Resource materials for in-country development and implementation of national action plans to address antimicrobial resistance

September 2021
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## What’s new in the AMR Resource Pack September 2021 update

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<th>Section</th>
<th>New resources</th>
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| **AMR surveillance**           | • Global Antimicrobial Resistance and Use Surveillance System (GLASS) Report: 2021  
                                 | • WHO integrated global surveillance on ESBL-producing E. coli using a “One Health” approach. Implementation and opportunities: 2021  
                                 | • The detection and reporting of colistin resistance. 2nd edition: 2021  
| **WHO laboratory strengthening tools** | • New section                                                                                                                                 |
| **Education, awareness & behaviour change** | • WHO Antimicrobial Stewardship: A competency-based approach Open Online Course (English, French, Italian, Russian and Spanish)  
                                 | • Infographic: AMR and COVID-19  
                                 | • The TAP quick guide: a practical handbook for implementing tailoring antimicrobial resistance programmes (2021)  
                                 | • The TAP toolbox  
                                 | • TAP Process Poster  
                                 | • Two-page advocacy briefs on AMR and related issues: new advocacy briefs on COVID-19 and Food Safety |
| **Infection prevention and control** | • Infection prevention and control: guidance to action tools. World Health Organization. Regional Office for Europe.                                |
| **Water, sanitation & hygiene** | • Global progress report on WASH in healthcare facilities: Fundamentals first.  
                                 | • WHO Briefing note: Antimicrobial resistance: An emerging water, sanitation and hygiene issue  
                                 | • WHO (2021). Understanding barriers to quality of care: an approach for conducting a situational analysis of water, sanitation and hygiene (WASH) and quality in health care facilities |
| **AMR & essential medicines and products** | • COVID-19 Clinical management: living guidance 25 January 2021  
                                 | • 2020 antibacterial agents in clinical and preclinical development: an overview and analysis.  
                                 | • Essential Diagnostics List                                                                                              |
| **Antimicrobial stewardship** | • WHO policy guidance on integrated antimicrobial stewardship activities  
                                 | • Antimicrobial stewardship interventions: a practical guide (2021)  
<pre><code>                             | • Antimicrobial Stewardship: A competency-based approach – new languages: Russian, Spanish, Italian                             |
                             | • WHO. (2019). Intervention guidebook for implementing and monitoring activities to reduce missed opportunities for vaccination |
</code></pre>
<table>
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<tr>
<th>Monitoring</th>
<th>Other useful AMR resources</th>
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<tr>
<td>• Monitoring global progress on antimicrobial resistance: Tripartite AMR country self-assessment survey (TrACSS) 2019-2020</td>
<td>• International instruments on the use of antimicrobials across the human, animal and plant sectors</td>
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<tr>
<td>• Monitoring regional progress on addressing antimicrobial resistance in the WHO South-East Asia Region: analysis report of results of three rounds of AMR national self-assessment surveys.</td>
<td>• Fleming Fund Online learning: Tackling Antimicrobial Resistance Courses</td>
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<td>• OpenWHO: New Antimicrobial Resistance channel</td>
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**Acknowledgements**

We gratefully acknowledge the contributions of WHO headquarters technical teams and WHO regional AMR focal points. Special thanks to WHO Regional office for Europe for providing the laboratory strengthening tools section.
1. General AMR resources

- Global action plan on antimicrobial resistance (Also in French, Russian, Spanish)

- Follow-up to the political declaration of the high-level meeting of the General Assembly on antimicrobial resistance. Report of the Secretary-General. May 2019 (Also in Arabic, Chinese, Russian, Spanish).
  https://undocs.org/en/A/73/869


- WHO antimicrobial resistance webpage (also in Arabic, Chinese, French, Russian & Spanish)
  https://www.who.int/health-topics/antimicrobial-resistance

  https://openknowledge.worldbank.org/handle/10986/32552

2. AMR National action plan resources

- Antimicrobial resistance: A manual for developing national action plans


- Tackling Antimicrobial Resistance Together. Working paper 1.0: Multisectoral coordination
  https://www.who.int/publications/i/item/tackling-antimicrobial-resistance-together-working-paper-1.0-multisectoral-coordination
• Turning plans into action for antimicrobial resistance (AMR). Working Paper 2.0: Implementation and coordination (also available in Russian) https://www.who.int/antimicrobial-resistance/publications/Turningplansintoactionforantimicrobialresistance/en/


3. Health workforce AMR education resources


4. Awareness, communications and behaviour change

• Materials for WAAW 2021 https://www.who.int/campaigns/world-antimicrobial-awareness-week/2021


• Tailoring Antimicrobial Resistance programmes (TAP) Toolbox https://www.euro.who.int/en/health-topics/disease-prevention/antimicrobial-

- Tailoring Antimicrobial Resistance programmes (TAP) Process Poster
  https://who.canto.global/s/RFV33


- An open access online platform of Tripartite campaign materials to download in multiple languages (NB: Internet Explorer does NOT open this link): https://trello.com/b/tBoXeVae/world-antibiotic-awareness-week-2017-fao-oie-who


- Wellcome Trust. Toolkit on communicating Antimicrobial Resistance
  https://wellcome.ac.uk/reports/reframing-antimicrobial-resistance-antibiotic-resistance


5. Surveillance resources

a) Antimicrobial resistance surveillance

  https://www.who.int/publications/i/item/9789240027336

- Whole-genome sequencing for surveillance of antimicrobial resistance. Sept 2020
  https://www.who.int/publications/i/item/9789240011007

- GLASS guidance for national reference laboratories. Sept 2020
  https://www.who.int/publications/i/item/9789240010581

- Global antimicrobial resistance surveillance system (GLASS) reports.
  https://www.who.int/glass/reports/en/
- GLASS method for estimating attributable mortality of antimicrobial resistant bloodstream infections. [https://www.who.int/publications/i/item/9789240000650](https://www.who.int/publications/i/item/9789240000650)


- National antimicrobial resistance surveillance systems and participation in the Global Antimicrobial Resistance Surveillance System (GLASS): A guide to planning, implementation, and monitoring and evaluation (Also in French) [http://apps.who.int/iris/bitstream/10665/251554/1/WHO-DGO-AMR-2016.4-eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/251554/1/WHO-DGO-AMR-2016.4-eng.pdf?ua=1)

- Diagnostic stewardship: A guide to implementation in antimicrobial resistance surveillance sites (Also in French) [http://apps.who.int/iris/bitstream/10665/251553/1/WHO-DGO-AMR-2016.3-eng.pdf?ua=1](http://apps.who.int/iris/bitstream/10665/251553/1/WHO-DGO-AMR-2016.3-eng.pdf?ua=1)


- The detection and reporting of colistin resistance. 2nd edition: 2021 [https://apps.who.int/iris/bitstream/handle/10665/343654/9789240019041-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/343654/9789240019041-eng.pdf)


- Other GLASS enrolment and data management documents and tools (English & French) [http://www.who.int/glass/resources/en/](http://www.who.int/glass/resources/en/)
b) Antimicrobial consumption surveillance

- GLASS methodology for surveillance of national antimicrobial consumption (version 1.1), World Health Organization; 2020 [https://www.who.int/publications/i/item/9789240012639](https://www.who.int/publications/i/item/9789240012639)

- GLASS manual on the management of antimicrobial consumption data, World Health Organization; 2020 [https://www.who.int/publications/i/item/9789240010192](https://www.who.int/publications/i/item/9789240010192)

- GLASS guide for national surveillance systems for monitoring antimicrobial consumption in hospitals, World Health Organization; 2020 [https://apps.who.int/iris/handle/10665/336182](https://apps.who.int/iris/handle/10665/336182)


- WHO Collaborating Centre for Drug Statistics Methodology: ATC/DDD Index 2021 [https://www.whocc.no/atc_ddd_index/](https://www.whocc.no/atc_ddd_index/)

- Introduction to drug utilization research [https://apps.who.int/iris/handle/10665/42627](https://apps.who.int/iris/handle/10665/42627)


6. WHO laboratory strengthening tools

- **Laboratory quality management system: handbook**

  This is intended to provide a comprehensive reference on Laboratory quality management system for all stakeholders in health laboratory processes, from management, to administration, to bench-work laboratorians. This handbook covers topics that are essential for quality management of a public health or clinical laboratory. They are based on both ISO 15189 and CLSI GP26-A3 documents. The handbook is linked to the training toolkit on laboratory quality management system (Also in French, Russian, Spanish).
  

- **LQMS training toolkit**
  

- **Quality Manual template**
  

- **Laboratory Quality Stepwise Implementation tool**

  This web-based tool provides a stepwise plan to guide medical laboratories towards implementing a quality management system in accordance with the requirements of ISO 15189. It was developed by the Royal Tropical Institute for the World Health Organization. Laboratory staff can use this tool to implement, step by step, a quality management system, either by working through phases and activities sequentially, or by working on one quality system essential subject area at a time. Checklists can be created for phases or for subject areas according to need (Also in French, Russian, Spanish, Turkish).
  
  [https://extranet.who.int/lqsi/](https://extranet.who.int/lqsi/)

- **Developing national laboratory policies and strategies**


• Laboratory Assessment Tool
  2 tools 1 to assess the system, 1 to assess the facility

The Laboratory Assessment Tool offers guidance to assess laboratories and national laboratory systems. The target audience is any stakeholder performing laboratory assessments: national health authorities, multilateral agencies, Non-Governmental Organizations (NGOs), laboratory managers, etc. This document describes a general process for assessing laboratories and provides two questionnaires to help assess national laboratory systems (Annex 1) and individual laboratories (Annex 2). Assessors can use it as such or customize the available materials to meet local requirements or specificities and better fit the assessment context (Also in French, Russian, Spanish).
http://www.who.int/ihr/publications/laboratory_tool/en/

• Laboratory Biosafety Manual

The Laboratory Biosafety Manual provides practical guidance on biosafety techniques for use in laboratories at all levels. The manual covers risk assessment and safe use of recombinant DNA technology, and provides guidelines for the commissioning and certification of laboratories. Laboratory biosecurity concepts are introduced, and the latest regulations for the transport of infectious substances are reflected. Material on safety in health-care laboratories, previously published elsewhere by WHO, has also been incorporated (Also in French, Russian, Spanish, Serbian and Italian).
http://www.who.int/csr/resources/publications/biosafety/Biosafety7.pdf?ua=1

• Guidance on regulations for the Transport of Infectious Substances

This publication provides information for identifying, classifying, marking, labelling, packaging, documenting and refrigerating infectious substances for transportation and ensuring their safe delivery. It provides practical guidance to facilitate compliance with applicable international regulations for the transport of infectious substances by all modes of transport, both nationally and internationally, and includes the changes that apply from 1 January 2015 (Also in French and Russian).

• WHO European Guidance on standards for infectious diseases laboratories

http://www.euro.who.int/__data/assets/pdf_file/0005/133457/e94772v2.pdf

7. Prevention of Infection

  a) Infection prevention and control (IPC) resources

WHO IPC home page https://www.who.int/teams/integrated-health-services/infection-prevention-control

IPC Core Components

• WHO Minimum requirements for infection prevention and control programmes
  https://www.who.int/publications/i/item/9789241516945
• WHO Guidelines on core components of infection prevention and control programmes at the national and acute health care facility level (also available for download in French and Spanish).
  https://www.who.int/publications/i/item/9789241549929

• Implementation manuals and assessment tools (each having documents for both national and facility level) and training modules for the IPC core components (also in French)
  http://www.who.int/infection-prevention/tools/core-components/en/

**Directly AMR related IPC tools and resources**

• IPC focus on AMR – evidence, guidelines and publications
  https://www.who.int/infection-prevention/publications/focus-amr/en/


• IPC for AMR advocacy document: The essential role of IPC to curb AMR, aimed at health policy decision-makers
  https://cdn.who.int/media/docs/default-source/integrated-health-services-(ihs)/amr/ipc_amr_a4.pdf?sfvrsn=ede4a5cd_7

• IPC focus on AMR: implementation & advocacy tools and resources
  https://www.who.int/infection-prevention/tools/focus-amr/en/

• Implementation manual to prevent and control the spread of carbapenem-resistant organisms at the national and health care facility level.
  https://apps.who.int/iris/bitstream/handle/10665/312226/WHO-UHC-SDS-2019.6-eng.pdf?ua=1

• Infection prevention and control: guidance to action tools. World Health Organization. Regional Office for Europe.
  https://apps.who.int/iris/handle/10665/341107.

  https://apps.who.int/iris/handle/10665/341418.

  https://apps.who.int/iris/handle/10665/341417.

  https://apps.who.int/iris/handle/10665/341107.

• Minimum Requirements for infection prevention and control (IPC) programmes
Other IPC tools and resources

- Global report on the epidemiology and burden of sepsis
  https://www.who.int/publications/i/item/9789240010789

- IPC Training Package  https://ipc.ghelearning.org/

- OpenWHO  https://openwho.org/channels/ipc

- WHO Global guidelines for the prevention of surgical site infection, 2nd ed. 2018


- WHO Protocol for surgical site infection surveillance with a focus on settings on limited resources
  http://www.who.int/infection-prevention/tools/surgical/SSI-surveillance-protocol.pdf?ua=1

- Decontamination and Reprocessing of Medical Devices for Health-care Facilities
  http://www.who.int/infection-prevention/publications/decontamination/en/

- Hand hygiene for all initiative: improving access and behaviour in health care facilities
  https://www.who.int/publications/i/item/9789240011618

- Injection safety implementation tools and resources
  http://www.who.int/infection-prevention/tools/injections/en/


b) Water, sanitation & hygiene (WASH) resources

Webpages

- WHO Water sanitation hygiene webpage:  https://www.who.int/health-topics/water-sanitation-and-hygiene-wash


Standards and guidelines


Monitoring


Tools


c) Immunization resources


8. Optimize the use of antimicrobial medicines

a) Antimicrobial selection


b) Antimicrobial stewardship


• WHO 2021. The selection and use of essential in vitro diagnostics - TRS 1031 [https://www.who.int/publications/i/item/9789240019102](https://www.who.int/publications/i/item/9789240019102)

• WHO policy guidance on integrated antimicrobial stewardship activities (2021) [https://www.who.int/publications/i/item/9789240025530](https://www.who.int/publications/i/item/9789240025530)

• Antimicrobial stewardship programmes in health-care facilities in low- and middle-income countries: a WHO practical toolkit. WHO 2019 (Arabic, English, French, Russian) [https://www.who.int/publications/i/item/9789241515481](https://www.who.int/publications/i/item/9789241515481)

• WHO EURO online course “Antimicrobial Stewardship: A competency-based approach” (English, French, Italian, Russian & Spanish) [https://openwho.org/courses/AMR-competency](https://openwho.org/courses/AMR-competency)


• WHO 2018. Methods to analyse medicine utilization and expenditure to support pharmaceutical policy implementation
c) Quality of antimicrobials

- Operational principles for good pharmaceutical procurement

- Model quality assurance system for procurement agencies (also in French)
  https://www.who.int/medicines/publications/ModelQualityAssurance.pdf?ua=1

- Assessment tool based on the model quality assurance system for procurement agencies: aide-memoire for inspection (Also in French).
  https://www.who.int/medicines/areas/quality_safety/quality_assurance/TRS986annex4.pdf?ua=1

d) Resources specific to Latin America

- Acceso a medicamentos de alto costo (2009)

- Acceso y uso racional de medicamentos y otras TS de alto costo (2016)

- Lista de productos del Fondo Estratégico
  https://www.paho.org/en/node/58472

- Legislation on antibiotics in Latin America
  https://www.paho.org/spanish/ad/dpc/cd/amr-legis.pdf"
9. Food safety & zoonotic diseases


- WHO guidelines on use of medically important antimicrobials in food-producing animals, Nov 2017 (Also in French). http://www.who.int/foodsafety/areas_work/antimicrobial-resistance/cia_guidelines/en/


- Code of practice to minimize and contain antimicrobial resistance: www.fao.org/input/download/standards/1

- Codex guideline for Risk Analysis of Foodborne AMR www.fao.org/input/download/standards/11776/CXG_0

10. Monitoring


- Country progress in the implementation of the global action plan on antimicrobial resistance: Data from fifth round of the Tripartite AMR Country Self-Assessment Survey (TrACSS) available in October 2021. WHO, FAO and OIE global tripartite database. https://amrcountryprogress.org/


- Monitoring regional progress on addressing antimicrobial resistance in the WHO South-East Asia Region: analysis report of results of three rounds of AMR national self-assessment surveys. https://apps.who.int/iris/handle/10665/334084
11. AMR and broader initiatives

- TB, HIV, malaria and neglected tropical diseases: Strengthening collaboration to prevent and manage antimicrobial resistance. [https://apps.who.int/iris/bitstream/handle/10665/311689/9789241515450-eng.pdf](https://apps.who.int/iris/bitstream/handle/10665/311689/9789241515450-eng.pdf)
- Antimicrobial resistance and primary health care. Technical series on primary health care brief on the occasion of the Global Conference on Primary Health Care. [https://apps.who.int/iris/handle/10665/326454?search-result=true&query=primary+health+care&scope=&rpp=10&sort_by=score&order=desc](https://apps.who.int/iris/handle/10665/326454?search-result=true&query=primary+health+care&scope=&rpp=10&sort_by=score&order=desc)

12. Other

- WHO AMR Division online Community of Practice. Register at [https://ezcollab.who.int/amr-nap/](https://ezcollab.who.int/amr-nap/)
- ReAct ToolBox [https://www.reactgroup.org/toolbox/](https://www.reactgroup.org/toolbox/)
  ReAct Boîte à outils [https://www.reactgroup.org/toolbox/](https://www.reactgroup.org/toolbox/)
- JAC – Antimicrobial Resistance (JAC-AMR) - an open-access journal that publishes academic content and peer-reviewed commentary on stewardship resources. [https://academic.oup.com/jacamr](https://academic.oup.com/jacamr)