

**Point Prevalence Survey of Healthcare Associated Infection
(HAI) and Antimicrobial use (AU) in US nursing homes:
Summary of Antimicrobial use (AU) data**

Data from Centers for Disease Control and Prevention (CDC)
& the Emerging Infections Program (EIP)

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Primary objectives: CDC 2017 NH prevalence survey

- Measure number/proportion of HAIs and HAI types in nursing homes
 - Using revised McGeer criteria for residents in LTC¹
- Identify number/proportion and types of antimicrobial drugs used in nursing home residents

CDC Prevalence Survey: Definition of Antimicrobial Use

- Systemic antimicrobial(s) received by residents at the time of the survey
 - Drug name and class
 - Administration route
 - Rationale: Treatment of infection, Prophylaxis, Non-infectious
 - Therapeutic body site
 - First date and End date: Planned duration
- **Systemic:** Oral/Enteral, Intravenous, Intramuscular or Inhaled route of administration
 - Main exclusions : Topical, Ophthalmic, Otic, Intranasal
- **Antimicrobial:** List of 130 eligible agents
 - Mostly antibiotics, but also selected antifungal or antiviral agents

Prevalence of systemic antimicrobial use (AU) in nursing homes, 2017

# NH	# NH residents	# residents ≥ 1 AU	AU prevalence 100 residents
161	15,276	1,261	8.2%

Prevalence of systemic antimicrobial use (AU) in nursing homes, 2017

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Prevalence of systemic antimicrobial use (AU) in nursing homes compared to U.S acute care hospitals

# NH	# NH residents	# residents ≥ 1 AU	AU prevalence 100 residents
161	15,276	1,261	8.2%

# hospitals	# NH patients	# patients ≥ 1 AU	AU prevalence 100 patients
183	11,282	5,635	49.9%

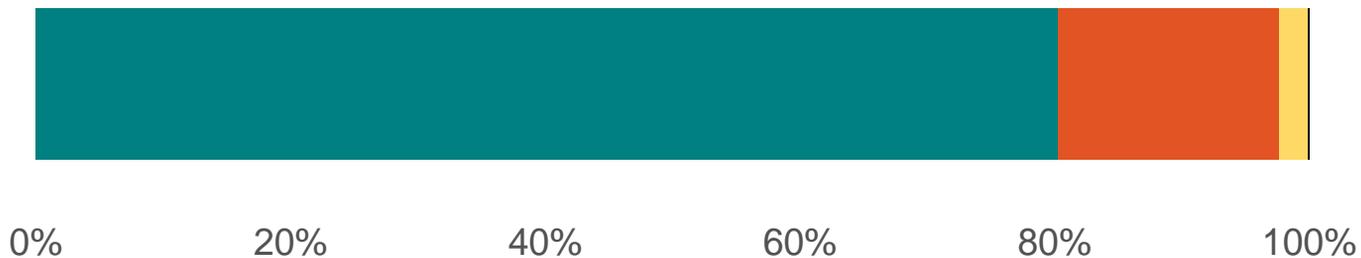
Prevalence of systemic antimicrobial use (AU) in nursing homes compared to LTCF in European

# NH	# NH residents	# residents ≥ 1 AU	AU prevalence 100 residents
161	15,295	1,261	8.2%

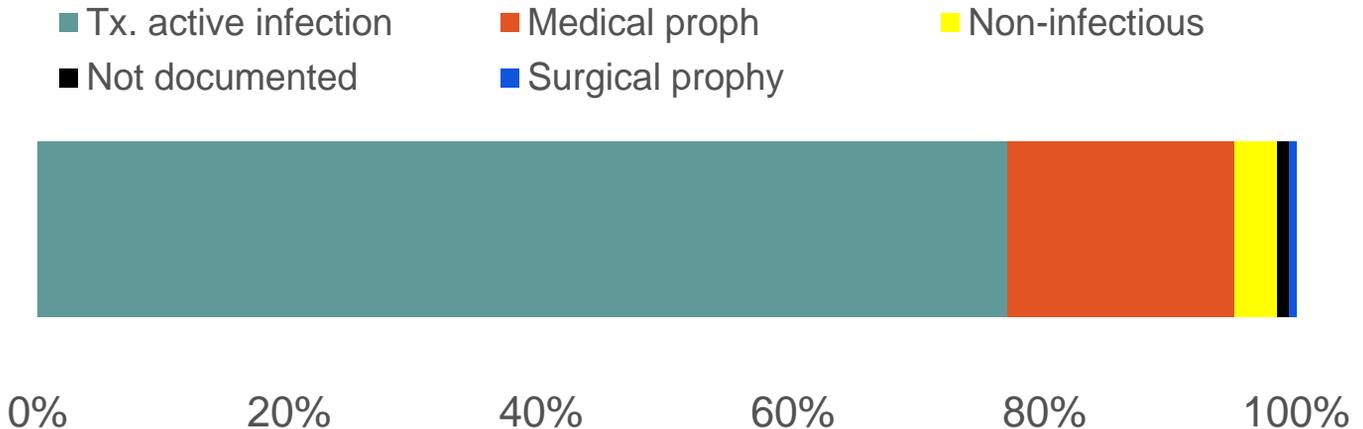
Year	Size of prevalence survey	AU Prevalence per 100 residents
European CDC, 2010	700 LTCF, 25 countries, 62,000 residents	4.3%
European CDC, 2013	1,181 LTCF, 19 countries, 77,000 residents	4.4%
European CDC, 2016	1,778 LTCF, 24 countries, 102,00 residents	4.9%

Percent of antimicrobial drugs by route of administration

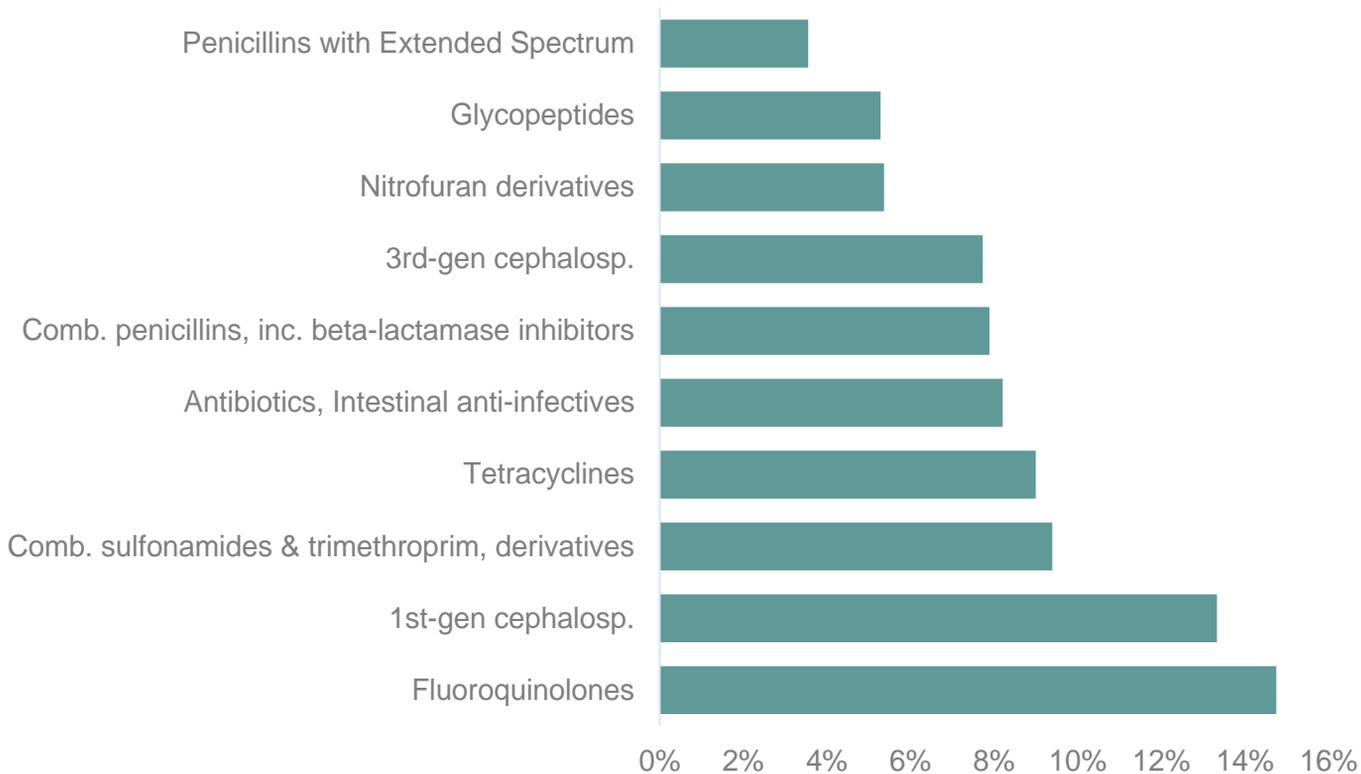
■ Oral/enteral ■ Intravenous ■ Intramuscular ■ Inhaled



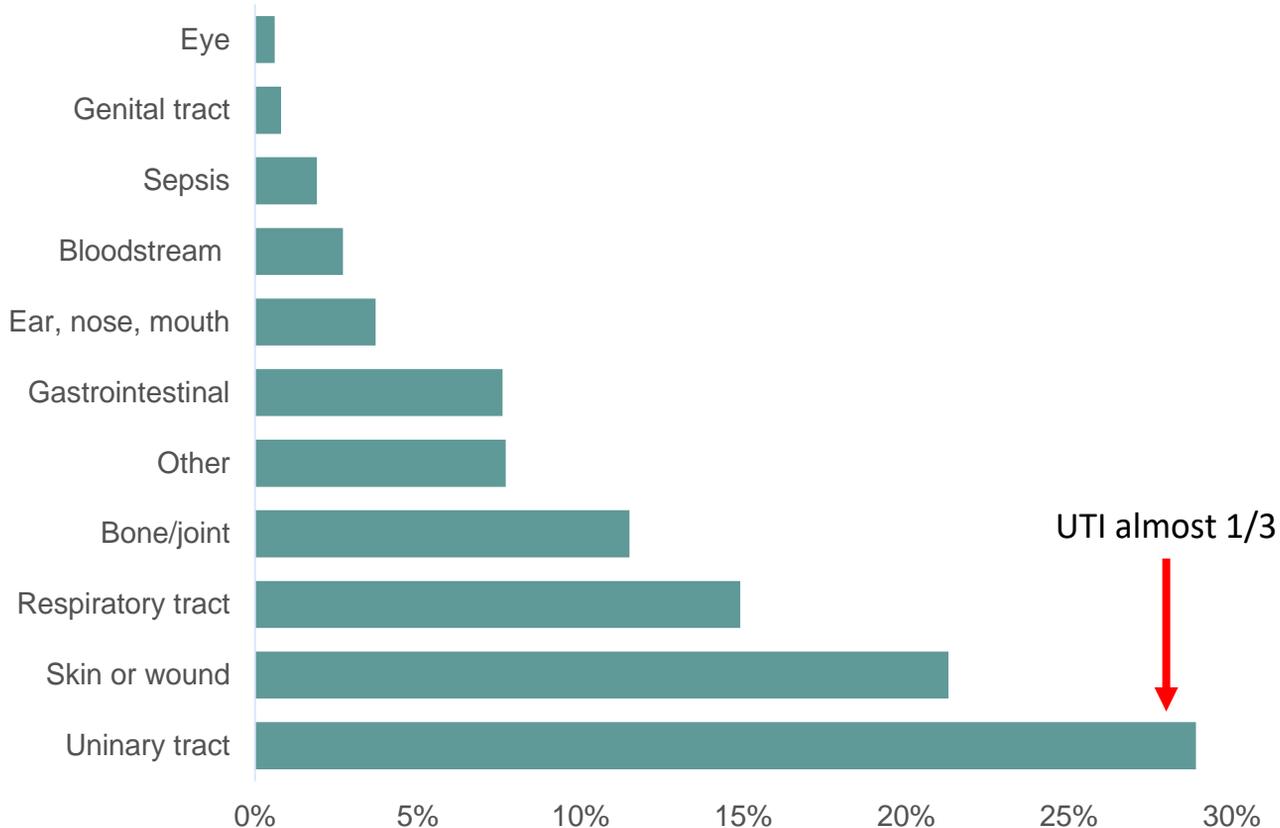
Percent of antimicrobial drugs by rationale for use



Top 10 antibiotic classes – overall



Percent of antimicrobial drugs by treatment site(s)

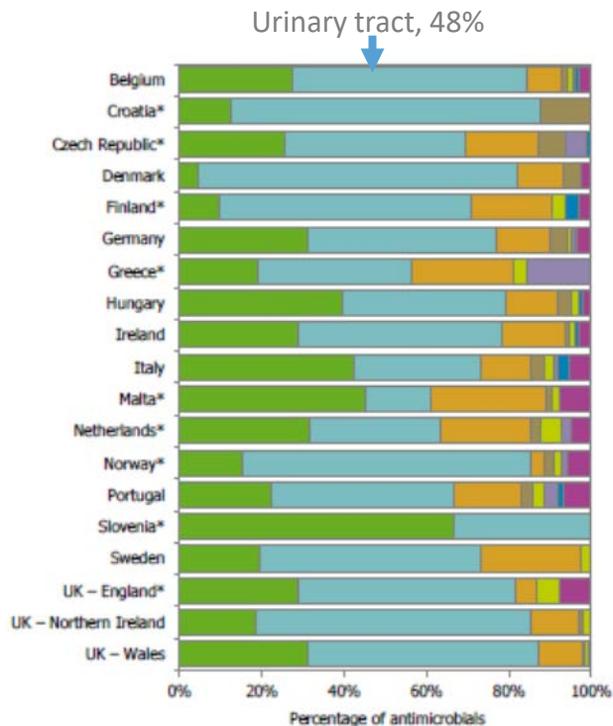


Urinary tract infection: a leading cause of antimicrobial use in nursing homes

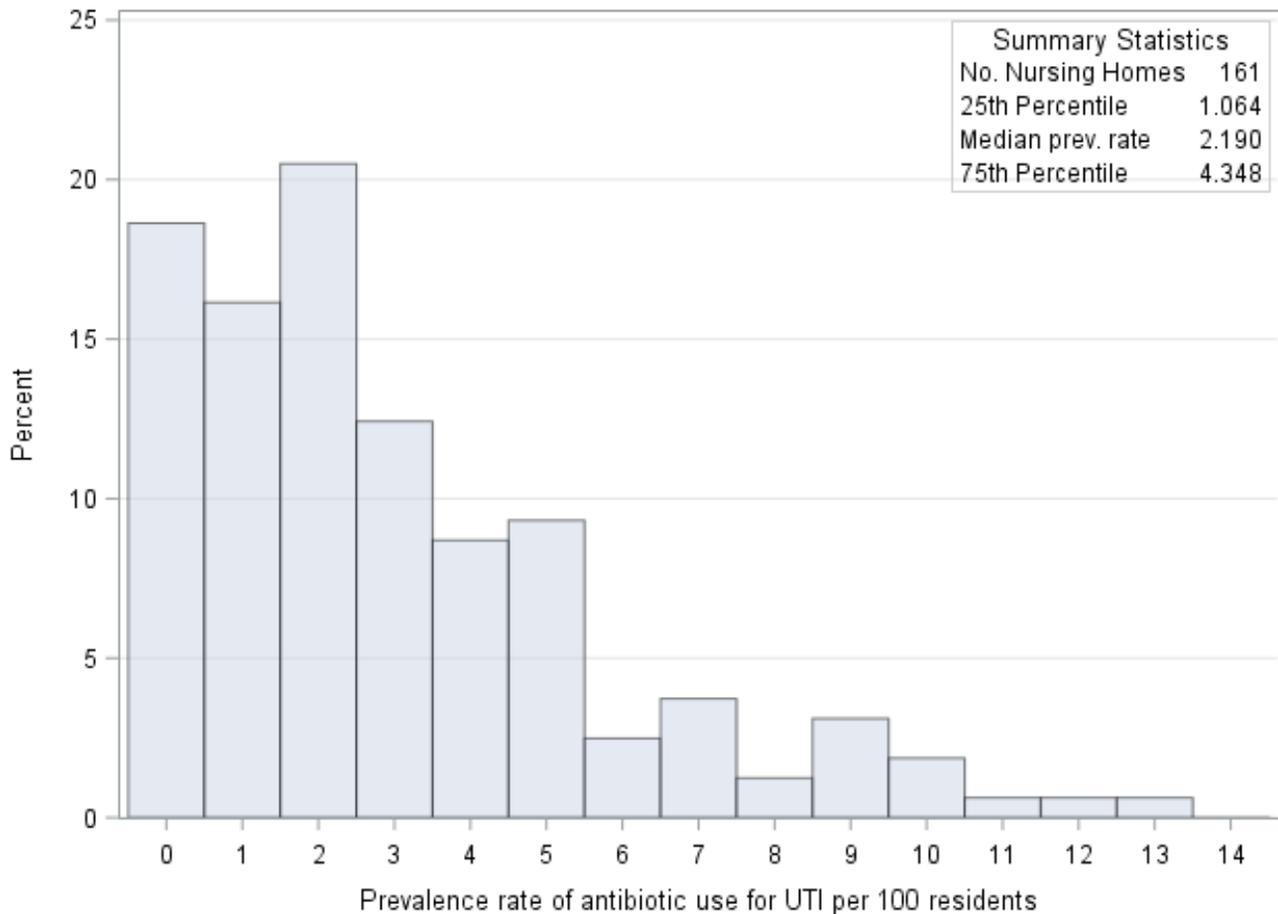
Loeb. Ontario, Canada Chronic Care Facilities, 1997. Antibiotics Used

Infection type	%
1. Respiratory tract	36
2. Urinary tract	33
3. Skin/soft tissue	13

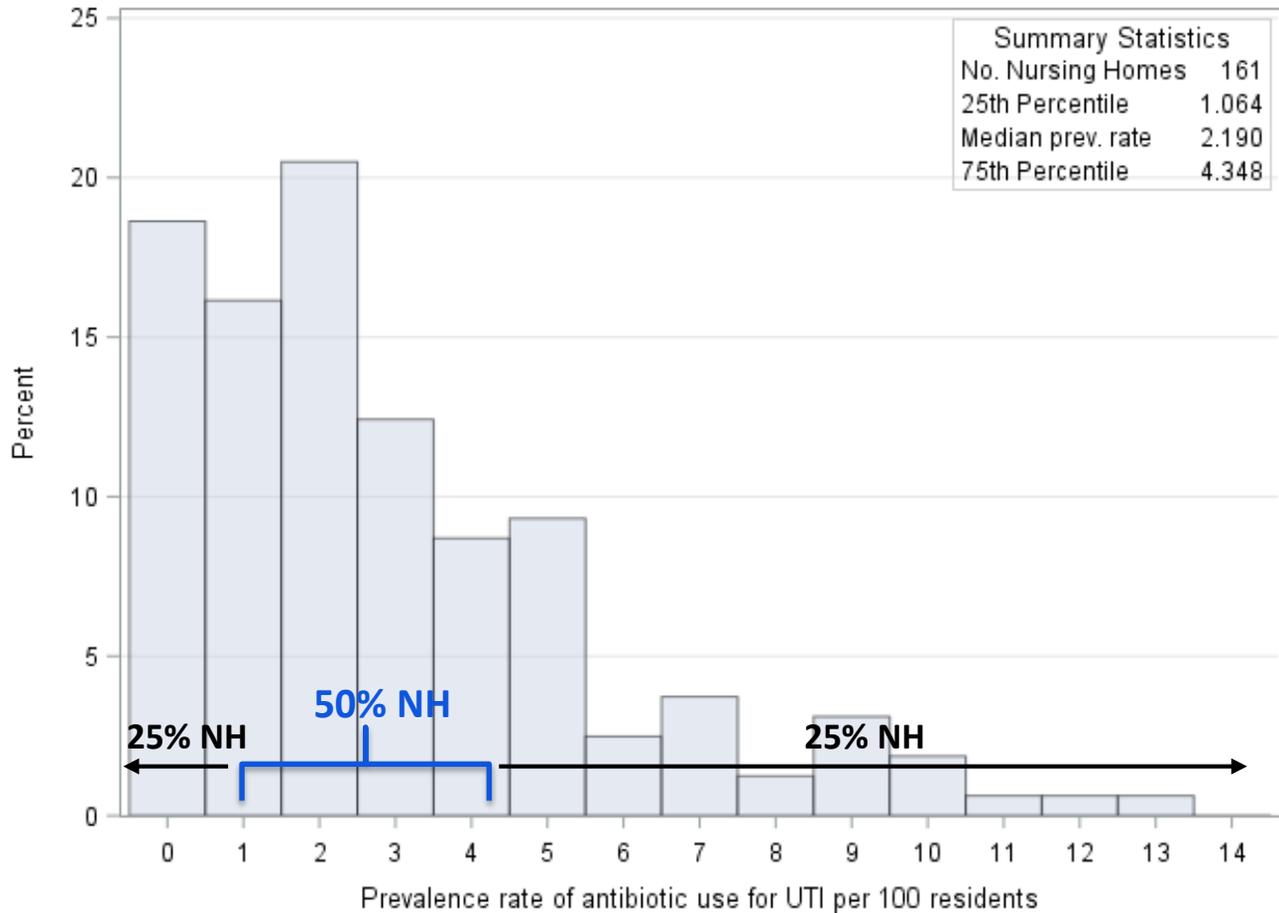
European CDC: Prevalence Survey in Long-term Care Facilities, 2013. Antimicrobials Used



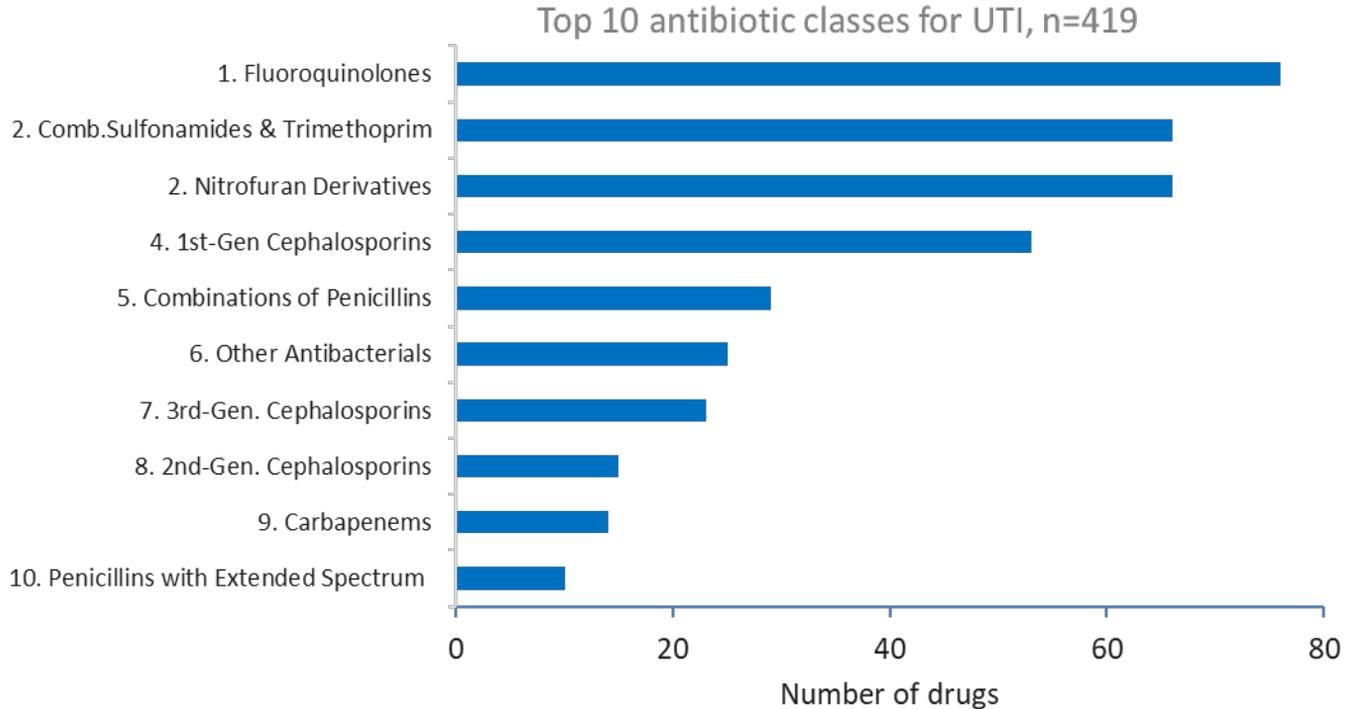
>10-fold variation in NH-specific prevalence of antibiotic use for UTI



>10-fold variation in NH-specific prevalence of antibiotic use for UTI



Top 10 antibiotic classes for UTI



Antibiotic for UTI ≠ UTI Surveillance Event

- NHSN LTCF Component provides criteria to identify UTI Events for surveillance purposes



*NHSN Long-term Care Facility Component
Urinary Tract Infection*

Healthcare-associated Infection Surveillance Protocol for Urinary Tract Infection Events for Long-term Care Facilities

Background: The urinary tract is one of the most common sites of healthcare-associated infections, accounting for up to 20% of infections reported by long-term care facilities (LTCFs).¹ Risk factors for developing bacteriuria and UTI include age-related changes to

- Clinical guidelines are used to guide decisions on when to initiate antibiotics for suspected UTI, one example
 - Loeb Minimum Criteria for Initiation of Antibiotics
 - Undergoing an update
- They are different!
 - Because they not used for the same purpose



The Core Elements of
Antibiotic Stewardship for Nursing Homes



Self-reported data on implementation of 15 activities in 7 domains of the CDC Core Elements, 161 NH

Leadership

Written statements from leadership in support of improved antibiotic use

48%

0% 50% 100%

Tracking

Review antibiotic use and resistance data in quality/performance improvement meetings

84%

Routinely receive reports on antibiotic use from pharmacy service

76%

0% 50% 100%

Accountability

Facility Medical Director reviews antibiotic use data

75%

An individual is responsible for overseeing activities to improve antibiotic use

68%

0% 50% 100%

Reporting

Receive antibiogram from the lab

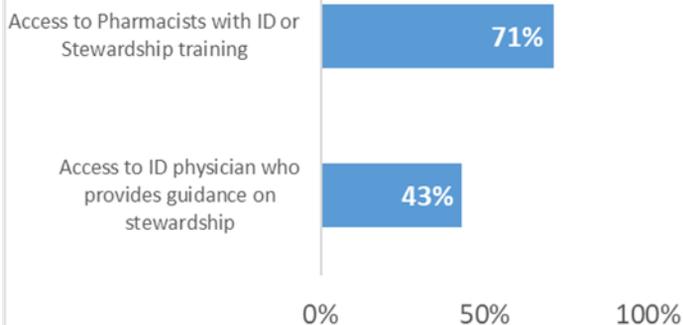
75%

Provide feedback on prescribing practices to medical personnel

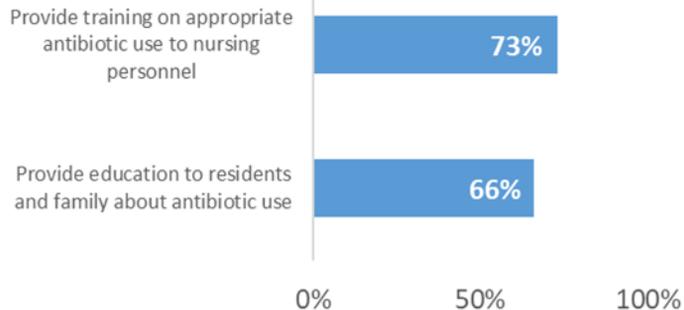
55%

0% 50% 100%

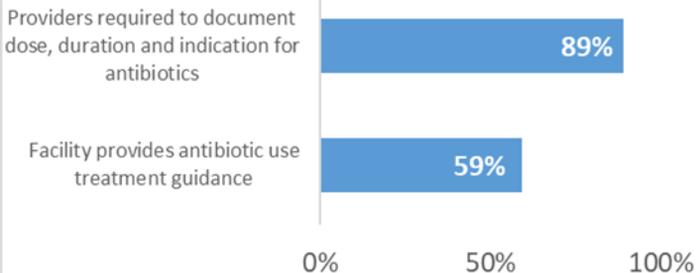
Drug Expertise



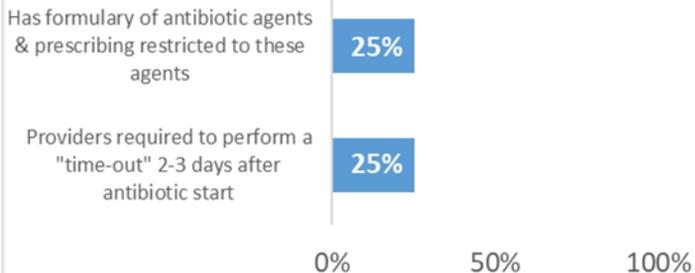
Education



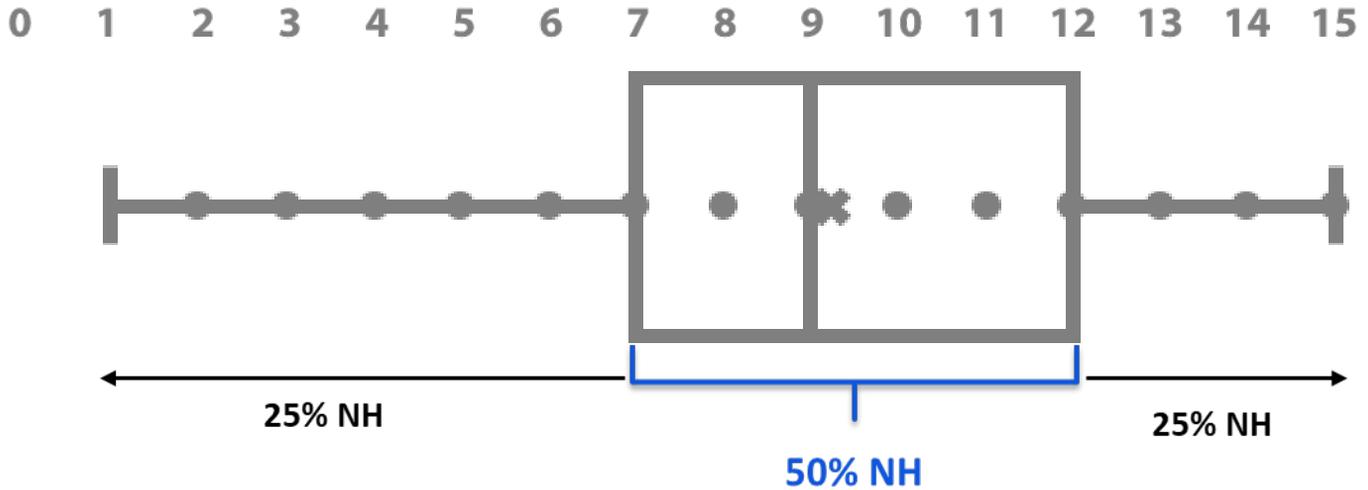
Action - 1



Action - 2



Range in facility stewardship score



Factors associated with higher stewardship score

Facility-level factor*	P-value
Ownership: For-profit, not for-profit, Government	0.6623
Number certified beds: Continuous, range 12-540	0.5656
Average daily census: Continuous, range 10-495	0.7874
Infection Preventionist (IP) full time: Yes, No	0.1132
IP completed certified# training course: Yes (56), No (101)	0.0296
CMS staffing score: 1-5 points	0.3436
Number attending physicians per 100 beds: Top vs lower 3 quartiles	0.0293
CMS Overall NH Score: 1-5 points	0.5489
CMS Quality Measure Score: 1-5 points	0.0296
CMS % long-stay residents with UTI: Continuous 1-100	0.3606

*Only selected factors analyzed shown in table

#SHEA, APIC or State Health Department certification

Summary

- AU prevalence in US nursing homes was 8.2 per 100 NH residents
 - *On a given day, 1 in 12 residents receiving an antimicrobial*
 - Much lower than in US acute hospitals
 - But, double prevalence in European LTC facilities

- Most commonly given for urinary tract infection, 30% of all AU
 - UTI AU prevalence varies across NHs
 - More than 10-fold difference in NH prevalence rates
 - Remember, antibiotic given for UTI is not the same as UTI Event for surveillance

- CDC Core Elements for Antibiotic Stewardship are being adopted by nursing homes, opportunities for improvement remain

Acknowledgements:

- All 161 participating NHs
- All EIP site staff

Thank you!

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For more information, contact CDC
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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.

