# Supporting Community Health Workers as Vaccine Educators: Effectiveness of Digital Training and Chatbot Communication Tool to Promote Routine Childhood Immunization in Kenya

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**Background:** Immunization is a cost-effective public health measure to reduce child morbidity and mortality globally. Community Health Workers (CHWs) play a crucial role in vaccine acceptance. However, they encounter barriers like misinformation, limited training, and communication challenges. Digital tools can be useful in addressing vaccine hesitancy and enhancing CHWs confidence.

**Digital Medic**, an initiative of the **Stanford Center for Health Education** partnered with the **Lwala Community Alliance** in this formative quantitative study to understand how digital training tools, job aids, and a chatbot can help CHWs address vaccine hesitancy in rural western Kenya.







Image from the CHW training video

**Methods:** This cluster RCT examines the impact of digital training and a WhatsApp chatbot on 781 CHWs in Kenya. The digital training, developed in partnership with the Kenya Ministry of Health and Stanford Digital Medic, combats vaccine misinformation and integrates into Lwala's existing CHW training. The intervention includes educational videos, job aids, and a chatbot ("phone doctor") providing routine immunization information in English and Dholuo. CHWs were randomized and blinded to their assignment.

A follow-up survey ~2 months post-training assessed CHW knowledge, beliefs, and preparedness to address vaccine hesitancy. Quantitative analysis assessed the influence of training on CHW attitudes and knowledge using self-reported survey data. Pre- and post-intervention survey assessed CHW vaccine knowledge, beliefs, and preparedness using Likert-scale and true/false questions.



#### Image of the WhatsApp chatbot

**Results:** Digital training videos, infographic job aids, and the WhatsApp chatbot were rated highly by treatment CHWs, with over 90% finding them helpful for communicating with patients about childhood vaccination. Additionally, approximately 70% of treatment CHWs would recommend that the chatbot continue to be distributed without changes.



How helpful was the WhatsApp chatbot for sharing information with patients about childhood vaccination?

#### Image of a Lwala CHW using the WhatsApp chatbot

Both control and treatment groups expressed strong beliefs in the safety and effectiveness of vaccines, with high mean scores (averaging at approximately 3.9 out of 5) for statements like "vaccines are safe for children" and "vaccines are effective," indicating widespread confidence in childhood vaccination across both groups.



**Conclusions:** The knowledge and belief surveys reflect a well-trained and pro-vaccine CHW workforce. The digital tools were well received by the treatment group; however, CHWs highlighted the need for better resources to explain complex topics and strengthen patient trust. Expanding these tools for offline use could further enhance

The training and chatbot content were shaped by qualitative focus groups with Lwala CHWs, ensuring the materials addressed real-world challenges, local vaccine misconceptions, and CHW education needs.





Although many CHWs found the digital tools helpful, there was no statistically significant difference in vaccine knowledge between the two groups of CHWs based on a 15-item true/false knowledge assessment.



### CHW credibility and patient knowledge.

**Next Steps:** Next, we will review patient surveys and health records to evaluate how the intervention influenced community members' vaccine beliefs and their children's vaccination rates.

Routine Immunisat Birth - 10 years of age	ion	So	che •••	edu 	ıle*		*			ŕ		i		İ		1	
Vaccine		6 weeks	10 weeks	14 weeks	6 months	7 months	9 months	12 months		18 months		24 months	:	10 years		10 years 6 months	
Tuberculosis (BCG)	A SUR																
Polio (OPV)	1	1	1	1													
DPT-HepB+Hib		and the second	and the second	-													
Pneumonia (PCV10)		-	-	-													
Rotavirus		1	1	1													
Polio (IPV)				A STATE													
Measles-Rubella					**		AND T			A SURA							
Malaria (RTS,S/AS01)***					AND A	And the second	AND A					AND A					
Yellow fever***							A STATE										
Human papillomavirus (HPV)														A STATE		A STATE	
Vitamin A					•			•	Π	•							
* Routine Immunisation Schedule in Kenya 2023	**In the event of an outbreak or infants with HIV who are not immunosuppressed													***High risk counties			

## Image of a job aid for the CHWs

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