



# Global Antimicrobial Resistance and Use Surveillance System (GLASS) Report

2021



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# Foreword

The WHO Global Antimicrobial Resistance and Use Surveillance System (GLASS) was launched in 2015 to foster surveillance of antimicrobial resistance (AMR) and antimicrobial consumption and use (AMC/U) globally to inform strategies to contain AMR.

Since its launch, GLASS has expanded in scope and coverage and as of May 2021, 109 countries and territories worldwide have enrolled in GLASS. A key new component in GLASS is the inclusion of antimicrobial consumption (AMC) surveillance at the national level highlighted in this fourth GLASS report.

GLASS is comprised of several technical modules. These include routine surveillance activities on AMR and AMC, focused surveillance of emerging resistance and AMR in *Candida* spp., and studies and surveys to estimate AMR burden and related drivers. GLASS is also the data source of the new Sustainable Development Goals (SDGs) AMR indicator: proportion of bloodstream infections (BSIs) due to *Escherichia coli* resistant to 3rd generation cephalosporins and methicillin-resistant *Staphylococcus aureus* (MRSA).

The fourth GLASS report summarizes the 2019 data reported to WHO in 2020. It includes data on AMC surveillance from 15 countries and AMR data on 3 106 602 laboratory-confirmed infections reported by 24 803 surveillance sites in 70 countries, compared to the 507 923 infections and 729 surveillance sites reporting to the first data call in 2017.

This report highlights an important difference in reported rates of BSIs caused by *E. coli* resistant to 3rd generation cephalosporins and MRSA, the SDGs indicators, between LMICs and HICs. The higher rates in LMICs are of concern and need to be investigated. Moreover, the very large discrepancy in the numbers of tested patients could indicate inappropriate access to care in LMICs and a related selection bias.

Most countries reported high rates of AMR in bloodstream, urinary and gastroenteric infections. Of note, high rates of resistance to last resort antibiotics, such as carbapenems, or first-line drugs, such as co-trimoxazole, were reported. Some countries reported high level of resistance to first-line empirical treatment in *N. gonorrhoeae*, which warrants further analysis to inform guidelines.

The report also describes developments over the past years in other AMR surveillance programmes led by WHO, including resistance to anti-human immunodeficiency virus and anti-tuberculosis medicines, antimalarial drug efficacy.

In a short period of time GLASS has made notable achievements in promoting national surveillance systems and data sharing according to global standards. However, limitations and gaps of the system must be addressed. In order to inform and guide further GLASS development, the “3rd High level technical consultation and meeting on surveillance of antimicrobial resistance and use for concerted actions” took place in April 2021, hosted by the Ministry of Health and Social Affairs of Sweden and the Ministry of Health and Welfare of the Republic of Korea, co-sponsored by the WHO. During the consultation it was unanimously agreed that, while continuing to strengthen quality routine surveillance, complementary approaches such as surveys are needed to address limitations and ensure all countries will be enabled to generate representative quality data.

GLASS next steps will focus on improving data representativeness and quality, assessing the burden of AMR, expand AMR and AMC surveillance, improve the use of surveillance data, and facilitate the AMR surveillance linkages between the human, animal and environmental sector. GLASS continues benefitting from the expertise of WHO AMR Surveillance and Quality Assessment Collaborating Centres Network and the backing of regional AMR and AMC surveillance networks, which represent important pillars for advancing AMR surveillance globally. Together with partners, the WHO three-level network plays a key role in promoting peer support for capacity building and identifying ways to overcome difficulties



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