

HAI/AR PROGRAMS

2019–20 Progress Report

Period of Performance: August 1, 2019 – July 31, 2020
(Year 1 of the Current 5-Year ELC Cycle)

CDC/DDID/NCEZID/DHQP

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Executive Summary

Since 2009, CDC’s Division of Healthcare Quality Promotion (DHQP) has funded a network of Healthcare-associated Infections and Antibiotic Resistance (HAI/AR) Programs in state, territorial, and local health departments (LHD) to detect, prevent, respond to, and contain healthcare-associated infections (HAI) and antibiotic-resistant (AR) pathogens within their communities, and promote appropriate use of antibiotics. During the 2019–20 Program Year, DHQP invested \$33.5 million in base epidemiology and infection prevention funding for 59 HAI/AR Programs in all 50 states and 9 local or territorial health departments (Chicago, District of Columbia, Houston, Los Angeles, New York City, Philadelphia, Puerto Rico, US Virgin Islands, Guam).

The National Profile of HAI/AR Programs 2019–20 Progress Report provides national level data on implementation of key program activities funded through the base Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) cooperative agreement for the reporting period August 1, 2019 – July 31, 2020 as well as COVID-19 Supplemental funding¹ for the reporting period January 1, 2020 – July 31, 2020. The period covered by this report represents Year 1 of the current 5-year ELC funding cycle (2019–2023).

This progress report includes activities reported by 57 HAI/AR Programs in all 50 states and 7 local or territorial health departments (Chicago, District of Columbia, Houston, Los Angeles, New York City, Philadelphia, Puerto Rico). This progress report does not include DHQP’s ELC-funded activities conducted under the AR Laboratory Network (G2 component of the base ELC cooperative agreement) nor Project Firstline (ELC IPC Training Supplement, 2020).

At the national level, highlights of HAI/AR program **surveillance, detection, and response** activities include:

- HAI/AR Programs reported **18,576 responses or consultations** to address confirmed or possible outbreaks involving AR threats, COVID-19, other HAI/AR infections, or serious infection control breaches in healthcare settings, including:
 - **3,860** reports of emerging resistance and other AR threats, including **423** AR containment responses that involved onsite infection control assessment and/or screening,
 - **14,259** reports of possible COVID-19 outbreaks in healthcare settings, and
 - **454** reports involving other types of HAI/AR outbreaks or infection control breaches
- Additionally, HAI/AR Programs **engaged 2,372 clinical laboratories** to improve testing of targeted organisms to rapidly detect antibiotic resistance
 - Twenty-five health departments (44%) reported engagement of all clinical laboratories in their jurisdiction to improve testing

At the national level, highlights of HAI/AR **program prevention and intervention** activities include:

- HAI/AR Programs conducted non-COVID-19-related prevention-based onsite infection control assessments in **549** healthcare facilities
- HAI/AR Programs conducted **5,689** COVID-19-related prevention-based infection control assessments
- HAI/AR Programs engaged **3,541** healthcare facilities in implementing antibiotic stewardship activities

¹ COVID-19 Supplemental funding included funding provided through the Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020, and funding provided by the Paycheck Protection Program and Healthcare Enhancement Act of 2020 for Enhanced Detection, Response, Surveillance, and Prevention of COVID-19 (Enhancing Detection).

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- The number of HAI/AR program staff capable of independently performing healthcare infection control assessments across all funded jurisdictions was reported to be at least **415** as of July 31, 2020

During the 2019–20 Program Year, HAI/AR Programs implemented a wide range of prevention and response activities, including rapidly adjusting programs to respond to the COVID-19 pandemic. The data presented here provide only a snapshot of priority activities of HAI/AR Programs in addressing HAI and AR pathogens in healthcare settings. CDC will continue to monitor progress made by HAI/AR Programs in eliminating HAIs, including COVID-19, to provide a fuller picture of the Programs' contributions to protecting patients and healthcare personnel across healthcare delivery systems.

National View of HAI/AR Programs: Overview & Background

During the 2019–20 Program Year,² CDC’s Division of Healthcare Quality Promotion (DHQP) invested \$33.5 million in core epidemiology and infection prevention funding for 59 HAI/AR Programs in all 50 states and 9 local or territorial health departments (Chicago, District of Columbia, Houston, Los Angeles, New York City, Philadelphia, Puerto Rico, US Virgin Islands, Guam). These funds were distributed via the base CDC Epidemiology and Laboratory Capacity for Prevention and Control of Emerging Infectious Diseases (ELC) cooperative agreement as described under component “G1: Healthcare-associated Infections, Antibiotic Resistance, and Antibiotic Stewardship.”

Supplemental funding was provided to health departments (HDs) through the Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020, and Healthcare Enhancement Act of 2020 (“Enhancing Detection”) as part of the COVID-19 pandemic response. The funding provided via CARES and Enhancing Detection was broadly intended to provide critical resources to HDs in support of COVID-19/ SARS-CoV-2 testing and epidemiological work, including allowable activities to support response and prevention activities in healthcare facilities.

Please note that CDC invested an additional \$21.7 million in HDs for the AR Laboratory Network (via the base ELC cooperative agreement, component “G2: Antibiotic Resistance Laboratory Network”) and \$75.9 million for Project Firstline (via the 2020 ELC IPC Training Supplement) for HAI/AR-related activities, which are not described in this report.

The epidemiology and infection control component of ELC G1-funded HAI/AR Programs supports response and prevention activities in 11 priority strategies:

1. Support containment of novel or high-concern antibiotic-resistant organisms
2. Support rapid response for other HAI/AR outbreak or infection control breaches
3. Conduct response-driven onsite assessments
4. Enhance lab-epi collaboration
5. Use data for action
6. Conduct prevention-based onsite assessments
7. Implement antibiotic stewardship efforts
8. Sustain workforce capacity
9. Engage public health and healthcare providers
10. Coordinate prevention activities with partners
11. Convene HAI/AR advisory committee

This progress report includes data submitted from 57 of 59 jurisdictions, covering Year 1 (August 1, 2019 – July 31, 2020) of the current 5-year base ELC funding cycle (2019–2023) as well as COVID-19 Supplemental funding³ for the reporting period January 1, 2020 – July 31, 2020.

² The 2020 Program Year refers to the budget period beginning August 1, 2019 through July 31, 2020

³ COVID-19 Supplemental funding included funding provided through the Coronavirus Aid, Relief, and Economic Security (CARES) Act of 2020, and funding provided by the Paycheck Protection Program and Healthcare Enhancement Act of 2020 for Enhanced Detection, Response, Surveillance, and Prevention of COVID-19 (Enhancing Detection).

Overview of HAI/AR Program Evaluation Framework at the National Level

CDC's HAI/AR Program evaluation at the national level is focused on the priority strategies, centering on 7 core performance measures (PMs) and 3 supplemental COVID-19 measures that are reported by recipients using a standardized form in [REDCap](#). These performance measures are summarized in Table 1. Performance measures help provide information about the performance and progress of each program, including the implementation of activities, operations, and outcomes. Additional details about the relationship between HAI/AR activities, outputs, and activities are available in the HAI/AR logic model (see Appendix Figure 6: ELC HAI/AR Logic Model, 2019–2024). Ongoing monitoring of performance measures will be utilized to gauge progress toward successful completion of priority activities. Performance measures are used by CDC and recipients to help:

- Support continuous monitoring and examine opportunities to improve the program or project, and implementation of activities.
- Demonstrate accountability to stakeholders (e.g., funders, public, recipients) by showing how funds are being spent; and
- Clarify program or project expectations and priorities.

There are limitations to using performance measures to formally evaluate a public health program. For example, measures do not always fully represent how successful a program is and often do not account for contextual factors. Other sources of data are often used to measure program information to help fully demonstrate its progress which may include workplan updates, progress reporting, success stories, and site visits. Due to the ongoing COVID-19 response, and need to limit reporting burden on recipients, data requested during 2019–20 were limited to the performance measures themselves. In future budget periods, these additional sources of information will be also utilized to gauge successes and challenges faced by recipients. Data from previous funding years are not comparable as performance measures reporting changed starting in 2019.

This summary report provides a national overview of HAI/AR program implementation of priority activities. The focus of this report is program monitoring, with an emphasis on process measures. It is not intended to demonstrate outcome and impact on eliminating HAIs. For details on HAI outcome progress, refer to the annual National and State Healthcare-Associated Infections (HAI) Progress Report, which is based on data reported to the CDC's National Healthcare Safety Network (NHSN); additional details and past reports are available [here](#).

HAI/AR Program (ELC) Performance Measures At-A-Glance

The following table summarizes performance measures collected to date which includes 2019–20 Program Year (Aug 2019–July 2020) and mid-year measures for the 2020–21 Program Year (Aug 2020–Dec 2020). The remainder of the report focuses on the 2019–20 Program Year with additional detail for each measure. Note that COVID-19 supplement performance measures were introduced in January 2020, mid-way through the 2019–2020 program year.

Table 1: Summary of HAI/AR Program (ELC) Performance Measures

Performance Measure (PM) at the National Level Reported by 57 HAI/AR Programs in all 50 states and 7 local or territorial health departments (Chicago, District of Columbia, Houston, Los Angeles, New York City, Philadelphia, Puerto Rico)		Reporting Period August 2019 – July 2020	Reporting Period August 2020 – December 2020
Surveillance, Detection and Response			
PM1	Number of clinical laboratories engaged ⁴ to improve testing	2,372	N/A
PM2 ⁵	Number of AR Containment Responses ⁶ or AR Consultations ⁷ for novel or target MDROs	3,860	1,340
	Number of AR Containment Responses to novel or targeted MDROs (includes onsite infection control assessment and/or colonization screening)	423	133
	Number of AR Consultations to novel or targeted MDROs (involves remote assistance by the recipient without any onsite infection control assessment or colonization screening)	3,437	1,207
PM3 ⁵	Number of other HAI/AR (non-AR Containment) responses <i>COVID-19 response reported separately; see E25 below</i>	454	83
Prevention and Intervention Strategies			
PM4 ⁵	Number of prevention-based onsite infection control assessments. <i>COVID-19 activities reported separately; see E24 below</i>	549	52
PM5 ⁵	Number of facilities engaged to implement antibiotic stewardship	3,541	3,704
Communication, Coordination and Partnerships			
PM6	Number of HDs that updated their HAI/AR plans	8	N/A
PM7	Number of HDs that updated their healthcare settings inventories within the past year	47	N/A
COVID-19 Healthcare IPC Measures			
E23 ⁸	Number of HD staff who can independently perform healthcare infection control assessments (remote or onsite)	415 ⁸	681
E24 ^{5,8}	Number of prevention-based healthcare infection control assessments for COVID-19	5,689 ⁸	3,184
E25 ^{5,8}	Number of COVID-19 outbreaks and responses in healthcare settings		
	Number of possible COVID-19 outbreaks that met threshold for additional investigation	18,308 ⁸	34,991
	Of the possible COVID-19 outbreaks, number for which response consultation was provided	14,259 ⁸	24,825

⁴Engagement is defined as the provision of technical support and/or consultation that facilitates the connection of the clinical laboratories to an AR Lab Network public health laboratory or regional laboratory for additional support.

⁵ The activity may be done directly by the recipient or through the support of a local health department, academic partner, contractor, consultant, or other entity (designee) for which the recipient can assure the quality of services provided; the recipient must play a substantial role in the effort.

⁶ AR Containment responses include onsite infection control assessment and/or colonization screening

⁷ AR Consultations include remote assistance by the recipient without any onsite infection control assessment or colonization screening

⁸ The reporting period for E23/E24/E25 performance measures is January 1, 2020 – July 31, 2020.

Year 1 Progress Details

I. SURVEILLANCE, DETECTION AND RESPONSE

HAI/AR performance measures for Core Area A — *Surveillance, Detection and Response* — are intended to assess progress made toward 1) the rapid identification and containment of novel or high-concern resistance, and 2) timely and effective response to HAI/AR outbreaks or serious infection control breaches. The measures in this section are useful for understanding the quality of program implementation and can help both CDC and recipients to identify opportunities to both strengthen program delivery and highlight successes. Supplemental performance measures were added to address the COVID-19 pandemic, including a measure to assess progress made toward timely and effective response to COVID-19 outbreaks in healthcare facilities.

1. Engagement with Clinical Laboratories

Clinical laboratories are the frontline for detecting novel or high-concern resistance. It is critical that clinical laboratories use appropriate testing methods (e.g., use the correct breakpoints) to improve detection of targeted organisms, case reporting, and response, and that they submit relevant isolates to CDC’s AR Lab Network laboratories for testing. CDC’s AR Lab Network supports nationwide lab capacity to rapidly detect antibiotic resistance and inform local responses to prevent spread and protect people. The HAI/AR program plays an important role in supporting AR Lab Network laboratories by helping connect them to clinical laboratories and providers who may need additional support on testing methodologies or isolate submission.

Clinical laboratories consist of any clinical, reference, or commercial laboratory serving the jurisdiction that is not AR Lab Network or public health laboratory. Recipient engagement of clinical laboratories includes the provision of technical support and/or consultation that facilitates the connection of the clinical laboratories to an AR Lab Network public health laboratory or regional laboratory for additional support. These data represent clinical laboratory engagement to improve isolate submission, not AR Lab Network (G2) isolate submission and mechanism testing.

Performance Measure 1 (PM1): The number of clinical laboratories that each HAI/AR program engaged to submit clinical isolates for testing at the AR Lab Network or public health laboratories during the budget period.

During the 2019–20 Program Year:

- HAI/AR Programs engaged with **2,372 (27%)** of 8,822 clinical laboratories serving their jurisdictions
 - **25** HDs reported that all clinical laboratories in their jurisdiction were engaged by the HAI/AR program
 - **8** additional HDs reported that half or more of clinical laboratories in their jurisdiction were engaged by the HAI/AR program
 - **22** HDs reported that less than half of their clinical laboratories in their jurisdiction were engaged with the HAI/AR program, including one HD reporting no engagement with clinical laboratories in their jurisdiction

2. Containment Responses to Novel or Target Multidrug-Resistant Organisms (MDROs)

Rapid response is critical to the successful containment of targeted novel or high-concern AR organisms in healthcare settings. Understanding the pathogens, resistance mechanisms, and settings affected by each response, as well as how recipients implement the containment strategy to address resistant organisms, helps to track the recipient's role in these efforts, and provides CDC information on how to best guide implementation of the containment strategy.

Performance Measure 2 (PM2): Characteristics of containment responses for novel or target MDROs in the jurisdiction conducted by each HAI/AR program.

During the 2019–20 Program Year:

- A total of **3,860** AR containment responses and AR consultations were reported by 57⁹ HAI/AR programs¹⁰, including (Table 2)
 - **423 AR Containment responses** that included onsite infection control assessment and/or colonization screening (hereafter referred to as “AR Containment Responses”)
 - **3,437 AR Consultations** that involved remote assistance by the recipient without any onsite infection control assessment or colonization screening (hereafter referred to as “AR Consultations”).
- The total number of AR Containment Responses and AR Consultations per jurisdiction ranged from 1 to 468. Eleven HDs (19%) reported 2,747 (71%) of the total AR Containment Responses and AR Consultations, and 21 (36%) HDs reported 10 or fewer AR Responses and AR Consultations.
- The majority of AR Containment responses (64%) and AR Consultations (65%) took place in acute care hospitals (ACHs) (Table 3). 42% of the Containment Responses involved skilled nursing facilities without ventilator or tracheostomy capability (SNFs), 14% involved ventilator-capable skilled nursing facility (vSNFs) and 14% involved long-term acute care hospitals (LTACHs), whereas 15% of the AR Consultations involved SNFs, 5% vSNFs, and 5% LTACHs.
- Among AR containment responses and consultations in all facilities, a higher proportion in SNF (25%), LTACH (27%), and vSNF (25%), involved an onsite assessment or colonization screening compared to the proportion that occurred in ACHs (11%) (Table 4).
- The public health programs that most commonly provided assistance with the AR Containment Responses and AR Consultations were state HAI/AR programs (96%), AR Lab Network Regional Labs (57%), and local or regional public HDs (32%).
- The most common pathogen and resistance mechanism combinations that triggered an AR Containment Response, from highest to lowest frequency across all setting types are: KPC-producing CRE (168), NDM-producing CRE (130), *Candida auris* (124), OXA-23-producing CRAB (44), and OXA-24/40-producing CRAB (47) (Table 5). These pathogen and mechanism data reflect AR Containment Response activities reported through specific PMs and do not reflect AR Laboratory Network reports.
- The most common pathogen and resistance mechanism combinations that triggered an AR Consultations, from highest to lowest frequency across all setting types are: KPC-producing CRE (210), NDM-producing CRE (139), OXA-24/40-producing CRAB (137), and OXA-23-producing CRAB (79) (Table

⁹ 59 Jurisdictions were funded, but we are missing data from 2 Jurisdictions

¹⁰ Please refer to Appendix 2 for details describing how AR Containment responses and AR consultations were calculated from PM2 Part 1 and PM2 Part 2 data submissions

6). These pathogen and mechanism data reflect AR Consultation activities reported through specific PMs and do not reflect AR Laboratory Network reports.

Table 2: AR Containment Responses and AR Consultations by Type, August 1, 2019 – July 31, 2020

Type of AR Response	Number of Responses
AR Containment Responses (includes onsite infection control assessment and/or colonization screening)	423
AR Consultations (involves remote assistance by the recipient without any onsite infection control assessment or colonization screening)	3,437
Total	3,860

Table 3: AR Containment Responses and AR Consultations by Setting Type, August 1, 2019 – July 31, 2020

Setting Type	AR Containment Responses (n=423)		AR Consultations (n=3,437)		Percentage Involving Screening and/or Onsite Assessment, by Setting
	No.	Percentage	No.	Percentage	Percentage
Acute Care Hospital	272	64%	2,218	65%	11%
SNF	177	42%	531	15%	25%
LTACH	60	14%	164	5%	27%
vSNF	59	14%	181	5%	25%
Outpatient Setting	23	5%	314	9%	7%
Other	21	5%	180	5%	10%

Table 4: Facilities that Received Onsite Assessment and Screening, by Setting Type (N=940 Facilities from 423 Containment Responses), August 1, 2019 – July 31, 2020

Setting Type	Number of Facilities	Number of Onsite Infection Control Assessments by Facility Type (unique assessments or repeat visits)	Number of Screening Test Performed Per Facility (Median, Mean, Range)
Intermediate Care Facility	1	1	4/4 (4–4)
vSNF	112	90	29/97 (0–2048)
Outpatient Setting	25	15	0/1 (0–9)
LTACH	78	41	6/82 (0–2312)
SNF	259	101	3/21 (0–400)
Acute Care Hospital	443	121	3/17 (0–861)
Congregate Setting	4	1	1/3 (0–8)
Inpatient Rehab	13	0	3/17 (0–93)
Other	5	1	1/6 (0–25)
Total	940	371	

Note: The number of facilities exceeds the number of responses because each response can involve more than 1 facility.

Example interpretation:

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- Of 112 vSNF involved in the AR Containment Responses, there were 90 onsite infection control assessments performed, which includes unique facilities or repeat visits. The number of screening tests per facility ranged from 0 to approx. 2,000, and a median of 28.5 screenings per facility

Table 5: Distribution of AR Pathogens and Resistance Mechanisms by Setting Type for Containment Responses Involving Onsite Assessment and/or Screening (N=423), August 1, 2019 – July 31, 2020

Setting Type	CRE					CRPA				CRAB						C. auris	PanNS
	KPC	NDM	OXA48	VIM	IMP	KPC	NDM	VIM	IMP	KPC	NDM	OXA23	OXA2440	OXA58	OXA235		
Acute Care Hospital	60	73	28	5	8	1	3	13	1	0	4	16	19	0	1	46	10
Inpatient Rehab	1	3	1	0	1	0	0	0	0	0	0	1	0	0	0	5	0
LTACH	15	5	2	3	0	0	0	4	0	0	1	3	2	0	1	25	3
vSNF	13	8	1	0	1	0	1	6	0	1	1	10	7	0	1	21	3
SNF	76	35	8	2	6	1	2	5	0	0	4	10	15	0	0	19	8
Intermediate Care Facility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Outpatient Setting	2	6	1	0	2	0	0	1	1	0	0	3	3	0	0	3	1
Congregate Setting	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
Other	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	4	1
Don't Know	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	168	130	41	10	18	2	6	29	2	1	10	44	47	0	3	124	27

Table 6: Distribution of AR Pathogens and Resistance Mechanism by Setting Types for Containment Consultations (No Onsite Assessment or Screening Conducted) (N=582), August 1, 2019 – July 31, 2020

Setting Type	CRE					CRPA				CRAB						C. auris	PanNS
	KPC	NDM	OXA48	VIM	IMP	KPC	NDM	VIM	IMP	KPC	NDM	OXA23	OXA2440	OXA58	OXA235		
Acute Care Hospital	124	90	16	6	15	1	8	4	5	0	2	54	79	0	0	14	20
Inpatient Rehab	8	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0
LTACH	7	2	0	2	0	0	0	2	0	0	0	2	8	0	0	5	1
vSNF	4	2	0	0	0	0	0	0	0	0	0	6	5	0	0	0	1
SNF	42	12	2	1	0	0	0	1	0	0	1	11	30	0	0	1	3
Intermediate Care Facility	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Outpatient Setting	20	28	6	1	7	0	3	0	0	0	0	3	5	0	0	1	2
Congregate Setting	1	2	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0
Other	2	1	0	0	2	0	0	0	0	0	0	2	0	0	0	0	0
Don't Know	2	1	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0
Total	210	139	24	11	24	1	11	7	5	0	3	79	137	0	0	21	27

3. Other HAI Outbreak Response Activities (non-AR Containment)

In addition to AR containment, HAI/AR programs play a critical role in responding to possible outbreaks and other issues which might require investigation or consultation (e.g., serious breach in infection control practice). Understanding the types of responses implemented, by pathogen, event type, and setting, allows CDC and the HDs to track issues and setting types requiring the greatest public health support.

For this analysis, an “other HAI/AR response” is defined as any non-AR Containment response activity involving a series of actions on the part of public health authorities to assess specific, acute HAI/AR risk and prevent further harm. Completion of routine surveillance or case report forms without these types of additional actions (e.g., consultation with facility staff to discuss control measures, infection control assessment) is not considered sufficient to be counted as an “other HAI/AR response.” Unlike PM2 for AR Containment responses, the performance measure for other HAI/AR responses does not require onsite assessment or screening for an event to be counted as a response activity. Also, provision of assistance may be done directly by the recipient or through the support of a LHD, academic partner, contractor, consultant, or other entity (designee) for which the recipient can assure the quality of services provided.

In addition to more intensive response efforts, it is common for HAI/AR Programs or their designees (e.g., LHDs) to assist congregate healthcare settings such as nursing homes in responding to reported clusters of gastrointestinal illness, respiratory illnesses, or conditions such as scabies, that are encountered on a fairly routine basis. For this performance measure, we provided an optional category, “routine follow-up to illness clusters in congregate healthcare settings,” which was used to collect information on these types of response events. This information was collected in an aggregate manner, which did not require submitting details from each facility-level response, to reduce reporting burden on HAI/AR Programs. Since this aspect of the performance measure reporting was optional, the submitted data represent activities within only a subset of all HAI/AR Programs.

Performance Measure 3 (PM3): Characteristics of other HAI/AR responses in the jurisdiction conducted by each HAI/AR program (exclusive of responses reported in PM2)

During the 2019–20 Program Year:

- 57 HAI/AR Programs reported **20,976** Other HAI/AR response activities, including:
 - **14,259** COVID-19 responses or consultations
 - **454** Other HAI/AR responses (includes those with or without onsite assessment and screening) (Table 7)
 - **6,263** Other routine responses to clusters of illnesses reported in congregate healthcare settings
- Among the **454** Other HAI/AR responses (non-COVID-19)
 - Primary organisms were identified for **352** responses (76%). Of these, the most common organisms identified were *Streptococcus pyogenes*, *Acinetobacter* spp., *Legionella pneumophila*, and MRSA.
 - The majority of events were case, cluster, or outbreak responses (76%), followed by serious breaches in infection control practices (24%) (Table 8)
 - Events involving serious infection control breaches included reprocessing breaches (47, 10%), injection safety breaches (36, 8%), and other IPC breaches (25, 6%)
 - The highest number of reprocessing breaches were reported in dental offices and other outpatient settings

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- The highest number of injection safety breaches were observed in SNFs and outpatient settings
- The majority of Other HAI/AR responses occurred in ACHs (47%), followed by SNFs (22%), and outpatient settings (including dental, dialysis, and other outpatient settings) (16%) (Table 9)
- One or more onsite infection control assessments were conducted in 130 (29%) of the 454 responses; 11 (65%) responses involving dental offices had onsite infection control assessment, followed by Assisted Living Facilities (ALFs) (5, 56%), and other outpatient settings (21, 48%)
- The public health programs that most commonly provided assistance with other HAI/AR responses were state HAI/AR programs (86%), local or regional public HDs (47%), state health care facility licensing (14%), and CDC's DHQP (14%).
- The most common primary organism reported for the other HAI/AR responses in which primary organism was identified, from highest to lowest frequency across all setting types are: *Streptococcus pyogenes* (40), *Legionella* spp. (37), *Acinetobacter* spp. (27), and *Staphylococcus aureus* (20) (Table 10).

Table 7: Overall Number of COVID-19, Other HAI/AR Response, Routine Cluster Follow-up Activities(N=20,709), August 1, 2019 – July 31, 2020

Other HAI/AR Responses	# Jurisdictions Contributing	Counts
Other HAI/AR Responses (Non-COVID, Non-AR Containment)	57	454
Routine Responses in Congregate Healthcare Settings*		
Gastrointestinal Illness	41	1,652
Respiratory Illness	43	4,050
Scabies	25	170
Other Routine Responses	23	391
COVID-19 Responses	57	14,259
Total		20,976

*Note: This aspect of reporting was optional; therefore, not all recipients provided data

Table 8: Distribution of Other HAI/AR Responses (N=454) by Event Type, August 1, 2019 – July 31, 2020

Event Type	Number of Events	Event Distribution (Number of Events/ Total Number of Responses)
Case, Cluster, or Outbreak Responses	343	76%
Serious Infection Control Breaches		
Reprocessing Breach	47	10%
Injection Safety Breach	36	8%
Other Infection Control Breaches	25	6%
Other	27	6%
Total (454)	478*	

*Note: The total number of events is greater than the number of responses, because for each response multiple event types can be selected. Table excludes COVID-19 responses and routine HAI consultations.

Table 9: Distribution of Other HAI/AR Responses (N=414) and Onsite Infection Control Assessments by Setting, August 1, 2019 – July 31, 2020

Table 9

Setting Type	Number of Responses	Number and % of Responses that Involved an Onsite Visit	Number and % of Responses that Involved At-least One Onsite Infection Control Assessment
Acute Care Hospital	193 (47%)	49 (25%)	46 (24%)
SNF	91 (22%)	37 (41%)	33 (36%)
Other Outpatient Setting	44 (11%)	23 (52%)	21 (48%)
vSNF	17 (4%)	8 (47%)	7 (41%)
Dental Office	17 (4%)	12 (71%)	11 (65%)
Other	14 (3%)	3 (21%)	3 (21%)
LTACH	12 (3%)	2 (17%)	2 (17%)
Assisted Living Facility	9 (2%)	5 (56%)	5 (56%)
Dialysis (Outpatient)	6 (1%)	1 (17%)	1 (17%)
Don't Know	3(<1%)	0 (0%)	0 (0%)
Inpatient Rehabilitation Facility	1 (<1%)	1 (100%)	1 (100%)

Note: There were total 454 other HAI/AR responses, of those 40 responses had multiple setting types involved. We restricted this table to the 414 responses to avoid double counting of setting types and the onsite infection control assessment. Table excludes COVID-19 responses and routine HAI consultations.

Table 10: Distribution of Primary Organisms for the Other HAI/AR Responses in Which a Primary Organism was Identified (N=352), August 1, 2019 – July 31, 2020

Primary Organism Identified	Frequency	Organism Distribution (Frequency of Organism/Total Number of Responses)
<i>Streptococcus pyogenes</i> (Group A strep)	40	11.4%
<i>Legionella</i> spp.	37	10.5%
<i>Acinetobacter</i> spp.	27	7.7%
<i>Staphylococcus aureus</i> (methicillin resistant)-MRSA	20	5.7%
<i>Clostridioides difficile</i>	18	5.1%
Non-Tuberculosis Mycobacterium (NTM)	17	4.8%
<i>Klebsiella</i> spp.	13	3.7%
<i>Salmonella</i> spp.	12	3.4%
<i>Pseudomonas</i> spp.	11	3.1%
<i>Listeria</i> spp.	10	2.8%

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Hepatitis B	8	2.3%
<i>Escherichia coli</i>	7	2.0%
Norovirus	7	2.0%
<i>Serratia</i> spp.	7	2.0%
<i>Enterobacter</i> spp.	6	1.7%
<i>Mucor</i> spp.	6	1.7%
<i>Staphylococcus</i> spp.	6	1.7%
Hepatitis A	5	1.4%
Hepatitis C	5	1.4%
<i>Mycobacterium</i> spp.	5	1.4%
<i>Aspergillus</i> spp.	4	1.1%
<i>Candida</i> spp.	4	1.1%
<i>Elizabethkingia</i> spp.	4	1.1%
<i>Enterococcus</i> spp.	4	1.1%
Influenza virus	4	1.1%
<i>Staphylococcus aureus</i> (methicillin susceptible)-MSSA	4	1.1%
Adenovirus	3	0.9%
Respiratory Syncytial virus	2	0.6%
<i>Streptococcus agalactiae</i> (Group B strep)	2	0.6%
<i>Achromobacter</i> spp.	1	0.3%
<i>Bacillus</i> spp.	1	0.3%
<i>Burkholderia</i> Spp.	1	0.3%
<i>Citrobacter freundii</i>	1	0.3%
Creutzfeldt-Jakob disease (CJD)	1	0.3%
<i>Clostridioides perfringens</i>	1	0.3%
Enterovirus spp.	1	0.3%
Human immunodeficiency virus (HIV)	1	0.3%
<i>Ralstonia</i> spp.	1	0.3%
<i>Stenotrophomonas</i> spp.	1	0.3%
Other	44	12.5%

Note: Table excludes COVID-19 responses and routine HAI consultations.

4. COVID-19 Outbreaks and Responses in Healthcare Settings

Rapid and structured response is critical to the successful containment of COVID-19 in healthcare settings. An understanding of this information can help CDC and HD quantify the extent of the issue and assess whether timely and efficient response is implemented. The term “Response” is used here to refer to a series of actions on the part of public health authorities to assess specific, acute HAI/AR risks and prevent further harm. COVID-19 response efforts may take the form of consultation regarding IPC activities, remote or onsite assessments, or other technical assistance (e.g., cohorting or testing strategies, return to work criteria, PPE optimization, mitigating staffing shortages), to facilities with COVID-19 infections among residents/patients or healthcare professionals (HCP). To be reported, remote assessments require the use of a structured form for data

collection, such as CDC’s Infection Control Assessment and Response (Tele-ICAR) tool or a similar state/locally developed tool.

Performance Measure (E25): Number of COVID-19 outbreaks and responses in healthcare settings

During 2020 (January – July 31, 2020):

- There were **18,308** “possible COVID-19 outbreaks”¹² defined as those that met either the CORHA/CSTE threshold or jurisdiction specific threshold for additional investigation.
- The majority of those possible outbreaks occurred in SNFs (9,435, 52%), followed by ALFs (4,703, 26%), and other setting types (3,373, 18%).
- HAI/AR Programs provided consultation in **14,259** (78%) of these possible COVID-19 outbreak facilities, conducted remote infection control assessments for 4,151 possible outbreaks, and onsite infection control assessments for 2,105 possible outbreaks.

Table 11: Number of Possible COVID-19 Outbreaks and Responses in Healthcare Settings, January 1, 2020 – July 31, 2020

Setting Type	Number of Possible COVID-19 Outbreaks by Setting Type	Possible Outbreaks with Onsite Infection Control Assessment	Possible Outbreaks with Remote Infection Control Assessment	Possible Outbreaks with Any Response Consultation
SNF	9,435 (52%)	1,553 (16%)	2,809 (30%)	7,775 (82%)
Assisted Living Facility	4,703 (26%)	258 (5%)	787 (17%)	3,446 (73%)
Other Setting	3,373 (18%)	215 (6%)	383 (13%)	2,420 (72%)
Acute Care Hospital	574 (3%)	51 (9%)	129 (22%)	431 (75%)
LTACH	111 (<1%)	14 (13%)	11 (10%)	94 (84%)
Outpatient Dialysis	75 (<1%)	10 (13%)	23 (31%)	67 (89%)
Critical Access Hospital	37 (<1%)	4 (11%)	9 (24%)	26 (70%)
Total	18,308 (100%)	2,105 (11%)	4,151 (23%)	14,250 (78%)

Example interpretation:

- 52% of the possible COVID-19 outbreaks were reported in SNF.
- 16% of the SNFs that had a possible COVID-19 outbreak received onsite infection control assessment, 30% received remote infection control assessment, and 82% received some form of response consultation.

¹² Possible COVID-19 outbreak defined as any event that met the [CORHA/CSTE threshold and outbreak definition for COVID-19 in healthcare settings](#) or jurisdiction-specific threshold (where CORHA/CSTE thresholds were not applied) for additional investigation. For facilities with multiple outbreaks, the criterion for defining a new possible outbreak was defined as a facility that meets the CSTE/CORHA threshold for investigation after >14 days with no new infections in HCP or residents.

II. PREVENTION AND INTERVENTION STRATEGIES

HAI/AR performance measures for the Core Area B — *Prevention and Intervention Strategies* — are intended to track progress toward 1) reductions in HAIs in all healthcare settings, 2) improved infection control capacity and practices in all healthcare settings, or 3) improved antibiotic use, including implementation of antibiotic stewardship core elements in healthcare settings. The measures are useful for understanding the quality of program implementation and can help both CDC and recipients to identify both opportunities to strengthen program delivery and to highlight successes.

5. Prevention-based Onsite Infection Control Assessments ([Non-COVID-19](#))

Onsite infection control assessments are a key prevention strategy when conducted proactively to mitigate issues in long length-of-stay, high-acuity facilities (e.g., vSNF, LTACHs) or others (e.g., dialysis facilities, outpatient facilities), based on identified needs (e.g., poor infection control practices), with the goal to improve infection control practices, to reduce transmission of selected MDROs, and to reduce HAIs. Understanding the extent to which recipients have conducted prevention-based infection control assessments in different settings, and why, gives a sense of which facilities are a priority in the jurisdiction. Beyond the onsite infection control assessment, recipients should also follow up after the assessment to support facilities in implementing recommendations.

Prevention-based infection control assessments are distinct from response-driven assessments which are focused on facilities where targeted AR threats or outbreaks have been identified. Instead of being reactive, prevention-based infection control assessments are performed proactively and focus on facility types that recipients are concerned may be at high risk for AR threats or HAI outbreaks. Assessments require direct observation using a structured form for data collection. Provision of onsite assistance to assess infection control issues may be done directly by the recipient or through the support of a LHD, academic partner, contractor, consultant, or other entity (designee) for which the recipient can assure the quality of services provided.

Performance Measure 4 (PM4): Number of prevention-based infection control assessments conducted by the HAI/AR program in target facilities.

During the 2019–20 Program Year: At the beginning of the program year, HAI/AR Programs planned to perform prevention-based infection control assessments at **1,467** facilities (Range: 0–641). These targets exclude prevention-based assessments for COVID-19 prevention.

- Infection control assessment were completed at 549 (37%) of these targeted facilities (Table 12).
- The majority of non-COVID-19 prevention-based infection control assessments were completed in SNFs (362 SNFs by 26 HDs), followed by ACHs (69 ACHs by 18 HDs), vSNFs (30 vSNFs by 17 HDs), and LTACHs (25 LTACHs by 22 HDs) (Figure 1)
- Of the 104 (90%) reports that designated the reason for targeting facilities for prevention-based infection control assessments, the most commonly cited reason was concerns about practices in a particular setting type (64) followed by a request from the facility (45), and NHSN data (12) (Table 13).
- Additionally, more than 5,000 facilities received prevention-based infection control assessments for COVID-19, which were not planned at the beginning of the program year. See next section for details.

Table 12: Overall Total Numbers of Prevention-based Infection Control Assessments, Including COVID-19 and Non-COVID-19 Assessments

Type of Prevention-based Infection Control Assessments	Reporting Period	Total Number
<u>Onsite</u> Infection Control Assessments (Non-COVID-19)	Aug 1, 2019 – July 31, 2020	549
<u>Onsite</u> Infection Control Assessments for COVID-19	Jan 1– July 31, 2020	2,154
<u>Remote</u> Infection Control Assessments for COVID-19	Jan 1 – July 31, 2020	3,535
Total		6,238

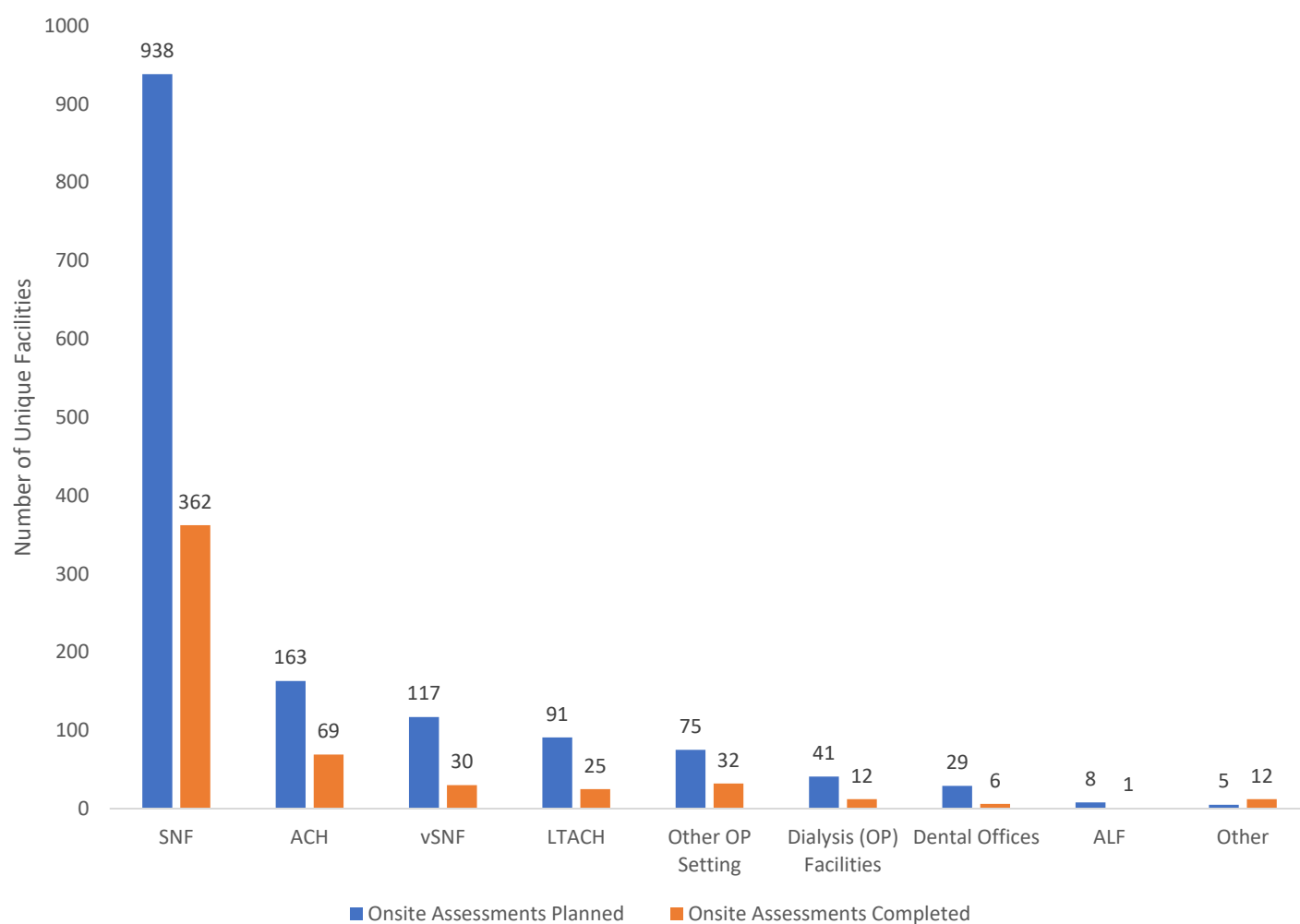
Figure 1: Prevention-based Onsite Infection Control Assessments (Non-COVID-19), August 1, 2019 – July 31, 2020

Table 13: Reasons for Targeting Facilities for Prevention-based Onsite Infection Control Assessments by Setting Type (Non-COVID, N=104), August 1, 2019 – July 31, 2020

Setting Type	Reason for Setting Type Target						Not answered
	Concern About Practices in a Setting Type, e.g. Previous Outbreak/ Investigation in this Setting	NHSN Data	Survey Agency Citation	Complaint	Voluntary (Facility Requested Infection Control Assessment)	Other	
Acute Care Hospital	4	6	1	0	9	4	2
Inpatient Rehabilitation Facilities	0	0	0	0	0	0	-
LTACH	16	2	0	0	2	6	4
SNF	15	2	3	2	15	8	2
vSNF	13	0	1	0	5	5	0
Assisted Living Facilities	0	0	1	0	1	0	0
Dialysis (OP) Facilities	5	2	0	0	2	4	1
Dental Offices	2	0	0	0	1	1	0
Other OP Setting	6	0	0	0	5	0	1
Other	3	0	0	0	5	2	1
Total	64	12	6	2	45	30	11

6. Prevention-based Healthcare Infection Control Assessments [for COVID-19](#)

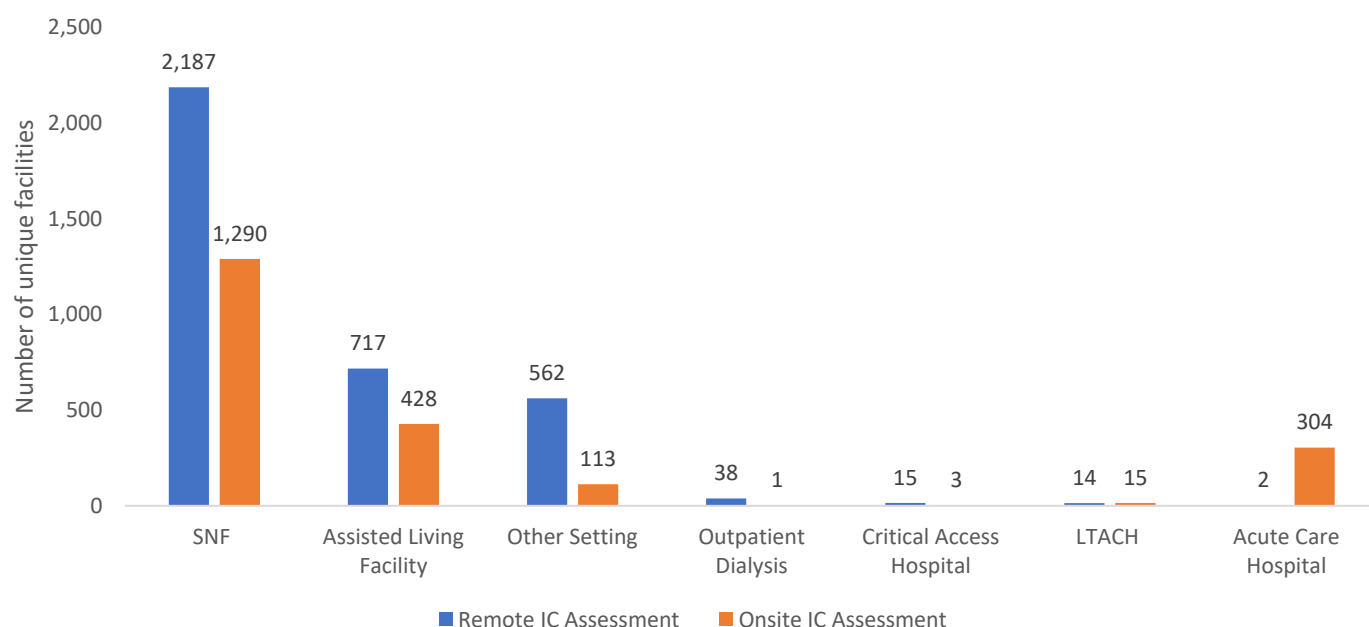
HAI/AR Programs play a critical role in responding to possible COVID-19 or other HAI/AR outbreaks. Understanding the types of prevention-based assessments conducted, by method, and setting type, allows CDC and HDs to track IPC issues and settings requiring the greatest public health support. Prevention-based infection control assessments are those that focus on facilities at high risk for COVID-19 outbreaks, with the goal of improving infection control practices to reduce transmission of COVID-19 or other HAI/AR infections. This type of infection control assessment is distinct from response-driven infection control assessments that are focused on facilities where COVID-19 outbreaks have been identified. Beyond conducting the infection control assessment, recipients (or their designee) should follow up after the assessment to support healthcare settings in implementing recommendations.

Performance Measure E24: Number of prevention-based healthcare infection control assessments conducted by the HD or designee for COVID-19, by method, setting, type, and entity that completed the assessment. This PM is restricted to the assessments conducted by staff funded through ELC (G1, CARES, Enhancing Detection, or Project Firstline).

During the January 1, 2020 –July 31, 2020 Program Year:

- Prevention-based onsite assessments were conducted in 2,154 unique facilities and remote assessments were conducted in 3,535 unique facilities
- Majority of the prevention-based assessments (remote and onsite) were conducted in SNFs (3,477, 61%), followed by ALFs (1,145, 20%) and other settings (675, 12%) (Figure 2)
 - In comparison, there was only one non-COVID prevention-based assessment reported in an ALF
- 23 of the 57 HDs did not report any onsite prevention-based assessments for COVID-19

Figure 2: Number of Facilities that Received Prevention-based Healthcare Infection Control (IC) Assessments for COVID-19 by Setting (N=5,689), January 1, 2020 – July 31, 2020



7. Antibiotic Stewardship in Healthcare Facilities

Antibiotic stewardship is the effort to measure and improve how antibiotics are prescribed by clinicians and used by patients. Improving antibiotic prescribing and use is critical to effectively treat infections, protect patients from harms caused by unnecessary antibiotic use, and combat antibiotic resistance. CDC’s Core Elements of Antibiotic Stewardship offer antibiotic stewards, clinicians, and facilities a set of key principles to guide efforts to improve antibiotic use and, therefore, advance patient safety and improve outcomes. This measure will help us understand the extent to which antibiotic stewardship core elements are being implemented in healthcare settings targeted by the recipient. CDC is tracking progress over time toward the eventual goal of all facilities implementing effective stewardship programs. Data will be used by CDC and recipients to identify opportunities for further engagement of facilities or facility types to improve antibiotic stewardship programs and track successful implementation of the core elements.

For the purpose of performance measure reporting, levels of facility engagement are defined as follows:

Level 1: HD or designee provided data-driven reporting of antibiotic use and specific performance-improvement feedback; AND provided targeted recommendations on antibiotic use and stewardship, including facilitating antibiotic stewardship collaboratives that include tracking of antibiotic use data (e.g., NHSN AU Option Group Function or other antibiotic use metrics).

Level 2: HD or designee either facilitated an antibiotic stewardship collaborative and/or one-on-one assistance/guidance focused on implementing stewardship interventions (without the tracking and reporting of antibiotic use), OR evaluated facility-level implementation of all Core Elements (7 hospital or nursing-home Core Elements or 4 outpatient Core Elements for outpatient settings through the NHSN Group Function for Annual Hospital Survey or via explicit documentation from facility) and provided 1:1 engagement or technical assistance for facilities lacking uptake of all Core Elements.

Level 3: HD or designee provided educational conferences, group calls, webinars, etc.

Note: In addition to reporting levels of engagement, HDs are asked to report on the use of IQVIA data for action in outpatient settings. IQVIA is a proprietary dataset from a third-party vendor that can be used to measure the number and rates of outpatient oral antibiotics dispensed in U.S. community pharmacies. HDs report whether IQVIA data on high-volume antibiotic prescribers were used to send a letter or notify providers that they prescribe more antibiotics than 90% of their peers within their specialty.

Performance Measure 5 (PM5): Status of implementation of CDC Core Elements of antibiotic stewardship in healthcare facilities

During the 2019–20 Program Year: A total of **3,541** unique facilities were engaged at Level 1 (1,458 facilities) or Level 2 (2,083 facilities) to facilitate implementation of antibiotic stewardship core elements

- Of the facilities engaged at Level 1 or 2:
 - 2,439 (69%) were outpatient (OP) facilities, 535 (15%) were SNFs, 548 (15%) were ACHs, and 19 (1%) were LTACHs (Figure 3)
 - 16 HDs engaged outpatient settings, 23 HDs engaged SNFs, 26 HDs focused on ACHs, and 7 HDs focused on engaging LTACHs for antibiotic stewardship

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- Overall, **614 (17%)** of the 3,541 facilities engaged at Level 1 or Level 2 met all of the CDC Core Elements of Antibiotic Stewardship
 - 350 (64%) of the ACHs, 10 (53%) of the LTACHs, 155 (29%) of the SNFs, and 99 (4%) of the outpatient facilities engaged at Level 1 or 2 had stewardship programs meeting all CDC core elements.
- The partners engaged by the HDs (Levels 1, 2, or 3) in facilitating implementation of CDC core elements varied by setting type (Table 16 and 17)
 - Among the 40 HDs that focused on antibiotic stewardship in ACHs, 29 (73%) HDs engaged healthcare systems, 21 (53%) HDs engaged academic partners, and 19 (48%) HDs engaged hospital associations,
 - Among the 35 HDs that focused on antibiotic stewardship in SNFs, 17 (49%) HDs engaged QIN/QIOs, and 16 (46%) HDs indicated engaging no partners
 - Among the 25 HDs that focused on antibiotic stewardship in outpatient settings, 14 (56%) HDs engaged academic partners, 12 (48%) HDs engaged healthcare systems, and 10 (40%) engaged state professional societies.
 - Among the 14 HDs that focused on antibiotic stewardship in LTACHs, 9 (64%) HDs engaged health systems, and 6 (43%) HDs engaged hospital associations
- Only 2 HDs reported using the IQVIA data (Tables 14 and 15)
- The predominant reason reported by the HDs for targeting stewardship in a particular setting type was facilities requested support, followed by increased incidence of MDROs in the specific setting type

Figure 3: CDC Core Elements Implemented Among Facilities Engaged for Antibiotic Stewardship by Setting Type, August 1, 2019 – July 31, 2020

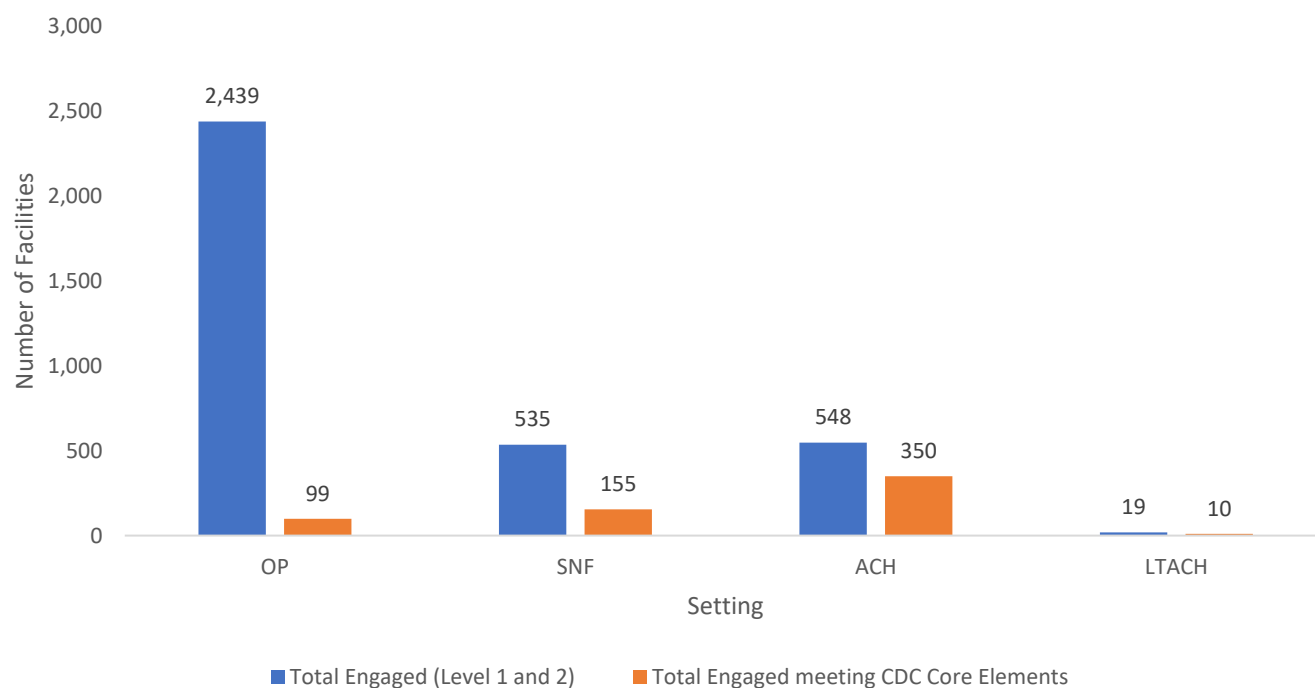


Table 14: Use of IQVIA Data to Identify High Volume Antibiotic Prescribers for Targeted Outreach (e.g., send a letter), August 1, 2019 – July 31, 2020

IQVIA Database Use	Number of Recipients	Percent
Yes	2	4%
No	51	93%
Don't Know	2	4%

Note: 38 HDs received the IQVIA data under the Antimicrobial Resistance (AMR) Challenge.

Table 15: Number and Type of Providers Targeted for Intervention from the Top 10% Prescribers Using the IQVIA Data for the Two Jurisdictions that Used IQVIA Data for Outreach, August 1, 2019 – July 31, 2020

Number of Providers Identified as High-Volume Antibiotic Prescribers (Top 10%) using IQVIA Data	HD 1	HD 2
Family Practice	247	393
Internal Medicine	431	237
Pediatric providers	248	125
Emergency medicine providers	131	111
Dental providers	639	494
Physician Assistants	209	292
Nurse Practitioners	450	427
Total	2,355	2,079

Table 16: Types of Partners Engaged in Facilitating Antibiotic Stewardship by Setting Type, August 1, 2019 – July 31, 2020 (Levels 1, 2, or 3), August 1, 2019 – July 31, 2020

Partners	Number of HDs Reporting on Partners Engaged in ACH	Number of HDs Reporting on Partners Engaged in LTACHs	Number of HDs Reporting on Partners Engaged in SNF	Number of HDs Reporting on Partners Engaged in OP
Healthcare Systems	29 (51%)	9 (16%)	10 (18%)	12 (21%)
Academic Partners	21 (37%)	5 (9%)	10 (18%)	14 (25%)
Hospital Association	19 (33%)	6 (11%)	3 (5%)	3 (5%)
QIN/QIOs	18 (32%)	3 (5%)	17 (30%)	9 (16%)
No Partners were Engaged	14 (25%)	33 (58%)	16 (28%)	22 (39%)
Other(s)	11 (19%)	3 (5%)	11 (19%)	9 (16%)
HIINS	9 (16%)	1 (2%)	1 (2%)	3 (5%)
Local Health Department	8 (14%)	1 (2%)	8 (14%)	5 (9%)
State Professional Societies	8 (14%)	3 (5%)	10 (18%)	10 (18%)
Regulatory/ Licensing Entities	7 (12%)	4 (7%)	10 (18%)	4 (7%)
Don't know	4 (7%)	3 (5%)	6 (11%)	3 (5%)
EIP	2 (4%)	0	2 (4%)	1 (2%)
Payers (Private or State Medicaid)	2 (4%)	0	1 (2%)	6 (11%)

Table 17: Triggers for Targeting Antibiotic Stewardship Engagement (at Level 1 and 2) by Setting Type, August 1, 2019 – July 31, 2020

Setting Type	ACH (N = 26)	LTACH (N = 7)	SNF (N = 23)	OP (N = 16)	Total (N = 57)
Facilities requested support	12	1	11	3	27
Other reason(s)	11	2	8	5	26
Increased incidence of MDROs in this setting type	6	4	9	2	21
NHSN Data Reports	12	2	2	2	18
Medicaid Data	1	0	0	4	15
Antibiotic prescribing data by county	3	0	2	6	11
Other data sources	1	0	5	5	11
IQVIA data on high-volume prescribers of top 10%	1	0	0	4	5
Medicare Data	0	0	0	2	2
All payers claim data	0	0	0	1	1
No reason	0	1	0	0	1
Don't Know	0	0	1	0	1
Not Targeted	1	0	0	0	1

8. Staff Capacity to Conduct Infection Control Assessments

An objective of HAI/AR Programs is to ensure sufficient workforce capacity to implement priority activities, including the number of state and local HD staff who can independently and capably perform infection control assessment in healthcare facilities, provide prevention and outbreak response recommendations to facilities, and follow-up with facilities to ensure gaps have been mitigated. Strengthening the infection prevention and control expertise among HD staff will positively influence a HD's ability to respond successfully to COVID-19 and other infectious diseases outbreaks. An understanding of this information can help identify areas for improvement or point to gaps in IPC workforce development at the state and local level.

Performance Measure E23: Number of HD staff who can independently perform healthcare infection control assessments at the state and local level

During (January 1, 2020 – July 31, 2020): HDs reported that 415 staff are independently perform healthcare infection control assessments

- Of the 415 staff, 116 (28%) have clinical training (nursing, medicine, etc.) and 299 (72%) have non-clinical background. (Figure 4)
- Among these staff, 92% can conduct remote assessments and 83% can perform onsite assessments
- Most of these staff work at state HDs (308, 74%), and 12% (49) staff work at LHD. A small number (16) of staff work at the Regional IPC team. (Figure 5)
- ELC is a major funding source for staff who are capable of independently performing infection control assessments. However, 35 jurisdictions reported having staff capable of doing IPC assessments that are funded by sources other than ELC. (Table 18 and 19)

Figure 4: Training Background of HD Staff Capable of Conducting Healthcare Infection Control Assessments as of July 31, 2020 (N=415)

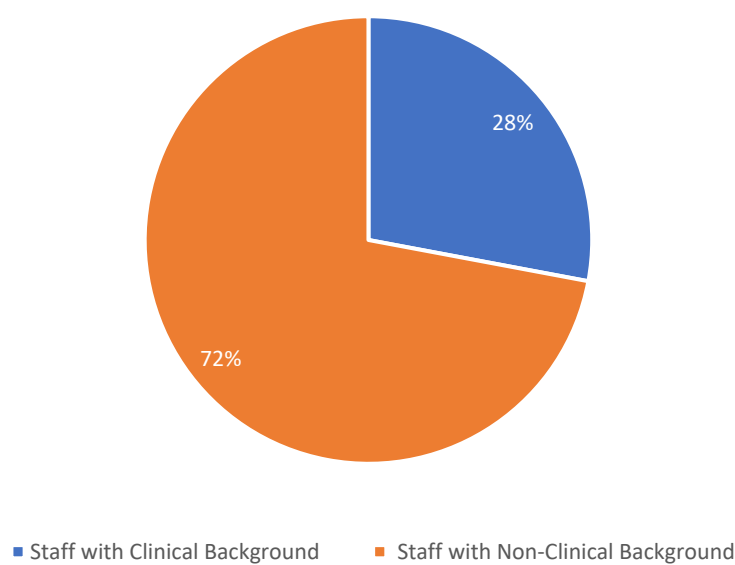


Figure 5: Distribution of Workplace for the HD Staff Capable of Conducting Healthcare Infection Control Assessments as of July 31, 2020 (N=415)

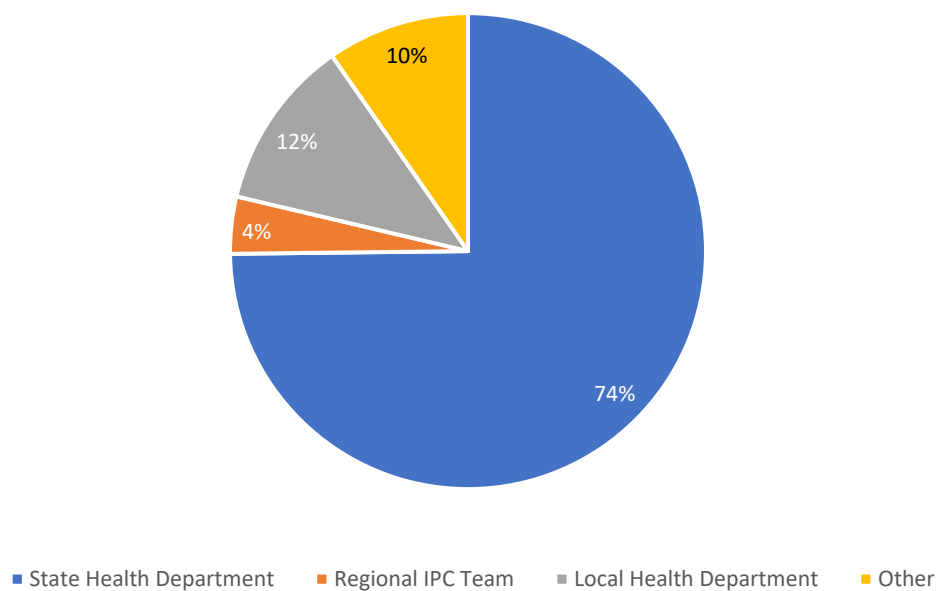


Table 18: Distribution of Funding Sources for HD Capable of Conducting Healthcare Infection Control Assessments as of July 31, 2020 (N=415)

Fully or Partially Funded by	Number of Staff Capable of Conducting IPC Assessments
G1	150
CARES	78
Enhancing Detection	52
Project Firstline	15
Other Funding (See Table 19 for details)	192

Note: The total of all the staff exceed the total number of staff here because an FTE can be funded by multiple funding mechanisms.

Table 19: Distribution of the Other Funding Sources for the HD Staff Capable of Conducting Healthcare Infection Control Assessments as of July 31, 2020 (N=190)

Funding Mechanism (Reported as open-ended text)	Number of Staff Funded through this Mechanism
State-funded	54
Public Health Emergency Preparedness (PHEP) Cooperative Agreement	21
Facility Regulation	15
Local Funding	15
ELC other than G1	13
Crisis CoAg	6
CDC Foundation	4
N/A	4
Non-ELC CARES	4
Emerging Infections Program (EIP)	3
CDC PHAP	2
Coronavirus Relief Fund	2
COVID Preparedness Grant	2
Quality Improvement Organization (QIO)	2
Tuberculosis Elimination and Laboratory Cooperative Agreement	2
National Guard	2
Cross Cutting	1
NACCHO	1
Overdose Data to Action (OD2A)	1
Viral Hepatitis Prevention and STI Prevention	1
Volunteers	1
No Response	34

III. COMMUNICATIONS, COORDINATION AND PARTNERSHIPS

HAI/AR performance measures for ELC Core Area C —*Communications, Coordination, and Partnerships* — are intended to track progress toward 1) improved information sharing and data-driven prevention or 2) enhanced coordination of prevention efforts in all healthcare settings.

9. Health Department HAI/AR Program Plans

Under the HAI/AR Program guidance, recipients are required to create a written plan for HAI/AR prevention activities and update this plan annually. Annual updates to the recipient’s HAI/AR plan are important to ensure that the plan remains relevant to newly identified or prioritized issues for the jurisdiction, based on ongoing analysis of data, response efforts, and prevention needs.

Performance Measure 6 (PM6): Status of annual update to the recipient’s HAI/AR plan

- **During the 2019–20 Program Year:** 8 of 57 recipients (14%) completed annual updates to their jurisdiction’s HAI/AR plan during between August 1, 2019 and July 31, 2020
- 33 recipients (58%) had updates to their HAI/AR underway but not yet completed
- 16 (28%) of recipients reported not having begun updates to their HAI/AR plan
 - The most commonly cited reason for not having completed updates of the HAI/AR plan was due to the COVID-19 response and shifting priorities

10. Health Department Healthcare Setting Inventories

Building upon work previously funded through the ELC Ebola supplement, recipients are expected to maintain and update as needed an inventory of all healthcare settings in the recipient's jurisdiction. This inventory should be used to guide outreach for containment, response, and prevention activities. It is also important for CDC to have access to this updated inventory, to provide context for the recipient's activities and measures, providing a denominator for engagement of select facilities for various activities.

Performance Measure 7 (PM7): Status of updates to inventory of healthcare settings in the jurisdiction

- **During the 2019–20 Program Year:** A total of 47 (82%) of jurisdictions updated facility inventory in one or more setting type
- SNFs, ACHs, and LTACHs inventories were the most commonly updated inventories, with approximately two thirds of recipients reporting an up-to-date inventory of these setting types

Table 20: Status of Healthcare Inventories by Setting, as of July 31, 2020

Setting Type	Number of HDs that Updated Inventory	Number of HDs with Inventory Updates in Progress
SNF	44	15
Acute Care Hospital	43	12
LTACH	43	11
Critical Access Hospital	37	10
Dialysis Facility	35	17
Assisted Living/Residential Care Home	34	18
Inpatient Rehabilitation Facility	32	13
CMS-Certified ASC	25	15
Intermediate Care Facility	21	11
Other	11	6

Conclusions

HAI and AR pathogens remain important public health issues nationwide. Information describing outbreaks, response investigations, and other prevention activities are shared with CDC in the form of HAI/AR Program performance measures. These data provide insight into pathogens that cause illnesses, the infection control practice breaches that threaten patient safety, the settings in which these occur, and the opportunities for strengthening response practices and prevention activities.

Measuring and documenting the extent to which HAI/AR Programs conducted response and prevention activities focusing on different pathogens and settings helps us understand and inform HAI/AR priorities within and across jurisdictions. During the 2019–2020 program year, the primary focus for HD was shifted toward COVID-19 prevention and response activities, primarily in nursing homes and other long-term care facilities. In response to the threat of introduction and rapid spread of SARS-CoV-2 infections among patients, residents, and staff in healthcare facilities, HAI/AR Programs expanded the number of staff capable of performing infection control assessments and performed more than 18,000 response- and prevention-based assessments or consultations to identify and mitigate risks.

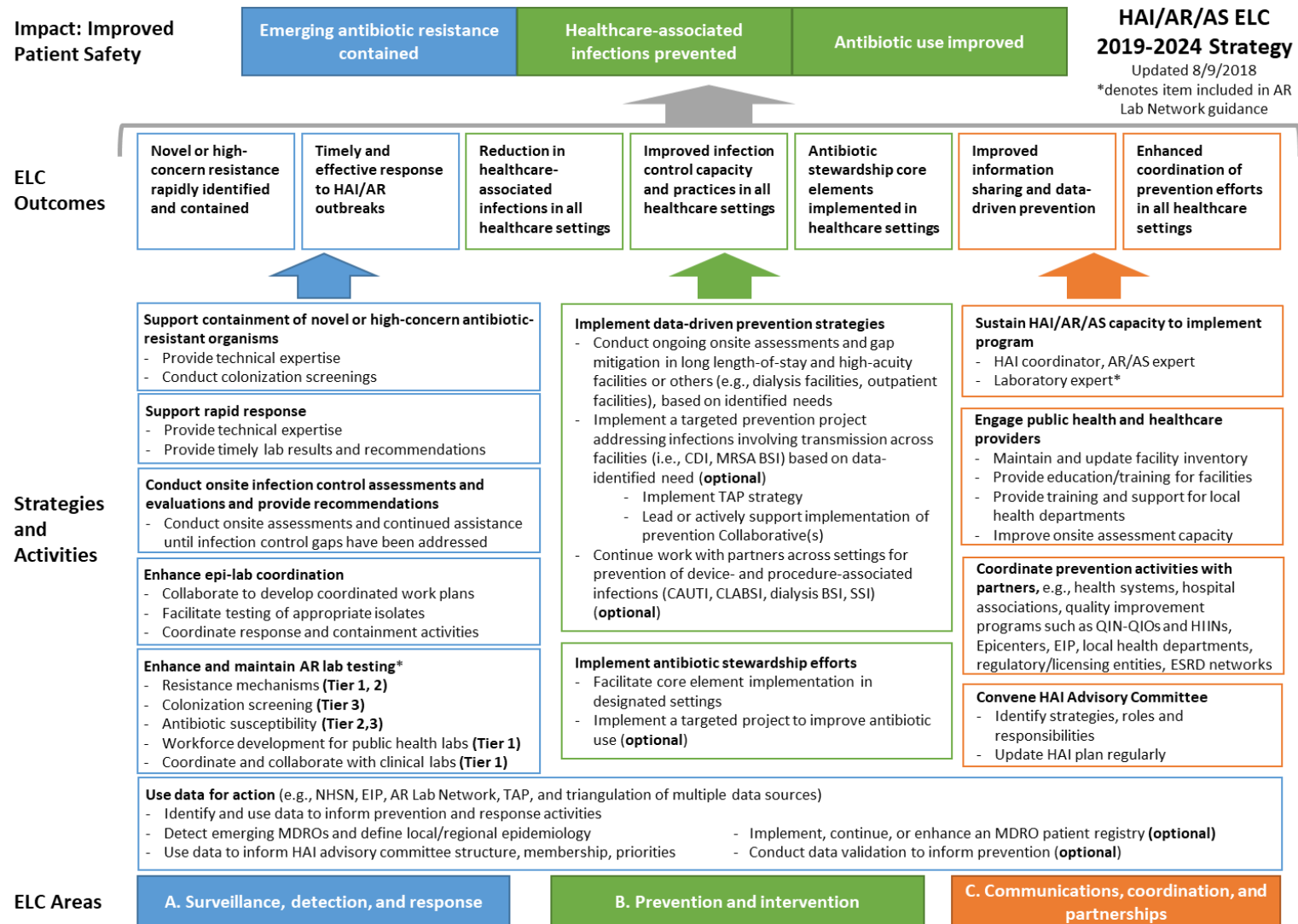
In addition to the surge of COVID-19 activities, HAI/AR Programs continued to respond to urgent HAI and AR threats, including nearly 4,000 AR responses and consultations and more than 450 other HAI/AR responses in healthcare facilities. While antibiotic stewardship activities were not implemented as planned due to COVID-19 response demands, HDs nevertheless reported having engaged partners and facilities on core elements of stewardship, primarily in the outpatient setting.

Continued efforts must be made to track and to analyze the causes of outbreaks and the implementation of response activities in healthcare facilities to inform targeted prevention efforts and identify areas for HAI/AR program improvement.

In summary, during the 2019–20 Program Year, HAI/AR Programs implemented a wide range of prevention and response activities, including rapidly adjusting programs to respond to the COVID-19 pandemic. The information presented here provides a snapshot of priority activities of HAI/AR Programs in addressing HAI and AR pathogens in healthcare settings. CDC will continue to monitor progress made by HAI/AR Programs in eliminating HAIs, including COVID-19, to provide a fuller picture of the Programs' contributions to protecting patients and healthcare personnel across healthcare delivery systems.

APPENDIX I

Figure 6: ELC HAI/AR Logic Model, 2019–2024 Strategy



Appendix II

Additional Detail on Calculation of AR Containment responses and AR consultations

For the purpose of performance measure reporting, the process of reporting AR containment response activities differed based on a HD's historical response volume. Specifically:

1. **Lower -volume HDs.** For HDs that reported 50 or fewer AR Containment responses to Tier 1, 2, or 3 organisms in the previous reporting period: Each AR containment response or consultation was individually reported (PM2 Part 1 Form).
2. **Higher -volume HDs.** For HDs that reported greater than 50 AR containment responses to Tier 1, 2 or 3 organisms in the previous reporting period: Each AR containment response that involved an onsite visit and/or screening was individually reported (PM2 Part 1 Form). Response activities that did not meet this criteria were reported in aggregate (PM2 Part 2 Form).

For analysis purposes: containment responses that included onsite infection control assessment and/or colonization screening were grouped together and referred to as "AR Containment responses." Those that involved remote assistance by the recipient without any onsite infection control assessment or colonization screening were grouped together and referred to as "AR Consultations".

Table 21: Health Department Classification Based on the Number of AR Responses in the Prior Reporting Period

Classification of HDs	Definition	The type of forms completed	Number of HDs
Higher volume HDs	Greater than 50 responses to tier 1, 2 or 3 in the reporting period Aug 2018–July 2019	Completed PM2 Part 1 for AR containment responses and Completed PM2 Part 2 for AR containment consultations	20
Lower volume HDs	Less than or equal to 50 responses to tier 1, 2 or 3 in the reporting period Aug 2018–July 2019	Completed PM2 Part 1 only (for both AR containment responses and consultations)	37

Table 22: Distribution of AR Containment Responses and Consultations by Reporting Form

	AR containment responses	AR consultations	Total
PM2 Part 1 Form	423	582	1,005
PM2 Part 2 Form	0	2,855	2,855
Total	423	3,437	3,860

Appendix III

List of Acronyms

ACH: Acute Care Hospital

AR: Antimicrobial Resistance

AS: Antibiotic Stewardship

ASC: Ambulatory Surgery Centers

AU: Antimicrobial Use

BSI: Bloodstream Infection

CARES Act: Coronavirus Aid, Relief, and Economic Security (CARES) Act

CDC: Centers for Disease Control and Prevention

CDI: *Clostridium Difficile*

CAUTI: Catheter-Associated Urinary Tract Infections

CLABSI: Central Line-Associated Bloodstream Infections

CMS: Centers for Medicare & Medicaid Services

CoAg: CDC Public Health Crisis Cooperative Agreement

CORHA: Council for Outbreak Response for HAIs (Healthcare Associated Infections) and AR (Antimicrobial Resistance)

CRAB: *Carbapenem-Resistant Acinetobacter baumannii*

CRE: *Carbapenem-Resistant Enterobacteriaceae*

CRPA: *Carbapenem-Resistant Pseudomonas Aeruginosa*

CSTE: Council of State and Territorial Epidemiologists

DDID: Deputy Director for Infectious Diseases

DHQP: Division of Healthcare Quality Promotion

EIP: Emerging Infection Program

ELC: Epidemiology & Laboratory Capacity

ESRD: End Stage Renal Disease

FTE: Full-Time Employee

HAI: Healthcare Associated Infection

HAI/AR: Healthcare-Associated Infections and Antibiotic Resistance

HCP: Healthcare Personnel

HD: Health Department

HIIN: Hospital Improvement Innovation Networks

KPC: *Klebsiella Pneumoniae Carbapenemase*

IMP: *Imipenemase metallo- β -lactamase*

IPC: Infection Prevention and Control

LDH: Local Health Department

LTACH: Long-Term Acute Care Hospital

MDRO: Multidrug-Resistant Organism

MRSA: *Methicillin-Resistant Staphylococcus Aureus*

NACCHO: National Association of County and City Health Officials

NCEZID: National Center for Emerging and Zoonotic Infectious Diseases

NDM: *New Delhi metallo- β -lactamase*

NHSN: National Healthcare Safety Network

NTM: Non-Tuberculosis Mycobacterium

OD2A: Overdose Data to Action

OP: Outpatient

OXA: *Oxacillinases*

PanNS: Pan-non-susceptible

PHEP: Public Health Emergency Preparedness

PMs: Performance Measures

PPE: Personal Protective Equipment

QIN/QIO: Quality Innovation Networks/Quality Improvement Organizations

SNF: Skilled Nursing Facility

SSI: Surgical Site Infection

TAP: Targeted Assessment for Prevention

VIM: *Verona integron metallo- β -lactamase*

vSNF: Ventilator-capable Skilled Nursing Facility