State Regulated Mandatory Reporting of Healthcare-Associated Infections and its Impact on Infection Rates in Acute and Long-Term Care Settings

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Nothing to Disclose
Overview

Trends in State-Mandated HAI Reporting
*Presented by Carolyn Herzig*

Impact of HAI Laws on Key Stakeholders
*Presented by Monika Pogorzelska-Maziarz*

State focus on HAI in Nursing Homes
*Presented by Catherine Crawford Cohen*

Acknowledgements
HAI in Acute Care Settings

• National Healthcare Safety Network (NHSN) and quality care measurement
• State mandates for HAI data submission to state Departments of Health

Need to understand trends in HAI data submission over time to evaluate their impact on HAI rate reduction
Methods

- Systematic legal review of state and territory legislation as of January 31, 2013
- Contacted HAI coordinators in states/territories with HAI laws
Information Collected for States With HAI Laws

First law mandating HAI data submission

- Enactment
- Effective
- Data submission first required
- HAI prevention program implementation

Key elements

- Data submission to NHSN
- Public reporting provisions

Types of HAI

- CLABSI
- CAUTI
- VAP
- MRSA
- VRE
- C. difficile
37 (71%) States and Territories Have Adopted HAI Laws

Geographic Distribution of States and Territories with HAI Laws

Trends in HAI Law Adoption

Elements of HAI Laws

NHSN Reporting

- After law enactment: 16%
- Not required: 16%
- Since law enactment: 68%

Public Disclosures

- Yes: 92%
- No: 8%

# States That Mandate HAI Data Submission (n=37)

<table>
<thead>
<tr>
<th>Infection types</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Device-associated infections</strong></td>
<td></td>
</tr>
<tr>
<td>CLABS, adult ICUs</td>
<td>34 (92)</td>
</tr>
<tr>
<td>CLABS, pediatric ICUs</td>
<td>26 (70)</td>
</tr>
<tr>
<td>CLABS, neonatal ICUs</td>
<td>27 (73)</td>
</tr>
<tr>
<td>CAUTI, adult ICUs</td>
<td>14 (38)</td>
</tr>
<tr>
<td>VAP, adult ICUs</td>
<td>4 (11)</td>
</tr>
<tr>
<td><strong>Multidrug-resistant organism infections</strong></td>
<td></td>
</tr>
<tr>
<td>Methicillin-resistant S. aureus</td>
<td>20 (54)</td>
</tr>
<tr>
<td>C. difficile</td>
<td>19 (51)</td>
</tr>
<tr>
<td>Vancomycin-resistant Enterococci</td>
<td>3 (8)</td>
</tr>
</tbody>
</table>

Device-Associated Infection Data Submission

MDRO Infection Data Submission

Associations of NICU CLABSI Data Submission with Process and Outcome Measures

- CLABSI prevention practices included:
  - Checklist use at CL insertion
  - Insertion bundle components
    - Monitoring hand hygiene
    - Use of maximal barrier precautions
    - Choice of optimal catheter insertion site
  - Maintenance bundle component
    - Assessment of daily line necessity
- Mandatory CLABSI reporting in NICUs was significantly associated with ≥95% compliance with all measured CLABSI prevention practices (OR=2.8, 95% CI 1.4-6.1)
- NICUs in states with mandates reported lower mean CLABSI rates in the lowest birth weight group (≤ 750 gm)

Quarterly Trends in CLABSI Rates, by HAI Reporting Status

(as of December 2012)

Liu et al, Impact of State Reporting Laws on Central Line-Associated Bloodstream Infection Rates in US Adult Intensive Care Units. (Submitted)
Impact of HAI Reporting on Reported CLABSI Rates

HAI reporting laws decreased rates of reported CLABSIIs beginning 6 months prior to the law (IRR=0.69, p<0.01)

Liu et al, Impact of State Reporting Laws on Central Line-Associated Bloodstream Infection Rates in US Adult Intensive Care Units. (Submitted)
Discussion

• Most US states and territories have adopted laws requiring HAI data submission
• Data submission requirements vary across states
• Federal reporting requirements may be an important influence
• State HAI laws impacted process and outcome measures in adult and neonatal ICUs
Overview

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Acknowledgements
Understanding Impact of HAI Laws on Health Departments and Key Stakeholders

To explore how HAI state reporting mandates and other legal interventions, including those at the federal level, influence state DOH officials, clinicians and policy-makers in their efforts to reduce HAIs in states with and without state HAI laws.
Qualitative study design involved:

- Legal review of mandates and selection of states
- Stakeholder interviews
- Coding and analysis of data
State Selection

**With Laws**
- Arkansas
- Colorado
- New York
- Ohio
- Tennessee
- Texas

**Without Laws**
- Arizona
- Georgia
- Kansas
- Kentucky
- Nebraska
- Wisconsin

**Key:**
- **Green** = Participating, with Laws
- **Blue** = Participating, without Laws
- **Gray** = Not Participating
Stakeholder Interviews

• Conducted between May and October 2012
• Confidential telephone interviews
• Varied sample of stakeholders
• 5 to 10 stakeholders per state
• Interview guides utilized & two-person interview team trained to assure consistency
Coding and Analysis

• Audit trail developed via weekly debriefing meetings and double coding of transcripts

• Content analysis of the narratives was conducted to identify important domains and emerging themes
## Key Respondents From Each Type of State

<table>
<thead>
<tr>
<th>Role</th>
<th>State Categories</th>
<th>With Laws (n =6)</th>
<th>No Laws (n =6)</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>State DOH HAI Personnel</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Department of Health Official</td>
<td>3</td>
<td>5</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>HAI Coordinator</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td><strong>Regulatory Stakeholder from State DOH</strong></td>
<td>4</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>State DOH Legal Counsel</strong></td>
<td>6</td>
<td>1</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Clinicians</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Acute Care Facility IP/HE</td>
<td>14</td>
<td>9</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Specialty Care Facility IP/HE</td>
<td>4</td>
<td>3</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td><strong>Community Partners</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hospital Association</td>
<td>6</td>
<td>5</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>QIO</td>
<td>6</td>
<td>4</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Consumer Advocate</td>
<td>4</td>
<td>2</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td><strong>Total Personnel Interviewed</strong></td>
<td>53</td>
<td>37</td>
<td>90</td>
<td></td>
</tr>
</tbody>
</table>

*IP, infection preventionist; HE, hospital epidemiologist; QIO, quality improvement organization*
3 Major Domains Identified

1. Perceived Usefulness and Influence of Legal Interventions
2. Data Usage and Limitations
3. Increased Need for Resources
Perceived Usefulness and Influence of Legal Interventions

1. Increased state-level partnerships and collaboration
2. Potential Duplication and Time Burden
3. Importance of Federal Policies

“...The state program...lent a lot of visibility to HAI prevention. Before we were ... working along in our own little spheres ...” – IP (State #7)

Key:
- Green = From State with Law
- Blue = From State without Law
Perceived Usefulness and Influence of Legal Interventions

- Increased state-level partnerships and collaboration
- Potential Duplication and Time Burden
- Importance of Federal Policies

"...We try to coordinate the work ... so we're not reinventing the wheel and duplicating efforts." - QIO Representative (State #11)

Key:
- Green = From State with Law
- Blue = From State without Law
Perceived Usefulness and Influence of Legal Interventions

Increased state-level partnerships and collaboration

Potential Duplication and Time Burden

Importance of Federal Policies

“State [DOH] reporting, might be a good idea, but what we’re doing for CMS [will] have much faster drop in rates than anything the state can do ... CMS is going to make state reporting superfluous.”
- Clinician (State #1)

Key:
- = From State with Law
- = From State without Law
Data Usage and Limitations

Benchmarking and Prioritizing
Focus of Institutional Leadership
Importance of Validation and Standard Definitions
Data Limitations: Lack of Specificity and Timeliness

“A few years ago we added *C. difficile* infections...based on what we’re seeing in the state...”
- HAI Coordinator (State #4)

Key:
- Green = From State with Law
- Blue = From State without Law
Data Usage and Limitations

 Benchmarking and Prioritizing
 Focus of Institutional Leadership
 Importance of Validation and Standard Definitions
 Data Limitations: Lack of Specificity and Timeliness

“When you take data... put names along with it ... put it on a website or in the newspaper... you see monumental change in the interest and funding that the CEO provides... they have to deal with .... because their reputation is at stake...”

- QIO Representative (State #2)

Key:
- = From State with Law
- = From State without Law
Data Usage and Limitations

Benchmarking and Prioritizing

Focus of Institutional Leadership

Importance of Validation and Standard Definitions

Data Limitations: Lack of Specificity and Timeliness

“...They need to make sure that everybody is reporting the same way, that they’re looking as hard as everybody else, and they’re being honest in their data. ...To say that you have to report it but not put any kind of teeth to the accuracy is absurd”
- Clinician (State #5)

Key:
[ ] = From State with Law
[ ] = From State without Law
Data Usage and Limitations

Benchmarking and Prioritizing
Focus of Institutional Leadership
Importance of Validation and Standard Definitions
Data Limitations: Lack of Specificity and Timeliness

“...because we don’t have the public mandate to report, we have to wait for CMS data to come out on Hospital Compare. That’s about a year old by the time it comes out. So that’s not as helpful”
- Hospital Association Representative (State #8)

Key:
- = From State with Law
  = From State without Law
Increased Need for Resources

Sustainable and Sufficient Funding For HAI Program

Personnel

“...Our biggest issue is ongoing funding. So that’s worrisome when 100% federally funded. ...You try to compete with other states that have much more larger, robust programs”

– HAI Coordinator (State #9)

Key:

- From State with Law
- From State without Law
Increased Need for Resources

Sustainable and Sufficient Funding For HAI Program

“Many of our IPs...complain that they're spending all of their time doing data entry, collection and management and they have very little time to do education and infection prevention efforts on their end.”

- Hospital Association Representative (State #5)

Key:

Dark Green = From State with Law
Light Blue = From State without Law
Discussion

- No major differences in states with and without laws
- Federal incentives as an important motivator that may have eclipsed the perceived influence of state laws
- Increased collaboration between stakeholders
- Data reporting diverted skilled staff from prevention tasks
- Importance of validation of publicly reported data and use of standard definitions
- Need for sustainable resources and funding
Overview

- Trends in State-Mandated HAI Reporting
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- Impact of HAI Laws on Key Stakeholders
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- **State focus on HAI in Nursing Homes**
  *Presented by Catherine Crawford Cohen*

- Acknowledgements
HAI in Nursing Homes (NH)

• High HAI burden in NH
  • Serious concern given the aging of the US population

• Annual cost of infections in NH is concerning
  • Antimicrobial therapy: $38-$137 million
  • Hospitalizations: $637M - $2B


Need to understand differences in state activities and public policies to compare their effectiveness on HAI incidence
Study Objective

To systematically capture state Department of Health (DOH) activities and policies focused on reducing HAI in NH

Data collection tool to find information from state DOH websites
Identifying State Focus

State HAI Reduction Plan

HAI Reporting in NH

Consumer Resources

Provider & Surveyor Resources

Tool Developed for Systematic Data Abstraction*

- 17 tool items
- Items have prompts for qualitative data, URL and Web page description
- Corresponding protocol:
  - Navigation/search recommendations
  - Interpretation of data
  - Data to be recorded
  - Operational definitions

*Note: The data collection tool and protocol are both available upon request

Mandatory or Voluntary HAI Reporting in NH

States with HAI Reporting in NH

**Vermont**: Multi-drug resistant organisms, *C. difficile*

**Pennsylvania**: *C. difficile*, Device-associated infections, and other infections and conditions

**Iowa**: *C. difficile*

**Georgia**: Catheter-associated urinary tract infection

**Oregon**: Urinary tract infection

Key:  
- **Green** = Mandatory  
- **Light Green** = Voluntary

Not all HAI Reduction Plans Include Long-Term Care (LTC)

State HAI Plan Topic

Advisory Council
“Establish a statewide advisory council to lead HAI prevention efforts”

Collaboratives
“Create infection prevention collaboratives in nonhospital settings ...to reduce HAI”

Standardization
“Define standards and evaluate complaints regarding infection control...through collaboration with professional licensing organizations”

% of State HAI Plans That Specifically Include NH/LC

- Advisory Council: 82.4%
- Collaboratives: 60.8%
- Standardization: 11.8%


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June 7-9
Anaheim, CA
State DOH Resources for NH Providers and Surveyors

Proportion of States

Supplying IP Materials/Training for NH Providers
- Yes: 86%
- No: 14%

Offering NH Collaboratives
- Yes: 61%
- No: 37%

Providing Training to NH Surveyors
- Yes: 53%
- No: 45%

Key:
- Green = Yes
- White = No
- Light Green = Other

Consumer-Directed Information

Information Type

- LTC Ombudsman: 100%
- Link to NH Compare: 98%
- Consumer Guidelines: 84%
- Consumer Checklist: 75%
- Inspection Reports: 71%
- Report Cards: 27%
- Other reports: 31%

Percent of State DOH

Conclusions

- High variability in state activities and policies focused on reducing HAI incidence in NH

- Only 5 states have systems to report HAI in NH, in stark contrast to acute care

- No states were clearly outpacing others. Each state may be taking a different approach

- Some state DOH Web sites were difficult to navigate and understand

Percentage of US NH with Infection Control Citations

- The % of NH with infection control citations increased 24%-39% (2003, 2011)
- These citations increased 1.7 percentage points per year
Infection Citations Are Increasing Faster in Some States

- 14 states had increases in infection control citations of more than 2.5 percentage points per year
Infection Citations Are Decreasing in Some States

- 7 states had decreases in infection control citations
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