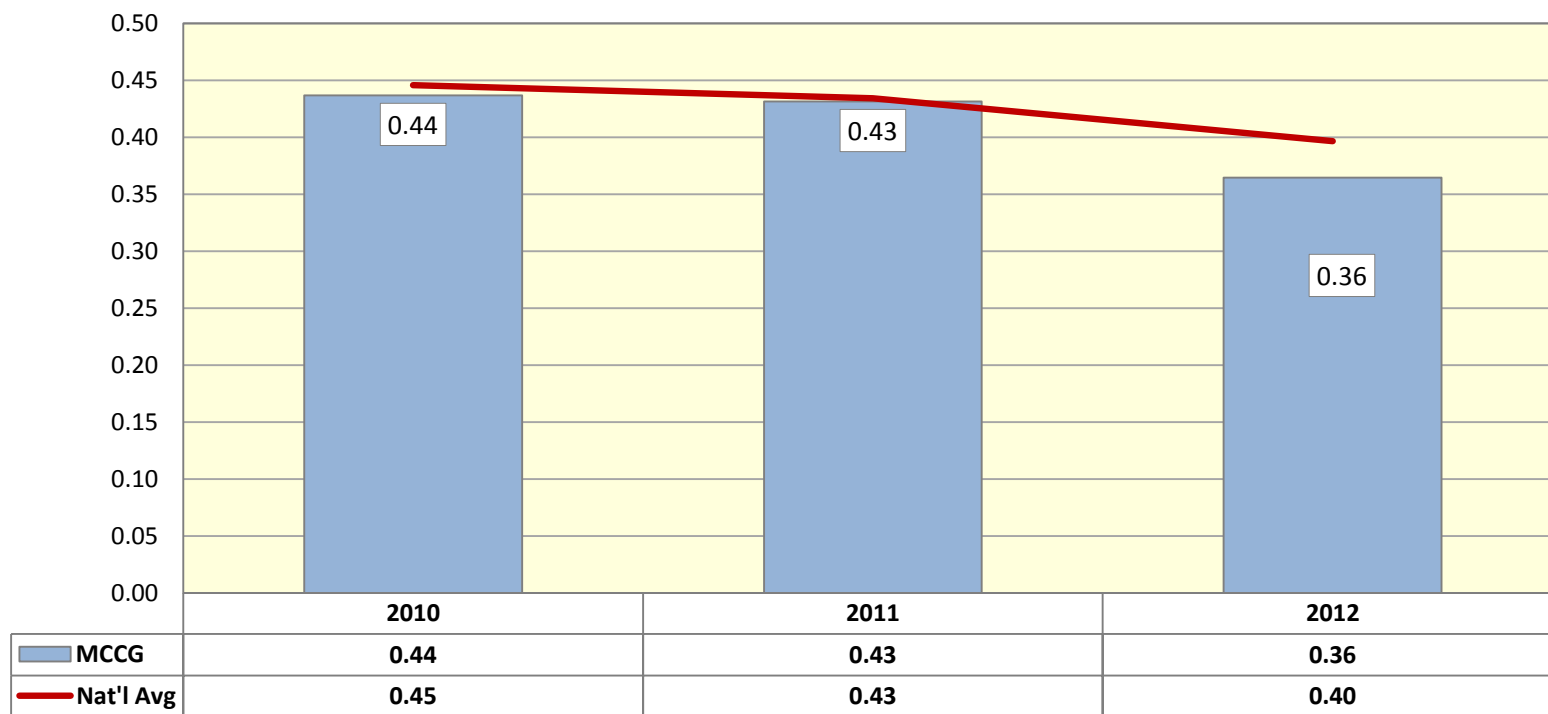
2013 & forward

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



[http://www.ajicjournal.org/article/S0196-6553\(11\)00373-7/fulltext](http://www.ajicjournal.org/article/S0196-6553(11)00373-7/fulltext)

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2013 & forward

Awareness → **NHSN** - vent utilization

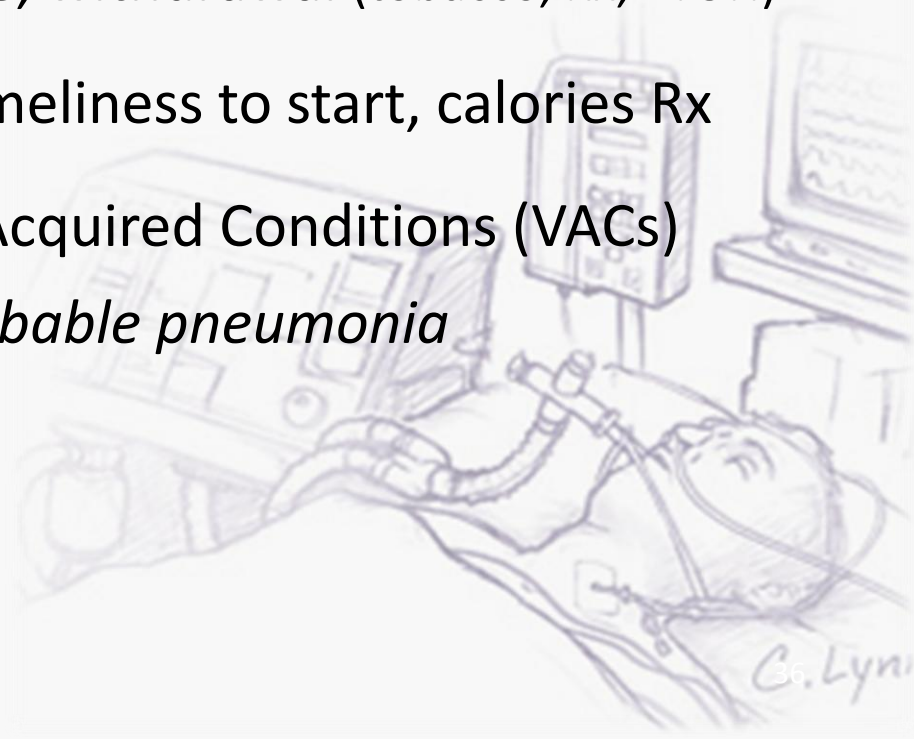
→ **Mobility** - slow/stop de-conditioning

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

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

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

possible & probable pneumonia



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Recap

1. Actions for Impact

- Cause → Care → Best Practice
- Effect → Outcomes → Goals of Care



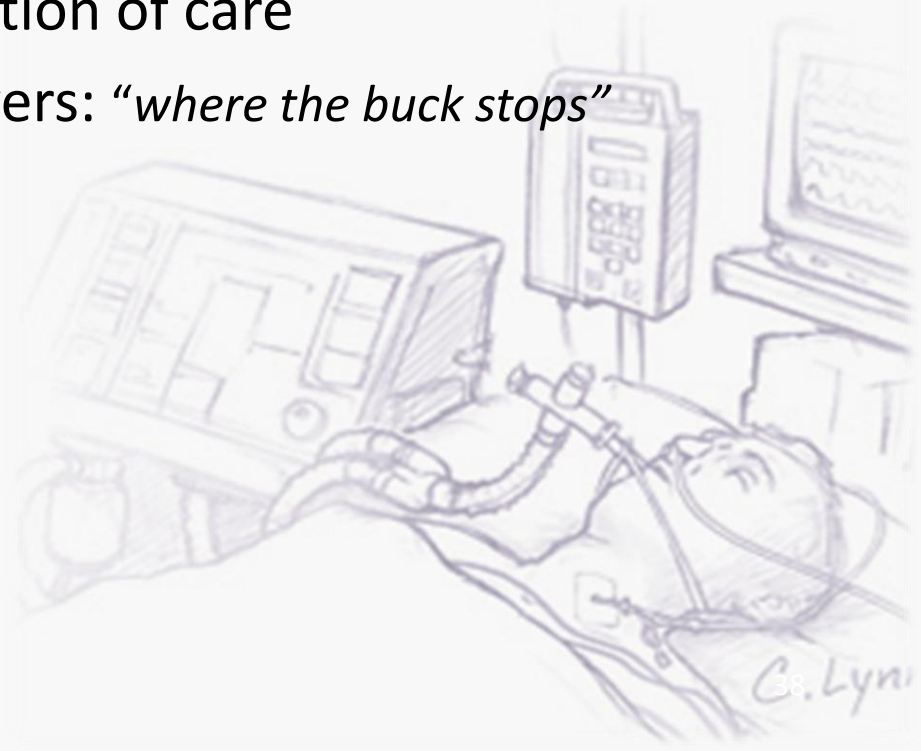
Recap

1. Actions for Impact

- Cause → Care → Best Practice
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2. Engagement & Accountability

- Engagement → coordination of care
- Accountability by caregivers: *“where the buck stops”*



Recap

1. Actions for Impact

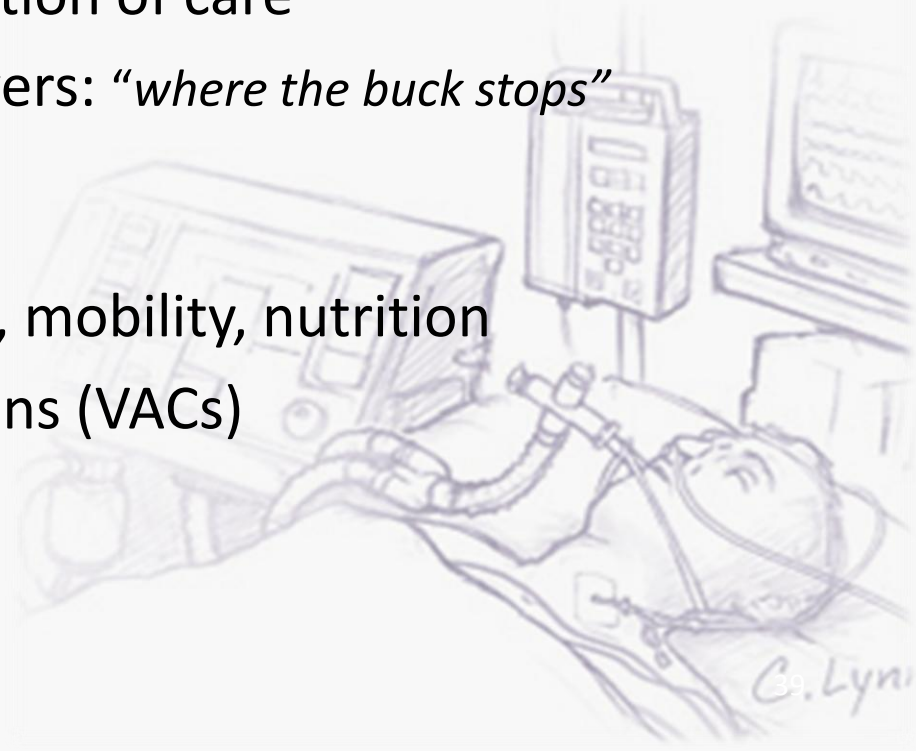
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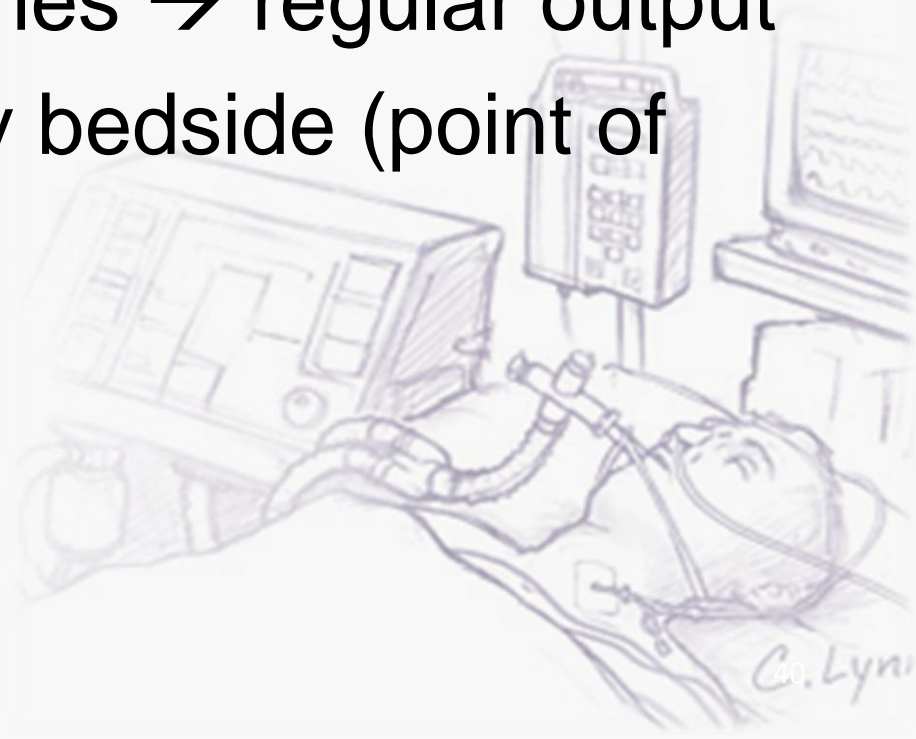
3. 2013 & beyond

- Vent utilization, delirium, mobility, nutrition
- Vent Associated Conditions (VACs)



Take Away

- Ventilator care is a complex process
- Do not assume knowledge = application
- Measure care + outcomes → regular output
- Involve interdisciplinary bedside (point of care) staff



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

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Questions

