Agenda

- Welcome (5 min)
- Overview of Activities Leading to Minnesota Infection Reporting Recommendations – Mark Sonneborn
- Overview of MHA Data Tool – Mark Sonneborn
- Ventilator Bundle – Boyd Wilson
- Central Line Bundle – Mary Ellen Bennett
- Surgical Site Infection – Janette Biorn
- Timelines – Mark Sonneborn
- Other Business, Q & A

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Overview

■ 2007 Legislation (in 62J.82)
  ● by January 1, 2009, hospital-specific performance on the public reporting measures for hospital-acquired infections as published by the National Quality Forum and collected by the Minnesota Hospital Association and Stratis Health in collaboration with infection control practitioners

■ NQF Final Recommendations – March 2008
2 Surgical Care Improvement Program (SCIP) measures

- Cardiac surgery patients with controlled 6 am postoperative serum glucose
- Surgery patients with appropriate hair removal

These are part of CMS/Hospital Quality Alliance measures

These should be reported to CMS
NQF Recommendations Part 2

- Healthcare-Associated Infections in Pediatric Populations
  - Late sepsis or meningitis in neonates
  - Late sepsis or meningitis in very low birth weight neonates

- These were **NOT** chosen
  - Requires participation in a proprietary database
  - Applies to 6-8 MN hospitals

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Central Line Bundle

Ventilator Bundle

Surgical Site Infection Rates
  - Total Knee Arthroplasty
  - Vaginal Hysterectomy
    - These procedures chosen to get maximum number of hospitals reporting
Each hospital will appoint a contact

Contact will be assigned username and password
Login:

Please enter your login ID and password.

Login ID: 
Password: 
Remember login? 

Login

Forgot your password?

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## Central Line Infection

*Required Fields (only numbers can be entered)*

<table>
<thead>
<tr>
<th>Month/Year:</th>
<th>Clinical Unit:</th>
<th>Number of patients with central lines where all elements are documented and in place</th>
<th>Total number of intensive care patients with central lines</th>
<th>Percent Compliance</th>
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</thead>
<tbody>
<tr>
<td>1/2005</td>
<td>Medical</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2. Hand hygiene before catheter insertion</td>
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<td></td>
<td></td>
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<tr>
<td>3. Maximal barrier precautions upon insertion</td>
<td></td>
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<tr>
<td>4. Chlorhexidine skin antiseptic</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>5. Optimal catheter site selection</td>
<td></td>
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<td></td>
</tr>
<tr>
<td>6. Daily assessment</td>
<td></td>
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</tbody>
</table>

**Save**  
**Exit**
**Ventilator Associated Pneumonia**

*Required Fields (only numbers can be entered)*

<table>
<thead>
<tr>
<th>Month/Year:</th>
<th>Clinical Unit:</th>
<th>Medical</th>
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</thead>
<tbody>
<tr>
<td>Number of vent patients receiving appropriate elements of bundle</td>
<td>Total number of vent patients</td>
<td>Percent Compliance</td>
</tr>
<tr>
<td></td>
<td>1/2005</td>
<td>Medical</td>
</tr>
<tr>
<td>1</td>
<td>0</td>
<td>0 %</td>
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**Optional**

<p>| | | | |</p>
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<tbody>
<tr>
<td>2</td>
<td>Head of bed at 30 degrees or greater</td>
<td>0</td>
<td>%</td>
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<td>Stress ulcer disease prophylaxis</td>
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<td>%</td>
</tr>
<tr>
<td>4</td>
<td>DVT prophylaxis</td>
<td>0</td>
<td>%</td>
</tr>
<tr>
<td>5</td>
<td>Daily sedation interruption/reduction</td>
<td>0</td>
<td>%</td>
</tr>
<tr>
<td>6</td>
<td>Daily assessment of readiness to extubate</td>
<td>0</td>
<td>%</td>
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</table>
## Surgical Site Infection

### Total Knee Arthroplasty

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Total Knee Arthroplasty</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
<td>3</td>
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</table>

### Vaginal Hysterectomy

<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Vaginal Hysterectomy</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
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<tr>
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<tr>
<td>3</td>
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</table>
HAI Public Reporting

Infection Prevention Bundles

November 24, 2008

Mary Ellen Bennett
Boyd Wilson

Minnesota Hospital Association
www.mnhospitals.org

APIC MINNESOTA
The “Bundle”*

... is a package of evidence-based interventions that, when implemented together for all patients with a central line or on mechanical ventilation, has resulted in dramatic reductions in the incidence of bloodstream infections or ventilator-associated pneumonia.

* Bundle- Grouping of best practices
Central Line Bundle

- Hand hygiene before catheter insertion
- Maximal barrier precautions upon insertion
- Chlorhexidine skin antisepsis
- Optimal catheter site selection
- Daily assessment of catheter necessity

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APIC MINNESOTA
Inclusion/Exclusion Criteria

- ICU or ICU status patient
- Age \( \geq 18 \) years on admit to ICU
- Central line inserted while in the ICU or considered ICU status
  - Includes exchange of a CVC over a guide wire
- Patients whose lines were placed outside of the ICU (or inserted during cardiopulmonary resuscitation) are excluded
- Patients on step-down unit, palliative/comfort cares are excluded
ICU/ICU Status Defined

- A nursing care area that provides intensive observation and diagnostic and therapeutic procedures for adults who are critically ill. Excludes bone-marrow transplant units and nursing areas that provide step-down care, intermediate care or telemetry only.

1 National Healthcare Safety Network/CDC

www.mnhospitals.org
Central Line Defined

- Catheters that terminate in one of the great vessels (vena cava, brachiocephalic veins, internal jugular, subclavian) or in or near the heart.

- Neither location of the insertion site nor the type of device determines whether line is a “central” line.

- Specific catheter types include: PICC (not if used as midline), central line (non-tunneled lines such as triple lumens, Swan Ganz catheters; and tunneled lines such as Hickmans, Broviacs, Groshongs), implanted ports tunneled beneath the skin (port-a-cath) and hemodialysis catheters. Femoral lines are also included if the tip of the catheter lies in one of the vessels described above. Arterial lines are not included.

2 National Healthcare Safety Network/CDC

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Sampling Methodology

- Minimum of 15 patients/audits per month

- Sample 100% if less <15/month

- Use one patient for all 5 elements. Choose a patient who has a central line for greater than 24 hours, collect documentation on insertion elements (direct observation, documentation in the chart or documentation on a checklist) and then collect documentation on the daily assessment.

- Use a patient only once.

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APIC MINNESOTA
Bundle Compliance Rate

- Numerator = # of eligible patients audited who meet all elements of the bundle
- Denominator = # of eligible patients audited
- All-or-none measure – This is an “all or none” indicator. If any of the elements are not documented, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and the reason is documented appropriately, then the bundle can still be considered compliant with regard to that element. (IHI 2008)
Help with implementing bundle

Dr. Pronovost/Johns Hopkins

For more info:

msonneborn@mnhospitals.org
Ventilator Bundle

- Head of the bed at $\geq 30$ degrees
- Stress Ulcer Prophylaxis
- Deep Vein Thrombosis Prophylaxis
- Daily sedation interruption/reduction
- Daily assessment of readiness to wean
Inclusion/Exclusion Criteria

- ICU or ICU status patient
- Age $\geq 18$ years on admit to ICU
- On ventilator for $\geq 24$ hours
  - Includes trached patients
- Patients on step-down unit or on palliative/comfort cares are excluded
- Chronically vented patients are included, but may have a pass for elements such as sedation reduction
Sampling Methodology

- Minimum of 15 observations/audits per month
- Sample 100% if less <15/month

- Use one patient for all 5 elements. Choose a patient who has been on mechanical ventilation for greater than 24 hours, collect documentation on bundle elements (direct observation, documentation in the chart or documentation on a checklist).
- You may choose to do this on different shifts.
- The same patient may be audited on subsequent days

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Bundle Compliance Rate

- Numerator = # of eligible patients audited who meet all elements of the bundle
- Denominator = # of eligible patients audited
- All-or-none measure – This is an “all or none” indicator.
- If any of the elements are not documented, do not count the patient in the numerator. If a bundle element is contraindicated for a particular patient and the reason is documented appropriately, then the bundle can still be considered compliant with regard to that element. (IHI 2008)
Suggestions

- Pick one ICU
- Use the same ICU for at least 4 continuous quarters
- Sample on different shifts
Data Collection Resources

- MHA Website
  - Sample insertion checklist
  - Sample insertion procedure note
  - Sample daily goals worksheet
Questions?
HAI Public Reporting

Surgical Site Infection

November 24, 2008

Janette Biorn
Surgical Procedure

- A surgeon makes a skin or mucous membrane incision (including laparoscopic approach) and primarily closes the incision before the patient leaves the operating room.

- Operative procedure by specified ICD-9-CM codes.

- Include only patients whose date of admission and the date of discharge are different calendar days.

- Elective procedures only.
Summary of Requirements

- **Elective primary Total Knee Arthroplasty: ICD-9-CM code 81.54**
  - Includes bicompartmental, tricompartmental and unicompartmental (hemijoint)
  - Does not include revision knee replacement
- **Elective vaginal Hysterectomy: ICD-9-CM codes 68.5, 68.51, 68.59, any approach**
- **Surgical site infection rate to be reported by risk index**
  - Number of surgical site infections / Number of procedures – both by risk index
  - NHSN Patient Safety Manual: See the procedure associated module pages 33-39 for additional details
  - Allows for standardized data reporting
- **Only patients 18 and older at time of surgery**
- **No sampling -- 100% of eligible cases**

[www.mnhospitals.org]
Denominator Sources

- Operating room record review
- OR daily logs
- Operating Room schedule
- ICD-9-CM procedure code report
SSI Risk Index

- Duration of surgery – skin incision to skin closure, not anesthesia time
- ASA – 1 - 5
- Wound Classification – C (1; I), CC (2; II), CO (3, III), Dirty/Infected (4, IV)
NNIS Basic Risk Index

Assign a risk index to each patient

<table>
<thead>
<tr>
<th>Elements of the NNIS SSI Risk Index</th>
<th>Patient 1</th>
<th>Patient 2</th>
<th>Patient 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operation &gt; t hours</td>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Wound Class</td>
<td>Dirty</td>
<td>Clean</td>
<td>Clean-Contaminated</td>
</tr>
<tr>
<td>ASA Score</td>
<td>4</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td><strong>NNIS SSI Risk Index Category</strong></td>
<td><strong>3</strong></td>
<td><strong>0</strong></td>
<td><strong>1</strong></td>
</tr>
</tbody>
</table>
### SSI rates*, by operative procedure and risk index category. Surgical Patient component, January 1992 through June 2004 NNIS Report Excerpt

<table>
<thead>
<tr>
<th>Operative procedure</th>
<th>Duration cut point (h)</th>
<th>Risk index category</th>
<th>N</th>
<th>Rate</th>
<th>Risk index category</th>
<th>N</th>
<th>Rate</th>
<th>Risk index category</th>
<th>N</th>
<th>Rate</th>
<th>Risk index category</th>
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</thead>
<tbody>
<tr>
<td>Cardiac</td>
<td>5</td>
<td>0</td>
<td>2147</td>
<td>0.70</td>
<td>1</td>
<td>49,135</td>
<td>1.50</td>
<td>2,3</td>
<td>15,215</td>
<td>2.21</td>
<td>-</td>
</tr>
<tr>
<td>CABG-chest and donor site</td>
<td>5</td>
<td>0</td>
<td>2718</td>
<td>1.25</td>
<td>1</td>
<td>380,340</td>
<td>3.39</td>
<td>2</td>
<td>82,535</td>
<td>5.43</td>
<td>3</td>
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<tr>
<td>Vaginal Hysterectomy</td>
<td>2</td>
<td>0,1,2,3</td>
<td>29,857</td>
<td>1.30</td>
<td>-</td>
<td>-</td>
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<td>Knee Prosthesis</td>
<td>2</td>
<td>0</td>
<td>66,360</td>
<td>0.88</td>
<td>1</td>
<td>74,029</td>
<td>1.28</td>
<td>2,3</td>
<td>18,051</td>
<td>2.26</td>
<td>-</td>
</tr>
</tbody>
</table>

- Full report can be found in the 2004 NNIS report; AJIC 32:470-485
- Cut point for reporting procedures:
  - Knee arthroplasty - 2 hours
  - Vaginal Hysterectomy – 2 hours

[www.mnhospitals.org](http://www.mnhospitals.org)
Surgical Site Infections

- Infection must occur within 30 days of procedure if no implant in place. Or within 1 year if an implant is left in place.
- Involves deep soft tissues or organ space
  - Do Not report superficial infections
- Must meet the CDC/NHSN surveillance definition criteria for surgical infection.
Finding Surgical Site Infections

- Microbiology Reports – must also meet definition of infection
- Infection Control patient rounds
- Operating Room Reports – Incision and drainage
- Interventional radiology reports for percutaneous drainage of abscesses
- Referrals – physicians, health care facility
- Readmission logs
- Emergency Department daily logs
- Autopsy reports
- Clinic Reports
- Post discharge surveys methods*

*not recommended
CDC classifications of surgical site infection.

Surgical Site Infection Definitions

Deep Incisional SSI

- Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place AND the infection appears to be related to the operative procedure and involves deep soft tissues (e.g., fascial and muscle layers) of the incision AND patient has at least one of the following:
  - purulent drainage from the deep incision but not from the organ/space component of the surgical site
  - deep incision spontaneously dehisces or is deliberately opened by a surgeon and is culture-positive or not cultured when the patient has at least one of the following signs or symptoms: fever (>38°C), or localized pain or tenderness. A culture-negative finding does not meet this criterion.
  - an abscess or other evidence of infection involving the deep incision is found on direct examination, during reoperation, or by histopathologic or radiologic examination
  - diagnosis of a deep incisional SSI by a surgeon or attending physician.
Surgical Site Infection Definitions

Organ /Space SSI

- Infection occurs within 30 days after the operative procedure if no implant is left in place or within one year if implant is in place and the infection appears to be related to the operative procedure AND infection involves any part of the body, excluding the skin incision, fascia, or muscle layers, that is opened or manipulated during the operative procedure AND patient has at least one of the following:
  - purulent drainage from a drain that is placed through a stab wound into the organ/space
  - organisms isolated from an aseptically obtained culture of fluid or tissue in the organ/space
  - an abscess or other evidence of infection involving the organ/space that is found on direct examination, during reoperation, or by histopathologic or radiologic examination
  - diagnosis of an organ/space SSI by a surgeon or attending physician.

- Specific sites are assigned to organ/space SSI to further identify the location of the infection.

- Example: JNT – joint space or bursa, VCUF – vaginal cuff infection

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SSI Rate

| SSI Rate | \# SSI in patients in risk index category | \# operations in the risk index who had the procedure | x 100 |

- Allows for meaningful data which can be compared within a hospital or between hospitals
- Allows for standardized data reporting

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APIC MINNESOTA
Data Collection Resources

- **MHA Website**
  - Sample Surgical procedure / SSI data collection tool
  - NHSN data collection tools
    - Denominator for Procedure
    - Surgical Site Infection (SSI)
Almost to Q & A
Timelines – Data Collection

- For Central Line, Ventilator Bundles
  - Jan. 1, 2009
  - Requires concurrent data collection, observation
  - First quarter data due late April

- For Surgical Site Infection Rates
  - Retrospective review
    - Patients discharged Jan. 1, 2009 and after
    - Vag Hyst data has 30-day lag
    - TKA data has 12-month lag
Timelines – Public Reporting

- **SCIP measures**
  - Same timelines as CMS, will report early 2009

- **Bundle Measures**
  - Fall 2009, after two quarters of data have been submitted

- **SSI rates**
  - Vag Hyst: Fall 2009
  - TKA: Fall 2010 (due to 12-month lookback)