

Antimicrobial Stewardship in the Long Term Care Setting



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Disclosures

- None

Objectives

- Describe antimicrobial stewardship (AS) and its purpose in the long term care setting
- Discuss the CDC Core Elements of AS for Nursing Homes
- Compare the various approaches to AS as described in the literature
- Apply knowledge to case scenarios

Antibiotics Use in Long Term Care Facilities

- Antimicrobial resistance is a public health crisis
- Estimated ~16,000 nursing homes in the US
 - ~1.4 million residents
- Infection prevalence ranges from 1.4-5.2 cases per 1000 care days (nearly 3 million/year)
- Up to 70% of residents treated with antimicrobials/yr
 - ~50% considered inappropriate
- **Inappropriate:** defined as improperly used when indicated or not indicated at all

Feldstein D. JAMDA 2018;19:110-6.

Stone PW. INQUIRY 2018;55:1-7.

Falcone M. Clinical Microbiology and Infection 2018:1-8.

Antimicrobial Resistance

- Estimated 1 out of every 3 residents are colonized with an MDRO
 - *Staphylococcus aureus*
 - Enterobacteriaceae
 - *Pseudomonas aeruginosa*
 - Others
- **Challenge:** Clinical management, collateral damage (e.g. CDI), and financial burden

MDRO, multi-drug resistant organism; CDI, *Clostridium difficile* infection

Feldstein D. JAMDA 2018;19:110-6.

Stone PW. INQUIRY 2018;55:1-7.

Falcone M. Clinical Microbiology and Infection 2018:1-8.

Antimicrobial Stewardship

- *Antibiotic stewardship (AS) refers to a set of **commitments and activities** designed to “optimize the treatment of infections while reducing the adverse events associated with antibiotic use.”*

Goals?

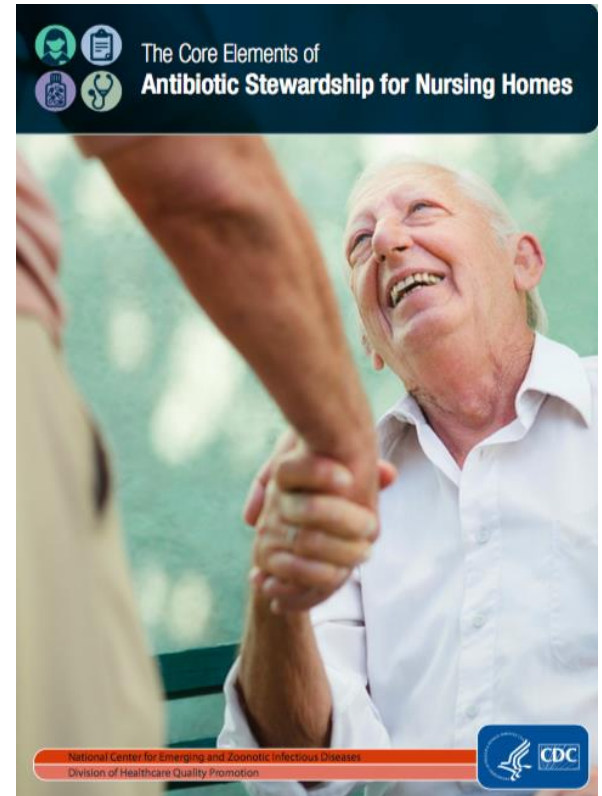


Reduce inappropriate
antimicrobial use

- Reduce adverse drug events
- Reduce the incidence of CDI
- Reduce antimicrobial resistance
- Reduce unnecessary hospitalizations
 - Improve clinical outcomes

CDC Core Elements

1. Leadership Commitment
2. Accountability
3. Drug Expertise
4. Action
5. Tracking
6. Reporting
7. Education



CDC, Centers for Disease Control and Prevention

Leadership Commitment

- Commit to improving antimicrobial use
- Statement supporting AS as a priority
- Financial support
 - Designated staff
 - Incorporate into job descriptions
 - Medical director, nurse leads, consultant pharmacists
- Establishing a culture
 - Communication, education, recognition
 - Minimize hierarchy among staff



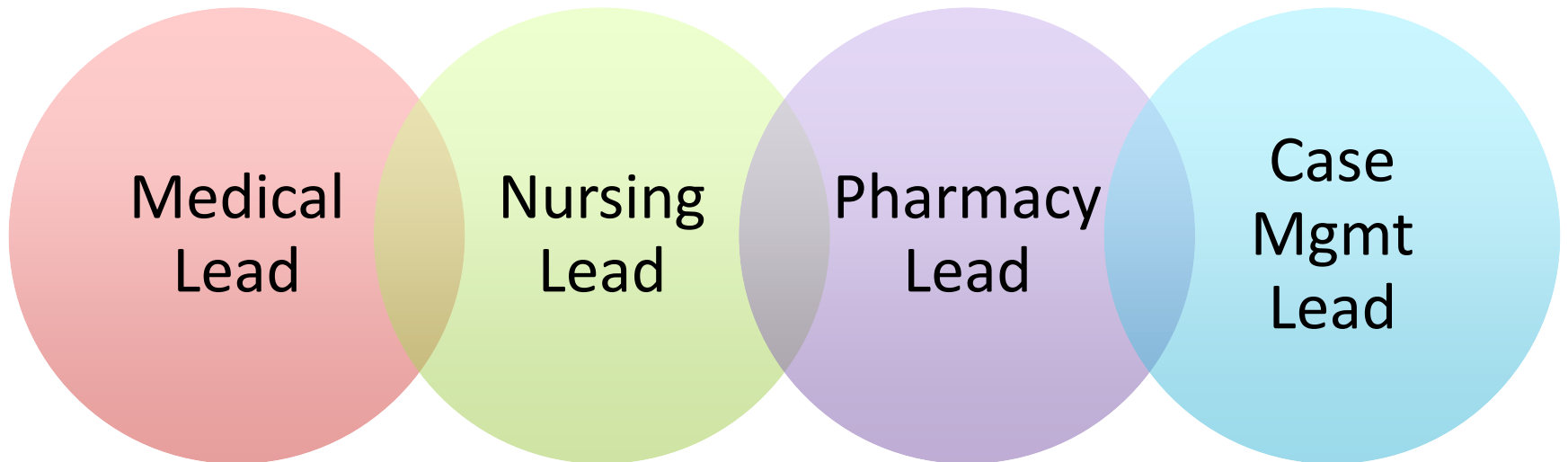
<https://commons.marymount.edu/theleaderinme/2014/05/10/reflection/>

Carter RR. J Am Geriatr Soc 2017;65(5):1073-8.

Nursing Homes and Assisted Living (LTC). CDC; The Core Elements of Antibiotic Stewardship for Nursing Homes. 2018.

Accountability

- Identify individuals accountable (leads) for AS



Task: Prescribing standards, protocol adherence, nursing empowerment, antimicrobial management, continuity of care

Drug Expertise

- Infectious Diseases can be challenging
- Access to ID consultants and ID or AS-trained consultant pharmacists
 - Multiple training programs available
 - Partner with affiliated hospital (as applicable)
 - Contract with available consultants in community



Action

- Implement policies and modify practices to improve antimicrobial use
- CDC recommendations
 - Prioritize based on needs
 - Introduce in a step-wise fashion
 - Monitor and measure impact
 - Repeat as necessary
- Examples: Modify medication safety policies, empiric treatment recommendations, dosing algorithms, disease-state specific algorithms

Tracking/Reporting

- Track antimicrobial prescribing data
 - Do they comply with protocols?
- Track amount of antimicrobial use
 - Any patterns that should be evaluated?
 - Days of Therapy (DOTs)
 - 1 DOT = 1 dose of a specific antibiotic over a 24 hour period
- Track clinical outcomes
 - Antibiotic resistance, CDI, adverse drug events



Education

- Most **important** component
- Include staff, resident, and family members
 - Goals of antimicrobial stewardship
 - Responsibilities
 - Harmful effects of antimicrobials
 - Disease state/treatment specific education
 - Feedback from initiatives
 - Etc.

Unique Challenges

Patient Level

- Multiple comorbidities
- Aging immune system
- Functional dependence
- Cognitive impairment/communication deficiency
- Frequent hospitalizations

Facility Level

- Limited diagnostic testing/imaging access
- Inadequate staff
- Shared medical equipment
- Financial resources

Feldstein D. JAMDA 2018;19:110-16

Dyar OJ. Clin Microbiol Infect 2015;21:10-9.



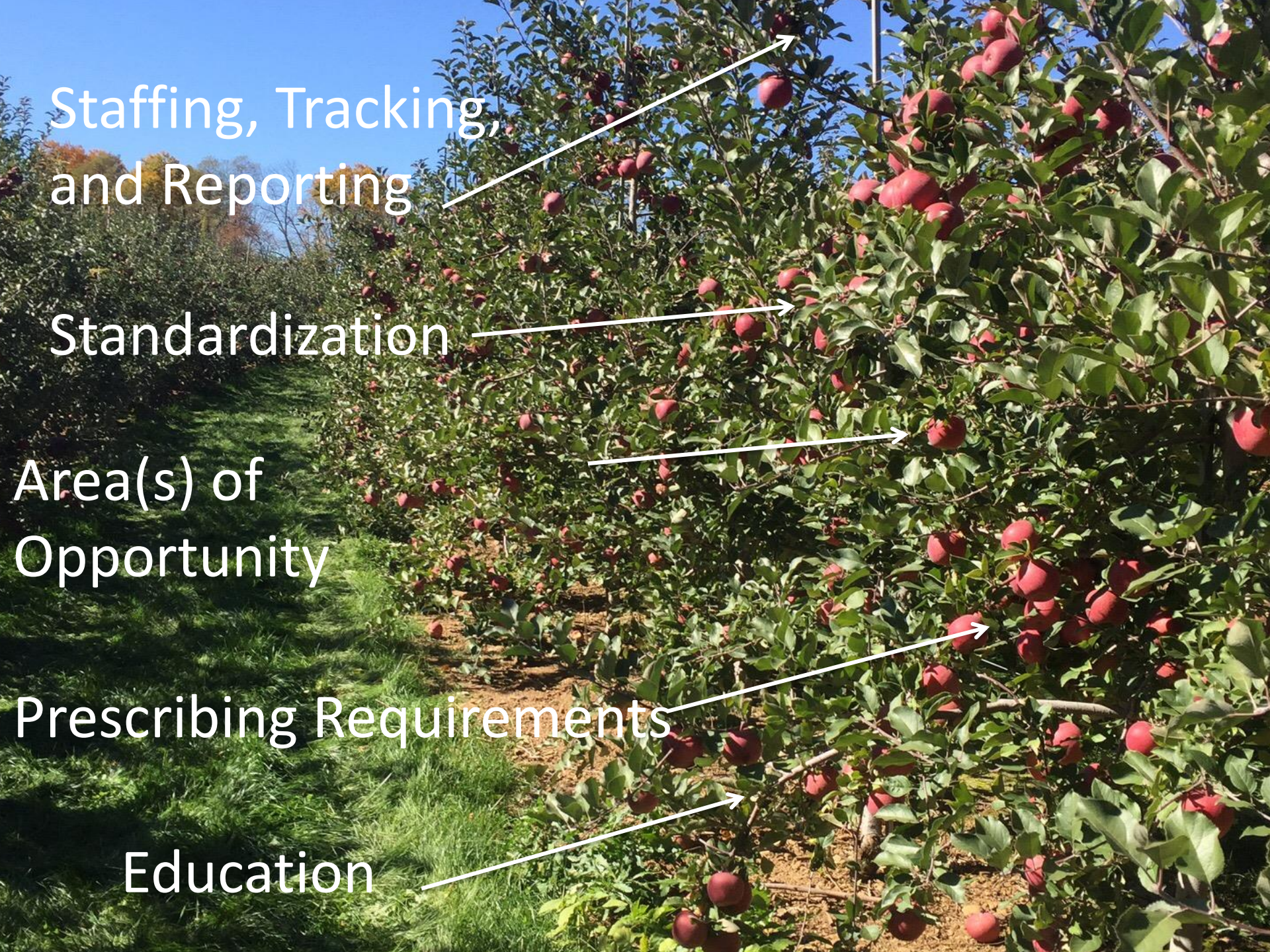
Staffing, Tracking,
and Reporting

Standardization

Area(s) of
Opportunity

Prescribing Requirements

Education



Education



- ★ • Medical Staff
 - Principles of ASP, continuing medical education, treatment guidelines, audit and feedback, providing individualized data
- ★ • Nursing Staff
 - Principles of ASP, continuing medical education, signs of bacterial infections, antibiotic indications, approach to microbiological investigations
- Patient/Family
 - Harms/benefits of antimicrobials, indications

Study	Setting Type of infection	Design	Intervention	Main outcomes	Impact of the intervention
Naughton et al. [40] 2001	10 community-based LTCFs USA Pneumonia	Randomized controlled trial	Multifaceted educational intervention: small-group consensus process limited to physicians and a similar intervention that included physicians and nurses	Antibiotic use at diagnosis compared with the guidelines	Increase in appropriate use of parenteral antibiotic therapy in the multidisciplinary group only No impact on oral antibiotic use
Loeb et al. [39] 2005	24 community-based LTCFs Canada and USA UTIs	Cluster randomized controlled trial	Multifaceted educational intervention: small group interactive sessions for nurses , videotapes, written material, outreach visits, and one-on-one interviews with physicians	Number of antimicrobials prescribed for suspected UTIs	Fewer courses of antimicrobials for suspected UTIs were prescribed in the intervention group, but not sustained over the 12 months post intervention
Hutt et al. [47] 2006	2 LTCFs (one hospital-based, one community-based) USA Pneumonia	Before/after controlled	Multifaceted educational intervention: interactive educational sessions for nurses and academic detailing for physicians	Use of appropriate antibiotics Timely antibiotic initiation for unstable patients	No statistically significant impact on both outcomes
Monette et al. [42] 2007	8 community-based LTCFs Canada UTIs, lower RTIs, SSTIs, and bacteraemia of unknown origin	Cluster randomized controlled trial	Multifaceted educational intervention: antibiotic guide sent to physicians along with their antibiotic prescribing profile (intervention performed twice) In-house pharmacists in all facilities	Antibiotic prescriptions compliant with the guidelines	Decrease of non-compliant antibiotic prescriptions in the intervention group, but not sustained up to 6 months after the second intervention
Schwartz et al. [46] 2007	One hospital-based LTCF USA All infections	Before/after uncontrolled, with ITS analysis	Educational intervention targeted at 20 salaried internists who provided most of the medical care. On-site laboratory and radiographic services. Multifaceted: national guidelines, hospital resistance data, and physician feedback (series of four teaching sessions given by ID specialists over 18 months plus booklets)	Antibiotic prescriptions compliant with guidelines Total antibiotic use	Increase in compliant antibiotic prescriptions Decreased antibiotic use

Zabarsky et al. [29] 2008	One hospital-based LTCF USA UTIs (focus on asymptomatic bacteriuria)	Before/after uncontrolled	Educational intervention: nurses (discourage the collection of urine cultures in the absence of symptoms) and physicians (no antibiotics for asymptomatic bacteriuria) Repeated sessions, with individual feedback	Appropriateness of urine culture collection and antibiotic treatment based on guidelines Total antibiotic use	Decrease in inappropriate submission of urine cultures, overall rate of treatment of asymptomatic bacteriuria and total antibiotic use
Pettersson et al. [41] 2011	58 community-based LTCFs Sweden All infections	Cluster randomized controlled trial	Multifaceted educational intervention: small educational group sessions with nurses and physicians , feedback on prescribing, presentation of guidelines and written materials	Proportion of quinolones prescribed for lower UTIs in women Proportion of recorded infections treated with an antibiotic Proportion of infections handled by physicians as 'wait and see'	No significant decrease in the use of quinolones for UTIs Decrease in the overall prescribing of antibiotics Increased proportion of infections handled by physicians as 'wait and see'
Linnebur et al. [45] 2011	16 community-based LTCFs USA Pneumonia	Before/after controlled	Multifaceted educational intervention: educational sessions for nurses and academic detailing to physicians by pharmacists	Antibiotic prescriptions compliant with guidelines (timely administration, choice of antibiotic and duration)	No impact on choice of antibiotic and duration Increase in timely administration of antibiotics
Jump et al. [44] 2012	One hospital-based LTCF USA All infections	Before/after uncontrolled, with ITS analysis	ID on-site consultation service (weekly round + available on the phone) All of the LTCF prescribers were full-time staff	Total systemic antimicrobial use Positive <i>Clostridium difficile</i> tests	Decrease in total antimicrobial use and in <i>C. difficile</i> positive tests
Rummukainen et al. [32] 2012	64 hospital-based and community-based LTCFs Finland UTIs	Before/after uncontrolled	Multifaceted educational intervention: academic detailing for physicians and head nurses (by a team with an ID specialist, an infection control nurse and a geriatrician), regional guidelines	Antibiotics prescribed to treat UTIs Antibiotics prescribed for UTI prophylaxis	No impact on curative antibiotic treatments, but decrease in UTI prophylaxis
Zimmerman et al. [48] 2014	12 LTCFs USA UTIs, SSTIs and RTIs	Before/after controlled	Multifaceted educational intervention: quality improvement programme that involved training of physicians and nurses , information of residents and families , regular feedback on prescribing	Rates of antibiotic prescribing for presumed UTIs, SSTIs and RTIs	Reduction in antibiotic prescribing rates
Fleet et al. [43] 2014	30 LTCFs UK All infections	Cluster randomized controlled trial	Structural intervention: introduction of the 'Resident Antimicrobial Management Plan' tool, a form to be completed by nursing staff for all new antibiotic prescriptions (at the initiation and at around day 3)	Total antibiotic use (defined daily doses/1000 residents/day)	Decrease in total antibiotic use (only for treatment of infection, not for prophylaxis)

Abbreviations: ID, infectious diseases; ITS, interrupted time series; LTCF, long-term care facility; RTI, respiratory tract infection; SSTI, skin and soft tissues infection; UTI, urinary tract infection.

IP Training and ASP






- Survey of 922 NH in the US (2013-2014)
- Specific IP training → AS policies in place

Table 3. Descriptive Statistics and Bivariate Associations Between Training in Infection Control and Having Recommended Antibiotic Stewardship Policies.

Policy/program	Total, N = 922 (%)	Specific training, n = 359 (%)	No specific training, n = 563 (%)	P value
Written guidelines in place for antibiotic use	422 (46.5)	161 (45.5)	261 (47.1)	.63
Collection of data on antibiotic utilization	467 (51.4)	197 (55.7)	270 (48.7)	.04
Antibiotic prescribing guideline/order form	152 (16.7)	70 (19.8)	82 (14.8)	.05
Policies to restrict the use of specific antibiotics	65 (7.2)	44 (12.4)	21 (3.8)	<.01
Providing feedback to clinicians on antibiotic prescribing	301 (33.2)	136 (38.4)	165 (29.8)	.01
Use of therapeutic formularies	153 (16.9)	73 (20.6)	80 (14.4)	.02
Review of cases to assess antibiotic appropriateness	395 (43.5)	179 (50.6)	216 (39.0)	<.01
None of the above policies/programs on antibiotic use	105 (11.6)	31 (8.8)	74 (13.4)	.03

Patients

- Plenty of great resources... for FREE!

 <p>Core Elements for Antibiotic Stewardship in Nursing Homes</p> <h2>What You Need to Know About Antibiotics in a Nursing Home</h2>	<h2>Nursing Homes Healthcare Provider</h2>	<p>C. difficile</p> 	
<p>What are antibiotics?</p> <p>Antibiotics are drugs used to treat infections caused by bacteria. They do not work for illnesses caused by viruses, like flu and most cases of bronchitis.</p> 	<p>What is antibiotic stewardship?</p> <p>Antibiotic stewardship refers to a set of commitments and actions designed to make sure patients receive the right dose, of the right antibiotic, for the right amount of time; and only when truly necessary. Improving antibiotic use will ensure these life-saving medications are effective and available when we need them.</p> 	<p>C. difficile that causes infections. Avoiding these infections. Infections are caused by germs, like bacteria. The first focus of this goal is to reduce C. difficile of other germs in a nursing home.</p>	
<p>When are antibiotics necessary?</p> <p>There are times when antibiotics are urgently needed; for example, to treat sepsis (e.g., when bacteria cause a severe infection of the bloodstream), pneumonia caused by bacteria, and meningitis caused by bacteria. Using antibiotics when they are not necessary increases the risk they will not work when needed most.</p> 	<p>Why is improving antibiotic prescribing practices important for nursing homes?</p> <p>Nursing home residents have a higher risk of colonization with bacteria for many reasons. The presence of invasive devices such as urinary-catheters and feeding tubes, wounds, and conditions that affect the bladder (e.g., diabetes or stroke) can all lead to colonization. Difficulties in separating colonization of bacteria from true illness in frail or older adults can lead to the overuse of antibiotics, which in turn drives antibiotic resistance.</p> 	<p>is "C. diff" [See-dif], are bacteria that cause serious illness. When someone has a C. diff infection, the bacteria are in their system. They can be spread to others if they touch something with feces on it and then touch "mucous membranes".</p>	<h2>urinary tract infections in older people</h2> <p>older people don't always show signs. This is why it is important to monitor for urinary tract infections. You may lose your appetite, get nausea, or feel tired but not show signs. This is why it is important to monitor for urinary tract infections. You may lose your appetite, get nausea, or feel tired but not show signs. This is why it is important to monitor for urinary tract infections.</p> 
<p>Can taking antibiotics be harmful?</p> <p>Antibiotics, like any medications, can have minor side effects like upset stomach or a rash, as well as serious allergic reactions or dangerous interactions with other medications a person is taking. In particular, antibiotics put people at risk for a deadly type of diarrhea caused by C. difficile. Frequent or excessive use of antibiotics leads to developing bacteria that are resistant to those antibiotics. Antibiotic-resistant bacteria are harder to kill, and can cause untreatable infections. A person also can carry resistant bacteria without feeling sick (this is called "colonization"), but if that bacteria causes an infection, it can require more complex treatments and transfer to the hospital.</p> 	<p>Questions to Ask your healthcare Provider if you are Prescribed an Antibiotic</p> <ul style="list-style-type: none"> • How long will I be on this antibiotic? • How often should I take this antibiotic? • How do I know if I have an infection? • What side effects might occur from this antibiotic? • How will I know if my illness is responding to this antibiotic? • How will I be monitored to know if my illness is responding to this antibiotic? <p><i>continued on next page</i></p>	<p>tools. You may lose your appetite, get nausea, or feel tired but not show signs. This is why it is important to monitor for urinary tract infections. You may lose your appetite, get nausea, or feel tired but not show signs. This is why it is important to monitor for urinary tract infections.</p> <p>become sick. If you are healthy and practice safety you can avoid getting sick. If you are with someone who is infected, you can get sick. If you need antibiotics to treat an illness, you can get sick. If you are frail, are also at more risk for C. difficile. You may lose your appetite, get nausea, or feel tired but not show signs. This is why it is important to monitor for urinary tract infections.</p> <p>fection fighting system, (also known as the gut microbiome) is naturally true for people over age 65. You may also have a weaker gut microbiome. This is why it is important to monitor for urinary tract infections.</p> <p>Antibiotics can kill bacteria?</p>	

Prescribing Requirements

- Discourage antibiotic prescribing without proper clinical exam
- Mandate the documentation of indication and duration of treatment
 - ~40% of antimicrobials lacking indication
- 72-hour *time-out* (Audit and feedback)
- ASP Form (e.g. Loeb Minimum Criteria, others)
 - Avoid inappropriate testing/cultures

Thompson ND. JAMDA 2016;17:1151-53.

Feldstein D. JAMDA 2018;19:110-16.

Sloane PD. Infect Control Hosp Epidemiol 2017;38:524-31.

Sloane PD. N C Med J 2016;77(5):324-9.

Loeb Minimum Criteria

Table 4. Guidelines Provided to Long-Term Care Facility (LTCF) Residents

Reference	Provision
Loeb et al. ⁴⁹	Minimum criteria for prescribing of antibiotic treatment for urinary tract infection

- Criteria provided to nursing home residents with respiratory infection and unknown source

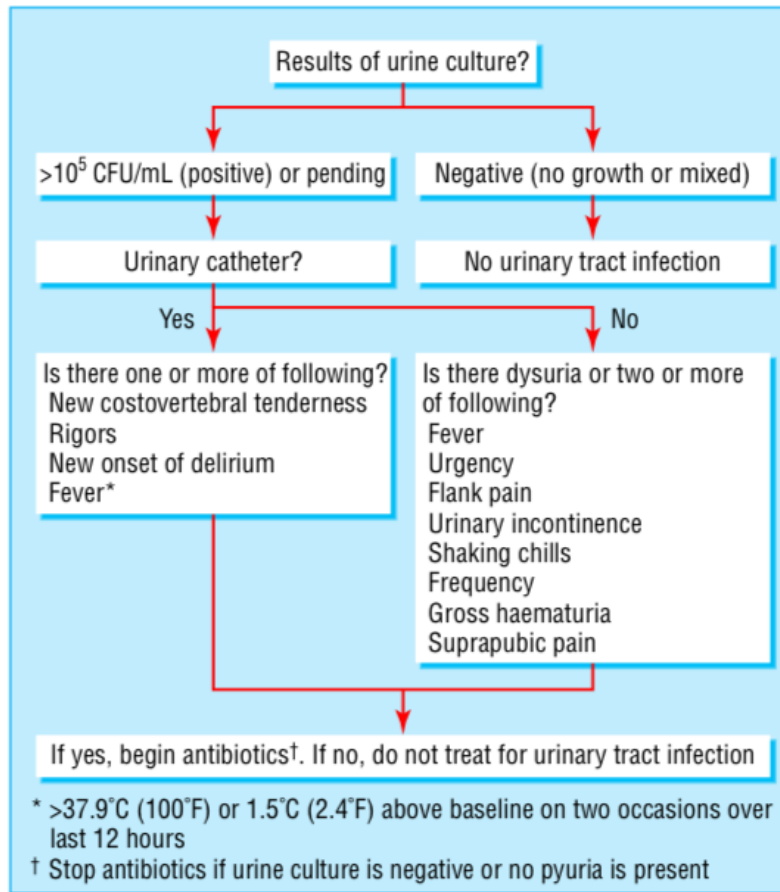


Fig 2 Treatment algorithm for prescribing antimicrobials to nursing home residents in intervention arm

UTI in Long-Term Care

Residents with Indwelling Catheters

presence of ≥1 of fever (>37.9°C or 1.5°C above baseline), new costovertebral angle tenderness or rigors (shaking, chills) with or without identified source, new-onset delirium

ons,
ver with

Epidemiol 2001; 22:120-4.

Loeb M. BMJ 2005; 331:669-70.

Area(s) of Opportunity

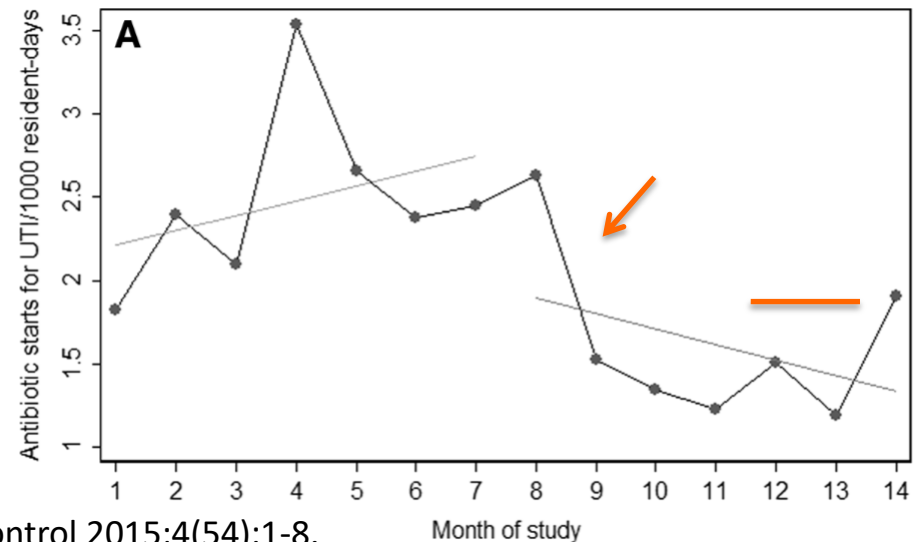
- Important to tailor AS to specific needs
- Urinary tract infections (UTI) and upper respiratory infections (URI) account for a large percentage of inappropriately prescribed antimicrobials
- Indication (~40%), treatment option (~40%), duration often inappropriate for UTI (~25%)



Implementation of an antimicrobial stewardship program targeting residents with urinary tract infections in three community long-term care facilities: a quasi-experimental study using time-series analysis

Sarah B. Doernberg^{1*}, Victoria Dudas² and Kavita K. Trivedi³

- Prospective pre-/post-implementation study
- LTCF (n=3) in Northern California
- ID consultant/pharmacist provided once weekly prospective audit/feedback
- Loeb Minimum Criteria
- Success (right) and barriers



Infection Prevention and Antimicrobial Stewardship Knowledge for Selected Infections Among Nursing Home Personnel

Barbara W. Trautner, MD, PhD^{1,2}, M. Todd Greene, PhD, MPH^{3,4}, Sarah L. Krein, PhD, RN^{3,4}, Heidi L. Wald, MD, MSPH⁵, Sanjay Saint, MD, MPH^{3,4}, Andrew J. Rolle, MPH⁶, Sara McNamara, MPH⁴, Barbara S. Edson, RN, MBA, MHA⁶, and Lona Mody, MD^{3,4}

Question or topic	No. of responses	% of responses that were correct
CAUTI recognition and management		
Recognize fever but not urine color, odor, or cloudiness as a CAUTI symptom	813	61.4%
Recognize that screening urine cultures on admission are not indicated	815	60.1%
Recognize that fever and positive urine culture should be treated with antibiotics	816	95.6%
Recognize whether a CAUTI was present on admission in brief scenarios	811	39.1%
Understand the date of the CAUTI event in brief clinical scenarios	811	39.6%
Identify CAUTI was present on admission in a longer case study (cohort 2 only)	701	30.7%
Asymptomatic bacteriuria and pyuria		
Recognize definition of ASB (cohort 1 only)	114	99.1%
Recognize that ASB is common in catheterized residents (cohort 2 only)	700	90.7%
Understand that pyuria does not distinguish ASB from urinary tract infection	814	36.1%

Continuity of Care

- It's very frustrating. I'll send someone...to the emergency department for chest pains. They get a diagnosis of UTI. I think it feeds the family problem because every time they go to the ED...the ED says they're diagnosed with a UTI."

– Nursing Home (F)



Comparing appropriateness of antibiotics for nursing home residents by setting of prescription initiation: a cross-sectional analysis

Michael Pulia^{1*}, Michael Kern², Rebecca J. Schwei¹, Manish N. Shah^{1,4}, Emmanuel Sampene³ and Christopher J. Crnich⁴

Table 2 Inappropriate antibiotic use stratified by location of antibiotic initiation and infection type (*n* = 735)

	Overall		NH		ED		Clinic		P-Value*
	n	%	n	%	n	%	n	%	
Inappropriate use across all Infection Types	359	48.8	304	47.5	16	47.1	39	63.9	0.048
Inappropriate for Lower Respiratory Tract Infections	99	50.7	94	51.9	2	28.6	3	42.9	0.437
Inappropriate for Skin and Soft Tissue Infections	47	26.9	29	21.5	3	25.0	15	53.6	0.002
Inappropriate for Urinary Tract Infections	213	58.4	181	55.9	11	73.3	21	80.8	0.023

*p-value tests for independence between covariate and location of antibiotic initiation
 NH Nursing Home, ED Emergency Department

- Need exists to verify all antimicrobial starts outside of facility
- Consider contracted outpatient/ED providers

Standardization

- Develop evidence-based **clinical** and **diagnostic** criteria when initiating antimicrobials
 - Multidisciplinary protocols
 - Incorporate local epidemiology (e.g. antibiogram)
- Restricted Antimicrobial Protocol
 - Target medications of significance
- Clinical Decision Support Tool

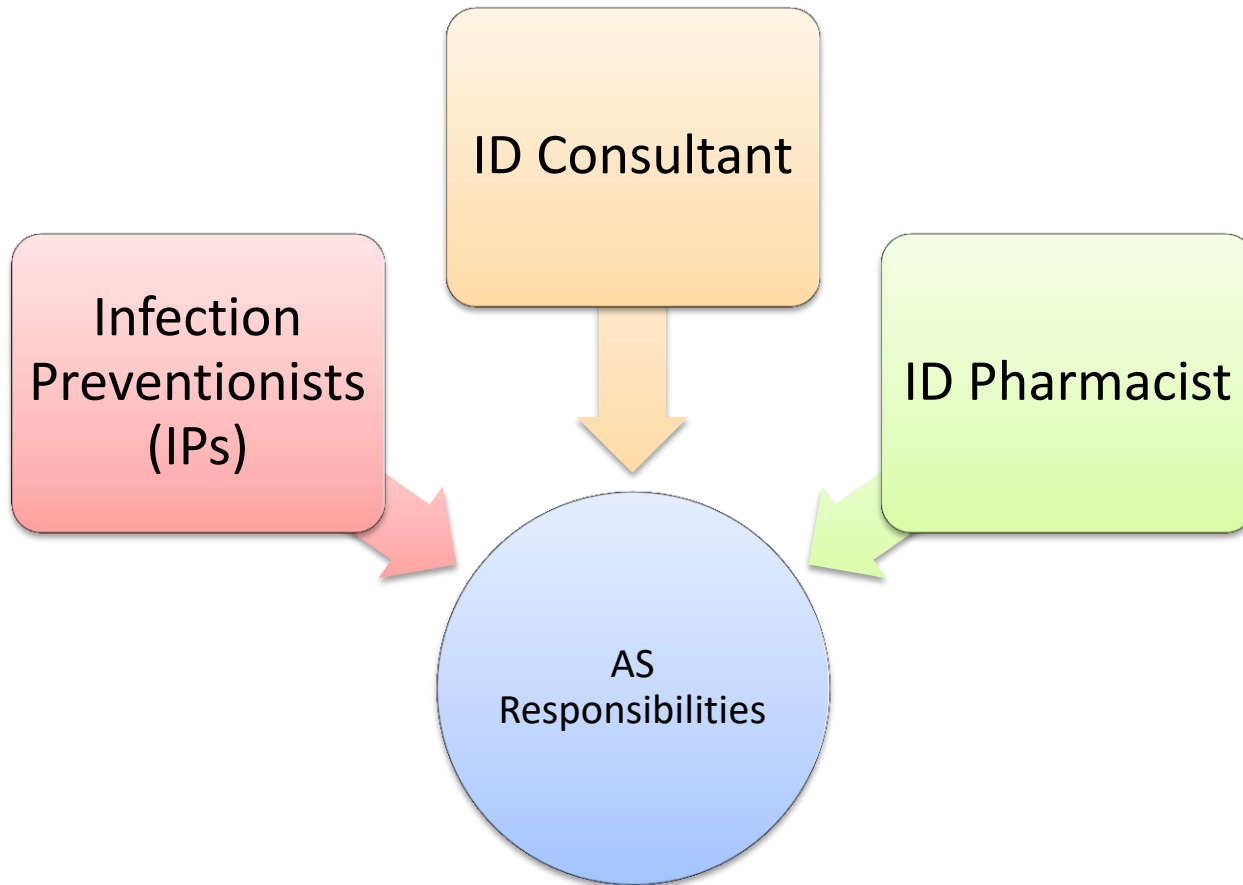
Jump RLP. J Am Geriatr Soc 2018; 66:789-803.

Falcone M. Clin Microbiol Infect 2018;1-8.

Chopra T. CID 2015;60(S2):272-6.

High KP. J Am Geriatr Soc 2009;57:375-94.

Designated Personnel



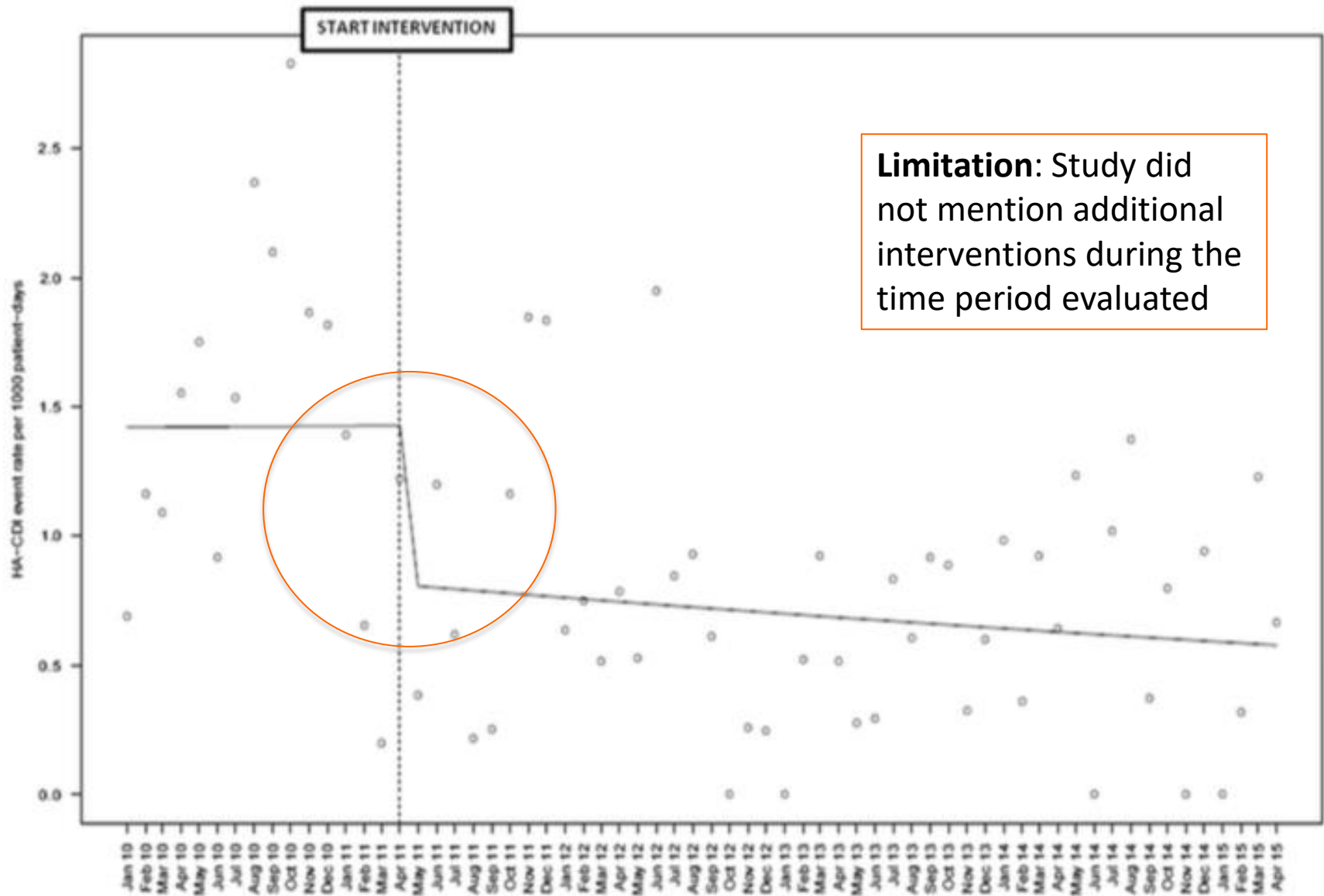
AS, antimicrobial stewardship; ID, Infectious Diseases

ORIGINAL ARTICLE

Antimicrobial Stewardship in a Long-Term Acute Care Hospital Using Offsite Electronic Medical Record Audit

Kirthana Beaulac, PharmD;¹ Silvia Corcione, MD;^{2,3} Lauren Epstein, MD;² Lisa E. Davidson, MD;⁴ Shira Doron, MD²

- New England Sinai Hospital (212 bed LTACH)
- 4 year (pre-/post-intervention)
- Remote audit/feedback (1-2 hrs/wk) by ID-trained physician and pharmacist
- Review: Duration > 7 days of targeted antimicrobials
- Intervened on 700+ patients, 800+ recommendations
 - Clostridium difficile, Pseudomonas aeruginosa, MRSA



Limitation: Study did not mention additional interventions during the time period evaluated

FIGURE 2. Hospital-acquired *Clostridium difficile* infection (HA-CDI) rates by month.

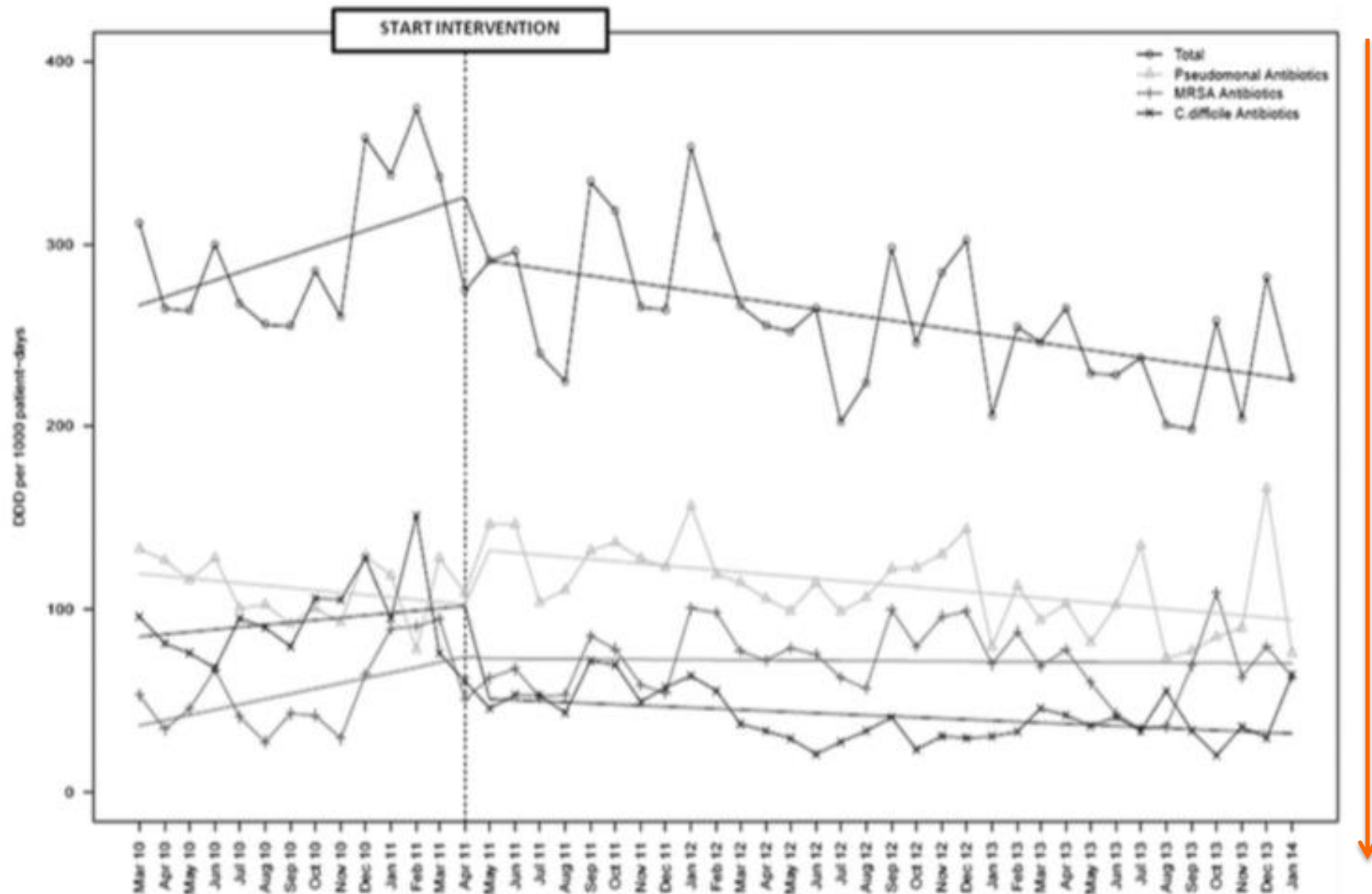


FIGURE 3. Antibiotic usage rates by month. *C. difficile*, *Clostridium difficile*; DDD, defined daily dose; MRSA, methicillin-resistant *Staphylococcus aureus*.

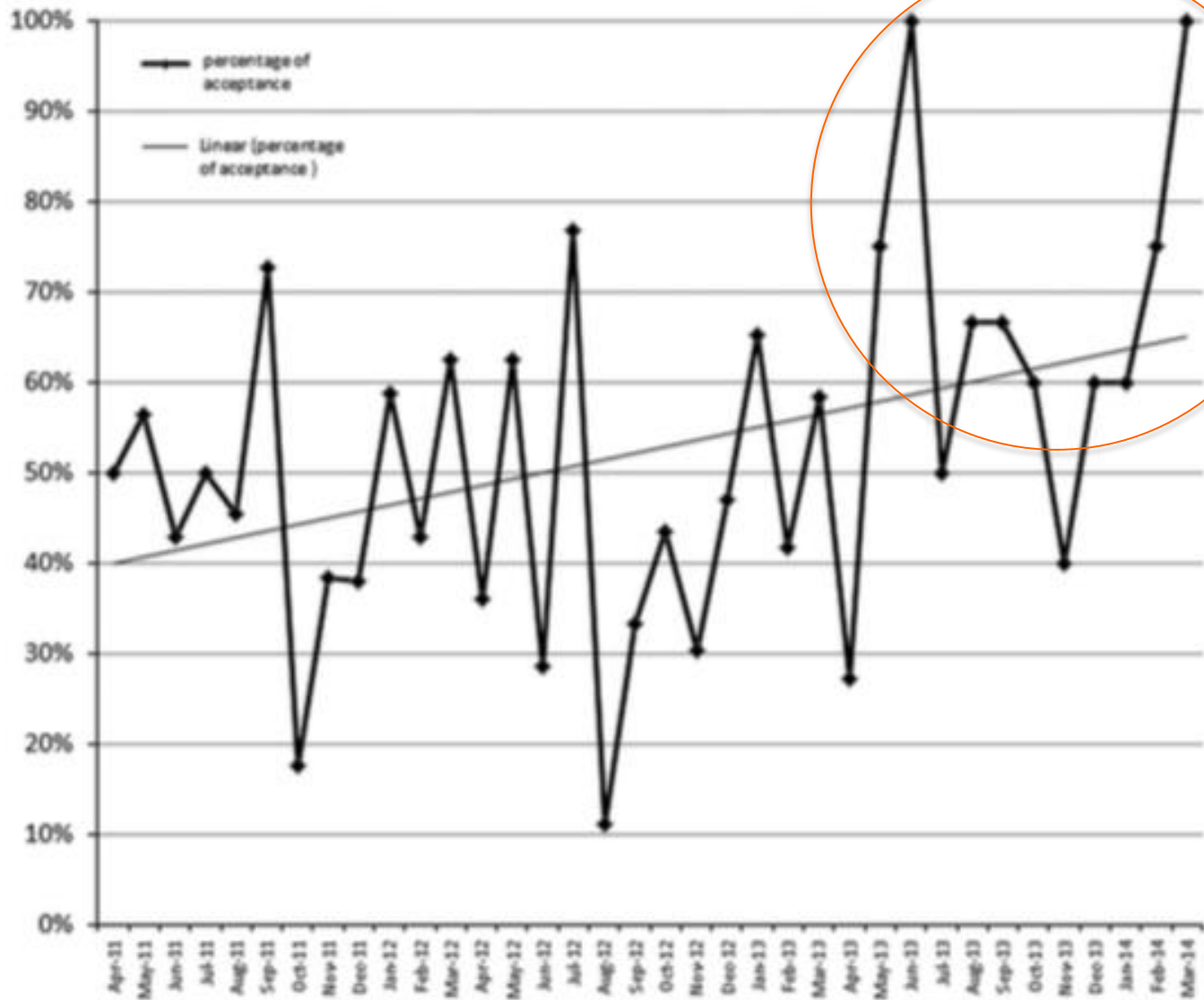


FIGURE 1. Recommendation acceptance frequency by month.

Tracking/Reporting

- Many studies looking at appropriate metric
- Pros and cons to each method
- CDC recommends tracking at least one metric
 - Incidence or Antibiotic Utilization Ratio (AUR)

Table 1
Antibiotic Use and Cost Metrics for Long-Term Care Facilities

Metric	Definition*	Advantages	Disadvantages
Incidence	Number of antibiotic courses started per 1000 resident care days	Provides rate of number of residents treated each month Useful to monitor impact of interventions to lower use	Not a measure of length of therapy Requires resident-level data
Antibiotic utilization ratio	Ratio of total antibiotic days to total resident care days	Most common metric used in published studies (usually expressed as total days per 1000 resident days) Used by CDC NHSN Useful to monitor impact of interventions to lower use	Not a measure of length of therapy Requires resident-level data
Cost per antibiotic day	Ratio of total antibiotic cost to total antibiotic days	May provide insight into prescribing of high cost antibiotics	Requires cost data and resident-level data
Cost per resident care day	Ratio of total antibiotic cost to total resident care days	May appeal to administrators because it relates cost to whole population	Requires cost data Not all residents treated with an antibiotic

CDC NHSN, Centers for Disease Control and Prevention National Healthcare Safety Network.
*Metric calculated on a monthly basis.

Tracking/Reporting

No. of Antibiotic Courses Started/1000 Resident Days

- More feasible of the two
- Track all new starts weekly
- Can use as benchmark when implementing intervention

Days of Therapy/1000 Resident Days

- May require more labor to acquire data
- Ask pharmacy contractor to supply data
- Metric used by NHSN
- Can use as benchmark when implementing intervention

Limitation: Neither take into account appropriateness or duration of treatment

Scenarios to Apply Knowledge

Scenario 1

- You have been assigned to oversee the antimicrobial stewardship program at your LTCF. You and the team have implemented a protocol to improve the management of urinary tract infections (UTIs). Which of the following metrics would be most feasible to measure the impact?
 - Total cost of antibiotics used per month
 - Days of therapy/1,000 resident days
 - Number of newly initiated antibiotics/1,000 patient days
 - Total number of patients receiving antibiotics per month

Scenario 2

- John is a nurse who has recently been hired at your LTCF. You work alternating shifts and have noticed an increase in number of patients on antibiotics for UTIs. You ask John if he has noticed and he replies “I know, noticed a lot of cloudy urines, and every time I send a urine culture it grows something. I’m glad because then I inform the doctor and they prescribe the appropriate antibiotic.” What are some actions you can take to ensure proper AS?

Scenario 2 (continued)

- Ask John if he was using the Loeb minimum criteria to guide his decision on sending urine cultures
- Recommend to your supervisor that John receive AS training (in-house/online)
- Recommend to your supervisor that the prescribers receive AS training (in-house/online) if prescribing antibiotics for cloudy urine
- All of the above are appropriate actions to take

Scenario 3

- ET is a 92 year-old female resident at your LTCF. She is currently experiencing a productive cough, runny nose, and fatigue. Her son is demanding a Zpak which was prescribed 6 months for similar symptoms and worked. Which of the following would be appropriate for the provider to take?
 - Prescribe a Zpak, but for no more than 3 days
 - Provide education to the son regarding the harms of antibiotics when used inappropriately
 - Provide CDC resources for the patient to read
 - All of the above would be appropriate

Scenario 4

- Mary is the CMO of a LTCF and has received full leadership support to initiate a ASP. Her first goal is to form a team. Which of the following positions must Mary hire to properly establish her program?
 - ID pharmacist
 - ID consultant
 - Infection Preventionist
 - All of the above

Any (not all) of the above would suffice
(all 3 would be ideal, but not necessary)

Scenario 5

- Which of the following can/should be reviewed weekly to promote optimal AS?
 - Number of newly initiated antibiotics
 - Adherence to facility-wide protocols
 - Antibiotic durations > 7 days
 - Antibiotics continued from outside of the facility

All are excellent initiatives

(Important to introduce in step-wise approach, consider specific needs)

Conclusion

- ASP priority is to improve patient care
- Reduction in antimicrobial use without compromised outcomes
- Outcomes regarding mortality and CDI still to be determined
- Dynamic, many resources, lots of experience in the literature

Good Luck!



Antimicrobial Stewardship in the Long Term Care Setting



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