

Nationwide implementation of integrated community case management of childhood illness in Rwanda: Impact on mortality and health facility utilization

Background: Between 2008 and 2011, Rwanda brought Integrated Community Case Management (iCCM) for childhood illness to scale nationwide, training community health workers for empirical diagnosis and treatment of pneumonia, diarrhea, and malaria.

Methods: We use Rwanda Health Management Information Systems (HMIS) data to calculate monthly under-five mortality rates, health facility utilization rates, and community-based treatment rates for childhood illness in each district. We then compare a three-month baseline period prior to iCCM implementation with a seasonally-matched comparison period after iCCM implementation. We control for temporal confounding by comparing actual changes in mortality and health facility utilization to expected changes due to baseline trends in Rwanda.

Findings: The number of children receiving community-based treatment for diarrhea and pneumonia increased in the one-year period after iCCM implementation from 0.83 cases/1000 child-months to 3.80 cases/1000 child-months ($p=0.013$) and 0.25 cases/1000 child-months to 5.28 cases/1000 child-months ($p<0.001$), respectively. Total under-five mortality rates declined by 38% ($p<0.001$), and health facility utilization declined by 15% ($p=0.006$). These decreases were significantly greater than would have been expected due to baseline trends for under-five mortality ($p=0.003$) and health facility utilization ($p=0.033$) in Rwanda.

Interpretation: Training and equipping CHWs in Rwanda to provide iCCM led to significant reductions in under-five mortality and health facility utilization nationwide. When implemented in low-income countries, iCCM may be an effective strategy for achieving improved child survival indicators in line with Millennium Development Goal 4, a two-thirds reduction of under-five mortality by 2015.

TABLE 1: iCCM Community Health Worker Activities in Rwanda

Health Promotion	Diagnostic and Curative Services	Referral and Reporting Services
<ul style="list-style-type: none"> Community sensitization: immunization, awareness of common diseases, hygiene and sanitation, birth spacing, family planning, and breastfeeding Growth monitoring and malnutrition surveillance 	<ul style="list-style-type: none"> Diagnosis of malaria with rapid diagnostic test Treatment of confirmed malaria with artemether-lumefantrine Treatment of acute respiratory infections with amoxicillin Treatment of diarrhea with oral rehydration salts and zinc 	<ul style="list-style-type: none"> Report new births and deaths, weight gains, and vaccinations to local health center Refer children with moderate and severe acute malnutrition, severe pneumonia, severe malaria, and severe dehydration to local health center or district hospital

FIGURE 1: iCCM Rollout & Comparison Schematic

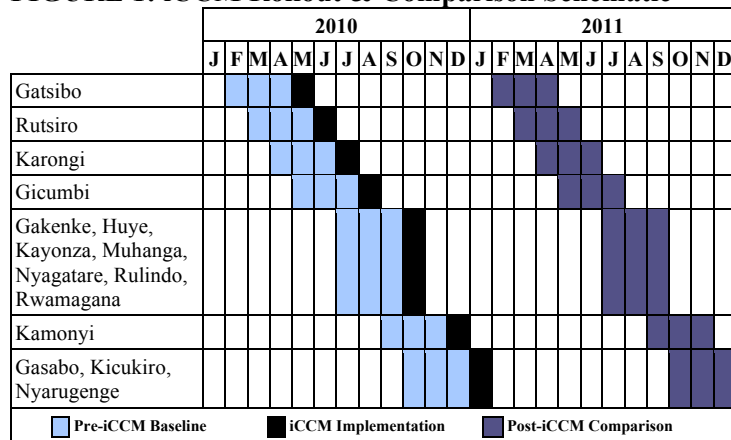


FIGURE 2: Total Mortality

