Longitudinal Program Evaluation of the Healthcare Associated Infections (HAI) HHS Action Plan

Summary of Year 1 Evaluation Report

Presentation to Dr. Don Wright
Office of the Assistant Secretary for Health
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Project Leadership

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HAI AP Evaluation Goals

- Record the content and scope of the HAI AP
  - How it was designed, how it is progressing, and what it will add in the future

- Establish baseline data
  - Provide feedback on how to strengthen monitoring capabilities

- Provide strategic insights to reduce HAI
  - Across projects; using longitudinal, and strategic gap analyses
Project Background

• Conducting a formative and summative evaluation of the HAI Action Plan
• Employing the CIPP Evaluation Model
• 3-year evaluation
  • Year 1: Context and Input
  • Year 2: Process
  • Year 3: Product
• Previously briefed OASH on preliminary context and input findings from Year 1 (6/21/2010)
## CIPP: A Quick Review

<table>
<thead>
<tr>
<th>Context Planning:</th>
<th>Understanding how to use the strengths and weaknesses of the system to inform <em>what the program should accomplish</em>.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Input Structuring:</td>
<td>Understanding how to use the strengths and weaknesses of alternative strategies to inform <em>how should the program be accomplished</em>.</td>
</tr>
<tr>
<td>Process Implementing:</td>
<td>Understanding strengths and weaknesses of strategies selected for implementation to inform <em>whether the program is being implemented correctly</em>.</td>
</tr>
<tr>
<td>Product Recycling:</td>
<td><em>Is the program working</em> Understanding the extent to which program objectives are being met and whether interventions should be changed to learn <em>if the program is working</em>.</td>
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</tbody>
</table>
System Framework for HAI Prevention

- **Leadership and Strategy**
  - HHS Steering Committee
  - HHS Action Plan (AP)

- **HAI Data and Monitoring**
  - Integrated data systems
  - Outcomes monitoring

- **Knowledge Development**
  - Epidemiology of HAI
  - Practice effectiveness (evidence)
  - Dissemination and implementation science

- **Infrastructure Development**
  - Regulatory oversight
  - Funding and payment systems
  - Others – tools; dissemination, training, technical assistance, and support structures

- **HAI Prevention Practice Adoption**
  - Change activities
  - Cultural change
  - Behavioral change

- **Effects on Stakeholders**
  - Types of stakeholders
  - Sources and types of effects
Year 1 Aims and Methods

• Year 1 focused on Context and Input evaluation
  • Documented the historical context and identified critical inputs to the AP
  • Assessed progress to date and made recommendations for moving forward
  • Developed a baseline data inventory

• Methods
  • Document and literature review
  • Stakeholder interviews
## Document and Literature Review

<table>
<thead>
<tr>
<th>Evaluation Topics</th>
<th>Journal Articles</th>
<th>Internal Organizational Documents</th>
<th>Published Reports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Historical Context</td>
<td>2</td>
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<td>9</td>
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<tr>
<td>Policy Context</td>
<td>0</td>
<td>5</td>
<td>16</td>
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<tr>
<td>Description of Pre-Action Plan Initiative/Program</td>
<td>6</td>
<td>3</td>
<td>25</td>
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<tr>
<td>Action Plan Development Process</td>
<td>0</td>
<td>27</td>
<td>15</td>
</tr>
<tr>
<td>Action Plan Implementation and Progress</td>
<td>0</td>
<td>52</td>
<td>21</td>
</tr>
<tr>
<td>HAI Data and Monitoring (Integrated data systems for monitoring adoption, Outcomes measurement and monitoring)</td>
<td>25</td>
<td>42</td>
<td>66</td>
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<tr>
<td>Knowledge Development (Epidemiology of HAI, Evidence for practice effectiveness)</td>
<td>25</td>
<td>9</td>
<td>55</td>
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<tr>
<td>Infrastructure Development (Regulatory Oversight, Incentives, Training, Support Structure, Tools)</td>
<td>26</td>
<td>42</td>
<td>120</td>
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<tr>
<td>HAI Prevention Practice (Agency HAI prevention and change activities, Provider HAI prevention and change activities)</td>
<td>14</td>
<td>26</td>
<td>60</td>
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<tr>
<td>Leadership and Strategy</td>
<td>8</td>
<td>26</td>
<td>13</td>
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</table>
## Individual Stakeholder Interviews

<table>
<thead>
<tr>
<th>Stakeholder Type</th>
<th>Total Sampling Frame</th>
<th>Number of Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Federal Agencies Participating in the Action Plan</td>
<td>35</td>
<td>13</td>
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<tr>
<td>Other Federal Agencies</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Healthcare Provider and Industry Associations</td>
<td>21</td>
<td>4</td>
</tr>
<tr>
<td>Healthcare Improvement and Accreditation Organizations</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>Consumer and Patient Advocacy Organizations</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td>Purchasers and Insurers</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Academic and Research Institutions</td>
<td>5</td>
<td>2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>84</strong></td>
<td><strong>27</strong></td>
</tr>
</tbody>
</table>
Results: Context

• Key catalysts of the HAI AP
  • GAO Report
  • Epidemiology and infection control
  • Consumer advocates
  • Patient safety
The main catalyst of the Action Plan mentioned was the 2008 GAO HAI report

- Critical of HHS, citing needs to:
  - Prioritize practices from HAI Prevention Guidelines
  - Integrate data across different agency sources
  - Coordinate HAI activities across agencies

Subsequent Congressional hearings:
- Set the stage for change
- Led to funding for Action Plan
Additional Catalysts

- Epidemiological and infection prevention communities
  - New epidemiologic concerns/experiences
  - Surveillance
  - Research advances and guidelines development
- Consumer advocates
  - Increasing HAI prevalence
  - High profile media reports since 1980s, fears of “superbugs”
- Patient Safety and Improvement movement
  - Then: Limited references to HAIs in the landmark 1999 IOM report *To Err is Human*
  - Now: CUSP, CLABSI, CAUTI
Results: Input

- Key Themes
  - Current roles related to the Action Plan
  - Current status of the Action Plan
  - Opportunities and challenges
  - Implementation issues
Current Roles

• AHRQ, CDC, CMS, and OPHS are seen as “core” to AP development

• Involvement of the full range of federal agencies provides complementary assets important to plan success, but
  • Effort required by the HHS Steering Committee and Workgroups is substantial
  • Efficiency may be compromised by large number of participants

• Additional stakeholders* were aware of the Action Plan, but most
  • Had limited knowledge of breadth of AP activity
  • Were unclear how their efforts fit into the larger AP
  • Acknowledged opportunities to provide input into the AP, but
    • Some disappointed with not feeling heard or input not fully incorporated.

• *Additional stakeholders include those beyond the AP Steering Committee and Workgroup members
Current Status

• Selection of infections mostly supported by informants
  • Appreciated criteria (prevalence, high mortality, high cost)
  • Valued expert input
  • Recognized need for prioritization
  • Some concern about selection of specific organisms (MRSA, C diff)

• Mixed opinions about specific reduction targets
  • Appropriate as stretch or aspirational targets
    • Can motivate action and serve as benchmarks
  • Infeasible
    • Likely to be viewed as unsuccessful even if good progress is made
  • Not evidence-based
  • Need to be adjusted with time
Current Status

• Population and epidemiologically-derived metrics have limited utility motivating change at the hospital or provider level
  • Metrics refer to national trends, population-based rates
  • Hospitals respond to
    • Institutional metrics; Scorecards
    • Sentinel events; Adverse events
• Hospitals want actionable metrics that
  • Inform their performance in terms they can understand
  • Guide next steps
• Perhaps alternative metrics are needed for this level
AP Strengths

- Promise for coordination of efforts of the HHS agencies and their HAI activities
  - HHS agencies working together better, building relationships and trust, even if operational coordination still nascent
    - The role of the Deputy Assistant Secretary for Healthcare Quality considered important to ensuring continued inter-agency cooperation
    - Plan has visibility and accountability attached to it
- Selection of infections for the AP to address
- Visibility and accountability for HAI issues
- Effect of the AP on agency HAI activities
  - Catalyzed speed of efforts
  - Increased coordination
AP Limitations

• Lacks sufficient operational specification
• Setting of HAI prevention targets
  • Disagreement whether targets are aspirational/stretch or unrealistic/disillusioning
• Derivation of metrics for HAI prevention targets
  • Need for metrics to be meaningful and motivating at facility and provider levels
  • Benchmarking would improve usefulness for improvement purposes
• Lack of attention to elements of stakeholder engagement
  • Role of stakeholders in implementation yet to be sufficiently defined
  • Although most appropriate stakeholders have been involved, a few under-engaged groups were noted
    • Nursing, hospital housekeeping
    • Medical device manufacturers
    • Wider range of hospital-related associations
    • Others: State health data collection agencies, American Public Health Association, Patient Safety Foundation
Implications for HAI AP

• Challenges and opportunities of the HAI AP
  • Data/IT systems
  • Research
  • Implementation
Data/IT System Challenges and Opportunities

- Data vary in quality and validity
  - Variation in state and local capacity for surveillance
  - Subjective judgment required to determine occurrence of an HAI
  - Tendency for more poorly performing hospitals and providers not to report
- Limited interoperability
  - Beyond compatibility of systems to communicate
- Inadequate standardization
  - In metric definitions, data collection methods, and IT system specifications
  - NHSN has improved standardization and offers current best platform, but also cumbersome
    - Concerns about whether NHSN is best platform for the future
Research Challenges and Opportunities

• Methods for Prioritizing Research Efforts Need Further Development

• Several main areas noted for additional research
  • Basic biomedical and epidemiologic research on pathogens
  • Effectiveness of known prevention practices
  • Identification of new prevention strategies
  • Effectiveness of system change strategies
  • Synthesis of current research findings

• Basic Science vs. Implementation
  • Claims for more research needed in both
  • Potential tension given limited resources

• Limited evidence may jeopardize effective AP prioritization and stakeholder buy-in
Implementation Challenges and Opportunities

- Depth: Sustained reductions in HAI rates requires change across multiple levels of the healthcare system
  - Financial and transparency incentives are important tools, but insufficient for producing deeper changes in organizational culture and work process
- Breadth: HHS agencies do not have operational authority to align non-federal stakeholders
  - Need to partner with non-federal stakeholders
  - Difficulty in working with state and local entities that have variable infrastructure and capacities
- Funding: Long-term funding to maintain implementation is uncertain
  - Despite relatively generous funding for HAIs to date by Congress and the states to expand infrastructure
  - States and local stakeholders need guidance on how to pay for activities
Context and Input Evaluation and Recommendations

- Organized by input element
  - Resources
  - Key Organizations
  - Organizations’ Interactions
  - Stakeholders
  - Research
  - Criteria
  - Project Inventory
- Assessed in terms of strengths and opportunities
- Included an evaluation summary and recommendations
- Present each finding and corresponding recommendation
- Discuss each, as appropriate
## 1A. Resources – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
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</thead>
</table>
| Identifying the resources available for performance of the HAI AP            | The AP receives high marks for actively recruiting substantial funds for AP implementation. Because the AP leaders recognized the urgency of additional funds to implement the AP, they pursued all available courses for accessing such funds. Fortunately, they were successful in this regard and funding for HAIs has increased substantially since the AP was implemented. | The predictability of accessing needed funds was limited, resulting in funds often becoming available late enough that planning how to best use the funds was somewhat limited.  
Resources to support regional and state activities, particularly beyond the initial year are limited and the availability of sustained funding is uncertain.  
Resources to support local health care delivery systems and hospitals to develop and implement HAI programs is scarce. Controversy exists regarding the degree to which hospitals and clinics, as compared with public sources, should be responsible for resources needed to reduce HAI rates. |
1B. Resources – Report Recommendations

• Final Evaluation:
  • While the increase in funding for HAIs is substantial and commendable, the lack of predictability and sustainability of funds leads to
    • Inefficiencies with available resources
    • Lack of deliberate consideration of the pros and cons of alternative strategies for implementation HAI processes.

• Recommendation:
  • Aim for a baseline sustainable budget to support core activities that will be in place for, at least, several years
  • Various projects can be considered and implemented as budgets expand and contract
  • Predictability of this approach can support more effective input strategies
2A. Key Organizations – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
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</thead>
</table>
| Identifying the key organizations leading the HAI AP | The AP receives high marks for promptly identifying the key organizations leading the AP. | NIH is the cornerstone of the American research enterprise. **Identification of a leading role for NIH in association with the HAI AP should become more apparent.**
| | | A more explicit and effective role for consumers and providers is likely to build stakeholder engagement. |
Final Evaluation:

While the leading organizations associated with the AP have been productive, several leadership organizations have not been recognized to date as leading forces.

Additional engagement of NIH, consumer and provider groups is likely to build stakeholder engagement and better policies.

Recommendation:

Develop explicit policies to further engage NIH, consumer and provider communities.
### 3A. Coordination – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capturing the interactions between the key organizations and the coordination of their roles and responsibilities</td>
<td>The AP repeatedly highlights the importance of interactions between key organizations and coordination of roles and responsibilities. Inputs from the Steering Committee and Workgroups support these interactions.</td>
<td>Explicit strengths and weaknesses associated with competing strategies have not been consistently apparent.</td>
</tr>
</tbody>
</table>
Final Evaluation:

While the goals of the AP emphasize well coordinated interactions, and while structures have been established to enhance communication and coordination

- the complex web of interactions among organizations, policies and stakeholders that could effectively function in synchrony to support HAI AP goals, are just beginning to be identified

While substantial effort toward coordination has been made, as Year 2 of the AP begins with its focus on implementation of processes, the need for additional insights into networks might be useful

Recommendation:

- Develop an inventory of organizational goals and projects associated with HAIs as a supplement to the developing HAI data inventory (Currently planned.)
## 4A. Stakeholders – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identifying the various stakeholders of the HAI AP</td>
<td>The AP has consistently engaged both Agency and external stakeholders.</td>
<td>External stakeholders consistently report lack of awareness of the scope, pace, and resources of the AP. They also indicate that their voices are not being heard and their concerns are not being addressed.</td>
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4B. Stakeholders - Report Recommendations

• Final Evaluation:
  • Inconsistent attention to inputs and concerns of external stakeholders
  • Yet as recognized by AP leaders, stakeholder inputs and alliances are critical to implementing structural changes and adopting processes likely to improve HAI rates

• Recommendation:
  • Consider additional means to highlight the value of external stakeholders, e.g., standing advisory committees
  • Explore reasons their voices were not consistently responded to despite AP goals to do so.
# 5A. Research – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
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</thead>
<tbody>
<tr>
<td><em>Understanding the desired outcomes/interests of the various stakeholders</em></td>
<td>The AP has established explicit goals to increase adoption of evidence based measures associated with HAI reductions. The simple, clear message is understandable and supported by most stakeholders.</td>
<td>Tensions exist regarding the adequacy of the available basic and applied sciences for defining effective HAI prevention strategies and for implementing these strategies. Furthermore, substantial tensions exist regarding how research and implementation resources should be spent. Analyses of competing options have been limited to date. Policy makers, healthcare administrators, providers and consumers often have differing viewpoints.</td>
</tr>
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</table>
5B. Research – Report Recommendations

• Final Evaluation:
  • As an initial statement, the simplicity of stated goals was useful
  • As the AP moves forward, more attention to the underlying tensions associated with statements of outcomes and interests of stakeholders is needed

• Recommendation:
  • Allocate effort to understanding the tensions, followed by efforts to build solutions that address --rather than avoid--underlying tensions
### 6A. Criteria – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identifying the criteria used for comparing potential programs resulting from the HAI AP against each other and in relation to existing programs</strong></td>
<td>Within a short period, multiple potential programs associated with the HAI AP have been identified. Multiple new projects have been funded. Within Agency, some criteria for comparing potential programs have been implemented.</td>
<td>Limited progress has been made in applying criteria across agencies for comparing potential progress in reducing HAIs. Also, the extent to which agencies take advantage of opportunities to supplement each other’s strengths is just beginning to be examined.</td>
</tr>
</tbody>
</table>
6B. Criteria – Report Recommendations

- **Final Evaluation:**
  - The Evaluation Workgroup and this Evaluation should be working towards a more consistent approach toward identifying criteria for comparing the effectiveness of potential programs within and across agencies.
  - Underlying tensions, such as the relative value to short and long term goals associated with basic and clinical-- as compared with community engaged and implementation research-- should be considered.

- **Recommendation:**
  - Move forward with the development of the HAI AP Conceptual Model and the Project and Data Inventories.
  - Use these as substrates for identifying criteria for comparing potential programs within and across program areas.
### 7A. Project Inventory – Report Findings

<table>
<thead>
<tr>
<th>Input Element</th>
<th>Strength</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Describing the programs and <strong>projects</strong> that result from the HAI AP initiative.</td>
<td>As funding is allocated, programs and projects have been named and their goals have been widely disseminated.</td>
<td>The inventory—including naming and characterizing HAI AP projects, is just beginning. Agency inputs are needed to complete task.</td>
</tr>
</tbody>
</table>
7B. Project Inventory – Report
Recommendations

• Final Evaluation:
  • The AP has described and disseminated information about funded programs and projects, but a systematic inventory is just beginning

• Recommendation:
  • As the inventory emerges a more complete picture of the strengths and weaknesses of various individual programs should be recognizable
  • This should prompt new AP activities
# Year 1 Summary

<table>
<thead>
<tr>
<th>Evaluation Task by CIPP Component</th>
<th>Year 1</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Context evaluation</strong></td>
<td></td>
</tr>
<tr>
<td>Document and assess contextual factors</td>
<td>X</td>
</tr>
<tr>
<td>Document congressional and legislative intent for the initiative, and funding</td>
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</tr>
<tr>
<td>Assess mandates and requirements for HHS</td>
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</tr>
<tr>
<td>Characterize effects on HHS strategy</td>
<td>X</td>
</tr>
<tr>
<td><strong>Input evaluation</strong></td>
<td></td>
</tr>
<tr>
<td>Assess HAI program goals and objectives</td>
<td>X</td>
</tr>
<tr>
<td>Examine strategies selected and alternatives</td>
<td>X</td>
</tr>
<tr>
<td>Identify stakeholders involved or affected by program</td>
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</tr>
<tr>
<td><strong>Develop data inventory</strong></td>
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</tr>
<tr>
<td><strong>Process evaluation</strong></td>
<td></td>
</tr>
<tr>
<td>Prepare process measures plan</td>
<td>X</td>
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</table>