



WISCONSIN DEPARTMENT
of **HEALTH SERVICES**

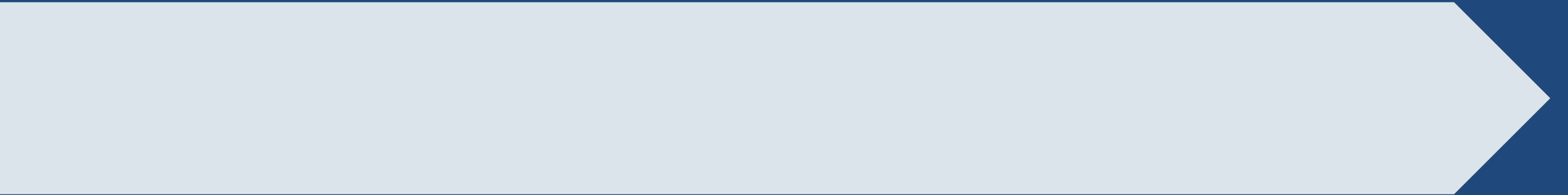
Wisconsin HAI Long-Term Care Education Series

April 27, 2023

Today's Agenda

- National Healthcare Safety Network (NHSN) Annual Influenza Vaccination Reporting Reminders
 - **Nancy Eberle**, Surveillance and Education Coordinator, HAI Prevention Program
- Infection Prevention Updates
 - **Ashlie Dowdell**, director, HAI Prevention Program
- Antimicrobial Stewardship in Skilled Nursing Facilities
 - **Christopher J. Crnich, MD, PhD**, Chief of Medicine, Madison VA Hospital and Associate Professor of Medicine in the Division of Infectious Diseases, UW School of Medicine and Public Health

NHSN Annual Influenza Vaccination Reporting Reminders



Annual Influenza Vaccination Reporting

- Requirement for skilled nursing facilities starting this influenza season
- Requirement is to report data into NHSN **at least one time** to reflect entire flu season (October 2022-March 2023)
- Data submission deadline is **May 15, 2023**
- **Note:** Health care personnel (HCP) influenza vaccination rates only

Annual Influenza Vaccination Reporting

- Data must be reported into Healthcare Personnel Safety (HPS) Component in NHSN.
- Facility administrator must activate the HPS Component.
- Facilities will need to confer rights to Division of Public Health “group” to be included in checks for completeness.

Need Help?

Contact Nancy Eberle for assistance

- nancy.eberle@dhs.wisconsin.gov
- 608 206-9719

Infection Prevention Updates



Candida auris

Increasing Threat of Spread of Antimicrobial-resistant Fungus in Healthcare Facilities

Press Release

For Immediate Release: Monday, March 20, 2023

Contact: [Media Relations](#)
(404) 639-3286

Candida auris (*C. auris*), an emerging fungus considered an urgent antimicrobial resistance (AR) threat, spread at an alarming rate in U.S. healthcare facilities in 2020-2021, according to data from the Centers for Disease Control and Prevention (CDC) published in the Annals of Internal Medicine. Equally concerning was a tripling in 2021 of the number of cases that were resistant to echinocandins, the antifungal medicine most recommended for treatment of *C. auris* infections. In general, *C. auris* is not a threat to healthy people. People who are very sick, have invasive medical devices, or have long or frequent stays in healthcare facilities are at increased risk for acquiring *C. auris*. CDC has deemed *C. auris* as an urgent AR threat, because it is often resistant to multiple antifungal drugs, spreads easily in healthcare facilities, and can cause severe infections with high death rates.

[CDC *C. auris* Press Release](#)



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Healthcare-Associated Infections (HAI) Prevention Program

Data Shows an Increased Spread of *Candida auris* in U.S. Health Care Facilities

Introduction

On March 20, 2023, the Centers for Disease Control and Prevention (CDC) issued a [press release](#) describing the increased spread of *Candida auris* (*C. auris*) in U.S. health care facilities. The CDC also noted a tripling in the number of cases in 2021 that were resistant to echinocandins, the antifungal most frequently used for treatment of *C. auris*.

Since *C. auris* was first detected in the United States in 2016, cases have continued to rise each year, with the most rapid rise being from 2020–2021. Cases have now been reported in 27 states, including Wisconsin.

C. auris case counts may have increased for several reasons, including infection prevention and control challenges during the pandemic as well as enhanced efforts to detect cases.

[DHS *C. auris* Listserv Message](#)

Interim Infection Prevention and Control Recommendations for Healthcare Personnel During the Coronavirus Disease 2019 (COVID-19) Pandemic

Updated Sept. 27, 2022 [Print](#)

For healthcare personnel, see [Isolation and work restriction guidance](#). For strategies to mitigate healthcare personnel staffing shortages, see [Contingency and crisis management](#). For healthcare professionals advising people in non-healthcare settings about isolation for laboratory-confirmed COVID-19, see [Ending Isolation and Precautions for People with COVID-19](#).

Summary of Recent Changes

Updates as of September 23, 2022



<https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-recommendations.html>

Considerations for the End of the Public Health Emergency

- Federal guidance changes
 - CDC recommendations
 - CMS updates
 - Don't forget about OSHA
- State communicable disease reporting
- Infection prevention practices
 - Personal protective equipment (PPE)
 - Testing practices
 - Outbreak response

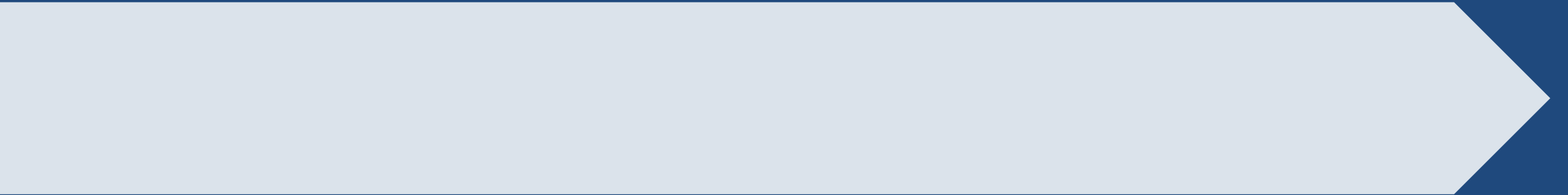
Facility Policies

- Review changes to guidance once released
- Meet with facility leadership and update policies where needed
- Consider any local lessons learned or internal data that you want to incorporate into your policies
- Educate staff on changes to policies and conduct audits to ensure understanding or identify education gaps
- Get back in the habit of promoting standard precautions for all staff – they always apply

A Few Things to Take Forward With Us

- Use infection prevention core practices, including donning and doffing of PPE, hand hygiene, etc.
- Maintain your Respiratory Protection Plans and perform annual respirator fit testing
- Continue to promote vaccination of all kinds among residents and staff
- Incorporate contact tracing when investigating communicable diseases
- Contact the HAI Prevention Program with questions

Antimicrobial Stewardship in Skilled Nursing Facilities



WI DHS Long-Term Care Education Series

April 27, 2023



The Blocking & Tackling of Antibiotic Stewardship in Skilled Nursing Facilities

Christopher J. Crnich, MD PhD

Professor of Medicine

Division of Infectious Diseases

University of Wisconsin School of Medicine and Public Health

Madison, WI

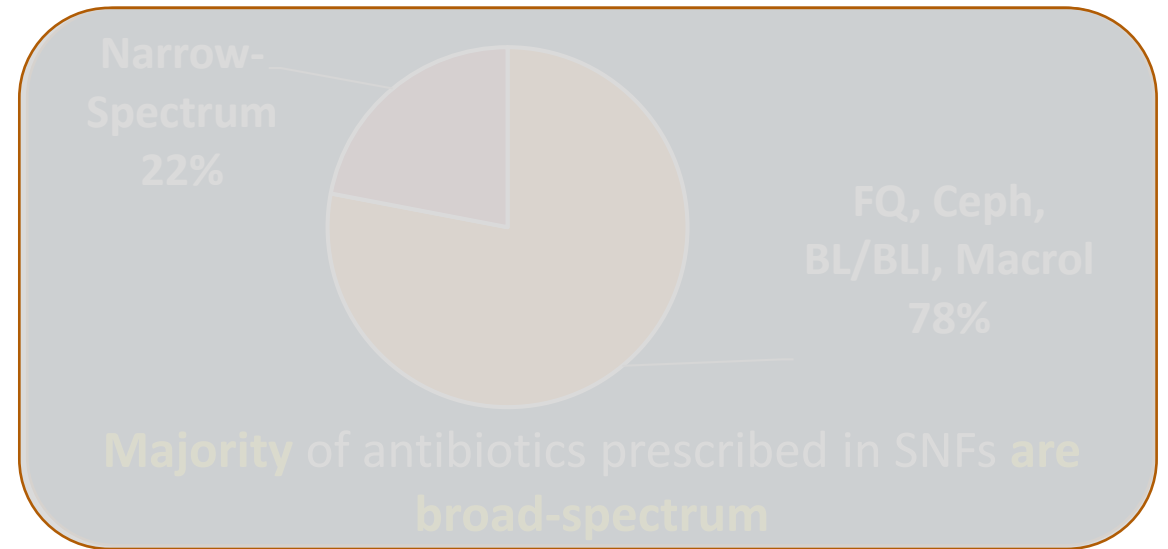
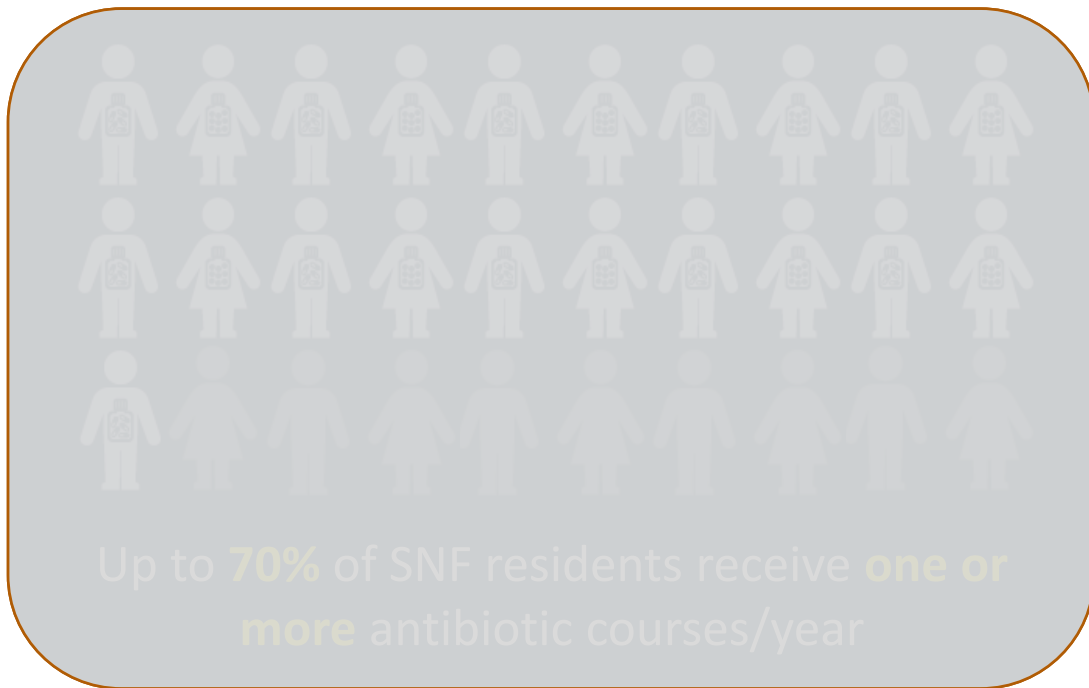
Disclosures

- None

Objectives

- Briefly review the rationale for antibiotic stewardship (AS) in skilled nursing facilities (SNFs)
- Review the Centers for Disease Control and Prevention (CDC) AS Core Elements
- Discuss the three foundations of a facility AS program and the tools facilities can employ to construct these foundations
 - Operational infrastructure
 - Nursing practice
 - Tracking & reporting

Antibiotic overuse & misuse are major problems in SNFs

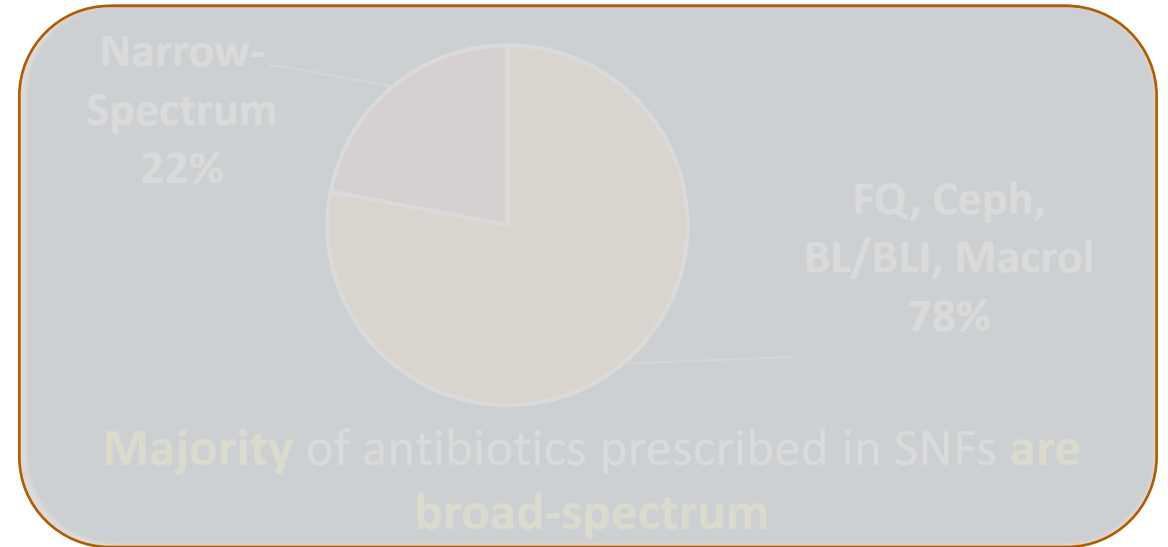
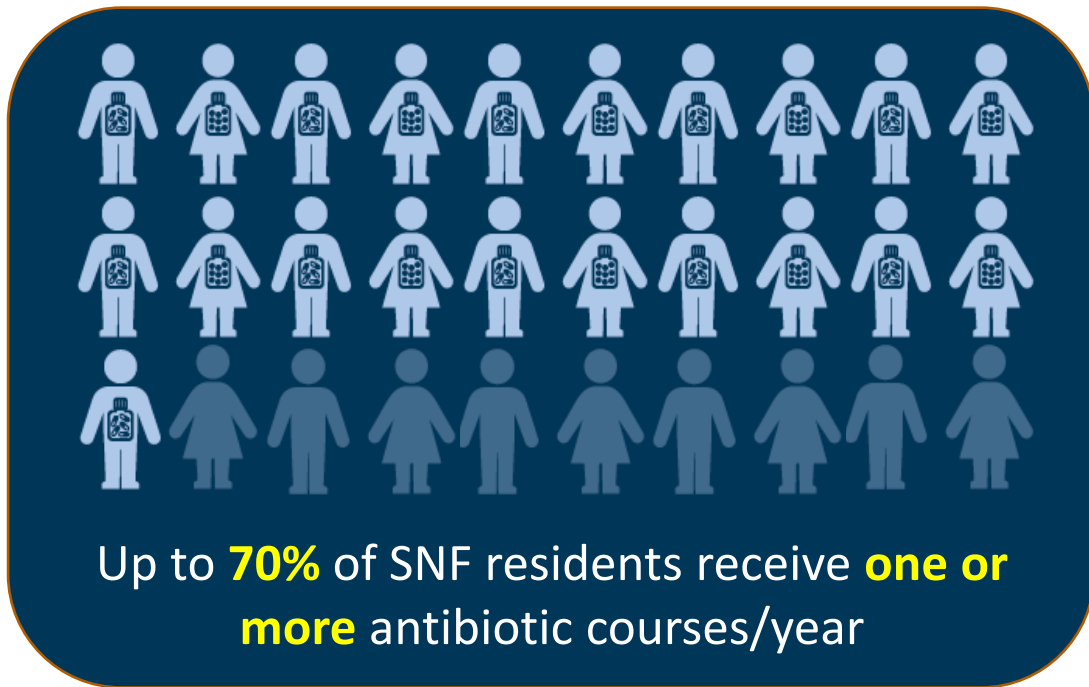


McElligott et al. *Infect Dis Clin N Am* 2017; 31(4): 619-38 (doi.org/10.1016/j.idc.2017.07.008)

Liao et al. *Infect Control Hosp Epidemiol* 2020; 41: 635-40 (doi.org/10.1017/ice.2020.75)

Lagenstroer et al. *Infect Control Hosp Epidemiol* 2022 (doi.org/10.1017/ice.2022.202)

Antibiotic overuse & misuse are major problems in SNFs

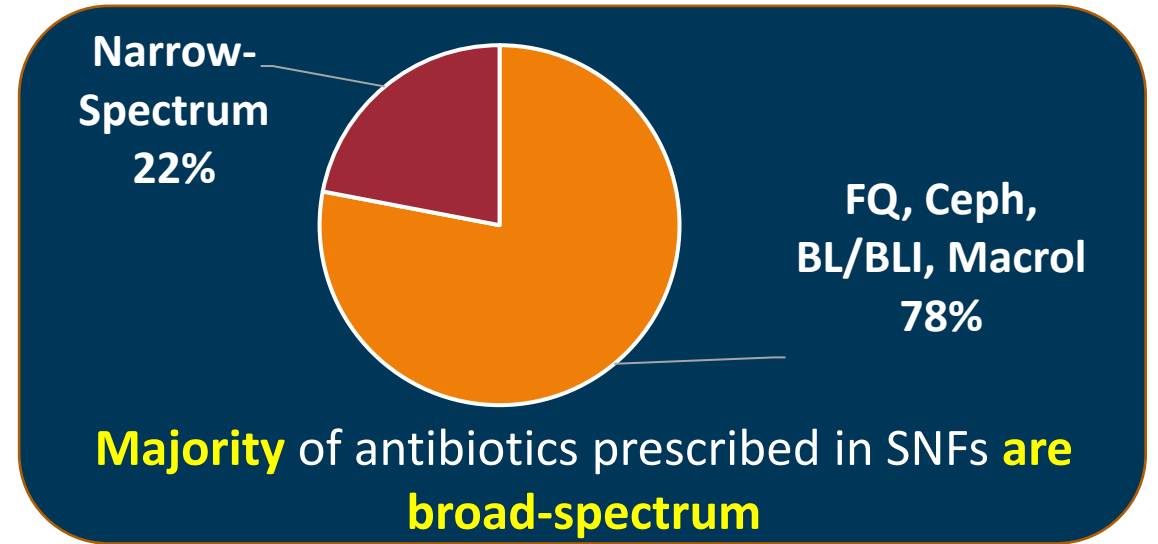
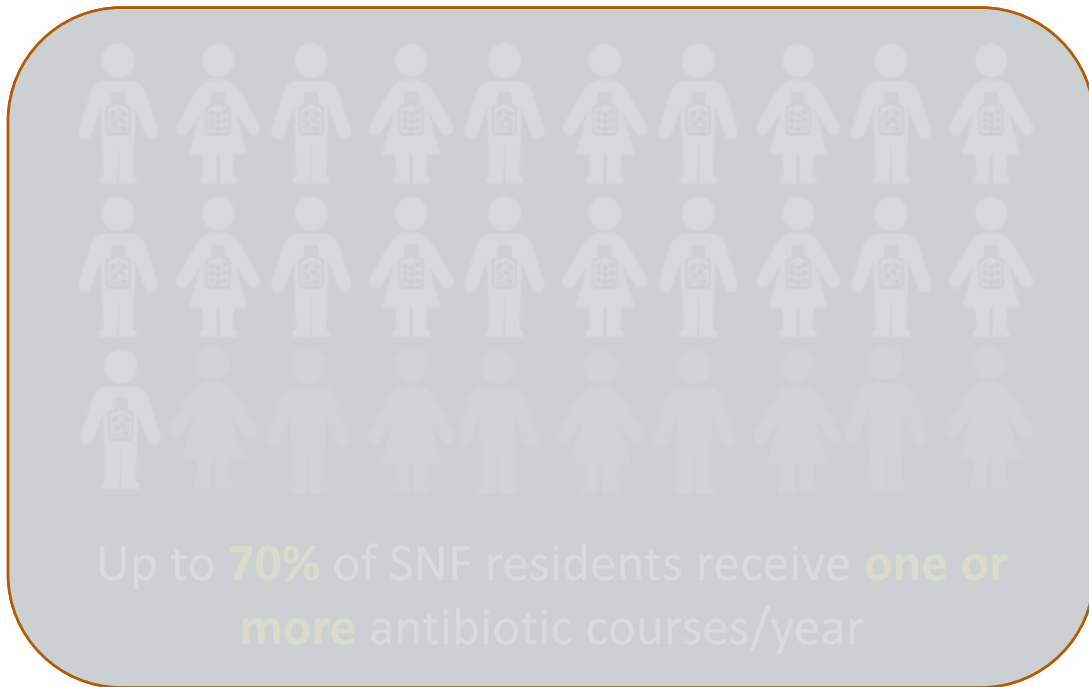


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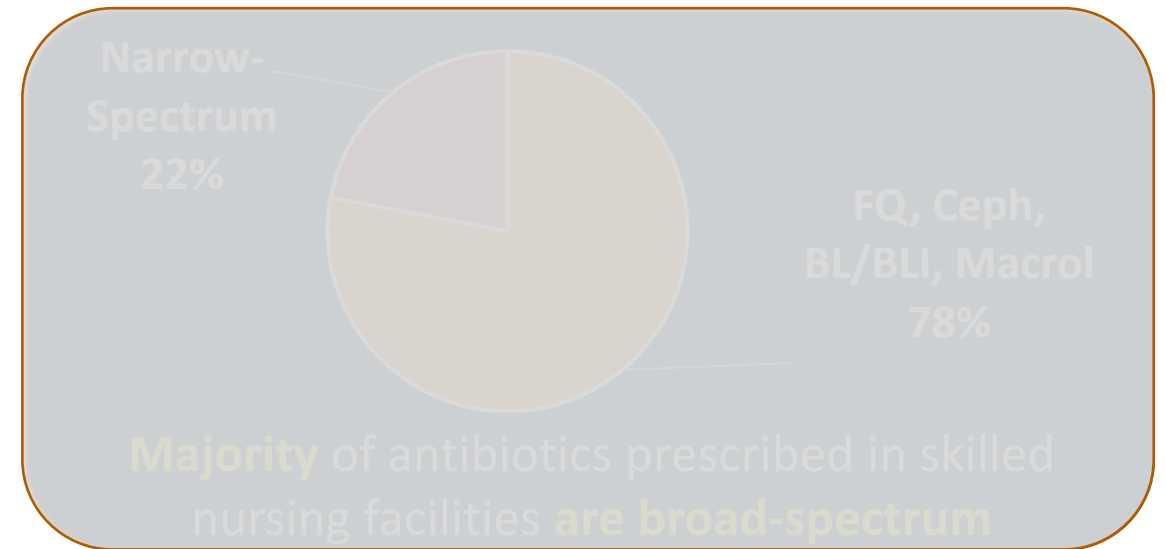
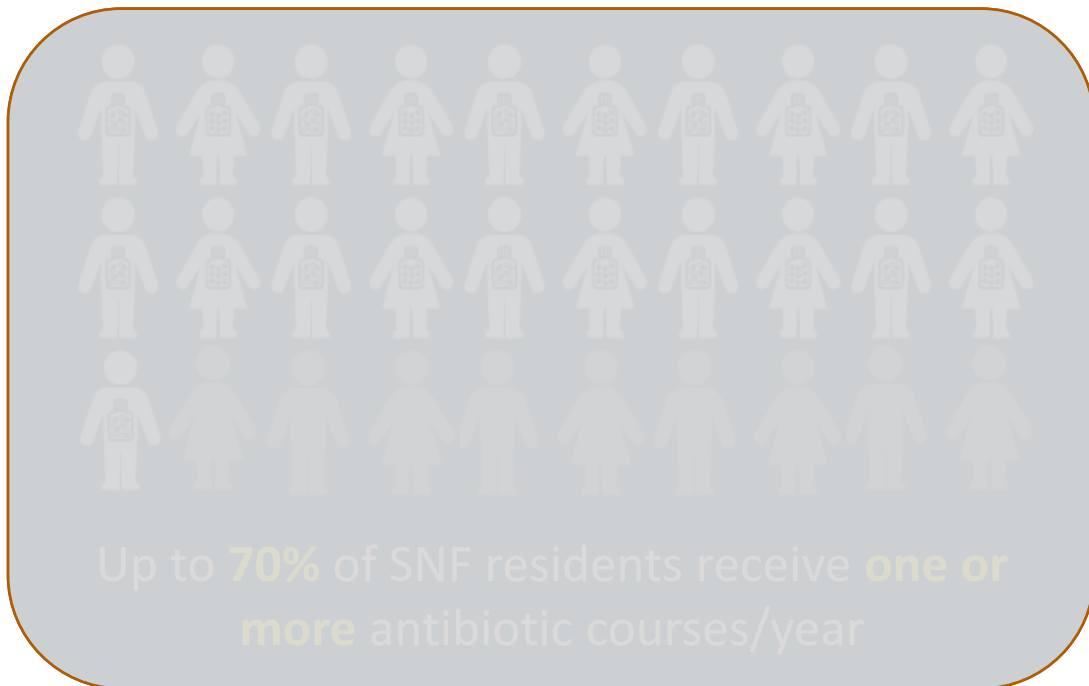


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Antibiotic overuse & misuse are major problems in SNFs



50% < 7d > 50%

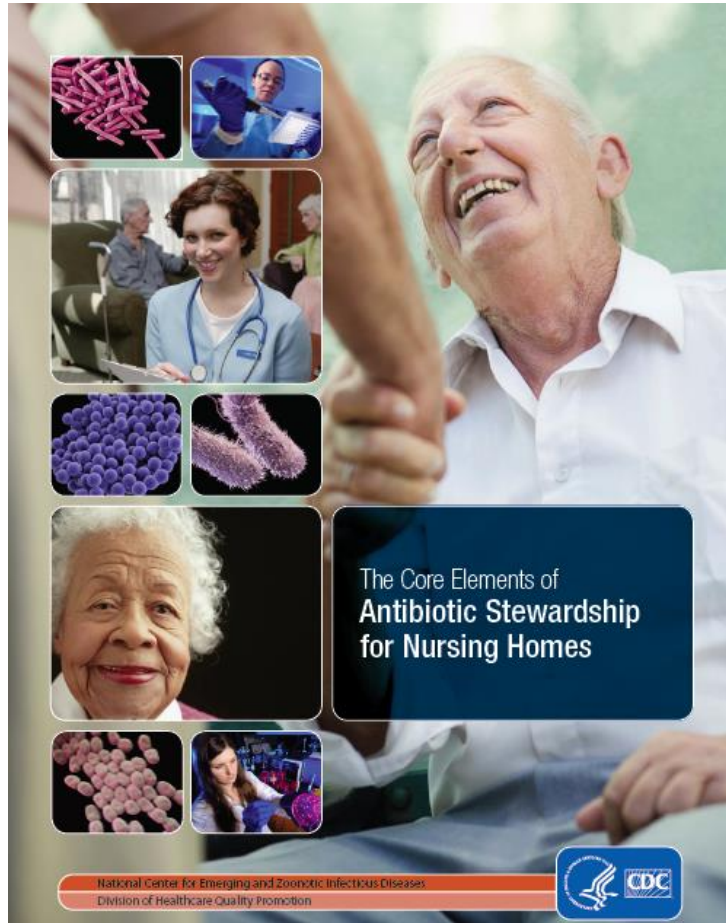
Half of antibiotic treatment courses in SNFs are prescribed for **more than a week.**



McElligott et al. *Infect Dis Clin N Am* 2017; 31(4): 619-38 (doi.org/10.1016/j.idc.2017.07.008)

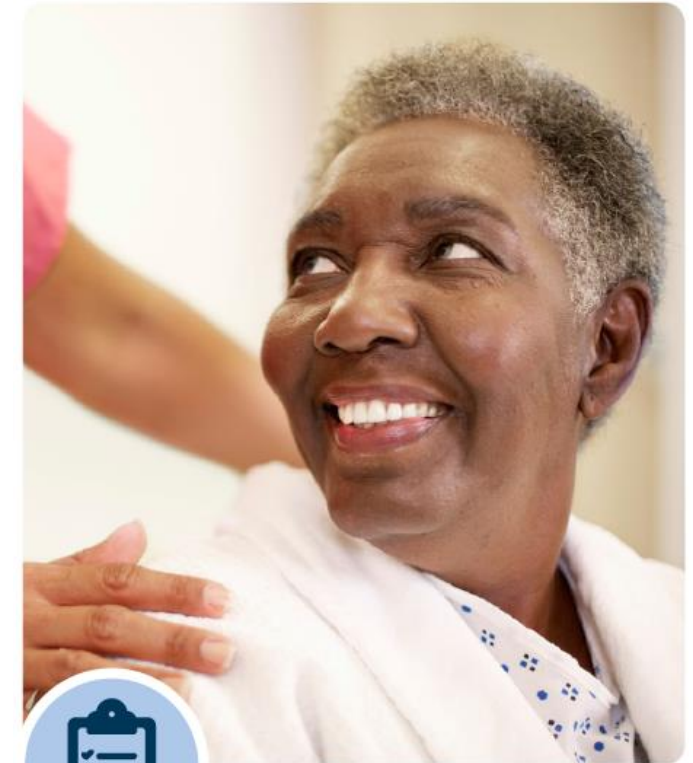
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CDC Core Elements



-  **Leadership commitment**
Demonstrate support and commitment to safe and appropriate antibiotic use in your facility
-  **Accountability**
Identify physician, nursing and pharmacy leads responsible for promoting and overseeing antibiotic stewardship activities in your facility
-  **Drug expertise**
Establish access to consultant pharmacists or other individuals with experience or training in antibiotic stewardship for your facility
-  **Action**
Implement **at least one** policy or practice to improve antibiotic use
-  **Tracking**
Monitor **at least one process** measure of antibiotic use and **at least one outcome** from antibiotic use in your facility
-  **Reporting**
Provide regular feedback on antibiotic use and resistance to prescribing clinicians, nursing staff and other relevant staff
-  **Education**
Provide resources to clinicians, nursing staff, residents and families about antibiotic resistance and opportunities for improving antibiotic use



Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes



ONE DOES NOT SIMPLY

**BUILD AN ANTIMICROBIAL
STEWARDSHIP PROGRAM**

Figure out where you are at now



Checklist for Core Elements of Antibiotic Stewardship in Nursing Homes

The following checklist is a companion to the Core Elements of Antibiotic Stewardship in Nursing Homes. The CDC recommends that all nursing homes take steps to implement antibiotic stewardship activities. Before getting started, use this checklist as a baseline assessment of policies and practices which are in place. Then use the checklist to review progress in expanding stewardship activities on a regular basis (e.g., annually). Over time, implement activities for each element in a step-wise fashion.

LEADERSHIP SUPPORT	ESTABLISHED AT FACILITY
1. Can your facility demonstrate leadership support for antibiotic stewardship through one or more of the following actions? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate which of the following are in place (select all that apply) <input type="checkbox"/> Written statement of leadership support to improve antibiotic use <input type="checkbox"/> Antibiotic stewardship duties included in medical director position description <input type="checkbox"/> Antibiotic stewardship duties included in director of nursing position description <input type="checkbox"/> Leadership monitors whether antibiotic stewardship policies are followed <input type="checkbox"/> Antibiotic use and resistance data is reviewed in quality assurance meetings	
ACCOUNTABILITY	
2. Has your facility identified a lead(s) for antibiotic stewardship activities? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate who is accountable for stewardship activities (select all that apply) <input type="checkbox"/> Medical director <input type="checkbox"/> Director or assistant director of nursing services <input type="checkbox"/> Consultant pharmacist <input type="checkbox"/> Other: _____	
DRUG EXPERTISE	
3. Does your facility have access to individual(s) with antibiotic stewardship expertise? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate who is accountable for stewardship activities (select all that apply) <input type="checkbox"/> Consultant pharmacy has staff trained/is experienced in antibiotic stewardship <input type="checkbox"/> Partnering with stewardship team at referral hospital <input type="checkbox"/> External infectious disease/stewardship consultant <input type="checkbox"/> Other: _____	
ACTIONS TO IMPROVE USE	
4. Does your facility have policies to improve antibiotic prescribing/use? <input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate which policies are in place (select all that apply) <input type="checkbox"/> Requires prescribers to document a dose, duration, and indication for all antibiotic prescriptions <input type="checkbox"/> Developed facility-specific algorithm for assessing residents <input type="checkbox"/> Developed facility-specific algorithms for appropriate diagnostic testing (e.g., obtaining cultures) for specific infections <input type="checkbox"/> Developed facility-specific treatment recommendations for infections <input type="checkbox"/> Reviews antibiotic agents listed on the medication formulary <input type="checkbox"/> Other: _____	



Antimicrobial Stewardship Gap Analysis Tool

The following gap analysis tool can be used as a companion to the [Center for Disease Control and Prevention \(CDC\) Core Elements of Antibiotic Stewardship in Nursing Homes](#). The CDC recommends that all nursing homes take steps to implement antibiotic stewardship (AS) activities. This tool is designed to be used by AS leads/teams at any nursing home to assess and guide step by step implementation of AS core elements. Recommendations can be tailored to accommodate individual facility needs and resources. Use this tool to assess your current AS program activities and identify opportunities for improvement. After completing an initial assessment, AS teams can use the tool to routinely review and document progress, as well as to plan for new AS program initiatives.

Leadership

Leadership commitment and AS Champions ensure clear expectations about antibiotic use and the monitoring and enforcement of stewardship policies. Visible leadership commitment also helps shape organizational culture. Refer to [Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities \(PDF\)](#) | [\(Word\)](#) and [Companion Guide to Using the Minnesota Sample Antibiotic Stewardship Policy for Long-Term Care Facilities \(PDF\)](#).

Action Step	Response	Barriers/Support Needed	Next Steps
Can your facility demonstrate leadership support for AS through one or more of the following actions?	<input type="checkbox"/> Written statement by leadership that supports efforts to improve antibiotic use <input type="checkbox"/> Written AS policy <input type="checkbox"/> AS Leader's job description includes dedicated time for AS activities <input type="checkbox"/> A physician AS Champion supports use of clinical practice guidelines for antimicrobial prescribing <input type="checkbox"/> A nursing-leader AS Champion promotes nursing assessment, documentation, and communication in AS activities		

Accountability

Identifying and empowering individuals with key expertise, who are accountable for AS activities, and who have the support of facility leadership can help ensure best practices are followed in the medical care of residents in your facility. If you do not have an AS lead, work with your leadership to designate one, and ensure AS team members meet routinely and have dedicated time for stewardship.

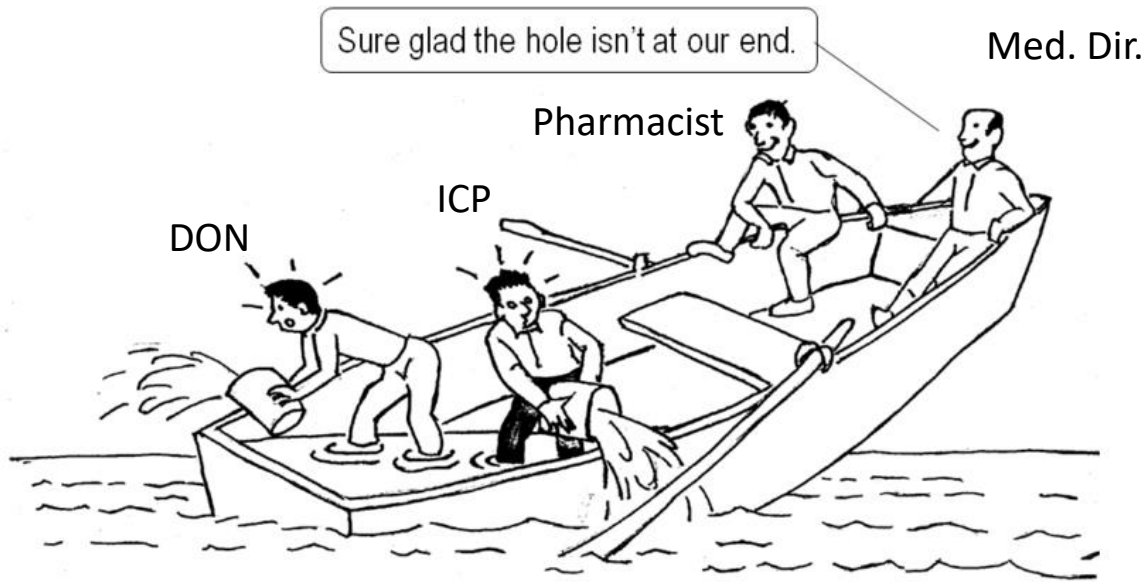
Action Step	Response	Barriers/Support Needed	Next Steps
Has your facility identified a lead(s) for AS activities who is accountable for AS activities? For example, promoting stewardship through routine communication, education, monitoring, and celebrating improvement.	Check the box to identify AS Leads and Champions; describe their roles. <input type="checkbox"/> Medical Director, role: <input type="checkbox"/> Director or Assistant Director of Nursing, role: <input type="checkbox"/> Provider on staff, role: <input type="checkbox"/> Consulting provider, role: <input type="checkbox"/> Consulting pharmacist, role: <input type="checkbox"/> Infection preventionist, role: <input type="checkbox"/> Other (specify), role:		

CDC Checklist: <https://www.cdc.gov/antibiotic-use/core-elements/pdfs/core-elements-antibiotic-stewardship-checklist-508.pdf>

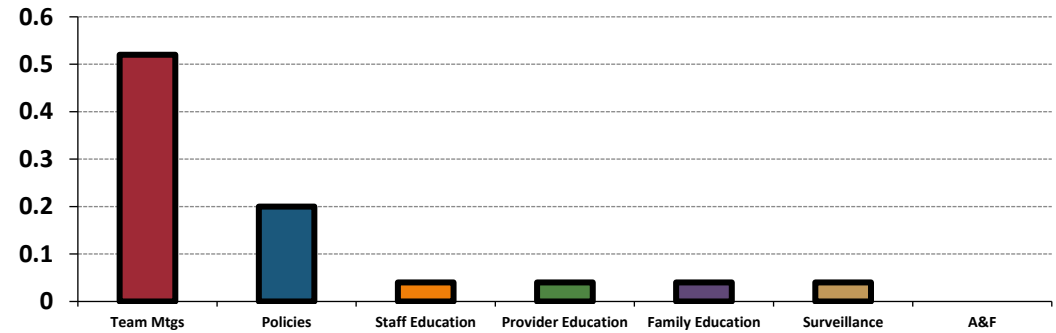
MN DOH AS Gap Analysis: www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxc.pdf



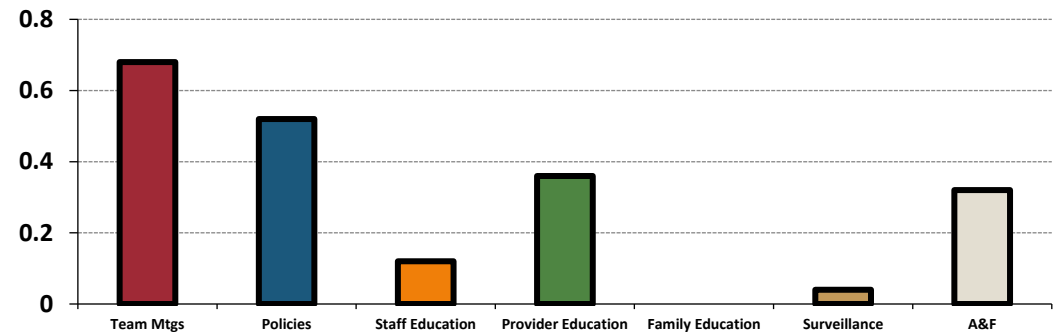
The ASP is a “Team” not an “Individual”



Which of the following stewardship activities is the facility pharmacist engaged in?



Which of the following stewardship activities is the medical director engaged in?



Taylor et al. *IDWeek* 2016

Drake et al. *Am J Infect Control* 2019; 47(6): S8 (doi.org/10.1016/j.ajic.2019.04.150)

Ashraf & Bergman *J Am Med Dir Assoc* 2021; 22(1): 6-8 (doi.org/10.1016/j.jamda.2020.11.029)

Consultant Pharmacist Engagement

- Ways they can help
 - Development of prescribing policies and procedures
 - Obtaining dispensing pharmacy antibiotic line list
 - Analyzing & aggregating dispensing pharmacy data into useful facility-level reports
 - Conduct cross-sectional/retrospective audits to identify recurring antibiotic prescribing practices
 - Delivery of provider and staff education
 - Formative provider feedback
- Barriers
 - Many pharmacists view this as “not their job”
 - Training and self-efficacy of pharmacists can vary considerably
 - Facilities are not paying for this service

Figure 1C: Aggregated Mean Days of Therapy/1000 Resident Days per Month by Year

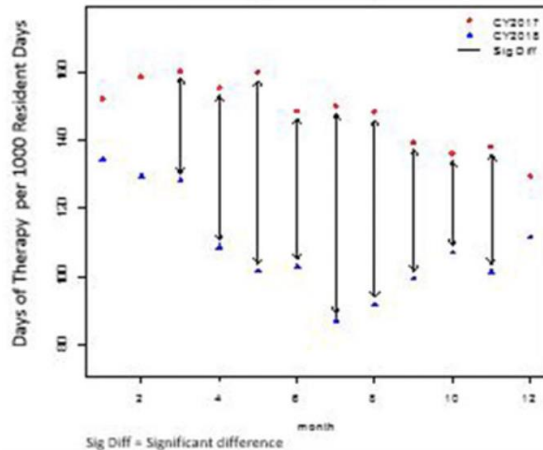
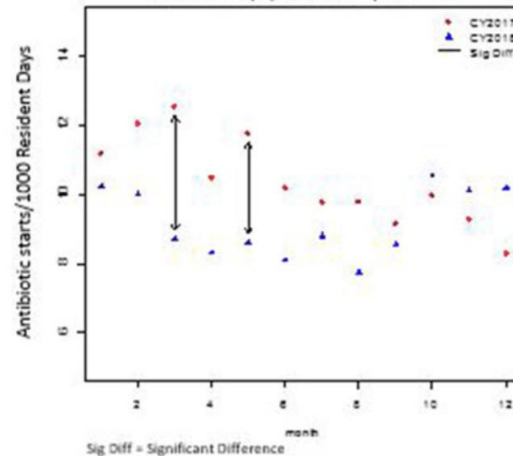
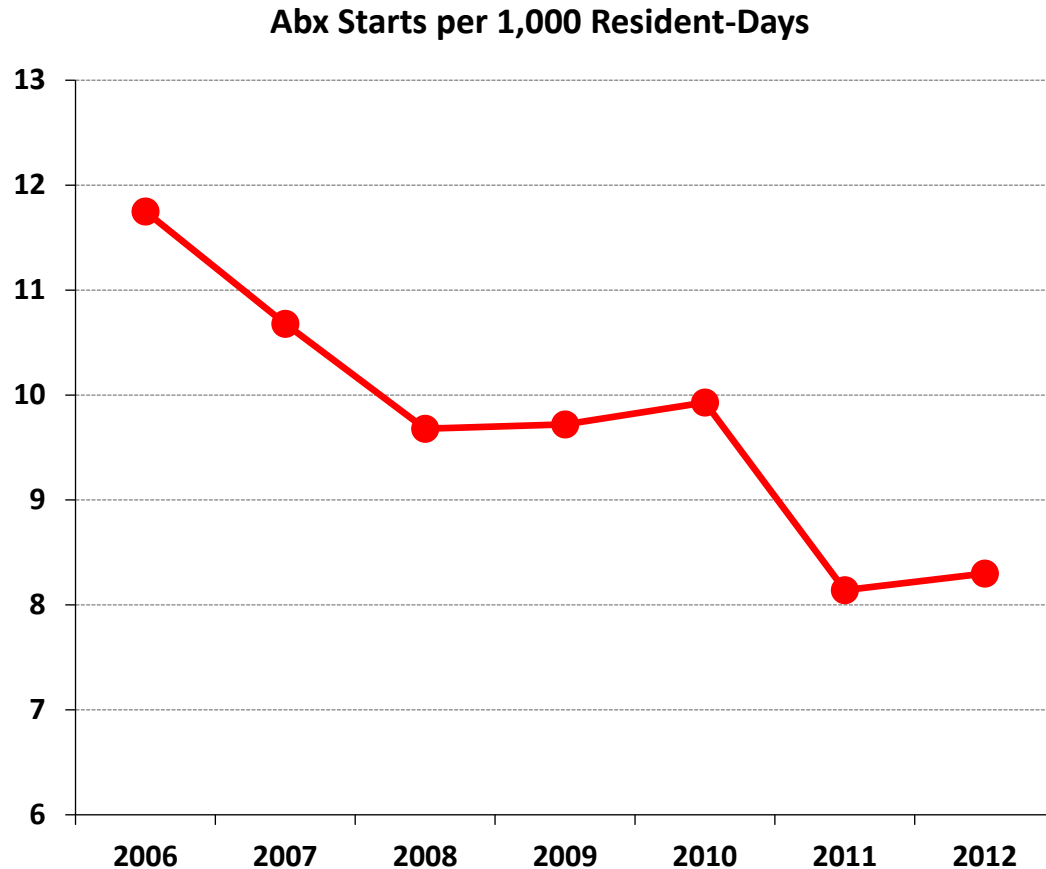


Figure 1D: Aggregated Mean Antibiotic Starts/1000 Resident Days per Month by Year



Medical Director Engagement



- Ways they can help
 - Development of prescribing policies and procedures
 - Overt evidence of leadership support for AS
 - Education of providers & nursing staff
 - Providing group-level feedback (facility antibiogram, reports summarizing gaps in prescribing quality)
 - Individual provider feedback
- Barriers
 - Medical director in many facilities is disengaged
 - Medical director is not sure where they should invest their influence
 - Medical director requires “data” in order to be most effective

Develop an ASP Policy



Special Article

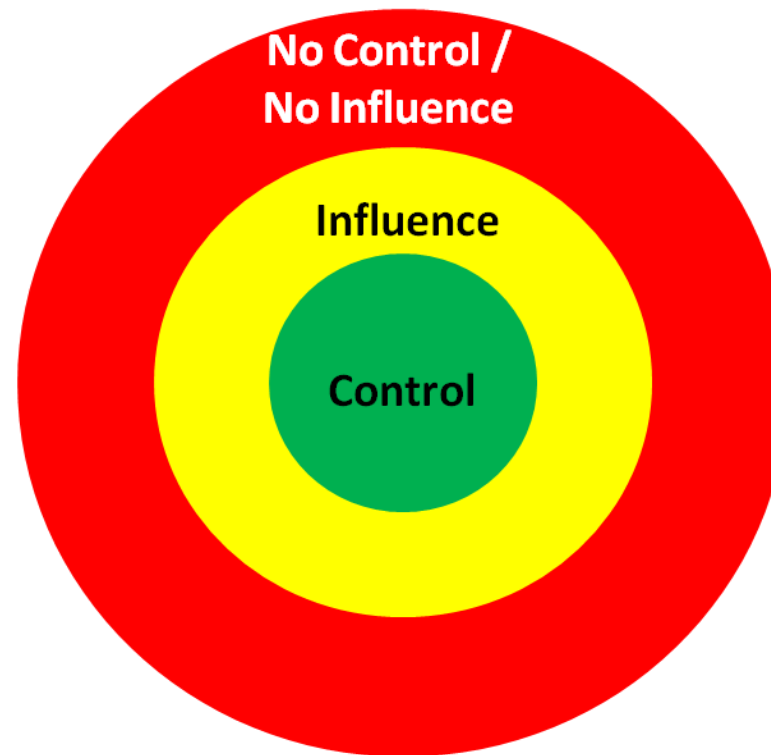
Template for an Antibiotic Stewardship Policy for Post-Acute and Long-Term Care Settings

Robin L.P. Jump MD, PhD^{a,b,*}, Swati Gaur MD, MBA, CMD^c, Morgan J. Katz MD^d, Christopher J. Crnich MD, PhD^{e,f}, Ghinwa Dumyati MD^g, Muhammad S. Ashraf MBBS^h, Elizabeth Frentzel MPHⁱ, Steven J. Schweon RN, MPH, MSN, CIC, HEM^j, Philip Sloane MD, MPH^k, David Nace MD, MPH, CMD^l on behalf of the Infection Advisory Committee for AMDA—The Society of Post-Acute and Long-Term Care Medicine

Good Resources

- Minnesota ASP Toolkit for LTCFs
 - Draft Policy (<https://www.health.state.mn.us/diseases/antibioticresistance/hcp/lc/samplepolicy.pdf>)
 - Companion guide (<https://www.health.state.mn.us/diseases/antibioticresistance/hcp/lc/samplepolicyguide.pdf>)
- Agency for Healthcare Research & Quality NH Toolkit (AHRQ)
 - Toolkit 1 (https://www.ahrq.gov/sites/default/files/wysiwyg/nhguide/3_TK1_T5-DraftPoliciesandProceduresfortheAntimicrobialStewardshipProgramfinal.pdf)

Nursing Practice Influences on Prescribing



Walker et al. *CMAJ* 2000; 163(3): 273-77

Schweizer et al. *Pharm Worl Sci* 2005; 27: 159-65

Fleming et al. *BMJ Open* 2014; 4: e006442 (doi.org/10.1136/bmjopen-2014-006442)

Alleman et al. *Nurs Open* 2015; 2(3): 97-104 (doi.org/10.1002/nop2.22)

Hypothetical situation

Mrs. Axel

- 84 years old
- Diagnoses: dementia, HTN, incontinence.



Daughter / CNA

- Daughter let's the CNA know that her mom seems "a little off" today.
- CNA confirmed that the urine appeared cloudier during AM toileting.
- CNA "dips" the urine and confirms presence of nitrates and leukocyte esterase.

Hypothetical situation

RN Assessment	RN / MD Communication
<ul style="list-style-type: none">• Speech/response times slowed, agrees with daughter that she does not seem herself• VS: T97.8 BP 132/84, P84, R16, PaO2 = 94% RA• No complaints of cough, SOB, lungs clear• No c/o dysuria/back pain; abdominal exam (-)	<ul style="list-style-type: none">• RN collects urine sample• Calls MD: “Mrs. Axel is a little off today, I collected a urine specimen, do you want me to send it for UA and UCx?”• MD agrees but does not start antibiotic, ↑ PO fluids• UA positive for pyuria and >5 sq. epis and UCx growing E. coli the next day

Hypothetical situation

RN / MD Communication

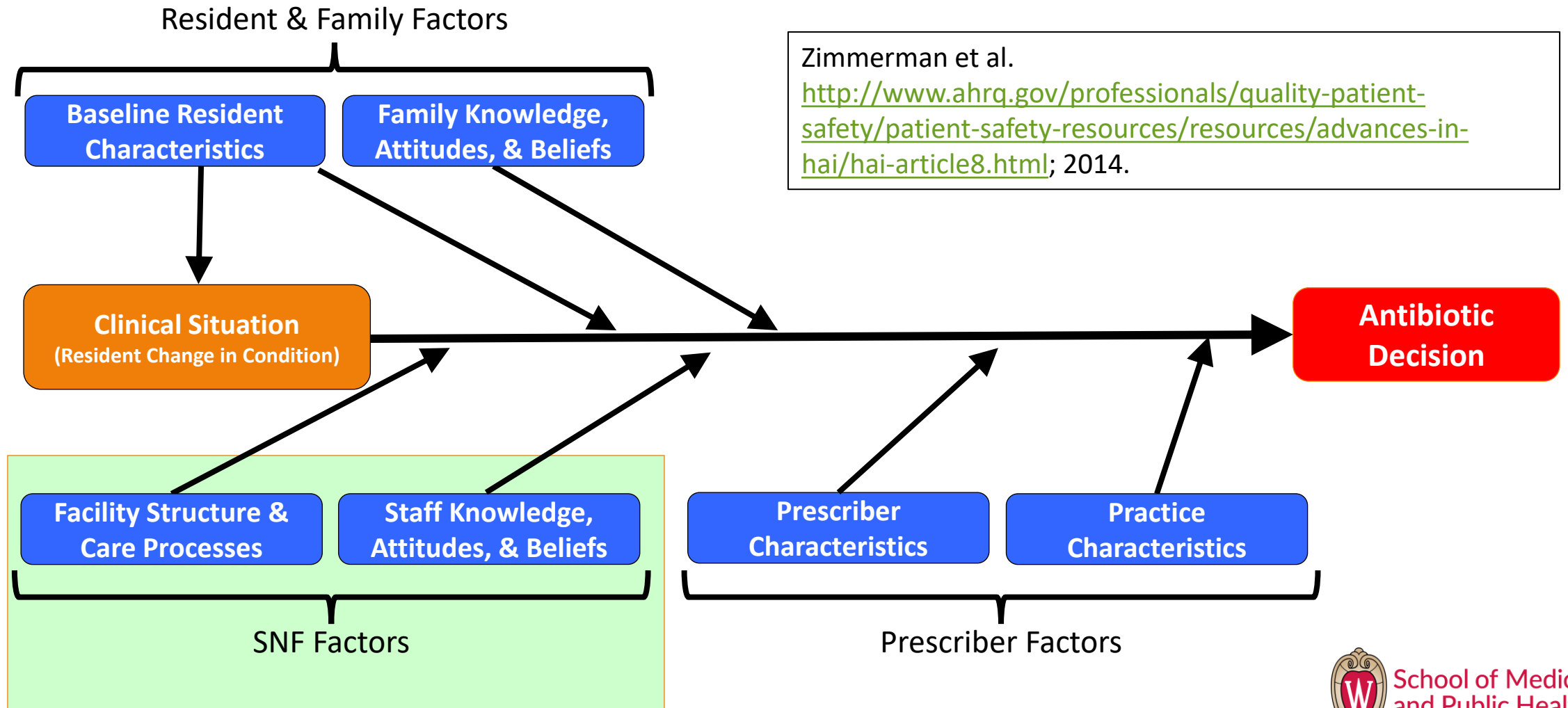
- RN notifies MD of positive UCx: Ciprofloxacin 500mg PO BID for 10 days ordered
- MD asks for follow-up when susceptibilities come back
- Report for pan-sensitive E. coli 2 days later.
- RN contacts MD with culture results: “looks like we have the right antibiotic”

Mrs. Axel Timeline

- Was back to baseline the day ciprofloxacin started
- Daughter pleased “we caught” UTI early
- 4 weeks later Mrs. Axel develops significant diarrhea associated with confusion, fevers, and ↓BP
- Sent to hospital where *C. difficile* infection diagnosed



Influences on Prescriber Antibiotic Decisions



Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- Improve quality of resident assessment and communication with providers
- Improve the quality of the urine specimens obtained for culture



Focus on Good Nursing Practice

- **Improve recognition of UTI**
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- Improve quality of resident assessment and communication with providers
- Improve the quality of the urine specimens obtained for culture

- There is no convincing data that isolated non-specific symptoms are an indicator of an underlying infection
- Non-specific symptoms are more strongly associated with a number of other conditions (think DELIRIUMS → why do we only look for the 1st “I”?)
 - Drug reactions
 - Discomfort (pain)
 - Environmental change (sensory deprivation)
 - Low oxygen
 - Infection
 - Retention (urinary, fecal impaction)
 - Ictal (seizure)
 - Underhydration (dehydration)
 - Metabolic (low/high BS, sodium)
 - Subdural hematoma

Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- Improve quality of resident assessment and communication with providers
- Improve the quality of the urine specimens obtained for culture



Dipstick → UA → Urine culture → Antibiotic Prescription

Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- **Improve quality of resident assessment and communication with providers**
- Improve the quality of the urine specimens obtained for culture

PHYSICIAN: “... I usually press for details. For example, what is the temperature? How long has she had the cough? ... is this a sudden change, or is this a gradual change? ... has it ever happened before ...? And some nurses will call, and they'll have all that available. Others do not. And it's highly variable.”

Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- **Improve quality of resident assessment and communication with providers**
- Improve the quality of the urine specimens obtained for culture

Interviewer: "Are there characteristics of either facility that the resident is in or the nursing staff caring for them that also influence your comfort level with holding off [on starting antibiotics]?"

Respondent: " ... And so I probably would, you know, trust information from them, maybe at a little higher rate... So I know them, know what they're capable of, so would probably, you know, feel more comfortable with some of the judgments that they passed on one way or the other..."

Interviewer: "And so is it fair to say that that does have some influence on your decision to ..."

Respondent: "Oh, it is."

Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- **Improve quality of resident assessment and communication with providers**
- Improve the quality of the urine specimens obtained for culture

SBAR process already “expected practice” in most SNFs but is not “actual practice”

Why?

- Not aware/not trained
- Staff don’t understand the benefits
- Lack of comfort with the “A” and the “R” (staff may feel it is beyond their scope of practice)
- Poor user design
- Poor peer influence (not a social norm)
- Not a leadership priority (no accountability)

Focus on Good Nursing Practice

- Improve recognition of UTI
- Eliminate rapid reagent test strip utilization & pre-call urine collection
- **Improve quality of resident assessment and communication with providers**
- Improve the quality of the urine specimens obtained for culture

Documentation should be a means not an end

- Should emphasize the key parts of the resident history and exam that are to be conveyed to the provider
- Can be adapted to incorporate tools that facilitate the assessment
- Is a way to audit if the process is being done

Find ways to make documentation as easy as possible for the end user

Develop education and action prompts that are visible and simple to understand.

Provide timely and meaningful feedback to staff (was SBAR done, was risk of CIC assessed, was active monitoring recommended?)

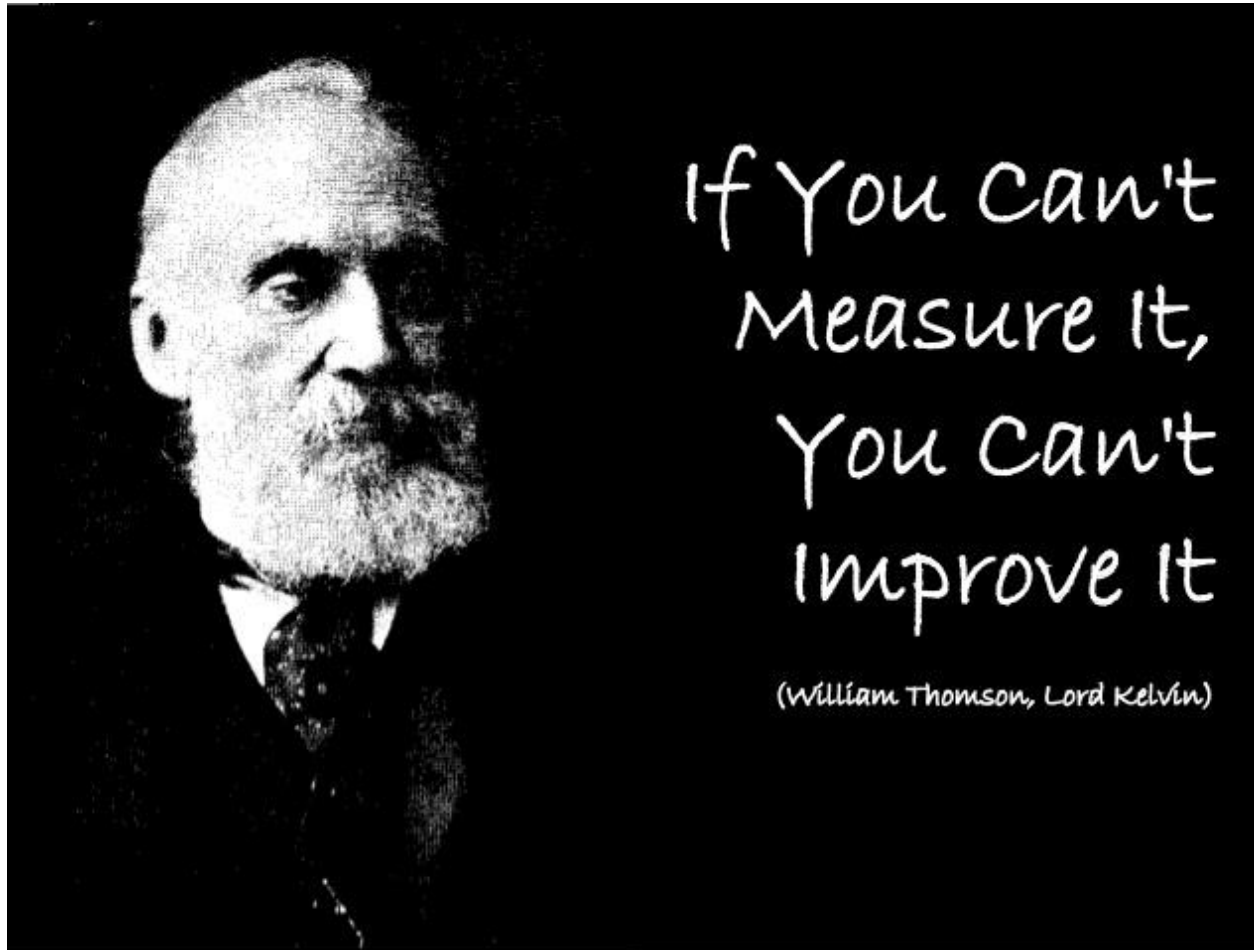
Identify social influencers and convince them to be champions rather than organizational constipators.



Focus on Good Nursing Practice

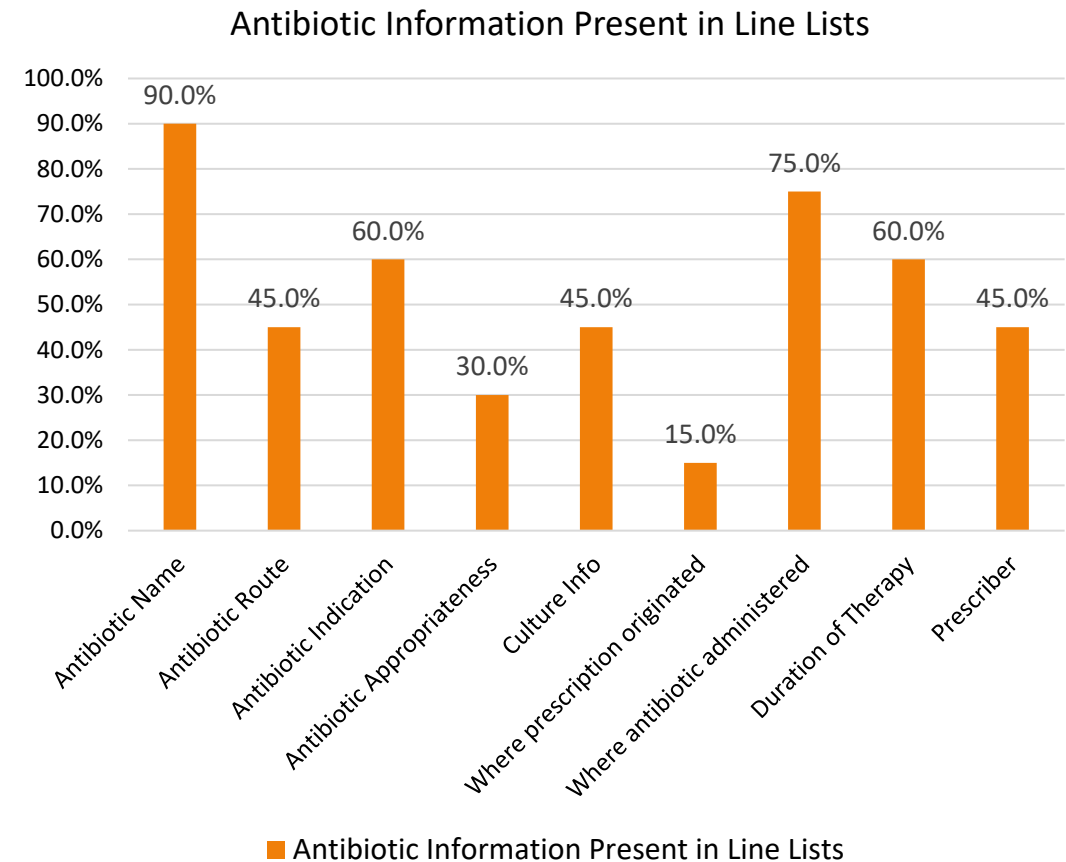
- Improve recognition of UTI
 - Eliminate rapid reagent test strip utilization & pre-call urine collection
 - Improve quality of resident assessment and communication with providers
 - **Improve the quality of the urine specimens obtained for culture**
- Up to 40% of urine culture specimens are contaminated (>2 organisms)
 - Clean-catch, condom catheter, in-and-out catheterizations best way to minimize contamination
 - Collection from bed-pans, hats or pedibags not recommended
 - Refrigerate immediately

Tracking & Reporting



Line Listing Practices (10 WI SNFs)

- Abx utilization tracking system (line list) present in all study SNFs
- 7/10 employ multiple line lists
- 8/10 have access to dispensing pharmacy line list
- 40% of line lists in manipulable form (e.g., excel)

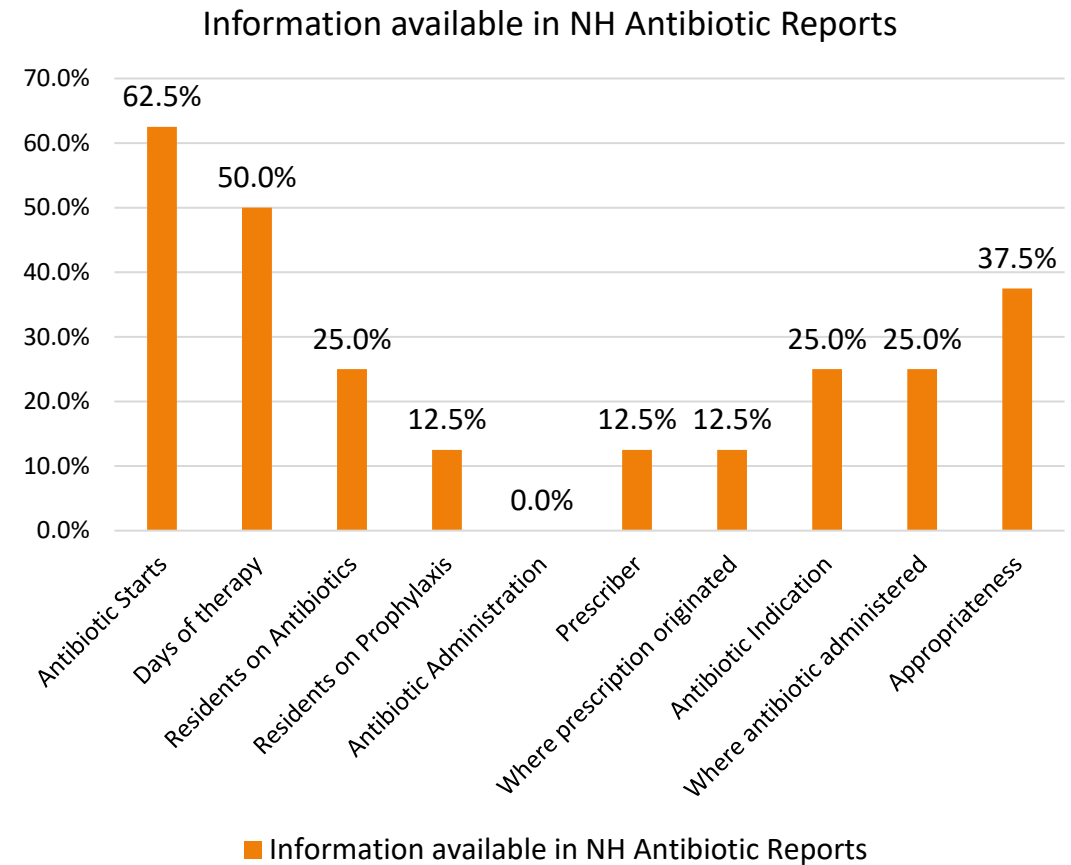


Kabbani et al. *Infect Control Hosp Epidemiol* 2019; 40(7): 819-20 (doi.org/10.1017/ice.2019.95)

Davidson & Jump *J Am Med Dir Assoc* 2020; 21(9): 1191-6 (doi.org/10.1016/j.jamda.2020.06.039)

Reporting Practices (10 WI SNFs)

- 6/9 SNFs had some type of antibiotic use report
- 2/9 SNFs used a dispensing pharmacy report
- A minority rate-adjusted outcome data
- 5/9 trended outcome data



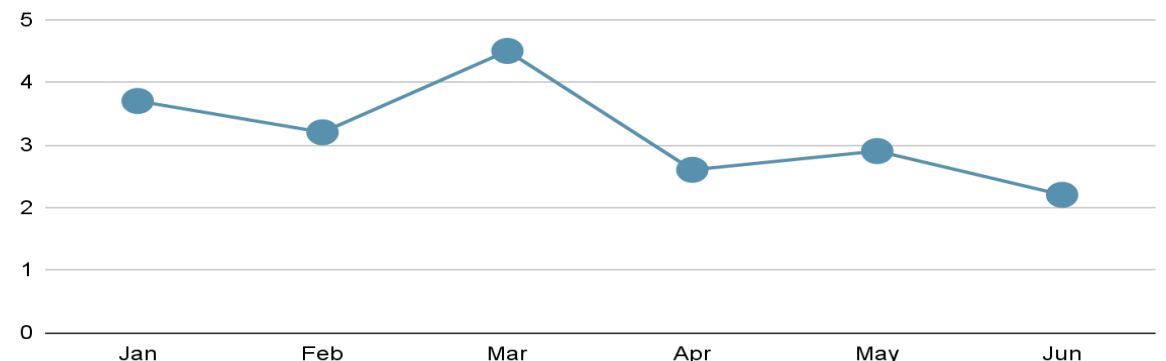
The Line List is not a Report

- The facility line list is necessary but not sufficient
- Data in the line list need to be aggregated into a surveillance report that allows tracking a measure over time
- This can be a count (e.g., antibiotic starts per month or days of antibiotics per month) and/or a rate (e.g., antibiotic starts per 1,000 resident-days per month) measure
- Rates are preferred if the unit or facility census varies significantly from month-to-month

Line List				
Resident	Date	Infection	Antibiotic	McGeer?
JAC	05/02	UTI	TMP/SMX	Yes
MSN	05/08	UTI	NFT	No
...



UTI Rate (events per 1,000 resident-days)



Rate Adjustment

- Critical is facility/unit census varies by month
- Formula most commonly used:
 - “x” divided by “y” multiplied by 1,000
 - “x” (the numerator) is the number of the event of interest (e.g., total number of antibiotic starts during the current month)
 - “y” (the denominator) is the number of time units (e.g., total number of resident days during the current month)
 - By tradition, we multiply by a constant (1,000 or 10,000 or 100,000) to transform into a number that is greater than 1

$$\frac{8 \text{ antibiotic starts}}{1280 \text{ resident - days}} * 1,000$$

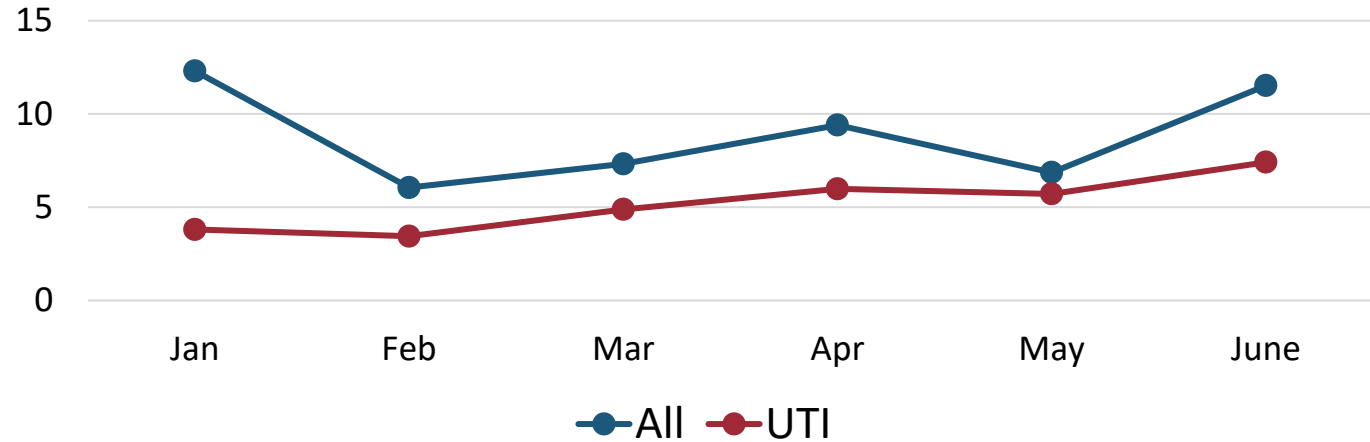
$$= 0.00625 * 1,000$$

$$= 6.25 \text{ AS per 1,000 rdays}$$

Trending Data

- Allows you to see if patterns are improving or getting worse
- Helps you see seasonal effects
- Can be presented in graph or table format or both

Antibiotic Starts: Overall & UTI



Month	AS (total)	AS (UTI)	Resident Days	Total AS (1,000 rd)	UTI AS (1,000 rd)
Jan	13	4	1057	12.30	3.80
Feb	7	4	1160	6.05	3.44
Mar	9	6	1230	7.32	4.88
Apr	11	7	1170	9.40	5.98
May	6	5	875	6.86	5.71
Jun	14	9	1215	11.52	7.41

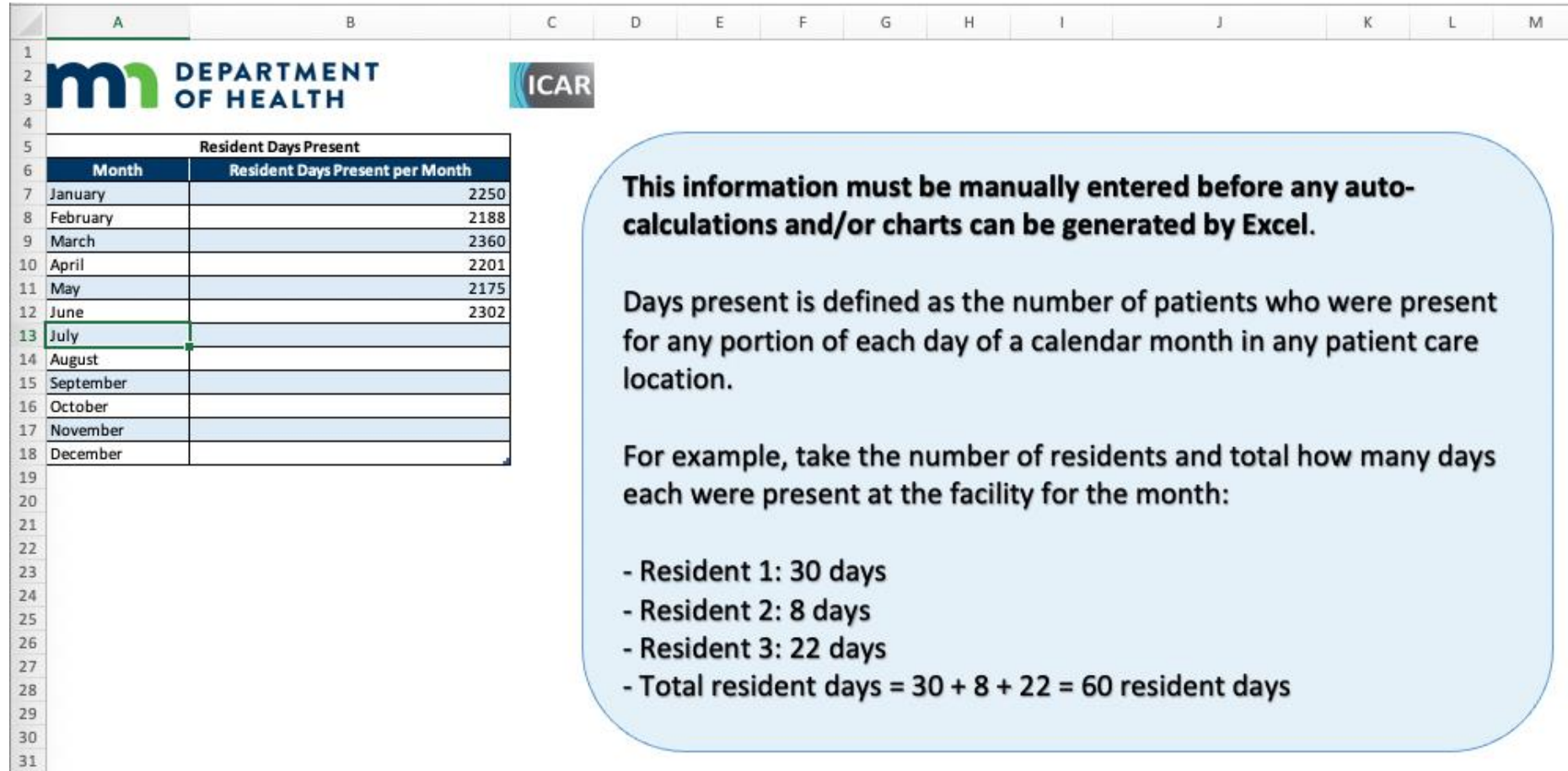
Stratifying your Data

- Stratification = separating antibiotic use data into distinct categories
- Stratification helps the facility identify problem areas more clearly or more accurately monitor the effects of targeted interventions (e.g., a program to improve the treatment of UTI)
- Examples of common stratification approaches
 - By indication: UTI versus RTI versus soft tissue infection
 - By appropriateness: met McGeer versus did not meet McGeer
 - By duration of therapy: <7 days versus >7 days

Tracking & Reporting Best Practices

- Maintain your line list electronically
- Outcome measures to report
 - **MUST:** Antibiotic starts (AS)
 - **MUST:** Regs require some antibiotic-related outcome (antibiogram, C. diff rates, etc.)
 - **IDEALLY:** some treatment length measure (days of therapy [DOT] or % of AS >7 days duration)
- Format of outcome measures:
 - **MUST:** Rate adjust (e.g., antibiotic starts per 1,000 resident-days)
 - **MUST:** Trend (AS per 1,000 rdays by month)
 - **IDEALLY:** stratified by indication (AS for UTI per 1,000 rdays by month)
 - **CONSIDER:** stratifying by appropriateness (McGeer/Loeb), treatment initiation (ED) and/or provider
- **CONSIDER:** process measures
 - SBAR utilization
 - Antibiotic prescriptions that include indication, drug, dose, duration
 - Antibiotic treatments where an antibiotic review (timeout) was performed

MN DOH Tool



DEPARTMENT OF HEALTH **ICAR**

Resident Days Present	
Month	Resident Days Present per Month
January	2250
February	2188
March	2360
April	2201
May	2175
June	2302
July	
August	
September	
October	
November	
December	

This information must be manually entered before any auto-calculations and/or charts can be generated by Excel.

Days present is defined as the number of patients who were present for any portion of each day of a calendar month in any patient care location.

For example, take the number of residents and total how many days each were present at the facility for the month:

- Resident 1: 30 days
- Resident 2: 8 days
- Resident 3: 22 days
- Total resident days = $30 + 8 + 22 = 60$ resident days

<https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxl.xlsx>

Tool Instructions: <https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxlinstructions.pdf>

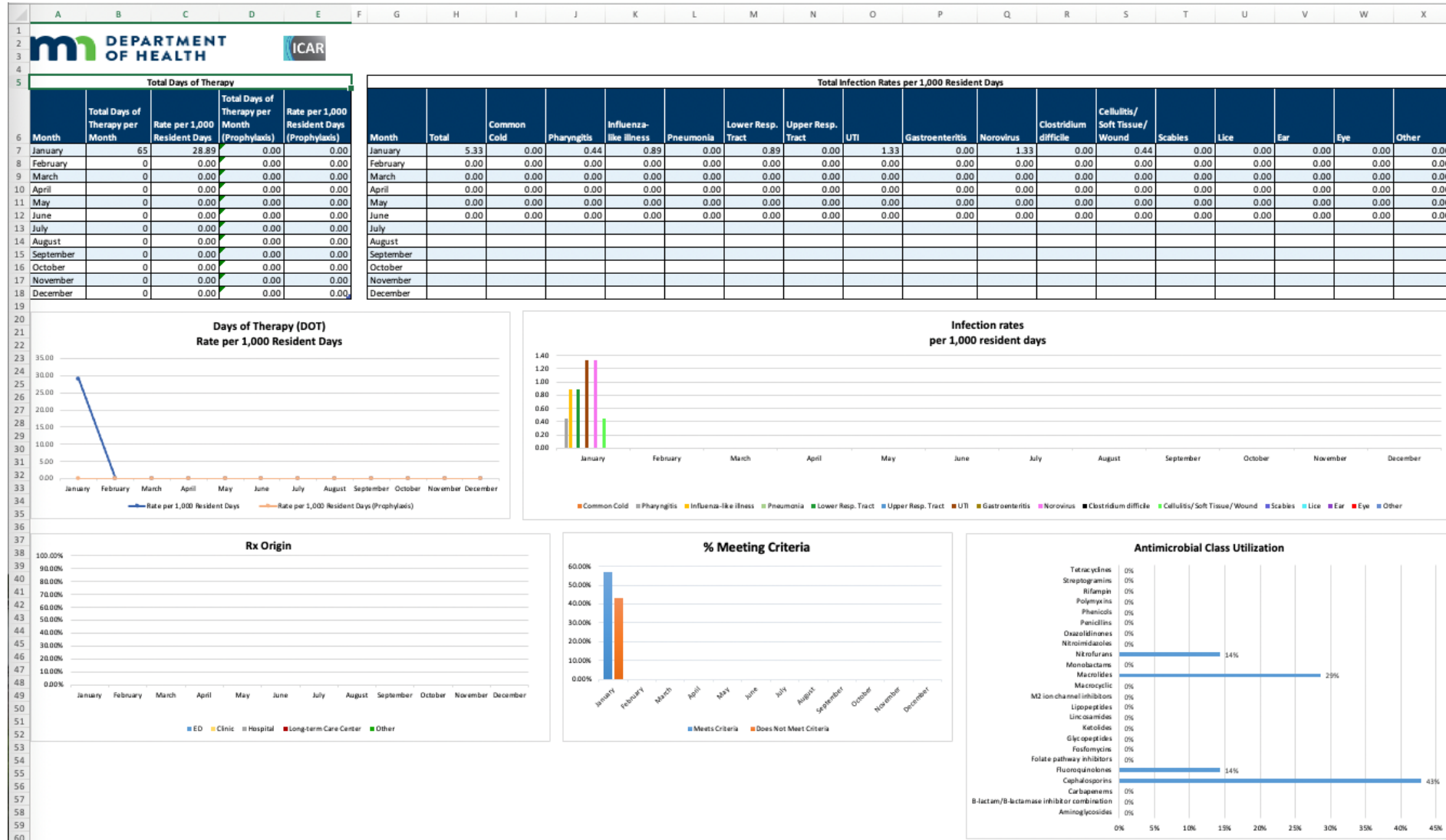
MN DOH Tool

F	G	H	J	W	X	AD	AE	AF	AG	AH	AI	AJ	AN
Classification		History		Antimicrobial Starts									
Infection type	Body System of Infection	Surveillance definition met? Y/N	Onset Date	Antibiotic Name	Class	Antibiotic Start Date	Antibiotic End Date	Total Days of Therapy	Meets Criteria? Y/N	Antibiotic Reassessment (Antibiotic "Time outs") Performed? Y/N	Other Antimicrobial Prescribed Name	Other Antimicrobial Prescribed Class	
UTI	Urinary Tract	No	1/1/23	Cefpodoxime	Cephalosporins	1/1/23	1/7/23	7	No	No			
UTI	Urinary Tract	Yes	1/3/23	Cefadroxil	Cephalosporins	1/3/23	1/12/23	10	Yes	No			
Lower Resp. Tract	Respiratory Tract	Yes	1/6/23	Azithromycin	Macrolides	1/6/23	1/10/23	5	Yes	No			
Cellulitis/Soft Tissue/Wound	Skin	Yes	1/7/23	Cefadroxil	Cephalosporins	1/7/23	1/20/23	14	Yes	No			
UTI	Urinary Tract	Yes	1/11/23	Nitrofurantoin	Nitrofurans	1/11/23	1/20/23	10	Yes	Yes			
Lower Resp. Tract	Respiratory Tract	No	1/15/23	Levofloxacin	Fluoroquinolones	1/18/23	1/27/23	10	No	No			
Norovirus	Gastrointestinal		1/18/23										
Norovirus	Gastrointestinal		1/19/23										
Norovirus	Gastrointestinal		1/19/23										
Influenza-like illness	Respiratory Tract		1/24/23								Oseltamivir	Neuraminidase inhibitors	
Influenza-like illness	Respiratory Tract		1/24/23								Oseltamivir	Neuraminidase inhibitors	
Pharyngitis	Respiratory Tract		1/28/23	Azithromycin	Macrolides	1/28/23	2/5/23	9	No	No			

<https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxl.xlsx>

Tool Instructions: <https://www.health.state.mn.us/diseases/antibioticresistance/hcp/asp/ltc/apxlinstructions.pdf>

MN DOH Tool



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School of Medicine
and Public Health
UNIVERSITY OF WISCONSIN-MADISON

Questions?

HAI Prevention Program Contact Information

HAI Prevention Program

dhswhaipreventionprogram@dhs.wisconsin.gov

608-267-7711

For additional contact information visit

www.dhs.wisconsin.gov/hai/contacts.htm

- HAI: Home
- For Health Professionals
- Basic Information
- Antimicrobial Stewardship
- Infection Prevention Education**
- Laboratories
- Personal Protective Equipment
- Precautions
- Reportable Exposures
- Reportable Multidrug-Resistant Organisms
- Surgical Site Infection Prevention
- Surveillance


HAI Infection Prevention Education

The resources below are intended to connect health care facility infection preventionists (IP) with education materials to support their role in preventing, detecting, and responding to healthcare-associated infections.

IPs play an essential role in facility infection prevention policy development, surveillance, and risk assessment.

IPs serve as a resource to other staff and programs within their facilities.

In addition to the state in-person trainings and online references below, there are a number of links to trusted education resources, including the CDC (Centers for Disease Prevention and Control), the Centers for Medicare and Medicaid Services (CMS), and the Association for Professionals in Infection Control and Epidemiology (APIC).



The [IP Starter Kit](#) provides Infection Preventionists a brief background and resources for some of the many infection prevention-related responsibilities within health care facilities.

Resources for infection preventionists Long-Term Care Education series

The long-term care (LTC) education series provides education presentations on topics that include infection prevention, HAIs, antibiotic stewardship, disease surveillance, and outbreak response for staff at skilled nursing facilities, assisted living facilities, local health departments, and other LTC stakeholders. Each session features a new, timely topic presented by the Department of Health Services (DHS) program staff, HAI Infection Preventionists, partner organizations, or other external subject matter experts.

View the [full library](#) of education sessions. **Note:** All 2021 and 2022 education sessions can be found by visiting the full library.

Have a topic request?

Send topic ideas or requests that you have for the long-term care education series or the IP lunch and learn series to DHSWIHAIPreventionProgram@dhs.wi.gov.

Upcoming LTC Education Session

May 25, 2023

**Topic: Dialysis in Long-Term Care
Facilities**