North Carolina SPICE
Statewide Program for Infection Control & Epidemiology

PRACTICAL ADVICE FOR IMPLEMENTING AN ANTIBIOTIC STEWARDSHIP PROGRAM IN LONG TERM CARE

Speaker: Dr. Lisa Davidson, Carolinas HealthCare System

Moderator: Heather Ridge, RN, BSN, BS, CIC (SPICE)

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NCPH
North Carolina Public Health

DR. LISA DAVIDSON

Carolinas HealthCare System

- *Medical Director of Carolinas HealthCare System Antimicrobial Support Network*
- *Faculty Physician in the Infectious Disease Division at Carolinas Medical Center (CMC) in Charlotte, NC*

SPICE

Carolinas HealthCare System

Antibiotic Stewardship and Long Term Care Facilities

Lisa E Davidson, MD

Medical Director

Antimicrobial Support Network

Carolinas HealthCare System

Objectives

- Identify need for antibiotic stewardship in LTC and the influence of the CMS final rule effective November 28, 2017.
- Describe the implementation process and roles of team members.
- List at least one process improvement intervention towards antibiotic stewardship.
- Identify at least one measure of success for an effective antibiotic stewardship program.

The Past…our ancient microbiome: Colonizers vs. Pathogens

- There are 10 times more bacteria living on or in a human than human cells
- The vast majority of bacteria that live in/on humans are colonizers, living in a delicate balance with their human host that has evolved over millions of years
- By using invasive properties, a few pathogenic bacteria establish a niche that is devoid of competition from other nonpathogenic microbes

Falkow, 2005; IOM 2006

CDC Threat Levels

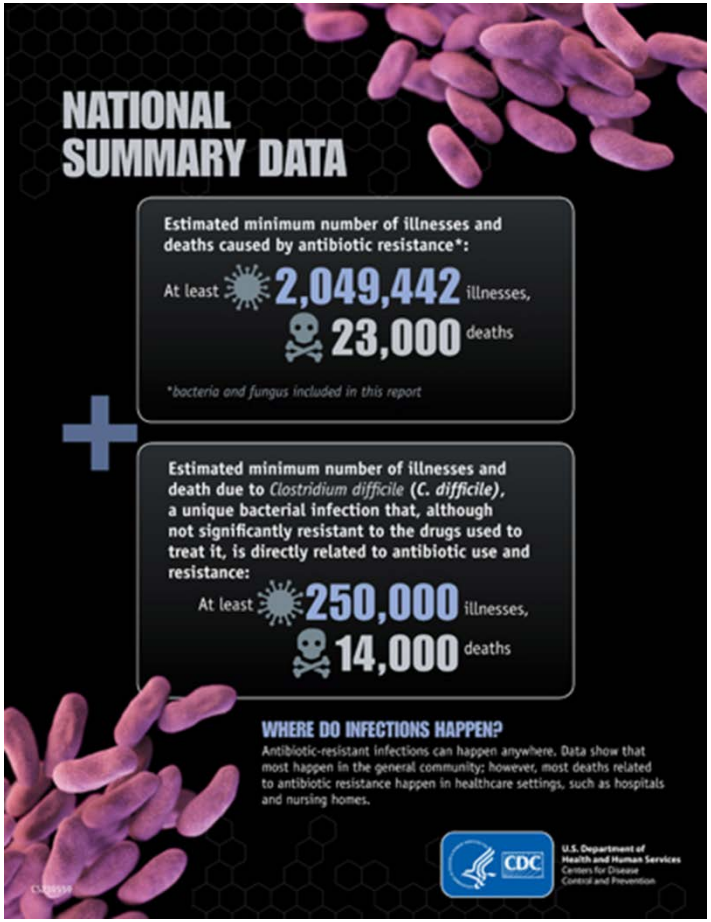
Urgent

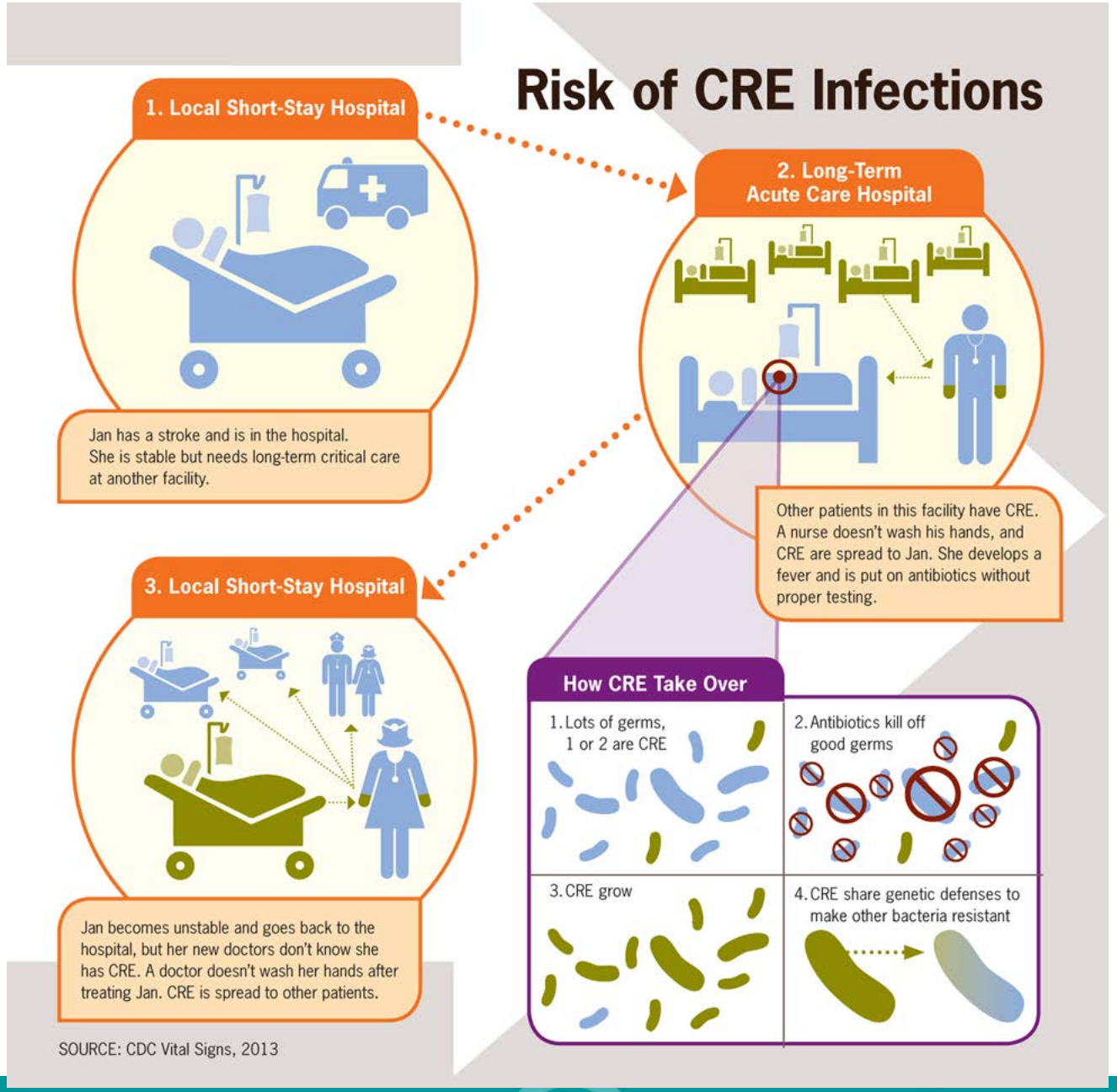
- Clostridium difficile
- Carbapenem resistant enterobacteriacae
- Drug resistant gonorrhea

Serious

- MRSA
- VRE
- Extended spectrum beta lactamases
- Fluconazole resistant candida

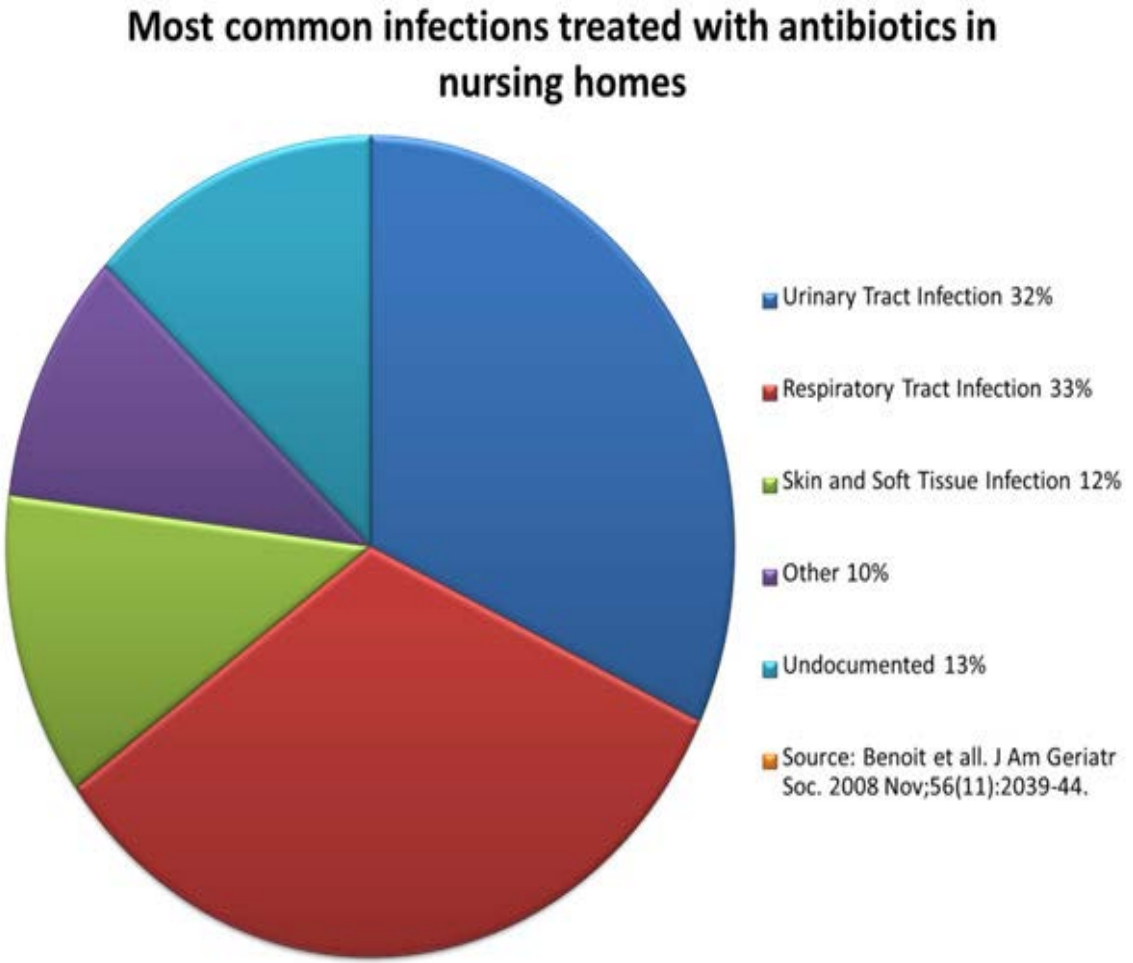
Concerning…(too many to list)



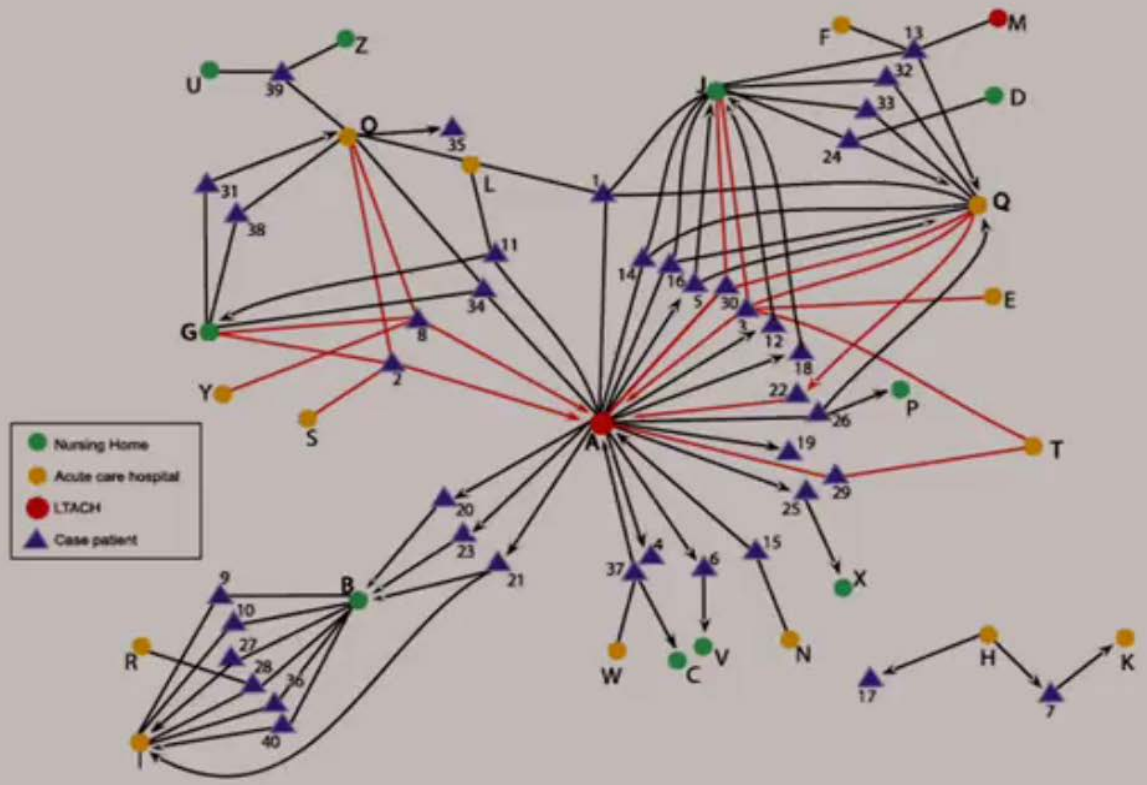

Risk of CRE Infections
1. Local Short-Stay Hospital
Jan has a stroke and is in the hospital. She is stable but needs long-term critical care at another facility.
2. Long-Term Acute Care Hospital
Other patients in this facility have CRE. A nurse doesn't wash his hands, and CRE are spread to Jan. She develops a fever and is put on antibiotics without proper testing.
3. Local Short-Stay Hospital
Jan becomes unstable and goes back to the hospital, but her new doctors don't know she has CRE. A doctor doesn't wash her hands after treating Jan. CRE is spread to other patients.
How CRE Take Over
1. Lots of germs, 1 or 2 are CRE
2. Antibiotics kill off good germs
3. CRE grow
4. CRE share genetic defenses to make other bacteria resistant
SOURCE: CDC Vital Signs, 2013

Antibiotic use and LTCF

- Antibiotics are among the most commonly prescribed medications in long-term care facilities
- Up to 70% of long-term care facilities' residents receive an antibiotic every year
- Approximately 30-50% of LTCF patients treated for UTIs really have asymptomatic bacteruria
- Estimates of the cost of antibiotics in the long–term care setting range from $38 million to $137 million per year



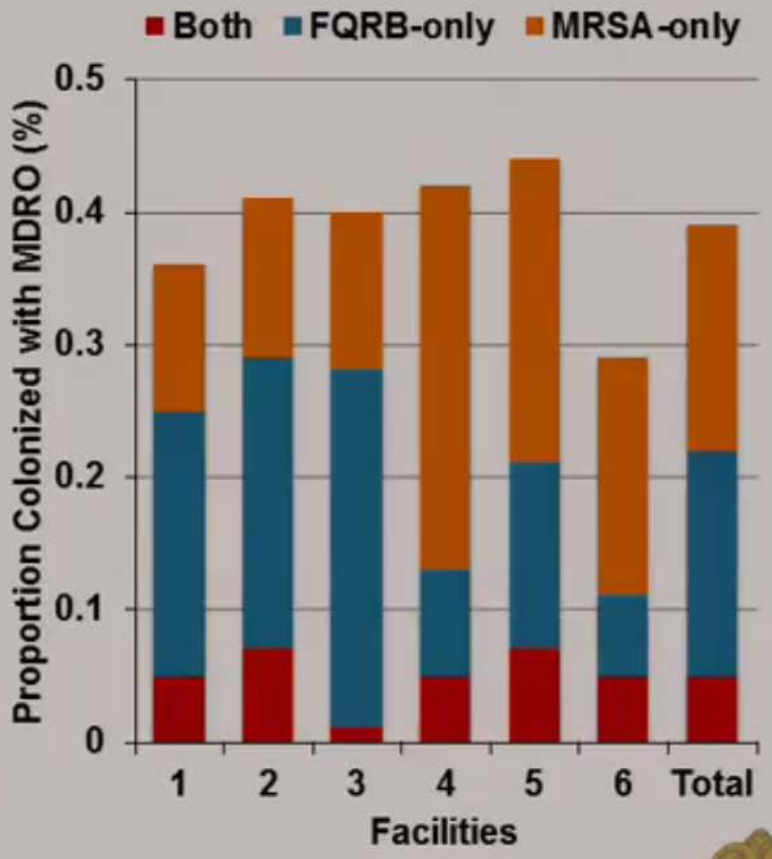
LTCFs Play an Important Role in the Regional Dissemination of MDROs



Won et al. *Clin Infect Dis* 2011; 53(6): 532-40

NHs are Reservoirs of MDROs

- **NH residents commonly colonized with MDROs**
  - Lautenbach et al. *Emerg Infect Dis* 2005; 11(6): 889-94
  - Mody et al. *Clin Infect Dis* 2008; 46(9): 1368-73
  - Furuno et al. *Infect Control Hosp Epidemiol* 2009; 30(4): 313-8
  - Stone et al. *Infect Control Hosp Epidemiol* 2012; 33(6): 551-7
- **Resistance imported and created in NHs**
  - Furuno et al. *Infect Control Hosp Epidemiol* 2011; 32(3): 244-9
  - Fisch et al. *J Clin Micro* 2012; 50(5): 1698-1703
  - Stone et al. *Infect Control Hosp Epidemiol* 2012; 33(6): 551-7



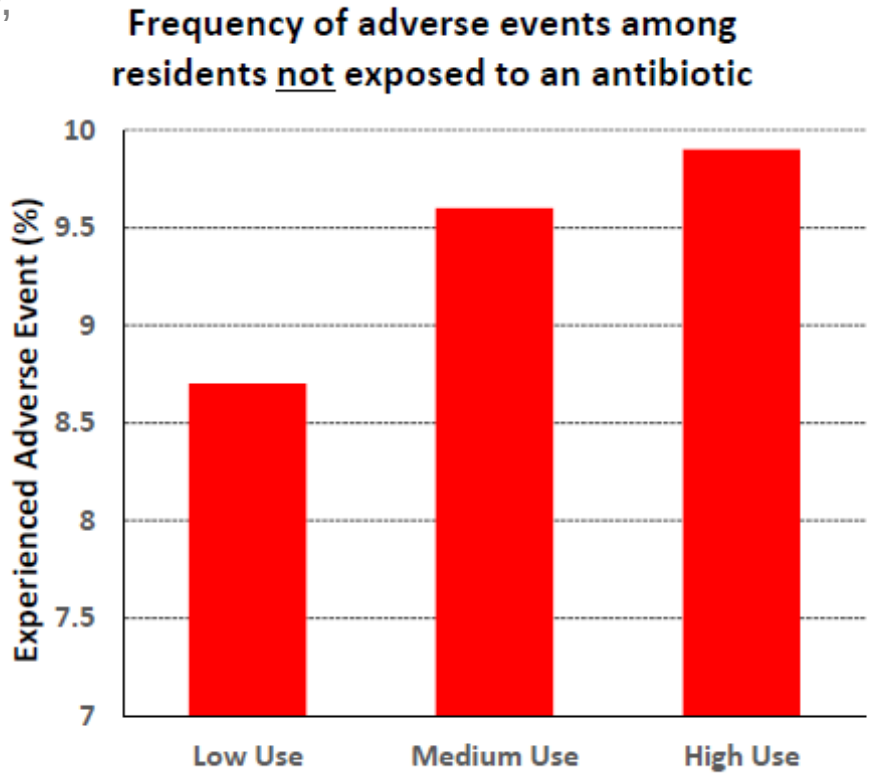
Crnich et al. *Infect Control Hosp Epidemiol* 2012; 33(11): 1172-4

Harmful Effects of Antibiotics to all Residents

- 607 NHs in Ontario
- Facility Ranked as antibiotic use (low, medium, high)
- 110,000 NH residents followed for 2 years.
- Study Endpoint: Combined rate of *Cdifficile,* diarrhea/gastroenteritis, infection with antibiotic-resistant bacteria and adverse drug event (ADE)

Results:

- 83,000 NH residents received an antibiotic & 27,000 residents did not receive an antibiotic
- Risk of experiencing the combined endpoint was 24% higher in high-use NHs, even if the resident never received an antibiotic



Daneman et al. *JAMA Intern Med* 2015; 175(8): 1331-9
Mody & Crnich et al. *JAMA Intern Med* 2015; 175(8): 1339-41

A Balancing Act…

Appropriate antibiotic prescribing to treat life threatening infections from multidrug resistant organisms in increasingly complex patients

Avoiding unnecessary antibiotic use, side effects, adverse outcomes and increased cost

Anti-Microbial Stewardship

Successful ASN in LTCF

Reference, country	Study design	Interventions	Outcomes
Schwartz et al., 2007 [6] US	Prospective, before/after; single centre, hospital-based LTC wards; on-site ID consultation.	1. Four teaching sessions over 18 months including all 20 full time staff internists; groups of 3–7.	Pre/post analysis of 100 random charts pre intervention and during 5 months after the last session:
		2. Published guidelines on LTC infections and results of local audit discussed; interactive discussion of local cases.	1. Antimicrobial courses met guideline for diagnostic criteria: 32% vs 62%, p = 0.006
		3. Evidence-based algorithms and guidelines developed with internists.	2. Initial antimicrobial therapy met guidelines: 11% vs 39%; p < 0.001
		4. Pocket booklet with optimal management of LTC infection syndromes.	3. Antimicrobial days fell 29.7%, starts fell 25.9% - improvements sustained 2 yr post-intervention
Monette et al., 2007 [7] Canada	Cluster, randomized controlled trial; 8 LTC, Montreal	Interventions for experimental group:	Experimental vs control homes at trial end:
		1. Mailing antibiotic guide and individual prescribing profile past 3 months to 36 physicians. Antibiotic courses given by physician characterized as adherent or non-adherent.	1. Nonadherent prescriptions: 20.5% vs 5.1%
			2. Likelihood of prescription of nonadherent antibiotics:
			→post-intervention one: OR 0.47, (95% CI 0.21-1.0 1.05)
		2. Repeat second mailing 4 months later.	→post-intervention two: OR 0.36 (0.18, 0.73)
			→15 months follow-up: OR 0.48 (0.23-1.02)
Pettersson et al., 2011 [8] Sweden	Cluster, randomized controlled trial; 58 NH	1. Local physician, nurse, developed guidelines in focus groups. Evaluation of guidelines in pilot study with revision.	Effect of intervention (95% CI) at 2 years (differences):
			Primary outcome:
		2. Small educational sessions – physicians, nurses.	Fluoroquinolones for UTI: 0.028 (−0.193, 0.249)
			Secondary outcomes:
			UTIs/resident: 0.04 (−0.01, 0.09)
		3. Feedback on prescribing & references to available guidelines; discussion of structural, organizational, social barriers to change.	All infections:
			antibiotics −0.12 (−0.23, -0.02)
			"wait & see" 0.143 (0.047, 0.240)
			Nitrofurantoin for lower UTI in women: - 0.077 (−0.247, 0.088)
Jump et al., 2012 [9] US	Pre/post; single site with dedicated physician/nurse practitioner care on 4 LTCF wards.	ID consultation service team (ID physician and nurse practitioner) once weekly on site and available by phone contact 24/7.	36 months pre compared with 18 months post: Reduction in
			→total antibiotics, 30.1%, p < 0.001
			→oral antibiotics, 31.6%, p,0.001
			→intravenous antibiotics, 25%, p = 0.001
			Positive *C. difficile*/1,000 days decreased: time series, p = 0.04

Nicolle Antimicrobial Resistance and Infection Control 2014, 3:6
http://www.aricjournal.com/content/3/1/6

National Targets for 2020

TABLE 1: National Targets to Combat Antibiotic-Resistant Bacteria
By 2020, the United States will:
For CDC Recognized Urgent Threats:
Reduce by 50% the incidence of overall *Clostridium difficile* infection compared to estimates from 2011.
Reduce by 60% carbapenem-resistant Enterobacteriaceae infections acquired during hospitalization compared to estimates.
Maintain the prevalence of ceftriaxone-resistant *Neisseria gonorrhoeae* below 2% compared to estimates from 2013.
For CDC Recognized Serious Threats:
Reduce by 35% multidrug-resistant *Pseudomonas spp.* infections acquired during hospitalization compared to estimates from 2011.
Reduce by at least 50% overall methicillin-resistant *Staphylococcus aureus* (MRSA) bloodstream infections by 2020 as compared to 2011.*
Reduce by 25% multidrug-resistant non-typhoidal *Salmonella* infections compared to estimates from 2010-2012.
Reduce by 15% the number of multidrug-resistant TB infections.[1]
Reduce by at least 25% the rate of antibiotic-resistant invasive pneumococcal disease among <5 year-olds compared to estimates from 2008.
Reduce by at least 25%the rate of antibiotic-resistant invasive pneumococcal disease among >65 year-olds compared to estimates from 2008.

Regulatory Momentum in 2016

- January 2016: NQF announces Standardized Antibiotic Administration Ratio as an approved quality measure (inpatient)
- April 2016: CMS announces period of public comment for addition of SAAR as quality measure (inpatient)
- May 2016: NQF publishes ASP playbook providing criteria for programs to implement ASP
- June 2016: CMS published proposed criteria and requirement for stewardship as CoP (based on NQF playbook and CDC Core elements)
- July 2016: Joint Commission Guidelines for stewardship with proposed implementation in 2017 surveys
  - We have already had two TJC surveys with new focus in medication management session on ASP
- October 2016: CMS issues CoP for long term care with new stewardship standards (in effect November 2017)
- November 2016: CDC issues Core elements of outpatient stewardship

NEW CMS Requirements 2017

- Designated antimicrobial stewardship leader
- Antibiotic use protocols and systems for monitoring antibiotic use
- Feedback on inappropriate utilization
- Development of action plans by facilities to decrease unnecessary antibiotic utilization
- Review of antibiotics on admission, transfer and at least once a month for long term antibiotic use
- Documentation of any ‘irregularities’ including reporting to medical staff and documentation of any action taken

Core Elements of LTCF Antibiotic Stewardship:

Key to success:

- Create a team
  - Senior Leadership
- Identify a few achievable goals
- Make sure you have a mechanism for feedback to leadership, providers, and patients

CE#1 - How does your facility support ASP?

- Written statement of leadership support to improve antibiotic use
- Antibiotic stewardship duties included in medical or nursing director position description
- Leadership monitors whether antibiotic stewardship policies are followed
- Antibiotic use and resistance data is reviewed in quality assurance meetings

Step #1 Create an Antibiotic Stewardship Team

- Medical Director
- Director of Nursing or Assistant Director of Nursing
- Infection Control Preventionist
- Consultant Pharmacist
- Family representative
- Resident of facility
- Administrator of nursing home

Adapted from AHRQ/KS

CE#2 - ACCOUNTABILITY

- Each facility needs identified leaders who are responsible for ASP
  - Medical Director
  - Director/Assistant Director of Nursing
  - Consultant Pharmacist
  - Other – ACP, Quality

CE#3 - DRUG EXPERTISE

- Does your facility have access to an individual with antibiotic expertise? Who could that be?

  - Consultant pharmacy has staff trained/is experienced in antibiotic stewardship
  - Partnering with stewardship team at referral hospital
  - External infectious disease/stewardship consultant

CE#4 - ACTIONS TO IMPROVE USE

What polices does facility have to improve antibiotic or prescribing use?

- Requires prescribers to document a dose, duration, and indication for all antibiotic prescriptions
- Facility-specific algorithm for assessing residents
- Facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections
- Facility-specific treatment recommendations for infections
- Reviews antibiotic agents listed on the medication formulary

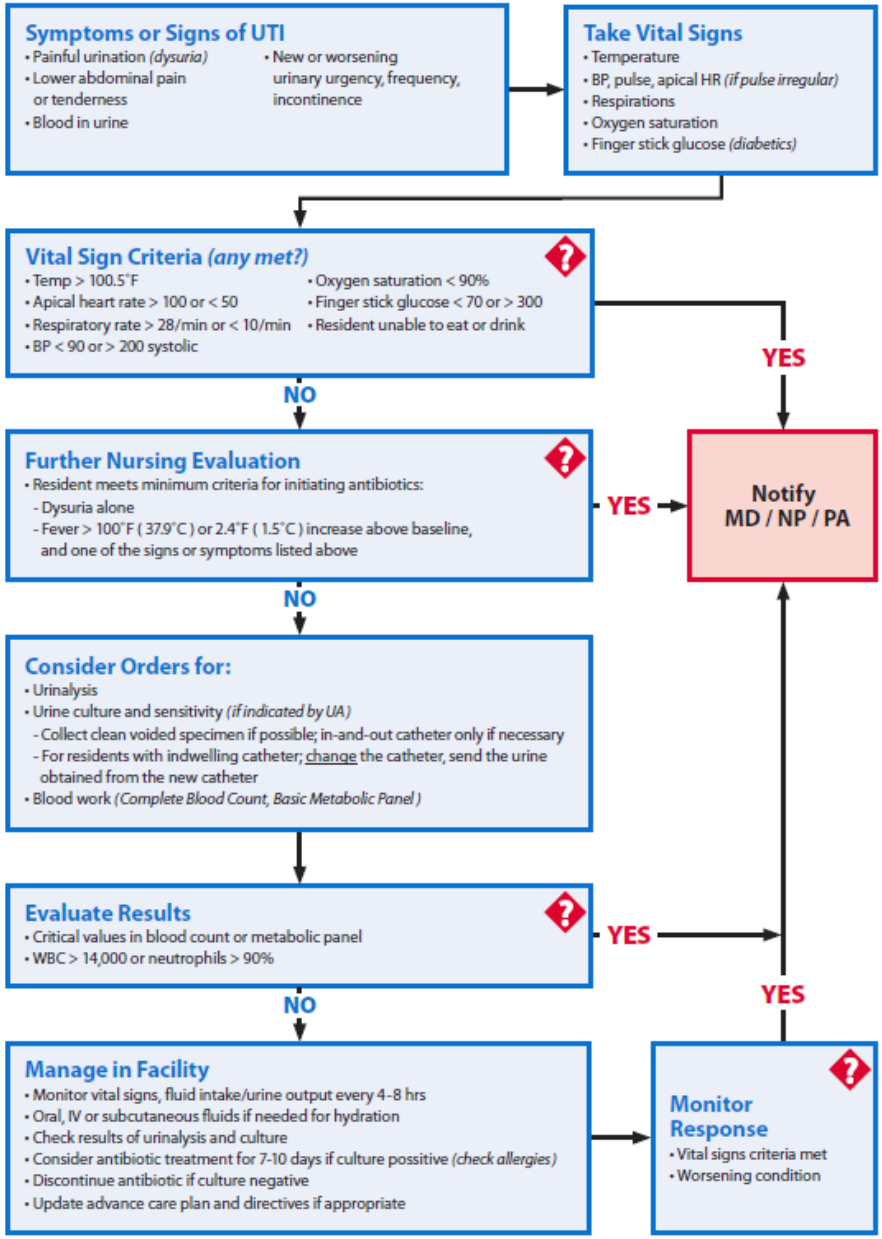
CE#4 - ACTIONS TO IMPROVE USE

Has your facility implemented practices to improve antibiotic use?

- Utilizes a standard assessment and communication tool for residents suspected of having an infection
- Implemented process for communicating or receiving antibiotic use information when residents are transferred to/from other healthcare facilities
- Developed reports summarizing the antibiotic susceptibility patterns (e.g., facility antibiogram)
- Implemented an antibiotic review process/“antibiotic time out”
- Implemented an infection-specific intervention to improve antibiotic use

CARE PATH *Symptoms of Urinary Tract Infection (UTI)*

INTERACT Version 3.0 Tool



Suspected UTI SBAR

[Nursing Home Name] _____

[Street] _____

[City, State, ZIP] _____ Facility Phone/Fax _____

Resident Name _____ Date of Birth _____

Physician/NP/PA _____ Physician/NP/PA Phone/Fax _____

Nurse _____ Date/Time _____

How was information provided to clinician? ☐ Phone ☐ Fax ☐ In Person ☐ Other _____

S – Situation (use this information to complete Section A&R)

☐ I am contacting you about a suspected UTI for above resident.

Current Assessment (check all that apply):

- ☐ Increased urgency
- ☐ Increased frequency
- ☐ Hematuria
- ☐ Rigors (shaking, chills)
- ☐ Delirium (sudden onset of confusion, disorientation, dramatic change in mental status)

Vital Signs: BP _____/_____ Pulse _____ Resp. rate _____ Temp. _____

Resident Complaints (check all that apply):

- ☐ Dysuria (painful, burning, difficult urination)
- ☐ Suprapubic pain
- ☐ Costovertebral tenderness (flank pain/tenderness)

Recent Urinalysis Results (within the last 10 days) If Available:

UA results that were obtained on _____ (date) due to _____ (reason).

The results ☐ accompanying this communication ☐ are as follows:

_____

B – Background

Indwelling catheter: ☐ NO ☐ YES

Incontinence: ☐ NO ☐ YES If yes, is this new/worsening? ☐ NO ☐ YES

☐ Active diagnoses (especially, bladder, kidney/genitourinary conditions):

Specify: _____

_____

Advance directives for limiting treatment (especially antibiotics): ☐ NO ☐ YES

Specify: _____

Medication allergies: ☐ NO ☐ YES

Specify: _____

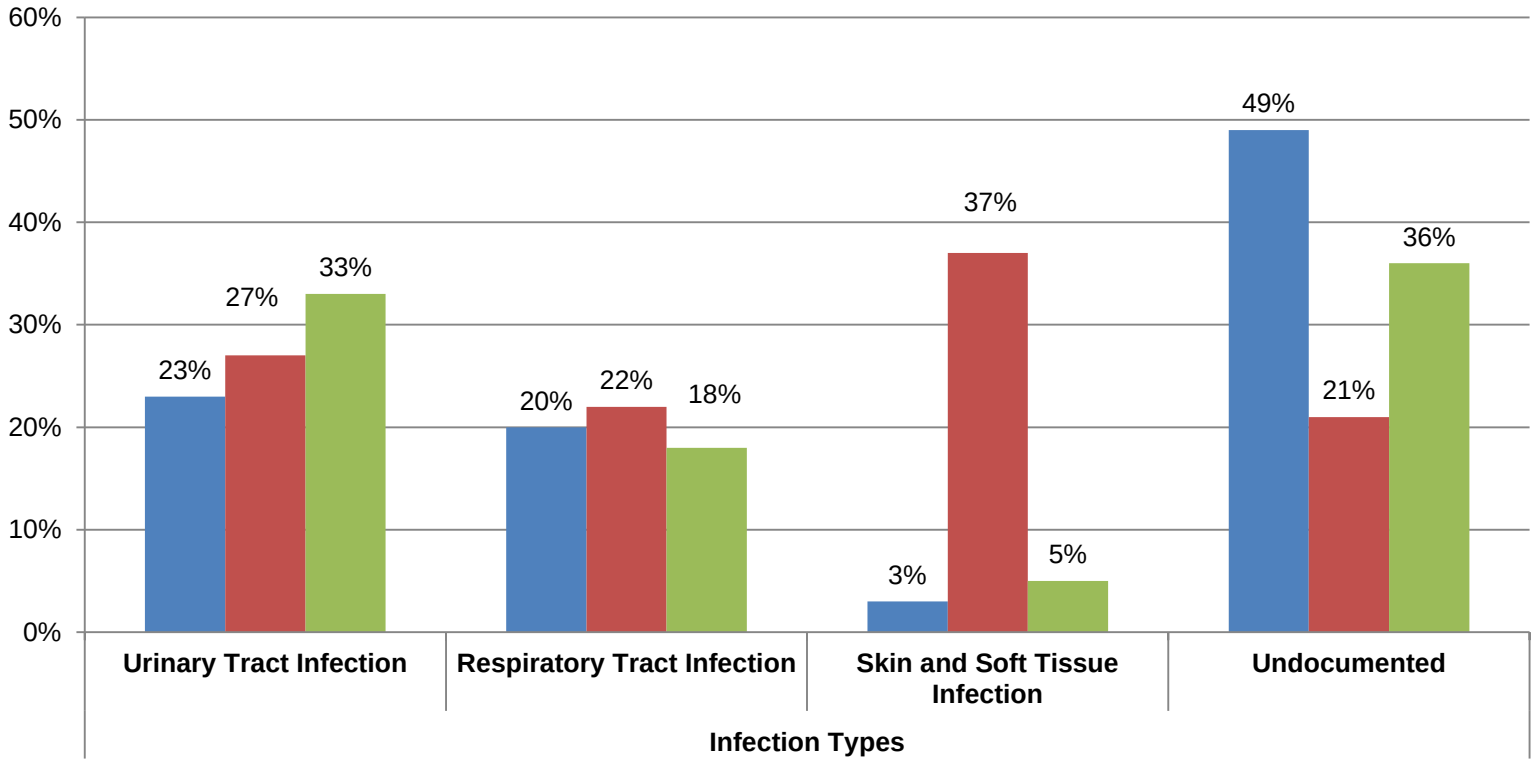
_____

The resident is on: Warfarin (Coumadin™) ☐ NO ☐ YES

The resident is diabetic: ☐ NO ☐ YES

Infection Types

Most commonly treated infections



MEDICAL CARE REFERRAL FORM

USE IN ALL SITUATIONS WHEN A RESIDENT HAS A NEW PROBLEM AND INFECTION MAY BE SUSPECTED, AND IS BEING REFERRED TO A MEDICAL CARE PROVIDER, INCLUDING TRANSFER TO AN EMERGENCY DEPARTMENT OR HOSPITAL.

To: _____ Phone: _____ Fax: _____

Resident Name: _____ DOB: ___/___/___ Room #: _____

From:_____Phone _____Date:_____Time_____

Family Contacted: Yes No If YES, Name and relationship:_____Contact Date_____Time_____

DESCRIPTION OF CURRENT PROBLEM including recent fever pattern and change in recent/current health status:

CURRENT VITAL SIGNS

Blood pressure: _____
Pulse: _____
Respiratory rate: _____
Highest temperature
In last 24 hours: _____
How taken: _____
3 most recent routine temperatures
and how taken:

Temp	How taken:
_____	_____
_____	_____
_____	_____

Shaking chills in last 24 hours: Yes No ?

USUAL COGNITIVE FUNCTION

Good Questionable Impaired

RECENT/CURRENT HEALTH STATUS

New or worsening confusion	Yes	No	?
New or worsening agitation	Yes	No	?
Decrease in eating or drinking	Yes	No	?
Sleepiness/decreased alertness	Yes	No	?
Decline in function	Yes	No	?
Fall	Yes	No	?
If Yes:			
Witnessed	Yes	No	?
Hit head	Yes	No	?
Lost consciousness	Yes	No	?
Suspected minor injury	Yes	No	?
Suspected serious injury	Yes	No	?

MEDICAL HISTORY

Diabetes:	Yes	No	?
If Yes, most recent blood sugar:_____			
COPD:	Yes	No	?
Indwelling catheter:	Yes	No	?
On hospice care:	Yes	No	?
Advanced directive/			
MOST Form:	Yes	No	?
DNR	Yes	No	?
No Antibiotics	Yes	No	?
MEDICATION ALLERGIES:	Yes	No	?

List:_____
_____
_____
_____

Put an "X" in the box to indicate the suspected infection and circle related signs/symptoms Y (present), or No (not present), or ? (not known).

O Suspected Urinary Tract Infection

Y N ?	New or increased urgency of urination
Y N ?	New or increased frequency of urination
Y N ?	New or increased suprapubic tenderness
Y N ?	Costovertebral angle (CVA) tenderness If yes, new onset: Y N ? If yes, increasing: Y N ?
Y N ?	Painful or difficult urination
Y N ?	Obvious blood in urine
Y N ?	Change in urine appearance or odor
Y N ?	New or worse urinary incontinence
Y N ?	Positive culture If yes, positive for:_____

O Suspected Skin or Soft Tissue Infection

Location:

Y N ?	New or increasing pus draining from wound
Y N ?	New breakdown
Y N ?	New or expanding redness around wound
Y N ?	Pain / tenderness
Y N ?	Warmth
Y N ?	New or increased swelling at the site
Y N ?	Increased odor
Y N ?	Ulcer for 3 or more weeks

O Suspected Respiratory Infection

Y N ?	New cough
Y N ?	Increasing cough
Y N ?	Productive cough If yes, with purulent sputum: Y N ?
Y N ?	Sore throat
Y N ?	Chest X-ray If yes, pneumonia infiltrate: Y N ?
Y N ?	Body aches
Y N ?	Headache
Y N ?	Runny nose and/or sneezing
Y N ?	Shortness of breath
Y N ?	Pleuritic chest pain (painful to take deep breath)
	O2 saturation, baseline: _____%
	O2 saturation, current: _____%

O Suspected Gastrointestinal Infection

Y N ?	Vomiting: Number of times in past 24 hours: _____
Y N ?	Diarrhea: Number of times in past 24 hours: _____
Y N ?	Other vomiting or diarrhea in the community
Y N ?	Positive culture If yes, positive for:_____

AHRQ Agency for Healthcare Research and Quality
Advancing Excellence in Health Care ● www.ahrq.gov

PREVENT HAIs Healthcare-Associated Infections

www.ahrq.gov/NH-ASPGuide
May 2014

AHRQ Pub. No. 14-0011-2-EF

Minimum Criteria for Initiation of Antibiotics in Long-Term Care Residents
• Urinary tract infection
° For residents **with an indwelling catheter**, an antibiotic may be considered if at least one (1) of the following 2 scenarios apply:
1. fever* *or*
2. a new case of costovertebral angle tenderness, or symptoms of rigors, or new symptoms of delirium.
° For residents **without an indwelling catheter**, an antibiotic may be considered if they patient has pain or difficulty with urination, or fever* and at least one (1) of the following:
1. new or increased urgency to urinate
2. new or increased frequency in urination
3. new or increased suprapubic pain
4. new case of costovertebral angle tenderness
5. obvious blood in urine; *or*
6. new/worsened urinary incontinence
• Respiratory infection
An antibiotic may be considered if one (1) of the following scenarios apply:
1. temperature higher than 102F *and* either a respiratory rate greater than 25 breaths per minute *or* a productive cough
2. fever* *and* a new cough and a pulse greater than 100 beats per minute, *or* symptoms of delirium or rigors, *or* respiratory rate greater than 25 breaths per minute
3. if afebrile, a diagnosis of chronic obstructive pulmonary disease (COPD) *and* at least age 66 *and* a productive cough that produces purulent sputum
4. if afebrile with no COPD diagnosis, a new cough that produces purulent sputum, and either a respiratory rate greater than 25 *or* symptoms of delirium
• Skin/soft tissue infection
1. New or increased pus draining from wound *or*
2. *at least* two (2) of the following:
a. fever*
b. new or expanding redness around a wound
c. pain or tenderness
d. abnormal warmth of skin; *or*
e. new or increased swelling at skin site of concern
*Fever is defined as a temperature greater than 2.4F above the resident's average routine temperature, or over 100F

Skilled Nursing Facility Empiric Prescribing Guidelines

Indication for Therapy	Antibiotic Selection - First Line	Alternative Selection
Urinary Tract Infection		
Uncomplicated	Cephalexin 500 mg PO Q12H x 7 days Nitrofurantoin 100mg PO BID x 5 days **(should not be used if CrCl < is less than 60 ml/min)**	Ciprofloxacin 500 mg PO BID x 3 days Levofloxacin 500 mg PO QD x 3 days Bactrim 1DS PO BID x 3 days
Complicated (male, renal failure, immunosuppression, indwelling catheter, structural abnormalities)	Cefpodoxime 100mg PO BID x 7-10 days Ceftriaxone 1gm IV Q24H x 7-10 days	Levofloxacin 750 mg PO QD x 5-7 days
Respiratory Tract Infection		
Pneumonia	***No comorbidities or recent antibiotic use (<3mo)*** Azithromycin 500mg PO on day one, followed by 4 days of 250 mg PO a day	Doxycycline 100mg PO BID x 7 days
	Comorbidites (COPD, diabetes, CHF, etc.) or recent antibiotic use Levofloxacin 750 mg PO QD x 7 days	Ceftriaxone 1gm IV Q24H x 7-10 days Doxycycline 100mg PO BID x 7 days
Aspiration Pneumonia	Augmentin 875mg PO BID x 7 days	Clindamycin 300mg PO Q6H x 7 days
Skin and Soft Tissue Infection		
Cellulitits/ No Abscess	Cephalexin 500mg PO QID x 7 days Augmentin 500mg PO TID x 7 days	Clindamycin 300mg PO Q6H x 7 days
Cellulitis with Abscess	Bactrim DS 2 tablets PO BID x 7 days	Doxycycline 100mg PO BID x 7 days Clindamycin 300mg PO Q6H x 7 days

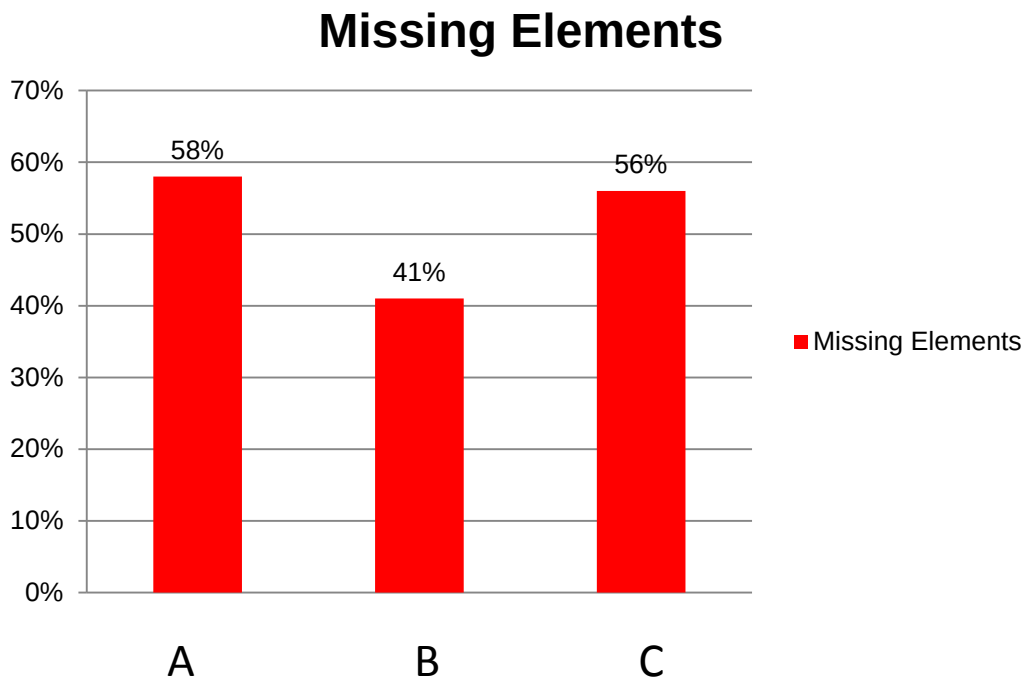
CE#4 - ACTIONS TO IMPROVE USE

- Does your consultant pharmacy support ASP services?
- Review antibiotic courses for appropriateness of administration and/or indication
- Establishes standards for clinical/laboratory monitoring for adverse drug events from antibiotic use
- Review microbiology culture data to assess and guide antibiotic selection

Essential Order Elements

- Essential elements for antibiotic orders in SNF
  - Medication name
  - Strength/Dosage
  - Route
  - Frequency
  - Duration
  - Indication*

* item most often missed



GNYHA/UHF ANTIMICROBIAL STEWARDSHIP PROJECT
ANTIBIOTIC TRACKING SHEET

Instructions: Please use this form to track all antibiotics that have been prescribed to a resident. Please note that this sheet represents all antibiotics that have been prescribed to **ONE** specific resident.

RESIDENT ID:	**PRESCRIBING MD:**	**ADMISSION DATE:** / /

ANTIBIOTIC #1:

DATE (MM/DD/YY)

START	STOP

DOES PATIENT HAVE ANY OF THE FOLLOWING DEVICES?

(Y)	(N)	URINARY CATHETER
(Y)	(N)	CENTRAL LINE
(Y)	(N)	VENTILATOR

LTC FACILITY ONLY:
DID PATIENT REQUIRE TRANSFER TO HOSPITAL?

YES	NO
(Y)	(N)

INDICATIONS FOR USE (*please check all that apply*)

YES	NO	
(Y)	(N)	FEVER
(Y)	(N)	URINARY TRACT SYMPTOMS
(Y)	(N)	RESPIRATORY SYMPTOMS
(Y)	(N)	DIARRHEA
(Y)	(N)	SKIN/WOUND INFECTION
(Y)	(N)	OTHER (Please specify):

(Y)	(N)	IS PATIENT COLONIZED WITH RESISTANT ORGANISM?

DIAGNOSTIC TESTS (*please check all tests that were performed*)

YES	NO		RESULTS
(Y)	(N)	BLOOD CULTURE	
(Y)	(N)	URINE CULTURE	
(Y)	(N)	URINALYSIS	
(Y)	(N)	RESPIRATORY SPECIMEN CULTURE/TEST	
(Y)	(N)	STOOL CULTURE/TEST	
(Y)	(N)	CHEST X-RAY	
(Y)	(N)	CBC	
(Y)	(N)	WOUND CULTURE	
(Y)	(N)	OTHER (Please specify):	

ANTIBIOTIC #2:

DATE (MM/DD/YY)

START	STOP

INDICATIONS FOR USE (*please check all that apply*)

YES	NO	
(Y)	(N)	FEVER
(Y)	(N)	URINARY TRACT SYMPTOMS
(Y)	(N)	RESPIRATORY SYMPTOMS
(Y)	(N)	DIARRHEA
(Y)	(N)	SKIN/WOUND INFECTION
(Y)	(N)	OTHER (please specify):

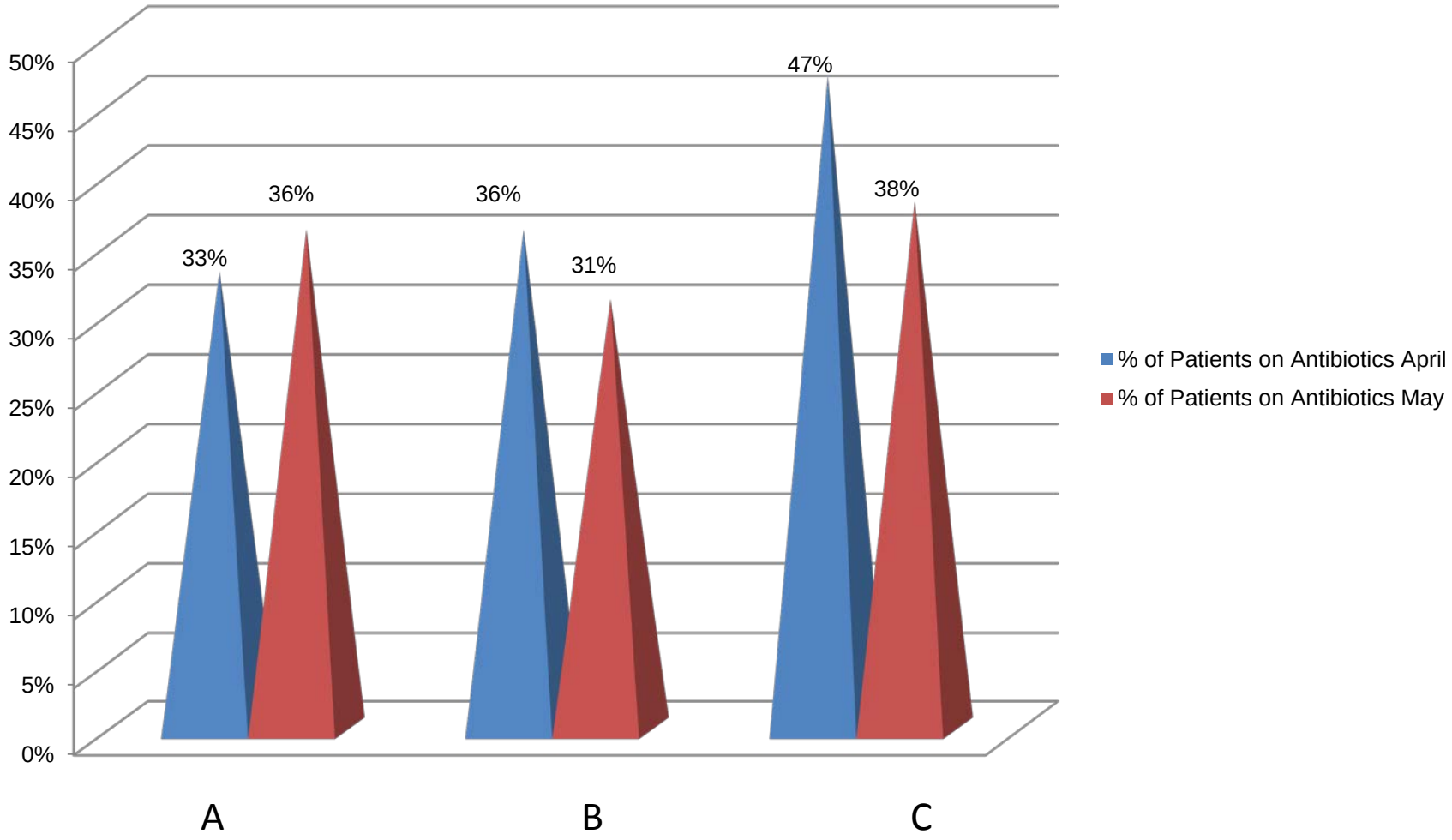
DIAGNOSTIC TESTS (*please check all tests that were performed*)

YES	NO		RESULTS
(Y)	(N)	BLOOD CULTURE	
(Y)	(N)	URINE CULTURE	
(Y)	(N)	URINALYSIS	
(Y)	(N)	RESPIRATORY SPECIMEN CULTURE/TEST	
(Y)	(N)	STOOL CULTURE/TEST	
(Y)	(N)	CHEST X-RAY	
(Y)	(N)	CBC	
(Y)	(N)	WOUND CULTURE	
(Y)	(N)	OTHER (Please specify):	

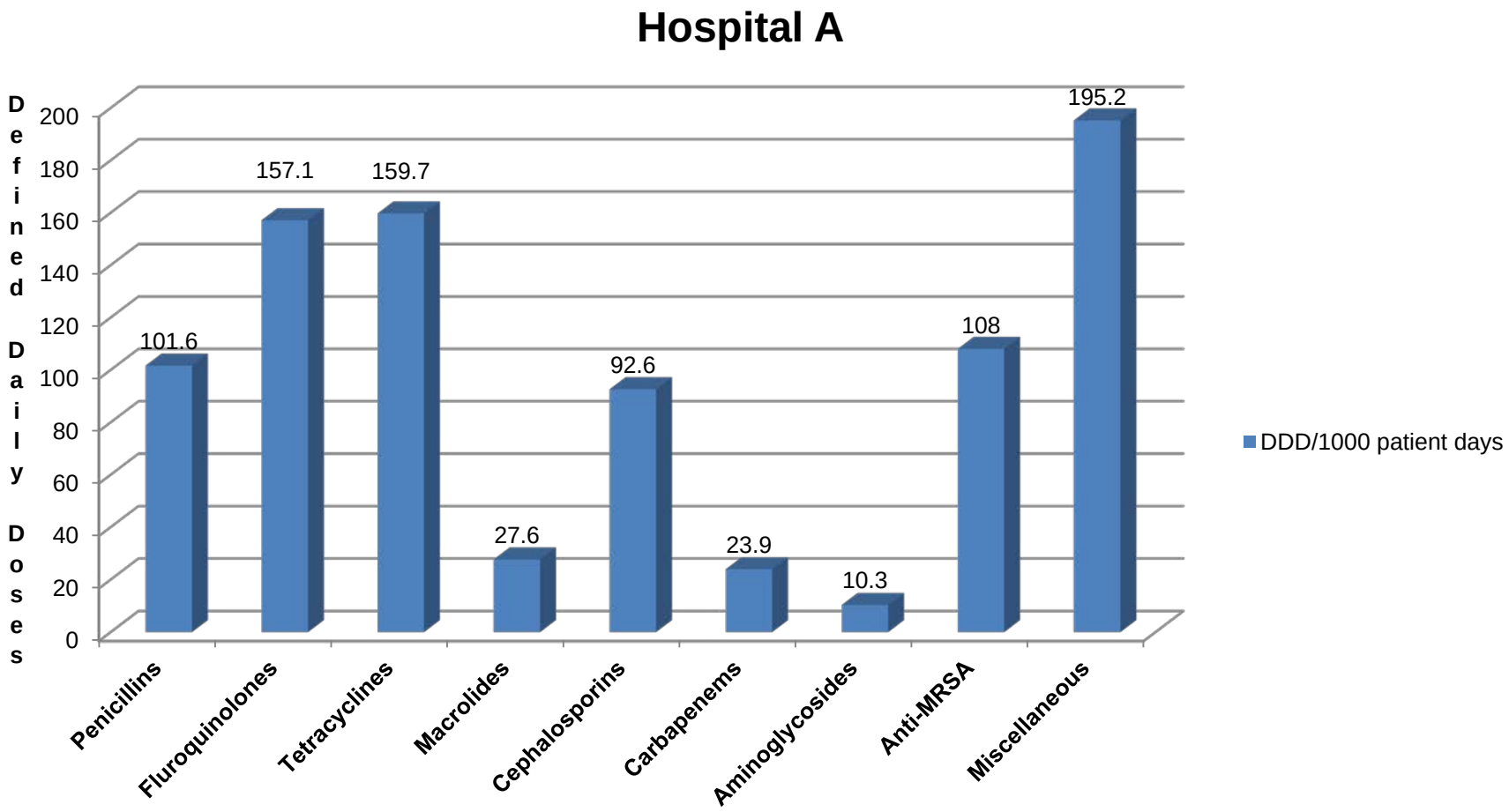
CE#5 - MONITORING ANTIBIOTIC USE

- Adherence to prescribing documentation (dose, duration, indication)
- Adherence to facility-specific treatment recommendations
- Perform point prevalence surveys of antibiotic use
- Monitors rates of new antibiotic starts/1,000 resident-days
- Monitors antibiotic days of therapy/1,000 resident-days
- Review of antibiotics on admission, transfer and at least once a month for long term antibiotic use

Patients on Antibiotics/Avg. Daily Census



Specific Utilization



CE#5 – MONITOR OUTCOMES OF ANTIBIOTIC USE

- Monitors rates of *C. difficile* infection
- Monitors rates of antibiotic-resistant organisms
- Monitors rates of adverse drug events due to antibiotics

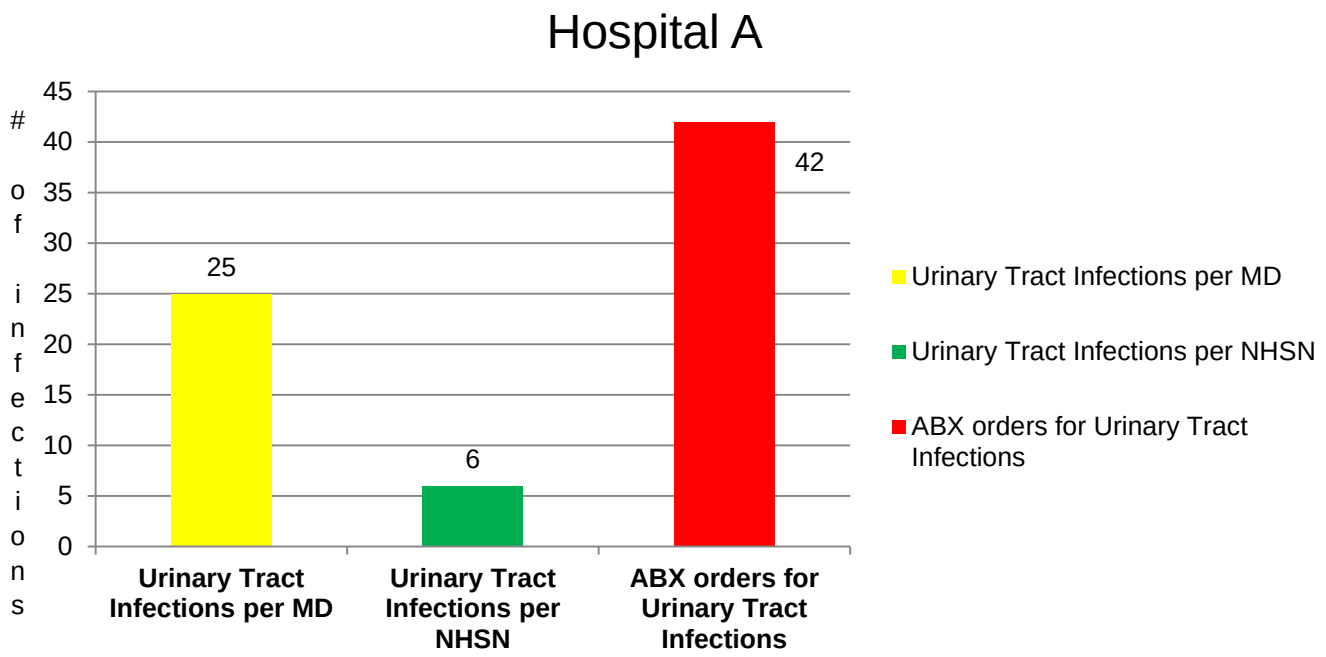
CE#6 – REPORT TO STAFF ON ANTIBIOTIC USE AND RESISTANCE

Provide facility-specific reports on antibiotic use and outcomes with clinical staff

- Measures of antibiotic use at the facility
- Measures of outcomes related to antibiotic use (i.e., *C. difficile* rates)
- Facility antibiotic susceptibility patterns (within last 18 months)
- Personalized feedback on antibiotic prescribing practices (to clinical providers)

Urinary Tract Infection Surveillance Data Comparison

Quality Assurance Performance Improvement (QAPI)



CE#7 - EDUCATION

Provide educational resources and materials about antibiotic resistance:

- Clinical providers (e.g., MDs, NPs, PAs, PharmDs)
- Nursing staff (e.g., RNs, LPNs, CNAs)
- Residents and families

UTIs: Myth vs. Facts for Clinicians

Myth	Fact
Cloudy or malodorous urine is always diagnostic of a urinary tract infection.	• These changes may be seen in asymptomatic bacteriuria. Other causes can include dehydration, certain medications and diet.
Positive urine culture and abnormal urinalysis (positive nitrates or leukocytes, increased white blood cells or pyuria) always indicates a urinary tract infection and requires antibiotics.	• Positive urine culture and abnormal urinalysis in a resident without symptoms is consistent with asymptomatic bacteriuria – that is, colonization – not infection. Treatment with antibiotics is not indicated.
Positive urine culture in resident with chronic indwelling catheter always indicates a urinary tract infection and requires antibiotics.	• A chronic indwelling catheter is associated with bacteriuria 100% of the time. There is no need to treat unless the resident has symptoms of a UTI.
Elderly residents often have a urinary tract infection with no symptoms except a change in mental status or delirium.	• Urinary tract infection is less likely without specific symptoms. Non-specific symptoms, such as a change in mental status, delirium, fatigue, or a fall may be due to a variety of causes, including: *pain, depression, constipation, dehydration, poor sleep, or medication side effects*. • It is important to consider a range of possible causes to prevent missing the real diagnosis.
In an elderly population, urinary tract infections often present with nonspecific symptoms (e.g., falls, functional decline).	• Nonspecific symptoms can be seen in many conditions such as dehydration or adverse drug effect. • Diagnosing and treating UTIs based on these nonlocalizing symptoms not only results in inappropriate antibiotic use; it also completely misses the real diagnosis.
A follow-up urine culture is indicated to confirm successful treatment of UTI.	• Even when a UTI is successfully treated, a urine culture may still be positive due to asymptomatic bacteriuria.

Adapted from Mass. Infection Prevention Partnership

ASK THE DOCTOR : Why won't they check a urine on my mother?

Hello. I am Dr. Steve Corder, a physician with Elder Care Physicians. It is a pleasure and a privilege for me to care for your loved ones. I was asked to write an article for the newsletter regarding urinary tract infections (UTI) and the appropriate-and inappropriate use of antibiotics.

Let me start with a definition: colonization. Normally the urine of a young, healthy person has no bacteria in it–it is sterile. As people age however, the bladder tends to empty less efficiently, the immune process to keep germs from entering the bladder is less effective and the bladder often has germs that "just live" there. They aren't invading the bladder wall, the kidneys or the blood stream. This is what we call colonization---germs that live in the bladder but don't cause an infection. Studies show that 35-50% if all of the residents of Huntersville Oaks could be expected to grow out bacteria if we were to send a sample of their urine to the lab. They aren't sick, these germs just live there.

So now you can see that if you tell me that "mom just isn't acting right, I think she might have a UTI" and I agree to get a urine culture, about half of the time this would be a self-fulfilling prophecy. The bacteria had nothing to do with her symptoms, yet we "diagnosed" a UTI and everyone felt better. From the medical side, I may have treated you, but not necessarily helped your loved one.

You may ask what's the big deal with giving antibiotics that aren't needed? Many of you may have heard of Clostridium Difficile (C. Diff) infections, VRE, MRSA and other resistant forms of bacteria. These are caused by the overuse of antibiotics and the resistance that develops. These can be life-threatening in many individuals. Patients can also experience nausea, dizziness, diarrhea, rash, kidney damage, allergic reactions and even death to antibiotics. These are not harmless drugs.

How do we know when a patient likely does have a true UTI? They will usually have burning with urination, more frequent urination, worsening incontinence, back pain, fever, lethargy, change in mental status. While any of these individually may not indicate a UTI, several symptoms together usually does indicate an infection. Since many patients may develop a UTI at some point, the nursing staff and medical staff are constantly vigilant for these symptoms. If you notice any of them, please notify the nurse and we will pursue an accurate diagnosis.

We look forward to caring for your loved ones and providing the best medical care possible.
Thank you,

J. Steven Corder MD, CMD

Davidson Memorial Nursing Facility

- It's May 2017 and the Davidson Memorial Nursing Faculty executive board realizes they have done NOTHING to prepare for upcoming CMS CoP taking place in November 2017
- You are the Nursing Director and get a panicked call from the Medical Director…
  - "Administration wants us to come up with a plan and report to the board meeting in July on our plan to meet requirements"
  - You like the medical director, but she is only there for ½ a day once a week. She never returns phone calls but will answer emails. But she does come to the monthly IP/Quality meetings.
  - You use a consultant pharmacist service – easy to work with but not onsite.
  - You do have an ACP who is present 1/2 a day M-F and is very interested in this topic
  - No EHR

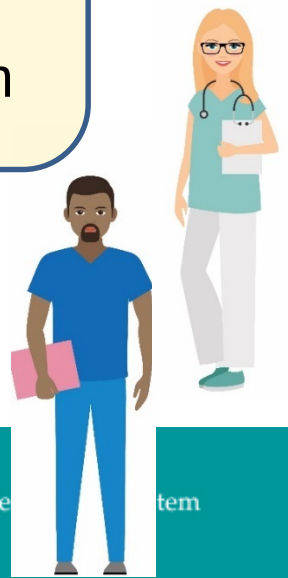
DMNF: Step #1 and Step #2

- Designated antimicrobial stewardship leader:
  - ASP team with Assistant Nursing Director and onsite ACP as champions
  - Meet monthly
  - Report quarterly to quality and facility board
- Team:
  - Infection Prevention
  - Nursing Assistant
  - Quality RN
  - Consultant Pharmacist (calling in)
  - Medical Director
  - Nursing Director

Where to Start

- Meet with your antibiotic stewardship team to identify problems as opportunities for improvement
- Identify a problem or defect

1) Recent resident who is transferred on levofloxacin for pneumonia. No end date. Patient developed an INR of >7 after 10 days.
2) Smelly urine often results in empiric antibiotics. 3 cases of CDI this month on patients with “UTI” from smelly urine.



Adapted from AHRQ CUSP ASP, courtesy of Morgan Katz

How to Start

- Start small, go for easy wins
- Focus on 1-2 aspect(s) of an opportunity for improvement

- THE newly formed ASP team chooses to focus on 3 opportunities for improvement :
  - All new admits/starts
  - Q48 monitoring of patient on antibiotics for UTI
  - Monthly utilization reports

Outcome

PROBLEM(S):

- No communication on admission
- No stop date on antibiotic.
- No monitoring for drug-drug interactions.
- No follow-up to narrow therapy.
- No follow-up on negative cultures
- No notification of the daytime provider of new prescription.

Adapted from AHRQ CUSP ASP, courtesy of Morgan Katz

DMNF and Pharmacy

- Determine what data you can get
- The team leaders meet with consultant pharmacist. You don’t have an EHR , but the pharmacists can develop the following reports:
  - Drug starts
  - Defined daily doses of drug use
  - Monitor drug-drug interactions
  - List of orders by ACP/MD
  - Ability to email physicians

DMNF - Antibiotic use protocols

- UTI:
  - Staff educated about appropriate diagnosis of UTI and use of SBAR for UTIs
  - Within 24 hours of antibiotic start for UTI, an antibiotic monitoring form will be filled out by ACP (Mon-Fri). This will continue every 48 hours until stopped
  - Negative urine cultures or contaminant results will be phoned/ emailed to clinician with expected response in 24 hours
- All antibiotics:
  - Adapt intake form to make sure all antibiotics are listed with end date
  - Pharmacy will review weekly, starts, and admits
  - Clinicians will be phoned/emailed by the consultant pharmacy for all new admits and starts to confirm drugs, dose, indication, stop date and any necessary monitoring
- Any clinicians who don't respond within 48 hours will be reported to ASP committee

DMCF – Reporting and education

- Quarterly reporting to clinicians and administrations
  - New admits/starts with indication
  - DDDs
- Family Council meetings – will have quarterly updates on and provide information on key concepts for appropriate antibiotic use(material from CDC website)
- Posters on walls of hallways
- Clinician pocket cards on empiric prescribing

Conclusions

- CMS regulations are coming
- The key is picking a few attainable goals
- Leadership involvement is key
- You need to have a system of accountability and reporting
- Don’t forget to involved patients and families

SNF Antibiotic Stewardship Online Resources

- *Centers for Disease Control and Prevention (CDC)* *www.cdc.gov*
- *Agency for Healthcare Research and Quality (AHRQ)* *www.ahrq.gov*
- *Society for Healthcare Epidemiology of America (SHEA)* *www.shea-online.org*
- *Infectious Disease Society of America (IDSA)* *www.idsociety.org*
- Institute for Healthcare Improvement (IHI) www.ihi.org
- *Massachusetts Coalition for the Prevention of Medical Errors* *www.macoalition.org*

CHS Antimicrobial Stewardship Symposium

Programming to include stewardship interventions specific to UTI, sepsis and CDI

Carolinas HealthCare Symposium to Optimize, Network, and Engage Antimicrobial Stewardship Partners

CHS ONE ASP

Wednesday, May 31, 2017
8:30 AM – 4:45 PM
Harris Conference Center
3216 CPCC Harris Campus Drive
Charlotte NC 28208

https://www.charlotteahec.org/continuing_education/registration/workshop.cfm?EventID=52229

Keynote Speaker

Associate Director for Healthcare Associated Infection Prevention Programs
Centers for Disease Control and Prevention (CDC)

Please unmute your line

OR

Type in chat box at the bottom of your screen

THANK YOU FOR YOUR TIME AND SUPPORTING RESIDENT SAFETY!

ADDITIONAL RESOURCES

- Statewide Program for Infection Control & Epidemiology (SPICE)
  - https://spice.unc.edu/
- Infection Management & Antibiotic Stewardship (UNC)
  - https://nursinghomeinfections.unc.edu/
- Centers for Disease Control & Prevention (CDC)
  - https://www.cdc.gov/longtermcare/prevention/antibiotic-stewardship.html
- Agency for Healthcare Research & Quality (AHRQ)
  - https://www.ahrq.gov/nhguide/index.html
- Minnesota Department of Health (MDH)
  - http://www.health.state.mn.us/divs/idepc/dtopics/antibioticresistance/asp/ltc/index.html