2025

GLOBAL ANTIMICROBIAL RESISTANCE LABORATORY AND RESPONSE NETWORK

PERFORMANCE MEASUREMENT TOOL

ANTIMICROBIAL RESISTANCE STRATEGY AND COORDINATION UNIT

Contents

INTRODUCTION

FORM APPROVED
OMB CONTROL NUMBER: 0920-1282
EXPIRATION DATE: 06/30/2026

Thank you for completing the Global Antimicrobial Resistance (AR) Laboratory and Response Network (Global AR Lab & Response Network) Performance Measurement (PM) tool. This tool is intended to establish and collect standardized process and outcome metrics for recipients implementing Global AR Lab & Response Network projects. Recipients will be asked to complete this tool annually, in addition to the required Cooperative Agreement annual performance and progress reporting.

Please complete the tool using information that will be included in your organization's Year 3 performance narrative submission. Please answer as many questions as possible.

If you need any assistance, please contact **GARLRN@cdc.gov**.

****Please complete the following forms based on project activities implemented during budget period 3 (BP3).

FORM 1: RECIPIENT INFORMATION

- *This form is to be completed at recipient level. Please complete based on project activities during the current budget period BP4. If any recipients are implementing multiple projects, they will be asked to kindly complete Sections 1-3 of this form for each additional Strategy 2-5 projects.*
- *For any questions where recipient is not aware or unsure of response, please enter 'N/A' or 'Unknown' where applicable*

Name of Recipient Organization:

Recipient HQ location:

Please select the the option that best describes this organization (select all that apply):

- Non-governmental Organization (NGO)
- Government Organization
- Academic Institution
- Other (Please specify):

Funded Strategy(s): (Select all that apply)

- Strategy 2: Assess Antimicrobial Resistance in Enteric Pathogens
- Strategy 3: Assess Antimicrobial Resistance in Fungal Pathogens
- Strategy 4: Assess Antimicrobial Resistance in Invasive Bacterial and Respiratory Pathogens
- Strategy 5: Assess Antimicrobial Resistance in N. gonorrhoeae

Please select the pathogen(s) of interest for this project: (*select all that apply)*

- Carbapenem-resistant Acinetobacter
- Candida auris
- Clostridioides difficile
- Carbapenem-resistant Enterobacterales
- Drug-resistant Neisseria gonorrhoeae
- Drug-resistant Campylobacter
- Drug-resistant Candida
- ESBL-producing Enterobacteriaceae
- Haemophilus influenzae
- Vancomycin-resistant Enterococci
- Multidrug-resistant Pseudomonas aeruginosa
- Drug-resistant nontyphoidal Salmonella
- Drug-resistant Salmonella serotype Typhi
- Drug-resistant Shigella
- Methicillin-resistant Staphylococcus aureus
- Neisseria meningitidis
- Drug-resistant Streptococcus pneumoniae
- Drug-resistant Tuberculosis
- Erythromycin-resistant group A Streptococcus
- Clindamycin-resistant group B Streptococcus
- Azole-resistant Aspergillus fumigatus
- Drug-resistant Bordetella pertussis
- Other (please specify as many as needed):

SECTION 1: PROJECT IMPLEMENTATION

Please answer the following questions about this organization's experiences with project implementation[1]. Please use information that will be included in this organization's Year 3 performance narrative submission.

PROJECT IMPLEMENTATION			
Q ID	**Question**	**Answer options**	**Notes**
1.	**How many countries is this project being implemented in during BP4?**	Integer	
1.a.	Please select the countries in which this project was implemented during BP3. *(select all that apply)*	Check boxes for all CK 2104 Strategies 2-5 countries	
1.i.	**What is the number of sites** (laboratories, hospitals, healthcare facilities, etc.) **that were supported as part of the project? Please answer for each country.**	Integer	Follow up question for each country selected in 1.a.
1.ii.	**How many sites received direct material support** (i.e., lab reagents/diagnostics, other lab equipment, IT material, printed SOPs, etc.) **from this organization during this budget period as part of the project? Please answer for each country.**	Integer	Follow up question for each country selected in 1.a.
2.	**Is this project contributing to achieving the goals of a country's national action plan (NAP) on antimicrobial resistance?**	a) Yes, in all countries where project is implemented. (→ 2.a/b.) b) Yes, in some countries (→ 2.a/b.) c) No (→ 2.c.) d) Don't Know e) Does not apply/No NAP has been developed in any target country(s)	
	2.a./b.	**If yes, please list all countries and describe supporting**	

[1] **Implementation:** The execution or practice of a plan, a method, or any design, idea, model, specification, standard or policy for doing something. As such, implementation is the action that must follow any preliminary thinking for something to happen.

PROJECT IMPLEMENTATION			
Q ID	**Question**	**Answer options**	**Notes**
		activities of NAP (Open-ended) *List as follows:* *1. [Country A Name], [supporting activities of NAP];* *2. [Country B Name], [supporting activities of NAP];* *3. [Country C Name], [supporting activities of NAP]; etc*	
	2.c.	**If no, please list barriers to participation and/or support of the NAP** (Open-ended)	
3.	**List any major product(s)** (e.g., SOPs, job aids, manuscripts, posters, trainings, etc.) **developed within this budget period**. *If none, enter N/A*	Open ended	
4.	**Have any CDC Subject Matter Experts (SMEs) reviewed[2] the major products listed in question #5?**	a) Yes b) No (→ 4.b.) c) Don't Know d) Does not apply	
	4.b.	If no, please explain (Open ended)	
5.	**What strategies or activities has [pilot_recipname] implemented to address sustainability of the efforts and progress made with this project beyond the current budget period?**	Open ended	
	Please use this space to include any additional information related to implementation of this project.	Open ended	

[2] **Reviewed:** have any SMEs looked over and provided feedback or help on major products developed through this project? This question aims to understand collaborative between CDC SMEs and recipients

SECTION 2: LABORATORY ACTIVITIES

Please answer the following questions based on this organization's current laboratory enhancement activities for this Global AR Lab & Response Network project. Please use information that will be included in this organization's Year 3 performance narrative submission and please be as thorough as possible.

LABORATORY ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
1.	**Is there a national or central laboratory[3] which performs external quality assurance (EQA) to subnational labs for this project?**	a) Yes (→ 1.a.) b) No c) Don't know d) Doesn't apply	
	1.a. If yes, please:	i. List the number of labs that External Quality Assessment (EQA) was provided to, by country (Open ended)	
		ii. Describe the EQA (pathogens included, number of isolates or samples submitted, and frequency), by country. (Open ended)	
2.-6. During the current budget period, has this organization provided training or support to any laboratories in the following areas? (Yes/No) → If yes, section will expand with follow up questions			
2.	**CULTURING**	**a) What is the total number of labs where training or other activities for performing culturing were implemented.** (Integer - *Enter 999 if unknown)*	
3.	**PHENOTYPIC TESTING**	**a) What is the total number of labs where training or other activities for performing phenotypic testing were implemented.** (Integer - *Enter 999 if unknown)*	
4.	**GENOTYPIC TESTING**	**a) What is the total number of labs where training or other activities for performing genotypic testing were implemented.** (Integer - *Enter 999 if unknown*)	
5.	**ANTIMICROBIAL SUSCEPTIBILITY TESTING (AST), INCLUDING ANTIFUNGAL**	**a) What is the total number of labs where training or other activities for performing antimicrobial susceptibility testing**	

[3] **National or central:** quality assurance performed by national or central level government laboratory(s)

LABORATORY ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
	SUSCEPTIBILITY TESTING (AFST)	**(AST) were implemented?** (Integer - *Enter 999 if unknown*)	
6.	**WHOLE GENOME SEQUENCING (WGS)**	**a)** What is the total number of labs at which **training or other activities for performing whole genome sequencing (WGS) were implemented?** (Integer - *Enter 999 if unknown*)	
	Please use this space to include any additional information related to this organization's laboratory activities.	Open ended	

SECTION 3: WORKFORCE DEVELOPMENT ACTIVITIES

The following questions cover current education and training activities for different personnel targeted by this Global AR Lab & Response Network project. Do not answer questions based on future efforts, only established or current opportunities during budget period 3.

WORKFORCE DEVELOPMENT ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
Personnel Types	**Please select the type of personnel that received training from this organization** (can be in collaboration with partners): *(select all that apply)*	a) Laboratory b) Epidemiologist/Data Manager c) Healthcare Worker d) Field-based personnel (community interviewer) e) MOH/NPHL leadership f) Other (please specify): _____ g) Trainings that were performed did not document types of personnel in attendance (please provide disaggregated number of personnel) h) No personnel received training during this budget period (→ end of form)	
1.-5. For each personnel type selected above, please answer the following:			
1.	**How many CDC-supported[4] education and training opportunities have targeted [**insert personnel type**] personnel?**	(Open ended)	
2.	**Are there any other partnerships (e.g., universities, hospitals, etc.) that provide mentorship for [**insert personnel type**] personnel targeted by this project?**	a) Yes (→ 2.a.) b) No c) Don't Know	
	2.a.	If yes, please list these partnerships. (Open ended)	
3.	**How many [**insert personnel type**] personnel received training?**	(Open ended)	
4.	**Has a training curriculum been**	a) Yes (→ 4.a.)	

[4] **CDC-supported:** any training activities or opportunities related to the implementation of the Global AR Lab and Response Network where CDC provided financial or technical support.

WORKFORCE DEVELOPMENT ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
	established for training [insert personnel type**] personnel?**	b) No	
	4.a. If yes,	i. **Does the curriculum leverage a Train-the-Trainer model?** (Yes/No)	
		ii. **What entity is responsible for facilitating the curriculum**? (Open ended)	
		iii. W**hat assessments were conducted to ensure trainings addressed knowledge gaps?** (Open ended)	
	Please use this space to include any additional information about this organization's workforce development activities related to this project.		

----------END OF FORM 1 ----------

FORM 2: PROJECT IMPLEMENTATION AND REFERRAL NETWORK/SURVEILLANCE ACTIVITIES

The following questions are related to project implementation with partners as well as referral network and surveillance practices at EACH hospital, health care facility (HCF) and/or laboratory that is participating in [*name of organization* autofill]'s Global AR Lab & Response Network project.

Please complete **FORM 2 for EACH partner, HCF/hospital, anor laboratory**. Recipients with projects in multiple countries or engaged with multiple partners or HCFS/hospitals/laboratories will be asked to specify country and partner/facility name on each form.

Partner or Laboratory Site Information

1. **Partner Name*:**

   * *We are defining the term "partners" broadly to include partners that this organization regularly collaborates with or engages as part of the activities for this project. This can include national and sub-national level government ministries; individual healthcare facilities, hospitals and/or individual laboratories; academic partners; other non-governmental organizations (NGOs); etc.).*

   Examples: Country X MoH; Local hospital or HCF; Private laboratory; etc.

   Is this partner a laboratory or healthcare facility with lab?

   i. Yes (→ Complete entire form for this site)
   ii. No (→ Respond to "**Alternative 2" & STOP once Section 1 is complete)

2. Select the option that best describes the level of the health system that the laboratory or healthcare facility site supports:
   a. National level
   b. Regional, state or provincial level
   c. District or local level
   d. Other (Please specify): _____

   2.a. Is this lab or healthcare site part of an academic institution? Y/N

   2.b. Is this lab or healthcare site part of a private organization? Y/N

Alternative 2. Select the option that best describes this partner: (If No selected above)

a. Government ministry (national or sub-national)
b. Private Industry
c. Academic Institution
d. NGO

e. Other (Please specify): _____

3. **Name of partner's location:**

4. **Name of country:** – country drop down menu

5. **Project contribution(s) made by this partner**[5] (e.g., equipment and supplies procured, trainings provided, isolates collected and submitted, etc.)**:**

SECTION 1: PROJECT IMPLEMENTATION PHASE

Q ID	Question	Answer options	Notes
6.	**Select the phase that best describes this partner's and/or site's implementation, for the current reporting period:**	a) **Exploration** – Engaging stakeholders to identify 1. need(s); and 2. appropriate steps to address gaps or enhance activities	
		b) **Initiation** – Project planning; consensus reached with stakeholders regarding project sites, objectives, and activities, as well as timeline for implementation	
		c) **Initial Implementation** – Beginning stages of project implementation at selected sites including: 1. collection of baseline data; 2. establishing new practices/protocols; 3. supply/equipment procurement; 4. recruitment/hiring of locally based staff; etc.	
		d) **Full Implementation and Maintenance** – Majority of project activities have been rolled out and routinely monitored	
		e) **Expansion/Scale-Up** – Increasing the number of sites targeted for project activities	
		f) **Reduction/Scale Down** – Decreasing the number of sites targeted for project activities or scaling down scope of activities	

[5] This can apply to the partner as a whole or contributions made at the individual lab site level

Q ID	Question	Answer options	Notes
	Please use this space to provide any additional context or information about project implementation phase with this partner.	Open ended	

SECTION 2: LABORATORY NETWORK ACTIVITIES

The following questions cover current laboratory and/or referral network activities at the project site. This section is **only completed for laboratories or HCFs with lab**. Recipients will complete this section for each individual laboratory or HCF with lab site where project is being implemented. Do not answer questions based on future efforts, only established or current activities. Only answer questions based on project's pathogen of interest.

LABORATORY NETWORK ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
7.	**Does this site participate in a laboratory network or referral network**? *(Only asked of laboratories or HCFs with lab)*	a) Yes b) No c) Don't know d) Does not apply	
8.	**Has this site agreed to (or is it required to) submit or forward isolates?** *(Only asked of laboratories or HCFs with lab)*	a) Yes b) No (end of form) c) Don't know (end of form) d) Other (Please specify): _____	
9.	**Which of the following testing methods are routinely performed at this site/laboratory?** *Select all that apply.*	a) **Culturing**	
		b) **Antimicrobial Susceptibility Testing (AST and ASFT)** (e.g., e test, disk diffusion, broth microdilution)	
		c) **Phenotypic Testing** (e.g., MALDI-TOF, Vitek2, API, etc.)	
		d) **Genotypic Testing/ Polymerase chain reaction (PCR)** -	

LABORATORY NETWORK ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
		e) **Sequencing** (e.g., WGS, short-read Illumina, long-read ONT, direct amplicon sequencing, NGS, etc.)	
		f) **Other** (Please specify):_____	
		g) Unknown	
For each test type selected above, please answer the following:			
	i. **Testing methods performed on project pathogen of interest** (select all that apply)	**Culturing** – only in context of project pathogen(s) of interest • Enteric bacteria culture • Invasive bacteria culture • N. gonorrhoeae culture • Candida sp. Culture • Other fungal culture • Other bacterial culture • Other (please specify): ; • Unknown **AST** – only in context of project pathogen(s) of interest • Broth microdilution (e.g. sinsititre); • Disk diffusion; • Gradient test/E test; • Agar dilution; • Vitek 2 • Other automated device (e.g. Phoenix, Microscan) • Other (please specify):; • Unknown **Phenotypic** – only in context of project pathogen(s) of interest • API (manual) • MALDI-TOF (e.g. Bruker, Vitek MS) • Vitek 2 • Chromogenic Media (e.g. CHROMagar)	

LABORATORY NETWORK ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
		• Colormetric Tests (e.g. Carba NP, Blue-Carba) • Lateral Flow Assay (e.g. Carba 5) • mCIM • Serotyping • Other biochemical tests • Other (please specify): ; • Unknown **Genotypic** – only in context of project pathogen(s) of interest • PCR • RT-PCR/qPCR • Cepheid Xpert (e.g. Carba-R) • LAMP • Hologic Panther • Other (specify):; • Unknown **WGS** – only in context of project pathogen(s) of interest **What type of sequencing are you doing?** • Whole Genome Sequencing • Short-read • Long-read • Direct Amplicon Sequencing • Next Generation Sequencing • Sanger Sequencing • Other, please specify **What instrument(s) are you using?** • Illumina o Please specify machine: ▪ MiSeq ▪ NextSeq ▪ MiniSeq ▪ Other, please specify: • Pacific Bio (PacBio) o Please specify machine: ▪ Revio	

LABORATORY NETWORK ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
		▪ Vega ▪ Onso ▪ Other, please specify: • Oxford Nanopore Technologies o Please specify machine: ▪ MinION ▪ GridION ▪ PromethION ▪ Other, please specify: • Other, please specify	
	ii. **Total testing volume** (during budget period)	Open ended	
	iii. **Total number of personnel that received training in testing method**	Integer	
***e) Sequencing only	iv. **Total number of personnel trained to perform bioinformatics[6] analysis of WGS data**	Integer	
	v. **Describe the bioinformatics pipelines being utilized to analyze data**	Open ended	
10.	**Does this site have a program or any activities that focus on retaining staff[7] with institutional and technical knowledge once they are trained on any of the testing methods listed previously?**	a) Yes (→ 10.a.) b) No c) Don't know d) Does not apply	
	10.a.	If yes, please describe:	
11.	**Describe how laboratory data and results are managed and what platform (e.g., Laboratory Information Management System (LIMS), etc.) is used for data management at this**	a) Data is managed manually b) Laboratory Information Management System (LIMS) c) Sample Management System d) N/A for this reporting period	

[6] **Bioinformatics:** the science of collecting and analyzing complex biological data.

[7] Refers to any efforts undertaken by the local/national government or other partners to ensure that institutional knowledge remains at the laboratory site

LABORATORY NETWORK ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
	laboratory/facility.	e) Unknown e) Other (please specify):	
12.	**If applicable, describe data management in the field or at point of collection** *(e.g., environmental surveillance sites, etc.)* **as well as in the lab.**	Open ended	
13.	**Is regular external quality assessment performed for AR testing at this project's participant laboratories?**	a) Yes (→ 13.a.) b) No c) Don't Know d) Does not apply	
	13.a. Please describe the type and frequency of these EQA activities (e.g., PulseNet EQA, 2 bacterial specimens/ year for identification and AST, etc)	Open ended	
	Please use this space to include any additional information about this partner/ laboratory/ healthcare facility	Open ended	

SECTION 3: SURVEILLANCE ACTIVITIES

Please answer the following questions based on current surveillance efforts for this organization's Global AR Lab & Response Network project. Do not answer questions based on future efforts.

SURVEILLANCE ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
1.	**Are epidemiological data elements collected with samples tested under this project?**	a) Yes (→ 1.a.) b) No (→ 1.b.) c) Don't know	
	1.a. If yes, please	i. Describe what data elements are being collected. (Open ended)	
		ii. List each of the sites collecting these elements within the project and indicate if the information is shared with public health for decision making. (Open ended)	
	1.b. If no, please	i. List the barriers to collecting epidemiological data elements at sites throughout the referral network? (Open ended)	
2.	**Are the collected data for this project (e.g., phenotypic, genotypic, and NGS) integrated into subnational, national, or global databases?**	a) Yes (à 2.a.) b) No (→ 2.b.) c) Don't Know	
	2.a. If yes, please	i. Describe what database(s) the data were reported to. Please list all. (Open ended)	
		ii. Indicate the frequency of data sharing with national-level decision makers (e.g., MoHs, NPHIs, etc.)? (Open ended)	a) Daily b) Weekly c) Bi-weekly d) Quarterly e) Annually f) Other (please specify):
	2.b.	If no, please list any barriers to data integration. (Open ended)	

SURVEILLANCE ACTIVITIES			
Q ID	**Question**	**Answer options**	**Notes**
3.	**Have any alerts[8] or findings from the lab or facility required a local response** (e.g., within facility or local area, data sharing, PPS, etc.)?	a) Yes (→ 3.a.) b) No c) Don't Know	
	3.a.	If yes, please list the entities involved, response activities, and how data was shared. (Open ended)	
4.	**Have any alerts or findings from the lab or facility been detected which required a sub-national or national response** (e.g., new organism/type of resistance or large outbreak)?	a) Yes (→ 4.a.) b) No	
	4.a.	If yes, please list the entities involved, response activities, and how data was shared. (Open ended)	
	Please use this space to include any additional information related to this organization's surveillance activities.	Open ended	

----------END OF FORM 2----------

----------END OF PM TOOL----------

[8] **Alert:** Any newly detected** antimicrobial resistance findings that may influence surveillance and control practices.

** Examples of newly detected antimicrobial resistance include:

1. Exceptional phenotypes that have not previously been reported or are very rare; and
2. Novel resistance genotypes that are associated with mechanisms of resistance that have a high public health impact (i.e., high potential for spread and health impact) or pose serious challenges in laboratory detection and surveillance

Source: GLASS Emerging antimicrobial resistance reporting framework (GLASS-EAR)