



MYAFYA — KNOWLEDGE FOR HEALTHY COMMUNITIES

PUBLIC HEALTH · ANTIMICROBIAL RESISTANCE · TANZANIA

Are Pharmacies Becoming the Frontline of **AMR** in Tanzania?

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INTRODUCTION

The Routine Nobody Questions

Walk into almost any pharmacy in Tanzania and you will find something that has quietly become routine: a customer describing symptoms, and walking out with antibiotics. No prescription. No diagnosis. No questions beyond what they volunteered themselves.

It happens dozens of times a day, in cities and small towns, in well-stocked pharmacies and in small *duka la dawa* tucked between other shops. It has been happening for so long that most people involved — the buyer, the seller, sometimes even the health worker who later hears about it — do not see it as a problem. It is just how things work.

But underneath that routine, something is breaking.

Antimicrobial resistance — AMR — is the process by which bacteria, viruses, and other microorganisms evolve to survive the medicines designed to kill them. It does not happen dramatically. It happens quietly: one unnecessary prescription at a time, one incomplete course of treatment at a time, one *"it worked before"* at a time. And by the time it becomes visible, it is already much harder to reverse.

This article is not about blame. The behaviors driving AMR in Tanzania are not signs of ignorance — they are responses to real pressures: economic, social, and systemic. Understanding those pressures is the only way to address them honestly.

The pharmacy has become the frontline. The question is what we are going to do about it.

10M

PROJECTED ANNUAL DEATHS FROM
AMR BY 2050 IF UNCHECKED

\$3T

ESTIMATED ANNUAL ECONOMIC
LOSS FROM AMR BY 2050

3.8%

ANNUAL GDP LOSS THE WORLD
FACES WITHOUT AMR
CONTAINMENT

Source: Tanzania NAP-AMR 2023-2028 · O'Neill et al., 2014 · World Bank 2017

Africa and Asia will be hit hardest. Tanzania's own National Action Plan on AMR (2023–2028) acknowledges this directly — but the data also shows that much of the resistance being recorded is not coming from hospitals alone. It is coming from the everyday choices made by ordinary people navigating a healthcare system that does not always meet them where they are.

SECTION I

Behavior: The Everyday Habits *Quietly Fueling* AMR

One of the biggest drivers of antimicrobial resistance in Tanzania does not begin in a laboratory or a hospital ward. It begins in the small, ordinary decisions people make every day — decisions that feel completely reasonable in the moment.

Someone wakes up with a fever. They remember what worked last time. They go to the pharmacy, describe their symptoms, and leave with antibiotics. No prescription, no diagnosis, no further questions. Symptoms ease after a few days, they stop taking the medicine, and life continues. Nothing about that experience signals danger. And yet, repeated across millions of people over years, it is precisely how resistance is built.

The pharmacy has become the default first point of care for many Tanzanians — not because people are careless, but because it is accessible, affordable, and fast in ways that formal healthcare often is not. The problem is that accessibility without clinical guidance creates a gap where misuse quietly thrives.

Pharmacy technicians and dispensers often find themselves caught between competing pressures: professional ethics on one side, business expectations on the other. In some pharmacies, there is an unspoken — sometimes spoken — pressure to move product. Expensive medications get recommended when simpler ones would do. Antibiotics get dispensed to keep a customer satisfied rather than because the clinical picture demands it.

Beyond the pharmacy counter, other habits continue to accelerate the problem:

- Stopping antibiotic doses as soon as symptoms improve, leaving the infection incompletely treated
- Keeping leftover antibiotics at home and reaching for them next time something feels similar
- Sharing antibiotics meant for humans with sick livestock
- Disposing of expired or unused medicines in ways that allow them to enter soil and water

Antibiotic Prescribing in Tanzania: Key Indicators

WHO Point Prevalence Survey · 6 tertiary hospitals & RRHs (2020) · n = 948 admitted patients



Source: Seni et al., 2020 (BMJ Open) · NAP-AMR 2023-2028 · HPSS-Swiss TPH Technical Report, Dodoma, July 2022

AMR is not only a medical challenge. It is a behavioral challenge — woven into culture, shaped by economics, reinforced by convenience, and sustained by a public that has largely never been given a clear enough picture of what is actually at stake.

SECTION II

Self-Medication: When Knowledge *Becomes the Risk*

Mganga hajigangi.

A healer does not treat themselves. — Swahili proverb

Everyone has heard it. Very few actually live by it.

Self-medication is one of the most normalized — and least talked about — healthcare behaviors in Tanzania. It cuts across education levels, professions, and social circles. The pattern simply changes shape depending on who is doing it.

Among healthcare professionals, self-medication tends to be more confident, more aggressive, and in many ways more dangerous. Knowledge creates a false sense of security. There is a tendency to trust the medicine more than the process: reaching for a stronger antibiotic because it is familiar, accessible, or has worked before. Doses are started and abandoned once symptoms ease. And the behavior extends beyond oneself — when a friend or relative falls sick, the recommendation comes quickly:

"Just go get cefixime — it works well for respiratory infections."

The intention is kindness. But the question worth asking honestly is: are we actually helping, or are we contributing to resistance one well-meaning recommendation at a time?

On the other side, non-professionals rely on experience-based reasoning: *same symptoms → same disease → same medicine*. The problem is that many illnesses share symptoms but require entirely different treatments. What worked last time may not work today, because resistance patterns shift constantly, often invisibly.

Self-medication is not driven by ignorance alone. It is driven by confidence, convenience, past experience, and social trust — precisely what makes it so persistent, and so difficult to simply educate away.

3rd-Generation Cephalosporin Resistance in Gram-Negative Bacteria

By sample type and facility level · Mwanza hospitals, 2019-2022 · n = 2,316 patients
DHS = District Hospital · RRH = Regional Referral Hospital · ZRH = Zonal Referral Hospital

SAMPLE TYPE	DISTRICT HOSPITAL (DHS)	REFERRAL HOSPITAL (RRH/ ZRH)
Blood Infection	12.5% Lower at district level	47-52% Much higher at RRH/ZRH
Urine Infection	9.7% Relatively low	45.9% Nearly 5× higher at ZRH

Source: SNAP-AMR Technical Report to the MCC, October 2022 · NAP-AMR 2023-2028

The data tells an uncomfortable story: resistance is highest in the hospitals patients ultimately reach when frontline treatments have already failed. The path from a pharmacy counter to a referral hospital is shorter than most people realise.

SECTION III

Access to Healthcare: When the Pharmacy Feels Cheaper Than the Hospital

For many Tanzanians, going directly to the pharmacy is not a sign of ignorance. It is a rational response to a system that often feels unaffordable, slow, and uncertain. Before stepping into a hospital, many patients have already done the mental math:

- Consultation fees before any treatment begins
- Laboratory tests that may or may not be affordable
- Long waiting times that mean lost income for the day
- Transport costs that add up before a single tablet is taken
- Additional medication costs on top of everything else

Against that calculation, the pharmacy wins — faster, closer, and cheaper. Buying antibiotics directly feels like a smart economic decision. But it is a short-term logic with long-term consequences.

When antibiotics are misused repeatedly, resistance builds quietly. The next time the same illness returns, the medicine that once worked may no longer be effective. The patient then enters a cycle they did not see coming: buying the usual antibiotic, not recovering, returning for something stronger, spending more money — and sometimes ending up in the hospital anyway. The very place they were trying to avoid.

Are we actually reducing healthcare costs — or simply deferring them, while making future treatment harder?

There is a deeper irony worth sitting with: some of the antibiotics patients seek out — like amoxicillin — might still be adequate for many common infections, if resistance had not already eroded their effectiveness. Misuse is gradually disqualifying the affordable options, pushing patients toward stronger, more expensive medicines they otherwise would not have needed.

The Hidden Economic Cost of AMR

How resistance quietly shifts financial burden onto patients and economies



Source: World Bank Report, March 2017 · NAP-AMR 2023-2028, Strategic Objective Six

AMR is not only a scientific crisis. It is a financial burden carried daily by ordinary people — often without them realising it.

SECTION IV

Communication: Talking *About* the People Instead of *To* Them

Most AMR awareness efforts in Tanzania exist. The question is whether they are actually working — or simply working well enough to report on.

Institutional campaigns get organised. Events get held. Press releases go out. A checkbox gets ticked somewhere in a report that says "*community engagement: done.*" But if you look closely at who is in the room, who is watching, and who is actually changing their behaviour — the numbers tell a quieter story.

The conferences happen between health professionals who already understand AMR. Formal statements air on national news at eight in the morning, in channels the people most affected are not watching. Awareness events draw attendees who came for dinner, for networking, for the certificate — not for the message. Tanzania's own NAP-AMR strategy is titled "*Moving from Awareness to Action*" — a name that itself acknowledges the gap between knowing and changing.

The fundamental problem is strategic: we are not asking the right question first.

The right question is not "How do we spread awareness about AMR?" It is: "Where are the people we are trying to reach — and what does communication look like in their world?"

The mother buying antibiotics for her child is not at the health seminar. She is at the market, at church, listening to community radio between music segments, talking to her neighbour. The young man who stops his medication once he feels better is on TikTok, on WhatsApp groups, trusting the people in his circle. You cannot change public behaviour with messages the public never receives.

1 LANGUAGE PEOPLE ACTUALLY SPEAK

Not just Swahili over English — the registers, tones, and references that feel familiar. Informal. Human. Not clinical.

2 PLATFORMS PEOPLE ALREADY USE

Community radio, WhatsApp, local influencers, religious gatherings, village health workers, barber shops, salons.

3 MESSENGERS PEOPLE ALREADY TRUST

Not a government spokesperson at a podium — a respected voice from within the community whose recommendation carries real weight.

4 CONVERSATIONS, NOT CAMPAIGNS

AMR awareness should feel like something worth talking about over chai — designed to open questions, not close them with a pamphlet.

Shooting information into the air and hoping it lands is not a strategy. It is performance. The communities most vulnerable to the consequences of AMR deserve communication designed for them — not filtered down as an afterthought after the real audience has already gone home.

Changing public perception around AMR is possible. But it requires meeting people where they are — not where it is convenient for institutions to stand.



AMR is not a future problem. It is a present one — built from a thousand ordinary decisions made every day, in pharmacies, homes, and hospital wards across Tanzania.

Data sources: United Republic of Tanzania — National Action Plan on Antimicrobial Resistance 2023–2028 · WHO Point Prevalence Survey (Seni et al., 2020, BMJ Open) · HPSS-Swiss TPH Technical Report, Dodoma Region, July 2022 · SNAP-AMR Technical Report to MCC, October 2022 · O'Neill, J. (2014) Antimicrobial Resistance: Tackling a Crisis for the Health and Wealth of Nations · World Bank Report, March 2017.
