

Challenges of Immunization in Africa: Overcoming Barriers to Achieve Universal Vaccination

Okotel Richard*

¹Spotlight on Africa Uganda Foundation, Mbale, Uganda.

*Correspondence:

Okotel Richard, Spotlight on Africa Uganda Foundation P.O. Box 1966, Mbale – Uganda, Tel: +256782605534, E-mail: ktrichardokotel@gmail.com.

Received: 30 Apr 2024; Accepted: 26 May 2024; Published: 04 Jun 2024

Citation: Okotel Richard. Challenges of Immunization in Africa: Overcoming Barriers to Achieve Universal Vaccination. Nur Primary Care. 2024; 8(4): 1-5.

ABSTRACT

Immunization is a critical public health intervention that has significantly contributed to the reduction of morbidity and mortality rates worldwide. However, Africa continues to face numerous challenges in achieving universal immunization coverage. These challenges are partly due to a lack of awareness, which leads to low uptake of immunization services in rural communities. This publication aims to explore the key obstacles hindering successful immunization programs in Africa, including limited access to vaccines, weak healthcare systems, vaccine hesitancy, and inadequate funding. Using data obtained during the study period, various factors contributing to low coverage are highlighted. Additionally, the paper suggests potential strategies and interventions to overcome these challenges and ensure equitable access to life-saving vaccines for all African populations. The study observed that more females visited health facilities than males to access vaccination. Many clients received fewer than the recommended doses of most vaccines, posing a high risk to those vaccinated. This necessitates a multi-faceted approach to increase access, administer booster doses, and target specific groups to enhance vaccine coverage.

Keywords

Immunization, Low vaccine uptake challenges, Interventions, Vaccination, Harpenden Spotlight on Africa.

Introduction

Immunization is a cost-effective and proven strategy to prevent infectious diseases and safeguard public health. Its coverage across Africa has significantly increased, resulting in corresponding reductions in disease mortality and morbidity. Future increases in coverage are anticipated to yield substantial health benefits. However, coverage rates in many African countries are still far from achieving national targets, with many rates stagnating or declining (Academy of Science of South Africa, 2021; Wariri et al., 2019). This incomplete coverage contributes significantly to child mortality and morbidity. Common immunizable diseases in Africa include polio, measles, BCG, Td0, and DPT. The most affected age groups are children under 5 years, adults over 60 years (as observed during the COVID-19 pandemic), while

the 18-29 age group has shown lower coverage (Hutchins et al., 2020). Progress has been made with reductions in mortality from immunizable diseases, largely due to deliberate efforts by governments, WHO, UNICEF, GAVI, and GVAP to address health challenges in communities. In 2012, the World Health Assembly endorsed the Global Vaccine Action Plan 2011-2020 (GVAP). Additionally, various NGOs, including Rotary and international organizations such as Spotlight on Africa, collaborate with health systems to promote immunization. This plan calls for all countries to achieve and sustain 90% national coverage and 80% district-level coverage for the third dose of Diphtheria-Tetanus-Pertussis (DTP3) vaccine by 2015, and similar coverage for all vaccines included in national immunization schedules by 2020. While some countries have made progress, Africa still lags behind in achieving optimal immunization coverage (Machingaidze et al., 2013). This publication sheds light on immunization trends and the multifaceted challenges faced by communities in African countries in their efforts to immunize their populations effectively.

Methodology

Data was collected from health facilities serving the community in Bukasakya area, including the parishes of Bukasakya, Tsabanyanya, Marale, Nabitiri, Musoto, Masanda, Bugema A and B, Namabasa, Doko, Salem, Kolonyi A, and Kolonyi B. The total population of 551,200 persons, with a population density of 401.5 people per sq km, resides in this community (UBOS, 2021). Secondary information was obtained from the district health reports of Mbale District Local Government, Namatala Health Centre IV (Public Health Facility), Nakaloke Health Centre (Public Health Facility), and Kolonyi Health Centre IV (Partnered with government to provide affordable healthcare services). The study adopted a descriptive design, collecting data over a period of 2 years from client visits to health facilities. Additionally, information was collected through in-depth interviews with mothers and other patients who visited the health facilities. Data from registers was entered into an Excel spreadsheet, and means and percentages were generated. Both qualitative and quantitative data were captured from records, consisting of information on factors affecting immunization. Data were compiled using Excel spreadsheets prior to analysis using the STATA statistical package, summarized in frequencies and percentages, and presented in graphs and tables. The information obtained highlighted factors that affect immunization coverage in the community.

Result and Discussion

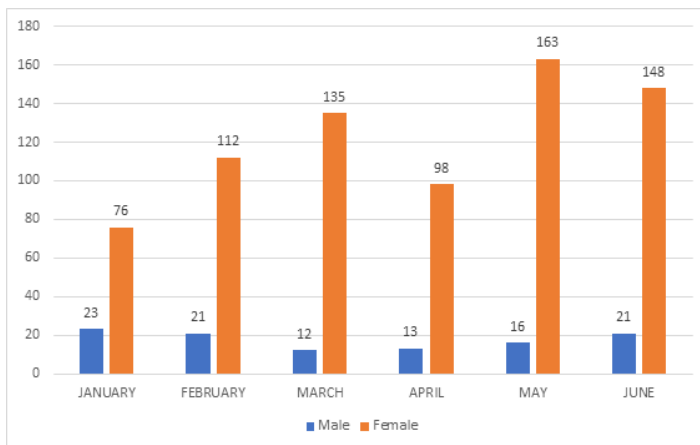


Figure 1: Number of visits to the Health Center by Gender.

Figure 1 shows that more women visit health facilities than men, with most visits occurring during pregnancy, childbirth, and post-childbirth. Immunization is often administered during these visits, and mothers play a critical role in ensuring vaccine uptake. Engaging and sensitizing mothers is crucial for achieving universal immunization coverage in Africa. Vaccine hesitancy, driven by misinformation, myths, and cultural beliefs, is a growing challenge. Addressing vaccine hesitancy requires targeted communication campaigns, community engagement, and collaboration with local leaders and influencers.

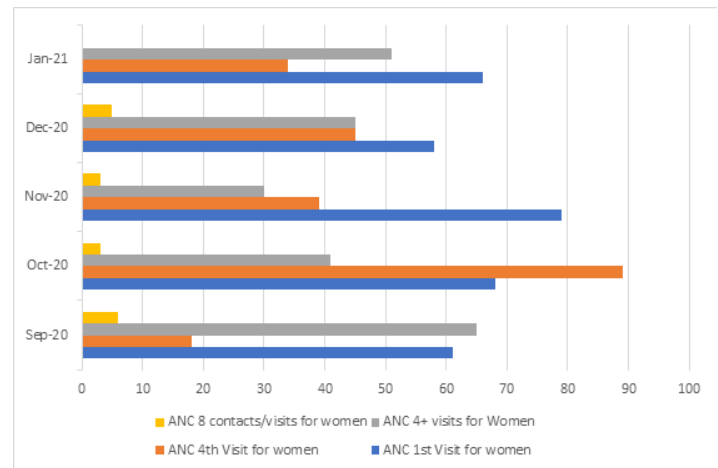


Figure 2: ANC Visits from September to January 2021.

Figure 2 shows that the majority of women visit health facilities only once during their antenatal care, which affects their uptake of vaccines meant for pregnant mothers. Few mothers visit antenatal care more than eight times, and fewer clients return for vaccine booster doses, possibly due to unmonitored adverse effects. This issue might be due to a shortage of trained personnel or specialized vaccinators in rural and hard-to-reach areas. Targeted communication and community engagement with specific groups such as ICT specialists, agriculturalists, pastoralists, teachers, and chiefdoms are needed.

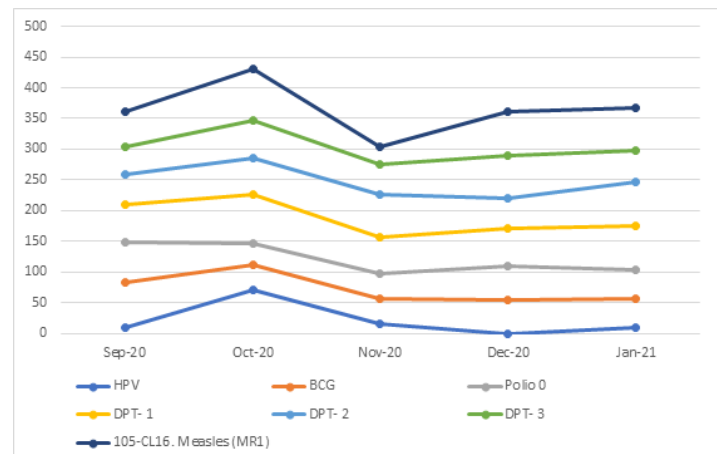


Figure 3: Comparison of vaccine uptake by clients.

Figure 3 reveals that measles vaccination had the highest uptake during the study period, followed by DPT 3, DPT 2, DPT 1, Polio 0, BCG, and HPV. This indicates that the most utilized vaccines are often those available and required for common diseases. The effectiveness of the vaccination system relies on a robust healthcare infrastructure, which is currently lacking in many African settings, contributing to low vaccine uptake. Weak healthcare systems hinder immunization programs through insufficient infrastructure, shortages of skilled workers, and inadequate data management systems.

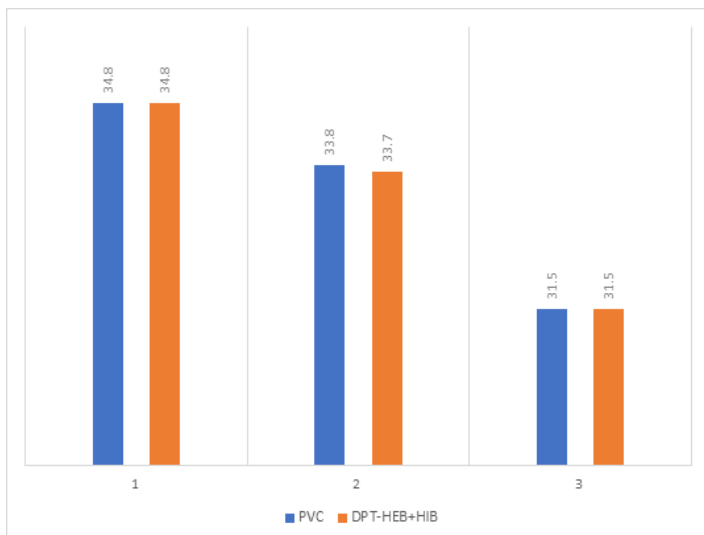


Figure 4: PVC and DPT-HEPB+HIB Vaccination Trends During the Study Period.

Figure 4 shows that most clients receive the initial dose of these vaccines, but fewer return for subsequent doses, particularly the third dose. This trend indicates a failure in ensuring that all recommended doses are administered, which hinders the achievement of universal vaccination.

Figure 5 indicates fewer administrations of Polio 0 vaccine compared to subsequent doses of Polio 1, Polio 2, and Polio 3. It is possible that clients who received Polio 1 at one facility did not return for Polio 2 and Polio 3, or they may have received these doses at another facility. This trend highlights the need for more consistent and comprehensive vaccine administration.

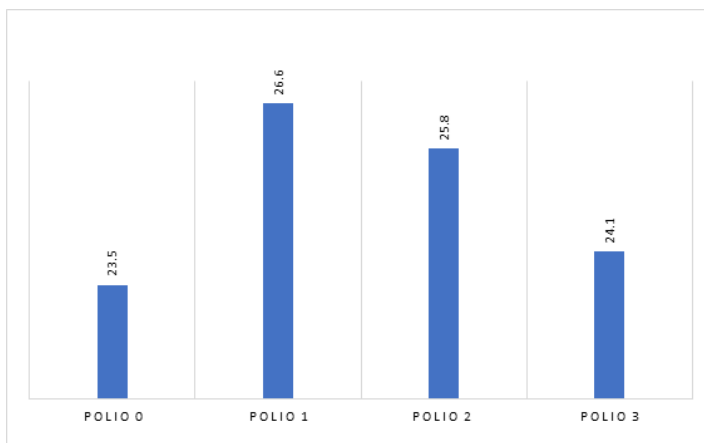


Figure 5: Vaccination Trends During the Study Period.

Figure 6 shows that the number of clients receiving the Td0 vaccine decreases with each subsequent dose. The recommended dose schedule is four times, but many clients only receive the first and second doses. This presents a challenge to achieving universal vaccination due to issues such as inadequate vaccine supply chains, high costs, and geographical barriers.

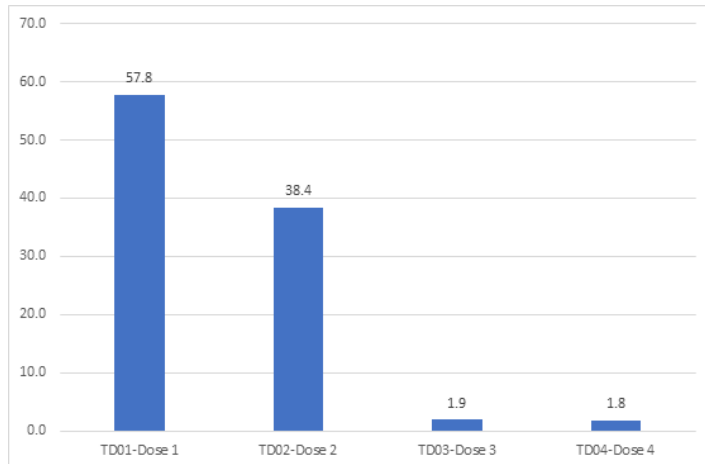


Figure 6: TD0-Dose Trends During the Study Period.

Figure 7 shows that only 1,964 people were vaccinated against HPV in Bukasakya over the past two years. Of these, 92.8% received the first dose, while only 7.2% received the second dose. This aligns with findings by Awoh & Plugge (2016), which reported low vaccine coverage among urban young populations. The low uptake of the second dose could be due to the vaccine being administered elsewhere or not at all. This affects disease control and highlights poor vaccination performance in the community.

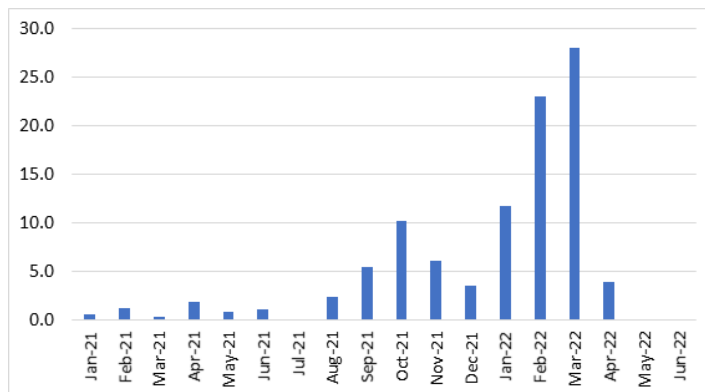


Figure 7: HPV Vaccination Trends for the two Years.

Challenges that could have influenced vaccine coverage

In Africa, challenges influencing vaccination coverage include limited access to vaccines, vaccine hesitancy, and inadequate funding (Harrington, Woodman & Shannon, 2000). Insufficient funding remains a major obstacle, as many countries struggle to allocate resources due to competing priorities and reliance on external funding (Cernuschi, Gaglione, & Bozzani, 2018)

Sustainable financing, increased domestic investment, and innovative partnerships are essential for long-term funding. The COVID-19 vaccine distribution experience highlighted vaccine inequalities and distribution challenges that undermine global economic recovery (Singh and Chattu, 2021). To overcome immunization challenges in Africa, strategies include strengthening vaccine supply chains, improving cold chain infrastructure,

and enhancing healthcare systems (Brenzel & Claquin, 1994). Investing in healthcare worker training, data management systems, and robust surveillance mechanisms is also crucial (Vouking, Tadenfok, & Ekani, 2017). Addressing vaccine hesitancy through targeted communication, community engagement, and accurate information dissemination is vital (Borus, 2004). Increasing domestic funding, exploring innovative financing mechanisms, and fostering partnerships with international organizations can sustain immunization programs (Shen, Fields & McQuestion, 2014).

Conclusion

Achieving universal immunization coverage in Africa requires a multifaceted approach to overcome challenges such as limited vaccine access, weak healthcare systems, vaccine hesitancy, and inadequate funding. Addressing these obstacles through targeted strategies can ensure equitable access to life-saving vaccines, reduce the burden of infectious diseases, and improve overall public health outcomes. Significant improvements have been observed in communities such as Namabasa and Bukasakya, where male engagement in vaccination efforts yielded better results in vaccine uptake (unpublished data, 2021, Spotlight on Africa Uganda Foundation with support from UKAID). The establishment of a fully-fledged women's one-stop maternity center in 2022, supported generously by the Nickmourghan Foundation, has further enhanced community health by offering opportunities for vocational training, parenting skills, family safeguarding, and access to essential items like toiletries and baby clothes, all within a single facility. Additionally, the creation of the RIC Immunization Centre in 2017, supported by Harpenden Spotlight on Africa UK, with its dedicated space for immunization, and the robust Public-Private Partnership (PPP) established in 2017 with local government support, have strengthened immunization services. A dedicated team of immunization mobilizers and educators, established in 2013 as Community Health Promoters with support from Harpenden Spotlight on Africa UK, has played a crucial role in saturating these communities with essential health information and services. Key strategies include strengthening vaccine supply chains, enhancing cold chain infrastructure, and improving healthcare systems. Investing in the training of healthcare workers and upgrading data management systems are essential for effective immunization programs. Combatting vaccine hesitancy through targeted communication campaigns and community engagement is crucial for increasing vaccine acceptance. Furthermore, increasing domestic funding, exploring innovative financing mechanisms, and fostering partnerships with international organizations are vital for sustaining immunization efforts.

Collaborative efforts between governments, healthcare providers, communities, and international stakeholders are essential to overcome these challenges. By addressing the barriers identified, African countries can make significant strides toward achieving universal immunization coverage, thereby safeguarding public health and enhancing the quality of life for millions of individuals across the continent. Additionally, further research and continuous monitoring are necessary to address emerging challenges and refine

strategies to improve vaccination rates. Specific attention should be given to the development of vaccines and targeted messaging for various demographics, as well as ensuring equitable access to vaccines in all regions. The commitment to overcoming these barriers will ultimately lead to a healthier, more resilient Africa.

Acknowledgement

We are grateful to our dear partners who have stood with us in good Borus, and difficult times. The time, ideas and resources that you gave have brought a smile on the face of many people in the community that are benefiting from the services offered by spotlight on Africa. We highly present our special appreciation to you and may God bless all of you as we continue to do his work touching the community.

References

1. Wariri O, Edem B, Nkereuwem E, et al. Tracking coverage dropout and multidimensional equity gaps in immunisation systems in West Africa 2000-2017. *BMJ global health*. 2019; 4: e001713.
2. Hutchins HJ, Wolff B, Leeb R, et al. COVID-19 mitigation behaviors by age group United States, April–June 2020. *Morbidity and Mortality Weekly Report*. 2020; 69: 1584.
3. Machingaidze S, Wiysonge CS, Hussey GD. Strengthening the expanded programme on immunization in Africa looking beyond 2015. *PLoS Med*. 2013; 10: e1001405.
4. Awoh AB, Plugge E. Immunisation coverage in rural urban migrant children in low and middle-income countries LMICs a systematic review and meta-analysis. *J Epidemiol Community Health*. 2016; 70: 305-311.
5. Harrington PM, Woodman C, Shannon WF. Low immunisation uptake Is the process the problem. *Journal of Epidemiology & Community Health*. 2000; 54: 394-394.
6. Cernuschi T, Gaglione S, Bozzani F. Challenges to sustainable immunization systems in Gavi transitioning countries. *Vaccine*. 2018; 36: 6858-6866.
7. Mihigo R, Okeibunor J, Anya B, et al. Challenges of immunization in the African Region. *Pan Afr Med J*. 2017; 27: 12.
8. Mihigo R, Anya B, Okeibunor J, et al. Routine immunization in the WHO African region progress challenges and way forward. *African Health Monitor*. 2015; 19: 2-7.
9. Teferi E. Factors influencing coverage and key challenges to achieving targets of routine immunization in Africa a systematic review. *Ethiopian Journal of Pediatrics and Child Health*. 2016; 12: 34-45.
10. Singh B, Chattu VK. Prioritizing 'equity' in COVID-19 vaccine distribution through Global Health Diplomacy. *Health Promot Perspect*. 2021; 11: 281.
11. Brenzel L, Claquin P. Immunization programs and their costs. *Soc Sci Med*. 1994; 39: 527-536.
12. Vouking MZ, Tadenfok CN, Ekani JME. Strategies to increase immunization coverage of tetanus vaccine among women in Sub Saharan Africa a systematic review. *The Pan African Medical Journal*. 2017; 27.

-
13. Borus PK. Missed opportunities and inappropriately given vaccines reduce immunisation coverage in facilities that serve slum areas of Nairobi. *East Afr Med J.* 2004; 81: 124-129.
 14. Shen AK, Fields R, McQuestion M. The future of routine immunization in the developing world challenges and opportunities. *Glob Health Sci Pract.* 2014; 2: 381-394.