National Healthcare Safety Network

Infection Surveillance in Long-term Care: A National Perspective

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Agenda

- Burden of healthcare-associated infections (HAIs) in LTC
- Challenges affecting nursing homes
- Strategies to overcome the challenges
- Why do surveillance?
- Annual training overview
Nursing Home Infection Burden Estimates

1.64 – 3.83 million infections *annually*
*Strausbaugh and Joseph, 2000*

1.13 – 2.68 million infections *in 2013*
*Herzig et al, 2017*
 Strausbaugh and Joseph, 2000 – Methods Summary

12 studies from 1970s-1990s

1.8 - 13.5 infections per 1,000 resident-care days in LTCFs

Extrapolation of incidence rates for common infections

1.64 - 3.83 million infections annually in NHs

Revised estimate using better designed, more representative facilities

0.98 - 7.38 million infections annually in NHs
Lower respiratory tract infections have the highest estimated incidence rate per 1,000 resident-days.
Herzig et al, 2017 – Methods Summary

- Minimum Data Set (MDS) 3.0, 2013 Quarter 4
- Used routinely scheduled assessments, excluding admission assessments
- Evaluated MDS infection items
  - Multidrug-resistant organisms (MDRO)
  - Pneumonia
  - Septicemia
  - Urinary Tract Infection (UTI)
  - Wound infection
- Prevalence determined using 7-day look-back periods and 30-day for UTI
In 2013, pneumonia and UTI were the most commonly reported infections among all resident assessments.

- Septicemia: 0.3%
- Wound Infection: 0.6%
- MDRO: 0.8%
- Pneumonia: 2.1%
- UTI: 5.6%

Note: Estimates are the 7-day prevalence for each except UTI, which are 30-day.
### Adverse events in SNFs among Medicare beneficiaries

<table>
<thead>
<tr>
<th>Events Related to Infections</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Aspiration pneumonia and other respiratory infections</td>
<td>10%</td>
</tr>
<tr>
<td>Surgical site infection (SSI) associated with wound care</td>
<td>5%</td>
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<tr>
<td>Urinary tract infection associated with catheter (CAUTI)</td>
<td>3%</td>
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<tr>
<td>Clostridium difficile infection (CDI)</td>
<td>3%</td>
</tr>
<tr>
<td>Other infection events</td>
<td>5%</td>
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Source: OIG analysis of SNF stays for 653 Medicare beneficiaries discharged in August 2011.
Limitations of Burden Estimates

- Estimates based on small number of residents
  - Residents may not be representative
- National estimates extrapolated from few geographic locations
  - Facilities may not be representative
- Standard infection definitions are *not* used
- Trends of infections overtime unknown
  - How many new infections are occurring?
  - Are the rates of new infections problematic?
  - Are infection rates worsening?
  - Are infection rates improving?
Improved national data is needed to inform prevention.

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Challenges affecting nursing homes
In 2013, there were over 35 million hospital discharges.
22% or 8 million inpatients were discharged to a postacute care setting.
In 2050, the population aged 65 and over is projected to be 83.7 million.
For the First Time in U.S. History Older Adults Are Projected to Outnumber Children by 2035

Projected percentage of population

- Adults 65+
  - 2016: 15.2%
  - 2060: 23.5%

- Children under 18
  - 2016: 22.8%
  - 2060: 19.8%

Projected number (millions)

- 2016: 49.2
- 2020: 73.6
- 2035: 78.0 ( Older Adults) / 76.4 (Children under 18)
- 2060: 94.7 ( Older Adults) / 79.8 (Children under 18)

Note: 2016 data are estimates not projections.
The majority of long-term care residents were aged 65 and over in 2011 and 2012.
Long-term care residents have a higher risk of infection.

- Functional impairment
- Co-morbid conditions
- Frequent hospitalizations
- Exposure to antibiotics
Implications

- Increase in acute care and LTC facility volumes
- Increase demand on health system resources
- Increase healthcare setting transitions
- Threat to healthcare quality, infection prevention and control
Strategies to overcome the challenge
More patients get infections when facilities do not work together.

Example: 5 years after CRE enters 10 facilities in an area sharing patients.

**Common Approach (status quo)**
- 2,000 patients will get CRE.
- CRE will impact **12%** of patients.

**Independent Efforts**
- 1,500 patients will get CRE.
- CRE will impact **8%** of patients.

**Coordinated Approach**
- 400 patients will get CRE.
- CRE will impact **2%** of patients.

SOURCE: CDC Vital Signs, August 2015.
Making Health Care Safer
Stop Spread of Antibiotic Resistance

- Alert receiving facilities of patients who have drug-resistant organisms
- Provide clinical staff access to prompt laboratory testing
- Join HAI/antibiotic resistance prevention in your area
- Connect with public health department to share data
- **Review and perfect infection control within your facility**
Public Health Action Timeline

2013
HHS National Action Plan to Prevent HAIs

2014
Office of Inspector General Report

2015
WH National Action Plan for Combating Antibiotic Resistant Bacteria

2015
CMS New Regulatory Proposal for LTCFs

2015
CDC Releases Core Elements of Antibiotic Stewardship

2016
CMS Regulatory Requirements finalized
National Action Plan to Prevent HAIs — 2013

- Encourage **HAI infection surveillance and reporting to NHSN**
  - 5% of certified nursing homes enroll in NHSN over the five years following launch of the component

- Construct a data collection system to support assessment of healthcare quality
  - **Disease surveillance**
  - Effectiveness of prevention and control activities
  - Quality improvement
  - Public reporting
Reform of Requirements for LTCFs— 2016

- § 483.80 Infection control.

We proposed to require the facility to have written standards, policies, and procedures for the IPCP, including but not limited to, a system of surveillance designed to identify possible communicable disease or infections before it can spread to other persons in the facility
Why do surveillance?
ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event to reduce morbidity and mortality and to improve health
E. coli outbreak from tainted ground beef expands

Salmonella outbreak

S. Measles Outbreak Now in 22 States – What You Should Know

U.S. Measles Outbreak Now in 22 States – What You Should Know

State official: Northwest Georgia seeing hepatitis A outbreak
### Surveillance Informs Prevention

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What is National Healthcare Safety Network (NHSN)?

- Most widely used healthcare-associated infection (HAI) tracking system
- Web-based resource for healthcare facilities to collect HAI data
  - Acute care hospitals
  - Ambulatory surgery centers
  - Long-term care facilities
- Data can be used by facilities
  - Identify problem areas
  - Measure progress of prevention efforts
  - Comply with quality reporting requirements
- >22,000 facilities reporting
Benefits of NHSN

- Why NHSN and how does this fill a gap?
  - Epidemiology
  - Standard infection definitions
  - Benchmarking at national and facility level
  - Identify prevention targets and goals
  - Track prevention progress
NHSN data can inform prevention.

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CDI Reporting and Reduction Project

- Collaboration with CMS and Quality Improvement Organizations
- **Project timeline:** May 23, 2016 – December 28, 2018
- **Objectives:**
  - Increase NHSN reporting
  - Establish CDI baseline
  - Monitor prevention outcomes
- **Recruitment period:** May 23, 2016 – April 7, 2017
- **Enrollment target:** 2,330 nursing homes
- **Data submission target:** 80% (1,864) March 1, 2017 – December 31, 2018
Nursing Homes Enrolled in NHSN — June 2016

334 nursing homes
2.1% of 15,600
Nursing Homes Enrolled in NHSN — Jan 2019

3,344 nursing homes
~21% of 15,600
Increased participation is great but data quality is also important!
2019 Annual Training
Partnership

- Improve healthcare quality
- Reduce morbidity and mortality
- Make a difference
Training Overview

- **Morning sessions**
  - Epidemiology
  - NSHN Protocols
  - Infection prevention
  - Case studies

- **Afternoon sessions**
  - Hands-on training
  - CDC tours
Concurrent Activities

- Onsite Support
  - SAMS
  - NHSN User Support
- Healthcare Personnel Safety Team
  - Influenza vaccination reporting
- CDC store
  - CDC branded merchandise
Thank You!

For more information please contact Centers for Disease Control and Prevention

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

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


The Silver Tsunami (also known as The Grey Tsunami or Gray Tsunami) is a metaphor used to describe population aging. The silver tsunami metaphor has been used in popular media and in scholarly literature to refer to the late-twentieth century demographic phenomenon of population aging in major media platforms including The Economist, Forbes.com, and multiple news outlets. The phrase has also been used to refer more specifically to health and economic implications associated with population aging by major medical publications including The British Medical Journal, New England Journal of Medicine, and professional organizations including American Psychological Association.

https://en.wikipedia.org/wiki/The_Silver_Tsunami
References


- Making Health Care Safer Infographics https://www.cdc.gov/vitalsigns/stop-spread/infographic.html#infographic

References

- An Aging Nation: The Older Population in the United States