Strengthening Antibiotic Stewardship in Nursing Homes: National Initiatives, Local Actions

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Texas Medical Center Antimicrobial Resistance Conference

January 2018

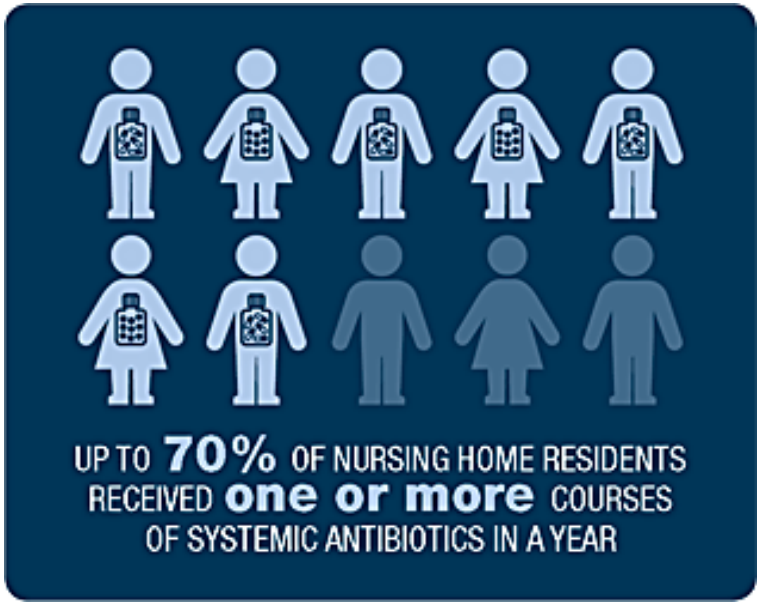
Presentation Objectives*

- Understand the drivers of antibiotic stewardship in nursing homes
- Define the core elements of antibiotic stewardship for nursing homes
- Identify strategies a physicians and pharmacists can use to support the implementation of antibiotic stewardship in nursing homes

*** Dr. Stone has no conflicts to disclose**

Antibiotic use in NHs

- Over 3 million individuals receive care in ~15,600 CMS certified nursing homes (NH)
- Antimicrobials are frequently prescribed in NHs
- 25-75% of antibiotic 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

Harms from antibiotic use in nursing homes

- Antibiotic use and misuse can lead to harm
  - Side effects, drug interactions and adverse events
  - Major risk factor for C. difficile infection
  - Acquisition and infection from antibiotic resistant bacteria

- Residents in high antibiotic use in NHs had a 24% increased risk of antibiotic-related complications
  - Range: 20.4 – 192.9 antibiotic-days/1,000 resident days
  - High use: >62 antibiotic-days/1,000 resident days
  - Other predictors of antibiotic harms: recent hospitalization or ED visit, indwelling medical device, incontinence, functional dependence

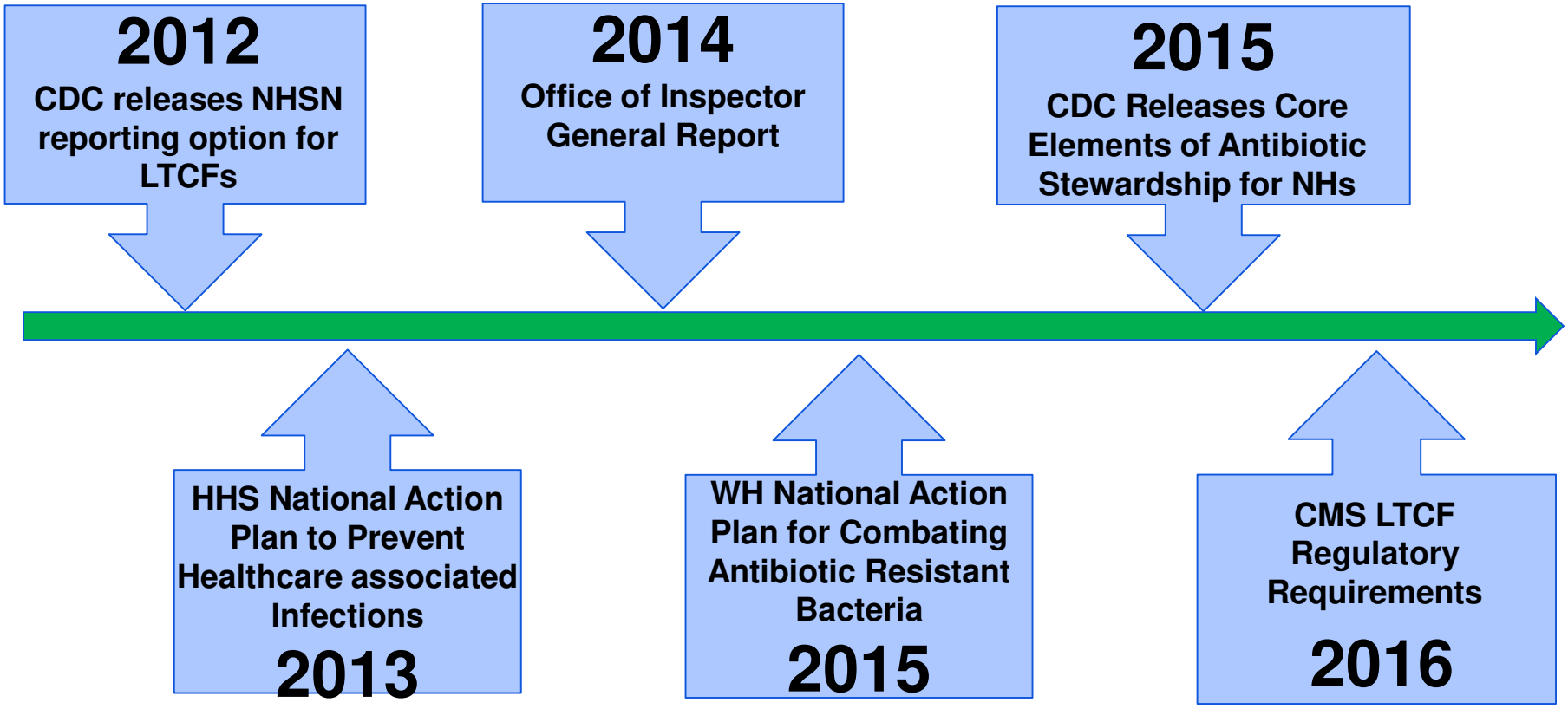
Daneman N et al. JAMAIntMed 2015; 175: 1331-1339

Antibiotic use challenges in nursing homes

- Prescribers rely on assessments made by someone else
  - *67% of antibiotics were ordered over the phone*
- Limited documentation of assessments and rationale when antibiotics are started
  - *43% of NH-initiated antibiotic courses had no documentation of infection in medical record*
- Difficulty obtaining and interpreting laboratory and diagnostic data to inform antibiotic use
- Influence of resident, family, and other NH staff on the decision to start antibiotics
- Prescriber attitudes and practices drive antibiotic use
  - *Prescribing tendencies are not driven by differences in resident characteristics, comorbidities, or care needs*

Richards et al. JAMDA 2005; 6: 109–112
Daneman N et al. JAMAIntMed 2013; 173:673-82

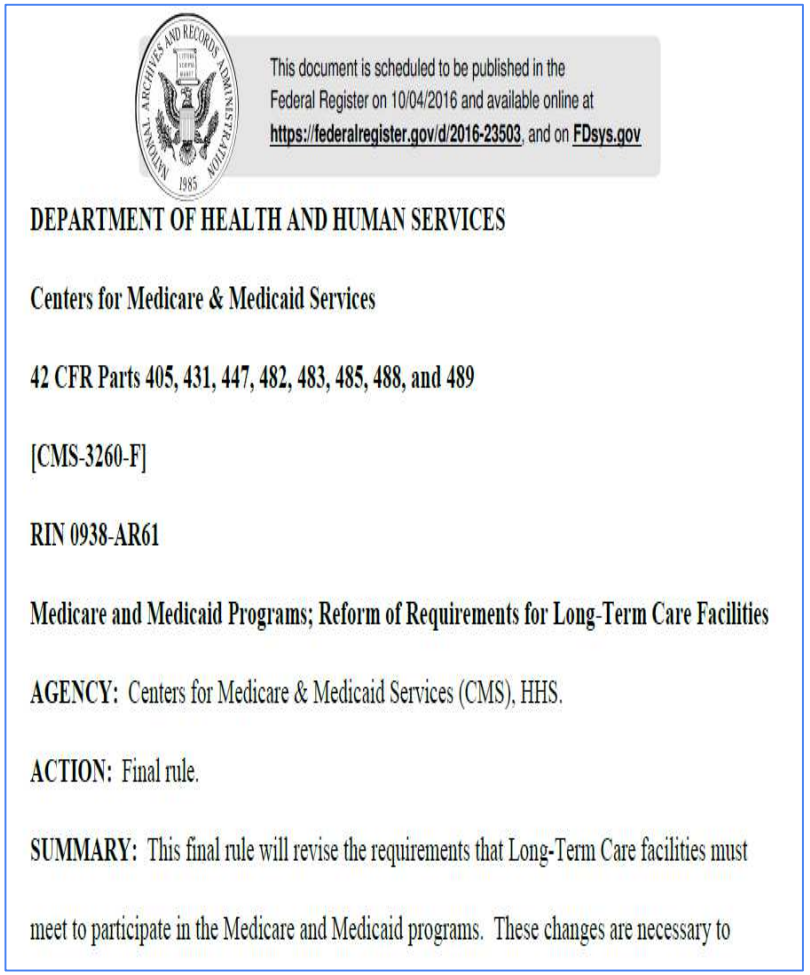
Infection prevention and antibiotic stewardship policy drivers in nursing homes



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

Antibiotic stewardship integrated within pharmacy and infection prevention and control (IPC):

- Pharmacy services to perform monthly medication review and reduce unnecessary medications (§483.45)
- Antibiotic use protocols and monitoring included in IPC (§483.80)
- Integrating IPC and stewardship into QAPI activities (§483.75)



This document is scheduled to be published in the Federal Register on 10/04/2016 and available online at https://federalregister.gov/d/2016-23503, and on FDsys.gov

DEPARTMENT OF HEALTH AND HUMAN SERVICES

Centers for Medicare & Medicaid Services

42 CFR Parts 405, 431, 447, 482, 483, 485, 488, and 489

[CMS-3260-F]

RIN 0938-AR61

Medicare and Medicaid Programs; Reform of Requirements for Long-Term Care Facilities

AGENCY: Centers for Medicare & Medicaid Services (CMS), HHS.

ACTION: Final rule.

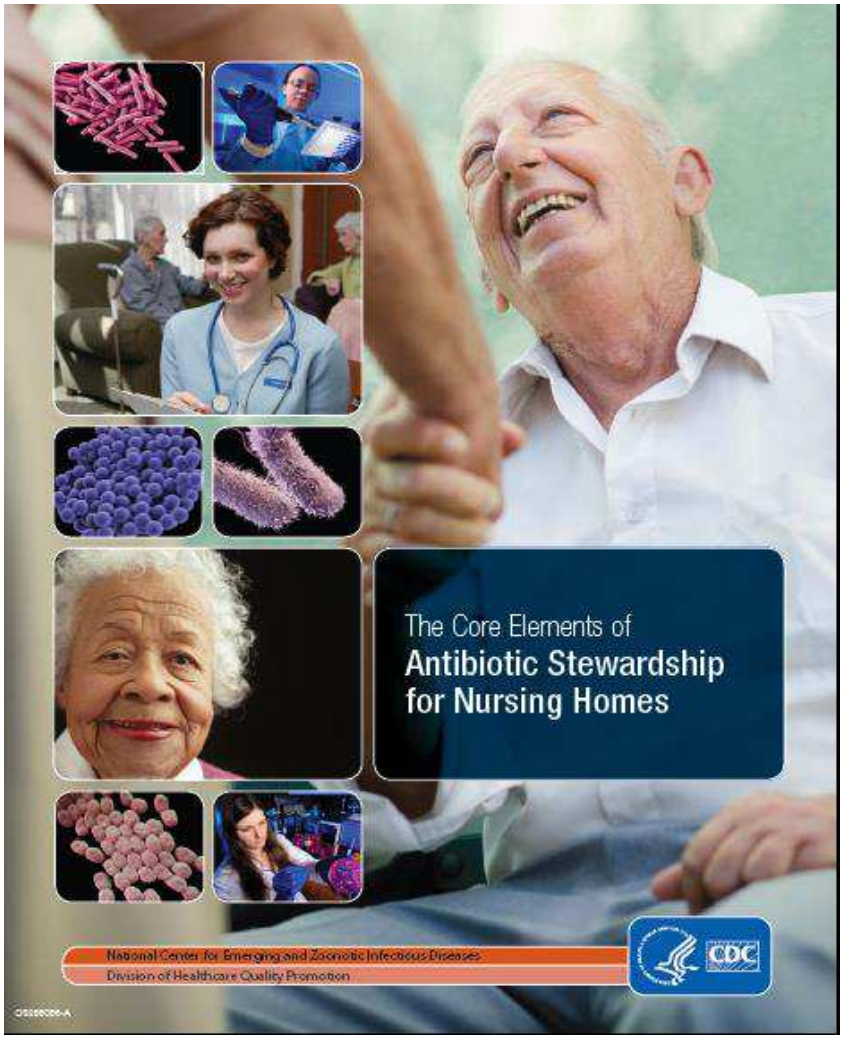
SUMMARY: This final rule will revise the requirements that Long-Term Care facilities must meet to participate in the Medicare and Medicaid programs. These changes are necessary to

https://www.gpo.gov/fdsys/pkg/FR-2016-10-04/pdf/2016-23503.pdf

CDC Core Elements of Antibiotic Stewardship

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

http://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html



Core Element Implementation in NHs: NHSN, 2014-2016

- Self-reported data on NHSN annual survey;
  - Only 2016 survey captured all 7 elements
- 99% of 2,180 enrolled NHs met at least one core element.
- In 2016, 40% of the 1,285 NHs reported meeting all 7 core elements.

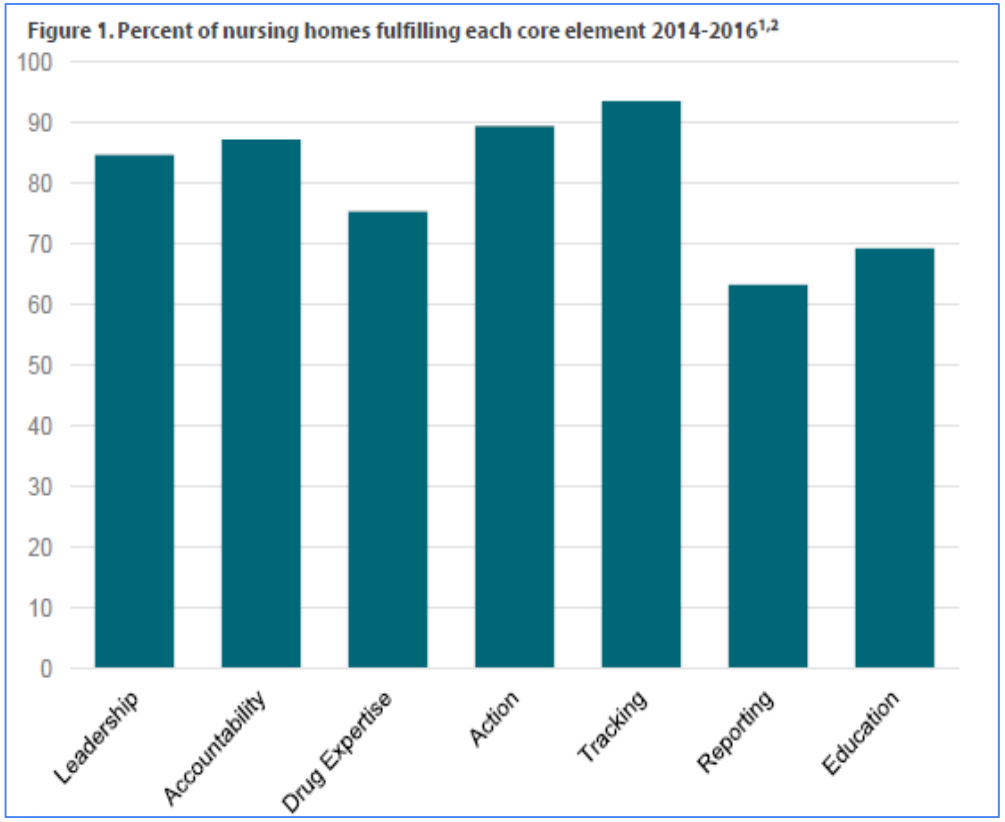


Figure courtesy of Danielle Palms, presented at SHEA Spring Conference 2017; St. Louis, MO. Abstract 9026

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Accountability

- Medical Directors:
  - Set standards for antibiotic prescribing practices for all healthcare providers prescribing antibiotics.
  - Oversee adherence to antibiotic prescribing practices.
  - Review and provide feedback on adherence to facility antibiotic use practices.
- Directors of Nursing:
  - Establish standards for nursing staff for assessing and monitoring changes in a resident's condition that could impact the need for antibiotics.
  - Improving communication of information between nursing staff and off-site prescribers
  - Use their influence as nurse leaders to help ensure antibiotics are prescribed only when appropriate.

Accountability (cont.)

Consultant pharmacists:

- Provide education to clinical staff about common antibiotics, indications and side effects
- Establish standards on laboratory testing to monitor for adverse events and drug interactions
- Ensure appropriate medication selection
  - Reviewing antibiotic prescriptions for appropriate dosing, duration, indication and match with culture results
- Provide summary reports on antibiotic use
  - New antibiotic starts and/or days of therapy
  - Provider specific use reports for feedback and education

Drug expertise

- Consultant pharmacists, medical directors or other prescribers obtain training in antibiotic stewardship to provide stewardship expertise for a facility.
- Partnering with stewardship program leads at hospitals within your referral network
- Developing relationships with infectious disease consultants in your community interested in supporting your facility's stewardship efforts

Infection prevention and stewardship staffing: Real-world experience

TABLE 2. Full-Time Equivalent (FTE) Allocations at 87 Long-Term Care Facilities in Rhode Island: Facility-Wide and Antimicrobial Stewardship Program-Specific Allocations

	Mean allocations		0 FTEs reported, n (%)		>0 FTEs reported, n (%)	
Variable	FAC-wide	AMS	FAC-wide	AMS	FAC-wide	AMS
Infection preventionists	0.35	0.15	17 (20%)	57 (66%)	64 (74%)	23 (26%)
Infectious disease physicians	0.03	0.02	68 (78%)	72 (83%)	11 (13%)	5 (6%)
Pharmacists	0.26	0.06	40 (46%)	64 (74%)	29 (33%)	13 (15%)
Infectious disease pharmacists	0.01	0.01	73 (84%)	73 (84%)	5 (6%)	4 (5%)

NOTE. AMS, antimicrobial stewardship program; FAC, facility.

- 87 nursing homes in Rhode Island; Median beds: 95; 47% for profit
  - Mean Infection prevention FTE: 0.35, pharmacist FTE: 0.26
- <30% had written statement of support for stewardship from leadership
- 51% had any antibiotic stewardship policy or antibiotic use protocols

Morrill HJ et al. ICHE 2016; 37: 979-982

Actions

Implement at least one policy or practice to improve antibiotic use in your facility:

- Policy
  - Documentation of prescribing elements
  - Developing evidence-based management algorithms for common infections
- Broad practice improvements
  - Improving documentation and communication between front-line nursing staff and off-site clinical providers
  - Performing an “antibiotic time-out”
- Infection-specific practice improvements
  - Reducing antibiotic use for UTI prophylaxis
  - Improving assessment of signs/symptoms to decrease antibiotic use in asymptomatic bacteriuria
  - Reducing prolonged duration of therapy for common infections

Tracking and Reporting

Monitor at least one measure of antibiotic use in your facility and provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff and other relevant staff

- Monitoring and feedback to providers and staff on the impact of their efforts is critical to sustaining improvements
- Provider specific feedback is one of the most effective ways to change prescribing behaviors
- Any measure being tracked as part of monitoring antibiotic use should have a mechanism for reporting the results back to appropriate staff in the facility
- Having antibiotic use data to share with staff, residents and families especially improvement in clinical outcomes (e. g., decreased CDI) can increase support of stewardship activities

Education

Provide educational resources to clinicians, nursing staff, residents and families about antibiotic resistance and opportunities for improving antibiotic use

- Education may be one of the first elements implemented to establish support among facility providers and staff
- Effective and sustained change doesn't happen without education
- Use educational events as an opportunity to engage providers and staff in identifying ways to improve current practices
- Address staff concerns and barriers to changing antibiotic use in your facility
- Work with facility staff to develop resources/tools to educate residents/families on stewardship efforts in your facility

Implementing stewardship interventions: France, 2012

Table 1. Antimicrobial Stewardship Strategies Implemented

Category	Intervention	Desired or Expected Outcome
ASP guidelines and policies	Adoption of treatment algorithms by institution's Medical Advisory Committee	Geriatricians and subspecialists become aware of ASP goals
Audit and feedback	ASP supportive feedback to physicians and clinical pharmacists (e.g., follow up on laboratory results, IV-to-PO step-down, dosing recommendations)	Increased awareness of the most appropriate treatment options
Information technology tools	Change to default stop dates for some antibiotics Simplified access to guidelines on computers	Encouragement of use of shorter treatment duration Increased visibility of guidelines
Education	Presentations during medical rounds, posters, newsletter articles, hand-outs Directed to physicians, nurses, pharmacists, patients, and families	Open dialogue about ASP-related issues with families and professionals Increased visibility of ASP across the organization

ASP = antimicrobial stewardship program, IV-to-PO = intravenous to oral.

- Actions at both a geriatric hospital and affiliated 400+ bed LTCF
  - Focused on overall antibiotic use, UTI rates and Ciprofloxacin use for UTI
  - Compared 12 months pre-intervention to 12 months post-intervention
- Clinical UTI rates didn't change; LTC-initiated antibiotic days and LTC-ciprofloxacin use decreased in the post-intervention period

Kassett N. Can J Hosp Pharm 2016; 69(6): 460-465

CMS *C. difficile* reporting and reduction project, 2016-2018

- Collaboration between CDC, CMS and national Quality innovation networks to promote CDI reporting, prevention and antibiotic stewardship among nursing homes
- Includes:
  - NHSN enrollment and CDI event reporting
  - Training in LTC communication (TeamSTEPPS)
  - Understanding of CDI/MDRO prevention practices
  - Implementation of activities based on the *CDC Core Elements of Antibiotic Stewardship for Nursing Homes*
- *Resulted in*
  - *3,176 NHs (20%) of CMS certified NHs enrolled across the country;*
  - *Over 2,500 nursing home contributing to CDI data into NHSN*
  - *Ongoing engagement in CDI prevention and stewardship implementation activities over the coming year*

Take away points

- Many opportunities to improve antibiotic use and reduce harms for NH residents
- National initiatives, including new regulations and quality improvement collaborations, are driving antibiotic stewardship efforts in NHs
- The physicians and pharmacists serve a critical role in leading antibiotic stewardship efforts
    - Seek opportunities to build additional expertise in antibiotic stewardship
    - Requires a multidisciplinary approach
    - Leverage data to change prescribing practices
- Start slowly – identify a one or two opportunities to improve use and measure the impact of those changes

Thank you!!
Email: nstone@cdc.gov with questions/comments

For more information, contact CDC
1-800-CDC-INFO (232-4636)
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