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SHORT COMMUNICATION

Challenges and Solutions to the Recurrent Measles Outbreak in Somalia

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ABSTRACT

This study aims to address the persistent challenge of recurrent measles outbreaks in Somalia by providing an analysis of underlying issues and proposing evidence-based solutions. Measles, a highly contagious viral infection, continues to pose significant threat to public health worldwide, with Somalia facing unique challenges due to its complex geographical and sociopolitical landscape. The country's history of conflict, fragile healthcare infrastructure, and limited access to basic healthcare services have hindered efforts to control preventable diseases like measles.

These recurrent outbreaks do not only have immediate consequences on public health but also exacerbate an already precarious situation in Somalia, leading to substantial socioeconomic impacts as families grapple with the dual burden of disease and strain on livelihoods. The primary objective of this communication is to analyze the challenges contributing to the persistence of measles outbreaks in Somalia and propose evidence-based solutions.

To achieve this goal, the subsequent sections of this brief delve into the specific challenges facing Somalia in its battle against recurrent measles outbreaks. These challenges encompass issues such as vaccine access, vaccine hesitancy, coverage disparities, fragility of healthcare infrastructure, obstacles in community engagement, and limitations in disease surveillance and response.

Understanding these intricate factors is crucial for designing targeted interventions that not only mitigate the immediate impact of measles outbreaks but also establish a foundation for long-term prevention.

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Introduction

Measles, an acute infectious disease caused by the Morbilli virus, is characterized by key symptoms such as fever, cough, rash, and coryza [1]. It spreads exclusively among humans, primarily through person-to-person transmission via aerosolized droplets or direct contact with nasal and throat secretions from infected individuals [2].

Severe complications of measles, including blindness, encephalitis, severe diarrhea with dehydration, ear infections, and pneumonia, are more prevalent in specific age groups [3]. Children under the age of five and adults over 30 face a higher risk of severe outcomes [4]. This heightened susceptibility in young children is further exacerbated by challenges such as malnutrition and weakened immune systems, factors that are particularly prevalent in regions facing healthcare access issues, like Somalia.

According to the World Health Organization (WHO), measles vaccination has been instrumental in preventing 56 million deaths between 2000 and 2021 worldwide [5]. Despite the availability of a safe and cost-effective vaccine, the challenge persists, with an estimated 128,000

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Table 1: Immunization Public Health Service Delivery Challenges

Challenges	Consequences	References
Limited Access to Healthcare	Concurrent complex humanitarian situations, including conflict, insecurity, displacement, droughts, floods, and remote areas, make it challenging for individuals to access vaccinations or receive treatment if infected	[10, 11]
Poor Public Health Awareness	Lack of awareness regarding the severity of measles and the importance of vaccination contributes to lower vaccination rates, leaving populations more susceptible to outbreaks.	[12, 13]
Vaccine Hesitancy	Cultural beliefs, rumors, and misinformation about vaccine safety and necessity result in lower vaccination rates and higher infection rates, as some individuals perceive vaccines as unsafe or unnecessary	[14]
Suboptimal Immunization Coverage	Vulnerable populations, especially children under 5, face widespread virus transmission during outbreaks due to low immunity, exacerbating the impact of measles on public health.	[15]
Limited Healthcare Resources	Scarce resources for the healthcare system, compounded by concurrent disease outbreaks (e.g., COVID-19, cholera, polio), hinder effective response to vaccine-preventable diseases, including measles.	[16]
Poor Infrastructure and Cold Chain	Inadequate Road networks and cold chain facilities impede the delivery and accessibility of vaccines, hindering efforts to reach remote areas and distribute vaccinations effectively.	[17]
Inadequate Outbreak Investigation and Weak Health Systems	Delayed detection of measles cases at the community level and ineffective outbreak control result from insufficient outbreak investigation and weak health systems, amplifying the impact of outbreaks on public health.	[18]

measles deaths globally in 2021 [4]. This emphasizes the global magnitude of the issue, and in the subsequent sections, we will explore how these challenges manifest specifically in the context of Somalia.

Situational Analysis

Somalia is facing a climate and public health emergency compounded by prolonged internal armed conflicts and economic and institutional weaknesses that exacerbate the country's vulnerability [6]. The country is still struggling to recover from the impacts of a crippling drought, flash floods, and a surge in disease outbreaks, including measles and cholera [7].

Measles is endemic in Somalia, and the number of cases substantially varies each year [4]. According to the District Health Information Software (DHIS2) report from 2018 to 2022, the overall coverage for Measles-Containing Vaccine dose one (MCV1) was 67.7% and only 3.3% for Measles-Containing Vaccine dose two (MCV2).

The first dose measles vaccine coverage rate has remained relatively stable between 2018 and 2020, ranging from 61.5% to 69.8%, with a slight increase in 2022 to 78.3%. However, the second dose coverage rate has increased significantly in 2022 to 12.2%, indicating a notable improvement in vaccination rates [8] (See Figure 1). During this period, 14,000 suspected cases of measles were reported from six federal member states, including the regional administration of Somalia [8] (See Figure 2). Despite the sufficient availability of measles vaccines in the country, there are frequent reports of suspected measles outbreaks every year. The largest measles outbreak was recorded in 2017, with 23,039 suspected cases across all six federal states and the Banadir Regional Administration [9].

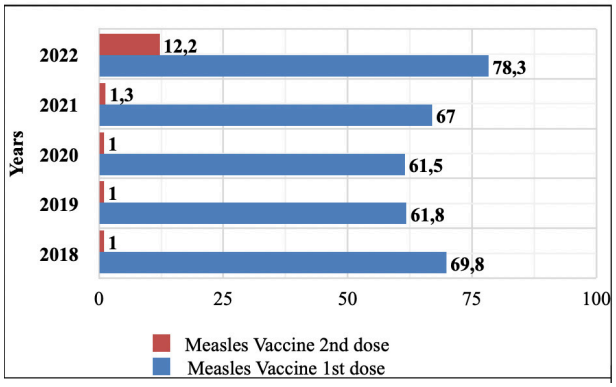

Figure 1. Measles Vaccine Coverage Trend in Somalia (2018-2022); Source: DHIS2

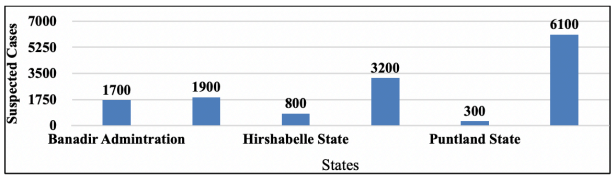

Figure 2. Measles Suspected Case Reporting by Federal Member States in Somalia (2018-2022). Source: DHIS2

Measles Vaccination: The Local Challenges to Overcome

Increased measles immunization has globally led to a significant reduction in morbidity and mortality. These substantial benefits are related to the vaccine's robust humoral and cellular immunity, its immunogenic and high safety record, and its effective delivery in public health emergencies. That is why maximum efforts are to be made to overcome the various challenges associated with its implementation that are outlined in Table 1 above.

Table 2: Recommendations for the prevention and control of measles outbreaks

Recommendations	Important measures	Call for actions
Ensure High Immunization Coverage	Achieve herd immunity and prevent outbreaks by ensuring at least 95% coverage for both MVC1 and MVC2. treatment if infected.	Prioritize and enhance routine immunization efforts to safeguard vulnerable populations.
Reinforce Immunization Campaigns	Counter low vaccine coverage by intensifying measles ssupplementary immunization campaigns/activities, particularly in states with inadequate coverage to deliver vaccination to all targeted individuals regardless of their vaccination status.	Optimize outreach services to integrate immunization efforts and protect populations at risk, by pursuing the WHO set standard for case management, following the optimum indications for antibiotics use.
Strengthen Measles Surveillance	Early detection is paramount for outbreak control and effective public health strategies.	Strengthen and maintain high-quality measles case-based surveillance to promptly identify and manage cases.
Enhance Risk Communication	Combat misinformation and vaccine hesitancy through tailored community engagement.	Develop and implement local strategies to promote vaccination, dispel myths, and foster community trust.
Empower Health Workforce	Equip frontline responders to detect, diagnose, and manage measles cases while enhancing community engagement efforts.	Prioritize training initiatives to strengthen the capacity of healthcare professionals and reinforce community involvement.
Conduct Research on Vaccine Hesitancy	Understand the root causes and barriers to measles vaccine hesitancy for informed strategy development.	Initiate evidence-based research to propose targeted strategies for improving vaccine uptake and coverage.

Recommendations

To ensure the success of this stage of the program the key measures in the implementation frameworks need to be pursued. These include the national commitment to the 2030 immunization agenda of leaving no one behind. In order to achieve equity and reach every child the governments must be made accountable for program. Moreover, there is a need to educate families about the importance of vaccination, to ensure the availability of an effective delivery system, to ensure a multisectoral approach, to educate the communities against the myths around immunization in order to gain the necessary confidence in the immunization process, to recognize the urgency of the required collective effort of the public and private health sectors and the development partners, as well as to sustain the highest levels of effective community participation in pursuing the recommendations outlined in Table 2 above.

The Way Forward

The situation of measles outbreaks in Somalia remains a critical public health concern. The country faces numerous challenges, including limited healthcare access, poor public health awareness, vaccine hesitancy, suboptimal immunization coverage, scarce healthcare resources, poor infrastructure, and weak health systems. Ensuring high immunization coverage, reinforcing immunization campaigns, strengthening measles surveillance, enhancing risk communication, empowering the health workforce, conducting research on vaccine hesitancy, and developing emergency response plans are critical steps in mitigating the impact of measles outbreaks in Somalia. These recommendations are essential in combating the spread of measles, preventing outbreaks, and protecting vulnerable populations in Somalia. It is imperative that stakeholders, including government agencies, healthcare providers, international organizations, and communities, come together to implement these recommendations effectively. Failure to act decisively could result in devastating consequences, particularly for children under 5 and other high-risk populations.

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Author contributions

AAT conceptualized the study, collected and analyzed data, and wrote the manuscript. MMO, SG contributed to data collection, analysis, and interpretation. BAAM contributed to data collection and manuscript writing. MBM, AAA contributed to data analysis and manuscript writing. MAM reviewed and edited the manuscript. All authors read and approved the final manuscript.

Disclosure statement

The authors declare that they have no competing interests.

Ethics and consent

The information contained in this paper is based on publicly available data from the Somali National Surveillance System called District Health Information Software (DHIS2). As such, ethics approval was not

required. However, we confirm that all data used in this study were anonymized and de-identified. All authors have reviewed and approved the final version of this paper.

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Paper context

Somalia has been plagued by recurrent measles outbreaks for decades, with devastating consequences for public health, economic stability, and social well-being. Despite efforts to control and eliminate measles, the disease continues to affect thousands of children and adults every year. This paper aims to provide an analytical review of the challenges contributing to the recurrent measles outbreaks in Somalia, as well as potential solutions to mitigate the crisis.

Summary in Somali

CINWAAN

Caqabadaha iyo xal-u-helida cudurka jadeecada soo noqnoqda ee ka dillaaca Soomaaliya

SOOKOOBID

Dalka Soomaaliya waxa uu la daalaa dhacayaa cudurka jadeecada oo aad u ba'an oo soo noq-noqday muddo dhowr sano ah, kaas oo khatar weyn ku ah caafimaadka iyo fayo-qabka dadka nugul. Inkasta oo dowladda Soomaaliya, hay'adaha caalamiga ah iyo hay'adaha samafalka ay dadaallo badan ku bixiyeen sidii loo xakameyn lahaa cudurkaan, haddana, cudurka jadeecada ayaa weli ah mid walaac weyn ku haya caafimaadka bulshada. Muddadii ay socotay daraasaddaan, 14,000 oo kiis oo cudurka jadeecada ayaa laga soo diiwaangeliyay guud ahaan dalka. Colaadaha daba dheeraatay, kaabayaasha daryeelka caafimaadka oo liita, tallaalka oo aan ku filneyn, iyo helitaanka adeegyada daryeelka caafimaadka oo xaddidan, barakac, saboolnimada, abaarta iyo daadadka joogtada ah ayaa ah caqabadaha ka qayb qaatay sii jiritaanka cudurkaan. Faalladani waxay baari doontaa caqabadaha iyo xalalka wax looga qabanayo cudurka jadeecada ee soo noq-noqday ee ka dillaacayo dalka sannad kasta, iyada oo diiradda lagu saarayo sababaha asaasiga ah ee dhibaatada, dadaallada wax ka qabashada, iyo xeeladaha suurtagalka ah ee lagu hagaajinayo xakamaynta iyo ka-hortagga cudurka jadeecada.

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