The Value of Vaccines to Mitigate Antimicrobial Resistance in Viet Nam

Global Antibiotic Resistance Partnership (GARP)-Viet Nam
Policy Brief



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OVERVIEW

Vaccination is a valuable tool in the national response to antimicrobial resistance (AMR). By preventing infections, vaccines reduce the need for antibiotics and slow the emergence and spread of resistant pathogens. Viet Nam has a strong immunization programme, but the national AMR strategy does not yet explicitly recognise vaccination as a critical intervention. This policy brief recommends integrating vaccination into AMR strategies, sustaining routine immunization coverage, ensuring equitable rollout of priority vaccines, and strengthening coordination and evidence generation across the immunization and AMR programmes.

BACKGROUND

AMR poses a critical threat to the health and well-being of populations worldwide. In Viet Nam, AMR was responsible for an estimated 14,434 deaths and was associated with 56,466 deaths in 2021, out of a total of 703,526 deaths from all causes (Institute of Health Metrics and Evaluation 2024; World Health Organization 2026). The country faces significant public health challenges, including a high burden of infectious diseases (Our World in Data 2025) and limited access to healthcare in rural areas (Kim et al. 2020; UNICEF 2025). The overuse and misuse of antibiotics, driven by limited healthcare access and the widespread belief that antibiotics offer a 'quick fix' to infections, have contributed to the growing threat of AMR in Viet Nam (McKinn 2021). Vaccines play a crucial role in AMR mitigation by preventing infections and reducing antibiotic use. Although recognized by the World Health Organization (WHO) (World Health Organization 2015; 2026) as a key AMR strategy, vaccination is not yet integrated into Viet Nam's current national AMR strategy or the action plan for the health sector (Ministry of Health 2023; 2025), highlighting the need for stronger policy alignment (van Heuvel et al. 2022).

KEY FINDINGS

The role of vaccines in mitigating AMR

Vaccines are powerful tools for preventing infections, reducing disease burden and the need for antibiotic use, and, therefore directly reducing drug-resistant infections (World Health Organization 2022). In addition, vaccines promote herd immunity by reducing the transmission of drug-resistant pathogens. Vaccines can also contribute to reducing the spread of AMR (Kalanxhi et al. 2023; Frost et al. 2022) (Figure 1).

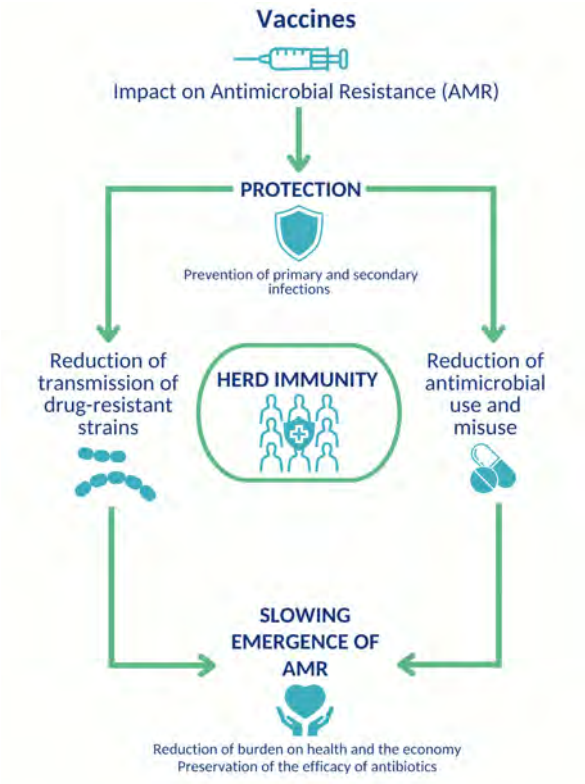


Figure 1. Impact of vaccines on antimicrobial resistance

Source: Kalanxhi et al. 2023

Estimating the impact of vaccines on AMR

- **Vaccines reduce antimicrobial use**

A systematic review examined the impact of influenza and pneumococcal vaccination on antibiotic use across 29 randomized controlled trials (RCTs) and 69 observational studies. The pooled analysis of the RCTs estimated that influenza and pneumococcal vaccination reduced the combined outcome of antimicrobial prescriptions and days of antibiotic use by 29 percent and 8 percent, respectively (van Heuvel et al. 2023).

- **Vaccines reduce AMR associated health burden**

In 2019, vaccines against 16 pathogens were estimated to have averted about 510,000 deaths associated with AMR globally, representing approximately 12 percent of all AMR-associated mortality (Kim et al. 2023; World Health Organization 2024). Among vaccines, those against tuberculosis and pneumococcal disease with improved efficacy are estimated to have the highest impact on AMR globally (Kim et al. 2023).

- **Vaccines reduce AMR associated economic burden**

The economic burden of AMR is significant, and vaccines can help reduce associated healthcare costs.

In China, modelling estimated that increasing Pneumococcal Conjugate Vaccine (PCV) coverage could reduce AMR-related costs by $371 million under the scaled scenario and $586 million under the accelerated scenario over five years, between 2021 and 2025. These cost savings included direct and indirect costs incurred by patients and caregivers, as well as productivity losses due to mortality and disability (Lu et al. 2021). This estimated cost savings would equate to approximately 0.003 percent of China's GDP in 2021 (World Bank 2023a).

In Ethiopia, PCV vaccination between 2011 and 2017 was estimated to have averted approximately 718,100 cases of antibiotic treatment failure and 9,520 AMR-related deaths, resulting in approximately US$32.7 million in AMR-related cost savings (Ozawa et al. 2021). This estimated cost savings translates to approximately 0.1 percent of Ethiopia's GDP in 2011 (World Bank 2023a).

Potential of vaccines in Viet Nam

The potential impact of vaccines on AMR in Viet Nam has been estimated for rotavirus and pneumococcal diseases (Figures 2 and 3).

Regional evidence also demonstrates the potential contribution of seasonal influenza vaccination to reducing antibiotic use in Viet Nam. In the Western Pacific Region, a modelling scenario estimated that seasonal maternal influenza vaccination could avert approximately 670,000 of the 14 million (5 percent)

defined daily doses (DDDs) of pathogen-associated antibiotic use in 2019 (World Health Organization 2024). More broadly, WHO recommends that countries consider expanding seasonal influenza immunization to high-risk groups, including pregnant women, older adults, children, health workers, and individuals with comorbidities or underlying conditions to reduce the spread and impact of influenza (World Health Organization 2024).

The rotavirus vaccines, PCVs and seasonal influenza vaccines offer a significant opportunity to combat AMR and improve public health outcomes in Viet Nam.

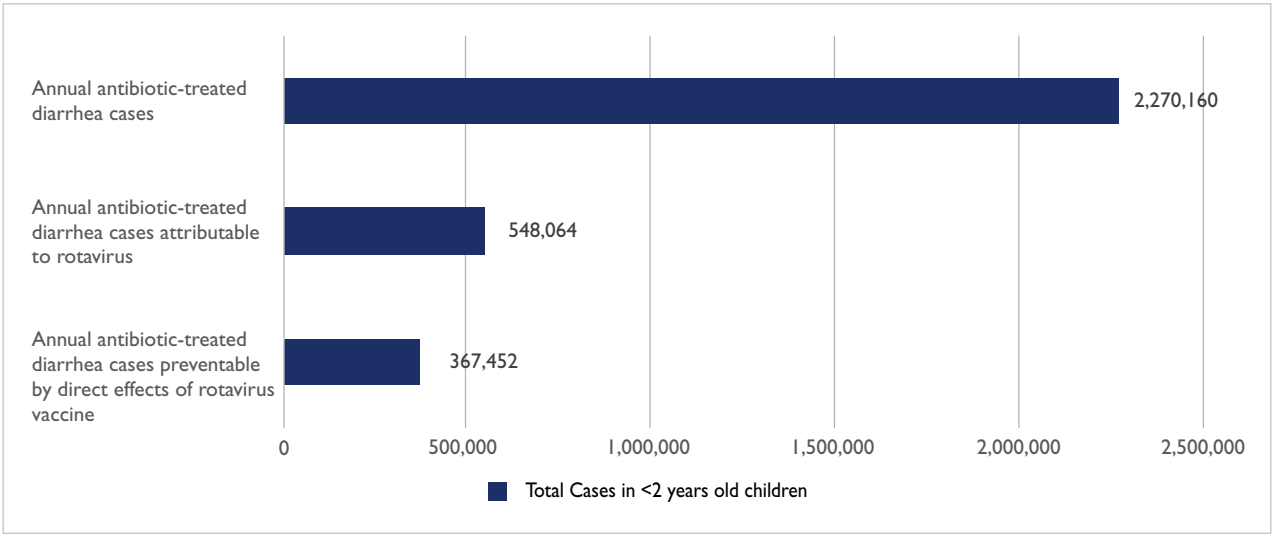
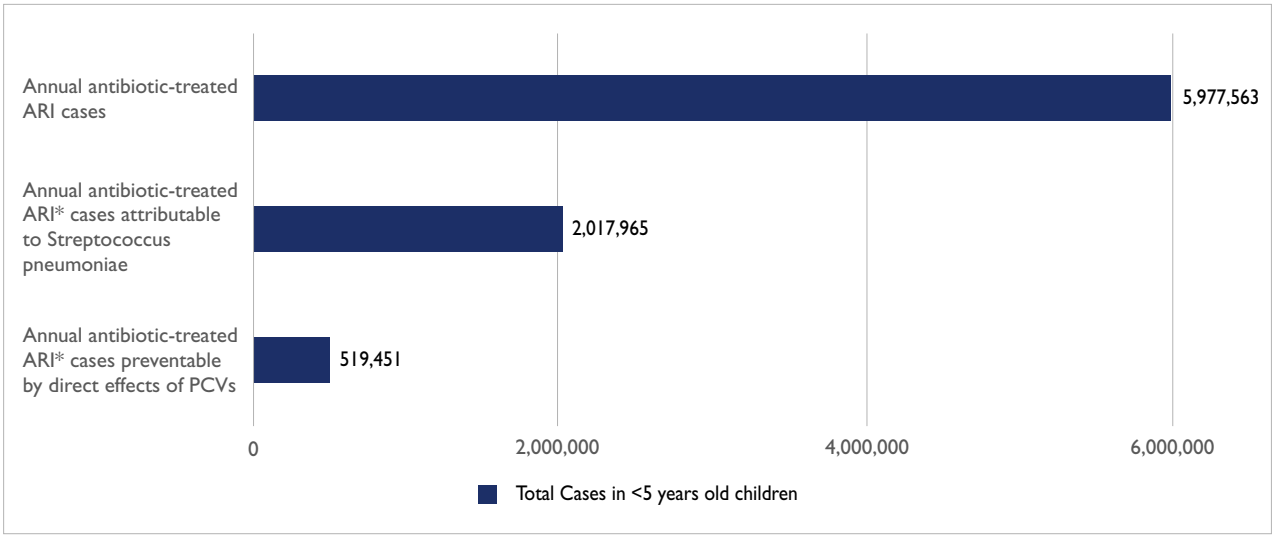


Figure 2: Annual antibiotic-treated diarrhea cases preventable by the rotavirus vaccine in Viet Nam

Source: Lewnard et al. 2020



**ARI: acute respiratory infection, using estimates for acute otitis media and invasive pneumococcal disease numbers*

Figure 3: Annual antibiotic-treated acute respiratory infection (ARI) cases preventable by pneumococcal vaccines in Viet Nam

Source: Lewnard et al. 2020

POLICY RECOMMENDATIONS

Vaccines play a crucial role in combating AMR, highlighting the need for targeted immunization policies and expanded programmes to reduce infections, disease burden, and spread of resistant pathogens. In Viet Nam, the potential impact of vaccines on AMR has been estimated for rotavirus and pneumococcal vaccines. These vaccines have been introduced into the EPI in 2024 and 2026, respectively (Ministry of Health 2017, 2024, 2026). This significant achievement reflects the Government's commitment to strengthening the national immunization programme, while also contributing to efforts to combat AMR in Viet Nam.

To further integrate vaccines into AMR mitigation efforts, the following policy recommendations are put forward:

To the Administration of Disease Prevention:

1. Sustain and expand coverage of vaccines in the routine immunization schedule. Ensure continuous updating of comprehensive guidance on catch-up vaccination for all EPI vaccines in Viet Nam.

2. Accelerate the introduction of the seasonal influenza vaccine into the EPI in Viet Nam. Develop guidelines and ensure timely implementation of PCV and rotavirus vaccine in accordance with their respective roadmaps.

3. Integrate the role of vaccination in preventing and combating AMR in all activities of the EPI.

4. Cooperate with the Medical Services Administration and other stakeholders in developing policies addressing AMR and the burden of infectious diseases.

5. Enhance communication and data sharing regarding the role of vaccines in mitigating AMR across the EPI systems.

To the Medical Services Administration:

1. Incorporate vaccine related targets in the next National Strategy on AMR and its operational plans in Viet Nam

2. Develop communication and awareness-raising projects and encourage institutes to conduct research on the value of vaccines in mitigating AMR in Viet Nam.

3. Cooperate with the Administration of Disease Prevention and other stakeholders in developing policies addressing AMR and the burden of infectious diseases.

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Initiated in 2008, the Global Antibiotic Resistance Partnership (GARP) has played a critical role in advancing country-led national strategies and policies to address antimicrobial resistance (AMR) in several countries in Africa and Asia.

GARP's current focus is generating cross-disciplinary evidence highlighting the impact of vaccines on AMR in country-specific contexts.

This policy brief lays out the situation in Viet Nam and recommends policy measures to use vaccines as tools to control AMR in the country.

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