

Antimicrobial resistance—addressing an evolving public health threat

Staying ahead of the curve in Vietnam with cross-sectoral approaches

WHAT IS ANTIMICROBIAL RESISTANCE?

Antimicrobial resistance (AMR) is recognized as one of greatest global threats to human and animal health and safety. AMR occurs when a microorganism (bacteria, virus, fungi, or parasite) is exposed to an antimicrobial drug (antibiotics, antifungals, antivirals, antimalarials, or anthelmintics) over time and evolves to bypass the action of the drug, rendering the drug ineffective. In some cases, a microorganism acquires multiple mutations that enable resistance to multiple or even all commonly-available drugs resulting in what is sometime called a “superbug.”

Microbial resistance is a naturally occurring process among all microorganisms—but humans are greatly accelerating the process. Misuse and overuse of antibiotics in humans and animals, health care transmission of drug-resistant organisms, sub-optimal diagnostic tests to inform proper antibiotic use for infections, lack of effective vaccines, poor uptake of existing vaccines, and global travel are all contributing to AMR. A lack of regularly enforced regulations in the pharmaceutical sector as well as sociological factors such as drug prescribing patterns and cultural health care seeking patterns further drive these problems.

“Antimicrobial resistance is a global health emergency that will seriously jeopardize progress in modern medicine.”

Dr. Tedros Adhanom Ghebreyesus
Director-General of the World Health Organization

AMR is a global phenomenon; it is present in all countries and indiscriminate in its reach. It has the potential to render routine surgery, cancer treatment, diabetes management, and other medical interventions upon which we rely increasingly high-risk, as we find it harder to locate effective antimicrobials to manage and treat simple infections. This places additional pressure on health systems, necessitating more intensive and expensive care and treatment. As a result, AMR threatens to undermine and roll back global gains across many health areas, including maternal and neonatal health, HIV management, and sexual and reproductive health.

ATTACK FROM ALL SIDES

In 2016, the United Nations General Assembly highlighted the coming potential crisis and called for global coordinated efforts to reduce AMR. PATH applies cross-sectoral approaches that engage the primary health care system, communities, hospitals, regulatory bodies, the government, and the private sector, to tackle the complex challenge of AMR. These include:

- Building awareness, policy, and advocacy for AMR action through international fora, such as the Northwest Antimicrobial Resistance Coalition and the Global Health Security Private Sector Roundtable.
- Supporting health information systems that integrate immunization programs, surveillance systems, and lab networks to highlight areas of concern early, trigger a response, and inform resource allocation.
- Strengthening health systems, through education and training to bolster the health workforce, and reinforcing laboratory and health information systems.
- Promoting sanitation and hygiene in health facilities to reduce the spread of diseases that rely on antibiotics for treatment.
- Developing and promoting vaccines, drugs, and diagnostics to aid in health care decisions and provision in key low-resource settings, to prevent the rise of, identify, and better treat resistant infections.

AMR IN VIETNAM

Southeast Asia in general, and Vietnam in particular, has some of the highest prevalence of AMR in the world. Specific challenges facing Vietnam include:

- Some of the highest antibiotic resistance rates globally.
- The highest prevalence of penicillin (71.4 percent) and erythromycin (92.1 percent) resistance in Asia.²
- Resistance identified in all antimicrobials, including carbapenem, colistin, cephalosporins, fluoroquinolones, tetracyclines, and aminoglycosides.¹
- Resistance rates are 22 times higher in urban children than in rural children.³

COMBATING AMR IN VIETNAM

PATH has addressed AMR in Vietnam through a number of partnerships across a broad range of health areas:

Vaccines: For over 20 years, PATH has worked to promote availability, access to, and uptake of vaccines in Vietnam. Vaccines are crucial to reducing many key infectious diseases, including diarrhea and pneumonia, for which antibiotics are often used—thus reducing the need for and misuse of antimicrobials. This broad portfolio has included supporting the government to introduce new vaccines; improving the cold chain to ensure vaccines remain effective; supporting local manufacturers of high-quality vaccines to aid in pandemic preparedness; and developing a digital immunization registry that boosted immunization coverage and is now being scaled up nationwide by the government of Vietnam.

Pharmacy capacity: From 2008 to 2012, PATH provided technical assistance that improved the knowledge and skills of over 9,000 pharmacy staff in five provinces. Funded by Atlantic Philanthropies, the project introduced Good Pharmacy Practice, including rational use of antibiotics.



PATH has boosted pharmacy capacity in Vietnam. PATH/Ngo Thi Than Thuy

Tuberculosis: Currently, 25 percent of recurring cases of tuberculosis (TB) in Vietnam are multidrug-resistant (MDR), as are 4 percent of new cases. Between 2008 and 2015, PATH and USAID worked to bring together public and private health facilities in a standardized diagnosis, referral, and treatment model for TB. This model ensures TB is correctly identified and treated according to the National Tuberculosis Control Program (NTP) guidelines, reducing the risk of the development of MDR-TB. The Global Fund to Fight AIDS, Tuberculosis and Malaria supported PATH to build on this work, leading to a total of and more than 15,000 diagnosed TB cases. PATH also developed a digital and mobile system to prevent the rise of MDR-TB by increasing adherence to treatment through an electronic SMS reminder system. This system was scaled up nationwide by the Vietnam Ministry of Health in 2017.

AMR surveillance and improved practice in healthcare

settings: In 2015, PATH entered into the Global Health Security Partnership (GHSP)—a joint cooperative agreement with the US Center for Disease Control and Prevention (CDC) that aims to reduce the impact of infectious disease outbreaks in Tanzania, Senegal, Democratic Republic of Congo, and Vietnam. Under the GHSP in Vietnam, PATH is supporting government partners to develop stronger, timelier, event-based, and routine surveillance systems that are linked across sectors and rapidly detect and report public health threats, including those related to AMR.

In collaboration with CDC and the Vietnam Administration for Medical Services (VAMS), and working closely with the Oxford University Clinical Research Unit and World Health Organization, PATH is providing support to strengthen the AMR surveillance system at 16 pilot hospital sites. PATH has also supported the development of a hospital-acquired infection (HAI) surveillance system which has been reporting on two of the most common HAIs in six model hospitals across the country since 2017.

CDC and PATH are supporting VAMS and six model hospitals to implement quality improvement projects at the hospital level for antibiotic stewardship, antibiotic surgical prophylaxis, and MDR organism infection prevention and control (IPC) practices. PATH is also collaborating with VAMS, hospitals, and national and international organizations to build capacity and standards for IPC through supporting their policy work, guideline development, training and education, and advocacy efforts.

A COORDINATED RESPONSE

AMR cannot be addressed by any single organization or sector. Since 2016, PATH has facilitated a monthly meeting of various international organizations that are actively working on AMR and IPC in Vietnam. This group works to provide updates, share resources, make use of technical capacities, avoid duplication of efforts, and streamline the approach to AMR and IPC collaboration in Vietnam.

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References

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