

TRAINING REPORT

TRAINING ON GLOBAL ANTIMICROBIAL RESISTANCE AND USE SURVEILLANCE SYSTEM (GLASS 2.0) AND WHONET

17-20 OCTOBER 2023
Windhoek, Namibia

Antimicrobial resistance (AMR) Unit,
Assistant Regional Director (ARD) Cluster
WHO Regional Office for Africa - Brazzaville, Congo



EXECUTIVE SUMMARY

The training on Global Antimicrobial Resistance and Use Surveillance System (GLASS 2.0) and WHONET aimed to support the acceleration of implementation of National Action Plans on Antimicrobial Resistance (AMR NAPs) under the “One Health approach” by supporting Member States to enhance or establish national surveillance systems for AMR and generate, collect, report, and use quality data to inform decisions at the country, regional, and global levels.

The training involved national GLASS (Global AMR/Use Surveillance System) Focal Points and other professionals linked to AMR surveillance in human health. It was facilitated by on-site support from WHO Headquarters (HQ) GLASS Team Master Trainers as well as the WHO AFRO AMR Team, an expert from RIVM, the Centre for Infectious Disease Control - a WHO Collaborating Centre for Antimicrobial Resistance Epidemiology and Surveillance. The countries participating (12) included Angola, Benin, Burundi, Cabo Verde, Chad, Eswatini, Gabon, The Gambia, Liberia, Namibia, Senegal, and Sierra Leone. A total of 37 participants attended.

Major outcomes of the training were the acquisition/strengthening of capacities to: (i) prepare national AMR data for local use and submission to GLASS; (ii) configure WHONET for surveillance and data submission; (iii) upload and validate GLASS-AMR data using the GLASS IT platform; (iv) develop national AMR surveillance protocols; (iv) use data for decision-making; and (v) monitor the impact of interventions through surveillance.

This report highlights the background, objectives, expected outcomes, and methodology of the training. It describes the participant profiles, proceedings, and next steps.

This is not an official World Health Organization publication. Correspondence on this training report may be directed to: Dr Ali Ahmed Yahaya/Team Lead/AMR/ARD/AFRO at ahmedy@who.int with Dr Laetitia Gahimbare/AMR Technical Officer/Surveillance, Evidence and Laboratory Strengthening in copy at gahimbarel@who.int



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INTRODUCTION

BACKGROUND:

In May 2015, the Sixty-eighth World Health Assembly adopted the Global Action Plan (GAP) on Antimicrobial Resistance (Resolution WHA68.7), which reflects the global consensus that AMR poses a profound threat to human, animal, environmental health, and agriculture sector. One of the five strategic objectives of the GAP is to strengthen the evidence base through enhanced global surveillance and research. Upon adoption of the GAP, Member States requested WHO to help with establishment of a Global AMR/Use Surveillance System (GLASS) that supports standardized approach to collection, analysis, and sharing of Antimicrobial Resistance (AMR), Antimicrobial Consumption (AMC) and antimicrobial use (AMU) data, promotes One Health model for AMR surveillance, and generates data to support patient care, inform policies, strategies, and AMR burden estimates. GLASS also contributes to informing the progress in achieving Sustainable Development Goals (SDGs), especially SDG3 with two indicators: proportion of bloodstream infections (BSIs) among patients seeking care due to methicillin-resistant *Staphylococcus aureus* (MRSA) and *Escherichia coli* resistant to third-generation cephalosporins. By participating in GLASS, countries commit to build or strengthen their national AMR surveillance systems in order to generate quality AMR surveillance data to meet both local needs and GLASS requirements and to share these data globally. As of 2023, forty-one (41) countries from the WHO AFRO region are registered in GLASS and some have been submitting data over the five last data calls.

However, while AMR is of concern in the WHO African Region (AFRO), available GLASS data do not yet reflect the national/regional situation to support decision-making. In the most recent GLASS report (December 2022), the median percentage of MRSA in BSIs in three (3) reporting countries with good testing coverage was estimated at 40% and at 50% for BSIs due to *Escherichia coli* resistant to 3rd generation cephalosporins. Some countries are experiencing challenges that prevent them to contribute data to GLASS, to remain consistent in reporting, to enhance the quality and coverage of data collected at national level, to properly analyze and report data, and/or to use data collected for decision-making.

To mitigate these challenges, enhance AMR surveillance across the region, ensure optimal responses to GLASS AMR data calls and appropriate use of the updated GLASS platform and guidelines, WHO AFRO organized a four days face to face regional training on GLASS- AMR and WHONET (a microbiology laboratory database software for managing and analyzing microbiology data focusing on AMR) for National Focal persons of 12 AFRO Member States i.e., **Angola, Benin, Burundi, Cabo Verde, Chad, Eswatini, Gabon, The Gambia, Liberia, Namibia, Senegal, Sierra Leone**. The training was held in Windhoek, Namibia, at Mercure Hotel, from 17-20 October 2023.

General objective:

The general objective of the training was to support Member States to enhance/establish national surveillance systems for AMR and generate, collect, report, and use quality data to inform decisions at the country, regional and global levels.

Specific objectives:

- To describe GLASS recommendations for development of national AMR surveillance systems.
- Describe data model for AMR surveillance at different levels and GLASS requirements for global reporting.
- To explain data preparation for the submission to GLASS.
- To perform the steps to configure WHONET for surveillance and generation of GLASS datasets.
- To perform the steps to upload and validate GLASS-AMR data using the GLASS IT platform.
- To describe the data needs and utilization of AMR surveillance data for public health and patient care

Expected outcomes:

- Ability to prepare national AMR data for local use and submission to GLASS is acquired/strengthened.
- Ability to configure WHONET for surveillance and data submission is acquired/improved.
- Capacity to develop national AMR surveillance protocols is improved.
- Data use for decision-making is acquired/improved.
- Capacity to monitor impact of interventions through surveillance is acquired/enhanced.

Training methodology:

This was a 4-day training held in Windhoek, Namibia, from the 17th -20th October 2023. It was delivered in person, with facilitators from WHO HQ, WHO AFRO, and a WHO Collaborating Centre.

The language of delivery was English, with French interpretation available. The training was hosted by the WHO Regional Office for Africa in Brazzaville, Congo, in collaboration with the WHO Country Office (WCO) in Namibia.

Participants:

- Master Trainers from WHO/HQ (3)
- WHO AFRO AMR Team (3)
- WHO Collaborating Centre - Centre for Infectious Disease Control, RIVM (1)
- GLASS-AMR national focal points and other professionals linked to AMR surveillance in human health (30). Eighteen participants were from Namibia. A detailed list of participants is found in Annex 1.

PROCEEDINGS

Ms. Fabiola Vahekeni, Acting Director, Pharmaceutical Services Directorate, MoHSS, and Dr. Mary Nana Ama Brantuo, OIC, WHO Country Office, delivered opening remarks. Dr. Brantuo and Ms. Vahekeni both recognised the importance of AMR surveillance in addressing AMR. Dr. Brantuo highlighted the several initiatives by WHO and partners in addressing AMR, including surveillance for the generation of evidence base, acknowledging the challenges that still exist in Namibia as it pertains to data, surveillance, and laboratory capacities. Dr. Brantuo also stressed the significance of the training in strengthening capacity for national AMR surveillance, data preparation, reporting, and use. Ms. Vahekeni emphasised the importance of collective commitment, underscoring the vital role of the GLASS 2.0 Platform in the surveillance and management of antimicrobial resistance amidst evolving global health challenges. Mr. Ben Nangombe, Executive Director - MoHSS, delivered the official opening of the training. He iterated on the timeliness of the training and acknowledged WHO's commitments to supporting Namibia to enhance the capacity and effectiveness of national surveillance systems. Moreover, a video on Preventing and Responding to Sexual Exploitation, Abuse, and Harassment (PRSEAH) was played before the training and during break times as part of the administrative briefing.

Following the opening remarks, the training commenced with the WHO HQ GLASS Team and AFRO leading the delivery and facilitation of the training. The training was participatory, featuring presentations, demonstrations, and dedicating time for practice exercises.



DAY 1 TOPICS COVERED

Update on GLASS and GLASS AMR surveillance modules

Update on GLASS implementation in African region

Principles of AMR surveillance

GLASS recommendations for development of national AMR surveillance systems

Experience from a national [Dutch (ISIS-AR)] and a regional (CAESAR) surveillance systems

Countries experience of running a national AMR surveillance system (limitation and constrains and steps forward)



DAY 2 TOPICS COVERED

Sources and types of AMR data

Quality of the surveillance data
AMR metrics

GLASS data model for AMR surveillance and data preparation for the submission to GLASS

Introduction to WHONET

WHONET set up and helpdesk

WHONET for AMR surveillance and GLASS reporting

Use of BaLink for data preparation and export to GLASS

Introduction to the GLASS IT platform 2.0

GLASS data preparation, WHONET and GLASS IT platform helpdesk



DAY 3 TOPICS COVERED

Summarizing AMR surveillance data and Data analysis

Common biases and impact on data interpretation

Funding opportunities for AMR surveillance through the Global Fund

Introduction to AMR Prevalence Survey



DAY 4 TOPICS COVERED

Practical use of AMR surveillance data

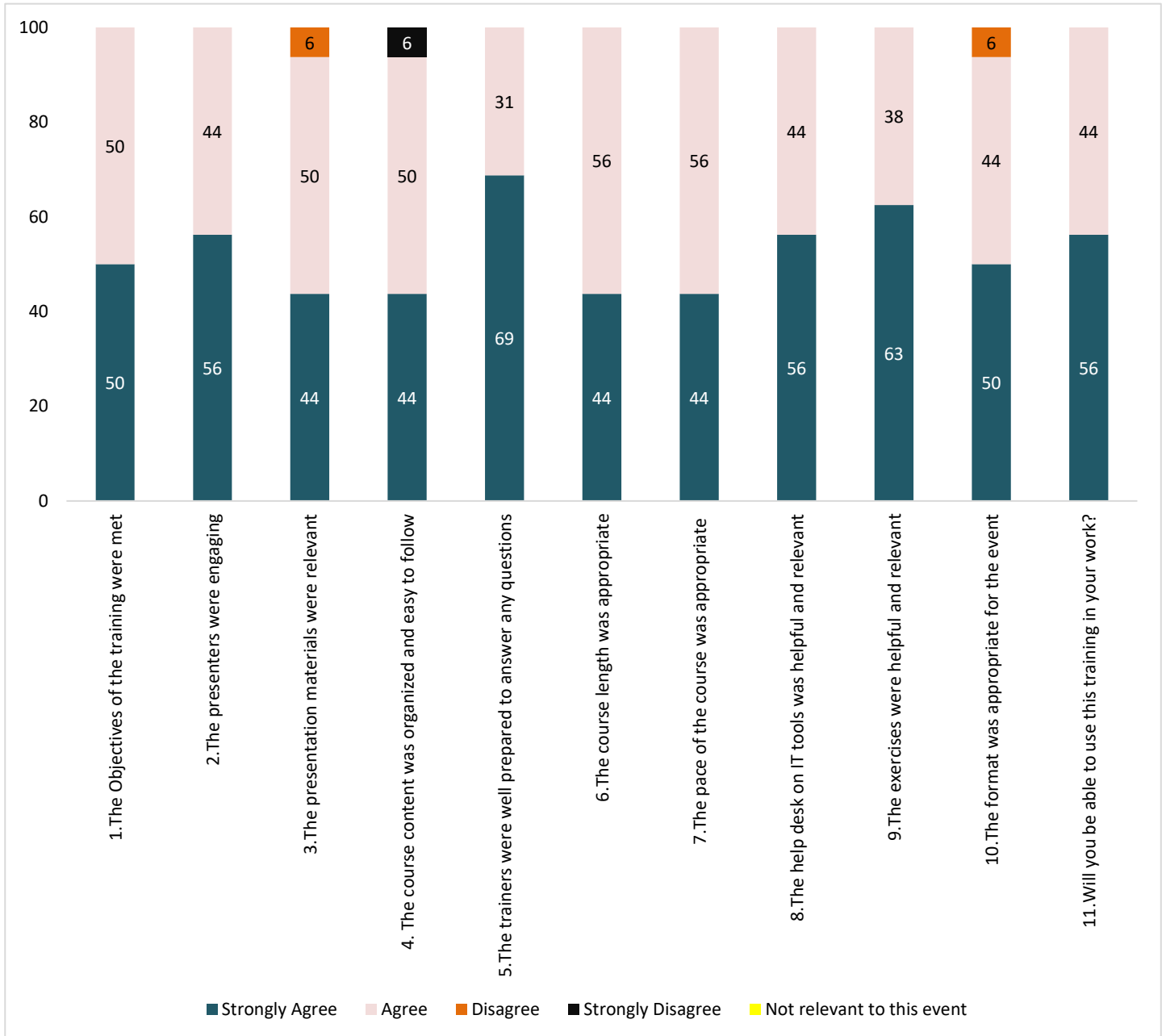
GLASS data preparation, WHONET and GLASS IT platform helpdesk

Presentations and General discussion

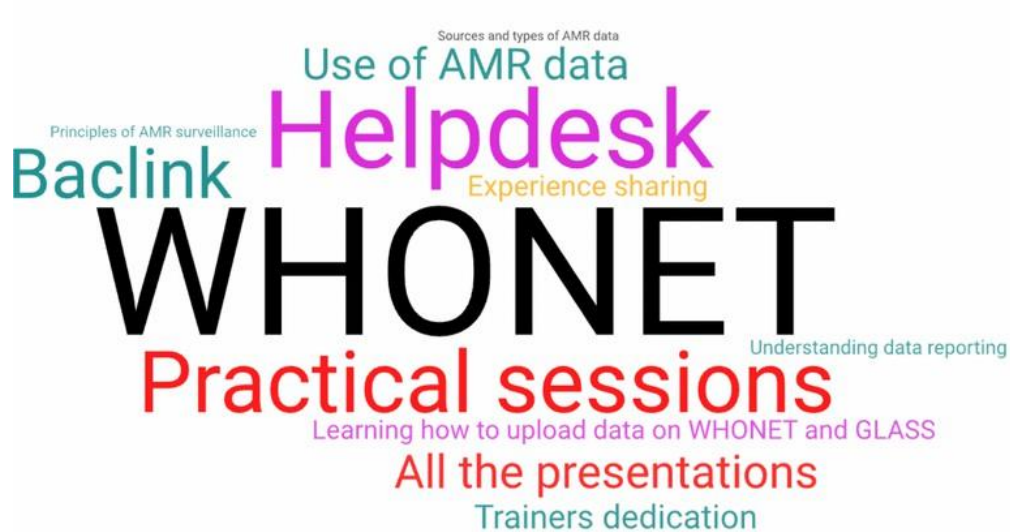


TRAINING EVALUATION

1. Participants' overall experience



2. What was MOST useful?



3. What was LEAST useful?



4. What else would you like to have seen included in this event? Are there any other topics that you would like to be offered training courses in?



5. Would you recommend this course to colleagues yes/No Why?

Yes, it was very informative & practical too
It gives confidence to upload data into GLASS
It gives confidence in using WHONET
Yes, AMR is very important as part of the sustainable development goals
Yes, it is critical knowledge
Yes, to better understand the entire AMR surveillance program
Yes, it is very informative
Yes, it discusses crucial issues in our society
Yes, it is a very important training
Yes, it takes you step by step on WHONET
Yes, for compiling and analysing AMR data
Yes, very useful to use for country surveillance
Yes, it will help with monitoring AMR
Yes, because AMR is a global threat and surveillance plays an important role

CONCLUSION

The training session on the Global Antimicrobial Resistance and Use Surveillance System (GLASS 2.0) and WHONET was successfully conducted, providing participants with comprehensive knowledge and practical skills in antimicrobial resistance (AMR) surveillance. Participants were equipped with understanding and proficiency in various aspects, including AMR surveillance methodologies, reporting requirements, data preparation techniques, and the operation of the WHONET database. Additionally, participants gained hands-on experience in tasks such as data uploading, validation, and utilization.

The technical support provided through this training is expected to significantly enhance AMR surveillance capabilities across the region. By ensuring that countries have the necessary expertise and resources, this support will facilitate an optimal response to GLASS AMR data calls and promote the appropriate utilization of the updated GLASS platform and guidelines. As next steps, the AMR Unit of the WHO Regional Office for Africa commits to continue supporting countries in all stages of establishing and strengthening national surveillance systems for AMR. This support will encompass activities such as generating, collecting, reporting, and utilizing quality data to inform decision-making at the country, regional, and global levels. Through collaborative efforts and ongoing technical assistance, countries will be better equipped to combat the growing threat of antimicrobial resistance and safeguard public health.

ACKNOWLEDGEMENT

WHO AFRO acknowledges the WCO Namibia, RIVM WCO Collaborating Centre, participants for their attendance and commitment, as well as Ms Ambele Judith Mwamelo - Consultant, for logistical support and report compilation.

Annex 1: Media Coverage



Significance of AMR surveillance, data cannot be overstated

Many countries, including Namibia, face challenges in strengthening antimicrobial resistance (AMR) surveillance capabilities and laboratory infrastructure, which hampers data collection for informed decisions.

NBCDigitalNews



Annex 2: Participants list

N°	Participants	Institution	Country
1	Miranela Marindela Mengana	Institute of Research in Health	Angola
2	Sylvain D Kougblenou	National Public Health Laboratory	Benin
3	Rabuhore Joselyne	GLASS AMR FP, Director Microbiology lab	Burundi
4	Vera Rodrigues	National Institute of Public Health	Cape Verde
7	Sindisiwe Dlamini	Ministry of Health, Eswatini Health Lab Services Chief Lab Technology	Eswatini
8	Ambolo Kanga Chelsy Michelle	Ministry of Health	Gabon
9	Saybah Manyango	Ministry of Health	Liberia
10	Haruna S Jallow	Ministry of Health, Gambia Principal Scientist	Gambia
11	Victoria Amutenya	MOHSS	Namibia
12	Elana Jantjies	Namibia Institute of Pathology, MoHSS	Namibia
13	Helalia Ndishishi	Namibia Institute of Pathology, MoHSS	Namibia
14	Melvin April	Namibia Institute of Pathology, MoHSS	Namibia
15	Ananias Haimbondi	Namibia Institute of Pathology, MoHSS	Namibia
16	Olivia Fikameni	Pharmaceutical Services Directorate, MOHSS	Namibia
17	Paulette Gases	Namibia Institute of Pathology, MoHSS	Namibia
18	Martha Efraim	Namibia Institute of Pathology, MoHSS	Namibia
19	Monika Mukeshe	Namibia Institute of Pathology, MoHSS	Namibia
20	Uza Tjitombo	Namibia Institute of Pathology, MoHSS	Namibia
21	Tuyakula Johannes	AMR FP, Pharmaceutical Services Directorate, MOHSS	Namibia
22	Aina Erastus	WHO Namibia	Namibia
23	Charmaine Chisting	WHO Namibia	Namibia
24	Anastasia Aluvilu	WHO Namibia	Namibia
25	Sikota Zeko	WHO Namibia	Namibia
26	Gabriel Joseph	WHO Namibia	Namibia
27	Dr Mary Ama Brantuo	WHO Namibia, Officer in Charge	Namibia
28	Mr. Ben Nangombe	Executive Director, MoHSS	Namibia
29	Fabiola Vahekeni	Pharmaceutical Services Directorate, MoHSS	Namibia
30	Ngoné Déguène Samb	AMR FP, Ministry of Health	Senegal
31	Joseph Sam Kanu	AMR FP, Ministry of Health	Sierra Leone
32	Ngabere Colette	Ministry of Health	Chad
33	Laetitia Gahimbare	WHO AFRO	Congo
34	Marina Beau-Saccot	WHO AFRO	Congo
35	Ambele Judith Mwamelo	WHO AFRO	Tanzania
36	Daniel Marcano Zamora	WHO HQ	Geneva
37	Barbara tornimbene	WHO HQ	Geneva
38	Eric Billémaz	WHO HQ	Geneva
39	Carolien Ruesen	WHO CC, RIVM	Netherlands
40	Linn Ludvall	Robert Koch Institute	Germany

Annex 3: [Link to Training Presentations](#)

Annex 4: Agenda

Time	Activity	Responsible Person
08:00-08:30	Arrival and Registration	All
08:30-08:40	Welcome Remarks	Ms. Fabiola Vahekeni, Acting Director, <i>Pharmaceutical Services Directorate – MoHSS</i>
08:40-08:50	WHO Namibia Country Office Remarks	Dr. Mary Nana Ama Brantuo: <i>OIC, WHO Country Office Namibia</i>
08:50-09:00	Keynote Address	Mr. Ben Nangombe: <i>Executive Director, MoHSS</i>
09:00-09:05	Group Photo	All

GLASS and WHONET Training Agenda

Time	Activity	Facilitators
09:05-09:10	Security Briefing	<i>UN Field security Associate: Ms. L Stephanus</i>
09:10-09:15	Housekeeping	<i>WHO Team</i>
09:15-10:15	Update on GLASS and GLASS AMR surveillance modules	<i>WHO HQ: D. Marcano</i>
10:15-10:45	Update on GLASS implementation in African region	<i>WHO AFRO: L. Gahimbare</i>
10:45-11:00	Coffee Break	
11:00-11:45	Principles of AMR surveillance	<i>WHO HQ: B. Tornimbene</i>
11:45-12:30	GLASS recommendations for development of national AMR surveillance systems	<i>WHO HQ: D. Marcano WHO AFRO: L. Gahimbare</i>
12:30-13:30	Lunch Break	
13:30-14:30	Experience from a national [Dutch (ISIS-AR)] and a regional (CAESAR) surveillance system	<i>WHO CC@RIVM: C. Ruesen</i>
14:30-14:45	Coffee Break	
14:45-15:45	Participating countries experience of running a national AMR surveillance system (limitation and constrains and steps forward)	All
Remaining time until 16:30	Country presentations	All

Day 2: Wednesday, 18 October 2023

Time	Activity	Facilitators
08:00-09:00	Registration	<i>WHO Team</i>
09:00-09:45	Sources and types of AMR data Quality of the surveillance data AMR metrics	<i>WHO HQ: B. Tornimbene, D. Marcano</i> <i>WHO AFRO: L. Gahimbare</i>
09:45-10:45	GLASS data model for AMR surveillance Data preparation for the submission to GLASS	<i>WHO HQ: B. Tornimbene</i>
10:45-11:00	Coffee Break	
11:00-12:00	Introduction to WHONET	<i>WHO HQ: D. Marcano</i> <i>WHO AFRO: TBD</i>
12:00-12:30	WHONET set up and helpdesk	<i>WHO HQ: D. Marcano, E. Billemaz</i> <i>WHO AFRO: L. Gahimbare</i>
12:30-13:30	Lunch Break	
13:30-15:00	WHONET for AMR surveillance and GLASS reporting Use of BacLink for data preparation and export to GLASS	<i>WHO HQ: D. Marcano</i> <i>WHO AFRO: L. Gahimbare</i>
15:00-15:15	Coffee Break	
15:15-16:00	Introduction to the GLASS IT platform 2.0	<i>WHO HQ: B. Tornimbene</i>
Remaining time until 16:30	GLASS data preparation, WHONET and GLASS IT platform helpdesk	<i>WHO HQ: D. Marcano, E. Billemaz</i> <i>WHO AFRO: L. Gahimbare</i>

Day 3: Thursday, 19 October 2023

Time	Activity	Facilitators
08:00-9:00	Registration	<i>WHO Team</i>
9:00-10:30	Summarizing AMR surveillance data Data analysis	<i>WHO HQ: B. Tornimbene, D. Marcano</i> <i>WHO AFRO: L. Gahimbare</i>
10:30-10:45	Coffee Break	
10:45-11:30	Common biases and impact on data interpretation	<i>WHO CC@RIVM: Carolien Ruesen</i>
11:30 - 12:30	Funding opportunities for AMR surveillance through the Global Fund	<i>Global Fund: Ben Park</i>
12:30-13:30	Lunch Break	
13:30-15:00	Prevalence Survey	<i>WHO HQ: B. Tornimbene, D. Marcano</i>
15:00-15:15	Coffee Break	
15:15-16:30	Prevalence Survey	<i>WHO HQ: B. Tornimbene, D. Marcano</i>

Day 4: Friday, 20 October 2023

Time	Activity	Facilitators
08:00-09:00	Registration	<i>WHO Team</i>
09:00-10:00	Practical use of AMR surveillance data	<i>WHO HQ: E. Billemaz</i>
10:00-10:45	Coffee Break	
10:45-12:30	Practical use of AMR surveillance data	All <i>WHO AFRO: L. Gahimbare</i>
12:30-13:30	Lunch Break	
13.30-14:30	GLASS data preparation, WHONET and GLASS IT platform helpdesk	<i>WHO HQ: D. Marcano, B. Tornimbene, E. Billemaz</i>
Remaining time until 15:30	Presentations and General discussion	All
15:30-15:45	Closing Remarks	Ms. Fabiola Vahekeni, <i>Acting Director, Pharmaceutical Services Directorate – MoHSS</i>
15:45-16:00	Coffee Break	

