

National Antimicrobial Resistance Surveillance

Strategic Profile

2017-2020

APRIL 2017

National Antimicrobial Resistance Surveillance

Strategic Profile: 2017 – 2020

INTRODUCTION

Surveillance for antimicrobial resistance provides vital data on the emergence and spread of resistant pathogens. Early detection of resistance at the local and state levels is important for studying the factors responsible for emergence as well as preventing spread. A standardized and comprehensive national system is needed to ensure patient and consumer safety.

At present, surveillance for antimicrobial resistance is inadequate to characterize the rapidly evolving problem of resistance. New solutions are needed that build upon the strengths of the existing infrastructure and provide more timely, comprehensive, and broadly applicable data about current and emerging antimicrobial resistance problems.

This Strategic Profile summarizes the National Antimicrobial Resistance Surveillance Strategic Plan for the period 2017 through 2020. It includes the following major elements:

- A statement of vision for national antimicrobial resistance surveillance
- The National Antimicrobial Resistance Surveillance Strategic Map: 2017-2020
- An explanation of the key elements of the Strategic Map
- Implementation priorities for the first 12 months of the three-year strategy period

VISION FOR NATIONAL ANTIMICROBIAL RESISTANCE SURVEILLANCE

Vision articulates the desired long-term outcome or end-state that national antimicrobial resistance surveillance will produce. The vision for national antimicrobial resistance surveillance is as follows:

Comprehensive national public health antimicrobial resistance surveillance, coordinated at the federal, state and local levels, ensures that surveillance data play a key role in preventing and reducing resistance. This well-resourced system:

- Integrates and expands multiple related and foundational surveillance systems including those for disease reporting/notification, isolate submission, and facility-based reporting using the National Healthcare Safety Network (NHSN)
- Uses automated and standardized technologies to generate accurate, timely, accessible, and useful data for developing and implementing institutional interventions
- Reflects role clarity and communication across the public health and clinical sectors to assure optimal efficacy
- Ensures that data collection, reporting, and analytical requirements draw on existing data where possible and avoid undue burden on stakeholders
- Builds in flexibility so that the system can respond to existing and emerging pathogens globally, including allowing for data comparison with other countries

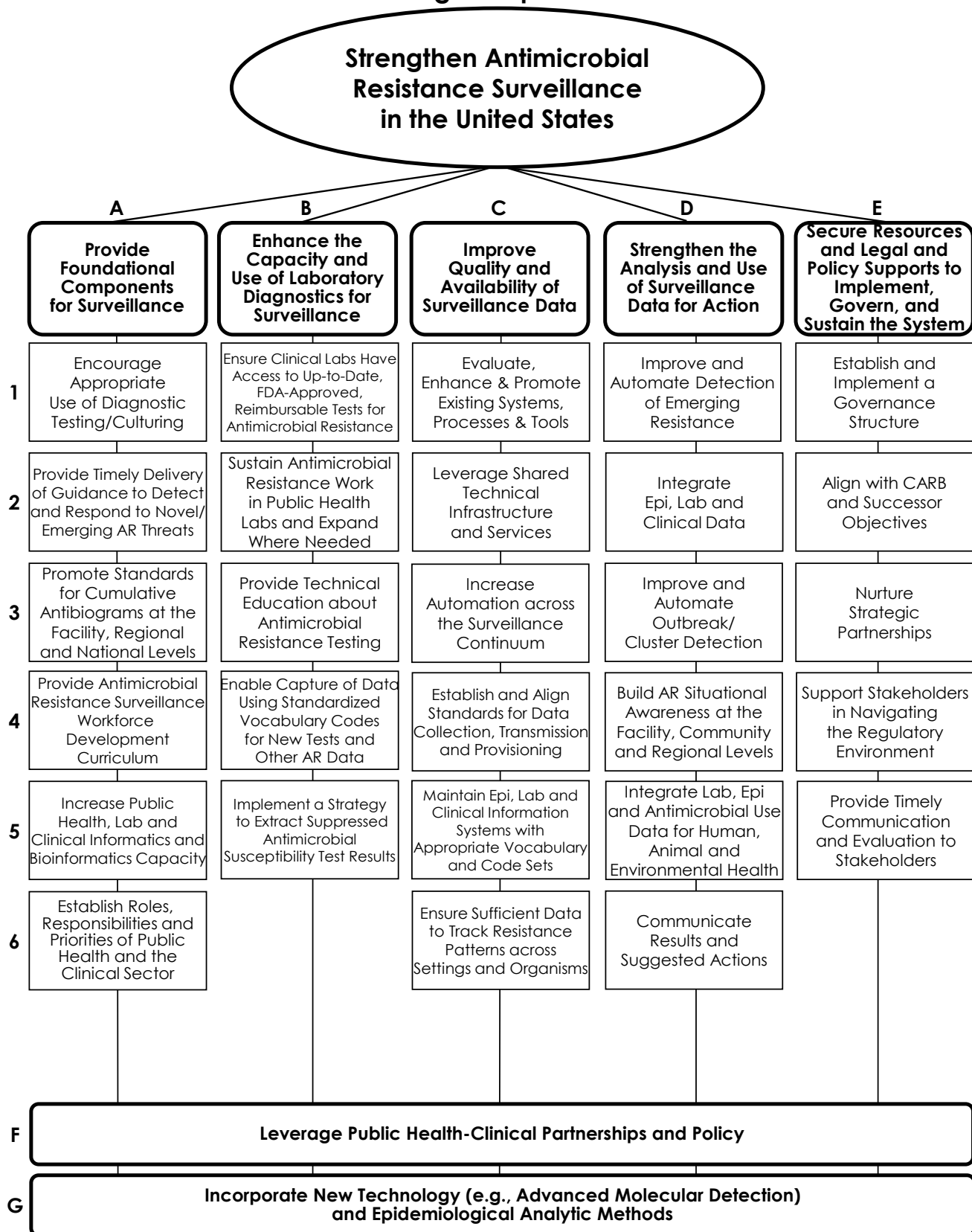
THE NATIONAL ANTIMICROBIAL RESISTANCE SURVEILLANCE STRATEGIC MAP

The Strategic Map depicted on the next page summarizes the strategy for national antimicrobial resistance surveillance from 2017 through 2020. A Strategic Map is a one-page visual display that succinctly articulates the focus of efforts to improve national antimicrobial resistance surveillance during the next three years. It includes the following elements.

- The **central challenge**, depicted as an oval at the top of the strategic map, describes the focus of the national antimicrobial resistance surveillance strategy. It says what needs to be done in the next three years to advance the vision stated above. All efforts to implement the Strategic Map will focus on achieving the central challenge.
- The national antimicrobial resistance surveillance **strategic priorities**, depicted in bold under the central challenge, outline the necessary actions to meet that challenge.
- At the bottom of the strategic map there are two **cross-cutting strategic priorities**. In strategic map logic, cross-cutting strategic priorities:
 - Are placed at the bottom of the strategic map to show that they are foundational to the strategy
 - Span the map from left to right to demonstrate that efforts to achieve the cross-cutting priorities will be embedded in the efforts to implement all the other strategic priorities on the map
 - Must be achieved to accomplish the other strategic priorities
- The national antimicrobial resistance surveillance **strategic objectives**, depicted in boxes under each strategic priority, describe the key actions necessary to achieve each strategic priority.

The strategic map on the following page will guide national antimicrobial resistance surveillance for the next three years.

National Antimicrobial Resistance Surveillance Strategic Map: 2017-2020



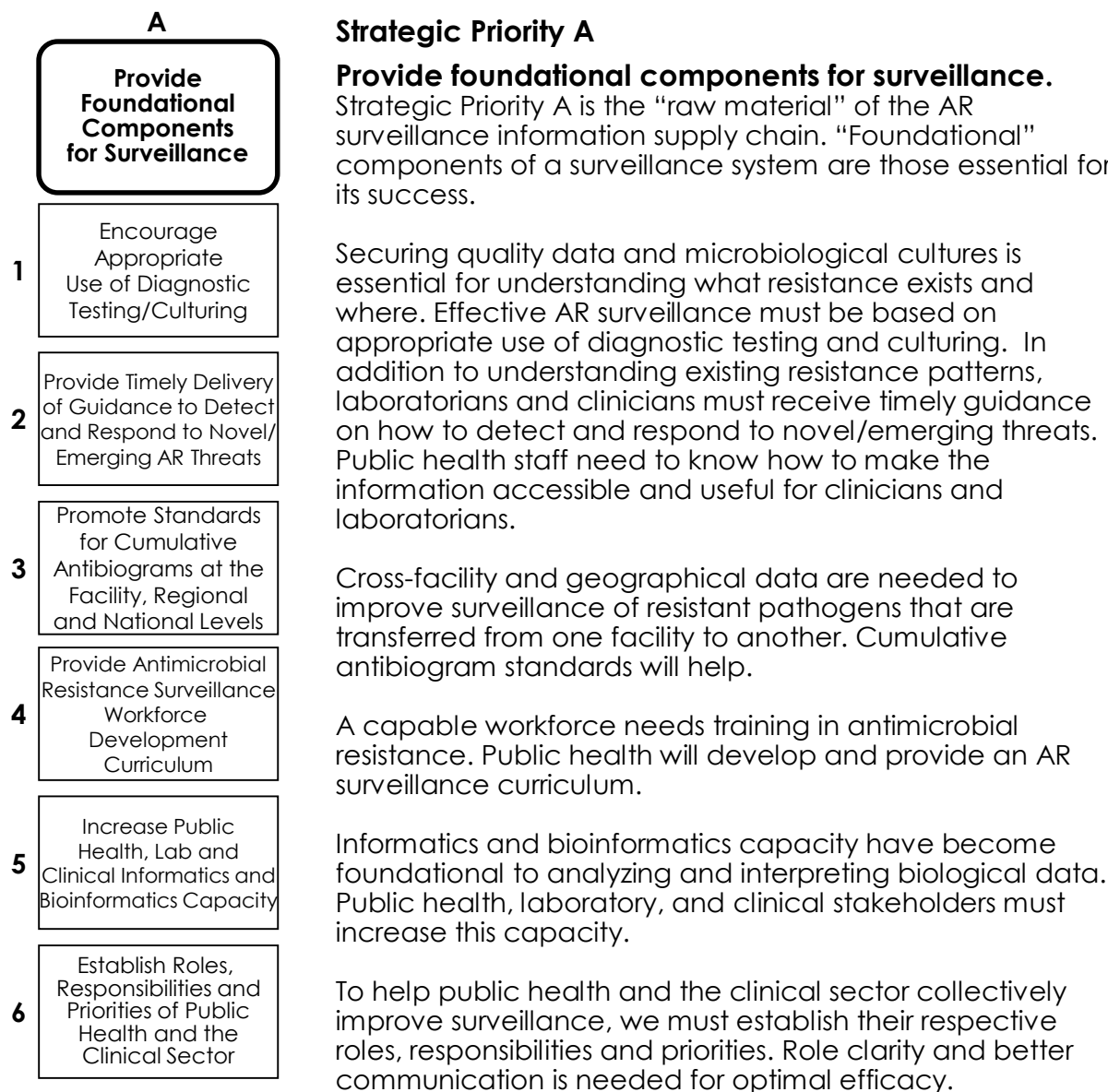
EXPLANATION OF THE STRATEGIC MAP

Central Challenge

The central challenge for national antimicrobial resistance (AR) surveillance over the next three years is to strengthen antimicrobial resistance surveillance in the United States. Current AR surveillance has significant gaps that must be addressed. This strategy focuses specifically on surveillance, and not on other aspects of antimicrobial resistance in public health and clinical systems, such as prevention programs. "In the United States" reflects the desire to strengthen AR surveillance at the federal, state and local levels.

Strategic Priorities

The central challenge is supported by five strategic priorities, labeled A thru E on the Strategic Map. The pages that follow will provide a more detailed explanation of each strategic priority and the strategic objectives that support each priority.



B

Enhance the Capacity and Use of Laboratory Diagnostics for Surveillance

1

Ensure Clinical Labs Have Access to Up-to-Date, FDA-Approved, Reimbursable Tests for Antimicrobial Resistance

2

Sustain Antimicrobial Resistance Work in Public Health Labs and Expand Where Needed

3

Provide Technical Education about Antimicrobial Resistance Testing

4

Enable Capture of Data Using Standardized Vocabulary Codes for New Tests and Other AR Data

5

Implement a Strategy to Extract Suppressed Antimicrobial Susceptibility Test Results

Strategic Priority B

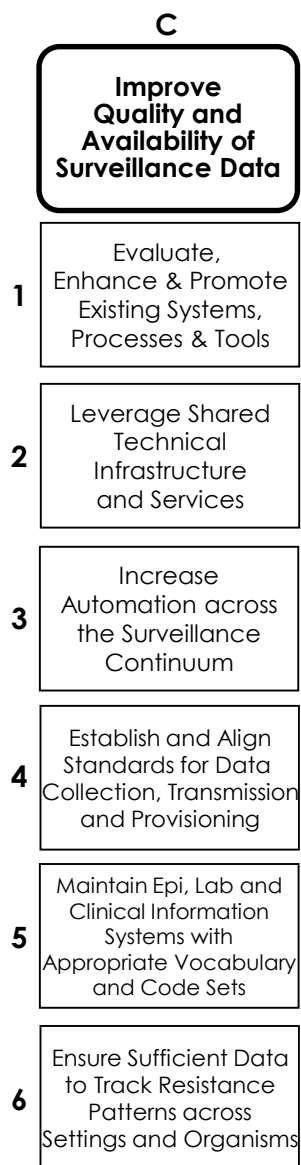
Enhance the capacity and use of laboratory diagnostics for surveillance.

Laboratories are an essential component of the AR surveillance information supply chain. Several aspects of their processes and diagnostics need to be enhanced. These include data collection; isolate preservation; testing capacity, including addressing the implications of the increased use of culture independent diagnostic testing (CIDT); and anticipating and adapting to changes in resistance surveillance technologies.

Clinical laboratories must have access to up-to-date, FDA-approved tests for AR resistance and to have the resources they need to acquire and perform these tests. This is particularly important as the science continues to advance. Where there are gaps in clinical lab capacity, public health laboratories must be able to fill those gaps. To enhance capacity and use of laboratory diagnostics for surveillance, laboratories must receive technical education from public health about AR testing.

Standardizing language – specifically vocabulary codes – is essential for getting a broad look at the incidence of resistance and other critical measures. It is important to ensure that strategies are in place to assign vocabulary codes as new tests are released.

Suppression of AR susceptibility tests may result in inaccurate conclusions about the landscape of antimicrobial resistance. We must implement a strategy to extract these suppressed results to have a more complete picture of antimicrobial resistance.



Strategic Priority C

Improve quality and availability of surveillance data.

A significant emphasis of Strategic Priority C is shared technical infrastructures that will allow for improved quality and availability of surveillance data. There will not be one surveillance “system,” but rather better operability between existing systems. The “system” must be automated and standardized to optimize its effectiveness and efficiency.

Existing systems, processes and tools must be more interoperable and integrated. The strategy is not to build a new system; rather, to enable shared infrastructure and use existing data streams in a more coordinated fashion.

Automation and standardization across the surveillance continuum are critical components of successful AR surveillance, and will allow generation of high quality, accessible data to plan and implement interventions.

As with enabling capture of data in laboratory settings, standardizing language – specifically vocabulary and code sets – is essential for improving quality and availability of surveillance data. This is true across information systems in epidemiological, lab, and clinical settings.

It is insufficient to have a discrete facility-level understanding of resistance patterns. We must ensure we have sufficient data to be able to track resistance patterns across settings and organisms.

D

Strengthen the Analysis and Use of Surveillance Data for Action

1

Improve and Automate Detection of Emerging Resistance

2

Integrate Epi, Lab and Clinical Data

3

Improve and Automate Outbreak/Cluster Detection

4

Build AR Situational Awareness at the Facility, Community and Regional Levels

5

Integrate Lab, Epi and Antimicrobial Use Data for Human, Animal and Environmental Health

6

Communicate Results and Suggested Actions

Strategic Priority D

Strengthen the analysis and use of surveillance data for action.

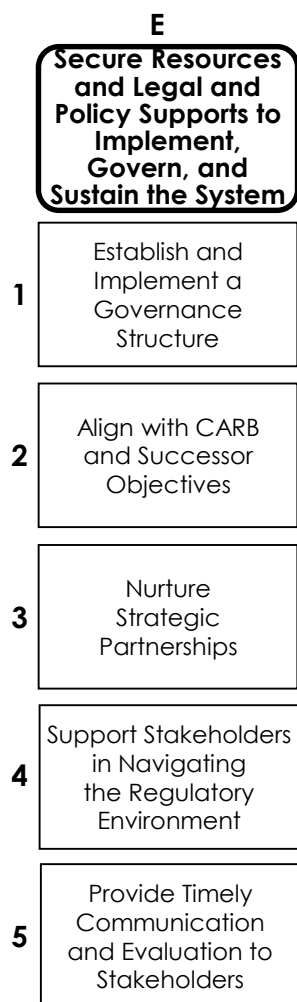
It is essential that AR surveillance data drive action. Strategic Priority D provides the framework in which public health, clinical medicine, laboratories and other stakeholders analyze the data and use it to set priorities, initiate action, and evaluate impact.

Automation is essential for driving stronger analysis and use of surveillance data, both to detect emerging resistance patterns and improve outbreak/cluster detection. Integration of data across epidemiological, laboratory, and clinical settings is necessary for a complete and accurate picture of AR resistance.

As AR resistance increases and new pathogens emerge, increased AR situational awareness is needed at the facility, community and regional levels. This awareness will improve coordinated detection, reporting and response across these levels.

Using a "One Health" approach – integrating laboratory, epidemiological and antimicrobial use data from human, animal and environmental health – is important to the overall success of the strategy.

Public health can help translate AR surveillance data into action by communicating results and suggested actions to a range of stakeholders.



Strategic Priority E

Secure resources and legal and policy supports to implement, govern, and sustain the system.

Establishing a strategy for antimicrobial resistance surveillance has been undertaken by a Taskforce empaneled by CSTE and CDC in response to CSTE Position Statement 13-SI-01. Strategic Priority E is necessary to ensure the work of strengthening antimicrobial resistance surveillance in the United States transcends the life of this temporary Taskforce.

A new governance structure is needed to replace the current limited-duration Taskforce to oversee and guide implementation of this AR surveillance strategy. The work of this Taskforce should be aligned with CDC's antibiotic resistance solutions initiative, CARB (Combating Antibiotic-Resistant Bacteria) and other objectives that may succeed it.

Resources and legal and policy supports will come from strategic partnerships fostered by many organizations participating on the Task Force, not just CSTE and CDC. The governance structure that is established will emphasize nurturing these partnerships. Needed resources include human, financial, and system resources. Partnering includes supporting stakeholders in the navigation of the regulatory environment.

Timely communication and evaluation of the progress of this work will support the sustainability of the system. It includes the marketing and branding of AR surveillance efforts.

CROSS-CUTTING STRATEGIC PRIORITY F

F

Leverage Public Health-Clinical Partnerships and Policy

Cross-cutting Strategic Priority F is foundational to the efforts to strengthen antimicrobial resistance surveillance in the United States.

CROSS-CUTTING STRATEGIC PRIORITY G

G

**Incorporate New Technology (e.g., Advanced Molecular Detection)
and Epidemiological Analytic Methods**

Cross-cutting Strategic Priority G includes the integration of new technology with existing data and tools. It includes but is not limited to Advanced Molecular Detection.

12-MONTH IMPLEMENTATION PRIORITIES

The following have been identified as implementation priorities for the first 12 months of implementation of the National Antimicrobial Resistance Surveillance Strategic Map.

Governance Structure

- Strategic Objective E-1: Establish and implement a governance structure.
- Strategic Objective A-6: Establish roles, responsibilities and priorities of public health and the clinical sector.

Lab Data to Public Health

- Strategic Objective B-4: Enable capture of data using standardized vocabulary codes for new tests and other antimicrobial resistance data.
- Strategic Objective B-5: Implement a strategy to extract suppressed antimicrobial susceptibility test results.
- Strategic Objective C-4: Establish and align standards for data collection, transmission and provisioning.
- Strategic Objective A-5: Increase public health, lab and clinical informatics and bioinformatics capacity.

Public Health Informatics Tools

- Strategic Objective A-5: Increase public health, lab and clinical informatics and bioinformatics capacity.
- Strategic Objective C-1: Evaluate, enhance and promote existing systems, processes and tools.
- Strategic Objective D-2: Integrate epi, lab and clinical data.
- Strategic Objective C-2: Leverage shared technical infrastructure and services.