



# Overcoming Smallpox: Navigating the Global Landscape of Infectious Disease Eradication and Control

Andrew Philip\*

Department of Virology, University of Porto, Praca de Gomes Teixeira, Porto, Portugal

## ABOUT THE STUDY

The strategic use of vaccinations plays an important role in preventing infectious diseases while improving public health. Vaccination campaigns have led to remarkable successes in controlling and even eliminating certain diseases. However, the goal of complete eradication remains unremarkable for many infectious agents. This study explores the complex balance between striving for disease eradication and the pragmatic challenges of achieving sustainable control through vaccination.

Eradication, the complete and permanent elimination of a specific infectious agent from the human population, stands as the pinnacle of success in disease control. Historically, vaccines have played a pivotal role in the eradication of smallpox, a triumph that underscored the potential of vaccination to eliminate devastating diseases. As we focus on other infectious adversaries, such as polio and malaria, the question arises: Is complete eradication a realistic goal, or should we prioritize effective control strategies?

The challenges of achieving eradication are multifaceted. Complex transmission dynamics, diverse reservoirs, and the ability of some pathogens to persist in asymptomatic carriers pose formidable obstacles. Moreover, the emergence of new variants and the potential for vaccine hesitancy in certain populations add layers of complexity to eradication efforts.

Despite these challenges, there is an irresistible challenge to the prospect of eradication. The cessation of transmission not only eliminates the burden of disease but also leads to substantial economic and societal benefits. Eradication efforts, when successful, result in a world where future generations are no longer threatened by the targeted pathogen, allowing for the cessation of vaccination efforts and redirecting resources to other pressing health concerns.

On the other hand, pursuing disease control through vaccination acknowledges the pragmatic reality that complete eradication may be unattainable for some diseases. Polio, for example, has witnessed substantial progress in control efforts, reducing the number of endemic countries. While eradication remains the ultimate goal, sustained control measures can significantly reduce the incidence of the disease and minimize its impact on global health.

Striking a balance between the idealistic activity of eradication and the practicality of disease control involves a calm understanding of the specific characteristics of each pathogen. For some diseases, the emphasis may shift from complete eradication to achieving a manageable level of control that minimizes morbidity, mortality, and societal disruption.

Moreover, as we consider the evolving landscape of infectious diseases, the concept of elimination reducing the incidence of a disease to zero within a defined geographical area may offer a realistic intermediate goal. This approach acknowledges the unique epidemiological contexts of different regions and allows for specific strategies that align with local realities.

## CONCLUSION

In conclusion, the search for disease elimination through vaccination stands at a crossroads, with the choices between eradication and control demanding careful consideration. While eradicating infectious diseases is undoubtedly a noble aspiration, the pragmatic challenges call for a realistic assessment of each pathogen's characteristics and the feasibility of achieving global eradication. Sustainable control, adapted to the unique epidemiological contexts, may offer a pragmatic and impactful approach, ensuring that vaccination efforts continue to be a driving force in safeguarding global health.

**Correspondence to:** Andrew Philip, Department of Virology, University of Porto, Praca de Gomes Teixeira, Porto, Portugal, E-mail: philip.andrew@upo.pt

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