

Improving Antimicrobial Use in Africa: Context and Challenges of Access to Medicines

Workshop on Vaccination and Alternatives to
Antimicrobials for English Speaking Africa

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Presentation outline

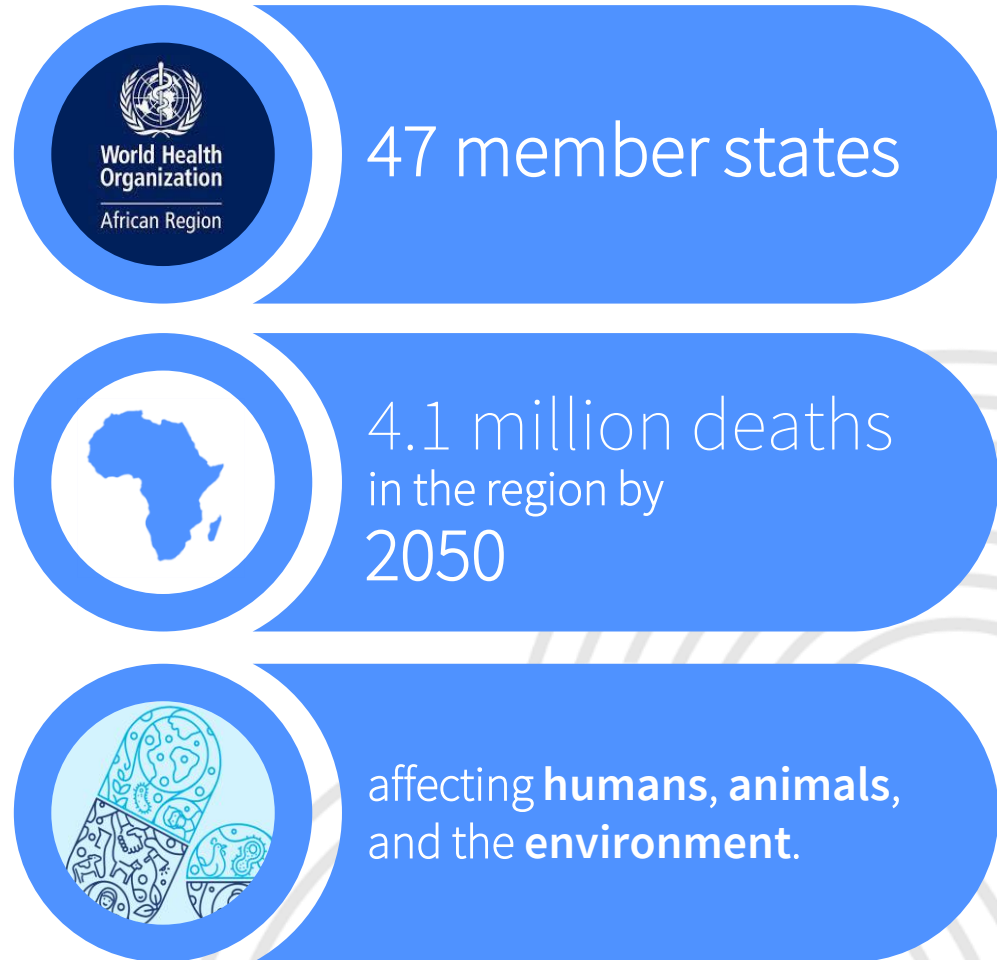
1. Overview
 - The WHO African Region
 - WHO AFRO Strategic Response
2. Key Challenges in the WHO African Region
3. GLASS Enrollment and Participation in Africa
 - GLASS AMC Enrollment/ Participation
 - Key Antibiotic Consumption Findings
 - Key Resistance Findings in the Region
 - Role of One health in Surveillance
4. Progress and Future Directions
5. Recommendations and the Way Forward

The WHO African Region

Member States: The WHO African Region (AFRO) consists of 47 member states.

The Threat: Antimicrobial Resistance (AMR) is one of the top ten global public health threats, with a disproportionately high burden in Africa. It's estimated to cause 4.1 million deaths in the region by 2050 if not addressed.

A "One Health" Problem: AMR is a complex issue affecting humans, animals, and the environment. Requires a multidisciplinary, cross-sectoral approach to addressing mitigating it.



The Global Action Plan (GAP) and National Action Plans (NAPs):

Global Action Plan on AMR, informed the development of countries specific One health National Action Plans have developed their own NAPs.

REGIONAL STRATEGY FOR EXPEDITING THE IMPLEMENTATION AND MONITORING OF NATIONAL ACTION PLANS ON ANTIMICROBIAL RESISTANCE, 2023–2030 IN THE WHO AFRICAN REGION:

Key Pillars of the Strategy:



Improve Awareness and Education:

to improve awareness and understanding of AMR through effective communication, education and training targeting priority stakeholders across sectors



Strengthen Surveillance and Research:

to enhance knowledge and evidence on AMR rates and antimicrobial consumption through improved surveillance of AMR and antimicrobial use, health care-associated infections, and laboratory diagnostic capacity.



Optimize Use of Antimicrobials

to optimize the use of antimicrobials in humans through the reinforcement of national regulations and laws and the implementation of antimicrobial stewardship policies and guidelines in health care facilities to improve patient outcomes.



Governance and Coordination:

to strengthen multisectoral coordination and governance in addressing AMR threats to human, animal, and environmental health at national and subnational levels through integrated multisectoral approaches to foster the implementation of national action plans on AMR

Key Challenge 1: Systems based and Socio-cultural

Weak Healthcare Systems:

- **Inadequate infrastructure:** Many regions lack sufficient healthcare facilities, equipment, and trained personnel.
- **Limited diagnostics:** There's a severe shortage of laboratories with the capacity to identify pathogens and test for drug resistance. This leads to empirical treatment—prescribing based on symptoms rather than a confirmed diagnosis.

Regulatory and Governance Gaps:

- **Fragmented systems:** Weak regulatory frameworks and poor enforcement lead to the circulation of substandard and counterfeit medicines.
- **Poor surveillance:** Inadequate data collection and surveillance systems make it difficult to track and monitor the spread of AMR. Only a small fraction of the data collected includes patient clinical information.

Socioeconomic and Cultural Factors:

- **Cost:** Financial barriers often prevent people from accessing proper healthcare, pushing them toward cheaper, unregulated options.
- **Lack of awareness:** There is limited public awareness about the dangers of AMR and the importance of appropriate antimicrobial use. Traditional beliefs and socio-cultural practices can also influence how medicines are used.

Key Challenge 2: Equitable ACCESS

Data shows that a small number of antibiotics, often from the "Watch" category (those with higher resistance potential), make up a large portion of consumption.

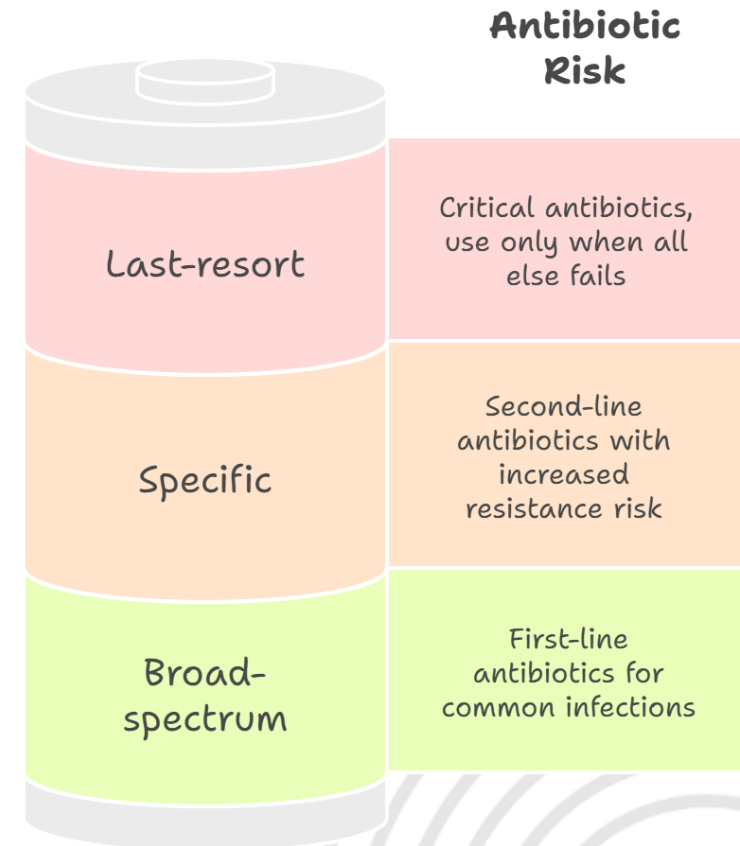
This is often due to **limited access to diagnostic services**, which leads to "flying blind" and using empiric treatment (treatment based on clinical symptoms rather than a lab diagnosis).

In some low- and middle-income countries in the region, there is also little or no use of "Reserve" antibiotics, which are needed to treat highly resistant infections.

Potential outcome/Impact Based on Key Use Areas:

- ❖ The key outcome of implementing the AWaRe categorization of antibiotics; **Promotion of responsible antibiotic use** to combat **Antimicrobial Resistance (AMR)**. This tool classifies antibiotics into three groups: **Access** (broad-spectrum, low-risk), **Watch** (higher-risk, more specific), and **Reserve** (last-resort). The potential impact of these actions: Global reduction in antibiotic resistance, preservation of effective treatments, and improved patient outcomes.

Antibiotic categorization spectrum guides responsible use and combats resistance.



WHO AWaRe classification

Essential **Access**, **Watch** and **Reserve** antibiotics need to be **accessible** and affordable for those who need them!

Not Recommended

Fixed-dose combinations of multiple broad-spectrum antibiotics not supported by evidence/guidelines

“Last-resort” options against MDRO

Reserve

Watch

Access

Higher “resistance potential”

Often 1st or 2nd choice for common infectious syndromes

Lower “resistance potential”



Access group antibiotics

- Core set of **20 antibiotics**
 - 1st or 2nd line choice for ***empirical*** treatment of the priority clinical infection syndromes
- Generally characterized by **narrow-spectrum** (with limited risk of resistance) and/or low toxicity
- Prioritized for use over Watch and Reserve antibiotics
- Should be available everywhere
 - at an appropriate quantity, dose, and formulation

ACCESS on the 2023 EML

Amikacin
Amoxicillin
Amoxicillin/clavulanic-acid
Ampicillin
Benzathine benzylpenicillin
Benzylpenicillin
Cefalexin
Cefazolin
Chloramphenicol
Clindamycin
Cloxacillin (or dicloxacillin, flucloxacillin)
Doxycycline
Gentamicin
Metronidazole
Nitrofurantoin
Phenoxymethylpenicillin
Procaine benzylpenicillin
Spectinomycin
Sulfamethoxazole/trimethoprim
Trimethoprim

Watch group antibiotics

- Recommended only for a limited number of specific syndromes – **11 antibiotics**
- Antibiotics that have a **higher potential to drive bacterial resistance**
 - e.g. 3rd gen cephalosporins, fluoroquinolones, macrolides
- These antibiotics are often also highest priority agents of MIA* List
- Active stewardship important for optimal (specific) uses
- Active monitoring of Watch antibiotics is encouraged
 - e.g., through point-prevalence surveys as a stewardship tool

WATCH on the 2023 EML

Azithromycin
Cefixime
Cefotaxime
Ceftazidime
Ceftriaxone
Cefuroxime
Ciprofloxacin
Clarithromycin (or erythromycin)
Meropenem (or imipenem/cilastatin)
Piperacillin/tazobactam
Vancomycin (IV & PO)

*medically important antimicrobials for human medicine

Reserve group antibiotics

- **Currently 9 “last-resort” antibiotics on EML**
 - proven activity against critical and high priority pathogens (according to WHO PPL)
- Restricted to use in specific patients and clinical settings
 - e.g. life-threatening infections with MDR- or XDR-resistant bacteria
 - when all Access or Watch group alternatives have failed or not suitable
- Key targets of high intensity national and international stewardship programs
- New antibiotics are likely (but not automatically) to be placed in this group

RESERVE on the 2023 EML

Cefiderocol
Ceftazidime/avibactam
Ceftolozane/tazobactam
Colistin (IV)
Fosfomycin (IV)
Linezolid (or tedizolid)
Meropenem/vaborbactam
Plazomicin
Polymyxin-B (IV)

Key Challenge 2: The Dual Challenge: Limited/Inequitable Access vs. Inappropriate use

Access Barriers: Limited access to essential, quality-assured antimicrobials, due to limited healthcare infrastructure, weak supply chains, and economic constraints.

Inappropriate use (misuse, abuse, overuse, underuse): Key driver of AMR perpetuated by.

- **Over-the-counter sales:** Many antimicrobials are sold without a prescription, leading to self-medication and incomplete courses.
- **Poor IPC & Hygiene and Sanitation measures :** High burden of communicable disease accelerates use of antimicrobials.
- **Agricultural use:** Antimicrobials are

frequently used in livestock for growth promotion, and in aquaculture contribute to resistance that can spread to humans through the food chain.

The Vicious Cycle: Limited access to essential quality assured medicines, diagnostics and inappropriate use is a vicious cycle for AMR propagation.

Table 1.

Table 1. CTAs that participated and reported data to GLASS-AMU by December 2023 by WHO region and World Bank income group classification					
	Total CTAs n	CTAs enrolled in GLASS-AMU n (%)	CTAs with 2016–2022 data reported (at least 1 year) n (%)	CTAs with 2016–2022 data published (at least 1 year) n (%)	CTAs with data published in 2022 n (%)
World	216	90 (41.7)	74 (34.3)	67 (31)	60 (27.8)
WHO regions					
African Region	47	19 (40.4)	11 (23.4)	11 (23.4)	8 (17)
Region of the Americas	45	4 (8.9)	3 (6.7)	3 (6.7)	3 (6.7)
South-East Asia Region	11	6 (54.5)	6 (54.5)	5 (45.5)	4 (36.4)
European Region	55	34 (61.8)	34 (61.8)	33 (60)	32 (58.2)
Eastern Mediterranean Region	22	18 (81.8)	13 (59.1)	10 (45.5)	9 (40.9)
Western Pacific Region	36	9 (25.0)	7 (19.4)	5 (13.9)	4 (11.1)
Income level					
High income	78	37 (47.4)	35 (44.9)	34 (43.6)	32 (41)
Upper-middle income	54	18 (33.3)	16 (29.6)	12 (22.2)	11 (20.4)
Lower-middle income	51	22 (43.1)	16 (31.4)	15 (29.4)	13 (25.5)
Low income	26	13 (50.0)	7 (26.9)	6 (23.1)	4 (15.4)

*Source: World Bank (2022) (23)

Seven CTAs were excluded because no information was available to classify them.

The percentages in the table represent the proportion of CTAs relative to the total number of CTAs and the number in each WHO region and by income level.

Table 3.

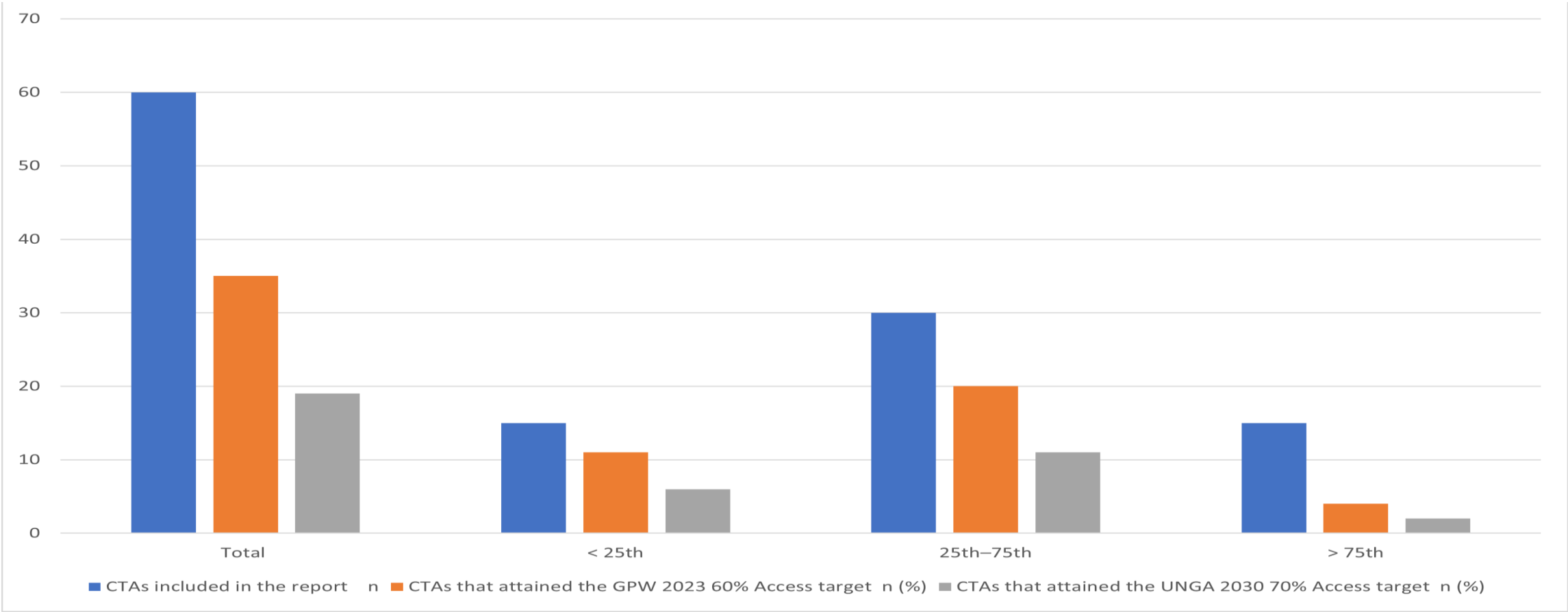
Table 3. Achievement of the GPW 2023 60% Access target and the UNGA 2030 70% Access target, by WHO region, World Bank income group classification and level of antibiotic use in 60 CTAs in 2022

	CTAs included in the report	CTAs that attained the GPW 2023 60% Access target	CTAs that attained the UNGA 2030 70% Access target
	n	n (%)	n (%)
Total	60	35 (58.3)	19 (31.7)
WHO regions			
African Region	8	5 (62.5)	5 (62.5)
Region of the Americas	3	3 (100)	1 (33.3)
South-East Asia Region	4	1 (25)	1 (25)
European Region	32	18 (56.2)	9 (28.1)
Eastern Mediterranean Region	9	4 (44.4)	1 (11.1)
Western Pacific Region	4	4 (100)	2 (50)
Income level			
High income	31	22 (71)	11 (35.5)
Upper middle	11	5 (45.5)	2 (18.2)
Lower middle	14	6 (42.9)	4 (28.6)
Low	4	2 (50)	2 (50)
Total antibiotic use (percentile)			
< 25th	15	11 (66.7)	6 (40.0)
25th–75th	30	20 (73.3)	11 (36.7)
> 75th	15	4 (26.7)	2 (13.3)

Table 3.

Achievement of the GPW 2023 60% Access target and the UNGA 2030 70% Access target, by WHO region, World Bank income group classification and level of antibiotic use in 60 CTAs in 2022

Total Antibiotic Use (Percentile)



Key Antibiotic Consumption Findings

Data shows that a small number of antibiotics, often from the "**Watch**" category (those with higher resistance potential), make up a large portion of consumption.

This is often due to **limited access to diagnostic services**, which leads to "flying blind" and using empiric treatment (treatment based on clinical symptoms rather than a lab diagnosis).

In some low- and middle-income countries in the region, there is also little or no use of "Reserve" antibiotics, which are needed to treat highly resistant infections.

Key Resistance Findings in the Region

Data from GLASS and other regional initiatives reveal alarming rates of resistance to common antibiotics.



59%

High prevalence of multidrug-resistant (MDR) bacteria, with an overall prevalence of 59% in some analyses.



In some West African countries, the prevalence of MDR bacteria in community and hospital settings is a serious concern.



Third-generation cephalosporin resistance is particularly high for common bacteria like *E. coli* and *Klebsiella pneumoniae*.

The Challenge of Methicillin-Resistant *Staphylococcus aureus* (MRSA)

MRSA is a serious threat in many African countries.

50%

In some regions, more than **50% of *Staphylococcus aureus* samples are resistant to methicillin.**

70%

In Ghana and Nigeria, resistance levels for MRSA have been found to exceed **70%.**

IPC

This highlights the urgent need for better infection prevention and control (IPC) measures and rational antibiotic use.

The Role of 'One Health' in Surveillance

The One Health approach recognizes that human, animal, and environmental health are interconnected.

GLASS promotes this approach by progressively incorporating data on AMR in the food chain and the environment.

Several African countries are participating in the "Tricycle" project, an integrated surveillance initiative that monitors resistance in the specific indicator bacteria; ESBL producing *E. coli* across human, animal, and environmental sectors.

This is a crucial step towards a holistic understanding of AMR transmission and is essential for developing integrated surveillance systems in the region.

- Data from the African Region on antimicrobial consumption is scarce but shows some alarming trends.
- There's a concerning reliance on a small number of "Watch" category antibiotics, which are considered to have a high potential for resistance. This indicates a need for better **antimicrobial stewardship**.
- In some countries, there is little to no use of "Reserve" antibiotics, which are critical for treating highly resistant infections. This can be due to high costs and limited availability.
- The lack of comprehensive data means that policymakers are often "flying blind" when it

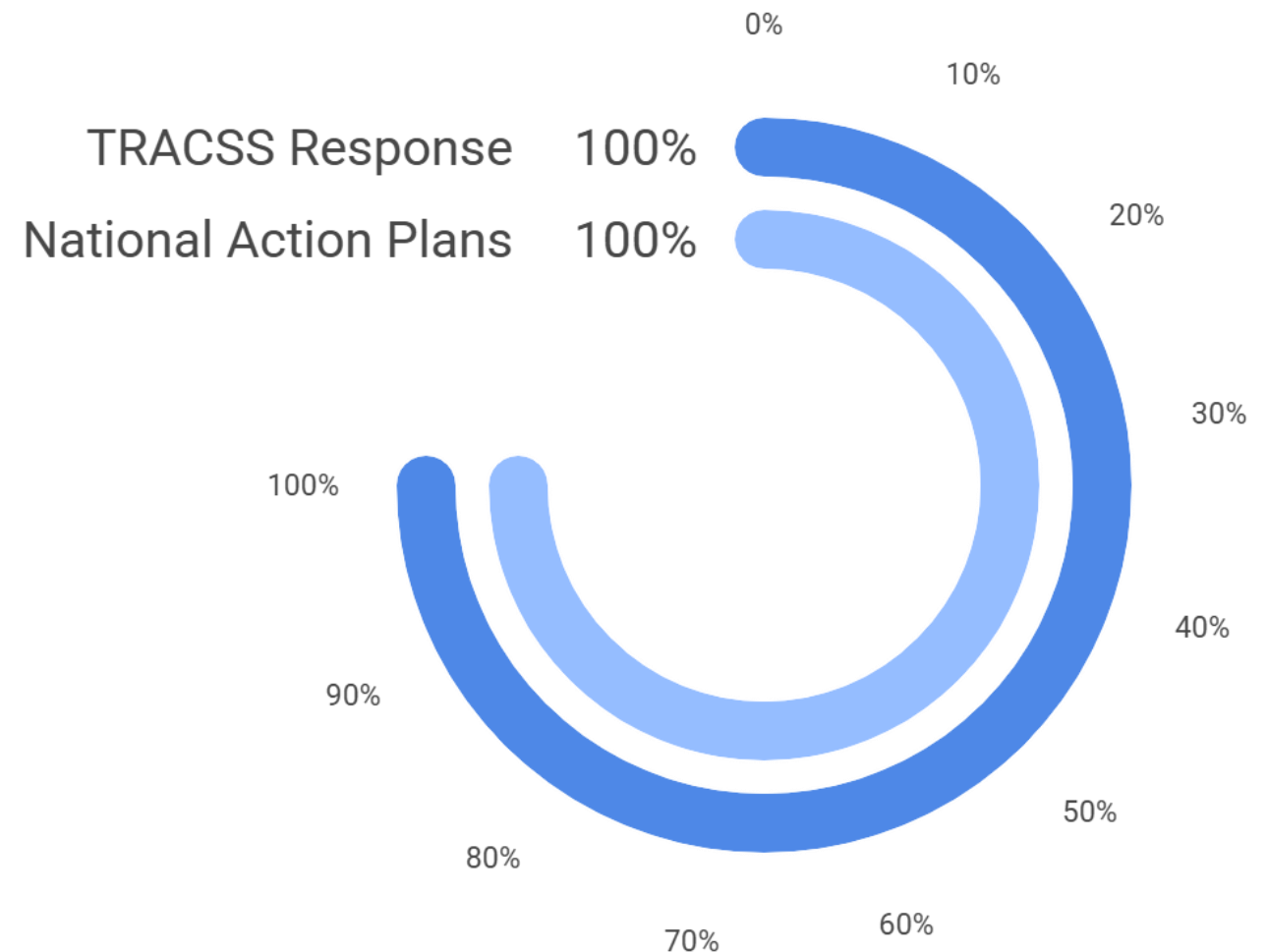
comes to developing effective strategies to combat AMR.

- The **"Tricycle" project** is key to creating a more holistic picture and is a positive step towards more integrated surveillance.
- A major challenge is the **low antibiotic consumption** in many Sub-Saharan African countries, which is still paired with a very **high burden of AMR**. This **paradox** suggests that factors like limited access to clean water, sanitation, and quality diagnostics contribute more to the AMR problem than just overall consumption rates.

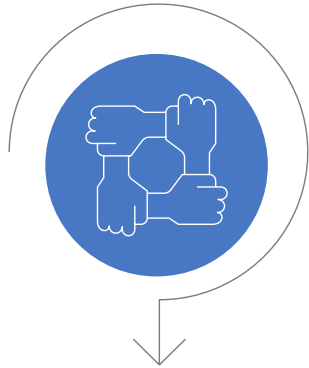
Progress and Future Directions

While the challenges are significant, the African Region is making progress.

- ❖ This year, 100% of Member States in the region have responded to the annual self-assessment survey on AMR (TRACSS), indicating a high level of political commitment.
- ❖ All 47 countries have developed national action plans on AMR and are at different stages of implementation.
- ❖ However, strengthening national laboratory capacity, improving data quality and sharing, and increasing sustainable funding are critical next steps to ensure the long-term success of AMR surveillance and containment efforts in the region.

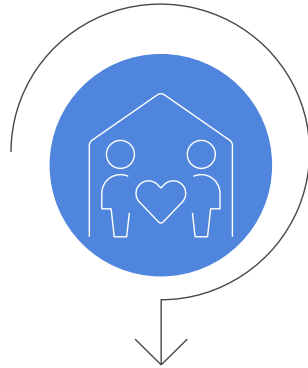


Recommendations and the Way Forward



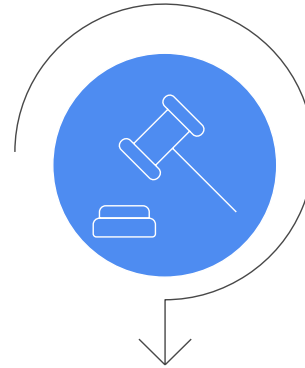
Multi-Sectoral "One Health" Collaboration:

Strengthen collaboration between the human health, animal health, and environmental sectors.



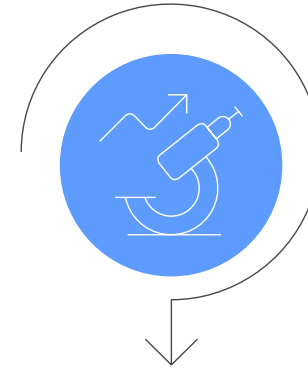
Community-Based Interventions:

Empower community health and animal health workers to educate communities and support surveillance efforts.



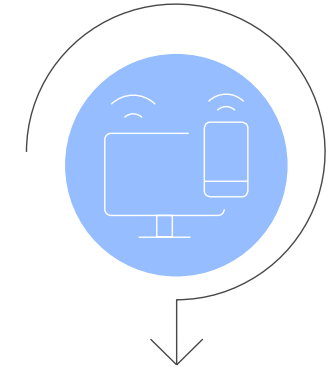
Policy and Regulation:

Implement and enforce strict regulations on over-the-counter sale of antimicrobials and combat the circulation of counterfeit drugs.



Investment in Diagnostics:

Increase investment in rapid, affordable diagnostic tools to support appropriate prescribing and reduce reliance on empirical treatment.



Leverage Technology:

Utilize digital solutions to improve data collection, surveillance, and information sharing across the healthcare system

