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LANDSCAPE ASSESSMENT ON THE ADAPTATION OF COMMUNITY MODELS AND APPROACHES FOR IMPROVING COVID-19 IMMUNIZATION ACROSS SUB-SAHARAN AFRICA

Report of Key Findings

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ABBREVIATIONS

3c Gap Analysis Tool	communication, community engagement, and compliance management
BFHI	baby-friendly hospital initiative
CBO	community-based organization
CDC	Centers for Disease Control and Prevention
CHW	community health worker
CLEA	Community-led Ebola Approach
CORP	community owned resource person
CSC	community score card
DRC	Democratic Republic of the Congo
EVD	Ebola virus disease
HPV	human papillomavirus
iCCM	integrated community case management
MOH	Ministry of Health
NGO	nongovernmental organization
SMS	short message service
SSA	sub-Saharan Africa
UNICEF	United Nations Children's Fund
WHO	World Health Organization

EXECUTIVE SUMMARY

Introduction

The World Health Organization (WHO) declared COVID-19 a pandemic in March 2020 and the implementation of mass COVID-19 vaccination campaigns began in early 2021. The Africa Centers for Disease Control and Prevention (CDC) put forth a goal "to vaccinate 60% of Africans on the continent by the end of 2022." However, vaccination rates stagnated and have not met this nor the goals in the WHO Global COVID-19 Vaccination Strategy in a Changing World[1] of vaccinating 100 percent of health care workers and older populations and 70 percent of the general population.

According to WHO African Region data, as of December 2022, 25 percent of the region's population had completed the primary COVID-19 vaccination series (World Health Organization 2022c). Across sub-Saharan Africa (SSA), low uptake is being addressed through COVID-19 Vaccines Global Access, expanding the number of vaccination sites, developing detailed plans, and leading communication campaigns (USAID 2022). In light of the challenges to achieving high uptake, it is important to consider the use and adaptation of community engagement approaches. Lessons from various maternal and child public health initiatives globally show community engagement has a big role in service uptake (Farnsworth et al. 2014). Furthermore, in public health emergencies, community-focused engagement and partnership approaches may influence behavior change for disease risk reduction (IFRC 2019; WHO 2021; WHO AFRO Region 2022).

Early lessons from COVID-19 vaccination experience demonstrate that using diverse delivery strategies such as mass vaccination in combination with community engagement resulted in a 15 percent increase in uptake in SSA (WHO Africa 2022a). We postulate that using trusted community models and structures is critical to promote demand for, confidence in, and uptake of COVID-19 vaccines in SSA.

Objectives

The objectives of this landscape analysis were to: 1) identify elements of community approaches that can be adapted to improve COVID-19 immunization in Africa; 2) analyze barriers and facilitators of these models/approaches within the definition of "community engagement and partnerships;" and 3) provide key considerations for application in SSA country contexts.

Methods

We conducted multiple literature reviews to identify community models/strategies that could be adapted to improve COVID-19 immunization across SSA. The search strategy included combinations of the Medical Subject Headings terms: "community partnerships," "community models," "community strategies," for western, eastern, central, and southern Africa.   Our systematic search of PubMed and Scopus databases from January 2012 to May 2022 yielded a total of 10,836 peer-reviewed studies, encompassing qualitative, mixed-method, and descriptive research. After careful evaluation, 46 out of the 10,836 articles met the selection criteria and these 46 were the basis of the comprehensive landscape analyses.

Findings

Our findings describe elements of various community engagement models and approaches from SSA stratified by: 1) lessons from emergency contexts, namely the Ebola response; 2) lessons from community

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1 https://www.who.int/publications/m/item/global-covid-19-vaccination-strategy-in-a-changing-world--july-2022-update

approaches applied in development contexts, with descriptions of positive attributes and drawbacks of key approaches; 3) innovative community engagement strategies; and 4) partnerships.

Lessons from emergency/Ebola virus outbreak response

Successful responses to Ebola virus disease (EVD) outbreaks include community-led action plans, commitment and engagement from faith-based leaders, community mobilization for health promotion, and behavior change strategies through partnerships with international and local non-governmental organizations (NGOs) that provide accurate information and conduct ongoing community surveillance. This experience has relevance for possible adaptation to improve COVID-19 vaccination in SSA. An example is where community mobilizers have worked to design and implement community-led health promotion plans to curb the spread of EVD which included training religious leaders to promote key messages and model behavior change through community participatory activities. Such activities triggered discussions and actions that evolved into concrete community action plans, which garnered agreement on the way forward within affected communities. Key country examples are provided in this report and include:

- **Sierra Leone.** International NGOs worked with local organizations to train both community members and influential members, including religious leaders to lead health promotion efforts and behavior change strategies for combating EVD spread. Such efforts were reactivated in response to COVID-19 as well, and extended to include community-based surveillance.
- **Democratic Republic of Congo** (**DRC**). Local faith-based organizations and leaders countered EVD misinformation through grassroots mobilization of women and youth groups from local parishes. Structures built during the EVD epidemic were then utilized during the COVID-19 pandemic for fighting misinformation.
- **Guinea and Sierra Leone.** Local medical students initiated the *Kick Ebola Out* campaign, following training by the Ministries of Health and Sanitation to update knowledge about EVD to give communities evidence-informed information.

Overall, national and local governments had a critical role in activity planning, coordinating diverse partners, and allocating resources for swift and successful EVD responses in several SSA countries.

Community approaches applied in development and non-emergency contexts

Community engagement approaches from development contexts are relevant to COVID-19 vaccination. They build on community structures, leverage influencers, use peer-to-peer strategies, and engage via dialogues and health promotion models. Key influencers, defined as individuals or groups that are part of existing community structures and platforms, were identified to deliver trusted advice and information and inspire action. Key approaches included the recognition and engagement of community group structures and indigenous networks (e.g., church, women and youth groups, sports clubs, community midwives) to improve outcomes in maternal and child health and nutrition. Pairing community health workers (CHWs) with key influencers from marginalized sub-groups leveraged the health knowledge of religious leaders and community members. Peer support groups were found to increase CHW motivation, improve collaborative problem-solving, and encourage mutual accountability. However, the frequency and duration of meetings and inadequate remuneration were barriers to CHW participation.

Innovative community- based strategies and platforms for partnerships

There exist innovative ways of using community-based strategies and platforms integrated with other health interventions and sectors e.g., reproductive health/family planning, nutrition, social protection, school health and these may improve COVID-19 vaccination uptake. Partnering communities with national health systems and NGOs or development agencies and the private sector was also an essential aspect of such collaborations. Community engagement models that clearly defined the respective roles of each partner resulted in better health intervention delivery than those that did not. This is a practical consideration for establishing partnerships to improve COVID-19 vaccination.

Limitations

Some articles, unpublished reports, and online documentation included in our literature review did not report information or data on key elements of community engagement and partnership. Therefore, our findings were limited to published and/or reported findings.

Programmatic considerations

Key considerations for improving COVID-19 vaccination emanated from this landscape analysis, which centered on "who," "how," and "which" structures to engage at the community level.

Engagement/reach with key community members and structures ("who")

- Engage in national or sub-national committees involved in emergency preparedness and response.
- Broaden community engagement through a multi-pronged approach via community members including local elders, youth, women, influential market vendors, CHWs, and religious leaders to plan and design interventions, prevention messaging, and disease surveillance to adapt to changing community needs and perceptions, especially toward the COVID-19 vaccine.
- Leverage key influencers such as grandmothers, elders, and community champions to be members of community health committees and groups. The individuals work with these committees to help mobilize communities, convey correct information, collect real-time data, and create demand for COVID-19 vaccination. Convene older and at-risk adults with comorbidities with peer support and/or community groups to help coordinate home visits for COVID-19 vaccination information and administration.
- Pair health programs with selected members of marginalized sub-groups, such as refugees, to plan community health programs, conduct community mobilization, and share information to increase the uptake of COVID-19 vaccination.

Ways to engage communities ("how")

- Utilize participatory learning and action programming approaches inspired by the successful Ebola Social Mobilization Consortium in Sierra Leone. Following a similar process to countries tackling polio, involve community mobilizers and religious leaders in promoting essential messages and demonstrating behavior change.
- Assess components of community readiness for the COVID-19 vaccine using the Communication, Community Engagement & Compliance Management Gap Analysis Tool (Kumakech et al. 2020)), which has been applied in Ebola vaccine roll-out.
- Integrate program activities with daily activities and common community practices to increase acceptance and reach.
- Adapt the COVID-19 vaccination response based on community feedback and ongoing monitoring to adjust programmatic responses to evolving needs within the context of an ever-changing pandemic.

Leverage existing groups to expand community engagement ("which")

- Partner with reputable associations for health promotion activities.
- Use resources from national and international NGO partners to collaborate with and train communities on health promotion, while mobilizing community members to implement prevention measures through local organizations that understand the context and culture and can closely monitor progress.
- Use community structures to build demand for the COVID-19 vaccination, such as through women, community, and CHW peer groups. Vaccination campaigns at religious centers with the visible support of religious leaders have succeeded, as demonstrated in Ebola response and COVID-19 vaccination efforts.
- Engage in multiple partnerships led by country governments, while defining clear roles and responsibilities of key international and local partners for specific contributions to planning, design, implementation, and monitoring.
- Foster collaboration with various sectors, such as social protection programs, the education sector, and microfinance groups, to leverage their potential as platforms for identifying vulnerable groups within the community. Utilize these partnerships to bolster community-based education programs and enhance the delivery of vaccinations.

INTRODUCTION

The World Health Organization (WHO) declared coronavirus disease 2019 (COVID-19) a pandemic in March 2020. Mass COVID-19 vaccination campaigns began in early 2021. The Africa Centres for Disease Control and Prevention (CDC) put forth a goal "to vaccinate 60% of Africans on the continent by the end of 2022." However, vaccination rates have stagnated and not met the above goal nor those of the WHO Global COVID-19 Vaccination Strategy in a Changing World[2] of vaccinating 100 percent of health care workers and older populations and 70 percent of the total population. As of December 2022, 25 percent of the Africa region's population had completed the primary COVID-19 vaccination series (World Health Organization 2022c).

Across sub-Saharan Africa (SSA), low vaccination uptake is being addressed through COVID-19 Vaccines Global Access (COVAX), expanding the number of vaccination sites, developing detailed vaccination plans, and leading communication campaigns (USAID 2022). However, there is also value in considering the use and adaptation of community engagement approaches and lessons from various global maternal and child public health initiatives which show that community engagement facilitates the uptake of health services (Farnsworth et al. 2014). Additionally, community-focused engagement and partnership approaches may influence behavior change for disease risk reduction as part of a successful emergency response. Finally, community engagement could be an integral part of new strategies which are needed to advance WHO's COVID-19 goals of: 1) substantially increasing population immunity to protect people from disease; 2) protecting the health system; 3) restarting economies; 4) restoring the health of society; and 5) lowering the risk of new variants (WHO 2021; WHO AFRO Region 2022).

A recent review of community engagement interventions for low-income countries revealed that approaches such as peer-to-peer education, health promotion through community health workers (CHWs), community empowerment interventions, and participation of mothers and other local groups in the implementation of health interventions have reduced newborn mortality, childhood diarrhea, and adult HIV prevalence (Questa et al. 2020). The importance of community-focused engagement and partnership to influence behavior change for disease risk reduction is increasingly being recognized as a key component of emergency response

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2 https://www.who.int/publications/m/item/global-covid-19-vaccination-strategy-in-a-changing-world--july-2022-update

management (IFRC 2019; WHO 2010). Following the 2014–2016 Ebola outbreak in west Africa, lessons about the importance of community engagement pertaining to planning, disease surveillance, data collection, and framing and dissemination of key messages, provided a roadmap for future emergency responses pertaining to disease epidemics (Abayomi et al. 2021; Gilmore et al. 2020). Several countries in the SSA region formally included community engagement as one of the pillars in their strategic plans for combating EVD and other infectious diseases, including Sierra Leone, whose recovery strategy from the EVD epidemic called for establishment of national and subnational level governance arrangements to oversee community engagement (Sierra Leone National Ebola Recovery Strategy 2015-17, Government of Sierra Leone).

Early lessons from COVID-19 vaccination, with multi-pronged and multi-partner support, demonstrated that using diverse vaccination delivery strategies such as mass vaccination with community engagement resulted in a 15 percent increase uptake of COVID-19 vaccination in SSA during the first quarter of 2022 (WHO Africa 2022a). Thus, gaining a deeper understanding of key aspects of community partnerships and approaches may help overcome challenges in COVID-19 risk perception and ensure sustained scale up of vaccine uptake in communities across SSA. Identifying ways to improve COVID-19 vaccination coverage may help reach older and high-risk adults with comorbidities, the highest priority populations for vaccination across Africa (WHO AFRO Region 2022). In response to the evolving context of COVID-19, it is critical to adapt trusted community models and structures to promote confidence in and uptake of COVID-19 vaccination.

OBJECTIVES

The objectives of this landscape analysis were to:

1. Identify elements of community approaches that can be adapted to improve COVID-19 immunization in Africa, based on a literature review.
2. Conduct an analysis of barriers and facilitators (i.e., positive attributes) of these models or approaches through the lens of community engagement and partnerships.
3. Provide key recommendations/reflections for application in SSA.

METHODS: SEARCH STRATEGY

The search strategy included the following key words in various combinations of the Medical Subject Headings terms: "community partnerships,'' "community models," and "community strategies," for western, eastern, central, and southern Africa. Using these keywords, we searched PubMed, and Scopus databases from January 2012 to May 2022. We included qualitative, mixed methods, and descriptive studies in the final landscape analyses. The initial search resulted in 10,836 peer-reviewed articles. Titles and abstracts were reviewed and screened to determine initial inclusion. The exclusion criteria of articles included studies/trials with non-human subjects; articles reporting only study and clinical trial protocols; statistical models; cross-sectional community surveys; and papers that did not contain any information on the community approach model and strategy and its roll out or implementation. This initial review of papers, reports, and online sources yielded 25 articles. A second complementary literature review further identified community models and strategies in the Africa region that can be adapted and applied to improve COVID-19 immunization. After this application, 46 additional articles were confirmed for final inclusion in the landscape assessment.

Community engagement in this landscape analyses was defined as:

> "The involvement of communities in decision-making and in the planning, design, governance, and delivery of services aimed at improving population health and reducing health inequalities."

Community engagement and partnerships are described according to five elements: planning, design, governance, delivery, and partnerships.

KEY FINDINGS

Our findings describe elements of community engagement and partnership across SSA. Findings are further stratified by: 1) lessons from emergency contexts, namely the Ebola response; 2) results emanating from community approaches applied in development contexts, with descriptions of attributes and drawbacks of key approaches; and 3) innovative community engagement strategies for polio, HIV, nutrition, reproductive health, and family planning and; 4) partnerships. Tables provide any available data/information throughout the report and Annex 1, as gleaned from the literature review. Notably, some papers did not report on various elements or their descriptions did not contain enough detail.

Ebola virus outbreak response: Country lessons

Our literature review found 13 articles on community engagement as part of Ebola virus disease (EVD) responses across seven countries: Democratic Republic of Congo (DRC), Guinea, Liberia, Nigeria, Sierra Leone, Senegal, and Uganda. These countries had EVD responses that encompassed community-led action plans, commitment and engagement from faith-based leaders, community mobilization for health promotion, and behavior change strategies. They were implemented through partnerships with international and local NGOs and student-led movements to provide accurate information about EVD. These community-led plans have relevance for possible adaptation to improve COVID-19 vaccination in SSA.

In Sierra Leone, five organizations formed the Ebola Social Mobilization Consortium: GOAL (an international humanitarian response agency); Restless Development Sierra Leone (an international development agency); FOCUS 1000 (a Sierra Leonean NGO); BBC Media Action (an international development charity); and the U.S. CDC. The consortium used the Community-led Ebola Approach (CLEA), which drew from participatory learning and action programming in HIV contexts and community-led total sanitation, to contain EBV (Box 1).

Restless Development and GOAL trained 2,500 people as community mobilizers to design and implement community-led action plans to curb the spread of EVD. FOCUS 1000 trained over 6,000 mosque and church leaders to promote key messages and model behavior change through activities such as 'burial roleplay' (i.e., burial reenactment); 'body mapping' for symptoms of the disease; and 'danger discussions' to characterize and highlight community perceptions of signs of Ebola infection. These activities led to concrete community action plans.

In DRC, 60 percent of health facilities in DRC are FBOs and Catholic health structures (*Bureau Diocésain des auvres Médicales)*. Faith-based organizations and leaders countered EVD misinformation by mobilizing grassroot women and youth groups from local parishes to meet in people's homes and communities to clarify information about EVD. At churches, religious leaders availed chlorinated water points for handwashing. These institutions were ideally placed to participate in community surveillance and support and take an intermediary role between the wider response and communities, including establishing early warning groups

in schools (Balibuno 2020). These local efforts were financially supported by the DRC Ministry of Health (MOH) and international organizations such as the WHO (Balibuno 2020).

After Sierra Leonean and Guinean members of the International Federation of Medical Students' Associations were trained by health specialists from the Ministry of Health and Sanitation, they initiated the Kick Ebola Out campaign to give communities accurate EVD information. These students were also trained to convey culturally sensitive information to reduce Ebola-associated stigma and fear while visiting homes and distributing chlorine and soap in the community. The Kick Ebola Out Campaign used Twitter handles and Facebook pages, posts, and hashtags to disseminate information from health authorities including WHO, the U.S. CDC, and Médecins Sans Frontières to medical students and youth across SSA, and TV and radio to reach communities (Chapman 2020). Overall, the response to EVD across SSA shows that community health committees and religious leaders gained trust and had a key role in community action planning and surveillance activities through early identification of persons with Ebola signs and symptoms (Abayomi 2021; Hemingway-Foday 2020; Gillespie et al. 2016; Bedson 2020).

International NGOs also partnered with local nonprofit organizations to train CHWs and religious leaders in health promotion and provide appropriate resources such as WASH and PPE (Hemingway-Foday 2020; Vivalya et al. 2021; Gillespie et al. 2016). National and local governments helped plan, coordinate partners, and allocate resources for the EVD response activities. Lastly, the Ebola vaccine Communication, Community Engagement & Compliance Management (3c) Gap Analysis Tool was developed by World Vision Ireland and London School for Hygiene and Tropical Medicine (LSHTM) to ascertain community preparedness for Ebola vaccination deployment. This tool is based on the recommendations from consultations with experts and provides information on country readiness for Ebola vaccine deployment in non-emergency and emergency scenarios. It has a checklist and scoring system to measure performance against targets to analyze gaps in the 3cs and create plans to close gaps in preparation for Ebola vaccine deployment across SSA countries (World Vision 2019). The tool establishes four levels of readiness for the 3c items:

- Fully available and functional/operational.
- Partially available or partially functional/operational.
- Not available or not functional/non-operational but in process of being developed.
- Not available or not functional/non-operational with no plans of developing them.

The EBODAC Consortium's 3C Gap Analysis Team worked in collaboration with the Ministries of Health (MOH) in Sierra Leone, Senegal, and Uganda to develop and pilot the Ebola vaccine 3C Gap Analysis Tool (World Vision 2019); A shortened version of the 3C tool has been piloted in collaboration with key stakeholders in the Ebola outbreak response in the DRC (Kumakech 2020). The 3c tool at hand can be adapted for use on any other vaccine deployed during epidemics including the Covid-19 pandemic (The Independent 2020), however the literature reviewed does not show any evidence of it yet being adapted or used for COVID-19.

In summary, structures for community engagement built in response to the EVD epidemic continue to be useful in other contexts. In Sierra Leone, in response to COVID-19, there was a reactivation of social mobilization and community-based action groups which were setup for EVD epidemic response (Jones-Konneh et al. 2023). Community health volunteers were responsible for creating health action plans at the local levels and conducting surveillance. Similarly, in DRC, structures for community engagement built during the EVD epidemic were utilized during the COVID-19 pandemic, including for fighting misinformation which was done through campaigns over traditional media, social media, and through local community-based events (Reliefweb 2020)

Summary of Elements of Community Engagement in Ebola Response

The Ebola response occurred in phases, starting with planning or design followed by delivery of the various preventive and curative initiatives. The roles and responsibilities of various actors according to elements of community engagement are provided in Table 1 and in greater detail in the Annex, Table 1.

Table 1. Key Elements of Community Engagement Approaches in Ebola Response, West African Countries

Approach	Community Engagement Element				
Information Source	Planning/Strategy	Design	Governance	Delivery	Partnerships
Ebola response, lessons, West Africa (Gillespie et al. 2016)	• Have trusted community members facilitate community entrance and engagement. • Meet community demand for information by aligning and adapting messaging from the central level to the districts and communities with considerations for quality and consistency.	• Apply standard operating procedures. • Establish clear communication indicators and analyze and share data in real time.	• Funding for community engagement.	• Use key communication networks and channels with wide reach. • Use various communication approaches, including community channels, religious sermons, radio.	• Build on existing networks to gain community trust and entry. • Coordinate with US CDC, UNICEF, and partners to improve information flow and dispel rumors. • Build partnerships with local journalists and community radio groups.

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Ebola response, lessons, Liberia (Barker et al. 2020)	• Consult with the community in crafting emergency response: conversations with community members sometimes indicated that their needs did not align with programs.	• Mobilize a range of CHWs and locally available resources to create solutions (e.g., empower traditional midwives to help with labor and delivery during hospital closures).	• Establish limited decentralized leadership allowing communities to lead Ebola response and/or formalize partnerships between local community leaders.	• Provide accurate, high-quality information delivered by trusted community leaders or radio.	• Establish partnerships between health systems and community volunteers to conduct tasks such as contact tracing and disease surveillance. • Establish platforms for community collaboration before crisis.
Community-led Ebola Action Approach, Sierra Leone (Bedson et al. 2020)	• Establish active roles for community in planning.	• Apply standards of practice to guide quality and coordination of community engagement interventions. • Collect and analyze community data in real-time to inform decisions.	• Recognize community agency in governing response.	• Integrate community engagement activities and data with surveillance. • Use participatory activities (e.g., burial roleplay, Ebola survivor stories, personal protective equipment demonstration). • Establish adequate training, support,	• Establish consistent two-way multi-platform channels of communication between community members and partners.

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				remuneration, and supervision for CHWs.	
Ebola response: Lessons learned 2017 outbreak in DRC (Hemingway-Foday et al. 2020).	● Strengthen community surveillance systems such as assessing and adapting reporting tools for CHWs.	● Broaden community capacity for surveillance. ● Develop context-based data collection, use, management, and sharing.	● Design case detection tools. (communication /reporting systems and transportation networks). ● Fund resources to scale up surveillance.	● Use low-resource community alert systems, such as free short message service (SMS). ● Use community-initiated alerts in the surveillance systems.	● Map and identify partners for case reporting.
Multidisciplinary model to 10th Ebola outbreak, DRC (Vivalya et al. 2021)	● Organize meetings centered on preparedness, prevention, and response to public health concerns. ● Train community leaders and CHWs on case tracing, community sensitization, and health communication.	● Develop community health committees to facilitate early recognition of outbreaks through daily community surveillance meetings.	● Train CHWs to recognize the causes of Ebola outbreaks.	● Extend job description of CHWs to mitigate public health challenges and support community management of outbreaks. ● Engage communities with sociocultural considerations in mind, and consider the involvement of non-health	● Coordinate WHO, MOH, community and provincial health committees, and NGOs.

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			stakeholders via creation of community health committees.	

We also extracted facilitators of and barriers to community involvement in the Ebola response in SSA. Positive attributes included early engagement of the community through trusted leaders and maintaining two-way communication to facilitate planning, risk communication, and disease surveillance. Table 2 summarizes these factors; details are provided in the Annex, Table 2.

Table 2. Summary of Facilitators and Barriers to Community Engagement in EVD Response in SSA

Approach		
Information source	**Barriers**	**Facilitators**
Ebola response, community engagement for prevention and control (Gilmore et al. 2020; Barker et al. 2020; Bedson et al. 2020; Hemingway-Foday et al. 2020).	● Lack of trust in government media organizations due to inconsistent early reporting that overly emphasized "Ebola kills" but did not provide information on prevention/treatment and survival. ● Emphasis on death lacked sensitivity to community values and traditions and fueled fear and initial lack of trust. ● Unclear responsibilities for case detection and coordination.	● Open communication, with two-way channels between providers and beneficiaries. ● Rapid and effective transfer of information between health officials and communities on counseling and disease prevention. ● Two-way dialogues and communication platforms with communities and other stakeholders built trust and provided transparent, accurate, and consistent information that dispelled misconceptions. ● Messages became focused instead of not fear-inducing, respectful, and tailored to local contexts. ● A unified set of rules or standards governing practice, such as thorough CLEA, for implementing agencies improved coordination (described in case studies section).

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Ebola Case Studies

These three case studies complement information in Tables 1 and 2. They describe the importance of harmonized communication, ensuring real-time use of data to inform programming, and swift, multi-pronged coordination among in-country partners for COVID-19 vaccination programming.

> **Box 1. Community-led Ebola Action Approach, Sierra Leone – Case Study** (Bedson et al. 2020)
>
> CLEA was implemented through the Social Mobilization Action Consortium, which was the largest coordinated community engagement initiative in the Sierra Leone Ebola outbreak. It reached more than 12,000 communities through forming a network of trained community mobilizers, mosques, churches, and radio stations. The key components of CLEA were:
>
> **Recognizing communities as active agents in outbreak response.** CLEA provided the operational structures to support communities in planning and monitoring their actions during the EVD epidemic.
>
> **Adequate support for frontline existing community workers.** A key feature of CLEA was the low turnover rate of frontline community workers, which was attributed to provision of training, supportive supervision, peer exchange, and appropriate remuneration.
>
> **Standardized communication strategies.** CLEA used integrated multi-platform communication strategies that enabled consistent communication, including a shared set of protocols and standardized operating procedures. This significantly improved response coordination and operation, in contrast to the district-level coordination and rapid response team, as the decentralized community engagement responses can lead to confusing and/or conflicting messages provided across communities.
>
> **Prioritizing real-time community data collection.** CLEA's continuous real-time data collection informed programming and decision-making. Giving frontline workers tools and training for data collection and analysis improved local authorities' understanding of the effects of EVD.

Box 2. From Ebola to COVID-19: emergency preparedness and response plans and actions in Lagos, Nigeria – Case Study (Abayomi et al. 2021)

Background

Lagos, the largest city in Africa, was the epicenter of the Ebola Virus Disease (EVD) outbreak in 2014, and Lagos State's COVID-19 preparedness and response plans were based on lessons from that experience. This included training community members in COVID-19 risk communication.

Key findings

During EVD, the state developed various policies and legislation that integrated emergency preparedness, including formation of a multi-sectoral governance council and the Lagos State Biosecurity and Biobanking Governance Council. These councils, via the Directorate of Epidemiology, Biosecurity and Global Health, launched epidemic preparedness and response (EPR) committees, comprising a local government area (LGA) health team (medical officer, chief nurse, community health officer, disease surveillance officer and immunization officer), and technical and multi-disciplinary community rapid response teams (RRTs) in each LGA, working alongside the federal MOH.

The EPR committees through the RRT and LGA state set up the Emergency Operations Centre (EOC) which focused on epidemiology, surveillance, communication and social mobilization, case management and infection control, laboratory services, port health, and management/coordination for infectious diseases.

During the COVID-19 pandemic, the EOC was reactivated. In February through May 2020, the EOC conducted focus group discussions with 10 representatives of groups such market vendors, youth organizations, and traditional birth attendants across 376 wards in Lagos State. FGD data were used to improve the COVID-19 risk communication messages, which were translated into local languages. The EOC then conducted communication training for community members including male and female market vendors, traditional birth attendants, youth organizations, head teachers and principals, and artisans.

Conclusion

The EPR committees set up during EVD were revived for COVID-19. They used information gathered in focus group discussions to train various community members and groups in risk communication.

Box 3. DRC Ebola Outbreak Response: Case study (Vivalya et al. 2021)

An Ebola outbreak occurred in Bas Uele Province, Northern DRC, which had acute infrastructure problems and was geographically isolated. This case study highlights a coordinated response with surveillance and investigation strategies involving government, NGOs, and CHWs. Lessons for rapid outbreak containment (i.e., 51 days) are distilled below:

Response coordination. Daily response team meetings enabled effective and efficient planning and actualization of activities across surveillance, community alerts, and mobilization. The response team comprised government and international NGO experts, and local provincial and district health leaders.

Surveillance. 1) Broaden the community case definition to improve ascertainment of all illnesses and deaths attributable to Ebola; 2) develop supplemental alert registers and investigation forms; 3) create procedures for reporting alerts, suspected cases, and other unexplained illness or deaths for rapid response teams, CHWs, and field epidemiologists.

Community alert system. An established mechanism for community-initiated alerts increased uptake of widely disseminated information. This included identifying high-traffic public spaces for reporting alerts; and integrating publicity of the alert system into radio announcements, community sensitization, posters, and routine activities at local health facilities.

Building local capacity. Training and supportive supervision of CHWs ensured best practices for infection prevention and control during contact tracing. Reinforcing CHW knowledge of EVD signs, procedures for monitoring contacts, reporting, and preventing exposure were key aspects of the approach.

Outbreak data collection, management, and communication information sharing. Daily dissemination of situational reports at national and the epicenter levels via a continuous feedback mechanism, was essential. These data indicated where to target community awareness campaigns and send essential equipment and materials for contact tracing and monitoring. Ensure two-way, real-time communication and data transmission (e.g., small satellite) with a consistent power supply (e.g., solar panel batteries, generators).

Post-outbreak strategy. The development of a preemptive emergency response plan, with detailed guidance on roles and responsibilities at each level of the health system and clear lines of reporting was also important, as was a training/dissemination plan to ensure that CHWs understood updated EVD guidance.

Community Engagement and Partnership Approaches - Development Contexts

Our literature review found 11 articles on community engagement approaches from development contexts. These have elements that are relevant to COVID-19 vaccination, especially in the areas of building on existing community structures, leveraging key community influencers, using peer-to-peer strategies, and engaging communities via dialogues and health promotion models (detailed in the Annex, Table 3).

BUILDING ON EXISTING COMMUNITY STRUCTURES/KEY INFLUENCER GROUPS

Key influencers, defined as individuals or groups that are part of existing community structures and platforms, were identified as messengers for delivering trusted advice and information, spurring and organizing community member action (see Tables 6 and 7, Annex 1). Four articles described how to engage with existing community group structures such as grandmothers' groups to improve health outcomes such as for HIV, maternal health, referrals, and nutrition (Campbell et al. 2013; LeBan et al. 2021; MacDonald et al. 2020; Skovdal et al. 2013). Two articles outlined existing Indigenous or informal community groups and networks (e.g., related to church and HIV support, sports, burial, rotating credit, women and youth, co-operatives, farmers) that were functioning as "critical enablers" of HIV response by providing psychosocial support and pooling community resources for prevention and care.

Six articles highlighted pairing CHWs with key influencers from marginalized sub-groups:

- **Kenya, Nairobi County:** Engaging and training refugee representatives and pairing them with CHWs to engage with health services (Kabue et al. 2022).
- **Ethiopia, Amhara Region:** Pairing faith leaders with CHWs for health outreach and information sharing (Guthrie et al. 2021).
- **Uganda, Wakiso, Mbarara, and Kabarole Districts:** Implementing a community mobilization approach involving HIV community network groups and network support agents (NSAs) for people living with HIV. NGO and the government trained NSAs on community outreach, referrals, health promotion, and strengthening linkages with health facilities (Mburu et al. 2012). The NSAs mobilized community members to use HIV services.
- **Uganda, Kiboga and Kyankwanzi Districts:** Community health committees composed of key personnel and CHWs ensured community member participation in the design and planning of programs and enhanced uptake of health services via community health committee dialogues (Mulumba et al. 2018).
- **Tanzania, Muheza District:** Community health teams comprising nurses, CHWs, religious leaders, and village heads created a health system strengthening model (Lunsford et al. 2015). This model increased health service uptake and HIV testing uptake (Lunsford et al. 2015). Integrating community activities into one program increased child vaccination coverage and strengthened community structures. Using community health teams to lead integrated services was a key element.

USE OF HEALTH PROMOTION AND COMMUNITY ENGAGEMENT MODELS OR STRATEGIES

PEER AND GROUPS AND COMMUNITY DIALOGUES

The majority of articles discussed implementing new health promotion, community engagement models, and strategies to improve outcomes, such as for HIV, TB, and child, and antenatal and postpartum health. Three studies (Brown et al. 2017; Langston et al. 2014; Musabyimana et al. 2019) focused on peer or care groups for promoting health-seeking behavior, while others focused on pairing lay community members with peer mentors (Helova et al. 2021; Phiri et al. 2017; Wanga et al. 2019). Notably, one study contrasted the effect of implementing facility- versus community-based support models on maternal uptake of Option B+: a prevention of mother-to-child transmission approach providing pregnant and lactating women with HIV

immediate life-long antiretroviral therapy (Phiri et al. 2017). Mothers living with HIV were matched with supportive peers from their community, offering personalized one-on-one assistance with their HIV treatment. However, considering the high transmission risk of COVID-19 compared to the chronic nature of HIV, in-person pairing is not advisable. Instead, pairing could be facilitated through smartphone applications like WhatsApp to ensure safe and remote support. Both the community-based model, defined as mentor mothers providing door-to-door support, and the facility-based models, which provided mentoring by mothers, promoted uptake and retention of Option B+ and reduced HIV associated stigma. The facility-based model was considered substantially less labor- and resource-intensive because participants met in a central location.

New ways to conduct outreach via CHW peer support were discussed in two studies (Langston et al. 2014; Serbanescu et al. 2019). For example, CHW peer support groups can improve integrated community case management (iCCM) for treatment of malaria, pneumonia, diarrhea, and acute malnutrition for children under 5 years of age in Rwanda. The CHW peer support groups significantly boosted CHW motivation, fostered effective collaborative problem-solving, and promoted a sense of mutual accountability. Nonetheless, the time burden of attending meetings and inadequate remuneration were identified as key barriers to CHW participation in these groups. CHWs were not paid for their services, they received a per diem for participation in official trainings (Langston et al. 2014).

Three studies focused on engaging wider groups of community members by creating community dialogues on family planning and child health (Wegs et al. 2016; Martin et al. 2021) and establishing call centers to discredit COVID-19 myths (Sommariva et al. 2021), as in Kenya, which helped convey accurate information to youths because it also involved partnerships with radio stations and SMS platforms.

COMMUNITY LEADERS AND TRADITIONAL HEALERS

Three studies (Dworkin et al. 2014; Hove et al. 2021; Sivhaga et al. 2012) focused on targeting community leaders to shift health behavior. Sivhaga 2012 described the efficacy of a community partnership to reduce under-5 child morbidity and mortality in South Africa. In this approach, community leaders such as officials from government departments, NGOs, community-based organizations (CBOs), and local government formed task teams alongside traditional healers and practitioners and mothers of children under five to monitor and advise the CHW work. This increased community ownership and unity in pursuit of a common public health cause and may have enhanced the effort's sustainability.

COMMUNITY SCORE CARDS AS A PLATFORM FOR COMMUNITY DISCUSSIONS

In Uganda, community score cards (CSCs) were implemented to monitor the availability, accessibility, and quality of maternal and child health services (Ogbuanu et al. 2019). The use of CSCs improved the responsiveness and availability of health services and accountability and communication of health care providers. The CSC was a way for community members to raise their concerns about childhood vaccination and other health services. This led to locally driven solutions such as use of home-based records and involvement of health care workers to identify missed vaccine opportunities and overcome vaccine hesitancy.

Innovative Platforms for Community Engagement

Below are a few promising community engagement approaches and platforms that have been used in SSA countries and may be considered for adaptation for COVID-19 immunization.

LEVERAGING ROUTINE IMMUNIZATION PLATFORMS OR EXPANDING DELIVERY

In Nigeria, delivery of novel oral polio vaccine and COVID-19 vaccines through the Expanded Program for Immunization system for polio response reduced family visits to health centers for immunization (World Health Organization 2022). It is worth noting the caution expressed by the Global Polio Eradication Initiative (GPEI) regarding COVID-19 vaccine delivery during polio campaigns potentially causing hesitancy. Careful planning and monitoring are crucial in joint campaigns that include both polio and COVID-19 vaccines, as highlighted in WHO's 2023 guidance. To mitigate hesitancy spillover, leveraging existing resources and infrastructure is key. For example, in Somalia, the polio response team helped with logistics, cold chain management, monitoring, and community mobilization during humanitarian crises. This collaboration demonstrates the effectiveness of resource sharing. Moreover, the transition from polio eradication initiatives shows how established community surveillance, human resource networks, and laboratory systems can enhance COVID-19 response. This emphasizes the importance of building upon existing infrastructure for effective pandemic response, as seen in WHO's 2020 guidance. In summary, GPEI's caution reinforces the need for careful planning. Leveraging existing resources, as in Somalia, and building upon established networks are valuable strategies in joint vaccine campaigns and pandemic response efforts.

Another innovative engagement approach for hard-to-reach communities placed mobile clinics along watering points to provide maternal health and vaccination services to nomadic, drought-affected communities (Jillo et al. 2015). Local clan (*Ng'dakarin Bamocha*) leaders created awareness of the mobile clinics and services offered. Communities selected CHWs from their clans to be trained on prevention and control of prevalent diseases, and the importance of immunization. These CHWs and community nurses provided health services and increased service uptake of child immunization.

INTEGRATION OF NUTRITION AND IMMUNIZATION THROUGH BABY-FRIENDLY INITIATIVES

In Malawi and Kenya, the Baby-Friendly Hospital Initiative (BFHI) and Baby-Friendly Community Initiative, which promote breastfeeding at the facility and community levels, may serve as platforms to integrate nutrition-sensitive interventions such as promoting and following-up on COVID-19 vaccination. As part of Malawi's integrated health efforts to scale up BFHI, USAID's Maternal and Child Survival Program led an immunization-nutrition initiative and trained village heads, community volunteers, and health surveillance agents engaged in immunization-tracking activities to promote breastfeeding. Village heads were trained as BFHI champions (or influencers) to explain the harms of providing breastmilk substitutes (i.e., infant formula) and other foods and liquids before the age of 6 months (Kavle et al. 2019). Community volunteers were trained to promote and counsel on exclusive breastfeeding and support mothers experiencing breastfeeding challenges within community care groups, which were also engaged in integrating these BFHI-related messages during routine immunization visits (Kavle et al. 2019). In Kenya, breastfeeding counseling and support is via community volunteers, health extension workers, and mother support groups. These groups and meetings, which include engagement with community leaders can be tapped into to potentially support COVID-19 immunization (Kavle et al. 2019).

LEVERAGING SOCIAL PROTECTION PROGRAMS

Social protection programs support vulnerable people. In Kenya, the *Inua Jamii* program supports older and disabled persons, and orphans and other vulnerable children. Its support includes bi-monthly cash transfers delivered through county and sub-county offices and a network of beneficiary welfare committees.

Additional support is provided by village and assistant chiefs and community members. Collaboration with the social protection systems can help identify people who are at higher risk for COVID-19, especially those who have pre-existing conditions or co-morbidities.

LEVERAGING CASH TRANSFER /MICROFINANCE GROUPS

Lack of household finances contribute to poor childhood (0–5 years) vaccine uptake in under-resourced communities. The Academic Model Providing Access to Healthcare rolled out the Bridging Income Generation with Group Integrated Care initiative in rural western Kenya. The program organized microfinance groups as a platform for health care delivery, health literacy education, and income-generation activities, such as farming and agribusiness opportunities to improve women's socio-economic status, which increases child vaccine uptake (Deyoe et al. 2021).

SCHOOL HEALTH PROGRAM AND HPV VACCINE

In Kitui County Kenya, the MOH through the National Vaccine and Immunization program piloted a human papillomavirus (HPV) vaccination program from 2013–2015. National and county health providers told teachers and school nurses about cervical cancer, the benefits of the HPV vaccine in preventing it, and where the vaccine was available. The teachers and nurses conveyed this information to girl students and parents, which motivated families to bring their daughters for vaccine services (Karanja-Chege 2022).

The pilot was challenged when members of Kenya Catholic Doctors claimed that the vaccine was not safe or efficacious and would lead to promiscuity. In response, sub-county health management teams worked with the school administration and parent teacher association to counteract misinformation by providing accurate information about HPV infection as the cause of cervical cancer and that vaccination provides protection. The MOH also trained youth educators on HPV vaccine advocacy and health promotion. These same partners and youth educators provided accurate information and linked peers to youth-friendly centers for COVID-19 vaccine administration (GAVI 2022).

LEVERAGING THE PRINCIPLES OF ACCOMPANIMENT AND THE ACCOMPANIMETER 1.0 TOOL

Partners in Health developed an approach to health care systems strengthening termed *Accompaniment* (Carrasco et al. 2019). Accompaniment in a CHW program is a strategy to reduce unhealthy social norms and structures. It is based on the premise that negative economic, social, and political factors of health may be transformed into positive ones to empower the community and use CHWs to link it to health facilities. The program is based on three principles:

- Professionalization- defined as recruitment and training of CHWs based on their responsibilities and supportive supervision, with ongoing mentorship that facilitates personal and professional growth.
- Bridges to institutional strength- defined as the ability to offer institutional foundations and human resources (CHWs) to ensure community health programs will contribute to the strengthened health care delivery.
- Community proximity- defined as having CHWs work in the community, not just in health facilities.

Enablers of and barriers to community engagement and partnership drawn from a range of development settings are explained in Table 3 and provided in greater detail in the Annex, Table 4a. Facilitators include locally led and owned community engagement solutions, sustained and trusted encouragement and support from key community members and providers. A key drawback of several of the community engagement

approaches is lack of remuneration or recognition, and the need for and lack of additional training for community members who are engaged in health activities, which has a cost implication.

Table 3. Enablers and Barriers to Community Engagement and Partnership Approaches, Development Context

Approach		Attributes	
Information Source	**Description**	**Barrier**	**Enabler**
Grandmother model (Aubel 2012; MacDonald et al. 2020)	Senior or elder women who are key influencers on health behaviors and/or practices of women and their families.	● Maternal and child health programs do not always engage grandmothers due to old age, perceived inability to learn, and undervalued contributions.	● Younger women learn from older women. ● Social networking of senior women shapes young women's attitudes during postpartum/newborn period. ● Helps with childcare/housework, provide information and advice and emotional care and encouragement, and offer material support (money/food).
Engagement of informal and indigenous community or religious groups (Guthrie et al. 2021; Skovdal et al. 2013; Campbell et al. 2013)	Community groups and networks are "critical enablers" of response.	● Often not formally recognized by health systems. ● Needs to be supported with linkages to more resourceful organizations.	● Promotes dialogue that encourages members to engage on prevention and care for HIV and other related health issues. ● Helps find and overcome barriers to prevention and care.
Community midwifery model (Kimani et al. 2020)	Skilled midwives residing in communities provide critical maternal health services in women's homes.	● Depends on recognition as public health workers. ● Requires adequate remuneration for services under government insurance schemes.	● Collaborates with informal social networks and community health extension workers and civil society organizations to strengthen community health linkages. ● Aids with emergency plans/guidelines at community level.

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Care group model (Brown et al. 2017)	Care group volunteers disseminate TB prevention and other health messaging by visiting homes in their catchment areas every 6 months. 10–15 *Care group* volunteers meet monthly for training and supervision with a paid facilitator.	• Does not address structural barriers to seeking TB care (i.e., long distance to health facility, overburdened health facilities).	• Community members help refer and accompany neighbors. • Trust in district health system fostered by peer-to-peer education. • Small groups allow for participatory learning.
Group care for antenatal and postnatal health, Rwanda (Musabyimana et al. 2019)	Pregnant women attend group learning sessions on antenatal and postnatal health during antenatal visits.	• Long distance to health facilities for group care. • Requires large-scale community outreach to benefit the largest number of pregnant and postnatal mothers.	• Increases feelings of peer/community support. • Improves relationships with health care providers.
Community dialogue approach (Martin et al. 2017; Martin et al. 2021; Wegs et al. 2016)	Community members trained to identify and prioritize specific issues and discuss actions to resolve them within their own means.	• Community-based facilitators need more training and refresher sessions to conduct dialogues with new or more complete information. • Facilitators/volunteers not paid.	• More attractive and efficient than health talks because participants are directly involved in identifying problems and finding solutions. • Participants feel more at ease with familiar groups such as discussing with neighbors, family, and friends. • Community volunteers have social status/recognition.
Community mentor or peer mothers for HIV (Helova et al. 2021; Wanga et al. 2019; Phiri et al. 2017)	Mothers with HIV employed by a healthcare facility to support pregnant/postpartum women with HIV.	• Concerns about confidentiality. • Fewer encounters than traditional community-based peer support.	• Reduces stigma and improves health service use and HIV treatment retention. • Less labor-intensive but equally effective in improving HIV treatment uptake and retention as traditional community-based peer support.

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CHW peer support groups (Langston et al. 2014)	CHWs trained to conduct household-level health promotion and establish peer support groups.	• Time burden of meetings with no financial compensation.	• Opportunity for continuing CHW training and education. • Facilitates CHW coordination, supervision, reporting, and accountability.
Partnership approach/community task groups, community health committees (Sivhaga et al. 2012; Hove et al. 2021; Mulumba et al. 2018)	Creates task teams and project steering committees composed of local partners including NGOs, CBOs, government, traditional leaders and healers, mothers that address community priorities.	• Challenge to create "safe spaces" to foster mutual understanding. • Equal participation is thwarted by more vocal/powerful actors.	• Unites community members in goal of strengthening local partnerships. • Program sustainability and community empowerment is enhanced by local leadership in committees and task teams.
National call center to dispel COVID-19 misinformation, Kenya (Sommariva et al. 2021)	Establishes national call center to dispel and track COVID-19 misinformation through SMS, radio, and youth multimedia platforms.	• Challenging to harmonize reporting and triangulate different streams of online and offline insights. • Tools for data monitoring and reporting developed by organizations external to community may not be sustained without community involvement.	• Learning or actionable data from the callers provided behavioral insights to shape COVID-19 response based on community misinformation. • Includes youth perspective.
Community groups network model, Uganda (Mburu et al. 2012)	Community support group leaders mobilized to take up health service co-provider roles.	• Low coverage of interventions due to lack of active tracking and referral mechanisms. • Poor data sharing between networks and health facilities.	• Uses community expertise and knowledge to strengthen linkages between facilities and the community. • Increased uptake of decentralized services by promoting family-friendly approaches such as home visits.

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Community health system strengthening (CHSS) model (Lunsford et al. 2015)	Uses existing resources and activities to develop resources to inform and improve the way that community groups promote health and support CHWs; and ensure strong health service continuity.	• Does not directly address larger systemic health challenges.	• The coaching/supervision support structure is an opportunity to highlight and fix community health challenges and close gaps in supplies, access, and human resources. • Facilitates supportive supervision, open communication, and appreciation of community health providers.
Community-based health care partnership model, Tanzania (Kema et al. 2012)	Integrates various community projects into a comprehensive program to enhance the community-wide reach and has a cost-effective component for sustainability considerations.	• Poor commitment of some key community personnel because it is on a voluntary basis. • Change of political and administrative leadership in the project areas necessitates repeated sensitization and capacity building.	• Increases use of services provided at health facilities by 45%. • Vaccination coverage increased from an average of ~76% to 98%.
CSC model Uganda (Kiracho et al. 2021)	CSC is a social accountability tool that is employed to monitor the availability, access, and quality of social services.	• CSCs are not routinely implemented under existing public sector processes.	• CSC use has increased expression of community and health provider concerns and improved accessibility of health services and accountability.

Partnerships

Seven articles (Guthrie et al. 2021; Hove et al. 2021; Kabue et al. 2022; Kabwama et al. 2022; Langston et al. 2014; Mulumba et al. 2018; Sivhaga et al. 2012) discussed partnering communities with national health systems, NGOs, development agencies, and the private sector. Relevance to COVID-19 vaccination identified in these analyses is where it is shown that community engagement models that implemented partnerships with a clear definition of each partner's roles, increased the efficacy of health interventions. This included increased community member engagement and service uptake and empowered national and local health care workers via trainings and mentorship. In emergencies, public-private partnerships have proven invaluable in delivering essential primary healthcare services and ensuring the continuity of other health services. These partnerships also play a crucial role in facilitating transport for health workers and establishing digital platforms for easy access to health information. Notably, in India and Nigeria, various public and private collaborations have significantly enhanced COVID-19 vaccination rates. By engaging religious leaders and open-air market influencers, these partnerships have successfully alleviated fears and dispelled misconceptions surrounding the vaccines, fostering greater acceptance and uptake within the communities (Box 4 and 5).

DISCUSSION

Low vaccination rates across SSA have been attributed to factors including lack of equity in global supplies, infrastructure including cold-chains, diminishing health care workforce, and lack of preparedness to deliver COVID-19 vaccination at scale (Al-Kassim Hassan et al. 2022; Ayenigbara et al. 2021). The WHO's COVAX has facilitated vaccine sharing and access via procurement through the African Union, the UNICEF-supported African Vaccine Acquisition Trust, and the Global Vax initiative led by USAID to intensify financial, technical, and diplomatic support to increase vaccination rates, especially in SSA (US. Department of State 2022). The United States, in coordination with GAVI, the Vaccine Alliance, has provided COVID-19 vaccines to over 43 countries in SSA (USAID 2022). A major barrier to vaccine uptake has been conflicting information, compounded by misinformation and disinformation, conspiracy theories, and misconceptions about the seriousness of COVID-19 and the pandemic from non-evidence-based sources. Prior to COVID-19 vaccine production, the majority of respondents to a survey by the Africa CDC in Burkina Faso, Côte d'Ivoire, DRC, Ethiopia, Gabon, Kenya, Malawi, Niger, Nigeria, Senegal, South Africa, Sudan, and Uganda had doubts about the safety of the COVID-19 vaccine (Africa CDC 2020). Most respondents from Ethiopia, Niger, and the DRC said that they would reject the vaccine.

> **Box 4. Lagos – Nigeria, COVID-19 Vaccination via Local Markets** (UNICEF 2022)
>
> In Nigeria, a reported lack of urgency to receive vaccination, due to declines in reported COVID-19 infection, was a growing phenomenon. To scale up vaccination in Lagos State, UNICEF, with the UN Basket Fund, made vaccines available in local markets in six districts with high density populations. One of the community strategies for increasing vaccine demand included a mobilization team from the Lagos State Primary Healthcare Board and the National Orientation Agency at the vaccination campaign sites using the hashtag "#KeepCovidoutofLagos" which led to increased rates of registration for COVID-19 vaccination at Mile 12, a popular local market. The campaign tagline, "When the adults are protected, children are safe," likened the COVID-19 vaccine to other life-saving routine immunization vaccines. A local woman said that the initiative was "convenient and saving a trip to our health center far from my house." Alhaja Bolanle Oseni, a veteran leader of the market, was first to be vaccinated. She did so in the middle of the market to allay fears about vaccine safety. Using her influential voice, she convinced other market women to join the vaccination queue.

Poor access to immunization doses, delays, and shortfalls combined with vaccine hesitancy have hindered Africa's COVID-19 vaccination progress. Additionally, due to differences in vaccine hesitancy levels and community perceptions towards Ebola and COVID-19, with the Omicron strain and reduced virus virulence, Governments and communities' interests reduced (Sanghavi et al. 2022; Al Janabi et al. 2022; Nguyen et al. 2022; Wong et al. 2022).

A strategic focus on prioritizing elderly individuals, frontline health workers, and vulnerable, at-risk individuals with comorbidities shaped the direction of COVID-19 vaccination in Africa (WHO Africa, 2022b). The diversification of vaccination delivery strategies, as described in this analysis, suggests that efforts to bring COVID-19 vaccination closer to communities should be multi-pronged and incorporate applicable community engagement, partnership structures, and key influential individuals and groups. Such efforts should consider lessons from Ebola and development contexts, innovative community approaches, and partnerships.

Lessons for COVID-19 vaccination from the Ebola response

The Ebola response had several unique features that may be adapted for improving COVID-19 immunization (see Tables 1 and 2). Multiple community actors (i.e., CHWs, students, women, elderly, youth, survivors), were engaged alongside broader community and health management committees (Gilmore et al. 2020). For example, across Guinea, Liberia, and Sierra Leone, community health committees established a platform for an Ebola taskforce to coordinate activities with CHWs (LeBan et al. 2021; Miller 2018; Leban 2021). Community members and leaders had key roles in intervention planning and execution, risk communication, and disease surveillance. Religious leaders facilitated community entry and trust by providing accurate information and promoting vaccination uptake. They also modeled behaviors to support surveillance and monitoring, and held dialogues focused on building trust, managing risk, and bolstering efforts for social and behavior change. CHWs conveyed high-quality health messages in local languages using community channels such as portable mouthpiece-loudspeakers and placement along high-traffic community routes. Student groups used social media for disease prevention communication to mitigate Ebola-related stigma.

Routine feedback on how knowledge, beliefs, and practices continued to change and ensured engagement was meaningful to communities (Gilmore et al. 2020). Real-time feedback was assured by training frontline CHWs in digital data collection and analysis (Bedson et al. 2020). When CHWs were adequately trained and received supportive supervision, turnover rates decreased. Additionally, fair remuneration and proper training on participatory approaches, data collection, and field safety, as recommended by WHO and UNICEF guidelines, further reduced attrition. Supportive measures such as peer-exchange, refresher training, and resources like insurance coverage, SIM cards, and mobile phone credit were provided at the district level to enhance CHW retention. Mobilizers and their supervisors also played a crucial role in evaluating the response at the community level, fostering a mutually accountable framework for successful implementation (Bedson et al. 2020). In DRC, the development of a national post-outbreak strategy helped to identify and leverage partners who had specific roles e.g., investing in the local community health system and sharing private communication equipment and infrastructure as well as local capacity building for local nurses, CHWs, traditional healers, field epidemiologists, and health care students in case identification and treatment. Lastly, the 3c Gap Analysis Tool was used in DRC and Uganda to measure communication, community engagement, and compliance management (Kumakech et al. 2020).

This landscape analysis also highlighted the potential of combining efforts with existing delivery platforms and other sectors and health areas to deliver COVID-19 vaccines in fragile and emergency settings.

Community engagement and partnership approaches – development context

From the development, non-emergency context, a common theme in the community engagement and partnership models from the literature reviewed is an emphasis on establishing and building relationships with fellow community members who are knowledgeable role models for health behaviors. The roles, cultural norms, and influential networks across communities are key features of community engagement approaches that may lend insight into adoption of COVID-19 immunization. Key influencers, such as community and religious leaders, elder women and grandmothers, village chiefs, and members of community-based groups, have long-standing respect and ties within and throughout communities and have been used across health sectors and community engagement approaches, according to our findings. Therefore, concerted efforts are required to understand where and how these key influencers and groups can encourage COVID-19 immunization uptake. Our review indicated that community and religious leaders have been especially influential in reaching people who are unconvinced and hesitant. Home visits by respected peers may be particularly useful for reaching elderly and others who have difficulty with mobility.

Our landscape analyses found several examples of peer support and mentor approaches that were seminal in providing health promotion, education, and support at the community level (Brown et al. 2017; Campbell et al. 2013; Skovdal et al. 2013; Musabyimana et al. 2019). Partners in Health led community engagement programming using the _Accompaniment_ approach, which resulted in high cure rates for drug-resistant tuberculosis in Peru (Mitnick et al. 2003), HIV treatment retention in Rwanda (Franke et al. 2013), and diabetes and hypertension control and medication adherence in Mexico (Newman et al. 2018). This approach is characterized by a flexible and responsive programmatic model of design and implementation, urging health systems to prioritize listening and empathizing with the populations they serve. By doing so, they can identify and address critical health vulnerability gaps, including access to quality healthcare, food insecurity, poverty, and stigmatization associated with health conditions. This model is highly recommended for adapting community engagement strategies for COVID-19 vaccination.

Partnership learnings

Partnerships are an important component of community health activity implementation. A key learning from our literature review was that each partner organization had a different role, such as training, funding, and capacity building of the CHWs via NGOs, and health promotion and education led by the MOH and community health teams or structures such as health management committees (Estacio et al. 2017). Community members and groups implemented activities and provided feedback about community health program success and failure.

Community-owned resource persons (CORPs) activities included training and capacity building for health committee members, engaging with health officials and policy makers, building civil society networks, training CHWs, and producing and distributing educational materials among partners (Kema et al. 2012). These activities enabled community members to own their health and participate in village health days and community health services. Partnerships between the government and development agencies added significant value to building the capacity of community health committees and local health systems (Aridi et al. 2014). This ensured a shared approach to solving problems such as untrained local health care workers, low penetration of health services into the community, and lack of community member involvement in health projects. Governments were noted for supervising external partner engagement with communities and providing technical support such as convening response teams for improved coordination and cooperation in program implementation.

LIMITATIONS

This landscape analysis had several limitations. First, some articles, reports, and online documentation included in our literature review did not report information or data on key elements of community engagement and partnerships. Therefore, our findings were limited to published and/or reported findings. Second, while certain lessons from the Ebola epidemic can be adapted and considered for improving COVID-19 immunization, following the emergence of the Omicron variant, the perceived risk of and necessity to get vaccinated against COVID-19 appears to be lower compared to that of Ebola. This low perception of risk is compounded by the high number of asymptomatic cases, lesser morbidity, and supply chain issues that kept vaccine demand rates at low levels. This unique caveat must be considered when adapting program design and implementation approaches from the Ebola epidemic to the COVID-19 pandemic in Africa. Third, at this point in time there is limited evidence on approaches to improve COVID-19 vaccination in the context of a pandemic, in terms of what approaches work and how across Africa at the community level. Our review illuminated that information has not been well documented or characterized, likely due to the rapidly evolving nature of the COVID-19 pandemic. In contrast, the Ebola epidemic, which was more geographically contained in SSA, was well-documented and -coordinated with a rapid, community-based response and ongoing surveillance mechanisms. In sum, this review is based upon lessons from three streams of evidence from SSA countries: 1) Ebola outbreak response; 2) other development-based approaches from health areas/sectors and; 3) approaches used to improve health outcomes/areas.

PROGRAM CONSIDERATIONS

Considerations for programs aimed at improving COVID-19 vaccination are gleaned from key findings from this landscape analysis. While there are limitations in available data on certain aspects of community engagement, these findings indicate the potential to adapt elements of approaches used in emergency and/or development contexts for improving COVID-19 immunization uptake in SSA. Key program considerations on "who," "how," and "which" structures to engage are summarized and delineated below.

Engagement/reach with key community members and structures (the "who")

- Include community and religious leaders, influential market and food vendors, and CHWs in planning and design of interventions, prevention messaging, and disease surveillance continually to adapt to changing needs and perceptions, especially toward the COVID-19 vaccine (Boxes 1 and 2).

- Work with national or sub national emergency preparedness committees. In Nigeria, the EPCs set up during the EVD outbreak coordinated training of community members and groups in COVID-19 risk communication (Box 3).

- Leverage key influencers such as grandmothers and community champions who can help mobilize people, convey accurate information, collect real-time data, and create demand for COVID-19 vaccination. Involving older and at-risk adults with comorbidities with peer support and/or community groups may facilitate coordination of home visits for vaccination information and administration.

- Pair programs with people from marginalized sub-groups (e.g., refugees) to plan community health programs, conduct mobilization, and convey information to increase vaccination uptake.

Ways to engage communities (the "how")

- Use participatory learning and action programming approaches; based on the Ebola Social Mobilization Consortium in Sierra Leone, to promote key messages and model behavior change.

- Assess components of community readiness for COVID-19 vaccine using the 3c Gap Analysis Tool, which was applied in Ebola vaccine rollout.

- Integrate program activities into daily community activities and common practices to increase acceptance and reach.

- Adapt the COVID-19 vaccination response based on feedback and ongoing monitoring to meet evolving community needs and the evolving pandemic context.

Solicit groups to expand community engagement structures (the "which")

- Partner with reputable associations for health promoting activities. Medical students in Sierra Leone and Guinea were trained by health specialists to convey culturally sensitive information during the EVD outbreak. To support HPV vaccine introduction, parent-teacher associations were trained on cervical cancer and preventive measures such as vaccination.

- Leverage and use national and international NGO partners to train communities in health promotion, while implementing health preventive measures through CBOs that understand the context and culture and can engage communities and monitor progress (Boxes 1–3). In Sierra Leone, GOAL supported FOCUS 1000 to train religious leaders to promote key messages during the EVD outbreak and model behavior change such as hand washing.

- Use community structures such as women's, peer support, and CHW groups and places of worship to build demand for the COVID-19 vaccination. Offering vaccination at religious centers with the visible support of leaders is also effective, as demonstrated in Ebola and COVID-19 vaccination efforts. It also mitigates the lack of infrastructure to roll out COVID-19 vaccination across countries.

- Engage in multiple partnerships led by country governments and sub-national efforts, while defining clear roles and responsibilities of international and local partners on their specific contributions to planning, designing, implementing, and monitoring (Boxes 4 and 5). Public-private partnerships have increased COVID-19 vaccination uptake in a few settings.

- Engage sectors outside health, including social protection programs and microfinance groups, to help with health care delivery and identification of vulnerable community groups.

- Combining efforts with nutrition, family planning, HIV, and school health programs to provide a multi-pronged, coordinated, and multi-sectoral response.

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ANNEX

Table 1a. Type of Community Engagement Actors' Involvement, by Key Element of Ebola Response

Community actor	Element of Ebola Response and Key Articles				
	Intervention design & planning	**Community entry/trust**	**Risk prevention and/or communication**	**Behavior change communication**	**Community surveillance**
Community health committees/groups, members, leaders including religious	• Abayomi 2021. • Gillespie et al. 2016. • Hemingway-Foday 2020. • Gillespie et al. 2016. • Bedson 2020.	• Abayomi 2021. • Hemingway-Foday 2020. • Gillespie et al. 2016.	• Hemingway-Foday 2020. • Gillespie et al. 2016. • Tenkorang 2017. • Baker 2020. • Kumakech 2020.	• Hemingway-Foday 2020. • Gillespie et al. 2016. • Bernard 2020. • Kumakech 2020.	• Abayomi 2021. • Hemingway-Foday 2020. • Vivalya 2021. • Gillespie 2016. • Abramowitz 2015. • Baker 2020. • Bedson 2020. • Kumakech 2020.
International agencies (NGOs), UN bodies (i.e., UNICEF) and/or CDC	• Hemingway-Foday 2020. • Vivalya et al. 2021; Gillespie et al. 2016.	• Gillespie 2016.	• Gillespie 2016. • Chapman et al. 2016.	• Gillespie 2016.	• Hemingway-Foday 2020; Gillespie et al. 2016.
Government and local organizations (e.g., professional associations)	• Abayomi 2021. • Hemingway-Foday 2020.	• Gillespie et al. 2016.	• Hemingway-Foday 2020. • Gillespie 2016.	• Abayomi 2021. • Hemingway-Foday 2020.	• Hemingway-Foday 2020; Gillespie et al. 2016.

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	• Vivalya et al. 2021. • Gillespie et al. 2016. • Kumakech 2020.		• Abramowitz 2015. • Ascuntar 2020. • Gillespie et al. 2016.	• Gillespie et al .2016. • Abramowitz 2015. • Ascuntar M 2020.	• Abramowitz 2015.
CHWs/community health volunteers (CHVs)	• Hemingway-Foday 2020. • Gillespie et al. 2016.	• Hemingway-Foday, 2020. • Hemingway-Foday 2020.	• Hemingway-Foday 2020. • Hemingway-Foday 2020.	• Hemingway-Foday 2020. • Hemingway-Foday 2020.	

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Table 2a. Detailed Summary of Facilitators of and Barriers to Community Engagement, Ebola Response in SSA

Approach and source of information	Barriers	Facilitators
Ebola response, community engagement for prevention and control (Gilmore et al. 2020)	- Lack of contextual understanding. - Engagement with inappropriate actors. - Lack of trust in government, media, and organizations. - Inconsistent messaging. - Unclear responsibilities. - Inadequate training and/or support. - Lack of resources/incentives.	- Early engagement with community members. - Processes modified as needed. - Engagement with multiple sectors. - Decentralized governance. - Clear roles and responsibilities for all stakeholders. - Strong linkage with community-level response efforts. - Engage with existing actors. - Open communication, with two-way channels between stakeholders and communities.
Ebola response: Lessons, DRC (Hemingway-Foday et al. 2020)	- Delayed case detection and reporting. - Weak health surveillance system in the communities.	- Built local capacity for case detection and reporting. - Early and rapid deployment of community alert systems. - Development of a community alert system that works in low resource areas. - Widened Ebola case definition within communities to increase case detection.
Multidisciplinary response model to strengthen health care, DRC (Vivalya et al. 2021)	- Community resistance due to lack of recruitment of local practitioners/increase in international healthcare workers - Weak health system capacity in regions concerned with public health emergencies	- Continuous training for community and health workers for early diagnosis of public health problems. - A trained local community health taskforce will subsidize the cost of health at the local centers and reduce community resistance towards uptake of health services.
Ebola response, lessons, Liberia (Barker et al. 2020)	Need to establish platforms for community collaboration before crisis to improve expediency of response.	- Accessible, high-quality health messaging delivered in local language. - Rapid and effective transfer of information between health officials and communities on counseling and disease prevention.

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	• Need for strengthening community institutions in non-emergency situations. • Understaffing, including in telephone hotlines. • Limited visibility of central government officials.	• Community involvement in community health-related decision-making. • Community empowerment through participatory problem identification and project implementation.
Community-led Ebola Action Approach, Sierra Leone (Bedson et al. 2020)	• Inconsistencies in community data collection tools. • Potential for positive reporting bias in data collection.	• Low turnover of frontline CHWs due to supportive training, supervision, and remuneration. • Clear communication and integrated field coordination due to standardized protocols and operating procedures. • Integration of community engagement in humanitarian efforts. • Real-time data analysis due to digital data collection by frontline workers.

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Table 3a. Elements of Community Engagement – Development Approaches

Approach	Key influencers of behaviors/practices – existing community structures	Planning/Design/Governance Interventions
Grandmother model (MacDonald et al. 2020; Aubel 2012)	● Localized Care Group support model.	● Provide advice on newborn and postpartum care to women and family members in South Africa, Malawi, Tanzania, and Nigeria. ● Provided caring for mothers and newborns' health, caring and feeding, young children and family cohesion.
Community/peer groups/women's groups, youth groups, breastfeeding groups, men's groups, water and hygiene groups, groups of people with HIV patients (LeBan et al. 2021)	● Identify community peer groups witness visible change to provide support and continuity for individual behavior change.	● Behavior changes interventions, Counseling which requires repeated intensive contacts over a period of time – can be delivered by health promoter/health educator with peer groups.
Community information boards with community health/facility personnel (LeBan et al. 2021)	● Plan with communities which information would like to report (i.e., vital events).	● Discussion of changes in health situation in community meetings, provision of vital events information, visible community information boards.
Village health committees, community health committee, community discussion fora (LeBan et al. 2021)	● Village health and community health committees.	● Support greater participation in the work with CHWs to organize community health action days and dialogue days with CHW and other members of the community.
Recognition of informal and indigenous community groups in HIV response, Zimbabwe (Campbell et al. 2013; Skovdal et al. 2013)	● Grassroots planning and organization rooted in activism and localism. ● Localized governance and leadership.	● Varies by group – can include formal or informal group dialogues on HIV.
Other Development Approaches		
Community midwifery model, Kenya (Kimani et al. 2020)	● Localized midwifery support to women.	● Deliver services to women in their homes, by midwives from same communities.
Care Group Model for TB control, Mozambique (Brown et al. 2017)	● Volunteer facilitators nominated and chosen by mothers in the communities they serve.	● Monthly training and supervision of volunteer facilitators.

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		• Disseminated TB prevention and positive health messaging to neighbors through home visits and accompanied TB cases through referral, diagnosis, and treatment.
Group Care for Antenatal and Postnatal Health, Rwanda (Musabyimana et al. 2019)	• Part of a larger study on reduction of preterm birth. • Sessions designed by NGO and facilitated by local health care workers.	• Group learning discussions for pregnant women during routine antenatal visits.
Community dialogue approach for child health, Mozambique, Uganda, Zambia (Martin et al. 2017)	• Community sensitization with community leaders and selection of volunteers conducted. • Topic selection was sometimes done either by deliberation between facilitators, community surveys, or through open consultation to ensure relevance of the topics to the community's concerns.	• The platform has been used to address a wide range of issues, including on four core topics (CHW services, Pneumonia, Diarrhea, and Fever) and topics such as malaria, TB, HIV, immunization, and family planning among others. • On average one to two community dialogues were held per month in the intervention regions, and each session was attended by 35 participants on average. • Ensuring ownership and participation from Community Leaders remained challenging, as did ensuring participation of men, and accessibility of the sites and developed materials for the local populations.
Community dialogues to shift norms around family planning, Kenya (Wegs et al. 2016)	• Community dialogue facilitators nominated by community, including health care workers, religious leaders, local government officials, and teachers. • Supervision, training, and governance by NGO partner.	• Facilitators trained to host community dialogues on gender, sexuality, and family planning in venues such as markets, churches, women's groups and village meetings. • Local theater groups held performances related to family planning norms during community dialogues.
Saving Mothers, Giving Life, Uganda and Zambia (Serbanescu et al. 2019)	• Research consultative meetings involved the community, political, religious, and district leaders, and postpartum women. • CHVs recruited with input from community leaders and neighborhood health committees.	• Community outreach led by CHVs, including birth preparedness, health promotion, and education on ANC visits, facility delivery, and postpartum care. • CHVs distributed birth plans, newborn supply kits, and transport subsidies to access health care facilities. • Community advocacy through "Mama Ambassadors" in Uganda and "change champions" in Zambia, community drama groups and radio and print media campaigns.
Community mentor mothers for HIV peer support, Kenya (Helova et al. 2021; Wanga et al. 2019)	• Peer support.	• Mothers who have HIV employed by a health care facility trained as mentor mothers to provide peer support to pregnant/postpartum women with HIV encourage

		enrollment, adherence and retention in HIV care, perform tracing for women who miss clinic visits, and educate on health-related topics.
Facility-based HIV peer support, Malawi (Phiri et al. 2017)	• Localized peer support groups and mentoring.	• Mentor mothers living with HIV provided one-on-one support at each clinic visit, lead weekly clinic-based support groups, and contact women within 1 week of a missed appointment.
CHW peer support groups to enhance iCCM, Rwanda (Langston et al. 2014)	• Peer support groups implemented as part of a larger iCCM program.	• CHWs trained in household-level health prevention, including treatment, prevention, and referral for diarrhea, malaria, and pneumonia. • CHWs from neighboring villages brought together for monthly peer support groups to support health promotion activities.
Partnership approach to reduce <5 child morbidity and mortality, South Africa (Sivhaga et al. 2012)	• CHWs reported their work back to CBOs who then reported back to the health department.	• Partnership approach used to increase community participation and ownership of initiatives to reduce child morbidity and mortality (e.g., <1 immunization coverage, vitamin A coverage). • Approach included CHW visitations to households to educate mothers or caregivers of children <5 on 17 key family practices for improving child health.
Community stakeholder participation to improve access to clean drinking water, South Africa (Hove et al. 2021)	• Embedded within a participatory action research study. • Designed to strengthen local governance and leadership in envisioning and enacting solutions to local health issues.	• 2–3-hour participatory workshops with community stakeholders held weekly for 4 months in participating villages. The workshops aimed to cooperatively generate, interpret, and act on evidence to address community-nominated priorities.
National call center to dispel COVID-19 misinformation, Kenya (Sommariva et al. 2021)	• National call centers and media engagement and SMS.	• Established a national call center with a voice recorded chat bot and 50 telephone operators who track misinformation raised by callers. They also tracked COVID-19 misinformation on live radio shows, through SMS interactions, and through multimedia conversations with youth. • Disseminated actionable behavioral insights to shape COVID-19 response.
Community-led land and property rights model for HIV prevention, Kenya (Dworkin et al. 2014)	• Community-level exchanges education on land rights, mediation and other legal issues.	• Facilitated community-level education on women's land and property rights during community meetings. • Established funeral committees to prevent property grabbing and disinheritance and provided referrals to the formal

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		justice system for property rights violations that could not be solved by community mediation.
		● Facilitated paralegal training for traditional leaders and community members for mediating disputes over land right and established community partnerships between community leaders and paralegal experts.
Community groups network model-Uganda (Mburu et al. 2012)	● Embraced community participation in demanding, planning, delivering and evaluating efforts for mobilization activities.	● Used home visits as community entry points to the network and for addressing health coverage inequalities. ● Strengthening of social accountability and service monitoring tools to help meet community expectations such as sharing of data between community networks and health facilities.
Implementation strategy-CHW program (NGO vs Government) Kenya (Aridi et al. 2014)	● Explored how implementation barriers were handled by the 2 programs- (CHW policy, support strategies, quality of delivery, CHW responsiveness, coverage, frequency and duration). ● Adoption of CHW engagement policy by the NGO strategy.	● NGO strategy used mobile technology for CHW supervision and community case identification/management (child count mobile platform. ● Both strategies used either local administration structures (chiefs) or Faith based organizations to identify and/or recruit CHWs.
Community Engagement intervention model. Kenya (Kabue et al. 2022)	● Conducting ~~timely~~ stakeholder engagement, undertaking identification and support/building local resource capacities and enabling shared leadership. ● Facilitating timely stakeholder engagement, identifying and supporting local resource capacities, and fostering shared leadership.	● Partnership between marginalized sub-groups and health systems.
Community mobilization strategy: Pairing CHW and faith leader's approach. Ethiopia (Guthrie et al. 2021)	● This approach leverages on the influential role of faith leaders to increase the impact of CHWs in Ethiopia.	● Use of integrative strategy that blends community and health care (i.e., home visit, conducting community outreaches in houses of worship and community forums and sharing of data and information between community, faith leaders and health facilities). ● Partnership between faith communities and health systems.
Private sector engagement strategy. (Sub-Saharan Africa- Kabwama et al. 2022)	● Strengthening national laboratory systems Treatment and management of COVID cases. ● Risk communication and health promotion. ● Supporting the continuity of access to health services.	● The private sectors leveraged on telecommunication models of reaching community members. Health promotion- child immunization- and risk communication through SMS, use of megaphones- for CHWs to conduct COVID-19 sensitization, media companies provided free airtime to health workers to

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		communicate COVID-19 prevention measures to the communities and supported surveillance with the MOH. • Implemented an e-surveillance system through the existing (DHIS).
CHSS model Ethiopia, Tanzania (Lunsford et al. 2015)	• Implementation of the CHSS model begins with orienting leaders at the national, regional, and district levels to the approach and analyzing existing links between the district, facility, and community levels. • Continuous benchmarking between project, facility, and district coaches to orient the community to health activities. Identifying coaches who are trained to organize the community and to provide support to the community teams. • Identification of existing health committees to anchor the community teams. • Community teams are trained in identifying target groups, disseminating health messages, and applying principles of health care improvement.	• Periodic community team meetings. Members review data to determine gaps in performance, develop ideas to test, and determine if an idea is successful and should be implemented across the community or at a larger scale. • Key tasks of the community team are to create/strengthen existing linkages between the community and the formal health system. • Each community group representative is responsible for facilitating the transfer of health information and messaging to their network or group and bringing information and determining how their network or group can best play a role in supporting the CTC provider.
Community-based health care partnership model. Tanzania (Kema et al. 2012)	• The model was actualized by CORPs who were the primary implementers. • Strengthening the community structures with skills to mobilize and sensitize the beneficiaries to participate in identifying and solving their health problems.	• The CORPs would collect and manage community-based data and communicate the data to the higher levels to facilitate planning. The CORPs were the key entry point to the community. • The approach used community forums, inter-village competition, community theater groups, village health days and house-to-house visits as broad community mobilization approaches. The tasks performed by the CORPs included community mobilization and sensitization on program activities, organizing the Village Health Days, house-to-house visits, collecting information and writing reports.
CSC model-Uganda (Kiracho et al. 2021)	• Four main factors helped to ensure that the CSC model was scalable and sustainable. This included embeddedness; into already existing systems, processes Legitimacy; Feasibility; low cost, simplicity of tools, acceptability, less	• To promote ownership of the CSC engagement of community leaders throughout the planning, design and implementation • The inclusion of national leaders and technical leaders in the community, sub-county and district levels, as well as fostering spaces for joint dialogue across these groups which was

	human resource intensive and ownership; high level stakeholder participation. ● There were six pathways for rolling out the model *strengthening citizens demand, *increased resourcing, *Improving information flow, *Collective action on the side of citizens ad *Collective action encompassing demand and supply.	important for securing buy-in and enhancing inclusion of locally appropriate plans based on their needs.
Community program planning model (Morrow et al. 2021)	● Establishment of a CHW specifically for health promotion (HP CHW) per village, with responsibilities of ensuring early childhood development (ECD) and nutrition matters are addressed. ● Decision-making process supported by an interactive modeling tool for defining priority program time-commitments of CHWs. ● Initial step was strengthening prior partnerships and engagement with national and sub-national structures.	● 4 CHWs were assigned per village for health promotion. ● Tasked with health promotion tasks including coverage of nearly all essential reproductive, maternal, newborn and child health, nutrition, and ECD interventions through a combination of household, visits and group counseling sessions, and integrated child health visits.
Health Committee model, South Africa and Uganda (Mulumba et al. 2018)	● Identification of sites based on an audit of health committees that identified a number of key challenges facing effective health committee functioning in both countries. ● A training guide and an instructor manual was developed, (for training health committee members and health workers. Learning circles were set up to provide support to the members. ● Developing frameworks that defines the roles of committees.	● Training grounded in a human rights-based approach helped revitalize flagging or defunct committees and gave trainees a sense of empowerment. ● Committees were empowered to advocate for better-quality services and to raise questions around the conditions of treatment and respect for patients' rights.

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Table 4. Enablers of and Barriers to Community Engagement and Partnership Approaches, Development Context

Approach		Attributes of Community Engagement and Partnership	
Source of information	Description	Barriers	Enablers
Grandmother Model, across Africa (not country specific) (Aubel, 2012; MacDonald et al. 2020)	Defined as senior or elder women who are key influencers of health behaviors and/or practices of women and their families.	• Maternal and child health programs don't always engage grandmothers due to exclusion due to: 1) old age; 2) perceived inability to learn; 3) undervalued.	• Younger women learn from older women. • Social networking of senior women which shape young women's attitudes during postpartum/newborn period. • Provide practical - child care/housework, cognitive - information and advice, emotional care and encouragement and material - money/food.
Engagement of informal and indigenous community groups in HIV response, Zimbabwe (Skovdal et al. 2013; Campbell et al. 2013)	Community groups and networks (e.g., church groups, AIDS support groups, burial society, rotating credit society, women's groups, sport's clubs, youth groups, co-operatives, farmer's groups) acting as "critical enablers" of HIV response by providing psychosocial support and pooling community resources for HIV prevention and care.	• Often not formally recognized by health systems. • Need to be supported with linkages to more resourceful organizations. • May spread inaccurate HIV information or promote damaging social norms.	• Promotes group dialogue that encourages members to engage in HIV prevention and care. • Can facilitate access to resources for HIV prevention and care. • Contributes to finding collective solutions to structural barriers to HIV prevention and care. • Can foster a sense of community solidarity.
Community Midwifery Model, Kenya (Kimani et al. 2020)	Defined as skilled midwives residing in their communities, who provide critical maternal health services in women's homes.	• Dependent on recognition as public health workers. • Require adequate remuneration for services – under government insurance schemes.	• Collaborates with informal social networks and existing CHWs community health extension. workers and civil society organizations to strengthen community health linkages. • Creates referral pathways and provide advice and refer women to services.

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			• Aids with any emergency plans/ clear guidelines at community level.
Care Group Model for TB control, Mozambique (Brown et al. 2017)	Care group volunteers disseminate TB prevention and other positive health messaging to neighbors by visiting homes in their catchment areas every 6 months (groups of 10–15 care group volunteers meet monthly in groups for training and supervision with a paid facilitator).	• Does not address structural barriers to seeking TB care (i.e., long distance to health facility, overburdened health facilities).	• Community members assist with referral and accompaniment of neighbors with TB symptoms through evaluation and treatment. • Improves community knowledge of TB. • Reduces stigma associated with TB. • Sustainable and cost-effective strategy for improving TB coverage. • Trust in district health system fostered by peer-to-peer education. • Small group structure of care groups allows for participatory learning.
Group Care for Antenatal and Postnatal Health, Rwanda (Musabyimana et al. 2019)	Pregnant women attend group learning sessions led by health workers on antenatal and postnatal health during antenatal visits.	• Risk of sharing private information with peers. • Financial barriers to attending group care. • Long distance to health facilities for group care. • Male partners may not support participation in group care. • Requires additional health facility staffing. • Requires large-scale community outreach to benefit the largest	• Increases knowledge of antenatal/postnatal health. • Increases feelings of peer/community support. • Improves relationship satisfaction with health care providers. • Facilitates new, meaningful relationships among mothers.

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		number of pregnant and postnatal mothers.	
Community dialogue approach for child health, Mozambique and Uganda (Martin et al. 2017; Martin et al. 2021)	CD contributes to individual and social change through a 10-step process for child health community-based services provided by CHWs, Community members identify and prioritize specific issues, and collectively agree on actions to resolve these issues within their own means. Community. facilitators, CHWs and community leaders, are provided with a toolkit and a guidebook.	• Most community-based facilitators needed more training and refresher sessions, to provide the dialogues with new or more complete information. • No clear estimate the actual reach of the dialogues. • Challenging to cover communities, such as long walking distances and coordination between facilitators and community leaders/structures. • Facilitators/volunteers not paid. • Some rarely attended community dialogs, included the youth, due to lack of interest, and the elderly- because of physical constraints.	• More attractive and efficient than health talks- as participants directly involved in identifying problems and sharing local solutions. • Organized and owned by our communities. • Active community participation and interaction in the meetings as participants were at ease discussing with neighbors, family and friends. • Community volunteers had social status /recognition.
Community dialogues to shift norms around family planning, Kenya (Wegs et al. 2016)	Community-based facilitators trained to lead community dialogues on gender, sexuality, and family planning.	• Potential challenges in scaling up and sustaining community dialogues without transitioning to local leadership.	• Addresses social norms to shift local perspectives and acceptance of family planning. • Improves communication between married couples and led to more equitable decision-making. • Involves participation of male opinion leaders to legitimize men's participation in family

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			planning and may increase men's approval of family planning.
Saving Mothers, Giving Life (Serbanescu et al. 2019)	Community outreach led by CHVs targeting women's decision to seek delivery care at a health facility.	• High cost of mass media and community events. • Rapid expansion of CHV roles and activities may not be sustainable. • Increased demand for health facility services may exceed facilities' capacities.	• Training and capacity building of local CHVs who became trusted and respected sources of community information. • Multiple forms of communication used to reach the community ensures broad exposure to messaging. • Financial incentives (e.g., transportation vouchers, childbirth kits) reduces financial barriers to accessing facility-based care.
Community mentor mothers for HIV peer support, Kenya (Helova et al. 2021; Wanga et al. 2019)	Mothers with HIV employed by a health care facility trained as mentor mothers to provide one-on-one support to HIV-infected pregnant/postpartum women.	• Concerns related to breaches of confidentiality. • Inadvertent disclosure of HIV status may lead to intimate-partner violence. • Logistical challenges in CHWs conducting home visits (e.g., weather events, financial barriers to accessing transportation). • Low remuneration of CHWs combined with heavy workload may be unsustainable.	• Reduces stigma and improves utilization of health services and retention of HIV treatment. • Supports communication and disclosure between HIV-positive mothers and male partners, children, and family members. • • Reduces HIV-positive mothers' need for transportation to clinics and reduced health care providers' workload since CHWs were trained to provide routine prenatal monitoring at home. • Long-term support for HIV-infected mothers since CHWs came from their communities. • Empowerment and income-generation for CHWs.

Facility-based HIV peer support, Malawi (Phiri et al. 2017)	Mothers living with HIV trained as mentor mothers to provide peer support to women with HIV at health facilities and to follow up when they missed appointments.	• Less frequent encounters with peer support compared with traditional community-based peer support.	• May help to reduce stigma, psychosocial barriers, or other barriers to uptake and retention for HIV treatment. • Less labor intensive but found to be equally effective in improving HIV treatment uptake and retention compared with traditional community-based peer support.
CHW peer support groups to enhance iCCM, Rwanda (Langston et al. 2014)	CHWs trained to conduct household-level health promotion and establishing CHW peer support groups.	• Time burden of meetings with no financial compensation. • Limited research on effectiveness of peer support groups as an intervention separate from iCCM or CHW work.	• Opportunity for continuing CHW training and education. • Facilitates CHW coordination, supervision, and reporting functions. • Increases interaction between CHWs. • Increases CHW motivation. • Establishes a mechanism for collaborative CHW problem-solving. • Encourages CHW mutual accountability.
Partnership approach to reduce <5 morbidity and mortality, South Africa (Sivhaga et al. 2012)	Creation of task teams and project steering committees to reduce child <5 morbidity and mortality composed of local partners including government departments, NGOs, CBOs, local government, traditional leaders, traditional healers and practitioners, mothers of children under five and other community structures.	• Does not address need for CHW and health care worker training and capacity building. • Does not solve issues related to vaccine distribution.	• Unites community members to work toward a common goal. • Sustainability of programming enhanced by local leadership in committees and task teams. • Involvement and training of traditional healers increases health facility referrals and improves relations between healers and facility workers. • Community ownership of initiatives.

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Community stakeholder participation to improve access to clean drinking water, South Africa (Hove et al. 2021)	Participatory workshops with MOH, rural leaders, NGOs, and other government officials aimed at cooperatively generating, interpreting, and acting on evidence to address community-nominated priorities.	• Challenges in creating "safe spaces" to foster mutual understanding. • Equal participation of stakeholders can be hindered by more vocal/powerful stakeholders.	• Potential for long-term sustainability of impact from strengthened local partnerships. • Community empowerment through recognition of rural community leaders.
National call center to dispel COVID-19 misinformation, Kenya (Sommariva et al. 2021)	Creation of a national call center linked to dispel COVID-19 misinformation and tracking of COVID-19 misinformation trends through SMS, radio, and youth multimedia platforms.	• Challenges in harmonizing reporting and triangulation of different streams of online and offline insights. • Tools for data monitoring and reporting developed by organizations external to community may not be sustained in the long-term without community involvement.	• Provides actionable behavioral insights to shape COVID-19 response based on community misinformation. • Includes youth perspective.
Community-led land and property rights model for HIV prevention, Kenya (Dworkin et al. 2014)	Model included community rights-based education, funeral committees that prevent property grabbing and disinheritance, paralegal training of traditional leaders and community members, and referrals to the justice system for property rights violations.	• No formal evaluation of the community-led land and property rights model on improving health outcomes.	• Addresses structural barriers to HIV prevention (i.e., addresses poverty through land ownership). • Targets women's empowerment to reduce their vulnerability to HIV.
Community groups network model, Uganda (Mburu et al. 2012)	Defined as community support group leaders mobilized to take up health service co-provider roles.	• Group leaders faced stigma due to disclosure of their health status-HIV+. • Low coverage of interventions due to lack of active tracking and referral mechanisms.	• This community mobilization and engagement creates structures that increase acceptance, capacity and sustainability within communities. • Uses community expertise and knowledge to strengthen. • linkages between facilities and the community.

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		• Poor data sharing between the networks and health facilities.	• Increased uptake of decentralized services- by promoting family friendly approaches such as home visits. • Income generating activities supported vulnerable children and households. • Help bridge the gap between the health care system and the community. • Male involvement (family-centered approach)-the key decision makers in the family-increased service uptake in the households.
Community Engagement intervention model (Kabue et al. 2022)	Described as a model that is sensitive to needs of marginalized sub-group(refugees) within a community to ensure no missed opportunities in service delivery.	• Potential risk of dependence by sub-group community members.	• Reduced victimization of the marginalized subgroup members when they seek health services. • Reduced resistance to health interventions by the sub-groups to the CHVs who were previously regarded as outsiders.
CHWs (NGO vs Government) strategy (Aridi et al. 2014)	Defined as use of key community individual to aid in increasing access to and coverage of basic health services such as community case management, immunization, case detection and influence community involvement in health activities. Comparison of strategies used by government programs and NGO programs.	• Lack of clarity on CHWs roles in both strategies. • Low prospects of professional growth within the health sector in both strategies. • Low financial remuneration in government strategy.	• Innovative measures by NGO strategy to supervise the CHWs in remote areas by use of mobile devices alerts and/or 2-way toll-free phones. • NGOs pay the CHWs full time remuneration which increased commitments, workload coverage and retention.

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Community mobilization strategy: Pairing CHW and faith leaders' approach, Ethiopia (Guthrie et al. 2021)	Defined as an approach that leverages on the influential role of faith leaders on health uptake promotion and pairing them with CHW to promote health education and perform outreaches.	• May not penetrate to households with different religious groups from the engaging faith leaders.	• This strategy for community engagement is adaptable to other faith communities and to other types of trusted and influential community leaders. • Increases the impact and acceptance of CHWs due to the pairing strategy.
Private sectors engagement strategy, sub-Saharan Africa (Kabwama et al. 2022)	Defined as involvement of private sectors in conducting risk communication, health promotion and continuity of access of health services during the COVID-19 pandemic.	• Lack of channels of reporting services provided by the private sector into the national health systems. • Lack of a policy framework to guide engagement of the private sector in disease response and control.	• Health systems strengthening. • Increased service delivery within communities and provision of scarce resources in improving the health outcomes of communities.
CHSS model. (Lunsford et al. 2015)	Defined as a cost-effective and innovative model presenting a community-level approach drawing upon existing resources and activities to develop an infrastructure for health service continuity. It is a framework for leveraging and organizing existing community systems and networks, continuously improving health and social services offered at the community, and building the community relationship with the health facility.	• The model itself does not directly address larger systemic health issues such as supply chain or infrastructure. •	• The coaching/supervision support structure creates the opportunity for highlighting and advocating for community health issues and making changes to close gaps such as supplies, access, and human resources. • Creates an environment for more supportive supervision, open communication, and enhanced appreciation of community health providers in the health system. • The model provides care that extends beyond the health facility and into the community. • After the introduction of the CHSS model, pregnancy identification, women receiving

			their first ANC visit and number of people coming for HIV testing increased.
			● The status of the CHWs was raised.
			● The CHSS model improved case identification, referrals and counter-referrals within the medical system, dissemination of health education messages.
Community-based health care partnership model, Tanzania (Kema et al. 2012)	Defined as a model that integrates different community projects into one comprehensive program to enhance the synergistic effect on impact and costs. The policy adopted in this model renders responsibility to the community to plan and manage their own health development programs via structured systems that are context specific to each community. The model also focuses on capacity building of key community personnel.	● Poor commitment of some key community personnel since it was a voluntary basis. ● Change of political and administrative leadership in the project areas lead to repeated sensitization and capacity building of the new leadership at community and district levels. ● Traditional cultural practices and beliefs, making behavioral change even more difficult. Likewise, limited basic education further complicates capacity building processes.	● The program resulted in an increase in utilization of facility health services by 45%. Vaccination coverage increased from an average of about 76% to over 98%.

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CSC model-Uganda (Kiracho et al. 2021)	This describes a CSC model which is a social accountability tool that is employed to monitor the availability, access and quality of social services.	● Human resource intensity of the CSC process. ● In Uganda, CSCs are not routinely implemented under existing public sector processes. There are ongoing discussions with the national leadership to identify appropriate entry points for using CSCs routinely and linking them with existing decision-making platforms.	● The CSC is a useful method of assessing programs performance thus giving program implementers an opportunity to identify and solve problems affecting their communities. ● Use of these tools have contributed to increased expression of community and health provider concerns including improved responsiveness and accessibility of health services and improved accountability as well as improved communication between service providers and service users.
Community program planning model: Rwanda, Zanzibar (Morrow et al. 2021)	Defined as a modeling tool-to assess the CHW Coverage and Capacity. Used to address common policy questions related to CHW needs, coverage, and time optimization. CHW programs are a critical component of health systems. When policy recommendations exceed what is feasible to implement, CHWs are overstretched by the volume of activities, implementation strength is diluted, and programs fail to produce promised outcomes.	● Conducting reality checks not fully built into CHW programs. ● Geographic and social context can vary substantially even within countries. ● Relies on available information and in the case of lack of data, assumptions must be made to guide decisions. This is a challenge in many communities since there is poor data collection.	● This is an innovation that provides a resource previously unavailable, allowing programmers to model scenarios for task prioritization and time allocation of mixed CHW workforces. ●

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Community health committee model: Uganda, South Africa (Mulumba et al. 2018)	Defined as a health committee model that underpins Community participation as an essential underlying determinant for realizing the right to health, since it enables communities to be active and informed participants in the creation of a responsive health system that serves them efficiently.	• Ignorance on the roles of community committees. • Limited opportunities for communities to engage with the committees, and socioeconomic and cultural barriers that undermines the committees' abilities to facilitate community members participation in health programs.	• Health community committees provide a mechanism that enables communities to be active and informed participants in the creation of a responsive health system. • Committee members developed a sense of agency, their capacity to engage the health system was increased, and their ability to exercise health rights strengthened by the trainings and supervision. • Integration into the wider health system has a positive impact on advancing community participation.
Model on accessibility and uptake of ante-natal care among the nomadic pastoralist community in Turkana County, Kenya (Jillo et al. 2015)	This intervention model is tailor-made according to the community's lifestyle to increase service uptake. Introduced freight container clinics strategically located to ensure walking distance to health services.	• This model does not intentionally seek to improve the level of community members knowledge.	• This approach based on community owned and tailor-made interventions led to improvement in skilled and health facility deliveries. • The model had a positive effect on improving maternal health care access among the nomadic pastoralist community.

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