Workstream 1 – Policy makers

1. Discussion points:
   - Use of surveillance data for policy making
   - Approaches to assess AMR burden of disease
   - Approaches to monitor the development and implementation of national AMR/AMU surveillance systems

2. Background
   Topic 1: Use of surveillance data for policy making

   Antimicrobial resistance (AMR) and antimicrobial use (AMU) surveillance data are of crucial importance to inform and plan public health actions against AMR, optimize the use of antimicrobials, and monitor impact of interventions. They should provide the evidence base for action at all levels.

   The monitoring of AMR trends will help identify populations at higher risk and assess the impact of control interventions. AMR is driven by many complex factors, but overuse and misuse of antimicrobial medicines are among the leading causes. Measuring and integrating the data on antimicrobial consumption and use (AMC/AMU) is therefore a critical step to inform the development of appropriate strategies to tackle AMR, improve the use of antimicrobials and monitor impact of interventions.

   Strategies and activities for addressing AMR through prevention, control and mitigation take place at all levels. Ensuring that these strategies are supported by data requires some considerations such as:
   - What data are needed to inform interventions at different levels?
   - The quality of the data and their potential limitations
   - Which stakeholders should be involved and how best to communicate these data?

   The GLASS team is currently working on development of a guidance document on the use of AMR and AMC/U data at the local and national levels. The input from this workstream discussions will further inform the development of the guidance document on the use of AMR and AMC/U surveillance data.
Topic 2: Assessing AMR burden of disease

Accurate data on the burden that AMR places on the human health and national economy are important for governments to reliably and prudently prioritize their public health spending. Furthermore, reliable data are valuable for campaigns to raise public awareness of AMR and to obtain funding for research and interventions to control AMR. However, to date, most estimates of the impact of AMR on human health have been based on fragmented, very limited data, mainly derived from retrospective epidemiological studies in high-income countries and often conducted using very different methodological approaches. The health impact of a disease can be measured by using different metrics (for example, mortality, prevalence, incidence) and it is generally a combination of different measures that offers the clearest picture.

To harmonize the approach and yield more robust estimates of the impact of AMR, and by obtaining one of the key needed metrics, GLASS has published the “GLASS method for estimating attributable mortality of AMR bloodstream infections” in May 2020. It is a master template protocol aimed at estimating in-hospital mortality - and optionally mortality at 28 days after confirmed infection - attributable to AMR bloodstream infections, the latter being among the most serious life-threatening infectious diseases. The protocol is targeting at a minimum two types of AMR: *E. coli* resistant to 3rd generation cephalosporin and methicillin-resistant *Staphylococcus aureus* bloodstream infections, but it can be applied to other pathogen-antimicrobial combinations, based on the local epidemiology and availability of resources. These two types of AMR have been targeted for following reasons: (i) both *E. coli* and *S. aureus* are common cause of community and hospital infections and these types of AMR are associated with higher morbidity and mortality and push towards the use of last resource drugs; (ii) for the same reason, the two indicators are included in the monitoring of the Sustainable Development Goals (SDG indicator 3.d.2). This new methodology offers a great opportunity for countries to carry out an estimation of AMR attributable mortality using a standardized and robust epidemiological approach that will facilitate the comparability and pooling of estimates at the global level.

GLASS work on the AMR burden is progressing. The first step will be through assessment of AMR attributable mortality which will start in the second part of 2021 with the support of partners.

Points for discussion include:

- What would be the best strategies to support countries in the establishment, improvements, or implementation of estimation of impact on human health?
- Given the variation in stages of surveillance development across countries, what steps could be taken to achieve global estimates of AMR burden?

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1 At [https://www.who.int/publications/i/item/9789240000650](https://www.who.int/publications/i/item/9789240000650)
Topic 3 Monitoring of national surveillance systems

Depending on epidemiological, sociological, and economic factors, surveillance systems can be quite complex. Multiple attributes are required to assess their performance, but such evaluation is needed to gauge the reliability of the data generated by the surveillance systems and to guide future development.

GLASS is proposing a Progressive Surveillance Pathway for AMR (PSP-AMR) composed by six stages. Three key areas of implementation that should be monitored are defined – governance, epidemiology and diagnostic - and each stage is composed of activities and objectives to be achieved for the three areas to enable countries to progressively increase the quality of AMR surveillance. The purpose of the PSP-AMR is to help countries identify existing gaps and better plan their resource allocation and capacity building activities, while guiding the national surveillance development. The chosen levels of development of the surveillance (Table) match with the indicators of the Global AMR monitoring and evaluation framework of the AMR Global Action Plan, “The Tripartite AMR Country Self-assessment survey (TrACSS)⁵”, which monitors the implementation of AMR national action plans for the human and animal health.

Levels of development of AMR surveillance monitored by TrACSS⁵.

<table>
<thead>
<tr>
<th>Stages</th>
<th>Level of development of national AMR surveillance</th>
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<tbody>
<tr>
<td>0</td>
<td>No capacity for generating data (antibiotic susceptibility testing and accompanying clinical and epidemiological data) and reporting on antibiotic resistance.</td>
</tr>
<tr>
<td>1</td>
<td>AMR data is collated locally for common bacterial infections, but data collection may not use a standardized approach and lacks national coordination and/or quality management.</td>
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<tr>
<td>2</td>
<td>AMR data are collated nationally for common bacterial infections, but national coordination and standardization are lacking.</td>
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<tr>
<td>3</td>
<td>There is a standardized national AMR surveillance system collecting data on common bacterial infections, with established network of surveillance sites, designated national reference laboratory for AMR, and a national coordinating centre producing reports on AMR.</td>
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<tr>
<td>4</td>
<td>The national AMR surveillance system links AMR surveillance with antimicrobial consumption and/or use data for human health.</td>
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<tr>
<td>5</td>
<td>The national AMR surveillance system links AMR surveillance with antimicrobial consumption and/or use data for human and animal health, and the environment (integrated approach)</td>
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