

## LIVING GOODS CHW SYMPOSIUM 2025 ABSTRACTS

### **1. Title: Advancing One Health Community Event-Based Surveillance: Integrating Community-Based Digital Systems for enhanced early warning and timely Response for effective pandemic preparedness. A collaboration in Busia, Kenya**

**Theme:** CHWs in Crisis: first responders in affected communities

**Authors:** Arthur Arinda, Edna Anab, Moses Sirigwa

**Background:** Human health is inextricably linked to the environment, the food systems, and animal health. However, this balance is increasingly threatened by emerging and re-emerging diseases, many originating at the human-animal-environment interface. In resource-limited regions with weak surveillance systems, outbreaks often go undetected until they escalate into public health crises. There is an urgent need for a proactive integrated approach to disease surveillance – one that strengthens and extends primary health care by equipping communities to detect and respond to risks early.

**Aim:** This initiative aimed to:

- 1) Establish a blueprint model for an efficient, digitalized CHW-led surveillance and response system integrated and aligned to Kenya's electronic Community Health Information System (eCHIS);
- 2) Build coordinated and integrated One Health processes for Community Event Based Surveillance (CEBS) for early detection, response and mitigation of public health threats; and
- 3) Build an understanding of CHW-led community surveillance systems and operating models.

**Methods:** The CEBS pilot in Busia County, Kenya, was implemented in two phases to test, validate, and integrate community-led reporting into the national eCHIS framework. Phase 1 focused on testing feasibility, case validation by Community Health Assistants (CHAs), and assessing scalability. In Phase 2, workflows were built within the Busia eCHIS, and Community Health Promoters (CHPs) and other cadres were trained



on One Health principles. The design placed the community at the center, with CHPs detecting and reporting health events through eCHIS to CHAs, who verified and escalated cases to a One Health Response Team. The methodology emphasized the integration of human, animal, and environmental health data under a One Health approach.

**Results:** Key events captured during the pilot included animal bites, human deaths, and clusters of similar symptoms in humans, with the largest proportions being animal-related events (20.6%), human deaths (17.6%), and symptom clusters (16.7%). Findings show that animal and human health events are closely interconnected, with animal outbreaks often serving as early warnings for human health risks. However, community awareness of these risks remains low, underscoring the need for stronger multisectoral One Health sensitization.

**Conclusion:** While early results are promising, fully institutionalizing this model requires stronger policy frameworks, sustained funding, and cross-sectoral coordination. Embedding One Health into community-level systems enhances health security, safeguards food systems and ecological stability, and lays the groundwork for a healthier, more resilient future.

## **2. Title: Leveraging Predictive Analytics to Identify Zero-Dose and Missed Children Through Community Health Workers (CHWs) in Uganda**

**Theme:** Bridging the Gaps: Reaching Vulnerable Communities with CHWs

**Authors:** Pearl Eunia Musana, Arthur Arinda, Tabither Elsie Ndutta, Eric Yegon

**Background:** Despite notable gains in immunization coverage, gaps persist in rural Uganda where many children under five fail to complete routine vaccination schedules. These gaps are driven by geographic inaccessibility, socio-economic inequities, and vaccine hesitancy. While Community Health Workers (CHWs) are pivotal in extending services, their outreach strategies often rely on broad, non-targeted approaches.

**Aim:** This initiative aimed to: 1) Develop a predictive analytics algorithm to accurately identify children most at risk of missing immunizations; 2) Integrate precision targeting



into CHW workflows to enable data-driven outreach; and 3) Generate evidence for scalable, government-led strategies to strengthen immunization equity.

**Methods:** A machine learning ensemble algorithm was developed using over one million longitudinal child health records, incorporating predictors such as household wealth and maternal health service attendance. The model underwent a phased approach: initial development and testing (Phase 0), ground-truth validation with 75 households in Mayuge District (Phase 1), and pilot deployment with 26 trained CHWs (Phase 2). Predictive outputs were delivered via mobile-based task alerts, enabling CHWs to prioritize high-risk households for follow-up.

**Results:** The pilot showed that predictive analytics improved immunization outreach by accurately flagging defaulters and saving CHWs time. The algorithm reached 68% accuracy in the field, with defaulters largely linked to poverty and low maternal health service use. Field deployment led to 112 referrals and 36 completed vaccinations. CHWs noted that micro-targeting made follow-up more efficient and better aligned with their outreach schedules.

**Conclusion:** The study demonstrated that predictive analytics can enhance CHW efficiency in identifying under-immunized children. It showed the feasibility of embedding machine learning within Uganda's eCHIS while underscoring the need for stronger community engagement, reliable supply chains, and digital infrastructure. National scale-up could accelerate universal immunization coverage and strengthen primary health care for vulnerable populations.

### **3. Title: Digital Lifelines: Transforming Maternal and Newborn Health Outcomes through Integrating Telehealth and Community Service Delivery in Kenya**

**Theme:** Bridging the Gaps: Reaching Vulnerable Communities with CHWs

**Authors:** Edna Anab



**Background:** Kenya faces significant challenges in providing adequate access to maternal, newborn, and child health (MNCH) services, particularly in remote and underserved areas. Challenges such as limited infrastructure and healthcare worker shortages hinder access to timely and quality care. Telehealth solutions offer a promising approach to bridge geographical gaps, improve access to quality and timely primary health care (PHC) services.

**Aim:** This study evaluated the "Better Data for Better Decisions: Telehealth" initiative, funded by The Children's Investment Fund Foundation (CIFF) and implemented by Living Goods in partnership with Health X. The initiative aimed to enhance MNCH outcomes by integrating telehealth into the Community Health Promoter (CHP) framework. It focused on antenatal and postnatal care, increasing the efficiency of PHC delivery, and supporting evidence-based policy change.

**Methods:** A mixed-methods quasi-experimental design was employed in eight community health units in Teso North, Busia County, Kenya. Four units received the intervention, engaging 39 CHPs who delivered a hybrid model of care - combining physical visits with a proactive virtual support provider through USSD, SMS reminders, IVR and a toll-free hotline.

**Results:** The initiative exceeded its registration targets, enrolling 388 households and 551 clients. Approximately 50% of registered clients engaged in consultations via the toll-free hotline, the preferred service channel among Telehealth platform users, with 88% opting for it. The intervention improved the frequency of postnatal care (PNC) touchpoints, with a statistically higher average number of PNC visits in the intervention sites compared to control units. The intervention sites also achieved a high referral completion rate and showed a consistently higher performance on the proportion of completed referrals for infants with danger signs. CHPs reported that the telehealth model improved follow-up and boosted their confidence in delivering health services. Users valued telehealth as a confidential and accessible channel for seeking advice.

**Conclusion:** Integrating telemedicine into the CHP framework shows potential to improve primary health care access, particularly in postnatal care services in underserved areas of Kenya. To maximize impact, future telehealth interventions should prioritize building a fully integrated digital referral system linking all key health actors for better coordination, incorporating interoperable client data into the national eCHIS for



improved tracking, and using data-driven approaches like risk stratification and AI tools to identify high-risk women and children.

## **4. Title: Enhancing Maternal and Child Nutrition Through Animated Videos: A Pilot Evaluation in Busia County, Kenya**

**Theme:** Bridging the Gaps: Reaching Vulnerable Communities with CHWs

**Authors:** Edna Anab, Helen Coombe, Tabither Gitau, Erick Yegon, Nzomo Mwita, Edward Zzimbe, Marlyn Ochieng, Alice Koimur, Harriet Andrews, Phanice Akinyi

### **Background:**

Maternal, infant, and neonatal mortality remain major public health challenges in Kenya, particularly in remote and underserved areas where Community Health Promoters (CHPs) serve as the primary link between households and formal healthcare systems. Strengthening maternal and newborn health education is therefore critical to improving outcomes.

### **Aim:**

This study evaluated the impact of a six-month digital storytelling pilot (June–November 2024) implemented by Living Goods, in partnership with Medical Aid Films (MAF) and the Busia County Department of Health and funded by the Children’s Investment Fund Foundation (CIFF). The initiative aimed to enhance maternal and child nutrition through four co-designed animated videos on antenatal care (ANC), nutrition during pregnancy, breastfeeding, and postnatal care (PNC).

### **Methods:**

A mixed-methods approach was used, combining quantitative pre- and post-intervention surveys with qualitative focus group discussions (FGDs), key informant interviews (KIIs), and in-depth interviews (IDIs). The study involved 39 CHPs and 100 women across six Community Health Units (CHUs) in Teso North Sub-County, representing rural, peri-urban, and urban settings. The videos were developed using local input to address critical health behaviors, including early ANC initiation, iron and folic acid supplementation (IFAS), balanced diet, exclusive breastfeeding, and timely PNC.

### **Results:**

The intervention produced significant improvements across multiple indicators. ANC attendance increased from 85% to 100%, early ANC initiation from 24% to 73%, and median ANC visits from three to eight. The proportion of women rating ANC as “extremely important” rose from 23% to 93%. IFAS knowledge improved from 79% to



100%, and consistent intake from 55% to 95%. Awareness of balanced diets and hydration increased, while food misconceptions declined.

Exclusive breastfeeding knowledge and practice reached 100%, and understanding of breast milk adequacy rose from 0% to 48%. PNC awareness improved substantially, with recognition of its importance rising from 19% to 97%, and knowledge of early checkups from 4% to 55%. Qualitative findings highlighted enhanced partner involvement, reduced food taboos, and increased maternal confidence. CHPs and mothers reported that the videos were engaging, credible, and easier to understand than flip charts, with 92% of CHPs noting improved client engagement and trust.

### **Conclusion:**

Integrating short-animated films into CHP counselling is a feasible, cost-effective, and scalable strategy to improve maternal and child health outcomes. The approach effectively enhanced knowledge, drove behavioral change, and strengthened community trust while promoting equity by overcoming literacy barriers. The Busia pilot provides strong evidence for the national scale-up of digital storytelling through Kenya's electronic Community Health Information System (eCHIS) and other digital health platforms to sustainably advance maternal and newborn health outcomes.

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