Lessons for Transforming Practice from Healthcare Associated Infections (HAI) and MRSA Elimination Programs

Tools and Strategies for Transformational Change for the Integrated Healthcare Association’s National Pay for Performance Summit (AHRQ)
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  - Testing Techniques to Radically Reduce Antibiotic Resistant Bacteria HHSA2902006000131 (Completed)
  - Healthcare Associated Infections (HAI) Initiative Assessment Program HHSA2902006000131 (Current)
  - Implementing and Improving the Integration of Decision Support into Outpatient Clinical

- Funding from AHRQ and CDC
  - Testing Spread and Implementation of Novel MRSA–Reducing Practices HHSA290200600013 (Current)
  - Thanks to our collaborators, partners, providers, patients!
MRSA Phase One

- AHRQ funded proposal to reduce MRSA in hospitals over 18 months through the ACTION collaborative funding mechanism

- Our interventions were based on the Pittsburgh VAMC bundle, using lean, organizational change and informatics (data exchange, reporting):
  - Conduct active surveillance of all incoming pts. in ICUs
  - Improve rates of contact isolation
  - Improve hand hygiene rates
  - Organizational change
  - Environmental decontamination
MRSA Phase One

• Our health care engineers partnered with and trained front-line workers to use lean and positive deviance approaches

• Focused on sharing evidence and methods, coaching front-line staff teams to lead instituting systems changes to systematize processes and sustain practices.

• Regular measurement and feedback of adherence to enhance adoption.

• Weekly huddle of all hospital teams to identify barriers & facilitators, review and reinforce progress, share best practices, strategize about spread and solutions.

• Collaboration teleconferences
Lean Tools

- Define the Problem
- Baseline Current Processes
- Identify Operational Barriers
- Develop Future State Process
- Process Control Strategy

- Project Charter
- Process Map
- Check sheet
- Process Observation Worksheet
- Spaghetti Diagram
- Lean Tools
- Process Control Plan
Integrated Lean/PD approach

- Define the Problem
- Baseline Current Processes
- Identify Operational Barriers
- Develop Future State Process
- Process Control Strategy

Discovery

Action
Discovery and Action Dialogues

- Informal meetings held with front line staff to discuss the current status of the process
- Incorporate as much front line staff as possible
- The goal is to ‘discover’ the issues and potential solutions and then take ‘action’ as rapidly as possible.
- It is easier to “think your way into a new way to acting” than to
Infection control is a regional problem, requiring a coordinated effort

Created a citywide electronic notification system to prospectively track all known patients with MRSA

Currently track 17,000 patients with a history of MRSA infection or colonization across Indianapolis.

Since May 2007, delivered 2698 admission alerts on patients with a history of MRSA, 19 percent based on data from another institution.

20 infection control providers (ICPs) spanning 16 hospital
Admission Culture Compliance for Study Units
(1/08-12/08)

Average of % of patients receiving admission cx

% compliance against protocol

A1  A2  B1  C  C2

Average values for Hosp-unit
Hand Hygiene Compliance for Study Units
(1/08-12/08)
MRSA Phase One Results

- Significant improvement in process measure adherence to 80->95%
- Pre and post intervention results for first three hospitals mean of 60% reduction on study units over 9-12 months
- ~ 20% reduction MRSA infections hospital wide
- Reduction in level of MRSA among S. aureus (4th hospital)
- Reduction in associated BSIs and UTIs (4th hospital)

- Presented at Academy Health, AHRQ and AMIA 2008, 2009
What is Positive Deviance?

Technique to engage front line staff in owning & improving processes and sustaining change

Based on identification of practices of used by ‘positively deviant’ staff/departments

Critical for staff involvement/buy-in
MRSA Phase Two – Lessons Learned

- System redesign approach of training, consultation and coaching front-line staff seems to be strong, sustained approach
- Importance of buy-in from highest institutional levels crucial
- Enthusiasm builds from within because redesign teams own it!
- Informatics tool helpful in identifying great cross-over of MRSA patients in hospitals
Hospital Acquired Infections Assessment Center
Participants (Collaboratives)

- 5 ACTION HAI Awardee Partners
  - Denver/Parkland (2 hospitals)
  - Iowa (16 hospitals)
  - Yale (5 hospitals)
  - HRET (4 hospitals)
  - AIR/Carilion (6 hospitals)

Total = 33 hospitals
# Hospital Characteristics

<table>
<thead>
<tr>
<th>Hospital Types</th>
<th>#Hospitals</th>
<th># Beds (Range)</th>
<th># ICPs (Range)</th>
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<tbody>
<tr>
<td>Rural</td>
<td>13</td>
<td>25 – 130</td>
<td>.5 – 1.5</td>
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<tr>
<td>Tertiary</td>
<td>18</td>
<td>146 – 1106</td>
<td>1 – 11</td>
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<tr>
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<td>25 – 529</td>
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<td>Government</td>
<td>3</td>
<td>477 – 955</td>
<td>2 – 11</td>
</tr>
<tr>
<td>Teaching</td>
<td>11</td>
<td>376 – 1106</td>
<td>2 – 11</td>
</tr>
</tbody>
</table>

* Total > 33 due to hospitals fitting into multiple types.
Methods

- Multi-method approach using both qualitative and quantitative data collection
- Qualitative portion
  - Case report forms and open-ended items from 3 Information collection forms
  - Thematic analysis and synthesis
- Quantitative portion
  - 3 data collection forms (5-point Likert items)
  - “Hypothesis raising” (Convenience samples)
HAI Reduction Activities

- Bundle Implementation – CLABSI, CAUTI, VAP, MRSA, SSI, Sepsis, SCIP
- Color-coded Armbands
- Education/Training
- Environmental Cleaning
- Flu Vaccination
- Increasing Compliance
- Nurse Champion Program
- Product Testing
- Statewide Collaboratives
HAI: Barriers & Challenges to Infection Prevention at the Point of Care
Key Barriers

- Problems when leadership support is MIA, naivete’ about resource requirements
- Challenges of unanticipated change (turnover of residents, champions in units, nursing staffing, redesign of units, new information system)
- Demonstrating cost effectiveness, limited additional funds
- Competing priorities, level of required documentation in daily work
- Use and documentation of bundle variables inconsistent—Real time data collection, burden of reporting
- Availability of time, staff and effective approaches for training
- Need to convince professionals EBPs are beneficial to them and their patients—given limited time
- Mix of hospitals (large, small) and unique challenges (surveillance) of a small rural community, non-profit hospital
- Evolve guidelines based on developing evidence.
- Time, persistence and structured communication needed for practice/culture change to take hold.
- Involving key stakeholders (unit champions, front-line) integrating into the unit
Key Facilitators

- Teamwork Crucial (the leader isn’t always in the front (bicycle racing team))
- Mechanism to provide staff with strong evidence-base
- Communicate expectations and require accountability
- Do what works locally—ability to adapt to local context
- Promise of providing back data one of greatest motivators.
- Strong physician and nurse leadership and champions
- IT develops an electronic checklist (data warehouse) to allow data queries and feedback compliance on process measures
- Top executives make rounds and solve problems
- Mandatory state reporting (NHSN) and changes in CMS reimbursement
- Leadership support results in sufficient time for front-line staff to improve processes, change systems and achieve success
- Communication, involvement of front-line staff imperative
- Celebrating the successes
Structured Case Report Form: 7 Lessons Learned Themes

1. Fostering Change
2. Communication & Collaboratives
3. Local, Focused Implementation
4. Frontline Staff Engagement
5. Learning Organizations
6. Support, Resources & Accountability
7. Feedback & Reinforcement
Info Collection & Reporting

Summary

• Top Challenges identified were:
  – Changing habit
  – Acquiring resources (people, $$)
  – Getting buy-in from staff, physicians and administration
  – Time – burden on staff to learn and implement

• Lessons Learned were:
  – People = engage, get local buy-in, value of champions, peer support
  – Implementing Processes = simplify, present evidence, be persistent, involve ancillary departments
  – Education = difficult to reach all people in right way
  – Time = culture change takes time, be patient
  – Might not get it right the first time

• 59% felt their facility addresses patient safety and infection prevention well
Discussion

- Organizational change & sustainability strategies needed.
- Change initiatives in hospitals need both top-down support and bottom-up involvement.
- Engaging staff and physician support critical.
- Resource and data intensive.
- Start small, build on success.
- Collaboratives foster teamwork!
Lessons Learned – Fostering Change

• Identify current practices, opportunities and action plans for improvement

• Utilize strengths of individuals to motivate and sustain changes in behaviors—nurses really want to train younger nurses and mentor

• Posting results engages staff, patients, families

• After eliminating BSIs for a year in intervention unit, then every subsequent BSI is reviewed and discussed by an interdisciplinary team

• Use multiple venues to raise awareness and reinforce practice (start with medical leadership, then staff, getting board involved, posting BSI rates in bathrooms)
Lessons Learned – Communication & Collaboratives

- Standardize practices and action plans for improvement
- Compare performance in a meaningful way
- Fostering sharing, teamwork, competition
- Selection of awards for innovation
Lessons Learned – Local, Focused Implementation

- Start small with enthusiastic, committed team
- Posting results engages staff, patients, families
- Fostering unit-based competition
- After eliminating BSIs for a year in intervention unit, then every subsequent BSI is reviewed and discussed by an interdisciplinary team
Lessons Learned – Frontline Staff Engagement

- Once physician (ICU) unit leadership adopts goals to be the best in hand hygiene for the hospital—strong driver of change
- Nurses encouraged by manager and ICU directors to “call out” non-adherence and teasing/cajoling low adherence providers
- Multiple champions, staff engagement helps overcome turnover in project leadership
- Regularly (daily) measuring and feeding back hand hygiene at unit level really reinforces adherence
Lessons Learned – Learning Organization

- Mechanism for capturing novel approaches that work
- Program for clinicians in TRIP, reviewing evidence, coaching TRIP project, write a manuscript
- Advanced Practice Institute provides training in implementing EBP, critique of CPGs, and hospital-specific action plans
- Training needed in leadership and organizational transformation
- Redesigning workflow and practices so routine EBP is the natural thing to do
Lessons Learned – Support, Resources & Accountability

• Developing implementation plans, audit tools, assess sustained translation of prevention interventions in clinical practice.

• Need to use strength and experiences of champions key to implementing and sustaining changes over time

• IT develops an electronic checklist whenever central line inserted to track denominators (data warehouse) for data queries and feedback compliance to units

• Sustainable, timely data collection strategies key
Lessons Learned – Feedback and Reinforcement

- Nurses encouraged by manager and ICU directors to “call out” non-adherence and teasing/cajoling low adherence providers
- Regularly (daily) measuring and feeding back hand hygiene at unit level really reinforces adherence
- IT develops an electronic checklist whenever central line inserted to track denominators (data warehouse) for data queries and feedback compliance to units
- Integrating checklists into work rounds, electronic systems is effective
- Collect limited data that is most relevant to showing impact of interventions
- Data collection needs to have face validity with clinicians and be timely
Future Research

- Identify effective strategies for implementing, spreading & sustaining HAI reduction programs
- Better understanding (scenario based training) of organizational factors predicting success
- Alternate approaches to redesign practice and workflow
- Novel strategies for electronic data capture, analysis and feedback