Agenda

- Welcome & FHA Call to Action: IVAC
  - Sally Forsberg, RNC-OB, BSN, MBA, NEA-BC, CPHQ, Clinical Performance Improvement Advisor, FHA
- Presentation: Analyzing the IVAC
  - Linda R. Greene, RN, MPS, CIC, FAPIC, Manager of Infection Prevention, UR Highland Hospital, Rochester, NY
- Upcoming HIIN Events and Opportunities
- Evaluation & Continuing Nursing Education

Check the weekly MTC HIIN Upcoming Events for details and registration
HIIN Core Topics – Aim is 20% reduction

- Adverse Drug Events (ADE)
- Catheter-associated Urinary Tract Infections (CAUTI)
- Clostridium Difficile Infection (CDI)
- Central line-associated Blood Stream Infections (CLABSI)
- Injuries from Falls and Immobility
- Pressure Ulcers (PrU)
- Sepsis
- Surgical Site Infections (SSI)
- Venous Thromboembolisms (VTE)
- Ventilator Associated Events (VAE)
- Readmissions (12% reduction)
- Worker Safety
FHA Call to Action Update: Ventilator Associated Infections

- FHA Quality and Patient Safety Committee and FHA Board priority
- All FHA hospitals
- Resources, Coaching, Trainings

Check the weekly MTC HIIN Upcoming Events for details and registration
FHA IVAC Resources, Trainings and Tools


Infection-Related Ventilator-Associated Complications

FHA issued a Call to Action on Nov. 20, 2017, for Florida hospitals to focus their efforts on preventing ventilator-associated infections. Patients developing infection-related ventilator-associated complications (IVAC) are at high risk for outcomes such as pneumonia, peptic ulcer disease, gastrointestinal bleeding, aspiration, venous thromboembolic events and sepsis that can lead to death.

The FHA Quality Team has put together resources, education and trainings to help hospitals implement strategies to prevent IVAC.

Resources

Health Resource & Educational Trust (HRET):
- IVAC Checklist Top 10 Process Changes
- Ventilator-Associated Events (VAE) Change Package
- VAE Top 10 Checklist / Date of Last VAE Poster
- VAC Resource Library
  - Case Study
  - Journal Articles
    - High-flow oxygen through nasal cannula in acute hypoxemic respiratory failure
    - Does noninvasive positive pressure ventilation improve outcome in acute hypoxemic respiratory failure? A systematic review
    - Potential strategies to prevent ventilator-associated events
    - Effect of daily chlorhexidine bathing on hospital-acquired infection
- UP Campaign - Cross-cutting harm reduction strategies

Agency for Healthcare Research and Quality (AHRQ):
- Toolkit To Improve Safety for Mechanically Ventilated Patients

Centers for Disease Control and Prevention:
- VAC Calculator v4.0

Johns Hopkins Medicine:
Raise your game: The UP Campaign

Cross cutting set of practices to better engage front-line staff without creating additional burdens
FHA SOAP UP Campaign
October 1 – December 31, 2017

- Handwashing is the single most effective way to reduce healthcare-acquired infections
- Handwashing is not new, but is a critical strategy
- Effective handwashing can prevent several harm events

Progressive mobility preserves muscle strength, improves lower limb circulation and lung capacity, reduces length of stay and reduces delirium

Lack of mobility is most dangerous in the elderly but healthier patients are at risk as well

Improves multi-disciplinary collaboration and focus on preventing patient harm

Involves patients and families in the care plan

Impacts seven harm topics, saves lives and avoids costs

Key Message: Walk in, Walk during, Walk out!

Minimizing sedation allows for early mobilization, reducing delirium and respiratory compromise.

Over-sedation increases chance of harm and results in longer length of stay.

Monitoring reversal agents and emphasis on minimal sedation assists in the prevention of seven harm events.
Florida’s hospitals are working together to ensure our patients receive the safest and best care possible.

Learn more about our work to eliminate Infections related to Ventilator Associated Conditions (IVAC).
Our Speaker:
Linda Greene
Analyzing the IVAC

Linda R. Greene, RN, MPS, CIC
Manager, Infection Prevention
UR Highland Hospital
Rochester, NY
linda_greene@urmc.rochester.edu
Let’s Review

**VAE Definition Algorithm Summary**

- **Respiratory status component**
  - Patient on mechanical ventilation > 2 days
  - Baseline period of stability or improvement, followed by sustained period of worsening oxygenation
  - Ventilator-Associated Condition (VAC)

- **Infection / inflammation component**
  - General evidence of infection/inflammation
  - Infection-Related Ventilator-Associated Complication (IVAC)

- **Additional evidence**
  - Positive results of microbiological testing
  - Possible VAP (PVAP)

No CXR needed!
What is an IVAC

On or after calendar day 3 of mechanical ventilation and within 2 calendar days before or after the onset of worsening oxygenation, the patient meets both of the following criteria:

1) Temperature $> 38$ °C or $< 36$ °C, OR white blood cell count $\geq 12,000$ cells/mm$^3$ or $\leq 4,000$ cells/mm$^3$.

AND

2) A new antimicrobial agent(s)* is started, and is continued for $\geq 4$ calendar days.

*See Appendix for eligible agents.
IVAC

Important to proceed with the algorithm

1. Can be an infection which is not a PVAP
2. It may be a PVAP
Polling Question

What is your background?

1. Infection Prevention
2. Respiratory Care
3. Quality
4. Nursing
5. Other
Why Collect VAE Data?

- Infection Prevention efforts may fail due to silo mentality
- Need to view interventions under the larger context of patient safety
- Connect the dots to harm
Table 5. Qualitative analysis of 52 patients flagged with ventilator-associated complications or ventilator-associated pneumonia.

<table>
<thead>
<tr>
<th>Etiology of VAC (N = 44)</th>
<th>Etiology of VAP (N = 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any pulmonary complication</td>
<td>26 (59%)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>10 (23%)</td>
</tr>
<tr>
<td>Pulmonary edema</td>
<td>8 (18%)</td>
</tr>
<tr>
<td>Acute respiratory distress syndrome</td>
<td>7 (16%)</td>
</tr>
<tr>
<td>Atelectasis</td>
<td>5 (11%)</td>
</tr>
<tr>
<td>Mucous Plugging</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Abdominal compartment syndrome</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Pulmonary embolus</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Radiation pneumonitis</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Sepsis syndrome</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>Poor pulmonary toilet</td>
<td>1 (2%)</td>
</tr>
</tbody>
</table>

Abbreviations:
VAC – ventilator associated complications; VAP – ventilator associated pneumonia.
doi:10.1371/journal.pone.0018062.t005
Connect the Safety Dots

- Immobility
- VAC
- ARDS
- Pulmonary Edema
- Atelectasis
- Antibiotic Resistance
- Ventilator Harm
- IVAC
- C.Diff infection
- VAP
- Morbidity
- Mortality
- Delays, LOS
- Cost $
Intentional

Associated conditions:
- ARDS
- Pulmonary edema
- Thromboembolic disease
- Sepsis

Respiratory deterioration in previously stable patients is a risk factor for increased morbidity and mortality.
The Chest X-RAY
Goal

Get the patient off the ventilator sooner
Assess readiness to extubate daily in patients without contraindications

Pair spontaneous breathing trials with spontaneous awakening trials

Maintain and improve physical conditioning

Routine oral care

Subglottic suctioning
Polling Question

Which of the following is your greatest challenge?

1. SAT’s and SBT’s
2. Mobility
3. Standardization of individual physician practice
<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Rationale</th>
<th>Intervention</th>
<th>Quality of evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic practices</td>
<td>Good evidence that the intervention decreases the average duration of mechanical ventilation, length of stay, mortality, and/or costs; benefits likely outweigh risks</td>
<td>Use noninvasive positive pressure ventilation in selected populations(^{37,58}) Manage patients without sedation whenever possible(^ {50,61}) Interrupt sedation daily(^ {62}) Assess readiness to extubate daily(^ {57,60-68}) Perform spontaneous breathing trials with sedatives turned off(^ {68}) Facilitate early mobility(^ {49,73-75,78}) Utilize endotracheal tubes with subglottic secretion drainage ports for patients expected to require greater than 48 or 72 hours of mechanical ventilation(^ {50}) Change the ventilator circuit only if visibly soiled or malfunctioning(^ {88-91}) Elevate the head of the bed to 30°–45°(^ {84-85})</td>
<td>High Moderate High High High Moderate Moderate High Low(^ a)</td>
</tr>
<tr>
<td>Special approaches</td>
<td>Good evidence that the intervention improves outcomes but insufficient data available on possible risks</td>
<td>Selective oral or digestive decontamination(^ {93-96})</td>
<td>High(^ b)</td>
</tr>
<tr>
<td></td>
<td>May lower VAP rates but insufficient data to determine impact on duration of mechanical ventilation, length of stay, or mortality</td>
<td>Regular oral care with chlorhexidine(^ {98,101-104}) Prophylactic probiotics(^ {111-114}) Ultrathin polyurethane endotracheal tube cuffs(^ {120,121}) Automated control of endotracheal tube cuff pressure(^ {122,123}) Saline instillation before tracheal succioning(^ {124}) Mechanical tooth brushing(^ {125,126})</td>
<td>Moderate Moderate Low Low Low</td>
</tr>
<tr>
<td>Generally not recommended</td>
<td>Lowers VAP rates but ample data suggest no impact on duration of mechanical ventilation, length of stay,</td>
<td>Silver-coated endotracheal tubes(^ {127}) Kinetic beds(^ {128}) Prone positioning(^ {87,128-134,c})</td>
<td>Moderate Moderate Moderate</td>
</tr>
</tbody>
</table>
• 20 ICUs Nov 2011- May 2013
• Daily paired SATs and SBTs
• SATs- stopped all sedatives and narcotics as indicated
• SBTs- lower positive end-expiratory pressure support to 5-8 cm H2O for up to 2 hours
• Encourage extubation of patients who passed SBTs
Findings

- Significant decreases in duration of mechanical ventilation
- Decrease in hospital and ICU LOS
- Decrease in VAE rate per episode of mechanical ventilation
SATs & SBTs Increases

- 63% in SATs
- 16% in SBTs
- 81% in SBTs done with sedatives off

VAE Reductions

- 37% in VACs
- 65% in IVACs
<table>
<thead>
<tr>
<th>Basic bundle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub Epiglottic Suctioning - evidence supports</td>
</tr>
<tr>
<td>HOB Monitoring - low cost. Benefit unknown. Important with tube feeding</td>
</tr>
<tr>
<td>Weaning, decreasing duration of ventilation - suggestive evidence</td>
</tr>
<tr>
<td>PUD Prophylaxis - not related to VAP</td>
</tr>
<tr>
<td>DVT prophylaxis - not related to VAP</td>
</tr>
<tr>
<td>Mouth care - (chlorhexidine?)</td>
</tr>
<tr>
<td>Education and Training Program -</td>
</tr>
<tr>
<td>Ambulation - evidence supports</td>
</tr>
</tbody>
</table>
Data for Action
Looking at your Data

ICU
- PVAP: 2 (7.69%)
- IVAC: 4 (15.38%)
- VAC: 20 (76.92%)

WEST 5
- IVAC: 1 (50.00%)
- PVAP: 1 (50.00%)
Reappraisal of Routine Oral Care With Chlorhexidine Gluconate for Patients Receiving Mechanical Ventilation: Systematic Review and Meta-Analysis

Michael Klompas, MD1,2; Kathleen Speck, MPH3; Michael D. Howell, MD4; Linda R. Greene, RN5; Sean M. Berenholtz, MD3,6,7

Results There were fewer lower respiratory tract infections in cardiac surgery patients randomized to chlorhexidine (relative risk [RR], 0.56 [95% CI, 0.41-0.77]) but no significant difference in ventilator-associated pneumonia risk in double-blind studies of non-cardiac surgery patients (RR, 0.88 [95% CI, 0.66-1.16]). There was no significant mortality difference between chlorhexidine and placebo in cardiac surgery studies (RR, 0.88 [95% CI, 0.25-2.14]) and nonsignificantly increased mortality in non-cardiac surgery studies (RR, 1.13 [95% CI, 0.99-1.29]). There were no significant differences in mean duration of mechanical ventilation or intensive care length of stay. Data on hospital length of stay and antibiotic prescribing were limited.

Conclusions and Relevance Routine oral care with chlorhexidine prevents nosocomial pneumonia in cardiac surgery patients but may not decrease ventilator-associated pneumonia risk in non-cardiac surgery patients. Chlorhexidine use does not affect patient-centered outcomes in either population. Policies encouraging routine oral care with chlorhexidine for non-cardiac surgery patients merit reevaluation.
Reviewing Cases

Patient who develops a VAC

- Ambulation protocols
- Delirium assessment
- Avoid over sedation
- Collaborative approach by Nursing and Respiratory therapy
### Determining VAE - Calculator

<table>
<thead>
<tr>
<th>MV Day</th>
<th>Date</th>
<th>Hide... Min. PEEP (cmH₂O)</th>
<th>Hide... Min. FiO₂ (30 - 100)</th>
<th>VAE</th>
<th>T≤36° or T&gt;38°</th>
<th>WBC≤4,000 or WBC≥12,000 cells/mm³</th>
<th>QAD</th>
</tr>
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<tbody>
<tr>
<td>2</td>
<td>1/5/2016</td>
<td>5</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>3</td>
<td>1/6/2016</td>
<td>5</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>1/7/2016</td>
<td>5</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>1/8/2016</td>
<td>5</td>
<td>30</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>1/9/2016</td>
<td>9</td>
<td>30</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1/10/2016</td>
<td>8</td>
<td>30</td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>1/11/2016</td>
<td>10</td>
<td>30</td>
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<td></td>
</tr>
<tr>
<td>9</td>
<td>1/12/2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>1/13/2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>1/14/2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>1/15/2016</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- **New** - initiated on or after MV day 3 and within the VAE Window Period
- Requirement of ≥ 4 consecutive days
Looking at Your Data

<table>
<thead>
<tr>
<th>infCount</th>
<th>numPred</th>
<th>numventdays</th>
<th>SIR</th>
<th>SIR_pval</th>
<th>SIR95CI</th>
<th>vaeCategory</th>
</tr>
</thead>
<tbody>
<tr>
<td>17</td>
<td>10.776</td>
<td>2569</td>
<td>1.578</td>
<td>0.0753</td>
<td>0.950, 2.474</td>
<td>Total VAE</td>
</tr>
<tr>
<td>11</td>
<td>10.158</td>
<td>2216</td>
<td>1.083</td>
<td>0.7580</td>
<td>0.569, 1.882</td>
<td>Total VAE</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>numventdays</th>
<th>numPredDDays</th>
<th>SUR</th>
<th>SUR_pval</th>
<th>SUR95CI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2569</td>
<td>1,727.248</td>
<td>1.487</td>
<td>0.0000</td>
<td>1.431, 1.546</td>
</tr>
<tr>
<td>2216</td>
<td>1,699.801</td>
<td>1.304</td>
<td>0.0000</td>
<td>1.250, 1.359</td>
</tr>
</tbody>
</table>
How Will I Use My Data to Drive Improvement?

- Review both Individual cases and system level issues
- Do we have policies and procedures in place?
- Do we follow evidence based guidelines?
- Are we consistent with our practices?
<table>
<thead>
<tr>
<th>Process Measure</th>
<th>Date</th>
<th>Y/N</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Continuous subglottic suctioning</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess readiness to extubate</td>
<td></td>
<td></td>
<td>Paired SBT’s and SATs</td>
</tr>
<tr>
<td>(spontaneous breathing trials)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Interrupt sedation daily</td>
<td></td>
<td></td>
<td>If contraindications – note here</td>
</tr>
<tr>
<td>(spontaneous awakening trials)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ambulate according to protocol*</td>
<td></td>
<td></td>
<td>Note level</td>
</tr>
<tr>
<td>Regular mouth care (without chlorhexidine )*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Elevate HOB 35-40°</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conservative fluid management</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blood transfusions given</td>
<td></td>
<td></td>
<td>Rationale:</td>
</tr>
<tr>
<td>Low tidal volume</td>
<td></td>
<td></td>
<td>Identify:</td>
</tr>
</tbody>
</table>
Richard H Kallet MSc RRT FAARC, Hanjing Zhuo MD, Vivian Yip RRT, Antonio Gomez MD, and Michael S Lipnick MD

SBTs and Conservative Sedation in ARDS

Fig. 4. Differences in mechanical ventilation duration between the pre-protocol and post-protocol groups analyzed according to ARDS etiology. Note that sepsis is non-pulmonary sepsis.

Fig. 5. Differences in ICU length of stay between the pre-protocol and post-protocol groups analyzed according to ARDS etiology. Note that sepsis is non-pulmonary sepsis.
### The Critical-Care Pain Observation Tool (CPOT)

(Adapted from Gélinas et al., AJCC 2006; 15(4):420-427)

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial expressions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Relaxed, neutral</td>
<td>0</td>
<td>No muscle tension observed</td>
</tr>
<tr>
<td>Tense</td>
<td>1</td>
<td>Presence of frowning, brow lowering, orbirt tightening and levator contraction or any other change (e.g., opening eyes or tearing during nociceptive procedures)</td>
</tr>
<tr>
<td>Grimacing</td>
<td>2</td>
<td>All previous facial movements plus eyelid that is tightly closed (the patient may present with mouth open or biting the endotracheal tube)</td>
</tr>
<tr>
<td>Body movements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Absence of movements or normal position</td>
<td>0</td>
<td>Does not move at all (doesn’t necessarily mean absence of pain) or normal position (movement not aimed toward the pain site or not made for purpose of protection)</td>
</tr>
<tr>
<td>Protection</td>
<td>1</td>
<td>Slow, cautious movements, touching or rubbing the skin at pain site, seeking attention through movements</td>
</tr>
<tr>
<td>Restlessness/Agitation</td>
<td>2</td>
<td>Pulling tube, attempting to sit up, moving limbs/shrugging, not following commands, staff, trying to climb out of bed</td>
</tr>
<tr>
<td>Compliance with the ventilator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(intubated patients)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tolerating ventilator or movement</td>
<td>0</td>
<td>Alarms not activated, easy ventilation</td>
</tr>
<tr>
<td>Coughing but tolerating</td>
<td>1</td>
<td>Coughing, alarms may be activated but stop spontaneously</td>
</tr>
<tr>
<td>Fighting ventilator</td>
<td>2</td>
<td>Asynchrony: blocking ventilation, alarms frequently activated</td>
</tr>
</tbody>
</table>

### Behavioral Pain Scale (BPS)

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facial expression</td>
<td>Relaxed</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Partially tightened (e.g., brow lowering)</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Fully tightened (e.g., eyelid closing)</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Grimacing</td>
<td>4</td>
</tr>
<tr>
<td>Upper limb movements</td>
<td>No movement</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Partially bent</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>Fully bent with finger flexion</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Permanently retracted</td>
<td>4</td>
</tr>
<tr>
<td>Compliance with</td>
<td>Tolerating movement</td>
<td>1</td>
</tr>
<tr>
<td>mechanical ventilation</td>
<td>Coughing but tolerating</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>ventilation for the most of time</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Fighting ventilator</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Unable to control ventilation</td>
<td>4</td>
</tr>
</tbody>
</table>

BPS score ranges from 3 (no pain) to 12 (maximum pain)
What about Sedation?

- **Richmond Agitation – Sedation Scale (RASS)**
  - Unique feature is that it uses the duration of eye contact following verbal stimulation as the principal means of titrating stimulation
  - Takes less than 20 seconds to complete

- **The Riker Sedation Agitation Scale (SAS)**
  - Score of 1-7
RASS/CAM ICU Pocket Card

Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

1. Acute Change or Fluctuating Course of Mental Status:
   - Is there an acute change from mental status baseline? OR
   - Has the patient's mental status fluctuated during the past 24 hours?
   NO → CAM-ICU negative
   YES → NO DELIRIUM

2. Inattention:
   - “Squeeze my hand when I say the letter ‘A’.”
   - Read the following sequence of letters:
     SAVEAHART or CASABLANCA or ABABABABAB
   - ERRORS: No squeeze with ‘A’ & squeeze on letter other than ‘A’
   - If unable to complete Letters → Pictures
   0 - 2 Errors → CAM-ICU negative
   > 2 Errors

3. Altered Level of Consciousness
   Current RASS level
   RASS = zero
   → CAM-ICU positive
   > 1 Error
   0 - 1 Error
   → CAM-ICU negative

4. Disorganized Thinking:
   1. Will a stone float on water?
   2. Are there fish in the sea?
   3. Does one pound weigh more than two?
   4. Can you use a hammer to pound a nail?
   Command: “Hold up this many fingers” (Hold up 2 fingers)
   “Now do the same thing with the other hand” (Do not demonstrate)
   OR “Add one more finger” (If patient unable to move both arms)
   > 1 Error
   0 - 1 Error
   → CAM-ICU negative
Tools and Examples

Intensive Care Delirium Screening Checklist Worksheet (ICDSC)

- Score your patient over the entire shift. Components don’t all need to be present at the same time.
- Components #1 through #4 require a focused bedside patient assessment. This cannot be completed when the patient is deeply sedated or comatose (i.e. SAS = 1 or 2; RASS = -4 or -5).
- Components #5 through #6 are based on observations throughout the entire shift. Information from the prior 24 hours (i.e., from prior 1-2 nursing shifts) should be obtained for components #5 and #6.

1. Altered Level of Consciousness
   - Deep sedation/coma over entire shift [SAS = 1, 2; RASS = -4, -5]
   - Agitation [SAS = 5, 6, or 7; RASS = -1 to 4] at any point
   - Normal wakefulness [SAS = 4; RASS = 0] over the entire shift
   - Light sedation [SAS = 3; RASS = -1, -2, -3]

2. Inattention
   - Difficulty following instructions or conversation, patient easily distracted
   - Will not reliably squeeze hands to spoken letter A: S A V E A H

3. Disorientation
   - In addition to name, place, and date, does the patient recognize?
   - Does patient know what kind of place they are in?
   - (List examples: dentist’s office, home, work, hospital)

4. Hallucination, delusion, or psychosis
   - Ask the patient if they are having hallucinations or delusions.
   - (e.g. trying to catch an object that isn’t there)
   - Are they afraid of the people or things around them?

5. Psychomotor agitation or retardation
   - Either: a) Hyperactivity requiring the use of sedative drugs or restraints or potentially dangerous behavior (e.g. pulling IV lines or hitting self on bed).
   - OR b) Hypoactive or clinically noticeable psychomotor slowing

Confusion Assessment Method for the ICU (CAM-ICU) Flowsheet

1. Acute Change or Fluctuating Course of Mental Status:
   - Is there an acute change from mental status baseline? OR
   - Has the patient’s mental status fluctuated during the past 24 hours?

2. Inattention:
   - “squeeze my hand when I say the letter ’A’.”
   - Read the following sequence of letters: S A V E A H A R T or C A S A BLA N C A or A B A D D B A D A Y
   - ERRORS: No squeeze with ’A’ & squeeze on letter other than ’A’
   - If unable to complete Letters → Pictures

3. Disorganized Thinking:
   - RASS other than zero
   - RASS = zero

4. Disorganized Thinking:
   - Will a stone float on water?
   - Are there fish in the sea?
   - Does one pound weigh more than two?
   - Can you use a hammer to pound a nail?

Command: “Hold up this many fingers” (Hold up 2 fingers)
“Now do the same thing with the other hand” (Do not demonstrate)
OR “Add one more finger” (If patient unable to move both arms)
Case Discussion

The Case

A 56-year-old man with insulin-dependent diabetes, hypertension, and chronic kidney disease was admitted to a trauma service after injuries suffered from an assault and battery.

The patient's injuries included a left shoulder dislocation and a minimally displaced fracture of a thoracic vertebral body without any neurologic compromise.

Shortly after admission, the patient developed altered mental status and increasing hypoxia, requiring mechanical ventilation. This led to a prolonged intensive care unit (ICU) stay for respiratory failure from an ischemic cardiac event and aspiration pneumonia.
Following 6 weeks of hospitalization, the patient was significantly deconditioned despite slow and steady improvements overall. As he was transferred out of the ICU, the physical therapist (PT) was consulted to assist in the rehabilitation process.

After reviewing the medical records, the PT noted the initial shoulder injury on admission.

In addition to providing a general assessment, the PT expressed concern that the shoulder injury had now progressed to involve significant limitation in range of motion and function with associated pain. The PT felt this may have been preventable with earlier and aggressive physical therapy interventions while in the ICU.
Mobility Key Issues

(1) Critically ill patients are at highest risk since they can develop ICU-acquired weakness due to polyneuropathy, myopathy, or a combination of these conditions.

(2) As patients begin to encounter the cascade of complications that often deem them "too sick" for physical therapy, an early referral to a PT is in fact the best strategy to prevent or treat weakness and deconditioning.

(3) The patients who benefit most from physical therapy are those who have lost functional abilities when compared to their pre-hospitalization status and who consent and actively participate with interventions.
Polling Question

Do you have an aggressive mobility protocol?

1. Yes

2. No
Mobility

Mechanisms of ICU-acquired weakness.

Critical illness

↑ Reactive oxygen species
↑ Inflammatory cytokines

Bed rest

Malnutrition + protein catabolism

Neuromuscular damage

Muscle weakness

↑ Hospital LOS
↑ ICU LOS

↓ Quality of life
↑ Time on mechanical ventilation
↓ Physical ability
Early Physical Rehabilitation in the ICU and Ventilator Liberation

Pedro A Mendez-Tellez MD and Dale M Needham MD PhD

Respiratory Care October 2012, 57 (10) 1663-1669; DOI: https://doi.org/10.4187/respcare.01931
Opportunities

• Hardwire ambulation protocols
• Assure documentation of secretions
• Work collaboratively with respiratory therapy to identify subtle changes
• Daily huddle
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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>5</td>
<td>Daily Spontaneous Breathing Trials (SBT’S)</td>
<td>Yes:____  No:____</td>
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<tr>
<td></td>
<td></td>
<td>Comments</td>
</tr>
<tr>
<td>6</td>
<td>Any changes in vent settings that are based upon provider preferences rather than clinical symptoms?</td>
<td>Yes:____  No:____</td>
</tr>
<tr>
<td>7</td>
<td>Progressive Mobility</td>
<td>Yes _  No _</td>
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<tr>
<td></td>
<td></td>
<td>Chair _____  Walk _____  Protocol in place?</td>
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<tr>
<td>8</td>
<td>Routine Mouth care</td>
<td>Yes:____  No:____</td>
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<tr>
<td>9</td>
<td></td>
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<tr>
<td>10</td>
<td>Are there any significant patient factors that may have contributed to this infection?</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>____ Large volume fluids</td>
</tr>
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<td></td>
<td></td>
<td>____ Blood/blood product transfusion within 48 hours of infection</td>
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<tr>
<td></td>
<td></td>
<td>____ Significantly immunocompromised</td>
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<tr>
<td></td>
<td></td>
<td>____ Significant event</td>
</tr>
<tr>
<td>11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Are there opportunities for improvement</td>
<td>What opportunities have been identified?</td>
</tr>
<tr>
<td>13</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>Implementation plan and timeline</td>
<td>Responsible person</td>
</tr>
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<td></td>
<td></td>
<td>Completion date?</td>
</tr>
</tbody>
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Know your Data

Surveillance is a critical component of every quality improvement effort; you cannot prevent it if you cannot measure it.
Ventilator-Associated Events
A Patient Safety Opportunity

Broaden Awareness
• VAE surveillance provides hospitals with a fuller picture of serious complications in mechanically ventilated patients

Mobilize Prevention Efforts
• A significant portion of VAEs are likely preventable

Inform Progress
• VAE surveillance provides an efficient and objective yardstick to track one’s progress relative to oneself and to peers
The Bottom Line

- VAE associated with mortality and LOS (my experience supports this)
- Continue to monitor processes of care and outcomes
- Give feedback to providers and assess potential for preventable events
Questions?
## Chasing Zero Infections Series

<table>
<thead>
<tr>
<th>Date</th>
<th>Event Type</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan. 17, 2018</td>
<td>Didactic Webinar</td>
<td>Reducing Infections with Ventilator Associated Events (IVAC)</td>
</tr>
<tr>
<td>Feb. 13, 2018</td>
<td>Interactive Coaching Call</td>
<td>No Catheter=No CAUTI: Reducing Catheter Utilization [Register]</td>
</tr>
<tr>
<td>Mar. 13, 2018</td>
<td>Interactive Coaching Call</td>
<td>Strategies to Reduce Surgical Site Infections (SSI) [Register]</td>
</tr>
<tr>
<td>Apr. 10, 2018</td>
<td>Interactive Coaching Call</td>
<td>Reducing PICC and Central Line Utilization to Eliminate CLABSI [Register]</td>
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<tr>
<td>May 8, 2018</td>
<td>Interactive Coaching Call</td>
<td>Don’t Be Resistant: Reducing MRSA and Other Multi-drug Resistant Organisms [Register]</td>
</tr>
<tr>
<td>Jun. 12, 2018</td>
<td>Didactic Webinar</td>
<td>Fortify Your Unit Safety Culture to Reduce Infections [Register]</td>
</tr>
<tr>
<td>Aug. 14, 2018</td>
<td>Interactive Coaching Call</td>
<td>Sustaining Zero Infections: Stop the “Whack a Mole” Syndrome [Register]</td>
</tr>
</tbody>
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Check the weekly **MTC HIIN Upcoming Events** for details and registration
Email [HIIN@fha.org](mailto:HIIN@fha.org) to request an archived webinar
IP Boot Camp

- Date: March 22-23, 2018
- Location: FHA Corporate Office, Orlando
- Program:
  - Led by Linda Greene, RN, MPS, CIC, FAPIC
  - Professional development of novice infection preventionists new to their role (less than 2 years)
  - Focus on fundamental knowledge
  - Core competencies
    - surveillance and epidemiology
    - antibiotic stewardship
    - regulatory and accreditation compliance
    - development, implementation and evaluation of an IP Program

Check the weekly MTC HIIN Upcoming Events for details and registration
Launching January 17, this free professional development opportunity is open to all FHA HIIN hospital employees seeking to improve care. Past fellows’ disciplines have included nursing, quality, safety, pharmacy, infection prevention, and more.

Register today for your chosen Fellowship track:

- **Foundations for Change**
- **Accelerating Improvement**

### Foundations for Change Fellowship
- Tailored to those who are NEW to quality improvement
- Fellows will learn how to:
  - Deploy tools such as aim statements, driver diagrams and run charts to initiate and nurture improvement
  - Galvanize others to participate in your improvement efforts
  - Develop and sustain momentum
  - Mitigate common improvement pitfalls

### Accelerating Improvement Fellowship
- Tailored to those with PREVIOUS QI experience who are looking to deepen their knowledge and skills
- Fellows will learn how to:
  - Assess whether your QI efforts are set up for success
  - Utilize data to identify, drive and sustain performance improvement
  - Ensure process reliability and sustainability
  - Plan for scale and spread
  - Mitigate common improvement pitfalls
Upcoming Meetings & Virtual Events

Virtual Events:
• Jan. 25 – FHA HIIN | TeamSTEPPS Check-in Webinar: Early Recognition and Treatment of Sepsis in the ED

In-Person Events:
• GET UP Regional Meetings:
  – Feb. 19 | Hollywood, FL
  – Feb. 21 | Orlando, FL
  – Feb. 23 | Pensacola, FL

Check the weekly MTC HIIN Upcoming Events for details and registration
www.HRET-HIIN.org

- UP Campaign
- HAI-specific Change Packages & Top 10 Checklists
- Past Webinars & Podcasts
- Implementation Tools
- Additional Resources
Eligibility for Nursing CEU requires submission of an evaluation survey for each participant requesting continuing education:
https://www.surveymonkey.com/r/ChasingZero011718

Share this link with all of your participants if viewing today’s webinar as a group (Survey closes Jan. 27)

Be sure to include your contact information and Florida nursing license number

FHA will report 1.0 credit hour to CE Broker and a certificate will be sent via e-mail (Please allow at least 2 weeks after the survey closes)
Contact Us

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