USAID MEDICINES, TECHNOLOGIES, AND PHARMACEUTICAL SERVICES (MTAPS)

Improved Access. Improved Services. Better Health Outcomes.

A pharmacist filling a prescription

AWaRe Categorization for Antibiotics in Rwanda

Technical Brief | RWANDA

USAID MTaPS' assistance to the Rwanda Ministry of Health builds capacity to combat antimicrobial resistance and develop tools for antimicrobial stewardship at all levels of the health system.

Background

Antimicrobial resistance (AMR) is becoming an issue of great concern in Rwanda. A number of studies conducted at university teaching hospitals, while not generalizable, have reported increasing resistance of microbial agents to the most commonly used antibiotics in infectious diseases. Muvunyi et al (2013) reported increasing resistance of E. coli (31.4%) to penicillin and K. pneumonia (58.7%) to cephalosporin, while Massaisa et al (2018) reported a prevalence of 31.2% of Methicillin-resistant Staphylococcus aureus among 138 confirmed Staphylococcus aureus isolates at the University Teaching Hospital of Kigali (CHUK). To combat AMR, Rwanda is developing its first national action plan on antimicrobial resistance (NAP-AMR) under the One Health Approach. These efforts are complemented by the recent adoption of the Rwandan Access, Watch, and Reserve (AWaRe) classification of antibiotics, which has been customized based on the World Health Organization (WHO) AWaRe classification as a strategy to combat AMR.

Problem statement

Rwanda had National Essential Medicines Lists (NEMLs) for adults and children that were last updated in 2015 and did not reflect the most recent WHO Model Lists of Essential Medicines. The inappropriate use of medicines by clinicians is significant and needs to be improved to attain desired health outcomes.[1]

The solution

The US Agency for International Development (USAID) Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program, through the USAID-funded Global Health Security Agenda portfolio, has been providing support to target countries at the regional level and beyond the African continent to combat the spread of AMR by building multisectoral coordination, strengthening infection prevention and control, and optimizing the use of antimicrobial medicines through strategies such as the adoption of the AWaRe classification. MTaPS supported the Rwandan Ministry of Health (MOH) and national stakeholders in the revision of the Rwanda NEML, taking into account the classification of national essential antibiotics into AWaRe categories.

Approach

The MOH was already receiving support from WHO to update the NEML and standard treatment guidelines (STGs) for the treatment and management of prevailing health conditions, so MTaPS partnered with WHO on the NEML revision process. MTaPS worked with the MOH and its stakeholders to list and classify antibiotics in the 2021 NEML as antibiotics to improve access to (Access), important antibiotics to monitor (Watch), or antibiotics whose effectiveness needs to be preserved as a last resort (Reserve). MTaPS was engaged in collecting data on the local epidemiology of infectious diseases and conducted an extensive desk review of regional and international literature on infectious diseases profiles in Rwanda. The 2019 WHO Model Lists of Essential Medicines were a key reference. Key informant interviews and a workshop for consensus building with national experts in infectious diseases were conducted. MTaPS supported peer review consultations to review and validate the first Rwanda AWaRe classification of antibiotics.

Results

Forty-two antibiotics were included in the Rwanda AWaRe categorization. Twenty antibiotics (48%) that experts considered as having activity against a wide range of commonly encountered susceptible pathogens in Rwanda while also showing lower toxicity and lower resistance potential were classified as Access. This group of antibiotics accounted for the majority of antibiotics on the 2021 NEML and is of lower priority for antimicrobial stewardship (AMS). These Access antibiotics are recommended as essential first- or second-choice empirical treatment options for the most common infectious syndromes. Fourteen antibiotics (33%) were classified as Watch (i.e., sensitive antibiotics with either higher toxicity concerns or a higher potential to develop resistance). This class of antibiotics should be prioritized as key targets of AMS programs and monitoring. Eight antibiotics (19%) were put into the Reserve group and should only be used as a last resort, when all other antibiotics have failed or cannot be used due to contraindications. While Reserve antibiotics must always be available at the appropriate levels of care, their use should be strictly limited to highly specific patients and clinical settings and should be protected and prioritized as key targets of national AMS programs involving central-level monitoring and utilization reporting to preserve their effectiveness.

---

[1] World Health Organization, The world medicines situations: chapter 8, rational use of medicines, 2010. WHO, Geneva, Switzerland. Available at: http://apps.who.int/medicinedocs/en/d/JS/6160e/10.html

Lessons learned

1. **Multistakeholder engagement is very important** to strengthen the framework for dialogue among stakeholders during the decision making process.
2. **Integrating the AWaRe classification into the revision process of the NEML and STGs at the onset is crucial.** The Rwanda AWaRe classification of antibiotics was initiated at a later stage of the revision process of the 2021 STGs and NEML. Following the AWaRe categorization, it was required to review the STGs to align with the guidance and recommendations on the appropriate use of antibiotics. This process has helped to ensure that the NEML and STGs align in their classification of antibiotics and other medicines. In the future, it is recommended to initiate the AWaRe classification before the revision of the STGs and EML as part of the revision cycle.
3. There are **inadequate systems for collection and analysis of data on AMR** from both the public and private health sectors. The MOH should ensure the use and standardization of routine culture and sensitivity testing methodologies across hospitals. This would help make data on antibiotic sensitivity profiles of causal microbes of the most common local infectious diseases readily available across all health care delivery levels for use by prescribers. Data on antibiotics supply and use should also be collected and analyzed.
4. **A commitment to AMS is required at all levels.** Implementation of the AWaRe classification and its success will require that the Government of Rwanda secures the adherence and commitment of various stakeholders, particularly health professionals, medicine prescribers and dispensers, and patients.
5. At the facility level, **drug and therapeutics committees/AMS committees** should play a lead role in advocating for and promoting the use of, providing training on, and monitoring adherence to the AWaRe classification of antibiotics.
6. There is need to develop various **managerial/restrictive/regulatory approaches** for antibiotics in the Watch and Reserve categories to ensure their appropriate use and long-term effectiveness.
7. Facility **leadership should institutionalize systematic mentorship** of health facility managers and prescribers to increase adherence.

Challenges

Only data from the three university teaching hospitals (CHUK, University Teaching Hospital of Butare, and King Faisal Hospital) were readily available and were not sufficient to provide a national antibiotics sensitivity profile. These data have limitations as most patients at this level were most likely treated with antibiotics before referral to the teaching hospitals, and the sample is not representative as most patients go to health facilities at the primary health care level first

Way forward

To ensure successful implementation of the Rwanda AWaRe classification:

1. **Include the AWaRe categorization in the national AMS action plans**. Stewardship programs should be implemented at different levels of the health system. The antibiotics in the Watch and Reserve categories require more active monitoring.
2. **Establish regulatory oversight for prescribing and dispensing practices, a robust antibiotic use monitoring system**, strict guidelines and procedures that involve central-level participation, an antibiotic supply chain monitoring system, and peripheral data collection and reporting systems to monitor and ensure adherence to the AWaRe categorization in the NEML and the use of the STGs.
3. Infectious diseases experts should systematically **integrate the AWaRe categorization into all future STG** revisions.
4. Training programs should integrate **AWaRe approaches into pre- and in-service training**

programs to ensure that health workers are informed.

5. **Establish standardization of testing protocols across laboratories at the central and decentralized levels** (e.g., health centers, district and other hospitals). The data on the antibiotic resistance profile of causal microorganisms should be regularly analyzed and reported to inform decision making on antibiotic use.
6. **Strengthen the role of the drug and therapeutics committees/AMS committees at the facility level** to continuously support adherence to guidelines, NEML antibiotic selection, and monitoring of the AWaRe classification. These committees should play a lead role in advocating for and promoting the use of, providing training on, and monitoring adherence to the AWaRe classification of antibiotics.
7. **Establish monitoring of tracer commodities from the Access, Watch, and Reserve categories**. One of the intermediate milestones is for the country to have 60% of antibiotic consumption coming from the Access group. Monitoring would help check progress toward this target. The MOH should consider some potential managerial/restrictive/regulatory approaches for antibiotics in the Watch and Reserve categories to ensure rational use and longer-term effectiveness and to monitor the medicines supply chain to ensure the different AWaRe classes of antibiotics are available at all times in the facility levels indicated in the STGs.
8. **Monitoring systems should provide feedback to the district and facility levels** regarding their compliance with AWaRe antibiotic classification usage recommendations.
9. Facility leadership should **institutionalize systematic mentorship of managers and prescribers** to increase adherence to the STGs and NEML with the AWaRe classification.

Conclusion

The adoption of the AWaRe classification into the Rwandan NEML is a preliminary step toward the implementation of the recently adopted One Health policy in Rwanda. The AWaRe classification serves as a strategy to combat AMR and a tool for AMS to improve access to and use of antimicrobials and patient safety at all levels of the health care system.

"The journey has just started. The AWaRe classification is an opportunity for the health sector to set targets for measuring and reporting progress on antibiotic use. The overall goal is to increase the use of Access group antibiotics where availability is low, while at the same time reduce the use of Watch group and Reserve group antibiotics that are at higher risk of antimicrobial resistance"

– Dr. Corneille Ntihabose, Head of Department Clinical Services, MOH

About USAID MTaPS

The USAID Medicines, Technologies, and Pharmaceutical Services (MTaPS) Program (2018–2023) enables low- and middle-income countries to strengthen their pharmaceutical systems, which is pivotal to better health outcomes and higher-performing health systems. The program is implemented by a consortium of global and local partners, led by Management Sciences for Health (MSH), a global health nonprofit.

www.mtapsprogram.org

Contact: John Patrick Mwesigye, Country Program Director, MTaPS Rwanda jmwesigye@mtapsprogram.org

USAID FROM THE AMERICAN PEOPLE

This document is made possible by the generous support of the American people through the US Agency for International Development (USAID) contract no. 7200AA18C00074. The contents are the responsibility of Management Sciences for Health and do not necessarily reflect the views of USAID or the United States Government