TDH Bi-Monthly Antibiotic Steward Call

February 13, 2024

Welcome

Announcements

AU Data Reports

- **Final TDH AU Point Prevalence Survey for ACH**
  - **For Q4 2023 – get data in ASAP**
- **NHSN AU Quality and SAAR Report**
  - **Will perform downloads on February 15**
- **Will also use February 15 data to determine hospitals who missed the deadline for AU reporting**

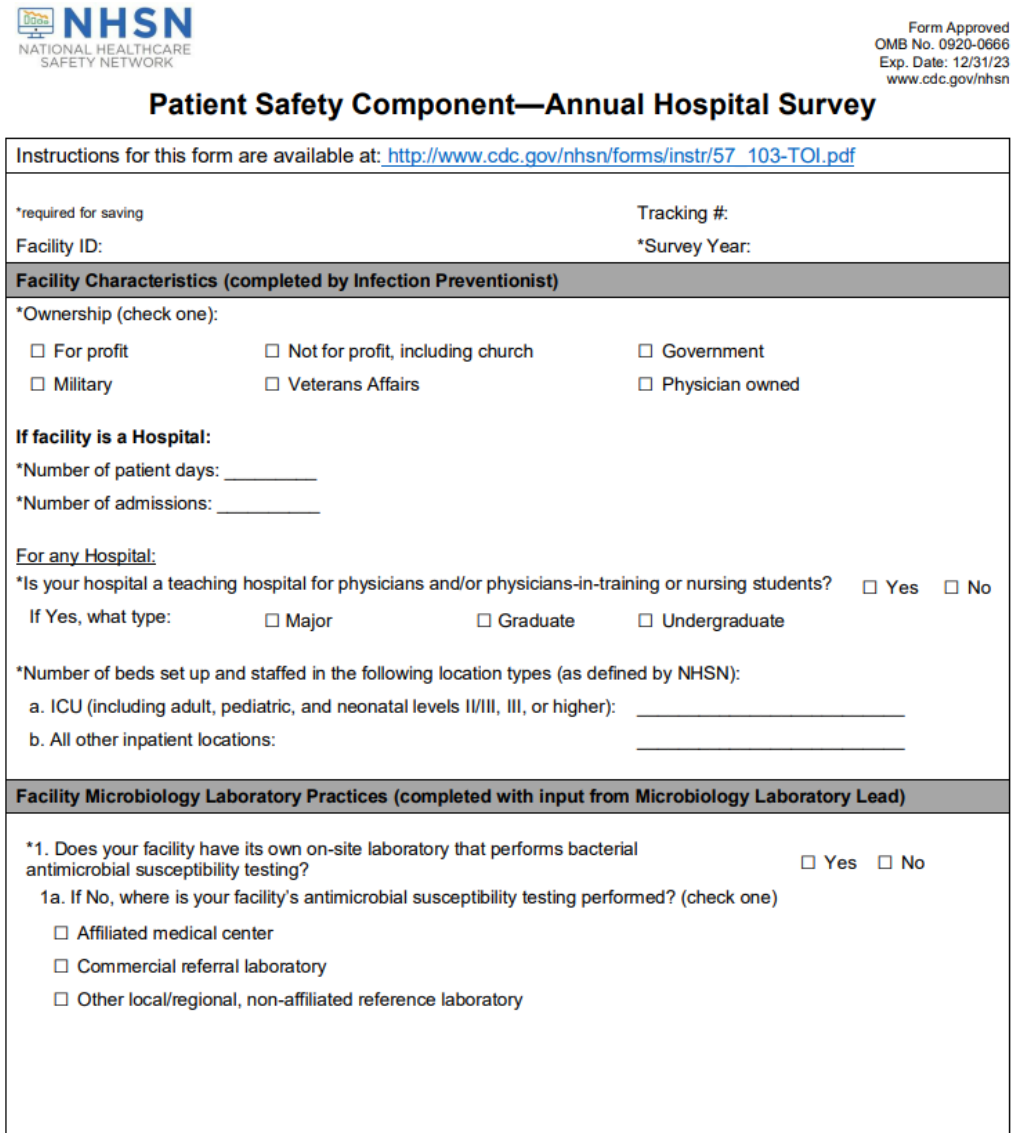
AHRQ Safety Program for Telemedicine

- **For more information:**
  - **https://safetyprogram4telemedicine.org/page/home**
  - **Multiple informational webinars available**
  - **Email: safetyprogram4telemedicine@norc.org**

Stewardship Risk Score

Using NHSN Annual Facility Survey Data

- **Through an NHSN User Group, TDH has access to facilities' NHSN Annual Hospital Survey**
- **Information on:**
  - **Infection Control Practices**
  - **Microbiology Testing**
  - **Antimicrobial Stewardship Interventions**
  - **Others…**



NHSN
NATIONAL HEALTHCARE SAFETY NETWORK

Form Approved
OMB No. 0920-0666
Exp. Date: 12/31/23
www.cdc.gov/nhsn

Patient Safety Component—Annual Hospital Survey

Instructions for this form are available at: http://www.cdc.gov/nhsn/forms/instr/57_103-TOI.pdf

*required for saving

Tracking #:

Facility ID:

*Survey Year:

Facility Characteristics (completed by Infection Preventionist)

*Ownership (check one):

☐ For profit ☐ Not for profit, including church ☐ Government

☐ Military ☐ Veterans Affairs ☐ Physician owned

If facility is a Hospital:

*Number of patient days: _____

*Number of admissions: _____

For any Hospital:

*Is your hospital a teaching hospital for physicians and/or physicians-in-training or nursing students? ☐ Yes ☐ No

If Yes, what type: ☐ Major ☐ Graduate ☐ Undergraduate

*Number of beds set up and staffed in the following location types (as defined by NHSN):

a. ICU (including adult, pediatric, and neonatal levels II/III, III, or higher): _____

b. All other inpatient locations: _____

Facility Microbiology Laboratory Practices (completed with input from Microbiology Laboratory Lead)

*1. Does your facility have its own on-site laboratory that performs bacterial antimicrobial susceptibility testing? ☐ Yes ☐ No

1a. If No, where is your facility's antimicrobial susceptibility testing performed? (check one)

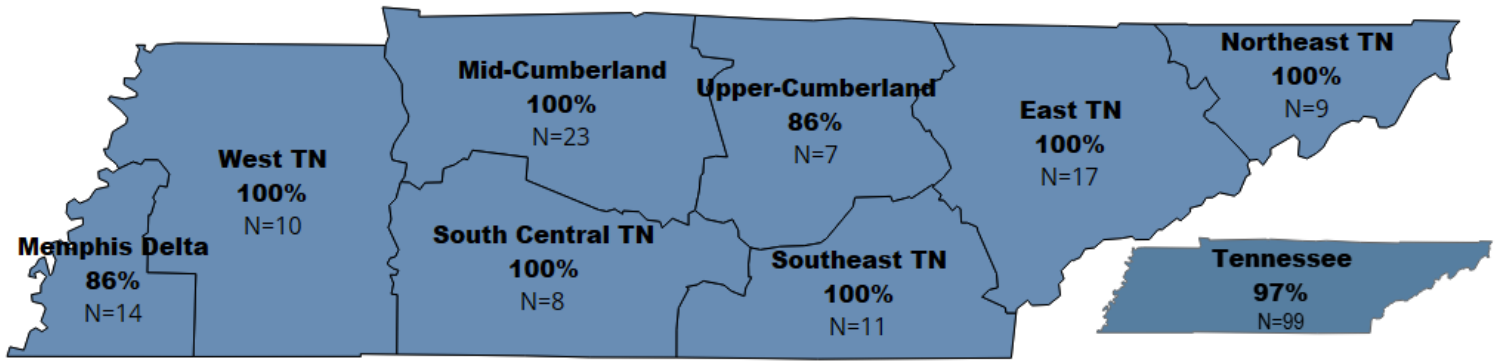
☐ Affiliated medical center

☐ Commercial referral laboratory

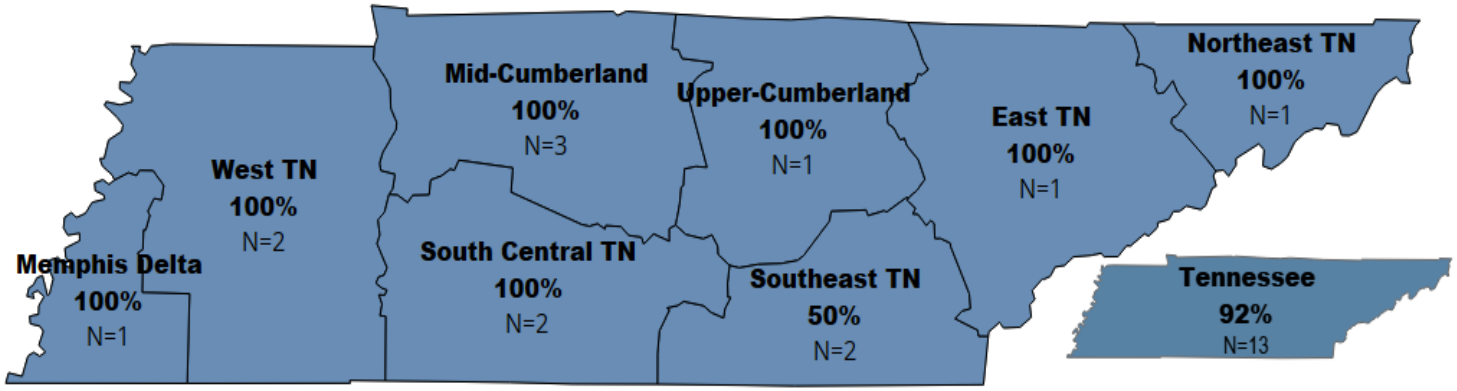
☐ Other local/regional, non-affiliated reference laboratory

Percent ACH achieving all 7 Core Elements by Region, 2022

Acute Care Hospitals



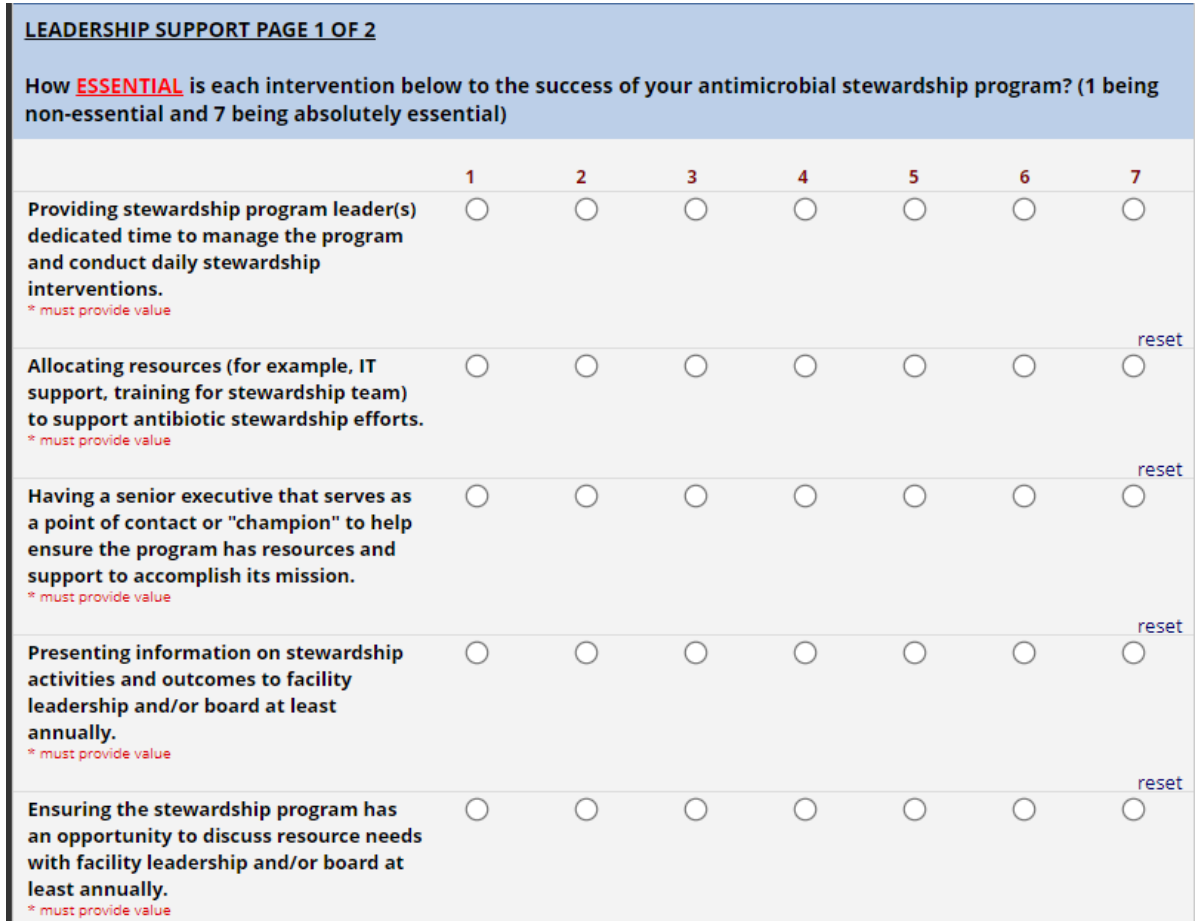
Critical Access Hospitals



Stewardship Risk Score

- **Surveyed all stewards in TN, CO, VA**

- **For each stewardship intervention:**
  - **How essential is this intervention to the success of your antimicrobial stewardship program?**
  - **How effective is this intervention at driving antimicrobial use at your facility?**



LEADERSHIP SUPPORT PAGE 1 OF 2

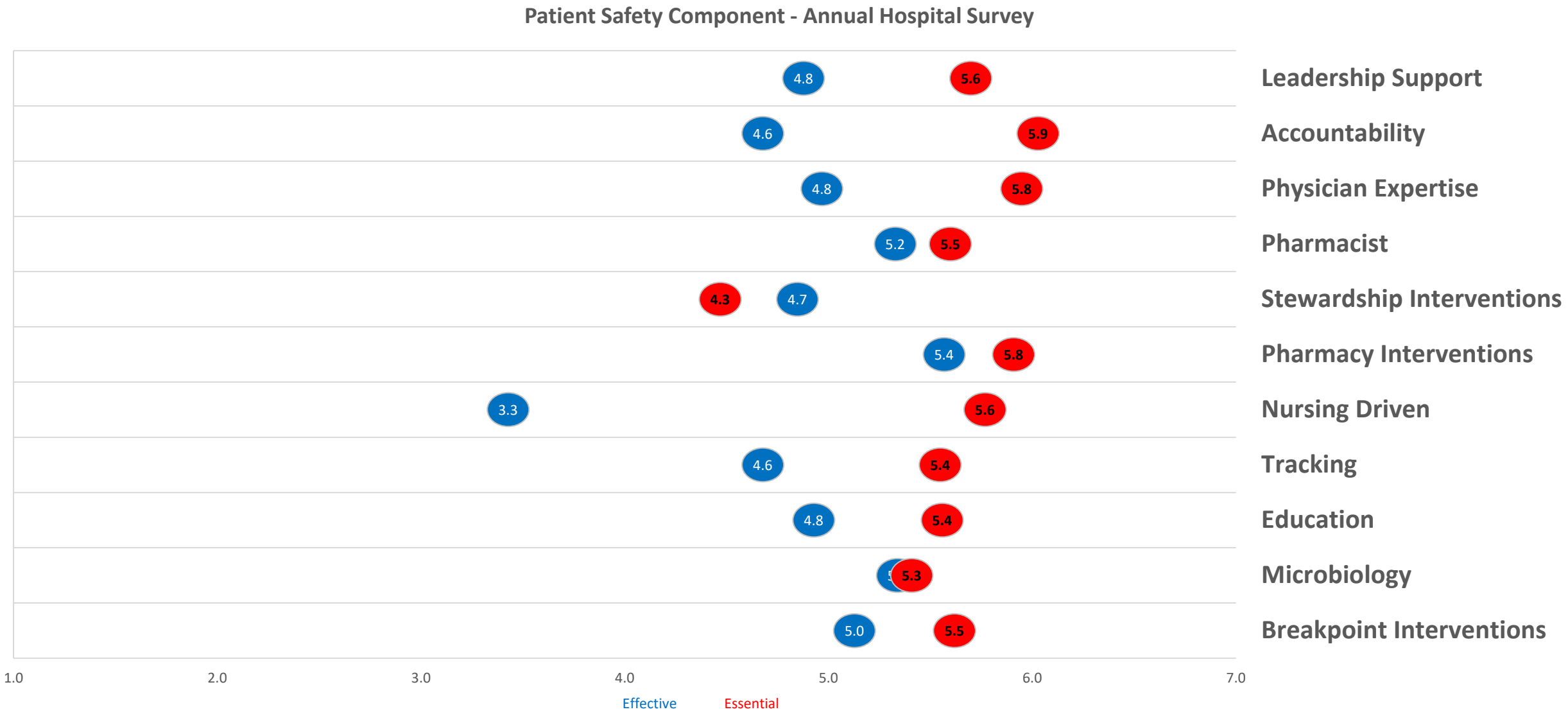
How ESSENTIAL is each intervention below to the success of your antimicrobial stewardship program? (1 being non-essential and 7 being absolutely essential)

	1	2	3	4	5	6	7	
Providing stewardship program leader(s) dedicated time to manage the program and conduct daily stewardship interventions. * must provide value	○	○	○	○	○	○	○	reset
Allocating resources (for example, IT support, training for stewardship team) to support antibiotic stewardship efforts. * must provide value	○	○	○	○	○	○	○	reset
Having a senior executive that serves as a point of contact or "champion" to help ensure the program has resources and support to accomplish its mission. * must provide value	○	○	○	○	○	○	○	reset
Presenting information on stewardship activities and outcomes to facility leadership and/or board at least annually. * must provide value	○	○	○	○	○	○	○	reset
Ensuring the stewardship program has an opportunity to discuss resource needs with facility leadership and/or board at least annually. * must provide value	○	○	○	○	○	○	○	

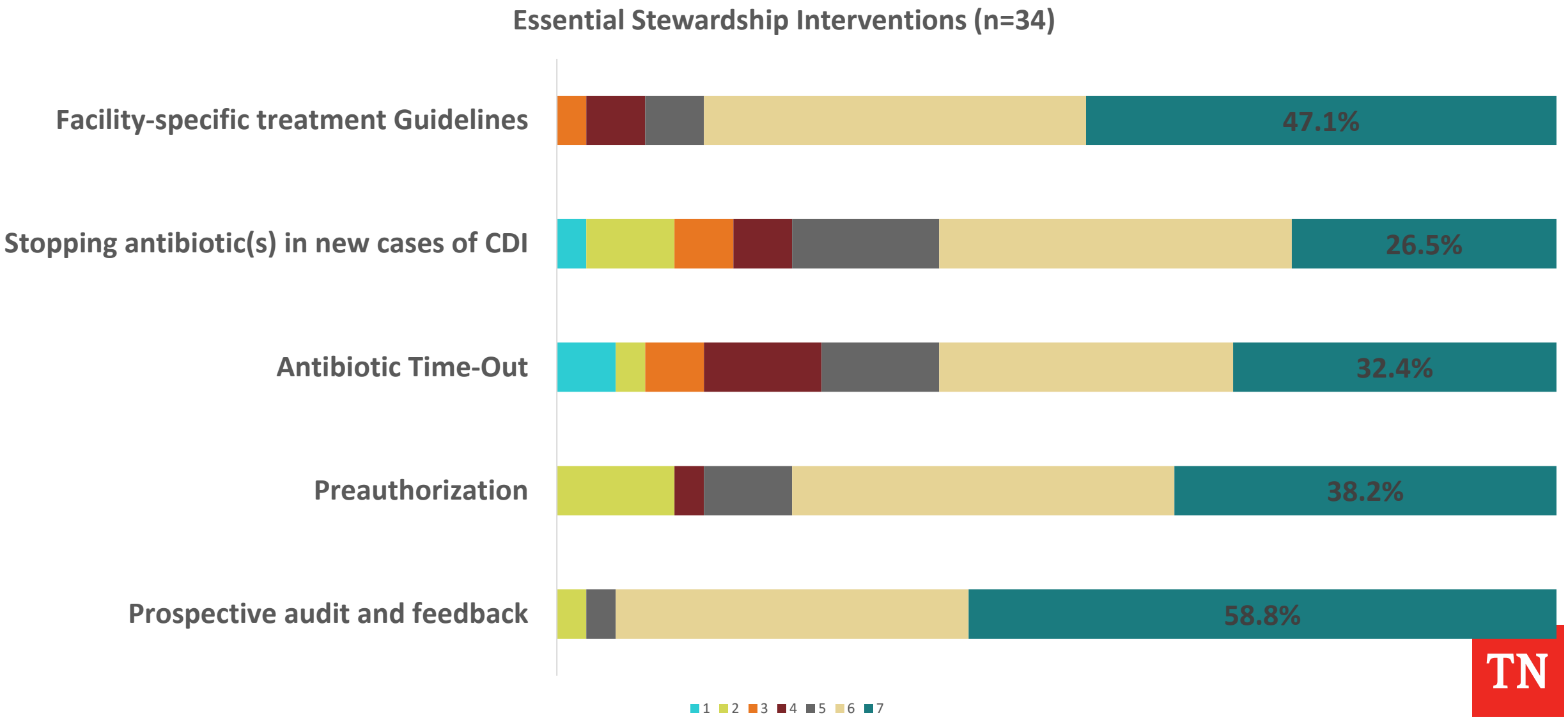
Respondent Demographics

(n=61)		
State	N	%
Colorado	0	0.0%
Tennessee	58	95.1%
Virginia	2	3.3%
Other	1	1.6%
Role		
Physician	3	4.9%
Pharmacist	51	83.6%
Infection Preventionist	7	11.5%
Nurse	0	0.0%
Microbiologist	0	0.0%
Information Technologist	0	0.0%
Other	0	0.0%
Facility size		
<100	15	24.6%
101-250	16	26.2%
>250	28	45.9%
Missing	2	3.3%

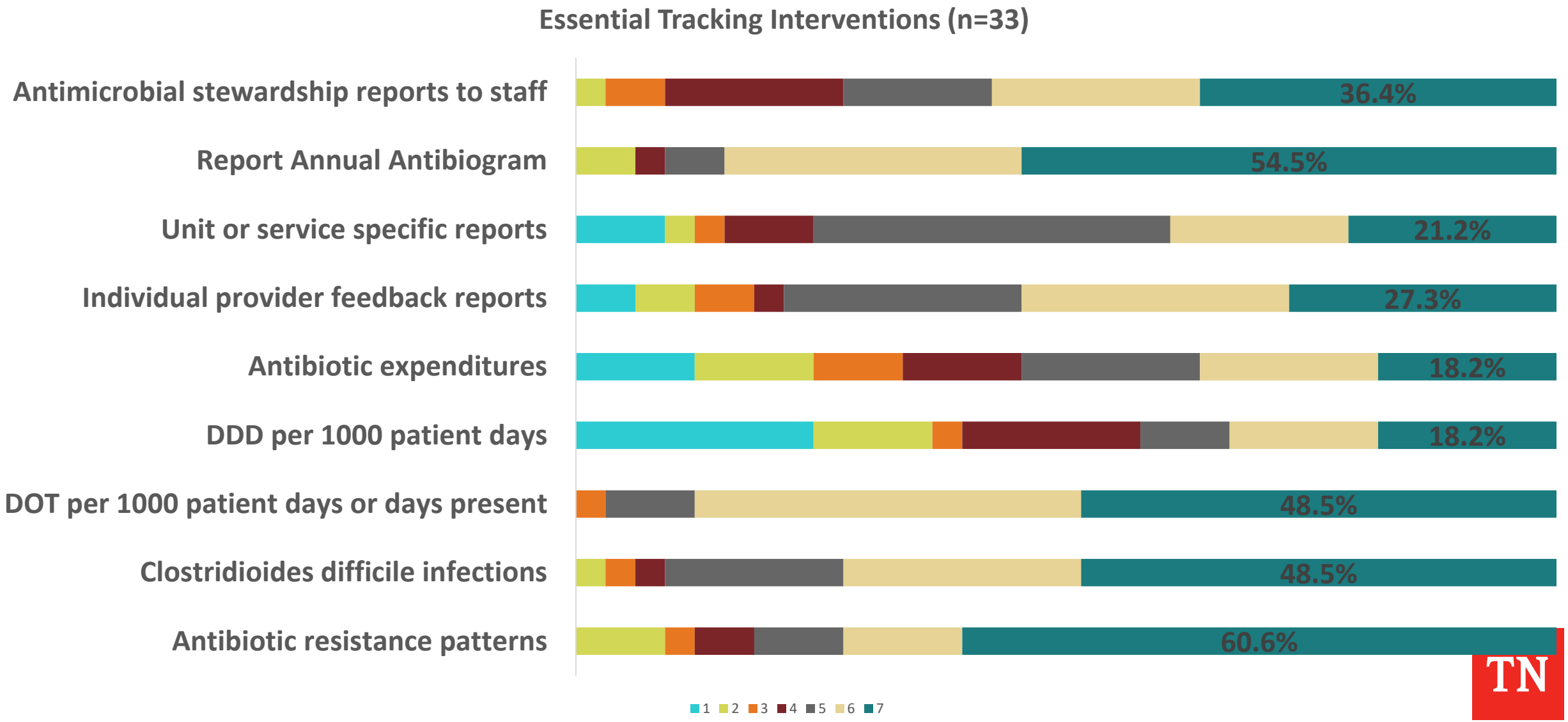
Overall Intervention Scores (by category)



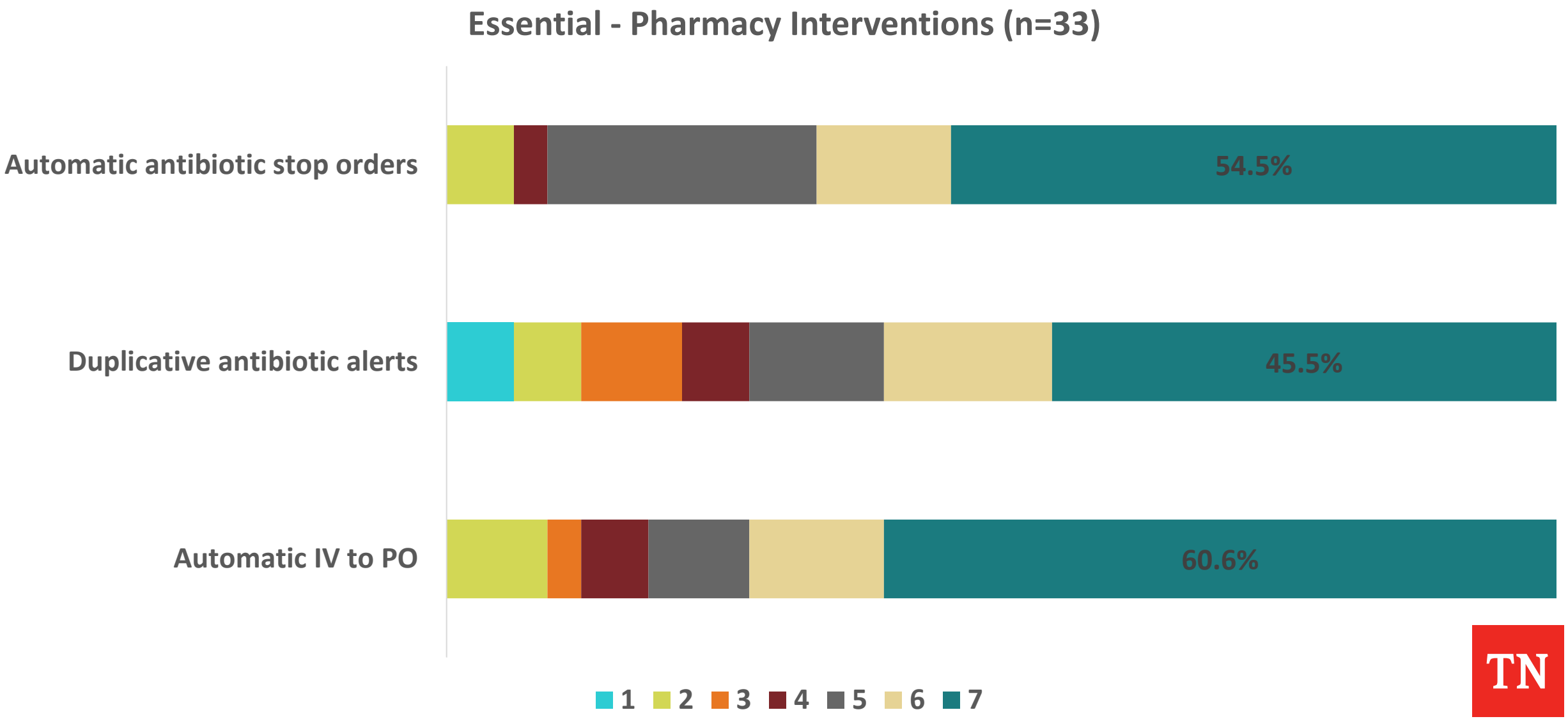
Stewardship Interventions



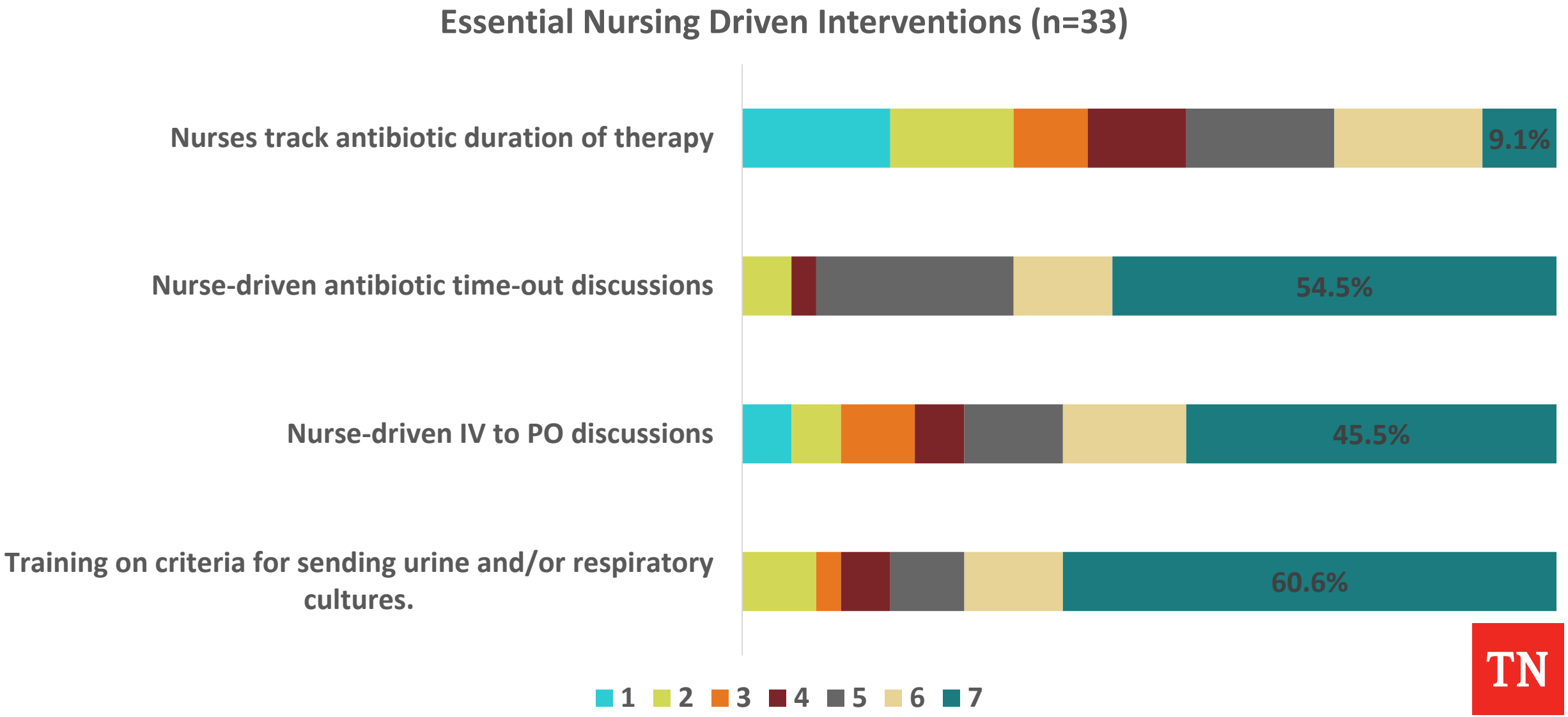
Tracking Interventions



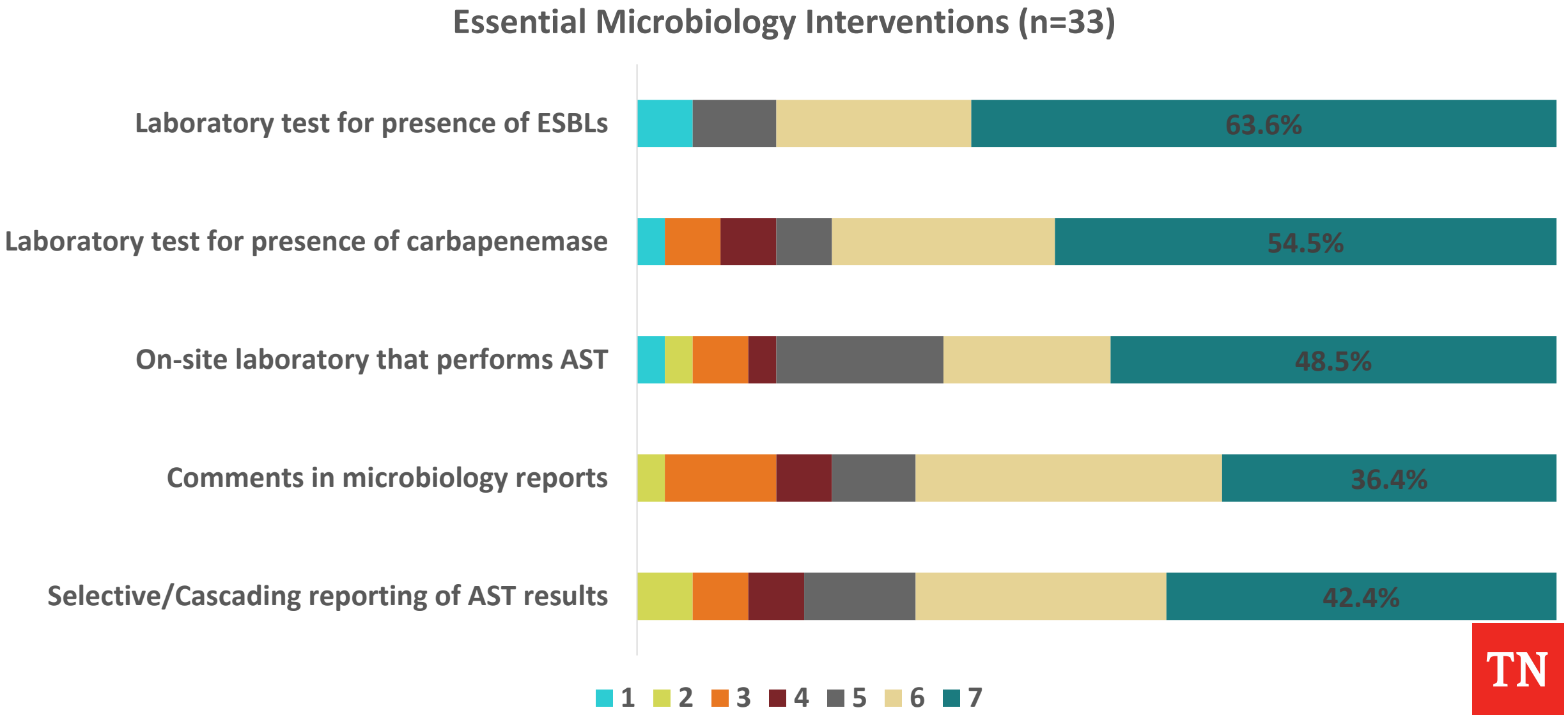
Pharmacy Interventions



Nursing Interventions



Microbiology Interventions

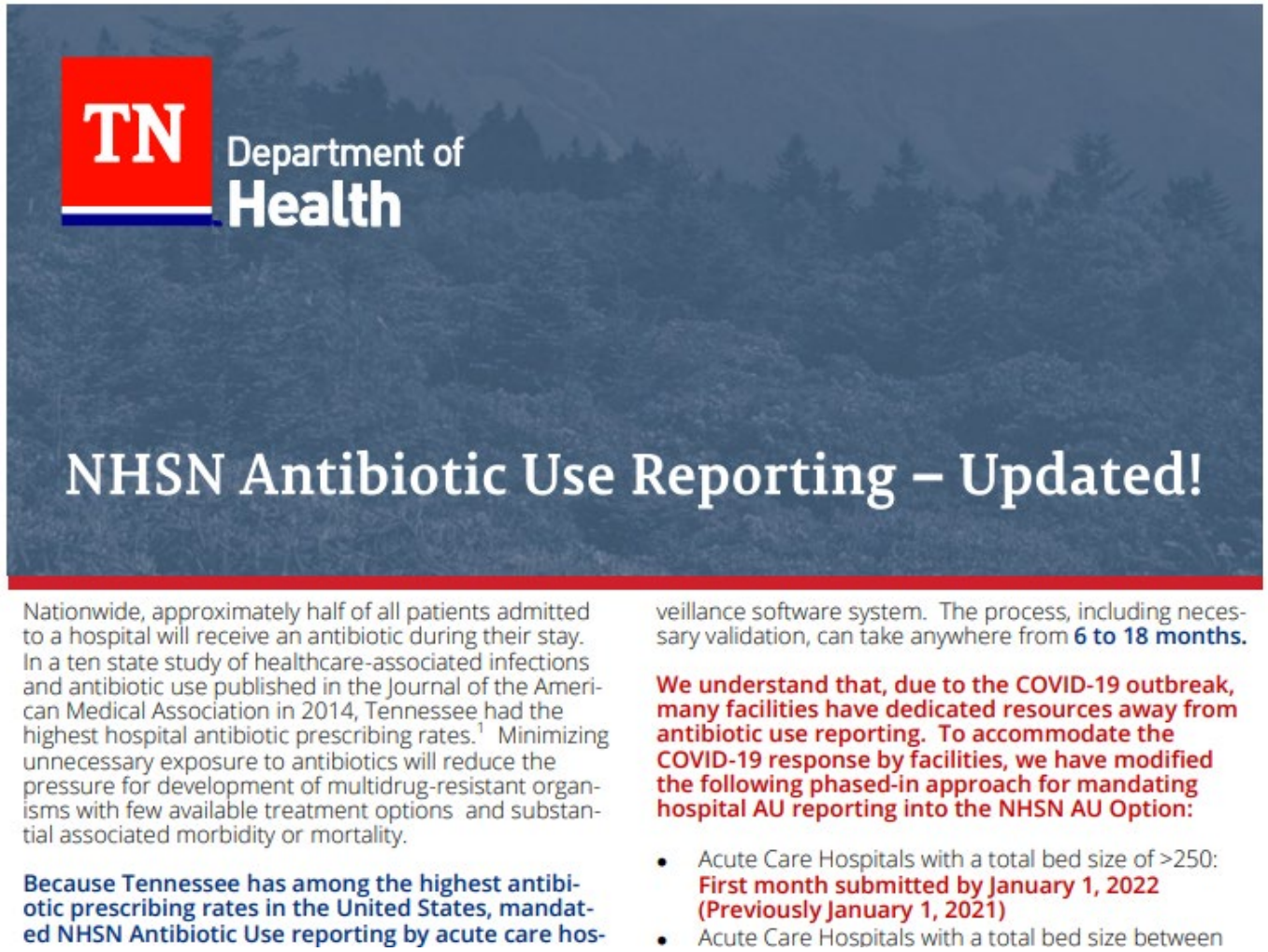


Next Steps

- **Finalize each intervention's score**
  - **Feedback from steward workgroup**
- **Analyze scores of facility ASP's using 2023 NHSN Annual Facility Survey (Spring 2024)**
- **Compare facility scores to other metrics?**
  - **AU rates**
  - **SAAR values**
  - **CDI rates**

NHSN AU Reporting Progress

NHSN Tennessee AU Mandate



TN Department of Health

NHSN Antibiotic Use Reporting – Updated!

Nationwide, approximately half of all patients admitted to a hospital will receive an antibiotic during their stay. In a ten state study of healthcare-associated infections and antibiotic use published in the Journal of the American Medical Association in 2014, Tennessee had the highest hospital antibiotic prescribing rates.[1] Minimizing unnecessary exposure to antibiotics will reduce the pressure for development of multidrug-resistant organisms with few available treatment options and substantial associated morbidity or mortality.

Because Tennessee has among the highest antibiotic prescribing rates in the United States, mandated NHSN Antibiotic Use reporting by acute care hos-

veillance software system. The process, including necessary validation, can take anywhere from **6 to 18 months.**

We understand that, due to the COVID-19 outbreak, many facilities have dedicated resources away from antibiotic use reporting. To accommodate the COVID-19 response by facilities, we have modified the following phased-in approach for mandating hospital AU reporting into the NHSN AU Option:

- Acute Care Hospitals with a total bed size of >250: **First month submitted by January 1, 2022 (Previously January 1, 2021)**
- Acute Care Hospitals with a total bed size between

- **Reportable Event for all ACH and CAH as of January 1, 2024**

https://www.tn.gov/health/cedep/hai.html

CMS Requirements for CY 2024

- Beginning in **CY 2024**, AUR Module data are required under the Public Health and Clinical Data Exchange Objective of the CMS PI Program
- Applies to eligible hospitals and critical access hospitals that participate in the CMS PI Program
- **Measure includes submission of both AU and AR Option data**
- For CY 2024 facilities attest to either:
  - Being in active engagement with NHSN to submit AUR data or,
  - Claim an applicable exclusion

https://www.cdc.gov/nhsn/cdaportal/datainteroperability.html

Two ways to be in active engagement:

- **Option 1 – Pre-production and validation**
  - **Registration within NHSN**
  - **Testing & validation of the CDA files**
- **Option 2 – Production submission**
  - **Submitting production AU & AR files to NHSN**
    - **CY 2023 – 90 continuous days of AUR data submission**
    - **CY 2024 – 180 continuous days of AUR data submission**

- **Note: Beginning in CY 2024, facilities can only spend one calendar year in Option 1 (pre-production and validation)**

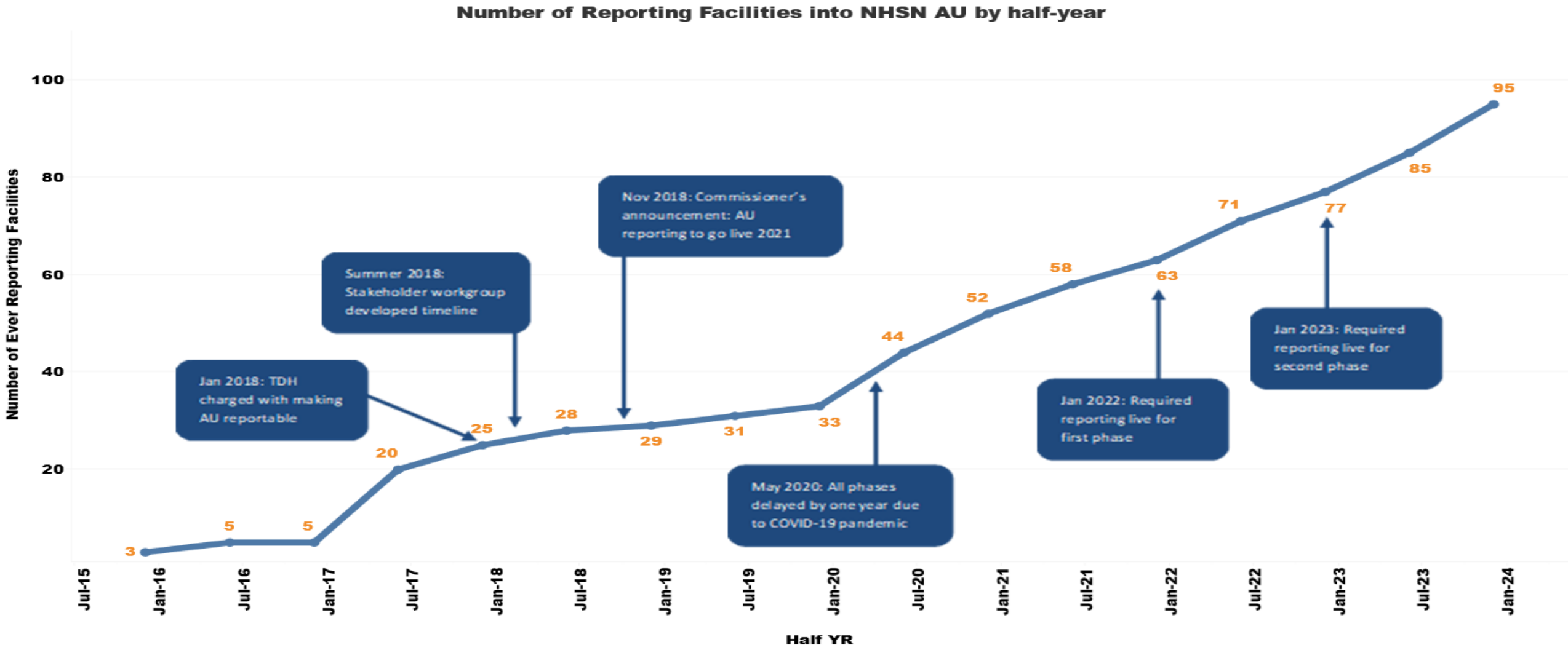
https://www.cdc.gov/nhsn/cdaportal/datainteroperability.html

Claiming Hardship Exceptions

- **All information available for CY 2022**
  - **Eligible hospitals and CAHs can apply for the Medicare PI Program Hardship Exception to avoid a downgrade in payment due to one of the following reasons:**
    - Using decertified EHR technology
    - Insufficient Internet Connectivity
    - Extreme and Uncontrollable Circumstances
  - **Application does not guarantee acceptance of hardship**

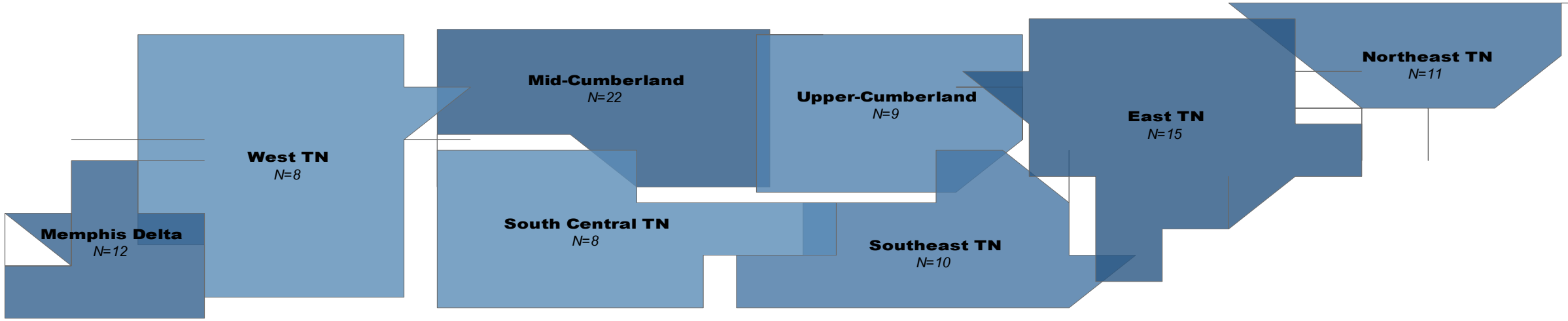
https://www.cms.gov/files/document/medicare-pi-program-hardship-exception-fact-sheet-2023-04-06.pdf

Current Ever Reporters



Map of Reporters

Number of NHSN AU Reporting Facilities by EMS Regions



Progress by Phase

- **Phase 1 – Hospitals > 250 beds**
  - **23 facilities**
  - **All are reporting**
- **Phase 2 – Hospitals 100–250 beds**
  - **33 facilities**
  - **30 reporting**

Progress by Phase

- **Phase 3 – Hospital < 100 beds**
  - **61 facilities**
  - **42 reporting**
  - **Outreach performed in Spring 2023 to inform of requirements**

- **Non-Reporters will be listed as non-compliant in future compliance reports and the TDH HAI State Report/HAI dashboard**

Small and Critical Access Hospital Project

- **$106,000 of SHARP funds to be awarded to small and critical access hospitals for the purpose of AU reporting**
- **Offered to 20 hospitals affected by Phase 3 requirements**
- **Eight applied and were accepted**
  - **$13,250 awarded per facility**
- **Six are currently reporting now**
- **Application to extend and expand submitted**

Assessment of MDRO Reporting Processes

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Matthew Lokant

IDSA Leap Fellow

Chief Fellow, Division of Infectious Diseases

Vanderbilt University Medical Center

Background
Antibiotic Resistance Lab Network

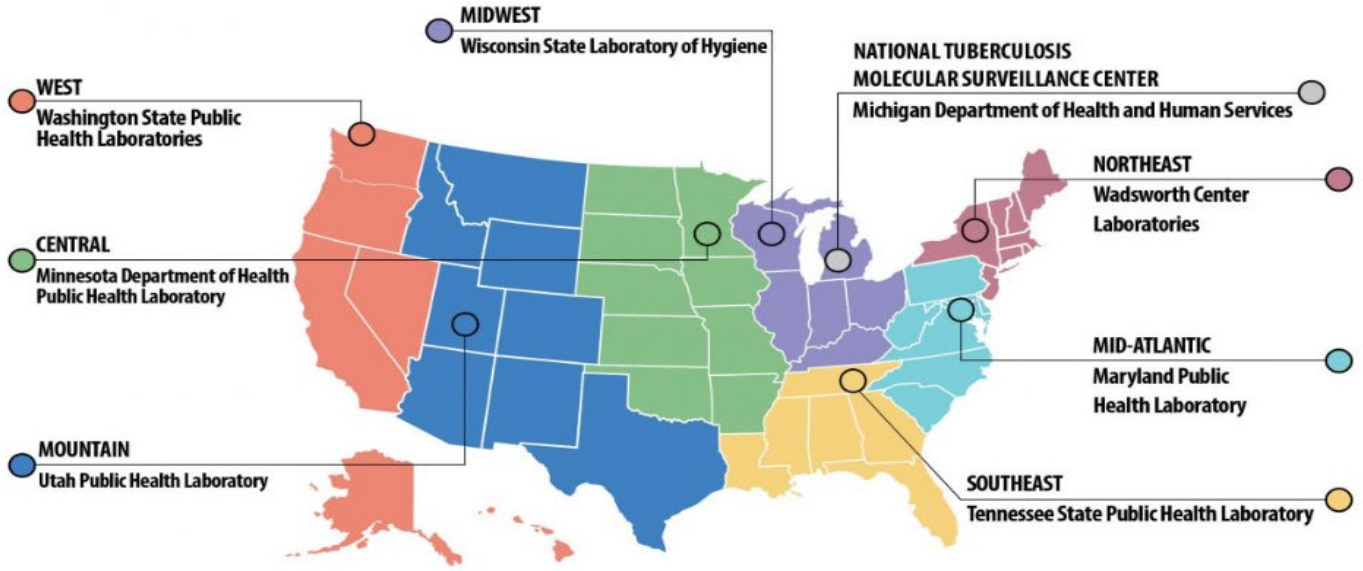
Since 2016

More than
500,000 tests

100,000 colonization
screenings

250,000 whole genome
sequences

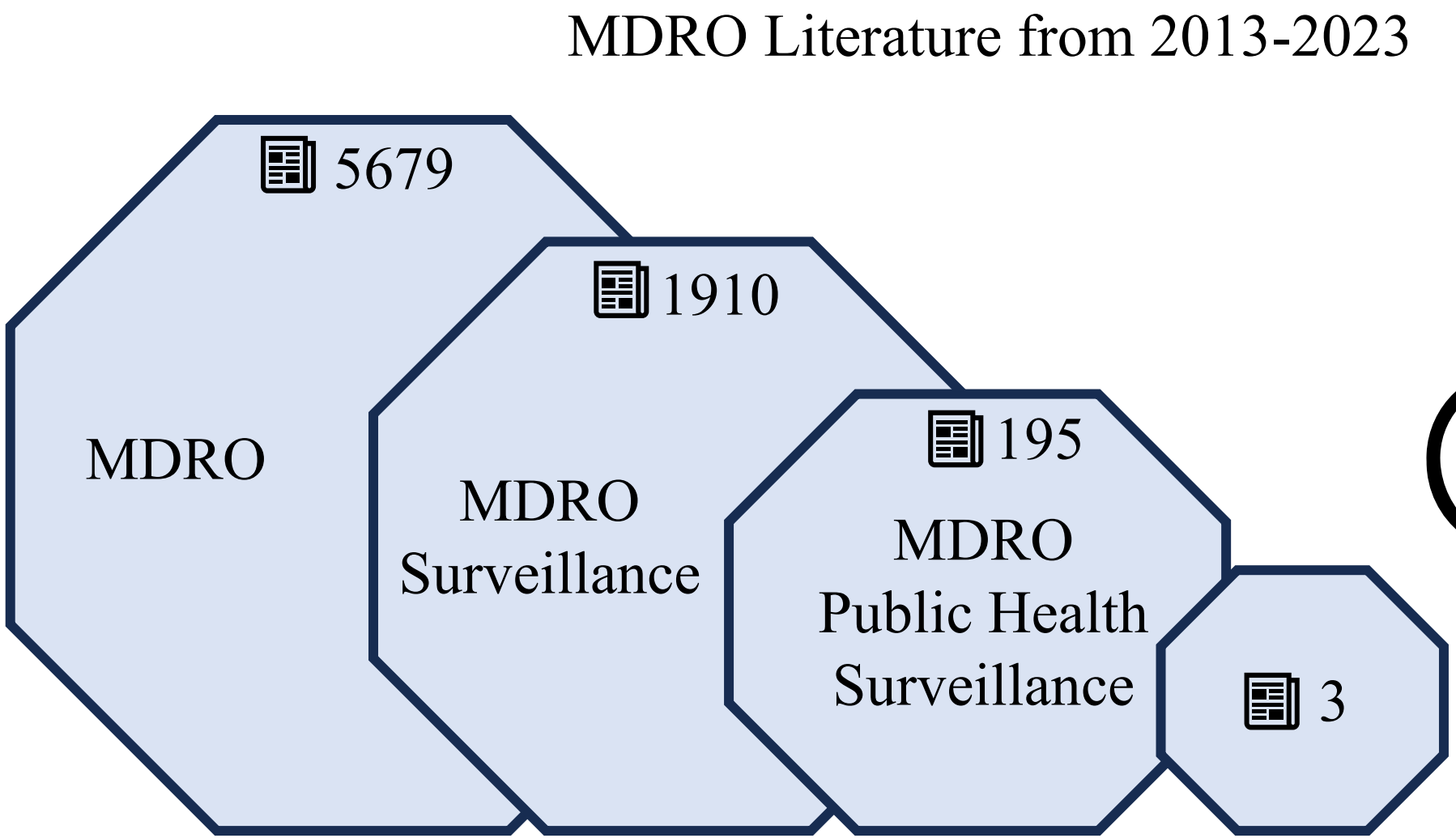
More than 150,000
isolate characterizations



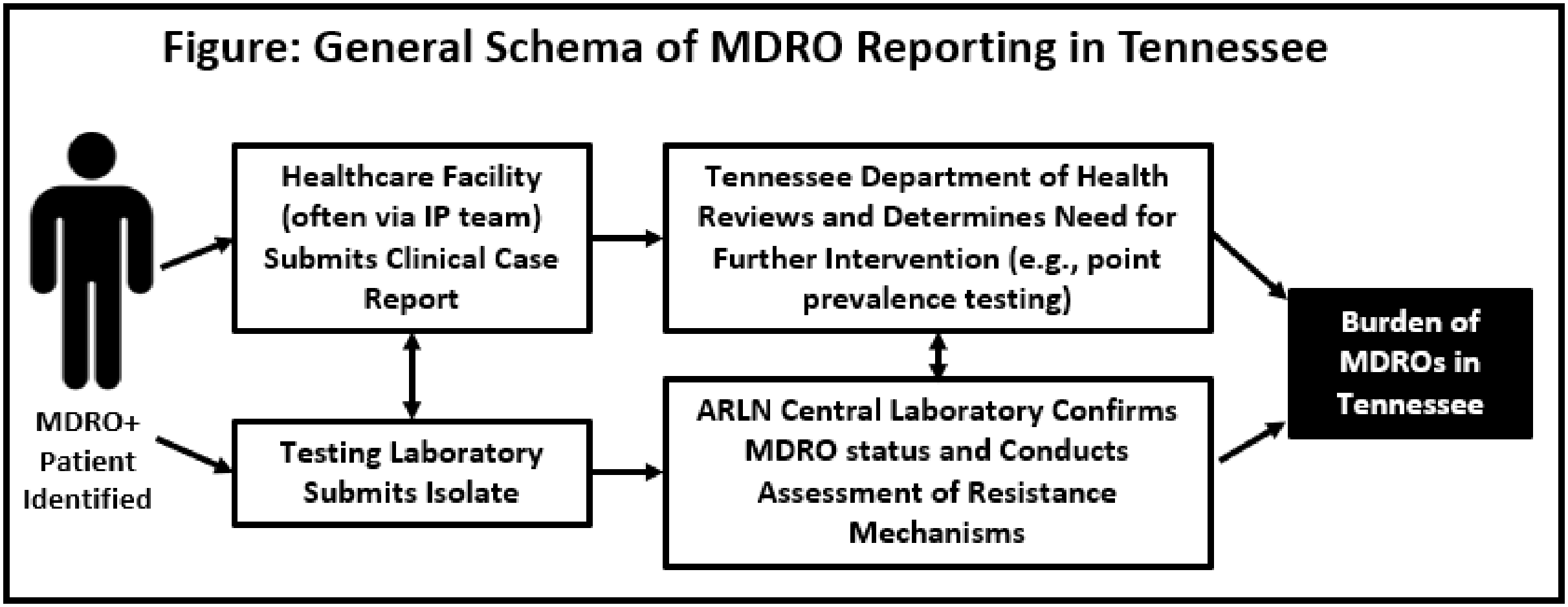
In 2020, CDC programs
provided more than 18,000
local responses

Background
Existing Literature

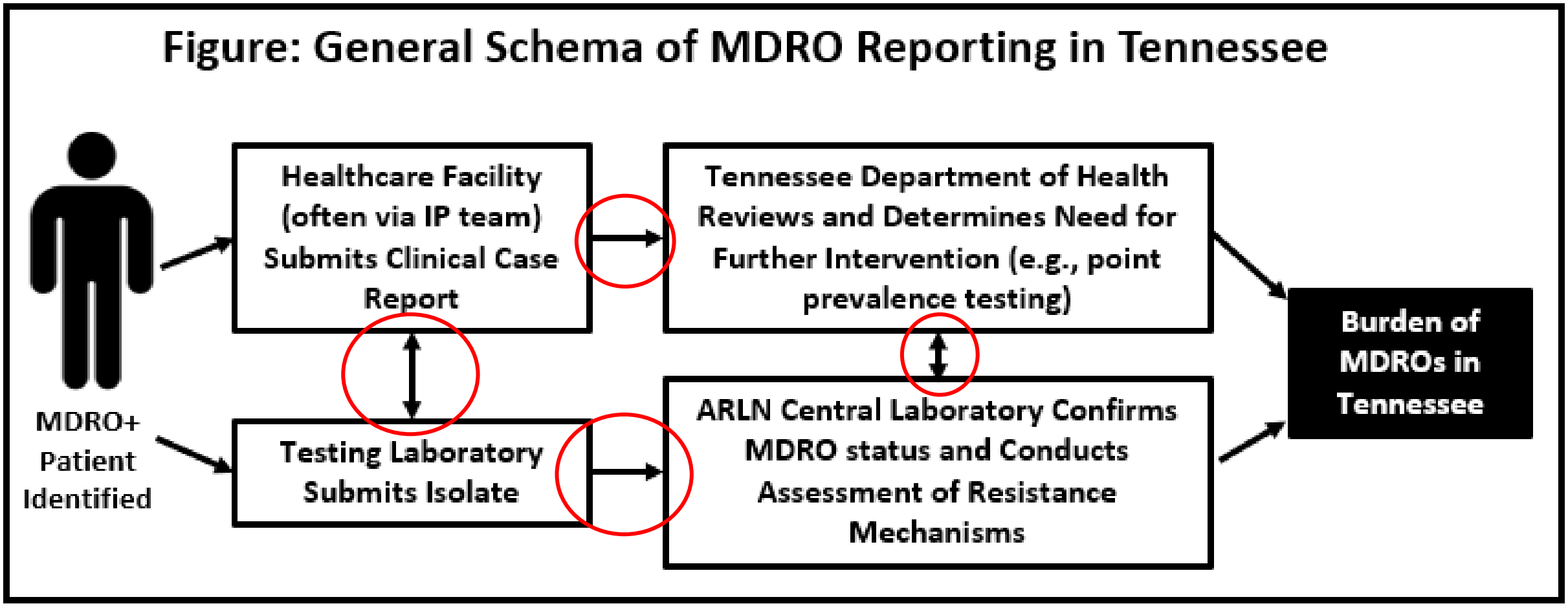
MDRO Literature from 2013-2023



Background
Data Flow



Background
Intervention Opportunities



Background:
Prior TDH Data

- Prior Tennessee Department of Health (TDH) estimate of CRE samples that made it to ARLN was 83% in 2021 (within 3 days of detection)
- **No data for other years or other MDROs**
- **No data on specific barriers**

Project Overview

- Assessment of public health surveillance of multidrug resistant organism (MDRO) to describe timeliness in reporting to the Antimicrobial Resistance Laboratory Network (ARLN)

- MDROs in all labs and facilities who report MDROs in TN from 2018-2022
  - Carbapenem-resistant Enterobacterales (CRE)
  - Carbapenem-resistant *Acinetobacter baumannii* (CRAB)
  - *Candida auris*
  - Carbapenem Resistant *Pseudomonas aeruginosa* (CRPA)

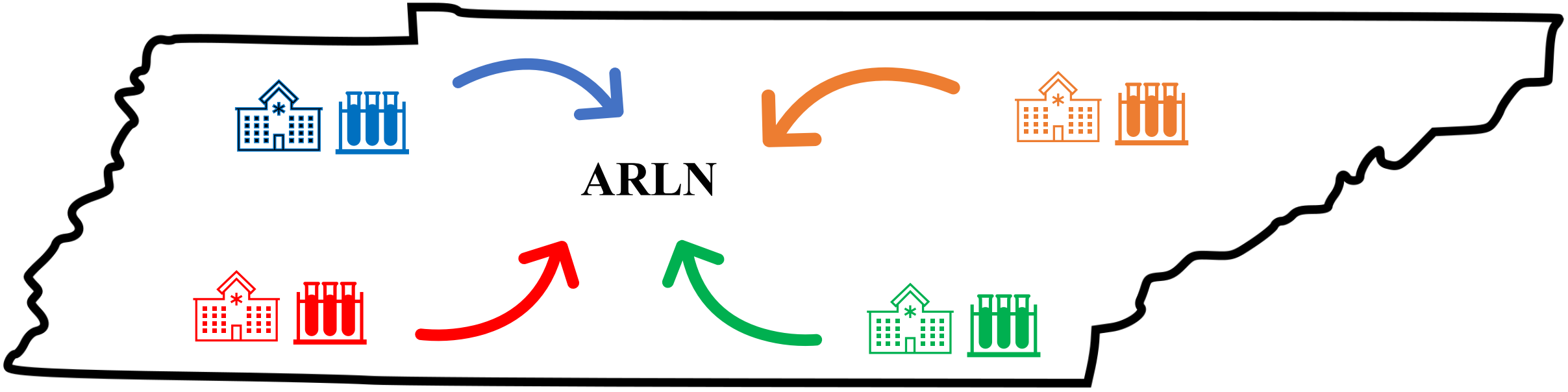
Project Overview
Study Aims

- **Describe** the current timeliness in MDRO reporting
- **Identify** rapid versus slow reporting facilities and labs
- **Determine factors** that impede and facilitate rapid reporting across different facilities and labs
- **Identify targets** for future intervention to improve MDRO surveillance across Tennessee

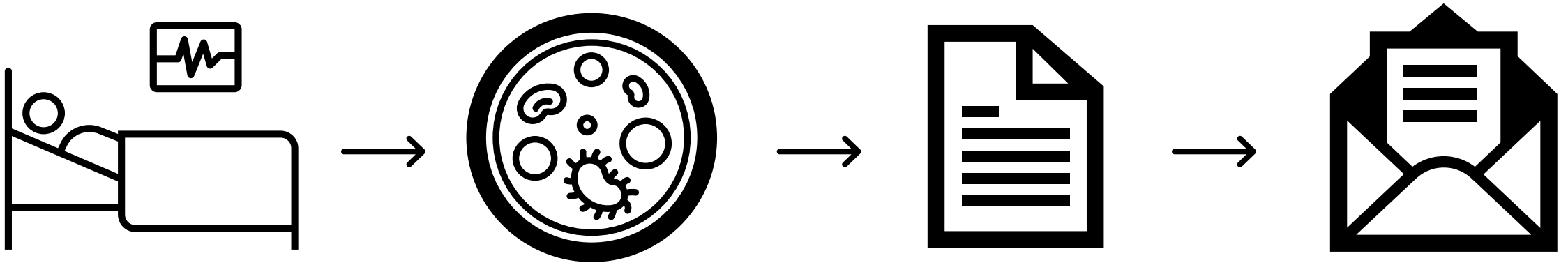
Project Overview: Layout

Quantitative	Qualitative
Retrospective, descriptive data analysis of timely MDRO reporting	Survey and interviews of reporting labs and facilities assessing presence and impact of barriers and facilitators

Project Overview:
Quantitative Hypothesis

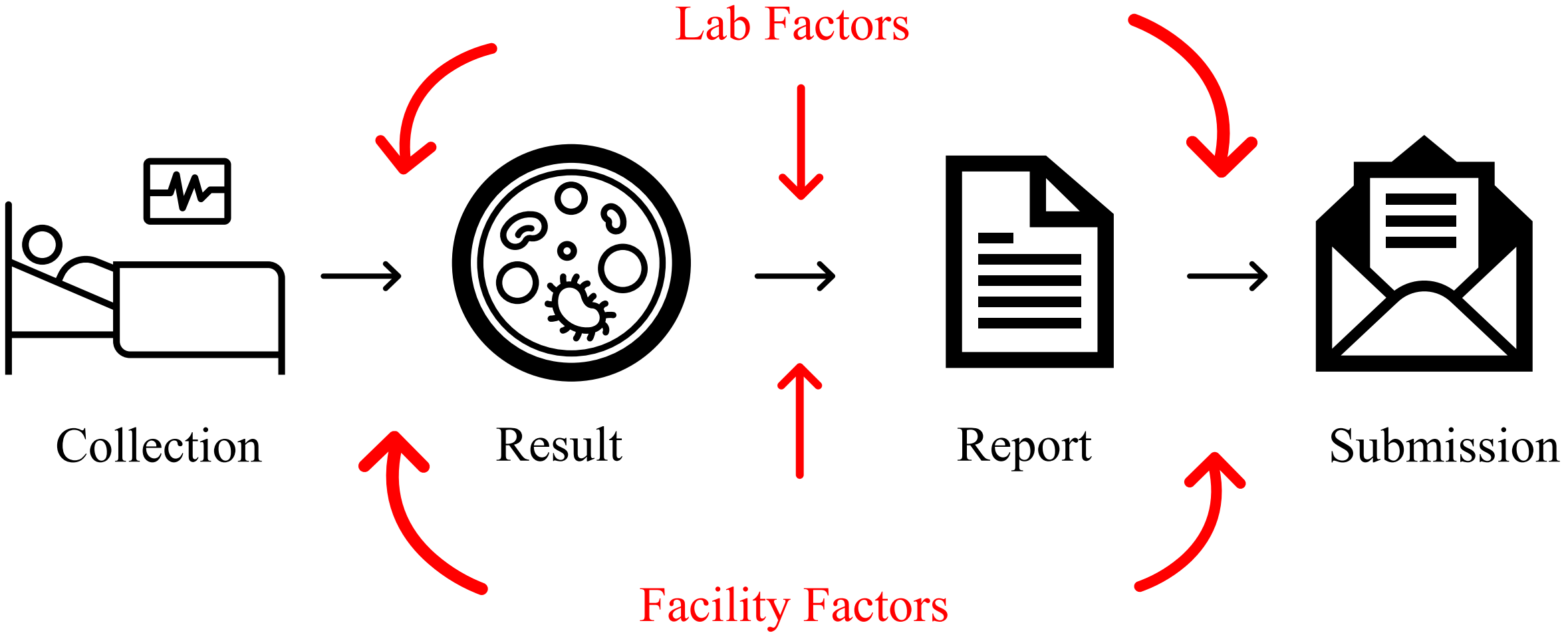


Project Overview:
Quantitative Map



Collection → Result → Report → Submission

Project Overview: Quantitative Map



Project Overview: Quantitative Variables

- Lab versus facility designation
- Date of specimen collection
- Date of facility/lab report
- Date of specimen receipt
- Size (in beds)
- Lab size
- MDRO identification equipment

- Number of infection preventionists (IPs)
- Location of reporting entity (zip code)
- Assign urban-rural
- Most recent update (year) of CLSI breakpoints
  - Current VUMC-TDH project

Project Overview: Quantitative Variables

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- Location of reporting entity (zip code)
- Assign urban-rural
- Most recent update (year) of CLSI breakpoints
  - Current VUMC-TDH project

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Results

Total of 9,569 MDRO isolates reported between 2018-2022

Reporting times varied significantly based on:

- MDRO type ($p < 0.001$)
  - CRPA was reported faster vs. other MDROs ($p < 0.001$)
- Reporting region ($p < 0.001$)
  - Western Tennessee reported slower than other regions ($p < 0.001$)
- Specimen type ($p < 0.001$)
  - Blood culture reporting was slower than other specimen types ($p < 0.001$)

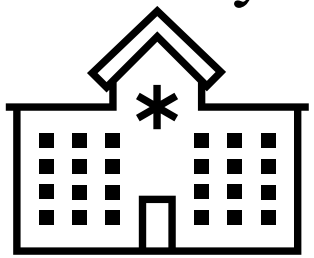
Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Facility Type

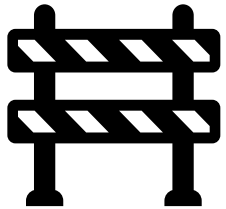
Facility Type	Fast (%)	Slow (%)	Delayed (%)	Total MDRO Isolates	Average Time to Report in Days (SD)	P-Value
Facility with Lab	5194 (71.6)	1579 (21.77)	481 (6.63)	7254	10.41 (9.48)	0.0623
Facility with Reference Lab	1463 (63.2)	819 (35.38)	33 (1.43)	2315	10.04 (3.37)	

Project Overview
Qualitative Survey Map

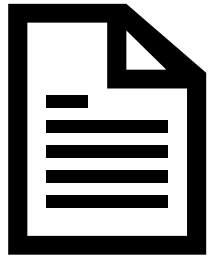
Facility

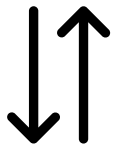


Barriers

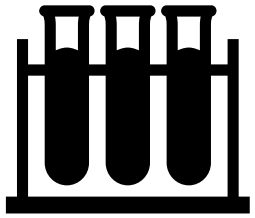


Report

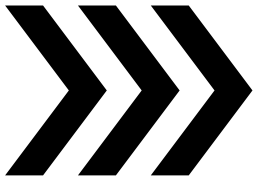




Lab



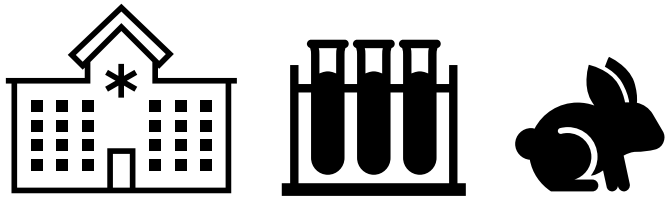
Facilitators

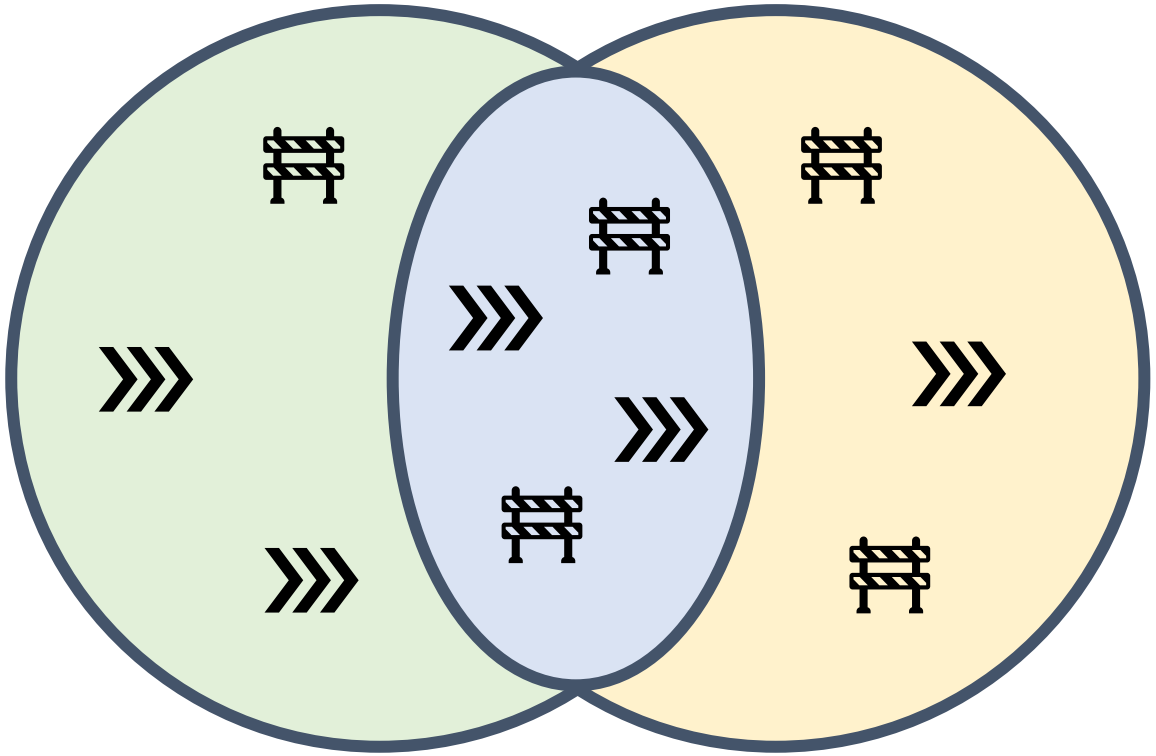


Next Steps

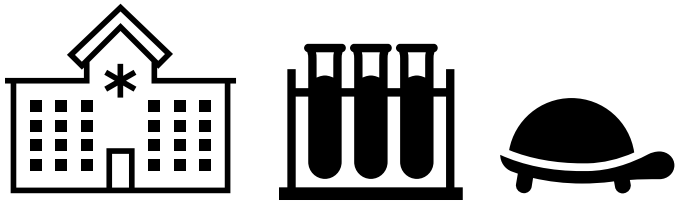
Project Overview:
Qualitative Hypothesis

Faster Reporters





Slower Reporters

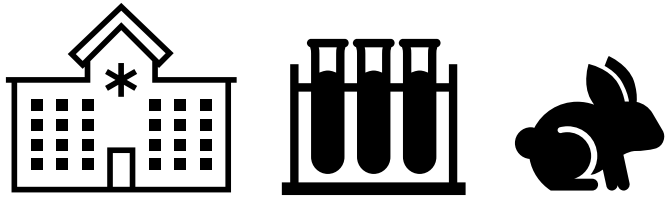


Project Overview: Qualitative Variables

- Interfacility transfer communication (IFTC) in place
- Batched reporting
- Number of lab personnel, by job classification
- Technology (lab machines) used to identify organisms and assess sensitivity to antibiotics
- Technology to coordinate reporting (computers/laptops/wifi/etc.)
- Internal reporting between lab and infection prevention (IP) (and whether electronic medical record plays a role)
- Annual budget for lab/IP
- Structure for requesting resources
- Presence of established reporting external process
- Access to materials to pack and mail/courier samples
- Pre-existing work with TDH/ARLN

Project Overview
Qualitative Interview Map

Faster Reporters



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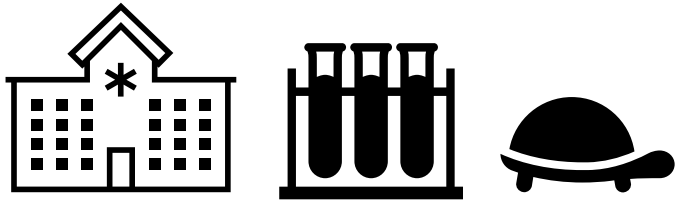
Focus Group

Slower Reporters



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Focus Group

Conclusion

- Antimicrobial Resistance is increasing
- Our surveillance system reliability is unknown
- We aim to:
  1. Better understand TN MDRO reporting
  2. Develop a conceptual model for understanding surveillance barriers and facilitators

Thank-You

Christopher Wilson, MD, MPH

Thomas R. Talbot, MD, MPH

Priscilla Pineda, MPH

Erin Hitchingham, MPH

Melphine Harriott, PhD

Raquel Villegas, PhD, MS

Kaleb Wolfe, MD

Milner Staub, MD, MPH

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

MDRO Type

MDRO Type	Fast (%)	Slow (%)	Delayed (%)	Total MDRO Isolates	Average Time to Report in Days (SD)	P-Value
CRAB	436 (67.39)	154 (23.8)	57 (8.81)	647	11.16 (10.23)	< 0.001
CRE	4282 (67.39)	1671 (26.3)	1671 (26.3)	6354	10.84 (9.09)	
CRPA	1933 (75.63)	1933 (75.63)	55 (2.15)	2556	8.82 (5.51)	
Candida auris	1933 (75.63)	5 (41.66)	1 (8.3)	12	11.17 (5.1)	

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Reporting Region

MDRO Type	Fast (%)	Slow (%)	Delayed (%)	Total MDRO Isolates	Average Time to Report in Days (SD)	P-Value
East	2474 (70.2)	950 (26.96)	100 (2.84)	3524	9.61 (5.52)	
Middle	3094 (74.48)	840 (20.22)	220 (5.3)	4154	9.86 (9.02)	
Unmappable	836 (65.36)	419 (32.76)	24 (1.88)	1279	9.86 (3.57	< 0.001
West	253 (41.34)	189 (30.88)	170 (27.78)	612	18.50 (16.79)	

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Specimen Type

MDRO Type	Fast (%)	Slow (%)	Delayed (%)	Total MDRO Isolates	Average Time to Report in Days (SD)	P-Value
Abscess and Wound	861 (71.27)	297 (24.59)	50 (4.14)	1208	9.76 (7.34)	< 0.001
Blood	242 (65.94)	88 (23.98)	37 (10.08)	367	12.17 (12.31)	
Lower Respiratory	695 (71.87)	225 (23.27)	47 (4.86)	967	9.64 (7.04)	

Variability of MDRO Reporting Across Tennessee Microbiology Laboratories

Specimen Type

MDRO Type	Fast (%)	Slow (%)	Delayed (%)	Total MDRO Isolates	Average Time to Report in Days (SD)	P-Value
Urine	3180 (68.79)	1259 (27.23)	184 (3.98)	4623	10.08 (7.31)	< 0.001
All Other	1679 (69.84)	529 (22.00)	196 (8.15)	2404	11.04 (10.38)	

Next Steps

- **Next Call**
  - **April 9 at 2pm Eastern/1pm Central Time**
  - **Topic: Targeted Assessment for Antimicrobial Stewardship**

- **Feedback always appreciated**
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