Improving Outcomes for High Risk and Critically Ill Patients
KP Woodland Hills Medical Center
Presented by:
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Lynne M. Agocs-Scott RN MN, CCRN CCNS

Introduction of the IHI
The Institute for Healthcare Improvement (IHI) is a not-for-profit organization driving the improvement of health by advancing the quality and value of health care.

IHI is a premier integrative force, an agent for profound change, dedicated to improving health care for all.

- Kaiser Permanente Woodland Hills Medical Center is the only KP hospital to join the IHI Critical Care Learning & Innovation Community
- There are 36 other hospitals across the nation that are part of the IHI Critical Care Community
- Several of the WH team members attended two, 2-day conferences where hospitals from within the IHI Critical Care Community met to share and discuss their learned experiences.

Project Purpose
To implement a system-wide model of care, based on evidence from the IHI, to prevent harm and to improve patient outcomes.

Our goal is to ensure that our Intensive Care Unit (ICU) environment will promote safe, patient/family-centered care through the use of bundles and interventions, developed by the IHI.
Team Members

- Sharon Kent, RN, BSN, CCRN- ICU/CCU Department Administrator
- Lynne Agocs-Scott, RN, MN, CCRN, CCNS- ICU/CCU Clinical Nurse Specialist
- Deanna Mussell, RN, BSN- ICU Charge Nurse
- Peter Salvanera, RN, BSN- ICU Charge Nurse
- Nancy Tankel, RN, MN- Nurse Executive
- Aileen Oh, RN, MSN- Project Manager
- Conrad Webb, Respiratory Therapist Lead
- Lucy Blinder, PharmD-Inpatient Supervisor
- Ming Ying, Registered Dietician
- Cheryl Nelson, RN- Infection Control Practitioner
- Virginia Juarez- Quality Analyst
- Intensivists:
  - Paul Bellamy, MD (Champion)
  - Richard Drucker, MD
  - Irina Lattanzi, MD
  - Albert Lim, MD
  - Arian Torbati, MD

What is a Bundle?

The power of a “bundle” is that it brings together those scientifically grounded concepts that are both necessary and sufficient to improve the clinical outcome of interest.

The focus of measurement is the completion of the entire bundle as a single intervention, rather than completion of its individual components.

IHI ICU Aim Statement 2008

Kaiser Permanente Woodland Hills intends to implement Evidence Based Care to prevent harm and to improve patient outcomes. Our goal is to ensure that our ICU environment will promote safe, patient/family-centered care.

- Reduce ICU mortality to < 9% by 12/2008
- Ensure optimal glucose control (60-150 range) for at least 62% of ICU patients by 12/2008.
- Reduce ICU ALOS to < 3.0 (#ICU patient days/#ICU discharges per month) by 12/2008
- Decrease VAP rate by 50% by 6/2008
- 90% of all patients on mechanical ventilation in the ICU on all 4 parts of the Ventilator Bundle by 12/2008
- Decrease CL BSI rate by 50% by 12/2008
- 90% of all patients with central lines in ICU get all 5 parts of CL Bundle by 3/2008
Current Area of Focuses

- The WH ICU is currently concentrating on **integration of the care of the patient and family, creating the collaborative, multidisciplinary care team and reducing complications from ventilators and central lines**.
- The target population includes ICU patients that meet the requirements for the bundles and/or interventions.
- Data is collected daily during multidisciplinary rounds for each ICU patient.
- There are specific required measures that are reported monthly and posted to the IHI Extranet.

Measurement Strategy: IHI Critical Care Learning and Innovation Community

- Reducing Complications from Ventilators
- Reducing Complications from Central Lines
- Increasing Glucose Control
- Reducing Mortality from Sepsis

Multidisciplinary Rounds

This intervention has proven successful in medical and surgical settings. Efficient patient care depends on close communication between the physicians, nursing, physical therapy, and discharge planners. Many times, the number of services involved and the workload of each service slows down communication in patient care. In trauma care, multidisciplinary rounds have been demonstrated to have a **dramatic effect on patient flow**. While maintaining their daily census, one team reported a 36 percent increase in patient volume and a 15 percent decrease in length of stay. [1]

References:
J Vazirani et al. demonstrated that using multidisciplinary rounds in an acute care medical unit improved satisfaction with care for physicians, nurses, and patients. In addition, overall quality of care is improved with the addition of a nurse practitioner to each inpatient medical team, the appointment of a hospitalist medical director, and the institution of daily multidisciplinary rounds. The multidisciplinary intervention resulted in better communication and collaboration among the participants. [2]

References:

Small Test of Change
- After generating ideas, run Plan-Do-Study-Act (PDSA) cycles to test a change or group of changes on a small scale to see if they result in improvement.
- If they do, expand the tests and gradually incorporate larger and larger samples until you are confident that the changes should be adopted more widely.
- The Plan-Do-Study-Act (PDSA) cycle is shorthand for testing a change — by planning it, trying it, observing the results, and acting on what is learned. This is the scientific method, used for action-oriented learning.

Multidisciplinary Rounds

Changes Tested:
- Rounds are occurring 7 days a week
- Intensivists are verbally reading back their orders to the team before moving onto the next patient
- Chaplain attends 3 days a week
- Respiratory Therapy reports out using a template and has had increased engagement
- Pharmacy participation has increased and a pharmacist champion has been identified
- Open visitation has become part of the culture
- The ICU Guidebook has been updated to reflect patient and family focused care.
Multidisciplinary Rounds

Changes Tested (continued):

- Family members are invited to rounds
- Daily goals are shared with the family. The plan of care for the patient is summarized for the family. Daily goals and plan of care are written on the Care Boards in patients' rooms.
- When appropriate, "Get to Know Me" form is given out to patients/families.
- A flowsheet was created to track the IHI bundles and Daily Goals compliance.
- Review of daily goals is a set process that occurs among the team. Goals are evaluated and updated as needed.
- A family member was a guest speaker at an End Of Life inservice on Loss & Grief in the ICU.
- Two family members have joined the ICU’s DBT to assist with the emotional support component.

Definition of VAP

According to the Institute for Health Improvement, ventilator-associated pneumonia (VAP) is defined as nosocomial pneumonia in a patient on mechanical ventilatory support (by endotracheal tube or tracheostomy) for greater than or equal to 48 hours.

Ventilator Bundle to Reduce Ventilator Associated Pneumonia (VAP)

Ventilator Bundle Elements:

1. Elevation of head of the bed to between 30 and 45 degrees
2. Daily “sedation vacation”
3. Daily assessment of readiness to wean
4. Peptic Ulcer Disease (PUD) Prophylaxis
5. Deep Venous Thrombosis (DVT) Prophylaxis
6. Oral Care
**Ventilator Bundle Compliance Rate**

Goal: 90% of all patients on mechanical ventilation in the ICU on all 5 parts (including oral care) of the Vent Bundle by 2008.

<table>
<thead>
<tr>
<th>Month</th>
<th>Oral Care</th>
<th>Deep Vein Thrombosis (DVT)</th>
<th>Peptic Ulcer Disease (PUD) Prophylaxis</th>
<th>HOB &gt; 30 degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun</td>
<td>83%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>May</td>
<td>89%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Apr</td>
<td>97%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Mar</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Feb</td>
<td>93%</td>
<td>100%</td>
<td>100%</td>
<td>95%</td>
</tr>
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**ICU Ventilator Acquired Pneumonia (VAP) Rate**

Goal: Decrease VAP rate by 50% by June 2008.

VAP rate for 2008 = 2.8 (GOAL = 1.8)
VAP rate for 2007 = 3.5

**By 2008:**
1. < 3% for < 60 range for blood glucose data for ICU patients
2. > 62% for 60-150 range for blood glucose data for ICU patients
3. < 35% for > 150 range for blood glucose data for ICU patients

Blood glucose values collected only for ICU patients.
Central Line Blood Stream Infection Data

ICU Central Line Blood Stream Infection (BSI) Rate Per 1000 Central Line Days
Goal: Decrease CL BSI rate by 50% by December 2008

<table>
<thead>
<tr>
<th>Jan</th>
<th>Feb</th>
<th>Mar</th>
<th>Apr</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sep</th>
<th>Oct</th>
<th>Nov</th>
<th>Dec</th>
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<tbody>
<tr>
<td>0.7</td>
<td>0.8</td>
<td>0.7</td>
<td>0.6</td>
<td>0.5</td>
<td>0.4</td>
<td>0.3</td>
<td>0.2</td>
<td>0.1</td>
<td>0.0</td>
<td>0.0</td>
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Average CL BSI rate for 2006 = 2.2
Average CL BSI rate 2007 = 1.6
CL BSI 2008 goal = 0.8

IH U Conference 
KICU Conference & Project Initiation

- Wednesdays set as standard dressing change day
- Kits handed out during rounds on Wednesdays
- Begun collecting bundle compliance data

Current Focus to Reach Aim (Central Line Blood Stream Infections)

- Created Central Line Audit tool
- Inserviced staff related to Central Line Bundle
- Supplies needed and bundle elements displayed on Poster Board
- IHI team did detailed RCA of identified CL BSI
- Central line dressing change kits provided to RN during daily MDRs (to capture 24 hour changes)
- Better system for data collection (Quality/Infection Control)
- Charge RNs track compliance with 24 hr and Wednesday dressing changes

Next Steps...

- Maintain the focus of our Aim as we transition from a paper record to an EMR (Health Connect)
- Restructure Multidisciplinary Rounds (MDRs) to accommodate the computerized chart (up to 3 computers brought to MDRs)
- Maintain staff engagement in process despite learning curve of EMR
- Continue to focus on family centered care as we introduce the new system to patient and families (EMR)
- Prevent backward slide and loss of compliance with bundle elements as we learn the new system
<table>
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<th>Significance to Patient Care</th>
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<tr>
<td>- Better clinical outcomes</td>
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<tr>
<td>- Lower costs</td>
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<tr>
<td>- Better coordination of care</td>
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<td>- Enhanced communication</td>
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<td>- New systems of ICU care will be established</td>
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<td>- Improved patient/family/provider satisfaction</td>
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<tr>
<td>- Part of the collaborative effort of the IHI 5 Million Lives Campaign</td>
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<td>- Addresses the JCAHO goal of involving patients and family in the plan of care</td>
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<tr>
<td>- And, most importantly, it is the right thing to do.</td>
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