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## COMMENTARY | COVID-19 VACCINE

### Acceptability of COVID-19 Vaccine in Africa

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## ABSTRACT

As Africa prepares to overcome the difficult challenges of COVID-19 vaccination roll-outs, a number of factors, including equitable access, effective and efficient sufficient supply chains, a scope of established determinants will need to be considered in order to enhance vaccine acceptability and uptake. In this commentary, we present six major determinants of vaccine acceptability and uptake in Africa. We summarize these determinants with the acronym VAMRIS: V= Vaccine hesitancy; A= Attitude and uptake by health care workers; M= Misinformation; R= Religion; I= Immunization roll out plans; S= Social influences and enabling environment. Understanding determinants of COVID-19 vaccine acceptability will guide public health officials make informed decisions. As the Vaccine becomes progressively available, strategies for efficient roll-out to achieve massive uptake by the targeted population will depend on a number of factors. These include: community engagement efforts; types of health promotion activities and/or messages; community sensitization to dispel myths and misconceptions; endorsements and buy-ins from local champions, celebrities, authorities; logistic considerations; and incentives to health counsellors/workers to create demand.

**Key words:** • Determinants • COVID-19 Vaccination • Likelihood of Acceptability • 'VAMRIS' Perspective • Africa • Vaccine acceptability • Vaccine uptake • Vaccine hesitancy • Antivaccine

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## 1. Introduction

As the Corona virus pandemic continues its ravaging impact worldwide, COVID-19 vaccines are becoming increasingly available for wider public use. The success of any COVID-19 vaccination program,

like any other vaccination program, will depend on public willingness to receive the vaccination.<sup>3</sup> Even though one of the most effective ways of controlling infectious diseases like COVID-19 is through vaccination,<sup>2</sup> successful vaccination is

often challenged by people and communities who resist its uptake. These challenges for COVID-19 vaccine acceptability currently exist in some parts of the world including Africa.<sup>1</sup> Consequently, urgent understanding of associated determinants is needed to examine the likelihood of its acceptability and package effective health promotion strategies to enhance COVID-19 vaccine uptake.

We had previously described some of the issues around controlling COVID-19 in Africa; we argued that applying the SHEF2 model<sup>4</sup> and NON-SHEF2 model<sup>5</sup> would slow the spread of COVID-19 but will not be sufficient to halt its spread, as herd immunity gained through vaccination will need to be well established within the African population.

## 2.VAMRIS as an Organizing Perspective

We further argue that established determinants of COVID-19 vaccination acceptability will go a long way to help inform public health authorities about priority activities which are necessary to achieve broader uptake of the vaccine by the African population. We present 6 key determinants of the likelihood of COVID-19 vaccine acceptability in the African continent dubbed the ‘VAMRIS’ perspective. This perspective takes into consideration and draws from our knowledge of the implementation of public health program in the continent. We summarize these factors using the VAMRIS acronym. More context for each of the components of VAMRIS are further detailed in the Table I below.

### 2.1.V = Vaccine Hesitancy

Vaccine hesitancy, also known as anti-vax/anti-vaccination, which has been identified by the World Health Organization (WHO) as one of the top 10 global health threats<sup>6</sup> is a reluctance or refusal to be vaccinated or to have one’s children vaccinated against contagious diseases like COVID-19. Vaccine hesitancy stems from multiple key factors including, complacency (the person does not see a need and value for the vaccine), individual’s lack of confidence in the vaccine, and convenience (access to vaccines).<sup>7</sup> In Africa, vaccine hesitancy is a complex public health issue. In the past years, there have been a series

**Table I: Description of the Key features of ‘VAMRIS’ Approach**

Component	Features
V:Vaccine hesitancy	<ul style="list-style-type: none"> <li>• Vaccine hesitancy stems from multiple key factors including, complacency, individual’s lack of confidence in the vaccine, and convenience (access to vaccines).</li> <li>• Vaccine hesitancy leads to refusals, delays, and contributes to infectious diseases spread.</li> </ul>
A:Attitude and uptake	<ul style="list-style-type: none"> <li>• Attitude and uptake of COVID-19 vaccination by healthcare workers (HCW) is consistently associated with patient adherence and acceptance to vaccination and its schedules, which thus reduces vaccine aversion.</li> </ul>
M: Misinformation	<ul style="list-style-type: none"> <li>• Misinformation spreading through multiple channels has considerable effect on the acceptance of a COVID-19 vaccine.</li> <li>• Developing and using trusted messengers to help navigate the COVID-19 vaccine information landscape and building trust in COVID-19 vaccines is critical.</li> </ul>
R: Religion	<ul style="list-style-type: none"> <li>• Religious fanaticism (related to one’s own, or one’s group’s devotion to a religion) is an important factor in determining the likelihood of COVID-19 vaccine acceptability in Africa. Many Africans value religion.</li> <li>• Religious leaders have enormous positive influence over their congregants.</li> </ul>
I: Immunization roll out plans	<ul style="list-style-type: none"> <li>• Context-specific immunization roll-out plans will be very important for COVID-19 vaccination to be successful in the Africa continent.</li> </ul>
S: Social influences and enabling environment	<ul style="list-style-type: none"> <li>• Harnessing social influencers, using trusted community figures, prominent public authorities in an enabling environment can make vaccine uptake “visible” to others,</li> </ul>

of reports on vaccine scandals including reports on critical side-effects of vaccination leading to increased vaccination hesitancy. Vaccine hesitancy leads to refusals, delays, and contributes to disease outbreaks and spread. There is a need for health authorities in African nations to fully assess their health systems and the current levels of willingness

to receive a potentially safe and effective COVID-19 vaccine.

### **2.2. A = Attitude and Uptake by Health Care Workers**

Attitude and uptake of vaccination by healthcare workers (HCW) is a significant determinant that is consistently associated with patient adherence and acceptance to vaccination and its schedules, which thus reduces vaccine aversion.<sup>8</sup> Vaccinated HCWs have been shown to have a noticeable effect on patients' decision to take a vaccine. This will not be different in the case of the COVID-19 vaccine. African Governments must ensure large-scale, equitable access and distribution of COVID-19 vaccine while giving priority to HCWs (frontline workers with high risk of acquiring or transmitting COVID-19 infection). Eventually, COVID-19 vaccination efforts will expand to target diverse populations not typically reached with immunization programs, both across and within African countries. This will require sufficient health system surge capacity, as well as strategies to enhance trust in and acceptance of the vaccine including the attitudes of those who deliver it. Showing that HCWs are being vaccinated can lead to greater acceptance and uptake by the general population.

### **2.3. M = Misinformation**

In many African countries, COVID-19 vaccine misinformation spreading through multiple channels may present substantial obstacles to achieving coverage and herd immunity. Anti-vaccination activists are already campaigning in multiple African countries against the need for a COVID-19 vaccine, with some denying the existence of corona virus.<sup>1</sup> People are inevitably exposed to misinformation, rumors, and false conspiracy theories, which may erode their confidence in vaccination.<sup>8</sup> In this era of 'Infodemics', developing trusted sources, fact-checking, and responding to misinformation by using trusted messengers outlets to help navigate the COVID-19 vaccine information landscape is crucial to prevent communities forming negative opinion against them. Health systems need to increase transparent and open dialog with the population including key communication and evidence about

the benefits and safety of COVID-19 vaccination. In addition, communicating proactively, empathetically, and consistently about COVID-19 vaccine effectiveness and any uncertainties will contribute to building trust. African public health officials and advocacy groups should focus on building vaccine literacy among the population and target groups in order to enhance its acceptability.

### **2.4. R = Religious Fanaticism**

Religious fanaticism (related to one's own, or one's groups' devotion to a religion) is an important factor in determining the likelihood of COVID-19 acceptability in African nations. Over the years, African communities have developed strong religious values that can be deemed to escalate into the concept of religious fanaticism. While major faith institutions typically endorse the principles around the public health goals of vaccination, hesitancy has been documented at an individual clergy level, and concerns have been raised across some religious organizations.<sup>9</sup> Over the past years, religious leaders have had enormous influence over their Christians/followers when it comes to attitudes towards public health interventions. Often, they have helped guide their followers in their health seeking behaviors. Consequently, their pronouncements can significantly reduce or enhance the likelihood vaccine acceptability and uptake. Nevertheless, some religious leaders have expressed concerns that followers may face an "ethical dilemma" over Africa's COVID-19 vaccination plans.<sup>9</sup> In order to achieve an effective public health prevention response like COVID-19 vaccination, it is critical that religion and science flow in tandem, given that the role of religious leaders cannot be over-emphasized.

### **2.5. I = Immunization Rollout Plans**

COVID-19 Immunization rollout plans for African countries need to consider factors such as the convenience of location and time, associated costs, as well as logistics associated with getting vaccinated. One key consideration that can enhance acceptability is ensuring that the vaccines "go to" the target populations and are readily accessible. Another challenge is the fact that roll-out plans will have to adopt strategies to target adults since typically, so

far in the African context, vaccination campaigns have targeted children. Therefore, context-specific COVID-19 vaccination roll-out plans that are also convenient for the local populations will be very important for COVID-19 vaccination to be successful.

**2.6. S = Social Influences and Environment**

There is a need to harness social influencers, including from trusted African community figures like top performing artists, politicians, top sports individuals, top health officials, Presidents, Ministers of African countries. It is important to establish a checklist of context-specific enabling environments for COVID-19 vaccination to be successful. This will equally involve making vaccine uptake “visible” to others, through health facilities in prominent public places, or by enabling ways for people to showcase that they have received the vaccine – on social media, in news media, or in person,<sup>8</sup> and amplifying endorsements from trusted community members will increase gains in vaccine acceptability. However, making vaccines easily accessible in safe, familiar, and convenient locations, such as “drop-in” clinics/market squares that are near where patients often go, will encourage COVID-19 vaccination uptake.<sup>10</sup> This should be accompanied by targeted, credible, and clear communication from trusted sources demonstrating that getting vaccinated is important, beneficial, easy, quick, and affordable. Health systems across Africa must equally be prepared to reduce barriers to supply, service delivery, and quality of services, in addition to ensuring that HCWs are well trained and supported.

**3. Conclusion and Global Health Implications**

As African nations continue to strive towards interrupting the transmission dynamics of the deadly corona virus, the ‘VAMRIS’ perspective presented here can form a basis for stakeholders and policymakers to focus on determinants that can guide the design of strategies to improve COVID-19 vaccination acceptability and uptake. A major task for successful COVID-19 vaccination will be to ensure that essential information is communicated through trusted channels to help people make informed

decisions about their health. There is also need for future research and for public health practitioners to utilize the VAMRIS perspective and offer thoughts on what worked or did not work with regards to COVID-19 vaccine acceptability and uptake in the African context.

**Compliance with Ethical Standards**

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**Key Messages**

- ▶ The success of any COVID-19 vaccination like any other vaccination programs in Africa will depend on public willingness to receive the vaccination within the determinants outlined in our ‘VAMRIS’ perspective.
- ▶ Established determinants of COVID-19 vaccination likelihood of acceptability will go a long way in helping inform public health authorities about what types of health promotion activities and/or messages, incentives, and endorsements are necessary to achieve broader uptake of the vaccine by the African population when available.

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