Infection prevention and antibiotic stewardship in LTC: Call to Action

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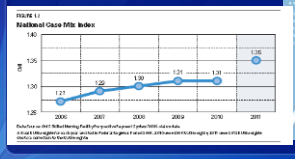
Impact of infections in US nursing homes

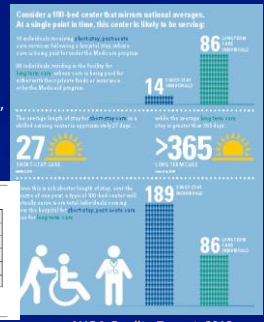
- Infections are among the most frequent causes of hospital transfers from nursing homes (NH)
  - Accounted for 36% of hospital readmissions from a skilled nursing facility (SNF) within 30-days[1]
  - Resulted in 25% of all hospitalizations from 32 nursing homes in a single year[2]
  - Hospitalization for acute infections result in excess cost compared to management in the nursing home[3]
  - Morbidity from hospital transfers (delirium, pressure wounds accelerate functional decline) causes poor resident outcomes and increase costs of care[4]

1.Ouslander JG et al. J Am Med Dir Assoc. 2011; 12: 95–203; 2. Kruger K et al. Nurs Res Pract 2011:247623. 3. Boockvar KS et al. J Am Geriatr Soc. 2008; 56:1206–1212
4. Boockvar KS et al. J Am Geriatr Soc. 2005; 53:590–596

Changing population entering SNF/NHs

- Post-acute care (Medicare) admissions are increasing in nursing homes
  - Growing medical complexity
  - Increasing exposure to devices, wounds and antibiotics
  - High prevalence of multidrug-resistant organisms





AHCA Quality Report, 2013

OIG Adverse Events Report, Feb 2014

- Reviewed representative sample of Medicare Skilled Nursing Facility (SNF) stays in a single month
  - Stay began within 1 day of hospital discharge
  - Length of stay <=35 days
- 22% of PAC residents experienced an adverse event
- Three categories of adverse events:
  - Medication errors: 37%
  - Resident care events, (e.g., fall, dehydration, pressure ulcers): 37%
  - Infections: 26%
- Adverse events resulted in $208 million additional Medicare costs

OIG report: Adverse Events in Skilled Nursing Facilities: National Incidence Among Medicare Beneficiaries (OEI-06-11-00370), February 2014

Harm from infections among SNF residents

- Infections were among the most common causes of harm; accounting for 26% of adverse events

Type of Harm	Events related to infection	Infection events deemed preventable	Transfers to hospital from infection event
Adverse events (n=148)	39 (25.8%)	22 (59%)	34 (87.2%)
Temporary (n=113)	20 (16.8%)	9 (45%)	NA
Total Harm events (n=261)	59 (22.6%)	31 (51.7%)	34 (57.6%)

OIG report: Adverse Events in Skilled Nursing Facilities: National Incidence Among Medicare Beneficiaries (OEI-06-11-00370), February 2014

Types of infections causing harm among SNF residents

Type of Infection	Events (All harm)	Preventable events
Pneumonia and respiratory tract	15 (includes 2 cases of sepsis)	5 (33%)
Surgical site infection (superficial only)	14	9 (64%)
Urinary tract, associated with catheter	14 (includes 3 cases of sepsis)	10 (71%)
C. difficile infections	7	5 (71%)
Soft tissue and other	6	1 (17%)
Vascular device associated.	3	2 (67%)

OIG report: Adverse Events in Skilled Nursing Facilities: National Incidence Among Medicare Beneficiaries (OEI-06-11-00370), February 2014

Example of Harm: Case 1

- 86 year old with recent resection of colon cancer
  - Past history also included heart disease and hypertension
- Documented diarrhea during her 21-day SNF stay with 19 lb weight loss; receiving diuretics
- Became acutely confused (delirium) and transferred to Emergency Department
  - *C.difficile* stool toxin positive on admission
  - Diuretics discontinued and began IV fluids
- Failure to recognize *C. difficile* resulting in hospital transfer – deemed clearly preventable event

Example of Harm: Case 2

- 99 year old with urinary catheter placed in hospital for obstructive uropathy, admitted to SNF 7/7
  - D/c orders recommended follow-up in 2 weeks with urology
- On 7/20, patient afebrile, no documented complaints, but urine culture submitted
  - Culture revealed many bacteria, white cells on urinalysis
  - Started Augmentin and Rocephin on 7/20; Rocephin stopped on 7/23; Augmentin changed to Ertapenem 7/27 for 2nd culture
  - No documentation of signs/symptoms except urine results
- Sent to hospital 8/3 for antibiotic management; no documented follow-up with urology
- Poor management of urinary device – deemed clearly preventable event;
  - Evidence of inappropriate antibiotic use

Gaps/opportunities to prevent infections in NHs

- **Better recognition of the problem**
  - Standardize the way infections are defined and reported to monitor the burden of the problem
- **Improved documentation of the response**
  - Inadequate documentation of actions leads to incomplete information and missed opportunities
  - Provide guidance and standards for implementing best practices
  - Improve communication across care transitions
- **Increased accountability for prevention**
  - Facility practices to prevent infection should be monitored for adherence and impact
  - Implement consistent methods for assessing the effectiveness of infection prevention activities

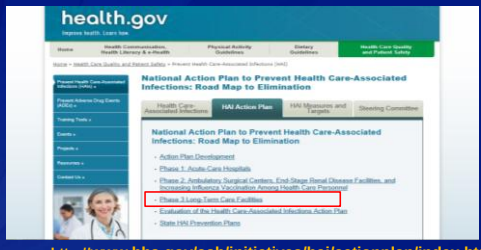
Challenges to preventing infections in PAC/LTC settings

- Lack of infection surveillance and prevention expertise
  - <10% of infection prevention coordinators receive formal training; <30% perform infection prevention full-time
- Communal living environment for residents
  - Balancing resident needs for rehabilitation and socialization with risk of transmission within common living areas
  - Staff perceptions about harms and consequences of transmission-based (isolation) precautions
- Maintaining staff engagement and education
  - Median turnover among nursing home direct care staff 50%
  - Challenging to engage part-time medical staff in facility-wide policies/initiatives

Bostick JE JAMDA 2006;7:366-76;
http://www.ahcancal.org/research_data/staffing/Documents/2012_Staffing_Report.pdf

HHS National Action Plan to Prevent HAIs: LTC Chapter

- Outlines the HHS priority actions for addressing infections in nursing homes and other LTC settings



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

HHS priority areas for preventing infections in SNF/NHs

- **Better recognition of the problem**
  - Increasing enrollment and reporting into the NHSN LTCF Component
  - Reporting *Clostridium difficile* infections (CDI) in NHSN
  - Reporting Urinary tract infections (UTI) in NHSN
- **Promoting best practices for prevention**
  - Increasing resident and healthcare personnel influenza vaccination coverage
  - Increasing resident pneumococcal vaccination coverage

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

NHSN LTCF Component: Early enrollees

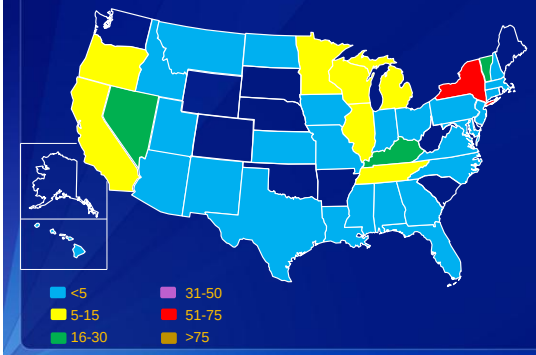
- **252 unique SNF/NHs have completed enrollment as of 8/26/15**
  - Represent 1.6% of CMS certified nursing facilities in US
  - 38 states with at least one or more SNF/NH enrolled

Of 196 with recent facility demographic data

- Ownership
  - 20 (10%) Government/Veterans administration**
  - 111 (57%) Non-profit**
  - 65 (33%) For profit
- Affiliation
  - 66 (34%) Hospital-based**
  - 74 (38%) Independent
  - 56 (28%) Multi-facility organizations
- **94% Dual certified facilities (Medicare and Medicaid)**

** proportions are higher than distribution nationally

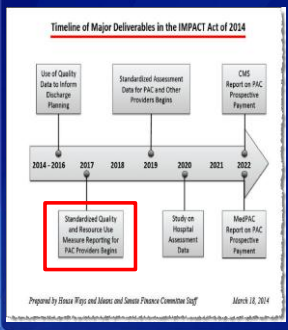
NHSN SNF/NH Users by State, Aug 2015



Drivers which may promote NHSN use by SNF/NHs

- Participation in state health department led infection prevention collaboratives
  - Access to local resources to assist with NHSN use
  - Shared learning and support from other facilities
- Hospital partners providing NHSN support for their affiliated healthcare partners
- Growing awareness of NHSN reporting programs
  - Nevada become 1st state to require NHSN reporting for SNFs
  - Wisconsin surveyors inquire about NHSN use during review of infection surveillance programs
  - Reporting programs in other post-acute care settings, e.g., long-term acute care hospitals and inpatient rehab facilities

IMPACT Act of 2014



Improving Medicare Post-Acute Care Transformation:

- Compare quality across PAC settings;
- Improve hospital and PAC discharge planning; and
- Use this information to reform PAC payments (via site neutral or bundled payments or some other reform)

"Call to action": Addressing antibiotic overuse and resistance in healthcare

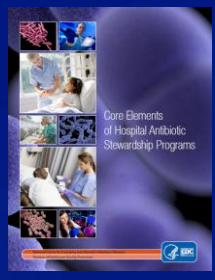
Antibiotic use in NHs

- Antibiotics are frequently prescribed in NHs
  - Comprise ~40% of all NH prescriptions
  - Over the course of a year, 50-70% of residents will receive one or more courses of antibiotics
- Antibiotic use can cause harm to residents
  - High risk of side effects and adverse events
  - Major risk factor for C.difficile infection
  - Driver of antibiotic resistance
- 25-75% of antimicrobial use in NHs may be inappropriate

Daneman N et al. JAMAIntMed 2013; 173:673-82
Benoit et al. JAGS 2008; 56: 2039-2044
Nicolle LE et al. ICHE 2000; 21:537-545

CDC Core Elements of Antibiotic Stewardship

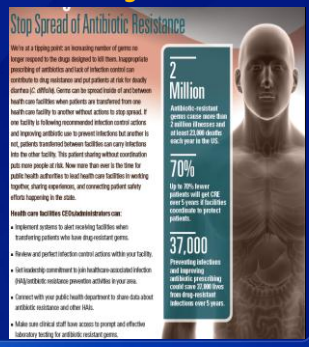
- Leadership commitment
- Accountability
- Drug expertise
- Action
- Tracking
- Reporting
- Education



On the horizon, strategies for adapting in nursing homes

Coordination is key to preventing antibiotic resistance – CDC Vital Signs, 2015

- The threat of antibiotic resistance continues to rise
- Healthcare facilities working independently to implement prevention is inadequate
- Healthcare facilities working together can have major impact in reducing resistance



Expanding state regional infection prevention programs

- State public health departments coordinate efforts to reduce antibiotic resistant organisms and improve antibiotic use across healthcare facilities

Portfolio of activities including:

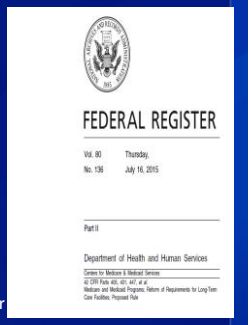
- Mapping patient movement across the care continuum
- NHSN surveillance for antibiotic resistance and *C.difficile*
- Implementing infection prevention and antibiotic stewardship activities in all facilities
- Improving communication during care transitions
- Measuring impact of effort and addressing gaps

CDC Vital Signs. August 2015

CMS Proposed regulations for infection prevention and control programs (IPC)

Cross-cutting IPC regulations:

- Facility risk assessment of resident population (§483.70)
- Integrating IPC into QAPI activities (§483.75)
- Required review and update of IPC program, policies/procedures (§483.80)
- Antibiotic use protocols and monitoring included in IPC (§483.80)
- Designated IPC Officer with specific training (§483.80)
- IPC-specific education and training for all staff (§483.80)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Part II

Department of Health and Human Services

Centers for Medicare & Medicaid Services

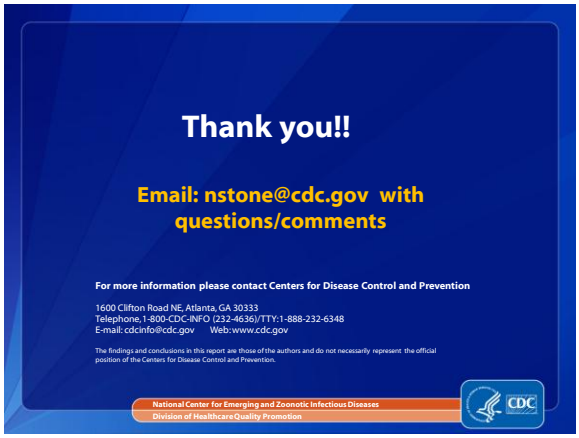
42 CFR Parts 405, 431, 447, et al.
Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities; Proposed Rule

How can LTCFs meet the new IPC expectations?

- Assess the infection prevention risks among residents in your facility; Review and update current IPC policies and procedures based on risk assessment
- Integrate IPC into regular staff training and education
- Incorporate IPC and stewardship activities into QAPI program
- Evaluate and track antibiotic use in your facility
- Partner with state and local health departments; participate in regional prevention efforts to address antibiotic-resistance
- Explore NHSN as a tool for the infection surveillance program
- Continue attending infection prevention trainings like this to maintain IPC expertise in your facility

Take away points

- Infection prevention and antibiotic stewardship are national priorities for nursing homes
- Nursing homes are expected to take action in tracking infections, preventing the spread of resistance, and improving antibiotic use
- Take actions now so your IPC program will succeed in meeting the growing needs of your residents
- Engaging in activities now will prepare nursing homes for the future
  - Facilities actively involved in surveillance and prevention programs will be identified as community leaders
  - Facility programs will be in place to meet CMS regulations or future quality incentive programs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Email: nstone@cdc.gov with questions/comments
For more information please contact Centers for Disease Control and Prevention
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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 this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.
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