The Future of Infection Prevention in Non-acute Settings

Nimalie D. Stone, MD/MS
Ambulatory and Long Term Care Team
Division of Healthcare Quality Promotion

AQAF Educational Conference
June 19, 2012

Presentation Outline

- Describe the changing healthcare delivery system and the increased focus on healthcare-associated infection prevention
- Discuss examples of reporting programs for healthcare-associated infection data
- Provide examples of HAI prevention efforts focused in non-acute care settings

The Changing Spectrum of Healthcare
Healthcare Delivery Expanding Beyond Acute Care Hospitals

Skilled Nursing and Home Health Account for 60% of Post-Acute Care

Growing Complexity in the Post-Acute Care Populations

- In 2006, average length of stay in acute care hospitals was 4.8 days
  - Decreased from 6.4 in 1990 (25%)
  - For people >65, decreased from 8.7 to 5.5 days (37%)


Impacts where healthcare-associated infections manifest
The Diverse Spectrum of Healthcare

"Post-acute care"
- Long-term acute care hospitals (LTACH)
- Rehabilitation facilities
- Skilled nursing facilities (SNF)
- Hospice / Home health

Long-term care
- Nursing homes (NH) / SNF
- Assisted Living Facilities
- Residential care facilities
- Home-based care / Senior day care services

Ambulatory care

Long-term (Acute) Care Hospitals

According to CMS: “Long-term care hospitals (LTCH) provide acute and post acute care to clinically complex individuals who have multiple acute or chronic conditions”
- Also called long-term acute care hospitals (LTACHs) to differentiate from other long-term care facilities

Growth of the Long-term Acute Care Hospital Population

- Acute care hospital intensive/critical care units are the primary source of new admissions
- From 1997 to 2006
  - Overall number of Medicare admissions to acute care hospital ICUs fell 14%
  - However, the number of Medicare ICU patients discharged to LTACHs almost tripled.
    - Critical care hospitalizations resulting in transfer to an LTACH climbed from 0.7% to 2.5%
  - Patients transferred to LTACH had shorter acute care LOS than similar patients not sent to a LTACH

Kahn JM et al. JAMA. 2010;303(22):2253-2259
Medicare Payment Advisory Commission. Report to the Congress: Medicare payment policy. Long-term care hospital services. Ch. 10 March
Changing Population in Skilled Nursing Facilities/ Nursing Homes

- 3.2 million residents received care in 15,956 certified SNF/NH in the US in 2008
  - Acute care hospitals are the primary source of new admissions
- From 1999 to 2008
  - 16% decrease in the number of nursing home beds/1000 residents of US population;
  - 10% increase in the number of residents cared for in LTC
  - Increasing proportion of individuals under the age of 65 are receiving care in LTCFs (13.6% in 2008)
  - Growing post-acute care population as custodial care shifts to assisted-living

Expansion of Assisted Living Facilities

- Group living arrangement, in home-like environment
- 2004: 975,000 beds (>2x growth since 1990s)
  - Estimated 2X growth to ~2 million residents by 2030
- Provide residents help with activities of daily living, medication administration
  - e.g., Assisted Monitoring of Blood Glucose
- Care primarily provided by non-professional staff, limited on-site staff with clinical expertise or training
  - Resources for infection control are lacking
- No current federal regulatory oversight
  - Licensing, inspection at state level highly variable

Age-adjusted Ambulatory Care Visit Rates by Setting, United States, 1996-2006

Much of this care is occurring in settings that are currently subjected to little oversight or regulation.

**Growth in Ambulatory Care Settings: Two Examples**

- **Hemodialysis**
  - 2008: 354,600 maintenance hemodialysis patients in the U.S.¹
  - 2008: 5240 (82% increase since 1996)

- **Ambulatory Surgical Centers**
  - 2009: 5175 (240% increase since 1996)
  - Outpatient procedures represent ⅓ of all U.S. surgical operations, large proportion occurring in ASCs²
    - In 2007, approximately 6 million procedures were performed in ASCs²
  - Wide-variety of procedures including: endoscopy, orthopedic surgery, plastic surgery, podiatry²

¹. 2010 USRDS Annual Data Report. Available at: http://www.usrds.org/adr.htm
². Barie PS. Infection Control Practices in Ambulatory Surgical Centers. JAMA. 2010;303:2295-7

**Healthcare-Associated Infection Burden across Healthcare**

- **Acute care** (1.7 million HAIs each year)
  - Affects 1 out of 20 patients
  - 99,000 deaths; $26-33 billion in excess costs

- **Long-term care** (15,965 facilities, 3.2 million residents)
  - VA healthcare data: HAI prevalence: 5.2% in 133 facilities
  - PA data: 16,729 HAIs reported from 645 LTCFs over 6 months

- **Ambulatory surgical centers**: >5,300 facilities
  - Outbreaks of viral hepatitis infections

- **Hemodialysis centers**: >5,000 facilities
  - Catheter-related bloodstream infections: 4.2 per 100 patient months
  - Incidence of methicillin-resistant Staphylococcus aureus (MRSA)

Bloodstream infection: 100 x greater than in nondialysis population

¹. 2010 USRDS Annual Data Report. Available at: http://www.usrds.org/adr.htm
². Barie PS. Infection Control Practices in Ambulatory Surgical Centers. JAMA. 2010;303:2295-7
⁵. Barie PS. Infection Control Practices in Ambulatory Surgical Centers. JAMA. 2010;303:2295-7
National call to action for HAI elimination

http://www.hhs.gov/ash/initiatives/hai/actionplan/index.html

HHS Action Plan HAI Targets

<table>
<thead>
<tr>
<th>Metric Number and Label</th>
<th>National 5-Year Prevention Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI 1</td>
<td>At least 50% reduction in central line-associated bloodstream infections in ICU and ward-located patients</td>
</tr>
<tr>
<td>CLIP 1 (formerly CLABSI 4)</td>
<td>At least 75% adherence with central line bundle</td>
</tr>
<tr>
<td>C. diff 1</td>
<td>At least 30% reduction in hospitalizations with C. difficile per 1,000 patient discharges</td>
</tr>
<tr>
<td>C. diff 2 (new)</td>
<td>Reduce the facility-wide healthcare facility-onset C. difficile LabID event SIR by at least 30% from baseline</td>
</tr>
<tr>
<td>CAUTI 2</td>
<td>Reduce the CAUTI SIR by at least 25% from baseline in ICU and other locations</td>
</tr>
<tr>
<td>MRSA 1</td>
<td>At least 50% reduction in incidence of healthcare-associated pneumonia MRSA infections</td>
</tr>
<tr>
<td>MRSA 2 (new)</td>
<td>Reduce the facility-wide healthcare facility-onset MRSA septicemia LabID event SIR by at least 25% from baseline</td>
</tr>
<tr>
<td>SSI 1</td>
<td>Reduce the admission and readmission SSI SIR by at least 25% from baseline</td>
</tr>
<tr>
<td>SCIP 1 (formerly SSI 2)</td>
<td>At least 95% adherence to process measures to prevent surgical site infections</td>
</tr>
</tbody>
</table>

http://www.hhs.gov/ash/initiatives/hai/appendices.html#appendix_g

Healthcare-associated infection reporting
HHS Action Plan: Keys to HAI Elimination

- Data for action
- Infrastructure to implement existing best practices
- Recognize excellence in prevention
- Address gaps in knowledge
- Identify and respond to emerging threats

CDC: Data for HAI Prevention

- National system for tracking and preventing HAI
  - Over 6,000 healthcare facilities enrolled including acute care hospitals, LTACHs, IRFs and Hemodialysis clinics
- When first implemented in 2005, was a voluntary surveillance reporting system for healthcare facilities
  - Provided data and benchmarks to demonstrate progress
  - Data for healthcare facilities to improve local practices
- Initially developed for acute care hospital reporting of specific device-associated infections in high risk populations

Use of the NHSN for Mandatory HAI Reporting in 22 States and the District of Columbia

<table>
<thead>
<tr>
<th>Year</th>
<th>CT</th>
<th>VT</th>
<th>NY</th>
<th>SC</th>
<th>CO</th>
<th>TN</th>
<th>DE</th>
<th>PA</th>
<th>OK</th>
<th>VA</th>
<th>MA</th>
<th>WA</th>
<th>MD</th>
<th>IL</th>
<th>NH</th>
<th>NJ</th>
<th>WV</th>
<th>DC</th>
<th>NV</th>
<th>TX</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2011</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
NHSN and the Inpatient Prospective Payment System (IPPS) Rule: Mandatory HAI Reporting on the Federal Level Begins in 2011

- Proposed rule - April 20, 2010
- First reporting quarter - January 1 through March 31, 2011
- First quarterly data due - August 15, 2011

Implementation of HAI federal reporting programs via NHSN is an ongoing process—Central line association bloodstream infection (CLABSI) reporting by acute care hospitals was the first example.

### Current and Proposed Healthcare Facility HAI reporting into NHSN

**Draft: 8/5/2011**

<table>
<thead>
<tr>
<th>HAI Event</th>
<th>Facility Type</th>
<th>Reporting Start Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLABSI</td>
<td>Acute Care Hospitals</td>
<td>January 2011</td>
</tr>
<tr>
<td>HAIs</td>
<td>Acute Care Facilities</td>
<td>January 2012</td>
</tr>
<tr>
<td>SSI</td>
<td>Acute Care Hospitals</td>
<td>January 2012</td>
</tr>
<tr>
<td>VAP (proposed)</td>
<td>Long Term Care Facilities</td>
<td>October 2012</td>
</tr>
<tr>
<td>MRSA</td>
<td>Acute Care Hospitals</td>
<td>January 2013</td>
</tr>
<tr>
<td>VRE (proposed)</td>
<td>Inpatient Rehabilitation Facilities</td>
<td>October 2012</td>
</tr>
<tr>
<td>C. diff (proposed)</td>
<td>Long-Term Care Facilities</td>
<td>October 2013</td>
</tr>
<tr>
<td>HCV infection</td>
<td>Acute Care Hospitals</td>
<td>January 2012</td>
</tr>
<tr>
<td>Influenza Vaccination</td>
<td>Acute Care Hospitals</td>
<td>November 2013</td>
</tr>
</tbody>
</table>

* Long-Term Care Facilities are slated for 2013. Acute Care Facilities are slated for 2012.*

### Changing NHSN Structure

- Long-term Care*
- Patient Safety
- Healthcare Personnel Safety
- Biovigilance

* In development
Public reporting of LTC* infection rates

Mandatory HA1 Reporting in Long-Term Care

- PA – Act 52 of 2007, implemented for LTC in July 2009
- Oregon – Planning implementation
- California/Florida – LTCFs may be included in broad infection reporting legislation

*ALFs exempted from current legislation

Nursing Home infection reporting: Pennsylvania

http://patientsafetyauthority.org/PatientSafetyAuthority/Pages/AnnualReports.aspx

Healthcare-associated infection prevention activities

National Center for Emerging and Zoonotic Infectious Diseases
Division of Healthcare Quality Promotion
HHS Action Plan: Keys to HAI Elimination

- Data for action
- Infrastructure to implement existing best practices
- Recognize excellence in prevention
- Address gaps in knowledge
- Identify and respond to emerging threats

CDC Support for Implementing Best Practices in HAI Prevention

http://www.cdc.gov/hai/state-resources/index.html

Expanding State HAI programs

Infrastructure
- Staff assigned to HAI activities
- HAI expertise available/accessible
- Outbreak response capacity
- Training/education capacity
- Multidisciplinary Advisory Group
- Lab capacity for HAI pathogens

Surveillance
- NHSN user support
- Enrollment assistance
- Data validation capacity
- Use of data for action

Prevention Collaboratives
- Identification of target infections
- Implementation of evidence-based strategies through culture change
- Facilities share experiences
- Outcomes measurement and feedback

CDC Funding Programs
- ACA—Affordable Care Act (ACA) Activities
- ELC—Epidemiology and Laboratory Capacity for Infectious Diseases
- EIP—Emerging Infections Programs
- ARRA Archive—American Reinvestment and Recovery Act
State-based HAI Prevention activities

http://www.cdc.gov/HAI/state-based/index.html

State HAI Prevention activities in LTC

http://www.cdc.gov/hai/stateplans/states-w-LTC-collaborative.html

State HAI Prevention Activities Engaging Long-term Care

- Assessing current state of infection control (IC) program activities/resources using a CDC-developed standard tool
  - GA, VT, VA, IN, AK, IL, WA, CT
- Sustaining/developing IC training courses specific for LTCFs
  - NE, NC, MD, GA, VA, NV
- Inclusion of LTCFs in new or ongoing infection prevention collaboratives
  - VT, IN, GA, WA, NY (ongoing or complete)
  - MA, FL, TN, UT, IL (recently launched or planning)
LTC Infection Control Training: Georgia

- Collaboration to develop a LTC IC training curriculum for providers and surveyors
  - Partnership among GA Healthcare Facility Regulation Div., GA Div. Public Health, GA Medical Care Foundation (State QIO)
  - 2 day courses open to IC staff from all LTCFs across the state, local public health personnel and state surveyors
  - Promoted through GA LTC/IC stakeholders
- Improved communication and resource sharing among state health divisions and the QIO
- Expanded state surveyor access and knowledge of IC resources from public health

Multidrug-Resistant Organisms Prevention Collaborative: Vermont

- Partnership among VT Dept Health, and Vermont Program for Quality in Healthcare with CDC support
- Acute care and LTCFs partnered into local “healthcare clusters” to facilitate communication and shared resources
- Activities:
  - Webinars, coaching calls, monthly local team meetings
  - Partnership with WHONet to implement electronic data collection from laboratories

Antibiotic Stewardship Collaborative: New York

- Partnership among NY State Dept Health, Greater NY Hospital Association, United Hospital Fund and Weill Cornell Medical College
- Three acute care hospitals and three LTCFs
  - Hospitals required to outreach to an affiliated LTC partner
- Activities (Oct 2009-June 2010):
  - Assessment of current antibiotic stewardship activities
  - Each facility developed a stewardship team and selected 1-2 target interventions to implement
  - 2 site visits by collaborative support staff
  - Monthly conference calls
CDC-Sponsored Dialysis Collaborative

Establish collaboration of outpatient dialysis facilities all reporting to NHSN

Share information related to best practices

Work to develop and implement practical solutions

Prevent BSI & improve patient outcomes

The Collaborative Approach to Prevention of Bloodstream Infections in Dialysis

What is the Collaboration? The Centers for Disease Control and Prevention (CDC), in partnership with the Dialysis Collaborative, the Medical Society of Biology and the Dialysis Patient Advocates, has developed a collaborative to address bloodstream infections in hemodialysis facilities. This collaborative is designed to bring together dialysis facilities to share best practices and develop practical solutions to prevent bloodstream infections (BSIs) and improve patient outcomes.

Why a Partnership Collaborative Model? The collaborative approach seeks to leverage the expertise of participating facilities and facilitate the sharing of best practices and strategies to prevent BSIs and improve patient outcomes.

http://www.makingdialysissafe.org

The Collaborative is supported by the National Health Security Network (NHSN) and is funded by the Centers for Disease Control and Prevention (CDC).

http://innovations.cms.gov/areas-of-focus/patient-care-models/partnerships-for-patients/

The Collaborative is supported by the National Health Security Network (NHSN) and is funded by the Centers for Disease Control and Prevention (CDC).
Advancing Excellence campaign and HAI

http://www.nhqualitycampaign.org

“New” AE Goals - 2012

Pressure Ulcers  Staff Stability  Hospitalizations
Pain Management  Consistent Assignment  Infections
Mobility  Person-Centered Care and Decision-Making  Medications (Antipsychotic use)

Slide courtesy of Carol Benner, 2012 CMS update

Take Home Points

- There is national recognition of the importance preventing HAI in non-acute care settings
- Surveillance infrastructure and reporting programs for HAI data from healthcare settings are expanding
- Programs to support HAI prevention activities in non-acute care settings are gaining recognition and expanding.
- Now is the time for your facility to get engaged!
Thank you!!

Email: nstone@cdc.gov with questions/comments

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333
Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348
E-mail: cdcinfo@cdc.gov  Web: www.cdc.gov

The findings and conclusions in the report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.