



**North Carolina
Clinical Antibiotic
Stewardship Partners**

**LONG-TERM CARE COMMUNITIES
ANTIBIOTIC STEWARDSHIP
SESSION #5**

May 3, 2023

CONFLICT OF INTEREST DISCLOSURES

- ▶ The views and opinions expressed in this series are those of the speakers and do not reflect the official policy or position of any agency of the U.S. or NC government or UNC.
- ▶ Our speakers have the following financial relationships with the manufacturer(s) and/or provider(s) of commercial services discussed in this activity:
 - ▶ Dr. Kistler served as a consultant for Base10, Inc on their UTI embedded clinical support tool and received funding from Pfizer to study pneumococcal carriage.
 - ▶ Dr. Willis has performed contracted research with: Pfizer (pediatric nirmatrelvir-ritonavir and maternal RSV vaccine), Novavax (pediatric COVID-19 vaccine), and Merck (monoclonal antibody for RSV prevention).
 - ▶ Ms. Doughman owns individual Gilead stock.
- ▶ The speakers do not intend to discuss an unapproved/investigative use of a commercial product/device in this series, and all COI have been mitigated.
- ▶ These slides contain materials from a variety of colleagues, Drs Philip Sloane and David Weber, as well as the CDC, WHO, AHRQ, etc.

OUTLINE OF TODAY'S SESSION

1. NC CLASP reminders
2. CDC Core Element: Drug Expertise
3. Zoom Poll and Large Group Discussion
4. Diagnosis and Pharmacologic Management of Pneumonia
5. Small Group Discussion on Pharmacy Support
6. Introduction to EHR Support of Antibiotic Stewardship
7. QI on Outcome Assessment
8. Quizlet



SESSION REMINDERS

- ▶ This time is for you and your learning
- ▶ Please turn on your videos!
 - ▶ Cameras on
 - ▶ Stay muted unless speaking
- ▶ Use the chat
- ▶ Let's use and share our learning, but not in a way that identifies protected information
- ▶ If you need to get a hold of us, please email: Danielle.Doughman@unchealth.unc.edu
- ▶ Sign up for a SMART AIM slot! We want to help you!

<https://docs.google.com/document/d/1uY1YarnlvCdle8EgLB5P7luovjlvZWFE/edit>



CDC CORE ELEMENT: DRUG EXPERTISE

- ▶ Work with a consultant pharmacist with antibiotic stewardship training
<https://mad-id.org/antimicrobial-stewardship-programs/>
<https://sidp.org/Stewardship-Certificate>
- ▶ Partner with the antibiotic stewardship program at your local hospital
- ▶ Develop a relationship with a local infectious disease consultant to support your efforts



ZOOM POLL

► Does your community's preferred pharmacy have anyone with antibiotic stewardship training who can help you?

- Yes
- No
- I Don't Know

Does your community work with your local referring hospital's stewardship team?

- Yes
- No
- I Don't Know

Does your community work with any local ID physician to support your stewardship efforts?

- Yes
- No
- I Don't Know

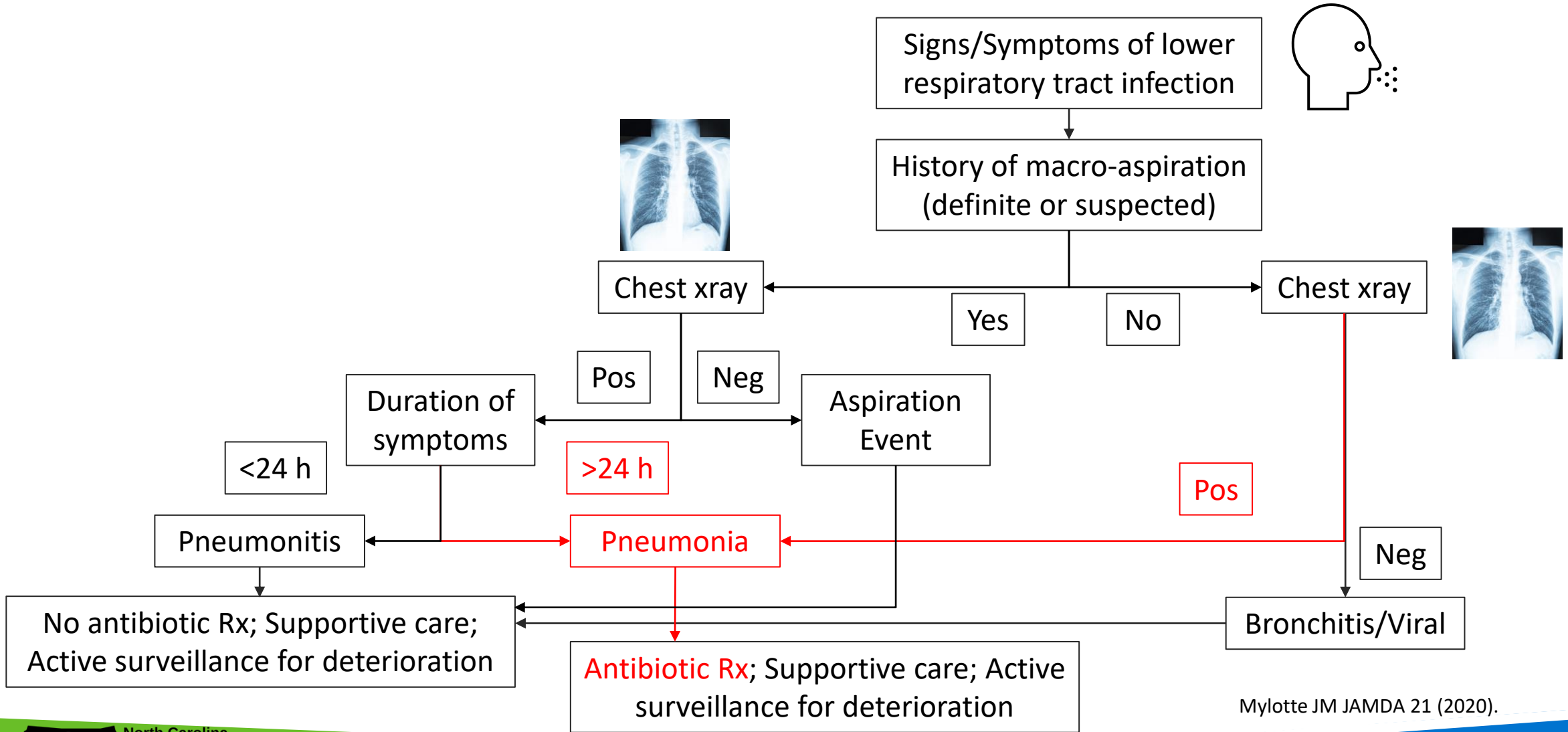
DIAGNOSTIC CRITERIA FOR PNEUMONIA

► Loeb criteria for pneumonia

Temperature Level	Minimum Criteria for Initiating Therapy
>102°F	At least 1 of the following: RR >25/min, or productive cough
>100°F or 2.4°F rise above baseline	Presence of a cough, and at least 1 of the following: <ol style="list-style-type: none"> 1. P>100 2. Delirium 3. Rigors (shaking chills) 4. RR >25/min
Afebrile residents with COPD	New or increase cough with purulent sputum
Afebrile residents without COPD	New cough with purulent sputum and RR >25/min or delirium
In the setting of new infiltrate on chest x-ray thought to be PNA	RR>25/min, productive cough, or fever (100°F or 2.4°F increase above baseline)

Loeb D, et al. Infect Control Hosp Epidemiol, 22 (2001).

POTENTIAL DIAGNOSTIC PATHWAY



Mylotte JM JAMDA 21 (2020).

PHARMACOLOGIC MANAGEMENT

► If you decide to keep the resident in the nursing home, these are the first line agents:

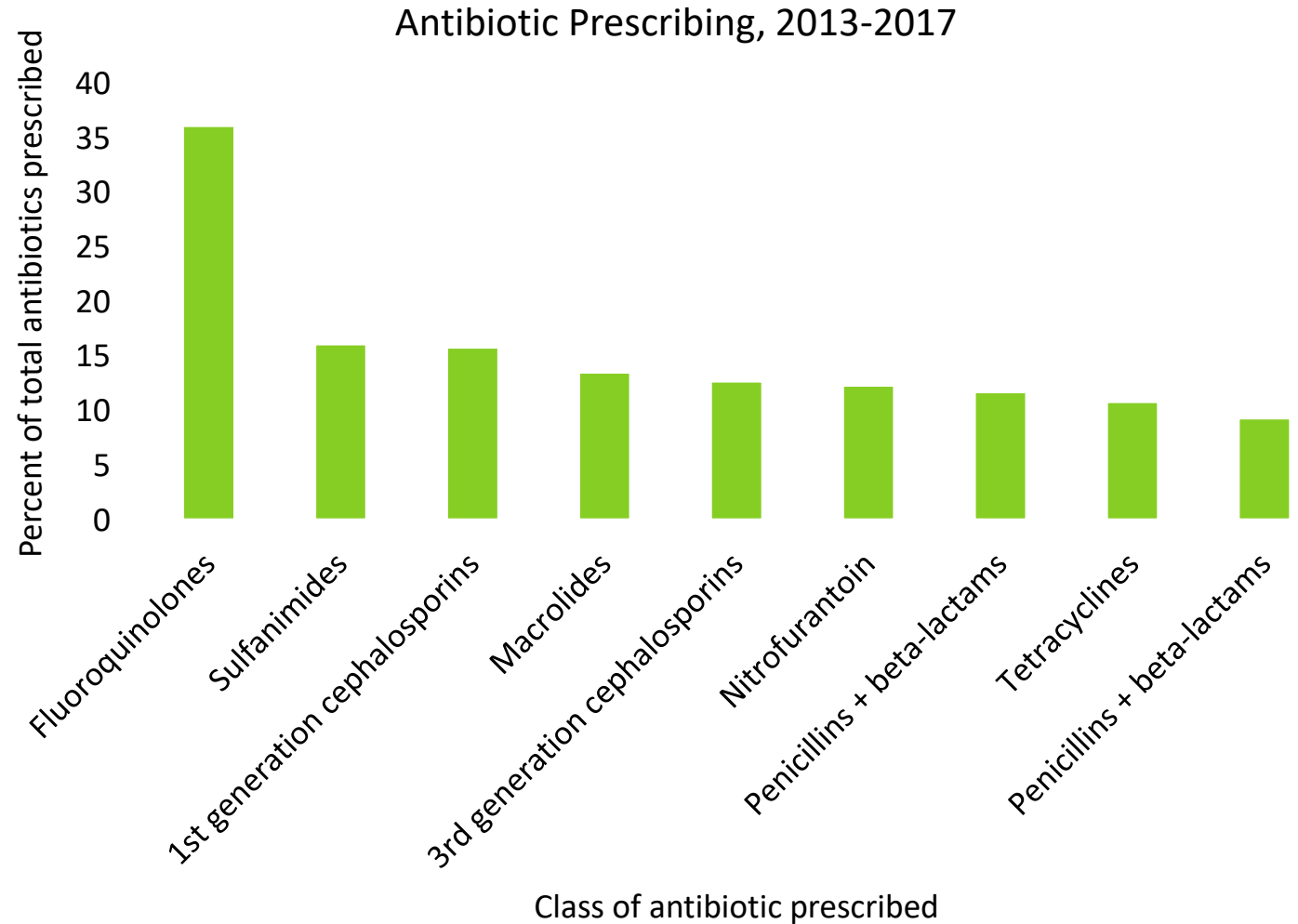
Preferred choice	Medication	Duration
First-line options	IM Ceftriaxone 500 mg q day	2-3 days and then switch to orals*
	IM Cefotaxime 1 gm q 12 hours	2-3 days and then switch to orals*
	PO Amoxicillin 1 gm TID	5 days if clinically stable, otherwise 7
	PO Amoxicillin/Clavulanate 500/125 mg BID	5 days if clinically stable, otherwise 7
	PO Doxycycline 100 mg BID	5 days if clinically stable, otherwise 7
	PO Cepodoxime 200 mg BID	5 days if clinically stable, otherwise 7
Second-line options	PO Levofloxacin 750 mg q day	5 days if clinically stable, otherwise 7
	PO Moxifloxacin 400 mg q day	5 days if clinically stable, otherwise 7

* Switch to orals determined by clinical stability, but no more than 7 days.

Mylotte JM. JAMDA. 2020.

INAPPROPRIATE ANTIBIOTIC STEWARDSHIP

- ▶ Large retrospective cohort study of 1,375,062 long-term care residents
- ▶ Over a 3-year period, 66.2% of LTC residents received an antibiotic
- ▶ Fluoroquinolones accounted for a third of all prescriptions despite failing to be a first-line antibiotic for any infection
- ▶ They were also prescribed for over 8 days on average, compared with 6 days or less for all over classes



Riester MR et al J Infect Dis. 2023

SMALL GROUP DISCUSSION

Use your drug experts:

- ▶ How do you use your consultant pharmacy to help with antibiotic prescribing?
- ▶ Do you get monthly reports?
- ▶ Do you use a different pharmacy for your medication delivery v consultant pharmacist?



INTRODUCTION TO EHR SUPPORT TO IMPROVE ANTIBIOTIC STEWARDSHIP

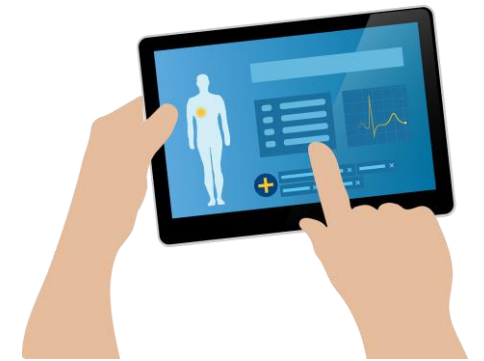
► Using EHR to Improve Infection Tracking

1. All appropriate clinical information is passed on to the provider
2. The electronic communication form can be integrated with diagnostic and treatment algorithms
3. SBAR can be reviewed to determine appropriateness of treatment and identify opportunities for improvement.



HOW EHRS CAN BE USED FOR ANTIBIOTIC STEWARDSHIP?

- ▶ Identification of residents currently on antibiotics for daily antibiotic time-out assessments
- ▶ Measurement of AU for routine review of reports with consulting pharmacists, providers, staff, and administration
- ▶ Review of antibiotic appropriateness
- ▶ Tracking of resident infections




HOW EHR'S CAN BE USED FOR ANTIBIOTIC STEWARDSHIP?

Data Element	Use	Why is this Important?
<i>Data Needed for each Administered Course of Antibiotic</i>		
Resident Age	<ul style="list-style-type: none"> Track antibiotic prescribing by age 	<ul style="list-style-type: none"> Understanding who receives antibiotics in your facility, and where those residents are located, can be helpful in targeting prescribing improvements.
Resident Sex	<ul style="list-style-type: none"> Track antibiotic prescribing by sex 	
Unit/location	<ul style="list-style-type: none"> Track antibiotic prescribing by facility location 	
Antibiotic Name	<ul style="list-style-type: none"> Track use of therapeutic and drug classes Assess appropriateness of antimicrobial choice Definition of therapeutic and drug class should be consistent with National Healthcare Safety Network (NHSN) categorization 	<ul style="list-style-type: none"> Some antibiotics are more harmful to individual patients and the overall problem of resistance than others, so it is important to understand prescribing trends. Appropriateness is based on need for treatment but also selection of the appropriate drug, dose, and duration.

<https://www.health.state.mn.us/diseases/antibioticresistance/hcp/ehrfs.pdf>

CLINICAL DECISION SUPPORT SYSTEM ALERTS

Discern: (1 of 1)



Fluoroquinolones Alert

Consider alternate treatment if prescribing fluoroquinolones for indication of acute bacterial sinusitis, COPD exacerbation, and uncomplicated UTI to patients who have other treatment options. New FDA boxed warning recommends against use of fluoroquinolones for patients who have other treatment options because the risks of serious adverse reactions in musculoskeletal, peripheral nervous and central nervous systems outweigh the benefits in these patients.

Alert Action

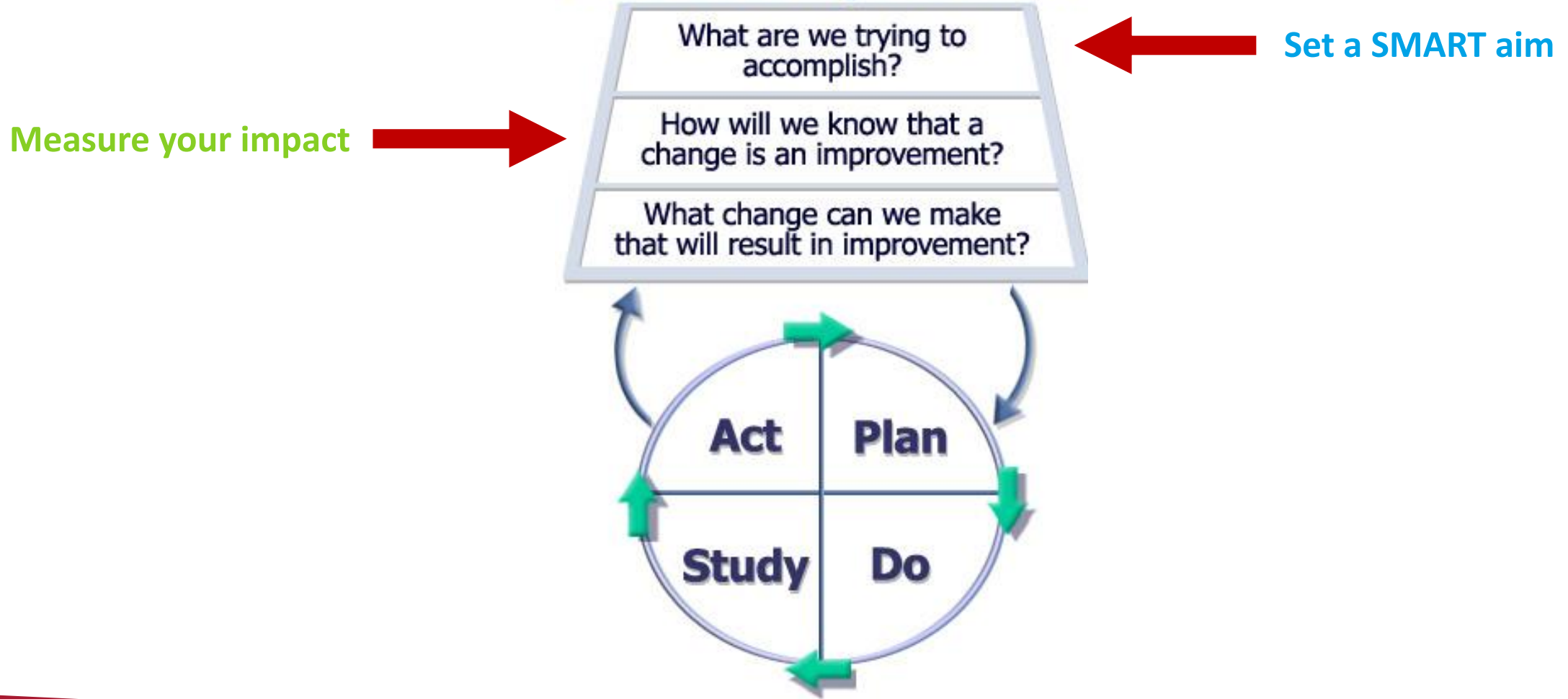
- Cancel Order
- Order Anyway
- Modify Order

OK

Weih S. Antimicrobial Stewardship by Leveraging Electronic Medical Records. Mo Med. 2020 Jul-Aug;117(4):338-340. PMID: 32848270; PMCID: PMC7431069.

MEASUREMENT

Model for Improvement



TYPES OF MEASURES



OUTCOME MEASURE

(HOW IS THE SYSTEM PERFORMING? WHAT IS THE RESULT?)

- Number of antibiotic-resistant infections
- Use of antibiotics — rate or #
- Use of antibiotics without positive culture

Facility Measures



PROCESS MEASURE

(ARE THE PARTS/STEPS IN THE SYSTEM PERFORMING AS PLANNED?)

- Number of cultures performed
- Dose, duration, indication, and symptoms documented
- Number of consultations with Pharmacist

PIP measures

TYPES OF MEASURES



BALANCING MEASURE

(BALANCING MEASURES DETERMINE WHETHER CHANGES DESIGNED TO IMPROVE ONE PART OF THE SYSTEM ARE CAUSING NEW PROBLEMS IN OTHER PARTS OF THE SYSTEM.)

- Number of infections
- Complications of infections
- Resident and family satisfaction rate

Question for the chat box:
Can you think of any other
“balancing measures” — unintended
consequences of a focus on
appropriate antibiotic use???

Choose measures from all three categories to ensure that you have an accurate picture of the effects on the system of changes you are making

MEASURING FOR IMPROVEMENT



Try to keep to a yes/no format



Small samples rather than all

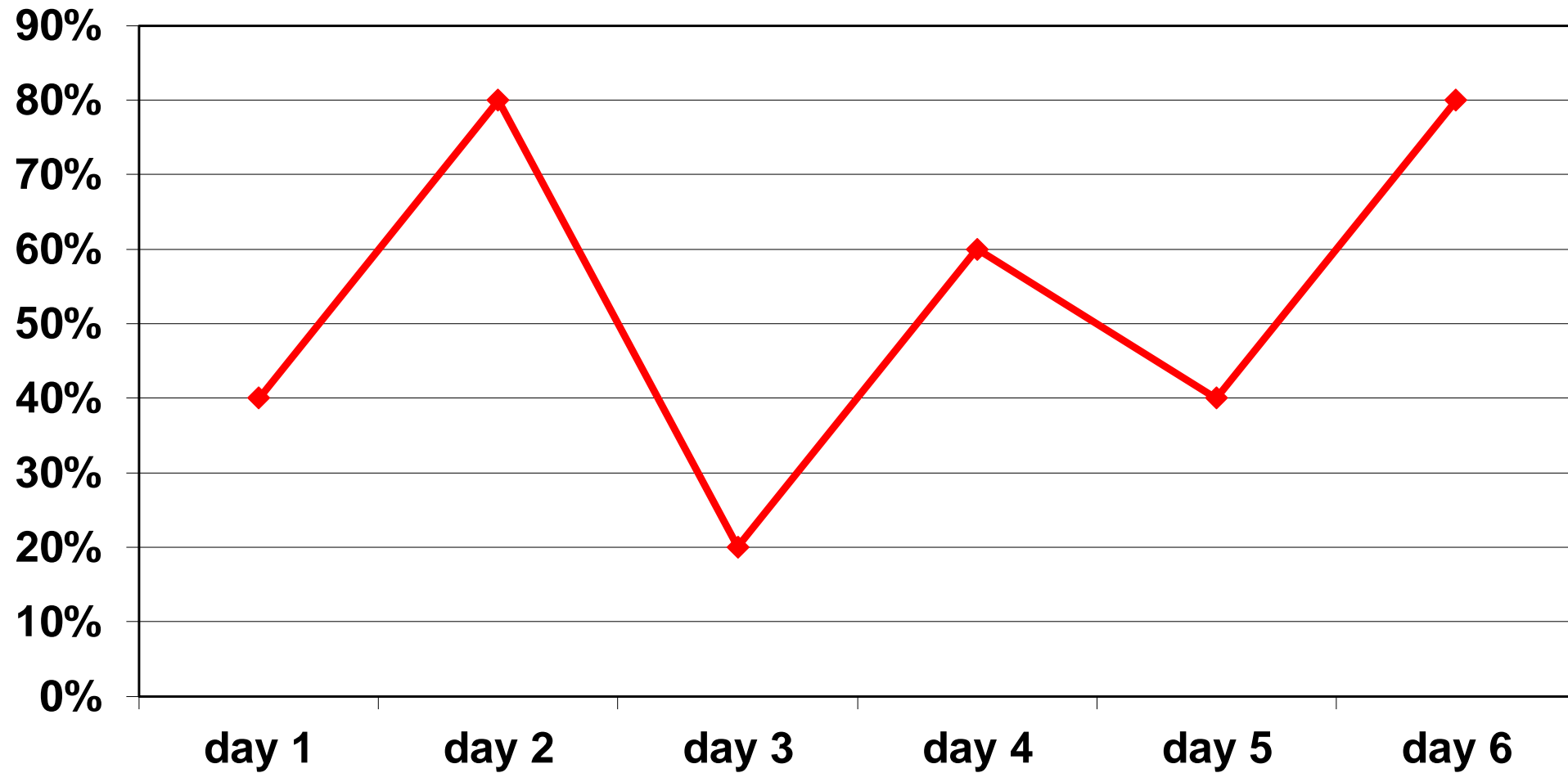


Person/persons responsible for the design should do the data collection

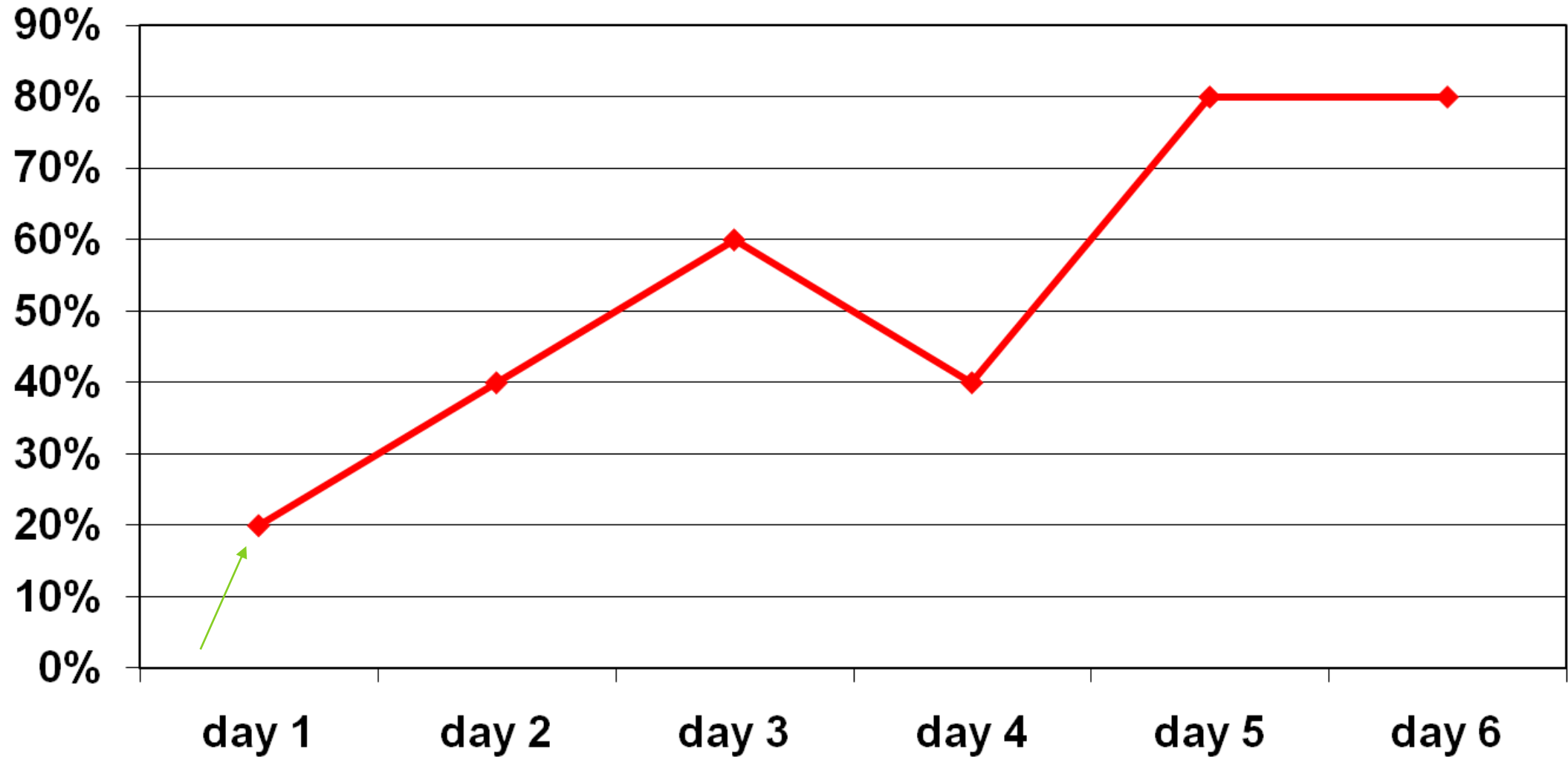


For a process thought to be reliable, spot checks need to be made and defects studied

ANTIBIOTIC ADMINISTERED ONLY AFTER POSITIVE CULTURE



INDICATION, DOSE, AND DURATION DOCUMENTED IN EHR



MINI QUIZ: OUTCOME, PROCESS, OR BALANCING MEASURE?

SMART Aim: Our goal is to reduce use of prophylactic antibiotic use for UTI by 30% by June 30, 2023.

QUIZ:

- A. Number of 1:1 conversations conducted with staff about abx procedures (O/P/B?)
- B. Staff satisfaction rate (O/P/B?)
- C. Number of cultures performed (O/P/B?)
- D. Number of expert Q&A sessions held (O/P/B?)

