



PUBLIC HEALTH • ANTIMICROBIAL RESISTANCE TANZANIA

Health Is One

Why Drug Resistance Starts at Home Before Reaching the Hospital

Perhaps you have seen these words flash across your phone screen or on a public health billboard: **One Health**. You might have tried to translate it into Swahili as “*Afya Moja*.” Maybe you felt it was just another piece of technical jargon that has nothing to do with you, and you simply passed it by.

But the truth is, that translation is absolutely correct. Health is one. Your health, your animal's health, and the health of the environment around you are not three separate things. They are part of a single, vast ecosystem that connects our lives every single day.

Consider this: When your dog fell ill and started vomiting or having diarrhea, what did you do? Did you take it to a veterinarian? Or did you open your cabinet and pull out that leftover medicine from home, believing it might help? And those medicines used in fields or on livestock —aren't they often the exact same names we see in hospitals or pharmacies?

This is where we begin to understand the meaning of One Health. Many pathogens that can infect humans can also affect animals. The water we drink, the food we eat, the soil we cultivate, and the environment we live in continuously bond our health every day, even when we cannot see it.

The Three Pillars Sustaining Our Health

The One Health concept stands firmly on three core pillars: **Human health**, **animal health**, and **environmental health**. However, these are not three independent pillars. They form a single system woven tightly together. When you weaken one, all the others suffer.

When a river is polluted, its consequences flow to livestock and eventually to humans. When animals are treated incorrectly, the repercussions cycle right back into our food supply. When we fail to manage our waste properly, we breed the perfect environment for pathogens to multiply and spread. Health is one.

The Biggest Problem Isn't Just the Microbes—It's Our Behavior

In previous articles, we discussed behaviors and how they bring us one step closer to drug resistance every single day. In this article, we are still talking about behavior, but this time, we are looking entirely outside the hospital setting:

- It is the behavior that drives us to give livestock medication without a professional's advice.
- It is the behavior that prompts us to open septic tanks when it rains instead of seeking safe waste management pathways.
- It is the behavior that leads us to dump trash carelessly into water drainage systems, along riverbanks, or near residential areas.

For a long time, we have looked at these as ordinary habits. But from a One Health perspective, these are the very pathways accelerating the emergence and spread of Antimicrobial Resistance (AMR).

Statistics That Should Alarm You

Now consider this: Roughly 75% of newly emerging infectious diseases globally originate from animals. And nearly 60% of pathogens that infect humans have an animal origin. Read that again—**Seventy-five percent**. That means three out of every four new diseases emerging globally.

75%

Newly emerging infectious diseases globally that originate from animals

60%

Pathogens infecting humans that have an animal origin

What does this mean for the average person? It means that the threat capable of compromising your health tomorrow could begin today, far away from a hospital. It can start in a chicken coop, in a goat pen, at a pond where livestock drink water, or in environments where human and animal waste mix without proper management.

For Tanzania, this message is profoundly critical because we are a nation where the livelihoods of most people are directly linked to agriculture and livestock keeping. Millions of Tanzanians live in close proximity to their livestock daily. There is a constant interplay between humans, animals, and the environment. And that is precisely where One Health becomes vital.

How Drug Resistance Is Born

Let us take a common scenario: Your cow is sick. You are not entirely sure what disease it has, but you notice the signs. Its condition has changed; it isn't eating well and isn't drinking water as usual. Instead of calling a veterinary officer, you decide to buy medicine yourself—perhaps

because the professional is far away, the costs seem high, or you are simply accustomed to doing it this way.

You administer the medicine. After two days, its condition seems to improve, and you believe it is cured. But more often than not, this is exactly where the problem begins. If the medicine was not used correctly or the full course of treatment was not completed, some pathogens can survive—the ones that managed to withstand the drug. These survivors continue to reproduce, gradually building the capacity to survive even when they encounter that exact same drug again. This is how drug resistance is born.

| The Journey of the Microbes Doesn't End in the Stable

The problem does not remain confined to the animal. That cow continues to produce milk that enters the market and is consumed in households. Its meat may be sold and eaten. Meanwhile, drug residues or resistant pathogens can continue traveling through the entire food supply chain.

Then the rain falls. The water carries waste residues from livestock pens and residential areas into rivers, dams, wells, and farms. The farmer irrigating crops with that water rarely sees what is traveling inside it, but the pathogens see a pathway. Blocked drainage systems, illegally dumped trash, overflowing toilets, and wastewater spilling into the environment—all can become part of the journey of drug resistance. This is why this crisis cannot be solved by new drugs alone. We must examine the entire ecosystem of behaviors allowing it to persist.

| Health Is One, and the Solution Is One

One Health is not merely a technical phrase; it is the reality of our daily existence. Drug resistance does not just originate in hospitals; it frequently begins with the small choices we make every single day: choices to seek or not to seek professional advice, to manage or not to manage waste properly, and to use or misuse medication. Small decisions, massive consequences.

This is why the fight against AMR requires everyone's participation:

- **If you keep livestock:** Seek the advice of professionals whenever possible and follow treatment instructions completely.
- **If you manage the environment:** Ensure that waste is handled through safe and proper channels.
- **As a community member:** Speak up. These conversations at home, with a neighbor, at school, at work, and on social media can be the spark for a much bigger transformation than we think.

Because at the end of the day, our health, the health of our animals, and the health of our environment are one and the same. When we protect one, we protect all. When we damage one, we put all at risk. The fight against drug resistance is not a duty meant for doctors alone—it is a responsibility for all of us.

Share this article with someone who keeps livestock, farms, or handles medication. Big changes start with small conversations.

About This Article: This article is part of the MyAfya AMR Series exploring antimicrobial resistance through clinical, community, and systemic lenses. The data used is derived from the United Republic of Tanzania National One Health Strategic Plan 2022–2027.