GLASS
Global Antimicrobial Resistance and Use Surveillance System

Training of GLASS-AMC national focal points on Antimicrobial Consumption Monitoring

New Delhi, India, 19–22 September 2022

Training Report

World Health Organization
REGIONAL OFFICE FOR South-East Asia

Training of GLASS-AMC national focal points on Antimicrobial Consumption Monitoring: Training Report

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Executive Summary

Most countries in the South-East Asia Region are in the initial phase of developing their national AMC monitoring system and WHO has developed standard methodologies for regular monitoring of antimicrobial consumption (AMC) in humans.

WHO conducted a training workshop on Antimicrobial Consumption (AMC) monitoring to national focal points in New Delhi, India, from 19-22 September 2022. The training covered in-depth the WHO AMC monitoring methodology and surveillance. Hands-on exercises and group-work were designed to build competencies for supporting AMC surveillance systems in line with WHO's methodology.

The training was designed to cover a variety of concepts and skills over a period of four days, from an introduction to AMC monitoring to analysis and interpretation of national AMC data. A total of 22 national participants from the eight Member States and two National Professional Officers (NPOs) from Myanmar participated in the training. The training consisted mostly of presentations and hands-on exercises.

Background

Antimicrobial consumption (AMC) monitoring is a critical component of national stewardship efforts to address the growing threat of antimicrobial resistance (AMR). The South-East Asia Member States affirmed commitments in multiple resolutions for action on AMR, specifically in the regional resolution on "Prevention and containment of antimicrobial resistance SEA/RC63/R4." Ministers of Health in the Region adopted the Jaipur Declaration in 2011 and committed to tackle antimicrobial resistance.

Later in 2014, antimicrobial resistance was identified as a Regional Flagship Priority in the WHO South-East Asia Region. Addressing antimicrobial resistance is also vital to achieve various Sustainable Developmental Goals.

Most countries in the Region are in the initial phase of developing their national AMC surveillance monitoring system. The training workshop covered a variety of concepts and skills over a period of four days from introduction to AMC monitoring, analysis, interpretation and use of AMC data.

This was essential in building national capacity to generate and share AMC surveillance data to inform policy and practice. Furthermore, the GLASS-AMC module was launched in 2021 by WHO and consequently, there was a need for Member States to familiarize with the concept and support implementation of this innovative approach.

The presentations addressed the concerns specific to the Region through peer-to-peer discussion among facilitators and participants. Hands-on exercises were be conducted to build competencies. The workshop managed to foster knowledge and promote evidence-based learning, as well as constructive and connective learning.

The training covered in-depth the WHO AMC monitoring methodology and surveillance. Hands-on exercises and group-work were designed to build competencies for supporting AMC surveillance systems in line with WHO's methodology. It was an interactive workshop with active peer-to-peer learning.

Purpose

The aim of the training workshop was to build sustainable AMC surveillance capacity through a standardized methodology for measuring and reporting the consumption of antimicrobial agents. This standardization will allow the monitoring of trends, comparisons between countries and provides a common metric for AMC reporting.

The specific objectives were to:

(1) Provide an understanding to GLASS-AMC national focal points to monitor surveillance of antimicrobial consumption (AMC), including data collection, analysis and GLASS submission and the importance of AMC monitoring to public health.

(2) Prepare national focal points to support SEAR countries in scaling up national AMC surveillance systems; hospital AMC surveillance, and point prevalence surveys using WHO methodology.

(3) Prepare national or WHO country office focal points to conduct AMC data analysis, write reports, and submit reports.

(4) Build capacity and sustainability of national AMC surveillance through technical skill and sustained advocacy to inform AMR policy and practice in countries.

Criteria for Nomination of Participants

- National AMC focal Points
- AMC data managers at national and sub-national level
- National Regulatory Authorities
- National representatives for AMR
- WHO Country Office

Training Workshop

The presentations addressed topics including: the importance of AMC monitoring to both the WHO and member country governments, WHO methodology for establishing AMC monitoring systems at the national level, the WHO Collaborating Centre's Anatomical Therapeutic Classification (ATC) Defined Daily Dose (DDD) index, utilization of the WHO AWaRe guidelines, collecting and reporting data, and other topics relevant to AMC monitoring. The presentations addressed the concerns specific to Member States through active discussions among facilitators and participants.

During the workshop various exercises were conducted to understand country context and build competencies. The exercises focused on country situation analysis, supply chain mapping, undertaking the steps in setting up a national AMC monitoring system, calculating total consumption of various antimicrobial products, data collection, data analysis, using the standardized WHO Excel template and data submission into GLASS.

DAY 1

The participants were welcomed by the Director of Program Management (DPM) in WHO South-East Asia Regional Office (SEARO) on behalf of the Regional Director. DPM briefed the participants on the progress made by Member States in implementing AMR National Action Plans (NAP) and how all Member States in South-East Asia (SEA) Region carry out annual Tripartite AMR country self-assessment surveys. Despite the achievements and progress made, challenges remain in countries in terms of timely access to needed antimicrobials, linking surveillance data into action, effective infection prevention and control, and regulation of antimicrobial sales in the market. However, he highlighted the need to strengthen the knowledge and evidence base through surveillance and research and that the Global Antimicrobial Resistance and Use Surveillance System (GLASS)-AMC provided a standardized approach to the collection, analysis, interpretation and sharing of data by countries. Such evidence will be important in optimizing the use of antimicrobial medicines in human health.

Day 1 started off with the discussion on the progress that has been made in the Region in scaling up AMC surveillance systems. Enrollment into GLASS-AMC was currently underway, and Bangladesh, Maldives and Nepal had already been supported by WHO to conduct initial antimicrobial consumption multiyear data analysis using the standardized WHO methodology. The participants appreciated the need to continuously monitor AMC as resistance was linked to consumption. The data generated assist in understanding the patterns of consumption, prescribing practises and also compare local, regional and international patterns. The Global Action Plan (GAP) called for all countries to collect and report data on antimicrobial consumption and use. However, there is limited surveillance and data being generated by LMICs.

The participants were introduced the WHO GLASS-AMC methodology of monitoring AMC and the tools available for the collection, sharing, analysis and interpretation of data on the use of antimicrobials. A public global database on the use of antimicrobials was developed to analyse and report on the use of antimicrobials at global level to inform interventions and to improve the access to and use of quality assured antimicrobial medicines. The facilitators discussed the key steps to be followed in setting up a national AMC monitoring system and ensuring sustainability. The participants shared the progress made in their respective countries in setting up national systems.

Nepal was one of the first countries to be supported by WHO to set up national systems, generate and analyze data and submit into GLASS. The country shared their experience and the plans to conduct a workshop to disseminate past AMC data collection key results findings to stakeholders. This has also led to some regulatory interventions that are already underway.

The participants further conducted a brief situational analysis on the country environment and mapped the supply chain of antimicrobials. This was presented as a poster and at the end of the day a poster walk allowed participants to share their context. The participants agreed on tackling challenges of national AMC monitoring, such as beginning with available data of inferior quality rather than waiting to access superior but infeasible data sources.

Facilitators emphasized that participants should try to capture data at high levels, such as import or manufacturing data, for national consumption before switching towards data sources that are closer to the patient level, as the macro level data will be more readily available. They also emphasized the importance of reporting data sources for each year of AMC data and highlighting any change in the data collection methodology, which affects interpretation

The last presentation provided an overview of the regional AMR strategy and the progress that the countries are making in implementing their NAPs. The overview showed the importance for countries to sustain, accelerate and innovate intervention to prevent infections and reduce AMR.

Day 2

The participants went through the WHO methodology for the surveillance of AMC at national level. They were introduced to the WHOCC ATC/DDD Index Methodology, focusing primarily on the principles behind ATC classification and DDD assignments. Simple to more complex examples were provided on identifying ATC codes and DDDs for various antibiotics ranging from simple plain products to combination products. The training was provided on manual calculations of DDDs, followed by automated calculations of DDDs and DIDs using the WHO AMC Excel template. Facilitators walked participants through exercises on identifying ATC codes and DDDs. Feedback from the participants indicated that these exercises were helpful, allowing participants to gain confidence through individual work, especially with regards to combination products.

AMC analysis findings should be disseminated beyond surveillance team, and it is important to define the target audience and shape the messages accordingly. The discussion on the day allowed participants to appreciate how to present and report on the data according to the target audience. The participants conducted a different exercise on the reporting national AMC findings using simple graphs, tables or charts. Using AMC data from a hypothetical country scenario, participants developed visual presentations and discussed trends in AMC in the data. An exercise on how to extract and manipulate data to generate AMC indicators was also conducted.

Maldives shared their country experience and how the country as a small market managed the data collection and analysis. The country intends to leverage on the capacity and start using national health insurance data to support surveillance. Thailand shared their experience in monitoring consumption across using the One Health approach and how the data has been used to support policy interventions. In Bangladesh a stepwise approach was done to scale up surveillance and regulatory interventions are being done based on the experience.

The final presentation of the day discussed how surveillance can be taken further to hospital and primary health care level. Methodologies and tools on PPS and hospital consumption have been developed by WHO. Other discussions revolved around the nature of DDDs in evaluating antimicrobial use (AMU) since in the region actual bed occupancy is more than one patient per bed and some doses of the antibiotic may be taken from hospital and some purchased from a pharmacy. Clinicians are more familiar with Prescribed Daily Doses (PDD), used for treating patients in their communities but this is often of little use for the purpose of AMC surveillance.

Day 3

Participants were divided into two groups in different breakout sessions, first group composed of those involved in data analysis and management and the second composed with policymakers.

Group 1

The first group focused on manual calculations of DDDs, followed by automated calculations of DDDs and DIDs using the WHO AMC Excel template. The training was planned to have the participants work with functional macros in the AMC template. The exercises were aligned to emphasize calculation of DDDs and DIDs. Participants were shown how to successfully calculate DDDs and DIDs for a variety of products using the WHO-provided AMC template. The exercises focused on exclusively on building competencies on AMC calculation using the template.

The participants were introduced to the metrics and indicators for monitoring AMC. The metrics are used to measure performance, quality and processes of AMC monitoring. The key indicators to report on AMC and relative consumption were highlighted.

During this exercise, a few participants experienced challenges enabling macros on their computers and thus partnered with other participants to complete the exercise.

Group 2

The second group discussed how the integrated one health approach can be used to strengthen surveillance and research. The participants emphasized that the goal of rational use initiatives is not always to reduce antibiotic use, but to ensure that the use is appropriate. The policy strategies available to ensure optimal use of antimicrobials include regulation of medicines, availability of treatment guidelines and formularies, surveillance of AMR and AMU.

The participants deepened their understanding of WHO's AWaRe classification of antibiotics and were introduced to the WHO AWaRe Antibiotic Book. This was followed by discussion on the need to use Antimicrobial Stewardship (AMS) activities to optimize use.

Day 4

Participants conducted a root-cause analysis of their context and used this information to identify priority activities and low hanging potential activities to start in the next 6-12 months. They identified key stakeholders that can support, and their interest were mapped out and the participants formulated how to engage them. Using the PDSA cycle participants developed their draft change system to scale up surveillance system.

The participants later developed a poster and shared their plans.

Antimicrobial Consumption Priority Areas

Some of the priority activities identified by the country teams include:

- Setting up national AMC structures and governance system and enrolling into WHO GLASS-AMC,
- Increase national capacity through training and mentorship initiatives,
- Developing ToRs for the AMC working groups and adopting priority activities,
- To map data sources and engage stakeholders and data providers on data submission and legal consideration,
- Set up tools for data collection and analysis,
- Submit available data into WHO GLASS-AMC during the 2022 AMC annual data col.

Conclusion

During the workshop frequent hands-on exercises with country case studies were conducted to build competencies. The group-work exercises focused on the steps in setting up a national AMC monitoring system, practicing calculating total consumption of various antimicrobial products, evaluating AMC data sources and GLASS-AMC data submission were conducted.

The participant feedback was positive. Participants reported that the training was useful in clarifying concepts related to AMC monitoring and building skills to support national AMC monitoring teams. Participants found the approach clear and useful in clarifying the role of GLASS-AMC focal points in coordinating country activities. The different country scenarios provoked discussion, and the small group format was good for discussing the scenarios and working effectively. The participants also identified areas for improvement, including the need for more time for exercises, more focused individual work and a greater emphasis on interpretation of results.

Relevant follow up technical support is available to countries to institutionalize capacity. Indonesia and Sri Lanka highlighted the need for more in country direct training to provide learning opportunities to wider stakeholders including technical staff responsible for data management.

Annex 1: List of Facilitating Experts

WHO Headquarters, Geneva		
Dr Verica IVANOVSKA	Technical Officer: AMR/AMU	ivanovskav@who.int
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Special Invitees		
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Annex 2: List of Participants

Bangladesh

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Bhutan

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Ms Nur'Aeni, Apt,
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Maldives

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Ms Aishath Mohamed,
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Mr Kritsada Limpanonont,
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Medicines Regulation Division

Ms Sirima Punnin,
Pharmacist, Practitioner Level
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Ms Inthira Kanchanaphibool,
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Ms Angkana Lekagul,
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Timor-Leste

Ms. Suzana Soares Henriques,
Pharmacist, Focal point for Global Antimicrobial Surveillance Consumption

Dr. Maria Francisca Soares,
Intern, National Hospital Guido Valadares

WHO Myanmar Country Office

Dr Zar Zar Naing,
National Professional Officer

Dr Mya Yee Mon,
National Professional Officer

Annex 3: Training Agenda

Time	Module	Speaker/Moderator
Day 1: 19 September 2022		
08 :30 - 08 :40	Welcome and opening remarks	Dr Pem NAMGYAL
08 :40 - 08 :45	Meeting objectives	Uhjin KIM
08 :45 – 09 :15	Introduction of participants	Uhjin KIM
09 :15 - 09 :30	Antimicrobial Consumption Monitoring in South-East Asia Region	Terence FUSIRE
09 :30 - 09 :45	Overview of monitoring of AMC and AMU data	Verica IVANOVSKA
09 :45 -10 :25	Why do we need AMC data?	Verica IVANOVSKA
10 :25 -10 :45	Mobility and Tea break	
10:45 -11:15	WHO Methodology for Monitoring AMC	Martina ESCHER
11 :15 -11 :45	Steps for setting up national AMC monitoring system	Martina ESCHER
11:45 -12:00	Country presentation: Nepal	Nepal
12:00 -12:30	Data Sources for AMC	Terence FUSIRE
12 :30 - 13: 30	LUNCH	
13 :30 – 14 :00	Mapping the Supply Chain	Verica IVANOVSKA
14 :00 – 15 :00	Group work: Situational Analysis + Mapping the Supply Chain and identifying potential data sources	Verica IVANOVSKA, Martina ESCHER
15:00 -15-15	Tea break	
15:15 - 15:30	Regional AMR Strategy and NAP	Stephan JOST
15:30 -17:00	Poster Walk on situational analysis and supply chain mapping	All
17:30 – 18:30	Welcome Reception	All
Day 2: 20 September 2022		
08 :30 -08 :40	Day 1 Recap	
08 :40 -09 :45	Introduction to the WHO ATC/DDD Index System	Martina ESCHER
09 :45 -10 :15	How to present AMC data?	Verica IVANOVSKA
10:15 -10:35	Mobility and Tea break	
10:35 – 11:00	Country presentation: Bangladesh	Bangladesh
11:00 - 12:00	Group work: Exercise on data presentation at national level	All
12 :00 -12 :30	Country presentation: Thailand	Thailand
12 :30 - 13 :30	LUNCH	
13:30 - 14:00	GLASS-AMC Enrollment and data submission	Martina ESCHER
14 :00 -14 :30	Beyond national AMC	Verica IVANOVSKA
14:30 -14:45	Tea break	
14:45 -15:30	Hospital AMC monitoring and Point prevalence surveys	Martina ESCHER
15 :30 - 16: 00	Country presentation: Maldives	Maldives
16 :00 – 16 :45	Speed dating participant Q&A	All

Day 3: 21 September 2022 (For AMC Data Managers)		
08 :30 - 09 :45	ATC/DDD Index Methodology plus exercise	Martina ESCHER
09 :45 – 10 :15	AMC metrics and indicators	Martina ESCHER
10:15 -10:30	Mobility and Tea break	
10:30 - 11:00	WHO AMC Excel Template	Martina ESCHER
11 :00 -13 :00	Excel template exercises	Martina ESCHER
13 :00 - 14 :00	LUNCH	
14:00 - 14:45	Data analysis + exercise	Martina ESCHER
14 :45 -15 :00	Tea break	
15:00 -16:00	Data submission	Martina ESCHER
Day 3: 21 September 2022 (For AMC Medicines and Policy Makers)		
08 :30- 08 :35	Day Introduction	Verica IVANOVSKA
08 :35 -08 :50	One Health Approach for addressing AMR	Gyanendra GONGAL
08 :50 – 09 :35	Antimicrobial Consumption Monitoring and Resistance Tracking	JIPMER
09 :35 -09 :45	TISSA	Verica IVANOVSKA
09 :45 - 10 :15	Legal and Regulatory Framework	Adrien INOUBLI
10:15 -10:30	Mobility and Tea break	
10:30 - 11:00	Rational Selection of medicines/AWaRe	Verica IVANOVSKA
11 :15 -11 :45	Setting Up Antimicrobial Stewardship Structures	Terence FUSIRE
11 :45 – 12 :30	Rational Use of Antimicrobials	Uhjin KIM
12 :30 - 13 :30	LUNCH	
13:30 - 14:15	Communication of AMC results	Verica IVANOVSKA
14:15 - 15:00	Prioritization of AMC/AMU surveillance approaches (national/ facility level)	Verica IVANOVSKA
15 :00 - 15 :15	Tea break	
15:15 -16:00	Reflection of strategies for optimal use of antimicrobials by countries	Verica IVANOVSKA, All
Day 4: 22 September 2022		
08:30 -08: 50	Recap Day 3	
08 :50 -09 :10	Root Cause analysis and Quality Improvement Plan	Uhjin KIM
09 :10 – 10 :15	Group work: Root cause analysis and Quality Improvement Plan	All
10 :15 – 10 :35	Mobility and Tea break	
10 : 35 -11 :30	Group work: Developing country plans for national AMC surveillance system and advocacy	All
11 :30 – 12 :30	Poster Walk on the country plans	All
12 :30 - 12 :45	Conclusions and the way forward	Uhjin KIM
12 :45 - 13 :00	Closing Remarks	All
13 :00 - 14 :00	LUNCH	

Annex 4: List of Reading Materials

Global action plan on antimicrobial resistance, 2015

GLASS manual on the management of antimicrobial consumption data, 2020

GLASS methodology for surveillance of national antimicrobial consumption

Training on GLASS methodology for national surveillance of antimicrobial consumption

GLASS guide for national surveillance systems for monitoring antimicrobial consumption in hospitals, 2020

WHO Methodology for Point Prevalence Survey on Antibiotic Use in Hospitals

Monitoring global progress on antimicrobial resistance: tripartite AMR country self-assessment survey (TrACSS) 2019-2020

Third progress analysis of implementation of antimicrobial resistance national action plans in the WHO South-East Asian Region, 2022

Jaipur declaration on antimicrobial resistance, SEAR Ministers of health, 2011

The report of the WHO South-East Asia Region training of GLASS-AMC national focal points on Antimicrobial Consumption monitoring conducted in September 2022. The training workshop was aimed to build sustainable AMC surveillance capacity through a standardized methodology for measuring and reporting the consumption of antimicrobial agents. Peer-to-peer discussions between the facilitators and participants and hand exercises were conducted to build competencies, foster knowledge and address specific concerns by the Member States in the Region. The participants agreed and adopted measures needed to scale-up AMC surveillance monitoring based on their different country context.

Please note that this event adheres to the CODE OF CONDUCT TO PREVENT HARASSMENT, including sexual harassment, at WHO events.

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