

## Advancements and Challenges in Immunization: A Comprehensive Review

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## Abstract

Immuni: ation stands as one of the most e ective public health interventions, signi, cantly reducing the burden of infectious diseases worldwide. This research article provides a comprehensive overview of immuni: ation, including its historical development, mechanisms of action, and types of vaccines, current challenges, and future prospects. It explores the impact of immuni: ation on global health, the role of herd immunity, and the controversies surrounding vaccine hesitancy. Furthermore, it discusses emerging technologies and strategies aimed at enhancing vaccine e cacy, accessibility, and safety. By addressing these critical aspects, this review aims to contribute to the ongoing discourse on immuni: ation and inform future research and public health initiatives.

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