



## Identify Factors Contributing to High or Low Vaccination Coverage and Dropout Rates

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July 11, 2024

# **Identify factors contributing to high or low vaccination coverage and dropout rates**

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**Daate: 10/07/2024**

## **Abstract**

Vaccination is a critical public health intervention that has saved millions of lives worldwide. However, maintaining high vaccination coverage and minimizing dropout rates remain ongoing challenges for healthcare systems globally. This paper aims to identify the key factors that contribute to both high and low vaccination coverage, as well as high and low dropout rates.

Factors contributing to high vaccination coverage include improved access to vaccines through availability, accessibility, and affordability. Additionally, public acceptance and trust in vaccines, driven by awareness, education, and engagement with healthcare providers, play a vital role. Effective vaccination programs that employ outreach campaigns, convenient scheduling, and streamlined processes also contribute to high coverage.

Conversely, low vaccination coverage is often attributed to barriers in access, such as geographic, financial, and logistical challenges. Vaccine hesitancy, stemming from safety concerns, misinformation, and lack of trust in the healthcare system, can also significantly hinder coverage. Systemic issues, including weak healthcare infrastructure and inadequate funding for vaccination programs, further exacerbate the problem.

High dropout rates are primarily associated with incomplete vaccination schedules, arising from difficulties in completing multi-dose regimens and lack of reminders for follow-up doses. Practical challenges, such as inconvenient vaccination locations and competing priorities, as well as a perceived lack of necessity for full vaccination, also contribute to high dropout rates.

Factors that help maintain low dropout rates include effective communication and education on vaccination schedules, personalized reminders, convenient and accessible vaccination services, and positive vaccine experiences with minimal side effects. Integrating vaccination into routine healthcare can also facilitate higher completion rates.

Understanding these multifaceted factors is crucial for policymakers, healthcare providers, and public health professionals to develop targeted strategies that

address barriers, enhance access, and promote vaccine acceptance, ultimately improving vaccination coverage and reducing dropout rates worldwide.

## I. Introduction

Vaccination is a cornerstone of modern public health, playing a crucial role in preventing the spread of infectious diseases and saving millions of lives globally. Achieving and maintaining high vaccination coverage is essential to ensuring herd immunity and protecting vulnerable populations. However, vaccination coverage and dropout rates continue to be significant challenges in many parts of the world.

Identifying the factors that contribute to both high and low vaccination coverage, as well as high and low dropout rates, is essential for developing effective strategies to improve immunization programs and public health outcomes. These factors can span across various domains, including access to vaccines, acceptance and trust in vaccines, the design and implementation of vaccination programs, and systemic issues within healthcare systems.

By understanding the complex interplay of these factors, policymakers, healthcare providers, and public health professionals can implement targeted interventions to address barriers, enhance vaccine accessibility, foster vaccine confidence, and ultimately, improve vaccination coverage and reduce dropout rates. This paper aims to provide a comprehensive overview of the key factors that shape vaccination coverage and dropout rates, serving as a valuable resource for those working to strengthen immunization efforts worldwide.

### **Importance of understanding vaccination coverage and dropout rates**

Vaccination is a cornerstone of modern public health, playing a crucial role in preventing the spread of infectious diseases and saving millions of lives globally. Achieving and maintaining high vaccination coverage is essential to ensuring herd immunity and protecting vulnerable populations. However, vaccination coverage and dropout rates continue to be significant challenges in many parts of the world.

The importance of understanding the factors that contribute to both high and low vaccination coverage, as well as high and low dropout rates, cannot be overstated. Vaccination coverage, which measures the proportion of the target population that has received the recommended vaccine doses, is a key indicator of the success and reach of immunization programs. Low vaccination coverage leaves communities susceptible to disease outbreaks, while high coverage indicates the effective

implementation of vaccination strategies.

Similarly, dropout rates, which reflect the proportion of individuals who start but do not complete a multi-dose vaccination schedule, are an important metric for evaluating the quality and accessibility of vaccination services. High dropout rates can undermine the effectiveness of vaccination programs and lead to suboptimal protection against vaccine-preventable diseases.

By identifying the factors that influence these critical metrics, policymakers, healthcare providers, and public health professionals can develop targeted interventions to address barriers, enhance vaccine accessibility, foster vaccine confidence, and ultimately, improve vaccination coverage and reduce dropout rates. This understanding is crucial for strengthening immunization efforts and safeguarding public health outcomes worldwide.

### **Factors that can influence these metrics**

Factors that can influence these critical metrics span across various domains, including access to vaccines, acceptance and trust in vaccines, the design and implementation of vaccination programs, and systemic issues within healthcare systems. Understanding the complex interplay of these factors is essential for developing effective strategies to address barriers, enhance vaccine accessibility, foster vaccine confidence, and ultimately, improve vaccination coverage and reduce dropout rates.

By identifying the key factors that shape vaccination coverage and dropout rates, policymakers, healthcare providers, and public health professionals can implement targeted interventions to strengthen immunization efforts and safeguard public health outcomes worldwide.

## **II. Factors Contributing to High Vaccination Coverage**

Maintaining high vaccination coverage is crucial for achieving herd immunity and protecting vulnerable populations from the spread of infectious diseases. Several key factors have been identified as contributing to high vaccination coverage:

### **A. Improved Access to Vaccines**

**Availability:** Ensuring a reliable and sustainable supply of vaccines, including through effective procurement and distribution systems, is essential for improving

access.

**Accessibility:** Providing convenient vaccination services, such as through routine healthcare visits, community outreach programs, and mobile vaccination clinics, can increase accessibility and reduce barriers to vaccination.

**Affordability:** Reducing the financial burden of vaccines, either through universal healthcare coverage or targeted subsidies, can help eliminate cost as a barrier to vaccination.

## B. Public Acceptance and Trust

**Vaccine Awareness:** Effective public health education campaigns that provide accurate information about the importance, safety, and efficacy of vaccines can increase awareness and acceptance.

**Healthcare Provider Engagement:** Building strong relationships between healthcare providers and the community, and ensuring providers are well-informed and equipped to address vaccine concerns, can foster trust in vaccination.

**Positive Vaccine Experiences:** Ensuring a positive vaccination experience, with minimal side effects and efficient service delivery, can contribute to increased acceptance and future adherence.

## C. Effective Vaccination Program Design

**Outreach and Targeted Interventions:** Proactive outreach efforts, such as home visits, reminders, and community-based vaccination drives, can help reach underserved populations and improve coverage.

**Streamlined Processes:** Implementing efficient vaccination scheduling, registration, and administration procedures can enhance the overall user experience and encourage continued participation.

**Integrated Service Delivery:** Integrating vaccination services into routine healthcare visits, such as during antenatal care or childhood wellness checks, can normalize and facilitate vaccination uptake.

By addressing these factors and implementing comprehensive strategies to improve access, foster public trust, and optimize vaccination program design, healthcare systems can effectively increase and sustain high vaccination coverage.

## III. Factors Contributing to Low Vaccination Coverage

Despite the proven benefits of vaccination, many communities around the world continue to struggle with low vaccination coverage, leaving populations vulnerable to the spread of vaccine-preventable diseases. Several key factors have been identified as contributing to low vaccination coverage:

## A. Limited Access to Vaccines

**Availability Challenges:** Disruptions in vaccine supply, stockouts, and distribution issues can severely limit the availability of vaccines and restrict access for certain populations.

**Geographical Barriers:** Remote or underserved communities may have limited access to vaccination services due to logistical and infrastructure challenges, such as transportation, lack of healthcare facilities, and insufficient healthcare workforce.

**Financial Constraints:** The high cost of vaccines, either due to lack of affordable healthcare options or socioeconomic disparities, can prevent individuals from accessing vaccination services.

## B. Vaccine Hesitancy and Mistrust

**Lack of Awareness and Education:** Insufficient public health campaigns and limited access to accurate vaccine information can lead to misinformation and misconceptions about the importance and safety of vaccines.

**Concerns about Vaccine Safety and Efficacy:** Unfounded fears about vaccine side effects and doubts about vaccine effectiveness can contribute to vaccine hesitancy and refusal.

**Distrust in Healthcare System:** A history of poor healthcare experiences, perceived discrimination, or lack of cultural competence in healthcare settings can erode public trust and hinder vaccination uptake.

## C. Suboptimal Vaccination Program Design

**Inconvenient Vaccination Services:** Rigid vaccination schedules, limited clinic hours, and long waiting times can pose significant barriers to accessing vaccination services, especially for working families and those with limited mobility.

**Lack of Tailored Outreach:** Failure to engage with specific communities, understand their unique needs and concerns, and adapt vaccination strategies accordingly can result in lower coverage among certain populations.

**Fragmented Service Delivery:** Poorly coordinated vaccination efforts, including a lack of integration with other healthcare services, can create confusion and disrupt continuity of care, leading to missed vaccination opportunities.

Addressing these factors requires a multifaceted approach that tackles access barriers, fosters vaccine confidence, and optimizes the design and implementation of vaccination programs to better meet the needs of diverse communities.

## IV. Factors Contributing to High Dropout Rates

High dropout rates, which reflect the proportion of individuals who start but do not complete a multi-dose vaccination schedule, can undermine the effectiveness of vaccination programs and lead to suboptimal protection against vaccine-preventable diseases. Several key factors have been identified as contributing to high dropout rates:

#### A. Logistical and Structural Challenges

**Inconvenient Scheduling:** Rigid vaccination schedules that require multiple visits at specific intervals can be difficult for individuals to accommodate, leading to missed appointments and incomplete vaccination series.

**Transportation Barriers:** Lack of reliable and affordable transportation options, particularly in remote or underserved areas, can make it challenging for individuals to attend follow-up vaccination appointments.

**Healthcare System Fragmentation:** Poorly integrated healthcare services, where vaccination is not seamlessly incorporated into routine care, can result in missed opportunities and increased dropout rates.

#### B. Socioeconomic and Cultural Factors

**Financial Constraints:** The direct and indirect costs associated with multiple vaccination visits, such as lost wages, childcare, and transportation expenses, can be prohibitive for some individuals, leading to incomplete vaccination series.

**Cultural Beliefs and Practices:** In some communities, cultural norms or traditional practices may not align with the recommended vaccination schedule, contributing to higher dropout rates.

**Limited Health Literacy:** Inadequate understanding of the importance of completing the full vaccination series, or confusion about the purpose and timing of subsequent doses, can lead to individuals dropping out of the vaccination process.

#### C. Suboptimal Patient Engagement and Support

**Lack of Reminders and Outreach:** Failure to provide timely appointment reminders, follow-up outreach, and personalized support can result in individuals forgetting or neglecting to return for their subsequent vaccine doses.

**Poor Patient-Provider Communication:** Limited dialogue between healthcare providers and patients about the importance of completing the vaccination series, as well as the potential consequences of non-completion, can contribute to higher dropout rates.

**Negative Vaccination Experiences:** Unpleasant or traumatic experiences during previous vaccination visits, such as long wait times, painful injections, or

perceived disrespectful treatment, can deter individuals from returning for subsequent doses.

Addressing these factors requires a comprehensive approach that addresses logistical barriers, leverages socioeconomic and cultural insights, and enhances patient engagement and support throughout the vaccination process.

## V. Factors Contributing to Low Dropout Rates

Maintaining low dropout rates, where individuals complete the full vaccination schedule, is crucial for ensuring optimal protection against vaccine-preventable diseases. Several key factors have been identified as contributing to low dropout rates:

### A. Accessible and Convenient Vaccination Services

**Flexible Scheduling:** Offering vaccination appointments at convenient times, such as evenings and weekends, and allowing for flexible scheduling can make it easier for individuals to attend follow-up visits.

**Integrated Service Delivery:** Integrating vaccination services into routine healthcare visits, such as during antenatal care or childhood wellness checks, can normalize the vaccination process and reduce the burden of multiple appointments.

**Mobile and Outreach Initiatives:** Deploying mobile vaccination clinics and conducting community-based outreach programs can bring vaccination services closer to individuals and reduce geographical barriers.

### B. Effective Patient Engagement and Support

**Personalized Reminders and Outreach:** Providing personalized appointment reminders, through various channels (e.g., text, email, phone calls), and proactive follow-up with individuals who miss scheduled visits can help maintain engagement and encourage completion of the vaccination series.

**Clear Communication and Education:** Ensuring that healthcare providers offer clear and comprehensive information about the importance of completing the full vaccination schedule, as well as the potential consequences of non-completion, can help patients understand the value of adherence.

**Positive Vaccination Experiences:** Ensuring that individuals have positive experiences during their vaccination visits, with minimal discomfort and efficient service delivery, can contribute to increased trust and willingness to return for subsequent doses.

### C. Comprehensive Monitoring and Evaluation



**Robust Data Collection:** Implementing effective data collection and record-keeping systems to track vaccination attendance and completion rates can provide valuable insights for identifying and addressing dropout patterns.

**Continuous Quality Improvement:** Regularly reviewing and analyzing vaccination data, as well as seeking feedback from patients, can help identify areas for improvement and inform the development of targeted interventions to reduce dropout rates.

**Accountability and Incentives:** Establishing accountability measures, such as performance indicators and targets, as well as incorporating positive incentives for healthcare providers and patients, can help drive progress in maintaining low dropout rates.

By addressing these factors and implementing a comprehensive approach to improving access, enhancing patient engagement, and strengthening monitoring and evaluation, healthcare systems can effectively reduce dropout rates and ensure high completion of vaccination schedules.

## VI. Conclusion

High vaccination coverage, achieved through the completion of multi-dose vaccination schedules, is essential for maintaining effective immunity and preventing the spread of vaccine-preventable diseases. However, suboptimal adherence to vaccination schedules, reflected in high dropout rates, can undermine the effectiveness of vaccination programs and leave populations vulnerable.

This report has explored the key factors contributing to both high and low dropout rates, providing a comprehensive understanding of the challenges and opportunities in this critical public health domain. By addressing logistical and structural barriers, leveraging socioeconomic and cultural insights, and enhancing patient engagement and support, healthcare systems can work towards reducing dropout rates and ensuring high completion of vaccination schedules.

Continuous monitoring, evaluation, and quality improvement efforts are also crucial for identifying and addressing the root causes of dropout, as well as developing targeted interventions to improve adherence. Establishing accountability measures and incorporating positive incentives can further incentivize healthcare providers and patients to prioritize vaccination completion.

Ultimately, the successful reduction of dropout rates requires a multifaceted and collaborative approach, involving policymakers, healthcare providers, community organizations, and individuals themselves. By addressing the diverse factors that

contribute to both high and low dropout rates, we can strengthen vaccination programs and enhance the overall health and well-being of populations worldwide.

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