Global Antimicrobial Resistance Surveillance System (GLASS) Report

Early implementation

2017-2018

World Health Organization

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SUMMARY

The global emergence of antimicrobial resistance (AMR) is posing a threat to human health. Putting resources into the containment of AMR – including surveillance – is one of the highest-yield investments a country can make to mitigate its impact. In 2015, WHO launched the Global Antimicrobial Resistance Surveillance System (GLASS), the first global collaborative effort to foster AMR surveillance in bacteria causing acute infections. As of December 2018, 71 countries are enrolled in GLASS. The aim of this report is to document participation efforts and outcomes across these countries, and highlight differences and constraints identified to date. This report follows on from the first GLASS Report – Early implementation 2016-17, published in January 2018, and drawing on data from GLASS first data call in 2017.

GLASS provides a standardised approach to the collection, analysis, and sharing of AMR data by countries, and seeks to monitor the status of existing or newly developed national AMR surveillance systems. GLASS works at all three levels of WHO – headquarter, regional, and country offices – and, supported by the network of WHO Collaborating Centres, involves strong commitment from participating countries and close collaborations with AMR regional networks such as CAESAR (Central Asian and Eastern European Surveillance of Antimicrobial Resistance), EARS-Net (European Antimicrobial Resistance Surveillance Network), and ReLAVRA (Latin American Network for Antimicrobial Resistance Surveillance).

In its early implementation phase (2015-2019), GLASS aims to combine data on the status of enrolled countries' AMR surveillance systems with AMR data for selected priority bacteria that cause infections in humans: *Acinetobacter* spp., *Escherichia coli*, *Klebsiella pneumoniae*, *Neisseria gonorrhoeae*, *Salmonella* spp., *Shigella* spp., *Staphylococcus aureus*, and *Streptococcus pneumoniae*. AMR data are collected through a case-finding surveillance system, which collates results of priority specimens from blood, urine, and stool, as well as cervical and urethral specimens, that have been sent routinely to laboratories for clinical purposes. Population data are also collected, including the overall number of patients tested per specific specimen, and variables such as age, gender, and infection origin. Data on infection origin is used as a proxy to define where the infection has been contracted (hospital versus community).

By the end of the second data call on 31 July 2018, 69 countries were enrolled in GLASS. Sixty-eight of these countries (10 low-income countries (LICs), 16 lower middle-income countries (LMICs), 15 upper middle-income countries (UMICs), and 27 high-income countries (HICs)) provided data. Specifically, 67 countries reported information on their national AMR surveillance systems, of which 48 also provided 2017 AMR rates. In addition, one country provided AMR data only, resulting in a total of 49 countries reporting AMR rates.

Compared to the first data call on April-July 2017, GLASS has seen a 64% increase in country enrolment and more than twice the number of countries submitting AMR data in 2018. The rapid increase in country enrolment and active participation in a global system to monitor AMR reflects a collective understanding and engagement to support the global effort to control AMR, particularly for countries that had never shared AMR data with international systems before. Moreover, 13 of the countries that last year only provided information on the status of their national AMR surveillance system have managed this year to also report AMR data, evidence that countries' commitment and the GLASS methodological approach can foster development of national AMR surveillance. Fourteen countries, compared to five in the preceding year, also submitted data on the total sampled population, enabling the frequency of occurrence of resistance within tested populations to be calculated and, for six countries, stratified for gender, age, and infection origin.

Still, due to the limitations highlighted in previous GLASS documents with regards to data quality and representativeness, no attempt was made to compare AMR status between countries and regions. However, it was possible to monitor the progress made by countries in the development and strengthening of their AMR national surveillance systems. Based on the information on implementation submitted though the data call, most countries have put in place the three surveillance core components suggested by GLASS (a National Coordination Centre, a National Reference Laboratory, and National surveillance sites). 97% of reporting laboratories are performing antimicrobial susceptibility testing (AST) according to internationally recognised standards – either European Committee on Antimicrobial Susceptibility Testing (EUCAST), the Clinical and Laboratory Standards Institute (CLSI), or other reorganised protocols. Finally, compared to the 2017 results, almost all countries have shown an increase in the number of surveillance sites reporting to GLASS.

Additionally, GLASS is working towards the integration of surveillance initiatives related to AMR in bacterial pathogens of relevance for human health. In this report we highlight a series of modules being developed to facilitate this integration. These include modules on antimicrobial consumption (AMC), the enhanced

Gonococcal Antimicrobial Surveillance Programme, and AMR in the food chain. These surveillance modules will be progressively added to the GLASS IT platform to allow for the collection, analysis, and reporting of diverse cross-sectoral AMR data into a single repository, with GLASS Emerging Antimicrobial Resistance Reporting (GLASS-EAR) also launched in 2018. In addition, this report summarises GLASS developments during the last year and the progress and activities by WHO Regional Offices to enhance AMR surveillance.

Despite the limitations of the current phase, GLASS has already collected an unprecedented level of information relating to AMR at a global level, and continues to foster further development of national AMR surveillance systems. The support given by WHO Regional Offices, WHO Collaborating Centers, and international partners to participating countries, has been fundamental to the achievements to date.