



**The Republic of Uganda
Ministry of Health**

An Investment Case for Integrated Community Case Management of Childhood Illness

2021–2026

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Table of Abbreviations

CHPCT	Community Health Planning and Costing Tool
HMIS	Health Management Information System
HF	Health Facility
iCCM	Integrated Community Case Management
IMNCI	Integrated Management of Newborn and Childhood Illnesses
LiST	Lives Saved Tool
MOH	Ministry of Health
MUAC	Mid-Upper Arm Circumference
ORS	Oral Rehydration Salts
PHC	Primary Health Care
PMI	President's Malaria Initiative
RDT	Rapid Diagnostic Test
RMNCAH	Reproductive, Maternal, Newborn, Child, and Adolescent Health
TWG	Technical Working Group
VHT	Village Health Team

Foreword

In Uganda, sustained scale up of evidence-based, basic child survival health interventions, driven by high levels of political commitment and new funding mechanisms, have translated into improved child health outcomes. Over a 10-year period, the under-five mortality rate fell by 50%, from 128/1000 in 2006 to 64/1000 in 2016. Malaria, diarrhea, pneumonia, malnutrition, and neonatal conditions remain the leading causes of death among children under five. In particular, despite the availability of proven and effective vaccines and medicines, contributions by malaria, pneumonia, and diarrhea to under-five deaths remain persistently high, signaling the need for strategies that will accelerate closure of prevention and treatment gaps through addressing local barriers to scale-up.

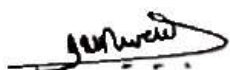
The overall goal of the integrated community case management (iCCM) investment case for Uganda is to provide the Government of Uganda and development partners with clear financing requirements and empirical evidence justifying continued investments to ensure institutionalization of sustainable, accessible, equitable iCCM services at scale. As the country invests in longer-term, universal infrastructure coverage and more deployment of human resource for health, institutionalizing the community health system will remain vital in saving lives, increasing access to care, containing health crises, and keeping health care affordable for all.

Investment in community health workers is a necessity to attaining critical health objectives for primary health care (PHC), leaving no one behind, and eventually universal health coverage by safeguarding health care affordability and accessibility and controlling other national priority diseases, such as HIV, tuberculosis, and newborn sepsis, and malnutrition. These front-line PHC workers have already shown significant contribution to health system resilience through grass root communications, prevention response, and surveillance of health, thus ameliorating impact and cost of health crises, like Ebola virus disease outbreaks and the current COVID-19 pandemic. In Uganda, the current community health cadre, the village health teams (VHTs), play a critical role in identifying and targeting efforts to families with frequent illnesses with prevention and health promotion at-home interventions.

The iCCM investment will accelerate the country's progress toward Sustainable Development Goal 3 and universal health coverage by building community health system capacity (involving diagnostic and surveillance equipment, trainings, and supervision) and accelerating the shift toward PHC. Investment in iCCM, as part of community health, will be essential in creating a resilient community health care system. This national-level investment case provides the scale-up costs for the country and will serve as a vital advocacy and resource mobilization tool to guide future efforts to fill the funding gap for iCCM by the Government of Uganda, donors, and development partners.

Continuous and targeted advocacy, alignment with broader health and multi-sectoral policies and strategies specifically, the national reproductive, maternal, newborn, child, and adolescent health investment case and the national community health strategy, and domestic resource mobilization are key priorities for actualization of this investment case. Therefore, priority next steps will focus on operationalizing and monitoring the investment case based on annualized plans, including well-defined, annualized resource mobilization plans. This remaining journey involves institutionalizing training and supervision of VHTs to treat children for malaria, and diarrhea with uninterrupted supply of artemisinin-based combination therapy, oral antibiotics, and co-packed oral rehydration salts and zinc. This is in addition to availing high-quality rapid diagnostic tests for malaria at the community level and enabling VHTs to assess, treat, and refer febrile children with or without malaria, and to identify and refer children with acute malnutrition, suspected HIV and/or TB, and children at risk of poor development. This investment case is government driven and grounded on consensus with partners from national and sub-national levels. I look forward to successful operationalization of this investment case.

For God and My Country.



Dr. Henry G. Mwebesa

Director General of Health Services

Acknowledgement

Special appreciation goes to all who participated in the development of this national Investment Case for Integrated Community Case Management of Childhood Illnesses in Uganda, with particular gratitude to the national iCCM technical working group (TWG) led by the Reproductive and Child Health Division, with the technical support and participation of representatives from the National Malaria Control Department (NMCD), Community Health Department, Tuberculosis Control Program, HIV Control Program, District local government, TASO, World Vision, Brac Uganda, Living goods, and Healthy Entrepreneurs.

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Dr Jesca Nsungwa

Commissioner Reproductive Child Health Division

Executive Summary

Background

As a community-based primary health care service delivery platform, integrated community case management (iCCM) targets a vulnerable population and aims to reduce well-known barriers to accessing timely, quality health services, particularly in underserved and zero-dose communities that have historically not been sufficiently reached by health facility services. At community level, iCCM results in savings to families with sick children who would incur catastrophic out-of-pocket expenditures for repeated visits to private for-profit outlets. Besides out-of-pocket costs for private sector care, families save time and cost of travel to seek care at public facilities. Also, caregivers can use the time saved for child care and other chores at home. In 2022, as Uganda embarks on developing a comprehensive community health strategy, success in institutionalizing iCCM within district health systems can create entry points and a platform for implementing integrated community health interventions based on the Uganda iCCM strategy scale-up 2020–2025.

Investing in iCCM will accelerate Uganda's progress toward Sustainable Development Goal 3 and universal health coverage by building community health system capacity and accelerating the shift toward primary health care and community-based primary health care. Countrywide scale-up of iCCM will create short-term cost savings by substantially reducing patient load at health facilities by treating cases before they become severe, thus freeing up scarce health care resources. This investment will also bolster health security by contributing to a more resilient community health system countrywide that can continue to provide lifesaving treatments close to homes during emergency or epidemic responses. By institutionalizing iCCM in the national health system, there is greater potential for domestic investments in a program that has so far been driven by project financing from development partners.

Achieving Scale

Scaling up iCCM services using this approach projects an increase not only in geographical coverage but also in the population targeted with iCCM services. By 2022, it is estimated that 78 local governments will be covered and by 2026, 146 local governments will be reached, translating into achievement of national-scale delivery of iCCM. The population targeted for iCCM services¹ is projected to double over a five-year period, increasing from an estimated 2,252,000 children (roughly 30% of children under the age of five [U5] in Uganda) in 2021 to 4,765,939 children (53% of all U5 children in Uganda) in 2026. Pivotal to the scale-up of iCCM, is the community health workforce; the number of active and trained village health teams (VHTs) required for iCCM service delivery, at the estimated coverage levels, will increase from 62,500 in 2021 to 138,688 by 2026. This will ensure improved, timely treatment of over 10 million pneumonia, 25 million malaria, and 18 million diarrhea episodes over the five years. The annual number of lives saved by iCCM will increase from 2,084 to 11,800 per year by 2026 or approximately 35,500 deaths will be averted in the first five years.

In modelling and costing the scale-up of iCCM over the next five years, it was assumed that the impact of delivering community-based curative services on reducing child morbidity and mortality would be sustained beyond 2026. Although iCCM service delivery beyond 2026 has not been costed in this analysis, the contributions of scaling up iCCM will have sustained, positive impacts for years to come and this is reflected in the lives saved analysis as well as anticipated health system efficiencies realized well beyond the investment period. The effect is that efficiency of VHTs increases by almost doubling VHTs' available time spent on iCCM services from 21% to 38%, and doubling the average number of weekly iCCM activities per VHT from 2.3 to 4.2, thus improving productivity of iCCM. As the country scales up, iCCM will be institutionalized in district and facility health facility management functions, thus ensuring sustainability after the investments.

A total of US\$218 million is needed for the scale-up of which 84% will be for community health worker commodities, equipment, and trainings. Of this, a total of US\$57.89 million is already committed, leaving a funding gap of US\$160.2 million or requiring an additional average of US\$0.8 per capita per year.

¹ Population targeted for iCCM services includes children 1–59 months.

Introduction

Background

Context

Uganda has registered progress in child health over the last decade with number of under-five deaths dropping from 90 to 64 deaths per 1,000 live births between 2011 and 2016.² This trend is largely attributed to scale-up of evidence-based basic child survival health interventions, including immunization, integrated community case management (iCCM), use of mosquito nets, early and exclusive breastfeeding, facility care, as well as interventions on water, sanitation, and hygiene—driven mostly by increased political commitment and new funding mechanisms.

Despite this progress, an estimated 130,000 children die annually in a country of 42 million people, which translated into over 250 deaths every day or one in every eleven children. Over 80% of these deaths are attributed to serious gaps in care for malaria, pneumonia, and diarrhea and underlying malnutrition, HIV, TB, and newborn sepsis.³ Deaths often occur at home without any contact with the formal health system and among children rural and urban-poor areas who either receive treatment late or receive inappropriate care.

Wider linkages to human capital development and social determinants

Many societal benefits including empowering women, reducing patient costs, enabling data collection on civil registration and vital statistics or population health trends, and enabling additional service delivery are anticipated as the Government of Uganda re-emphasizes population health more than facility-centered care in its National Development Plan. Young children carry the greatest burden of morbidity and preventable mortality due to infectious disease, and for those who survive, their frequent and cumulative strain may have lasting effects on their physical and cognitive development. The deaths of over 1 in 10 children each year in Uganda directly and indirectly affects the demographic patterns, contributing to high fertility and large family sizes leading to high costs at the national and family level. Frequent childhood illness and death diminish the stock of “human capital” in many ways, thus investments in early childhood have sustained effects on adult outcomes.

About iCCM

Integrated community case management (iCCM) is an extension of integrated management of newborn and childhood illnesses (IMNCI) at community level. This approach facilitates prompt, low-cost, evidence-based lifesaving treatments for the most common causes of childhood mortality and morbidity, closer to home. The UN-led Child Health Epidemiology Reference Group estimates that access to community-based treatment could reduce child deaths from malaria by half, deaths from pneumonia by nearly two-thirds, and deaths from life-threatening diarrhea by up to 90%. Recent globalized review of iCCM⁴ estimated that full scale implementation of iCCM could reduce U5 disease specific mortality due to pneumonia by 70%, malaria by 60% and acute watery diarrhea by 80%.⁵ Accelerated action against these main child killers is imperative and requires efforts to reach poor and disadvantaged children who face limited access to prompt, facility-based, lifesaving treatments for malaria, pneumonia, and diarrhea.

iCCM in Uganda

Uganda already has a high level of political administrative support from the government to scale up iCCM. Since 2005, the Ministry of Health (MOH) has established iCCM policies, strategic planning, institutional structures, and tools to enable scale-up of iCCM in all districts. The iCCM support in Uganda utilizes trained, supervised village health teams (VHTs), linked to facility-based services, to deliver curative, promotive, referral, and follow-up interventions in the community. The VHTs are low-cost, volunteer, public sector community health workers performing their duties from their homes or through actively visiting homes. The iCCM VHTs, in addition to focusing on child survival, also work on improving family and community practices.

² UDHS 2016

³ Annual Health Sector Report 2019/20

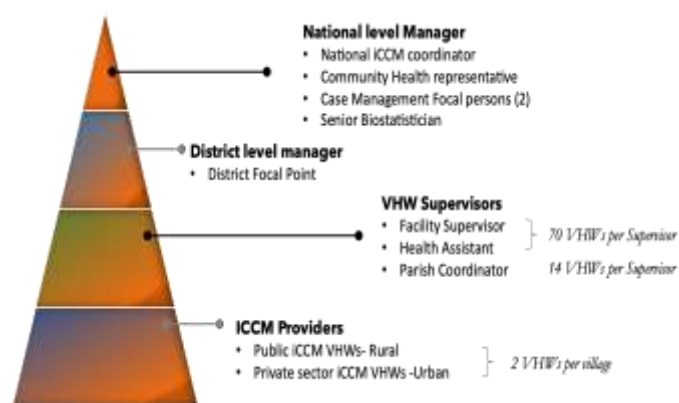
⁴ Child Health Epidemiology Reference Group (CHERG)

⁵ Theodoratou E, et al. The Effect of Case Management on Childhood Pneumonia Mortality in Developing Countries', *International Journal of Epidemiology*.2010; 39: i155–i171.

The iCCM program targets families with difficult access to case management at health facilities while working with health workers to improve effectiveness of services at first-level health facilities provided through integrated management of child and newborn illnesses (IMNCI). The Uganda iCCM program is built within existing VHTs networks (whose main role is health promotion and disease prevention) providing training to two of the five VHTs per village to provide iCCM specific tasks. The two lay community health workers per village are identified, trained, and supported with supervision, commodities, and tools all linked to IMNCI health centers. Lifesaving treatments and prompt referrals for the most common causes of childhood mortality and morbidity are delivered by VHTs to families within 24 hours of onset of symptoms for pneumonia, diarrhea, malaria, and prompt referrals and follow-up are done for neonatal infections, severe malnutrition, and suspected HIV and TB.

FIGURE 1: iCCM PROGRAM STRUCTURE AND SERVICE PACKAGE

iCCM Program Structure



iCCM Package

- Malaria diagnosis with malaria rapid diagnostic tests (RDT); treatment with artemisinin combination treatments (ACTs); pre-referral treatment of complicated malaria with rectal artesunate
- Pneumonia diagnosis and treatment with amoxicillin dispersible tablets
- Diarrhea diagnosis and treatment with zinc and oral rehydration salts (ORS) co-packs
- Prompt referral of very sick children and follow-up in the home at least once to ensure referral compliance and care
- Identification and referral of children suspected to have HIV and TB and follow-up to ensure referral compliance and home care
- Screening and referral of children with severe acute malnutrition
- Administer new born danger signs checklist, counsel and referral of sick newborn

As seen from Figure 1, Uganda has a iCCM technical working group (TWG) established at national level, with membership from Reproductive and Child Health, Malaria, TB, HIV and Community Health units of the central MOH, as well as UN, donors, and implementing NGOs, to provide national iCCM

technical guidance through monthly coordination meetings organized by the iCCM secretariat at MOH.⁶ Supportive tools such as the national iCCM strategy and implementation guidelines, iCCM training guidelines and curriculum, and health management information system (HMIS) tools have been developed and thus require minimal iCCM capital costs. These guide the country toward eventual institutionalization of iCCM within the district health systems for sustainability.

The Case for iCCM Scale-Up in Uganda

Integrated community case management extends access to evidence-based, low-cost interventions for malaria, pneumonia, and diarrhea to community level. It ensures that lifesaving treatments for the most common causes of childhood mortality and morbidity are available to families closer to home. iCCM also ensures equity by reaching children in remote areas, refugee camps, hard to access rural and peri-urban areas families, and within disruptive epidemics like COVID-19. As part of the wider community health package, iCCM will contribute to improvements in child development prioritized under the human capital development program in the Uganda National Development plan III, 2020/21–2024/25. iCCM will contribute to the estimated economic return of up to 10:1⁷ and greatly contribute to early child development. Studies in Uganda show that iCCM in rural settings would lead to 33% increase in the number of children under five with

⁶ This is a national-level, government-led multi department, multi stakeholder TWG spearheading iCCM coordination, harmonization of advocacy activities and dissemination of policy guidelines within and outside the sector.

⁷ Pegurri E, Fox-Rushby JA, Damian W. The effects and costs of expanding the coverage of immunisation services in developing countries: a systematic literature review. *Vaccine*. 2005. This also accounts for increased productivity from a healthier population, the avoidance of the high costs of health crises, and the economic impact of increased employment.

pneumonia symptoms receiving appropriate antibiotics, and a 40% increase for those receiving ORS⁸ for acute watery diarrhea, and prevent 60% of malaria-specific mortality.⁹

- a) **Reduced service delivery costs:** National scale-up combined with integration of multiple diseases (including TB and HIV) will further reduce the cost of the iCCM VHT system, dropping the costs by 50% when mHealth is expanded.¹⁰ At community level, seeking care from a VHT had the lowest cost outlay at a mean cost of US\$ 0.3 compared to lower level public sector facilities' mean of US\$ 1.7 and a mean cost of US\$ 2.80 in the private sector. Only 14% of caretakers who first sought care from a VHT reported expenditures related to the VHT visit, compared to 46% and 70% respectively of those that sought care at a public primary or secondary care facility and 100% of those who sought care at a private facility.¹¹ Evidence suggests that treatment expenditures consume a much larger proportion of income in poorer households.¹²
- b) **Improved effectiveness on population health:** In addition to the health promotion and prevention activities performed by VHTs, the VHT iCCM providers act as a bridge between the community and social and health care services and enhance health systems resilience to crisis as seen in the Ebola and COVID-19 emergencies. As mHealth technology makes it increasingly easier to train, support, measure, reduce data workload, improve compliance through directly observed therapy, home treatment follow up, links to the other health determinants and reward performance, productivity will rise and costs will decrease.¹³
- c) **Improved equity in treatment access:** Achieving these will only happen with the addition of significant numbers of trained and supported VHTs, mainly within both rural and poor urban areas where households face significant barriers to optimal utilization of facility health services,¹⁴ access to care, and good quality care.
- d) **The rapid urbanization in Uganda brings new challenges** calling for a different iCCM delivery approach for the rural, urban-poor, and other marginalized groups. With improvements in technology and performance, the utility and health impact of VHTs could be achieved at lower cost, leading to an even higher return. iCCM-trained VHTs could also play a critical role in identifying and targeting efforts to families with frequent illnesses for disease prevention and health promotion. Community usage of and satisfaction with iCCM care for malaria, pneumonia, and diarrhea in project areas is high.¹⁵

The National iCCM Scale-up Strategy

Strategic Targets for the National iCCM Program

Uganda is now in the phase of countrywide implementation and institutionalization. The country plans to more than double the coverage of iCCM from 2,251,790 to 4,765,940 children under five by 2026. The target for Uganda is to treat 60% of malaria, pneumonia or diarrhea episodes at community level, with the remaining 40% treated by public or private facilities. This translates into:

- 1) 60% of all ill children under five years with malaria, pneumonia, or diarrhea managed by iCCM VHTs
- 2) 80% of iCCM VHTs correctly managing non-complicated cases of malaria, pneumonia, and diarrhea

⁸Nanyonjo A, Ssekitooleko J, Counihan H, et al. Impact of an integrated community case management programme on uptake of appropriate diarrhoea and pneumonia treatments in Uganda: A propensity score matching and equity analysis study. *Int J Equity Health*. 2015; 14: 74. <https://doi.org/10.1186/s12939-015-0202-y>

⁹ Sirima SB. Early treatment of childhood fevers with pre-packaged antimalarial drugs in the home reduces severe malaria morbidity in Burkina Faso. *Tropical Medicine and International Health*. 2003; 8:1–7.

¹⁰ WHO, Strengthening Primary Health Care through Community Health Workers: Investment Case and Financing Recommendations Investment Case and Financing Recommendations

¹¹ Soremekun S, Kasteng F, Lingam R, et al. Variation in the quality and out-of-pocket cost of treatment for childhood malaria, diarrhoea, and pneumonia: Community and facility based care in rural Uganda. *PLOS ONE*. 2018; 13(11): e0200543. <https://doi.org/10.1371/journal.pone.0200543>

¹² Ettling McFarland DA, Schultz LJ, Chitsulo L. Economic impact of malaria in Malawian households. *Tropical Medicine and Parasitology*. 1994; 45(1):74-79, PMID: 8066390

¹³ ASHA: Which Way Forward? Evaluation of the ASHA Programme. National Health Systems Resource Centre, 2011.

¹⁴ World Health Organization. Monitoring Universal Health Coverage. WHO, 2015. Available from: http://www.who.int/healthinfo/universal_health_coverage/en/.

¹⁵ Miller JS, Patel P, Mian-McCarthy S, et al. Usage of and satisfaction with Integrated Community Case Management care in western Uganda: a cross-sectional survey. *Malar J*. 2021;20:65. <https://doi.org/10.1186/s12936-021-03601-9>

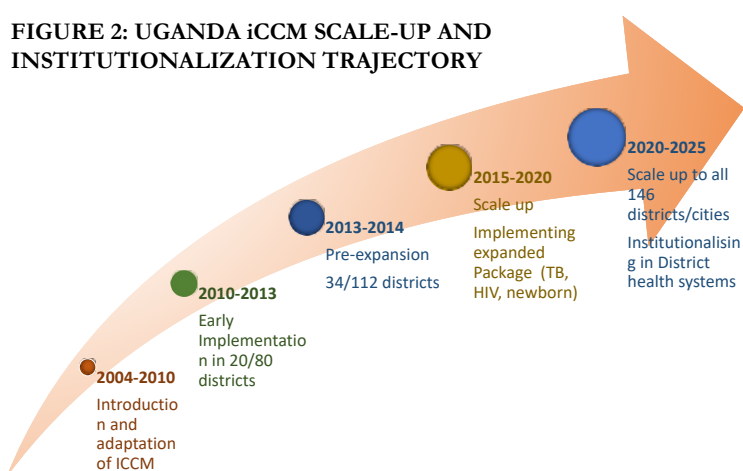
- 3) 80% of suspected TB, HIV exposed, and acute malnutrition among sick children identified and successfully referred to appropriate health facilities.

The Uganda iCCM Scale-Up

The iCCM trajectory set by Uganda during the iCCM adaptation in 2004-10 charted the course toward national scale-up and institutionalization of iCCM. Remarkable progress has been achieved through early implementation, pre-expansion, and limited scale-up phases as shown in Figure 2. These phases have been driven mainly by development partners. Currently, iCCM is being implemented in 67 (49%) districts and 11 cities.

In accordance with the revised national iCCM implementation plan,¹⁶ the next phase is critical for capitalizing on the gains made thus far and to accelerate progress on scaling up iCCM. The scale-up starts with 67 districts and 11 cities in the baseline year (2021). In 2022, 20 districts will be added in anticipation of support from the President's Malaria Initiative (PMI). In 2023, it is anticipated that exiting partners either extend their support or new partners join to cover five additional districts along with increased domestic funding. In 2023, a new Global Fund grant is anticipated to cover an

FIGURE 2: UGANDA iCCM SCALE-UP AND INSTITUTIONALIZATION TRAJECTORY



additional 20 districts. The private sector is anticipated to cover populations in the 10 newly created cities in addition to Kampala and over 200 urban centers (i.e., town councils and municipalities). By 2026, the country would have institutionalized iCCM within the district health systems. The current implementation has not reached optimum coverage and has exposed challenges in the health system that need to be addressed to ensure impact of the scale-up.

Once iCCM is institutionalized, the Government of Uganda, which is gradually increasing commodity procurement and considering remuneration through results-based financing, should be able to maintain

implementation through local government primary health care (PHC) conditional grants. This requires that current external support focus on the necessary district health system strengthening supports to sustain delivery of iCCM, rather than smaller project interventions targeting sub district levels.

Coverage of Scale-Up

The scale-up plan, shown in Table 1 below, estimates that by 2026 with a sufficient level of investment, 138,688 iCCM-trained VHTs deployed throughout the country would cover 55% of the all children under five in Uganda, which is just short of the national target of 60%. At this level, each VHT would be responsible for about 35 young children. Equity will be an important consideration in deploying iCCM-trained VHTs to ensure that hard-to-reach and underserved communities and districts are prioritized for iCCM and community-based PHC.

TABLE 1: ANNUAL GEOGRAPHICAL SCALE-UP OF iCCM IN UGANDA

	N	Coverage Targets of Local Governments					
		2021	2022	2023	2024	2025	2026
Districts implement iCCM at scale	146	78	98	103	123	133	146
Health facility catchment areas with iCCM	3,942	1,357	2,646	2,781	3,321	3,591	3,942
Parishes implementing iCCM	10,595	4,735	7,112	7,475	8,926	9,652	10,595
Villages implementing iCCM	70,626	31,250	47,406	49,825	59,500	64,337	70,626
iCCM-trained VHTs deployed	138,688	62,500	72,118	98,468	104,016	124,820	138,688

¹⁶ These revised national implementation guidelines, plan and monitoring guidelines were recently updated 2021 and include an expanded package of services.

Source: *Community Health Planning and Costing Tool -Uganda*

Following the ongoing implementation, over 4.8 million children will be reached by 2026. At this level, each VHT will have 44 children under five, covering 55% of all children under five with iCCM, which is near the 60% target. By 2026, iCCM will be institutionally embedded in the district health system and more lives will continue to be saved annually beyond the investment period of 2022–2026.

Objectives of the Investment Case

The overall goal of the iCCM investment case for Uganda is to provide the Government of Uganda and development partners with clear financing requirements and empirical evidence justifying continued investments to ensure institutionalization of sustainable, accessible, equitable iCCM services at scale. Attaining countrywide scale-up of the national iCCM program, is dependent on mobilizing the now ubiquitous VHTs in each village and establishing the necessary management, supportive supervision, equipment, and commodities they need to provide effective and quality care for the children under five and strengthening their role in the global “redefining child health.”

Specific Objectives

- 1 Providing a clear analysis and better understanding of the financial needs, funding flows, and gaps of Uganda iCCM institutionalization
- 2 Identify strategies to address the system bottlenecks
- 3 Provide a funding basis that can be linked to wider efforts to sustainably scale up iCCM in Uganda
- 4 Increase quality, demand, and use of iCCM services for impact and equity

Methodology

Data was initially collated during a one-week workshop composed of technical officers, partners, district health officers, district iCCM focal points, VHT representatives, implementation partners, front-line workers, and private sector iCCM providers. The meeting was held from 27th -30th April 2021 to generate consensus on baseline, methodology, and key areas of focus for the iCCM investment case.

- a) **Baseline checklist:** The workshop participants filled out an adapted iCCM baseline checklist covering national, districts, facility, and community levels. Participants also decided that after implementing iCCM for over 15 years, the country should embark on phased scale-up, with districts as the units for scale-up. It was also emphasized that all scale-up units should be districts with the target of institutionalizing iCCM within routine district budgeting and management systems. The quantitative and qualitative information in the completed checklist was supplemented and triangulated with policy documents and literature reviews, which included estimates of coverage due to inefficient community health data in the DHIS2, and key informant interviews with technical officers from different MOH programs.
- b) **Community health planning and costing tool:** Data was entered in the Community Health Planning and Costing Tool (CHPCT) Version 2.0 April 2020, consistent with the scope of iCCM as defined by existing national guidelines. Together with the iCCM TWG, coverage rates were projected, based on research data. HMIS data were used to estimate baseline coverage. Key assumptions made to estimate episodes per child per year for malaria used national estimates from the National Malaria Control Department, an average reduction for the past five years was 20% in malaria and 40% in diarrhea episodes per child per year (e/c/y) due to impact of preventive effort outside of iCCM (including increased coverage of long-lasting insecticide treated nets, improved water, sanitation, and hygiene, and breast feeding). Pneumonia and diarrhea were estimated based on national figures and literature. The estimated median incidence for developing countries per child-year was 0.29 (range 0.21–0.71).¹⁷ However, since the country quantification based on consumption is far higher than would be expected for an incidence of 0.29, mark ups were increased to provide the for the “iCCM commodity spillage,” which is a reality. Thus, amoxicillin

¹⁷ Rudan I, Tomaskovic L, Boschi-Pinto C, Campbell H. Global estimate of the incidence of clinical pneumonia among children under five years of age. *Bull World Health Organ.* 2004;82:895–903].

quantification was increased by 90%, both ACTs and ORS/zinc by 50%, rectal artesunate by 20%, and gloves by 10%. This is a reality. Costing was on these three diseases' items and referral of malnourished children and suspected TB and HIV were not costed.

- c) **Lives Saved Tool:** Complementary to the CHPCT tool was the use of the online Lives Saved Tool (LiST) module to model/project lives saved as a result of the national scale-up between 2021 to 2026. Data was adjusted from the default in the LiST tool to reflect the current situation in the country. Lives saved were calculated based on two scenarios; a “no change scenario” and the “country scale-up scenario.” In the absence of latest Demographic and Health Survey data, relative baseline mortality rates were pulled from institutional mortality that has been consistent for the past three years.¹⁸ The lives saved scenario was extrapolated to beyond 2026 when national scale-up is achieved and maintained through 2030.
- d) **Bottleneck analysis tool:** A bottleneck analysis was based on the “Tanahashi Framework for Marginal Budgeting for Bottlenecks”¹⁹ to assess current system bottlenecks for effective coverage in iCCM implementation areas. The key bottleneck was availability of commodities at community level impacting on low utilization of VHTs for treatment. Discussions revealed that much of VHTs' commodities are dispensed in health facilities, which have a chronic shortage of antibiotics for children. District health teams show readiness to institutionalize iCCM, but they lack iCCM stewardship, supervision, and national guidelines to enforce community-level drug distribution.²⁰ Other root causes synthesized from the baseline checklist discussions revealed inadequate supervision, excessive data burden, high attrition, and low morale among the VHTs. To achieve optimum coverage, these challenges need to be addressed to ensure scale up for effective coverage of evidenced-based, high-impact iCCM interventions.

¹⁸ Uganda Annual Health Sector Performance Report 2020

¹⁹ Tanahashi T. Health Service Coverage and its Evaluation. *Bulletin of the World Health Organization*. 1978; 56(2): 295-303. [http://whqlibdoc.who.int/bulletin/1978/Vol56-No2/bulletin_1978_56\(2\)_295-303.pdf](http://whqlibdoc.who.int/bulletin/1978/Vol56-No2/bulletin_1978_56(2)_295-303.pdf)

²⁰ Nanyonjo A, Kertho E, Tibenderana J, Källander K. District Health Teams' Readiness to Institutionalize Integrated Community Case Management in the Uganda Local Health Systems: A Repeated Qualitative Study. *Global Health: Science and Practice*. 2020;8(2):190-204; doi.org/10.9745/GHSP-D-19-00318

Costing and Financing of iCCM 2021/2–2025/6

This investment case provides a clear analysis and scenarios for the financial needs, funding flows, and gaps for countrywide scale-up of iCCM in Uganda; as well as an empirical basis for funding that can be linked to wider in-country plans, strategies, and options to step-up efforts to sustainably scale up iCCM in Uganda. As a consensus-developed document, the plan ensures a unified approach to iCCM scale-up in Uganda. The iCCM investment case details out the activities and inputs for 2021 to 2026 costed under seven thematic areas based on the CHPCT Version 2, April 2020.

Total Cost of Scaling Up iCCM Implementation in Uganda

Using the CHPCT, the total costs for scaling up and institutionalizing iCCM in Uganda by 2026 is approximately US\$218.07 million, of which US\$215.17 million is recurrent and US\$2.91 million is for start-up (Figure 3). The recurrent costs are repeated on an ongoing basis and, in this costing, include medicines and supplies, salaries, equipment, management, supervision, and trainings (initial/replacement and refresher) (Table 2). Start-up costs include one-time expenses over the five years such as procurement of HMIS materials and program assessment.

FIGURE 3: ANNUALIZED COSTS BY INPUT FOR iCCM SERVICE DELIVERY (US\$ '000)

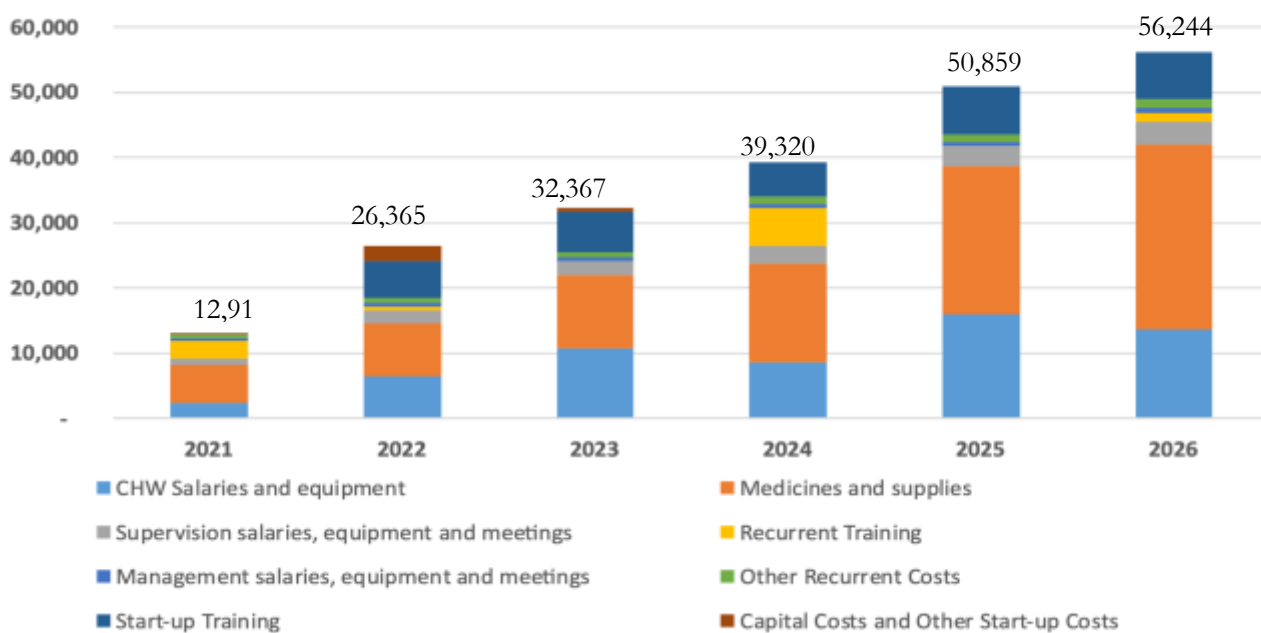


TABLE 2: ANNUAL COSTS IN US\$ '000 FOR iCCM SCALE-UP 2021/22–2025/26, UGANDA

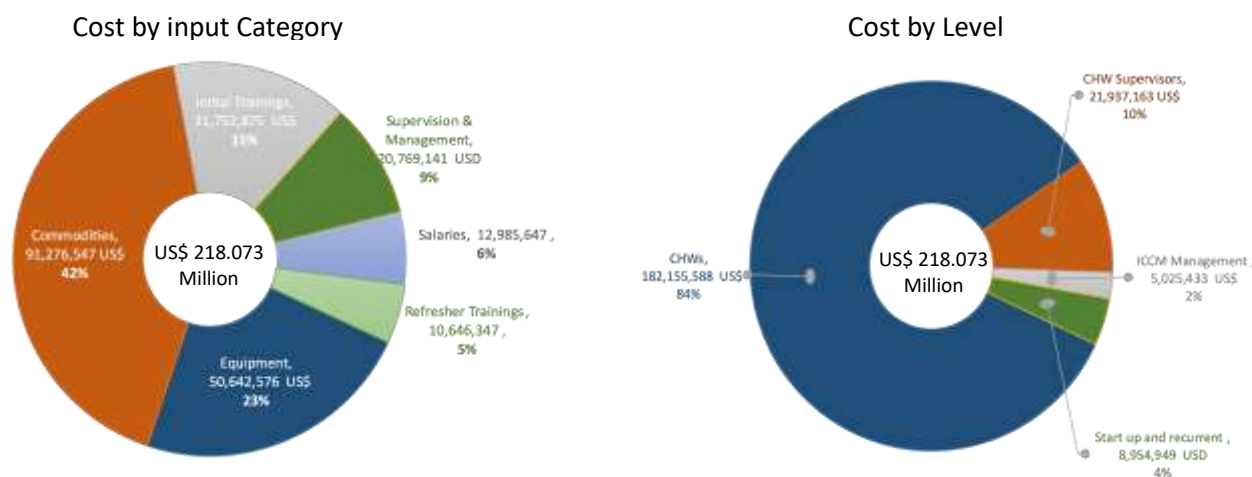
iCCM Program Component	iCCM Need, Financing Committed, and Gap by Year (US\$ '000)																	
	2021			2022			2023			2024			2025			2026		
	Need	Financing Committed	Financing Gap	Need	Financing Committed	Financing Gap	Need	Financing Committed	Financing Gap	Need	Financing Committed	Financing Gap	Need	Financing Committed	Financing Gap	Need	Financing Committed	Financing Gap
VHT Salaries	839	365	474	968	365	603	1,321	365	957	1,396	346	1,050	1,675	346	1,329	1,861	346	1,515
VHT Equipment	1,623	723	900	5,535	275	5,260	9,454	268	9,186	7,232	261	6,970	14,270	261	14,009	11,814	261	11,553
Medicines and Supplies	5,678	4,361	1,317	8,162	6,398	1,764	11,250	6,922	4,327	15,022	2,229	12,794	22,801	4,074	18,726	28,364	6,099	22,265
Supervision Salaries	360	360	-	707	707	-	749	749	-	901	901	-	982	982	-	1,087	1,087	-
Supervision Equipment	-	10	(10)	-	1	(1)	87	-	87	256	-	256	161	-	161	207	-	207
Supervision Visits	751	524	226	1,206	854	352	1,320	906	414	1,641	-	1,641	1,847	-	1,847	2,111	-	2,111
Recurrent Training (VHT)	2,244	462	1,782	633	1,994	(1,361)	-	415	(415)	4,765	406	4,359	-	406	(406)	1,411	406	1,005
Recurrent Training (Supervisors)	366	235	132	-	172	(172)	-	-	-	956	-	956	-	-	-	-	-	-
Recurrent Training (Managers)	98	46	53	-	41	(41)	-	-	-	172	-	172	-	-	-	-	-	-
Management Salaries	17	17	-	21	21	-	22	22	-	25	25	-	27	27	-	29	29	-
Management Equipment	-	-	-	2	-	2	2	-	2	-	-	-	-	-	-	-	-	-
Management Meetings	277	2,311	(2,035)	437	3,000	(2,563)	458	3,000	(2,542)	543	-	543	585	-	585	640	-	640
Other Recurrent Costs	523	315	208	821	440	381	898	488	410	1,116	-	1,116	1,256	-	1,256	1,435	-	1,435
Initial Training (VHT)	-	169	(169)	3,081	169	2,912	5,467	169	5,297	3,575	169	3,406	5,994	169	5,825	5,721	169	5,552
Initial Training (Supervisors)	-	-	-	2,321	-	2,321	497	-	497	1,384	-	1,384	897	-	897	1,144	-	1,144
Initial Training (Managers)	45	-	45	250	-	250	258	-	258	335	-	335	364	-	364	419	-	419
Start-up Costs	98	1,243	(1,145)	2,222	-	2,222	586	-	586	-	-	-	-	-	-	-	-	-
Capital Costs	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total	12,919	11,141	1,778	26,365	14,436	11,928	32,367	13,304	19,063	39,320	4,339	34,981	50,859	6,267	44,592	56,244	8,399	47,845

Cost Drivers

Overall Costs Drivers

The largest costs drivers are (1) commodities, (2) equipment for VHTs, and (3) initial trainings, which take 80% of the ICCM countrywide scale-up investment for the next five years. More than eight of every 10 dollars invested (84%) will be toward community health workers where the three costs drivers are concentrated as shown in Figure 4.

FIGURE 4: COST BY INPUT CATEGORY AND LEVEL



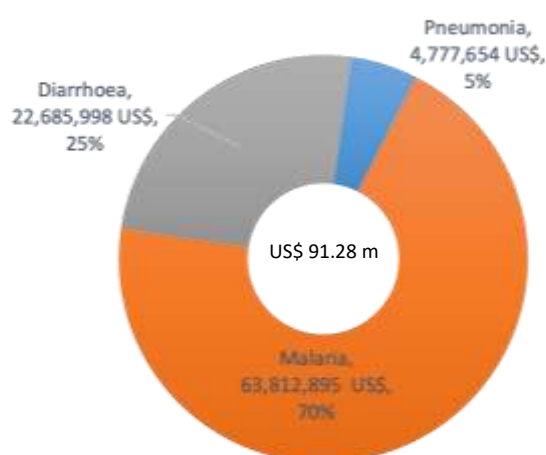
iCCM Commodity Costs

The costs by disease category are driven by commodities estimated at US\$91.28 million for the five years (Figure 5). Malaria diagnosis and treatment accounts for 70% of the treatment costs.

The quantification relies on *e/c/y*, with a cost mark-up of 30%. The *e/c/y* factor in an average reduction of 20% in malaria cases and 40% decrease in diarrhea cases over the five years due to impact of preventive effort outside iCCM. Previously, the country has quantified amoxicillin tablets for iCCM based on community HMIS morbidity data. Much of the amoxicillin is retained and used at the facility level and together with non-functionality of respiratory timers, inflates the total number of pneumonia cases reported. The quantification of this investment case is based on *e/c/y* and thus would greatly reduce actual amoxicillin needs for iCCM. This forecast acknowledges the limited pneumonia diagnosis skill by the VHT and that iCCM products are not dispensed exclusively at the community level. Thus, use of *e/c/y* significantly underestimates the total need for iCCM products and would lead to stockouts. Thus, adjustments in forecasts were increased by 50% for antimalarial tablets and ORS/zinc; 20% for rectal artesunate, 10% for gloves, and 90% for amoxicillin tablets.

The high adjustment for iCCM amoxicillin tablets is due to its frequent use in health facilities as first line treatment for multiple indications, which are inadequately quantified. This results in chronic stockouts of facility level amoxicillin and infringement on iCCM-intended commodities. This thus requires that community level amoxicillin, as well as other commodities, be forecast combined for facility (IMNCI) and community (iCCM) levels as the country scales up coverage and institutionalizes iCCM.

FIGURE 5: COMMODITY COSTS BY DISEASE



Community Health Worker Costs

Apart from the commodities discussed in the preceding sections, VHT costs covering equipment and training form a significant cost driver. The country requires an average annual cost per VHT per year of US\$349, over the five years, almost doubling from US\$250 in 2021 to US\$406 in 2026. These costs are driven by the increase in number of services annually provided from 7.4 million to 30.2 million contacts per year between 2021 and 2026 (Figure 6). The effect is that efficiency of VHTs increases by doubling VHTs' available time spent on iCCM services from 21% to 38%, and doubling the average number of weekly iCCM activities per VHT from 2.3 to 4.2, thus improving productivity of iCCM.

This increase in workload forms the basis for digitizing the community health information system as a means of improving VHT productivity, capacity, and impact.

Drivers of Equipment Costs

Smart phones are planned for each VHT to use for digitalizing community health data, continuous training, referral communications, treatment consultations, and improvement in pneumonia diagnosis. Together, medicine safety boxes and smart phones compose 56% of the VHT equipment costs. Other VHT equipment includes: raincoat, gumboot, umbrella, backpack, mid-upper arm circumference (MUAC) tape, scissors, solar lamp and charger, medicine box, T-shirt, thermometer, reusable face shield, reusable apron, and reusable masks. The detailed breakdown is shown in Annex G.

iCCM Training Cost Drivers

The scale-up over the five years involves (1) initial training for 117,120 VHTs (including replacement and new VHTs) and 13,340 supervisors; and (2) refresher training carried out every three years for each VHT and supervisors (Figure 7). The initial training costs for VHTs of US\$17.58 million account for 53% of all the public sector iCCM training costs over the five years. The trainings under this costing are: training VHTs in iCCM, training of VHT supervisors, training health facility staff in IMNCL, orientation and planning workshops for district health officers and implementing partners, training district training of trainers on the new iCCM/HIV/TB guidelines, orientation of national program managers, and pre-iCCM district orientation meetings for districts starting iCCM implementation.

Supervision and Management

Supervision visits and meetings that directly target VHT will cost US\$21.9 million and include: peer support supervision in the community for VHTs, coordination meeting of VHTs with health facility staff, and targeted community coaching and mentorship for VHTs. Meetings relating to iCCM management will cost US\$5.03 million and include: annual performance reviews, quarterly supportive supervision to health facilities by district health teams and district health management teams, facility iCCM review meeting, bi-annual supervision by central level supervisors to the districts, and iCCM TWG meetings.

FIGURE 6: TOTAL NUMBER OF ANNUAL SERVICES BY VHTS

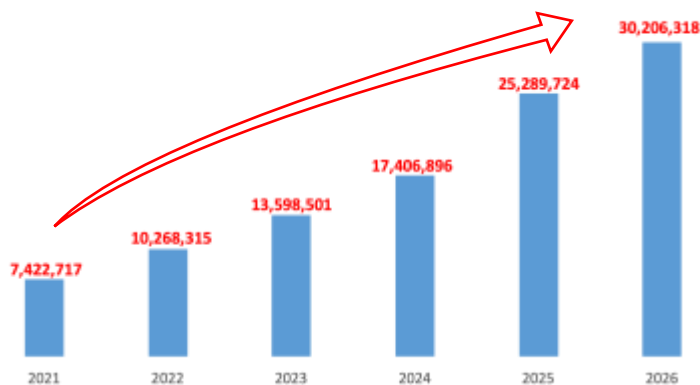
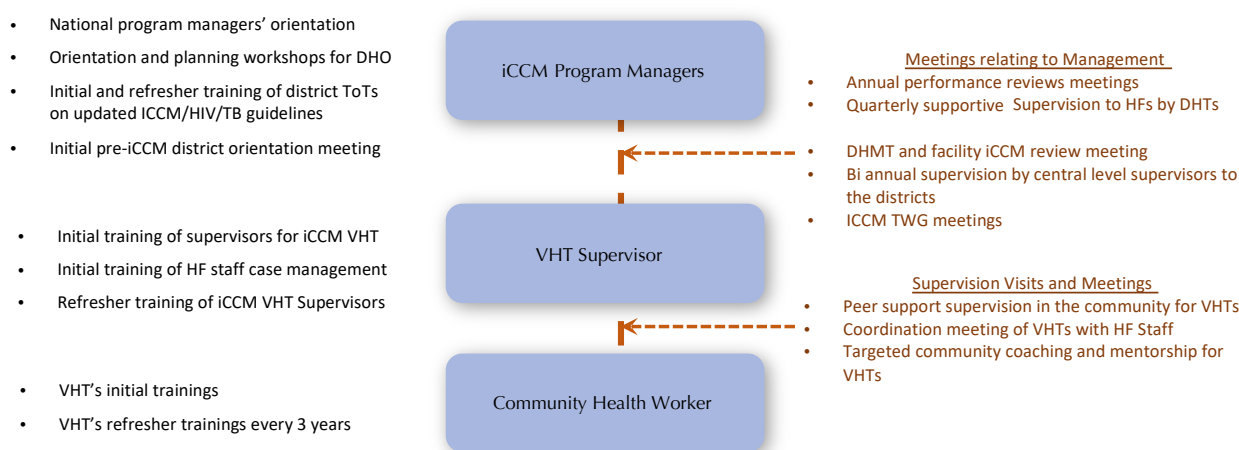


FIGURE 7: DETAILS OF iCCM TRAINING, SUPERVISION, AND MANAGEMENT COST DRIVERS



DHO, district health officer; ToTs, training of trainers; HF, health facility; DHTs, district health teams; DHMTs, district health management teams

Private Sector iCCM Provision

As mentioned above, iCCM will be scaled up in the urban areas with the same basic package, with the private sector providing 20% of the iCCM coverage in the country. Currently, the country has gazetted over 200 extra urban areas, including 11 cities currently composed of an estimated 11 million people. Over 4 million of the urban poor (33% of urban population) are expected to be reached with iCCM services by 2026 through the private sector VHTs. These remunerated private sector VHTs will more than double in number from the current 10,483 to 23,262 by 2026. This private sector costing is restricted to VHT financing (training, equipment, and commodities) omitting the internal supervision and management costs, which vary by private sector partner. The overall private sector costs for VHTs over the five years is forecasted at US\$37.49 million or 22% of the VHT overall national VHT recurrent costs (Table 3).

TABLE 3: RECURRENT COSTS FOR PRIVATE SECTOR iCCM VHTS IN PREDOMINANTLY URBAN AREAS (US\$ '000)

Private Sector/Urban iCCM	2021	2022	2023	2024	2025	2026	Total
1. Salaries VHT	839	968	1,321	1,396	1,675	1,861	8,059
2. Equipment	-	565	1,119	487	1,622	979	4,772
3. Commodities	952	1,369	1,887	2,520	3,824	4,757	15,310
4. Initial Training	-	867	1,292	1,051	1,517	1,530	6,257
5. Refresher Training	-	633	-	1,047	-	1,411	3,091
Total	1,791	4,402	5,619	6,500	8,638	10,538	37,488

Per Capita Costs for iCCM

The average total recurrent cost per service delivered by VHT is US\$2.09. This is anticipated to be much lower after 2026 due to increased VHT utilization levels and lower management and supervision costs as iCCM is institutionalized in district health systems. The average recurrent total cost per capita per year is US\$1.87. Recurrent costs are compared by type of service since the average total costs across all services are dependent on service mix. Within iCCM curative package, the average recurrent costs for diagnosis and treatment over the five years are US\$2.46 for pneumonia, US\$2.44 for diarrhea, and US\$4.26 for malaria. The pneumonia and malaria costs are slightly lower for the younger children at US\$2.00 and US\$3.90 respectively. There are very minimal

costs attributed to HIV, TB, and malnutrition screening and referral. The average cost per VHT (total cost/total VHTs) per year is US\$350, and average recurrent cost per district (total recurrent cost/total districts) per year is US\$294,750.

The Expected Return on Investment

Over the next five years, this investment will more than double VHT coverage and the population of children under five served from 2,251,790 to 4,765,940 (Table 4). At this level of investment, treatment for 7,960,913 pneumonia, 46,365,289 malaria, and 27,234,475 severe diarrhea episodes will be provided. The number of additional child lives saved between 2021–2031 is estimated at 45,699 (Table 5). At this funding level, under-five child mortality is projected to decline from 46 deaths/1,000 live births in 2021 to 39 deaths/1,000 live births in 2026. Without further scale-up, these gains in reducing mortality are expected to be sustained beyond 2026 (Figure 8).

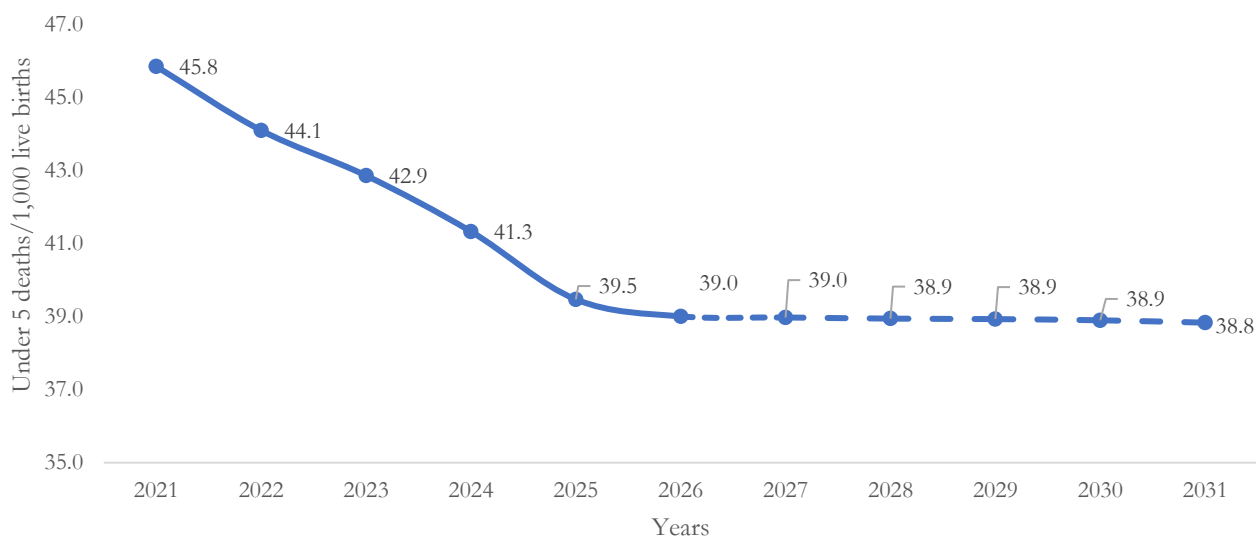
TABLE 4: NUMBER OF SERVICES PROVIDED

	2022	2023	2024	2025	2026	Total
Diarrhea treatment ('000)	1,753	2,329	3,019	4,457	5,338	18,156
Pneumonia treatment ('000)	989	1,310	1,676	2,438	2,916	10,046
Malaria diagnosis (RDT) 25–59 months ('000)	4,843	6,316	7,960	11,394	13,410	47,486
Malaria treatment 25–59 months ('000)	2,460	3,285	4,239	6,212	7,486	25,450
Follow-up visits for sick newborns ('000)	15	32	51	83	119	301
Screening for TB exposure among sick children ('000)	2,535	5,287	8,444	13,815	19,722	50,152
Screening for HIV exposure ('000)	132	238	357	565	789	2,127
Screening for malnutrition ('000)	89	117	147	210	248	877

TABLE 5: TOTAL LIVE SAVED 2022–2031

Additional Child Lives Saved by iCCM Treatment Intervention (total [0–59 months])	Total Live Saved
Diarrhea treatment	12,690
Pneumonia treatment	12,007
Malaria treatment	21,326

FIGURE 8: PROJECTED CHANGE IN UNDER 5 CHILD MORTALITY RATE 2021–2031 FOR UGANDA WITH INVESTMENT IN iCCM BETWEEN 2021–2026



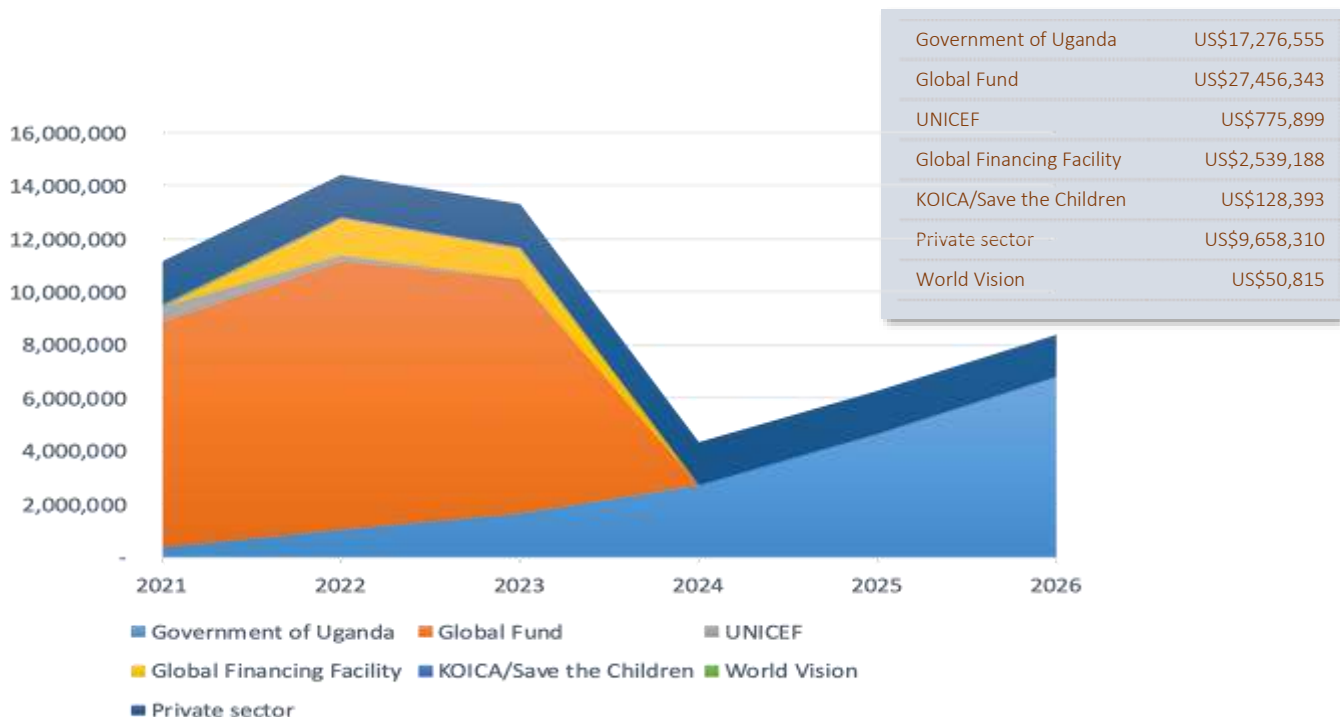
Funding Landscape for iCCM

The financing for iCCM has not received sufficient emphasis in the health sector. Increasing domestic funding for iCCM has become a priority especially in light of the revitalized PHC approach toward universal health care and the renewed focus on prevention, promotion, and bring services closer to people. It will be important to measure iCCM program expenditures and their relationship to expenditures for PHC and all health-related expenditures.

Current Financing for iCCM

The current iCCM funding landscape in Uganda includes governments, development partners (Global Fund through TASO, UNICEF, Save the children, Plan International Uganda, World Vision, Mbarara University of Science and Technology) and the private sector (mainly BRAC, Living Goods, and Health Entrepreneurs) (Figure 9). A total of US\$57.89 million has been committed. For the first three years, 2021–2023, major donors and development partners will variably continue funding and technical support for implementing and expanding iCCM in the country. Only the Government of Uganda and private sector providers have committed funding for the remaining two years of the five-year scale-up plan. External financing will be mainly from the Global Fund and PMI. Three of the other iCCM traditional funders (UNICEF, Save the Children, and World Vision) have not committed any funds for beyond 2021. At the time of developing this investment case, other traditional iCCM funders, especially PMI, had not projected their funding for iCCM.

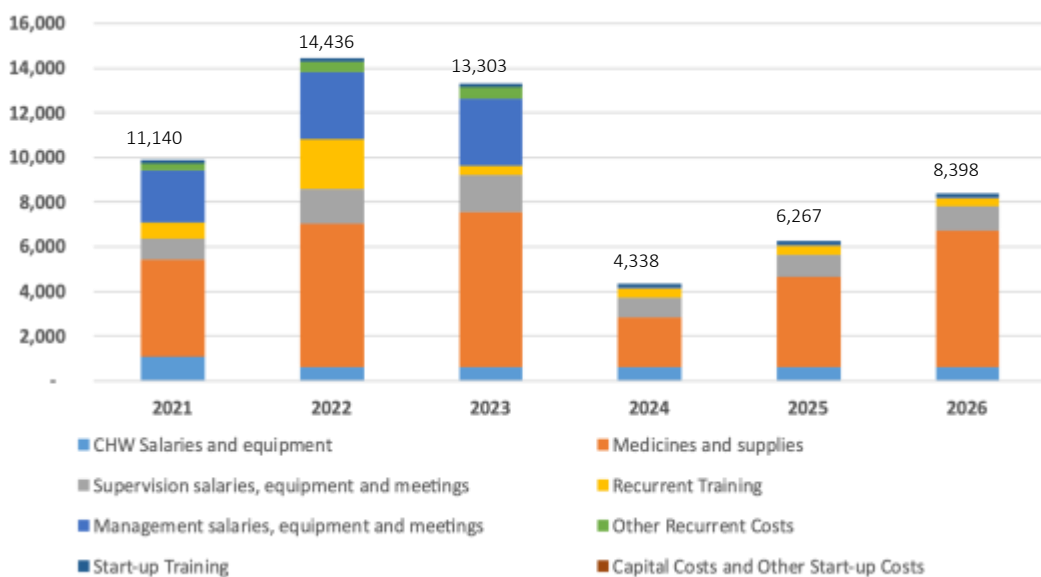
FIGURE 9: TOTAL FUNDING COMMITMENTS (US\$) AND DURATION IN YEARS, BY SOURCE 2021–2026



Inputs Covered Within Resources

The projected government funding is anticipated to increase because the government will cover all supervisor and management salaries (Figure 10). The private sector will cover all private sector emoluments. The Global Fund, which provides malaria commodities and VHT training, has committed up to 2023 in the current Global Fund grant cycle. The Global Financing Facility is mainly funding the non-malaria commodities up to 2023. All the funding for urban iCCM is and will continue to be met by the private sector partners. Other major funders, like PMI, have not yet committed funding for this period.

FIGURE 10: AVAILABLE FUNDING BY INPUT (US\$ '000)



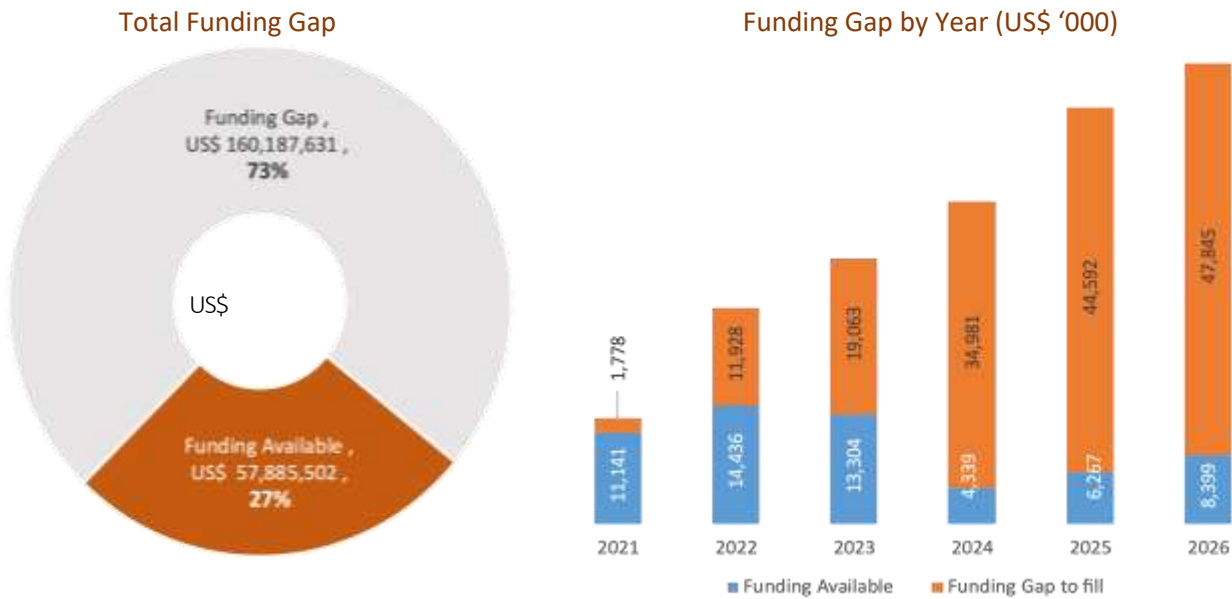
Funding Gaps

This section covers the programmatic and funding gaps, highlighting the gaps in commodity, services, and activities that need to be covered.

Funding Gap

Overall, this iCCM investment case presents a total financial gap of US\$160.19 million for 2021–2026 (Figure 11). The total scale-up cost to 80% coverage is US\$218 million. Only 27% of the activity costs are covered for 2021–2026 funding requirements. There is thus a considerable gap in current and projected funding for iCCM.

FIGURE 11: FUNDING GAP, TOTAL, AND ANNUAL

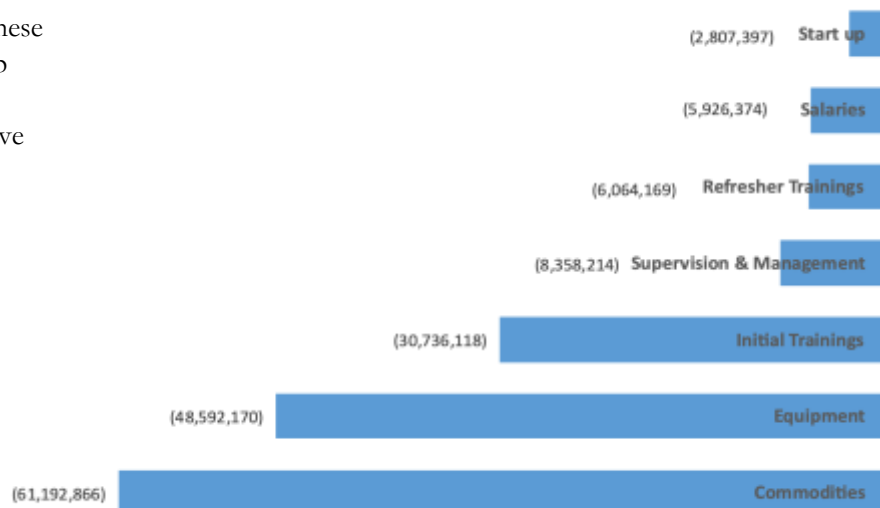


To reach the targeted coverage, the funding gap increases sharply in 2024 due to the ending of the current Global Fund cycle and anticipated scale-up in additional districts. The private sector is anticipated to cover 17% (US\$27.8 million) of the total gap over the five years, by delivering iCCM in the urban areas.

Funding Gap by Inputs

The funding gaps relate mainly to commodities, VHT equipment, and initial training costs (Figure 12). These form 86% of the total resource gap over the five years. The primary funding challenges over the past five years were mainly on non-malaria commodities and equipment.

FIGURE 12: FUNDING GAPS BY INPUTS, IN US\$



Resource Mobilization Strategy

The purpose of the resource mobilization strategy for iCCM is to close the total resource gap identified in the investment case at country level and propose actions to fill the funding shortfalls 2021–26. The objective is to combine research, technical assistance, advocacy and partnerships to improve program delivery and to increase resources needed for iCCM institutionalization.

Guiding Principles

The guiding principles of the resource mobilization strategy are as follows:

- 1) Meet the national iCCM scale-up needs
The iCCM TWG will maintain its coordination mandate and role in supporting partners and districts through the countrywide scale-up of iCCM. This investment case shall serve as the key planning instrument to guide where resources for iCCM shall be allocated. Funding should ensure the availability of the complete suite of all iCCM commodities to enable full implementation of the package.
- 2) Promote efficiency and effectiveness in implementing iCCM
Available resources for iCCM should be effectively and efficiently used to promote sustainability. The iCCM TWG will identify, mobilize, track, monitor, and report funding received and results.
- 3) Build on synergies and a common agenda for the community health platform
Funding for iCCM will be harmonized with other programs and partners supporting implementation of the community health platform in the country and will be based on managing for results and mutual accountability.
- 4) Strengthen capacity for districts health systems to manage iCCM
Capacity building at both district and facility levels is critical for the eventual institutionalization of iCCM. All iCCM partner projects and funding plans shall contain clear capacity building components that build and strengthen the institutional and human resource capacities of district health systems.

Resources Mobilization Strategies

Resource mobilization takes a multi-year approach, continuously evaluating potential for mobilizing additional resources from government and partners as well as improving efficiencies. Six core strategies will be pursued:

- 1) Increase in domestic funding
Currently, the Government of Uganda covers all iCCM supervisor salaries. This investment case includes a progressive anticipated increase of government funding share for iCCM commodities to at least 20% by 2024. Already, the government committed to co-finance amoxicillin, gloves, and safety boxes in Global Fund-supported iCCM districts. Domestic funding will also be increased through PHC grant results-based funding under the UGIFT incorporating iCCM results. The government should be able to cover the cost of amoxicillin after Global Financing Facility funding ends in 2024.
- 2) Strengthen engagement of the private sector iCCM
 - Expanding private sector coverage to all urban areas will increase funding by US\$37.49 million over the five years, covering commodities and VHT training and equipment costs in the urban areas.
 - The iCCM-trained drug seller model could complement the iCCM-trained VHT intervention as a strategy to increase access to quality treatment, since both models were cost-effective compared to the do-nothing option.²¹

²¹ Lubogo P, Lukyamuzi JE, Kyambadde D, et al. Cost-effectiveness analysis of integrated community case management delivery models utilizing drug sellers and community health workers for treatment of under-five febrile cases of malaria, pneumonia, diarrhoea in rural Uganda. *Malar J* 20, 407 (2021). <https://doi.org/10.1186/s12936-021-03944-3>

- 3) Generate cost efficiencies
 - Opportunity exists to integrate iCCM training, supervision, and management by linking and standardizing training and supervision of VHTs with the more resourced TB and HIV programs, especially at district and facility levels.
 - Continue leveraging the Global Fund New Funding Model for iCCM scale-up both in the malaria and health system strengthening grant proposals. In particular, attrition could be lower, which would lower VHT initial trainings costs which form a major cost driver. Furthermore, the extra effort VHTs put into iCCM will more than double as the coverage of iCCM increases within the districts to reach the targeted 60% of malaria, pneumonia, and diarrhea cases. The biggest increment will be in the screening for HIV, TB, and moderate and severe malnutrition among sick children. This calls for greater iCCM integration with these programs.
- 4) Quantify iCCM commodities within facility-based IMNCI
 - Medicines, especially amoxicillin, provided by partners are not costed within the facility PHC medicines grants. Amoxicillin stock outs at facility level, but not at national level, leads to encroachment on iCCM stocks. Thus, there is need to quantify facility (IMNCI) and iCCM commodities for all implementing facilities to reduce encroachment and improve stocks at community level.
 - ICCM covers the same population meant to be reached by health facilities. Plans to have integrated quantification of both VHT and health facility needs in procurement planning, to enable a buffer stock that the facility can later give out to VHTs, will support sustainability of the commodity supply chain for the public sector.
 - Develop a dashboard for tracking reproductive, maternal, newborn, child, and adolescent health (RMNCAH) commodities, which include ICCM, that will be used to lobby for financing for ICCM medicines from both government and donors.
- 5) Funding partners to institutionalize iCCM in district health systems
 - Convince traditional donors, operating at district level, to maintain and increase their iCCM funding commitments.
 - Encourage partners to develop district transition plans as the funding wanes.
 - Costing iCCM implementation by district and adopting a scale-up model, based on prioritizing high burdened districts first, will assist partners to forecast and implement district-wide iCCM, which is more sustainable.
 - There should also be efforts to diversify and expand the iCCM partnership to include more non-traditional partners.
- 6) Incorporate iCCM into the RMNCAH investment case and the integration in the community health strategy
 - iCCM costs have been incorporated in the RMNCAH investment case focusing on procurement of equipment, non-malaria commodities and refresher trainings for VHTs, and supportive supervisions which are key drivers for program scale-up.

Mechanism for Oversight, Coordination, and Monitoring Resource Mobilization

The implementation of the resource mobilization strategy will be monitored on a quarterly basis by the iCCM TWG. Monitoring will focus on, among others: number of funders (traditional and non-traditional) engaged; strategic meetings attended with partners; response to new calls for proposals made; successful concept notes/proposals developed and submitted; and amount of resources secured. Monitoring and evaluation will focus on tracking the effective and efficient implementation of the resource mobilization strategy to realize the following outputs:

- Resource mobilization strategy mainstreamed in district health systems program
- Strengthened iCCM programming and cost efficiency
- Widening partnerships
- Strengthened iCCM reporting on impact
- Improved iCCM visibility

Annexes

A. iCCM Program Structure Assumptions

Population		
% of Uganda's population lives in rural areas		75%
• Rural population of Uganda at baseline		31,949,996
• Urban population of Uganda at baseline		10,935,905
Average household size		4.7
iCCM VHTs		
Types	Public Sector VHT	Private sector VHT
Area of work	Rural	Urban
Attrition rate	10%	3%
Desired VHTs per village	2	2
Total deployed at baseline year (2021)	52,017	10,483
Annual performance-based incentive payment (US\$)	–	80
Supervision staff		
• Health facility iCCM supervisor	Technical supervision 70 iCCM VHTs (i.e., five parishes) spends 5% of effort on iCCM supervision; salaried on government pay role	
• Health assistant	Management supervision 70 iCCM VHTs (i.e., five parishes) spends 10% of effort on iCCM supervision; salaried on government pay role	
• Peer supervisor	Supervises 14 iCCM VHTs (i.e., one parish) spends 10% of effort on iCCM supervision; volunteer	
Management Staff		
• National iCCM coordinator	Spends 30% of effort on iCCM; salaried on government pay role	
• Community health department representative	Spends 8% of effort on iCCM; salaried on government pay role	
• Case management focal persons	One for malaria and one for pneumonia & diarrhea; spends 8% of effort on iCCM management; salaried on government pay role	
• Senior biostatistician	Spends 8% of effort on iCCM data management; salaried on Government pay role	
• District focal point	Spends 8% of effort on iCCM management; salaried on government pay role	

B. Assumptions on Projections and Costing

	Baseline	Projections				
	2021	2022	2023	2024	2025	2026
Population Summary						
Total Population of Uganda	42,885,900	44,185,343	45,524,159	46,903,541	48,324,718	49,788,957
Total population covered by iCCM	10,905,884	12,312,277	16,891,784	18,649,265	22,941,659	26,445,404
Urban population covered	1,640,386	2,041,836	2,443,782	2,924,853	3,500,625	4,189,741
Rural population covered	9,265,499	10,270,441	14,448,002	15,724,412	19,441,034	22,255,664
Number of iCCM VHTs						
Urban VHTs	10,483	12,096	16,516	17,446	20,936	23,262
Rural VHTs	52,017	60,022	81,952	86,570	103,884	115,426
iCCM Services						
Curative (pneumonia, malaria, diarrhea)	7,969,350	10,509,022	16,892,691	21,798,495	31,352,913	37,536,148
Promotional (screening for TB, HIV, malnutrition, and follow up of sick newborn)	330,474	639,667	5,547,412	7,035,299	9,941,495	11,701,204
Total iCCM Services	8,299,824	11,148,689	22,440,103	28,833,794	41,294,408	49,237,352
iCCM Services by Disease						
Diarrhea treatment	1,261,002	1,752,620	2,328,541	3,019,308	4,456,993	5,337,852
Pneumonia treatment 2m–59m	314,474	427,293	557,266	702,331	1,005,321	1,183,269
Malaria diagnosis (RDT)	3,564,040	4,842,643	6,315,675	7,959,735	11,393,622	13,410,368
Malaria treatment 2m–59m	2,236,260	3,110,949	4,153,944	5,360,064	7,855,316	9,466,142
Screening for TB exposure among sick children	1	15	32	51	83	119
Screening for HIV exposure among sick children	349	2,535	5,287	8,444	13,815	19,722
Screening for malnutrition among sick children for moderate and severe	46,589	132,260	237,756	356,963	564,574	788,846

Coverage Assumptions

Annual inflation rate:	4.1%
What % of Uganda's rural population is covered by VHTs in 2021?	35%
What % of Uganda's urban population is covered by VHTs in 2021?	12%
District/local governments implementing iCCM at baseline	78
Baseline Coverage Assumptions	
Diarrhea Treatment	40%
Pneumonia treatment 13m–59m	45%
Malaria diagnosis (RDT)	45%
Malaria treatment 25m–59m	40%
Screening for TB exposure among sick children	2%
Screening for HIV exposure among sick children	3%
Screening for malnutrition among sick children for moderate and severe	10%
Pneumonia treatment 2m–12m	45%
Malaria treatment 4m–24m	40%

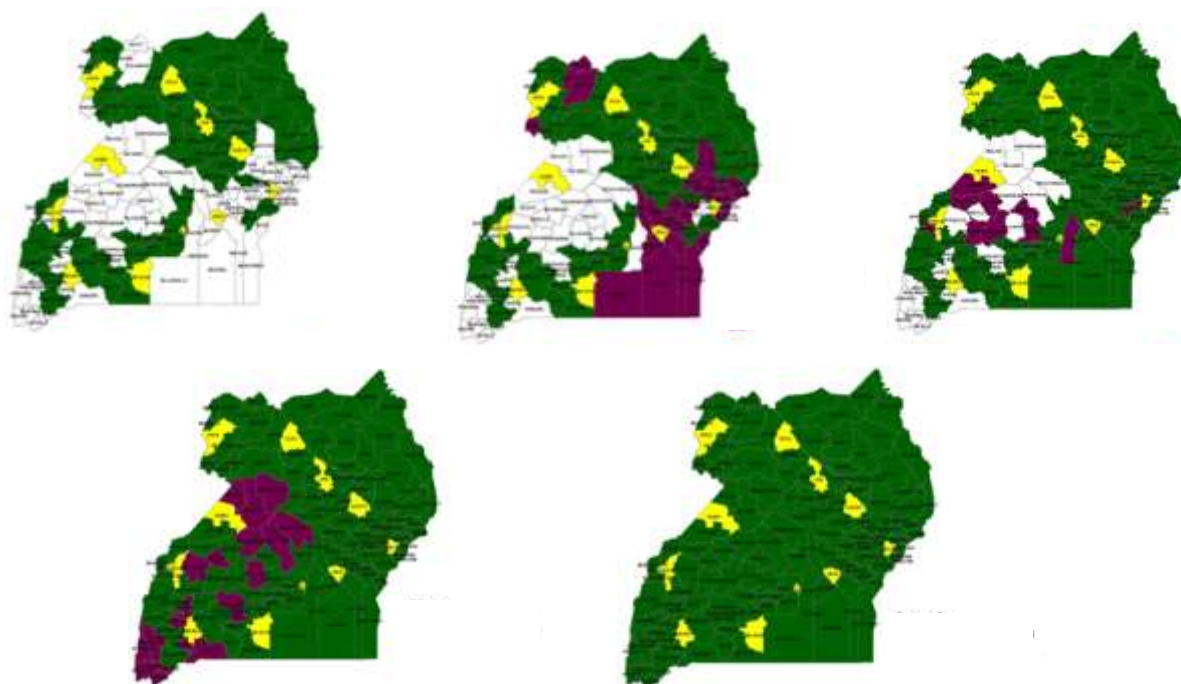
C. District Scale-Up

2024 26

				2023	
		2022		2023	
2021					
1. Abim District	40. Rubirizi District	1. Kaliro District	1. Butaleja District	1. Buhweju District	
2. Agago District	41. Serere District	2. Bugweri District	2. Kagadi District	2. Buliisa District	
3. Apac District	42. Soroti District	3. Bukedea District	3. Kakumiro District	3. Kanungu District	
4. Alebtong District	43. Kapelebyong District	4. Bukwo District	4. Kikuube District	4. Kassanda District	
5. Amolatar District	44. Karenga District	5. Bulambuli District	5. Bunyangabu District	5. Kyankwanzi District	
6. Amudat District	45. Tororo District	6. Buvuma District	6. Kabarole District	6. Ibanda District	
7. Amuria District	46. Wakiso District	7. Katakwi District	7. Hoima District	7. Isingiro District	
8. Amuru District	47. Kazo District	8. Adjumani District	8. Kiboga District	8. Kabale District	
9. Arua District	48. Kiruhura District	9. Kibuku District	9. Kyegegwa District	9. Kamwenge District	
10. Bugiri District	49. Kitagwenda District	10. Budaka District	10. Mityana District	10. Mitooma District	
11. Bukomansimbi District	50. Kole District	11. Bududa District	11. Mukono District	11. Kiryandongo District	
12. Bundibugyo District	51. Kotido District	12. Buikwe District		12. Kisoro District	
13. Bushenyi District	52. Kwania District	13. Busia District		13. Nakaseke District	
14. Dokolo District	53. Kyotera District	14. Kween District		14. Nakasongola District	
15. Gomba District	54. Madi-Okollo District	15. Iganga District		15. Kyenjojo District	
16. Gulu District	55. Moroto District	16. Luuka District		16. Masindi District	
17. Kalungu District	56. Nabilatuk District	17. Jinja District		17. Mbarara District	
18. Kasese District	57. Nakapiripirit District	18. Kalangala District		18. Sembabule District	
19. Kitgum District	58. Napak District	19. Kamuli District		19. Rubanda District	
20. Butambala District	59. Ntoroko District	20. Kayunga District		20. Rukiga District	
21. Butebo District	60. Nwoya District	21. Kumi District		21. Rwampara District	
22. Buyende District	61. Omoro District	22. Namisindwa District		22. Rukungiri District	
23. Koboko District	62. Otuke District	23. Lira District		23. Kagadi District	
24. Lamwo District	63. Pakwach District	24. Manafwa District		24. Kagadi District	
25. Luwero District	64. Sheema District	25. Mayuge District		25. Kakumiro District	
26. Lwengo District	65. Terego District	26. Obongi District		26. Kikuube District	
27. Lyantonde District	66. Yumbe District	27. Mbale District		27. Bunyangabu District	
28. Maracha District	67. Kamwenge District	28. Moyo District		28. Hoima District	
29. Masaka District	68. Arua City	29. Namayingo District			
30. Mpigi District	69. Mbarara City	30. Namutumba District			
31. Kaabong District	70. Gulu City	31. Ngora District			
32. Nebbi District	71. Jinja City	32. Sironko District			
33. Ntungamo District	72. Fort-Portal City	33. Zombo District			
34. Kaberamaido District	73. Mbale City				
35. Kalaki District	74. Masaka City				
36. Oyam District	75. Lira City				
37. Pader District	76. Soroti City				
38. Pallisa District	77. Hoima City				
39. Rakai District	78. Kampala City				

D. Quantification of Community Health Workers

FIGURE 13: GEOGRAPHICAL DEPICTION OF iCCM COUNTRY WIDE ANNUAL SCALE UP



Legend:

None	Existing iCCM District	New iCCM District	City
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	2021	2022	2023	2024	2025	2026
Number of VHTs and Supervisors						
• VHT Public sector	52,017	60,022	81,952	86,570	103,884	115,426
• VHT Private sector	10,483	12,096	16,516	17,446	20,936	23,262
New VHTs						
• VHT Public	-	13,207	27,933	12,813	25,972	21,931
• VHT Private	-	1,949	4,808	1,460	4,048	2,996
• All VHTs	-	15,156	32,741	14,273	30,020	24,927
All VHTs	62,500	72,118	98,468	104,016	124,820	138,688
Services across VHT Categories						
• VHT Public	6,177,719	8,546,031	11,317,652	14,487,272	21,047,929	25,139,873
• VHT Private	1,244,997	1,722,284	2,280,849	2,919,624	4,241,795	5,066,445
Total	7,422,717	10,268,315	13,598,501	17,406,896	25,289,724	30,206,318
% of VHT Available Time Spent on Services						
• VHT Public	21%	25%	24%	29%	35%	38%
• VHT Private	11%	13%	13%	15%	18%	20%
Overall % of VHT Time Spent on Services	18%	22%	21%	25%	30%	33%
Average Total Number of Weekly Activities per VHT	2.28	2.74	2.66	3.22	3.90	4.19
Average Number of Weekly Activities per VHT						
• Diarrhea Treatment	0.39	0.47	0.45	0.56	0.69	0.74
• Pneumonia treatment 13m–59m	0.08	0.09	0.09	0.10	0.12	0.13
• Malaria diagnosis (RDT)	1.10	1.29	1.23	1.47	1.76	1.86
• Malaria treatment 25m–59m	0.54	0.66	0.64	0.78	0.96	1.04
• Pneumonia treatment 2m–12m	0.02	0.02	0.02	0.03	0.03	0.03
• Malaria treatment 4m–24m	0.14	0.17	0.17	0.21	0.25	0.27

E. Trainings

	2021	2022	2023	2024	2025	2026
Initial Trainings						
1. Community Health Workers						
VHT Public Sector	-	13,207	27,933	12,813	25,972	21,931
VHT Private Sector	-	1,949	4,808	1,460	4,048	2,996
All VHT's	-	15,156	32,741	14,273	30,020	24,927
2. Supervisors						
Facility Supervisor	-	1,289	135	540	270	351
Health Assistant	410	1,289	135	540	270	351
Parish Coordinator	-	2,614	719	1,825	1,173	1,426
All VHT Supervisors	410	5,192	989	2,905	1,713	2,128
3. Managers						
District Focal Point	11	20	5	20	10	13
Refresher Trainings						
4. Community Health Workers						
VHT Public sector	52,017	46,815	54,019	73,756	77,913	93,495
VHT Private sector	10,483	10,147	11,708	15,987	16,887	20,266
All VHT's	62,500	56,962	65,727	89,743	94,800	113,761
5. Supervisors						
Facility Supervisor	1,357	1,357	2,646	2,781	3,321	3,591
Health Assistant	947	1,357	2,646	2,781	3,321	3,591
Parish Coordinator	4,735	4,498	6,756	7,101	8,479	9,169
All VHT Supervisors	7,039	7,212	12,048	12,663	15,121	16,351
6. Managers						
District Focal Point	67	78	98	103	123	133
National iCCM Managers	5	5	5	5	5	5

F. Commodities Quantification and Costing

I. Costing Assumptions

Treatment	Target	Medicine/Commodity	Unit cost US\$ +30% mark-up
Diarrhea treatment	Children <5	ORS fl. 1Lx2+ Zinc 20 mg 10 tabs. kit/PAC	0.56 per treatment
Pneumonia treatment	12m–59m	Amoxicillin 250 mg scored dispersible tablet/PAC of 2 X 10 tabs	0.58 per treatment
Pneumonia treatment	2m–12m	Amoxicillin 250 mg scored dispersible tablet/PAC of 10 tabs	0.27 per treatment
Malaria diagnosis (RDT)	Children >1 to <5	Malaria rapid diagnostic test SD Bioline Malaria Ag Pf/Pv with safety lancet	0.3 per treatment
		Gloves, exam, latex, powder-free, medium	0.14 per Pair
Malaria treatment	25–59m	Artemether 20 mg + Lumefantrine 120 mg fixed dose dispersible tablet, blister of 12 tablets	0.75 per treatment
Malaria treatment	4m–24m	Artemether 20 mg + Lumefantrine 120 mg fixed dose dispersible tablet, blister of 6 tablets	0.38 per treatment
Severe malaria initial treatment	5% child malaria	Rectal artesunate 100 mg suppositories	0.80 per cap

II. Cost of Medicines (US\$ '000)

	2021	2022	2023	2024	2025	2026	Total
Amoxicillin PAC of 2 X10 tabs	270	382	519	681	1,015	1,243	4,110
Amoxicillin PAC of 10 tabs	44	62	84	111	165	202	667
A/L blister of 12 tablets	1,900	2,752	3,825	5,138	7,838	9,833	31,285
A/L blister of 6 tablets	347	502	698	937	1,430	1,794	5,708
Rectal artesunate 100mg Suppositories	279	404	562	755	1,151	1,444	4,595
Gloves, exam	71	101	137	180	268	328	1,085
Malaria Rapid diagnostic test	1,390	1,966	2,669	3,502	5,218	6,394	21,139
ORS fl.1Lx2+ Zinc 20mg 10tabs.kit/PAC	1,377	1,992	2,756	3,719	5,716	7,126	22,686
	5,678	8,162	11,250	15,022	22,801	28,364	91,277

III. Quantities of Commodities

	2021	2022	2023	2024	2025	2026	Total
Amoxicillin PAC of 2 X10 tabs	472,496	642,006	837,290	1,055,249	1,510,491	1,777,857	6,295,388
Amoxicillin PAC of 10 tabs	125,005	169,851	221,515	279,180	399,619	470,355	1,665,525
A/L blister of 12 tablets	2,519,980	3,505,643	4,680,964	6,040,108	8,851,939	10,667,135	36,265,769
A/L blister of 6 tablets	701,780	976,274	1,303,586	1,682,088	2,465,144	2,970,650	10,099,520
Rectal artesunate 100mg suppositories	268,351	373,314	498,473	643,208	942,638	1,135,937	3,861,921
Gloves, exam	3,920,444	5,326,907	6,947,243	8,755,709	12,532,984	14,751,405	52,234,691
Malaria rapid diagnostic test	268,351	373,314	498,473	643,208	942,638	1,135,937	3,861,921
ORS fl.1Lx2+ Zinc 20mg 10tabs.kit/PAC	1,891,504	2,628,930	3,492,812	4,528,962	6,685,490	8,006,778	27,234,475

IV. Total Recurrent Cost Per Service (US\$)

	2021	2022	2023	2024	2025	2026	Average
Diarrhea Treatment	2.03	2.67	2.67	2.61	2.38	2.25	2.44
Pneumonia treatment 13m–59m	2.07	2.71	2.71	2.64	2.40	2.26	2.46
Malaria diagnosis (RDT)	1.39	2.00	1.97	1.87	1.60	1.44	1.71
Malaria treatment 25m–59m	2.14	2.79	2.79	2.73	2.50	2.38	2.55
Pneumonia treatment 2m–12m	1.65	2.27	2.25	2.16	1.91	1.75	2.00
Malaria treatment 4m–24m	1.80	2.44	2.43	2.36	2.11	1.97	2.19

V. Medicines Cost Per Service (US\$)

	2021	2022	2023	2024	2025	2026	Average
Diarrhea treatment	1.09	1.14	1.18	1.23	1.28	1.33	1.21
Pneumonia treatment 13m–59m	1.09	1.13	1.18	1.23	1.28	1.33	1.20
Malaria diagnosis (RDT)	0.41	0.43	0.44	0.46	0.48	0.50	0.45
Malaria treatment 25m–59m	1.20	1.25	1.30	1.35	1.41	1.47	1.33
Pneumonia treatment 2m–12m	0.67	0.69	0.72	0.75	0.78	0.82	0.74
Malaria treatment 4m–24m	0.87	0.90	0.94	0.98	1.02	1.06	0.96

G. Community Health Worker Equipment

Item	Unit Cost*	2022	2023	2024	2025	2026
Rain coat	7.15	429,156	-	-	-	-
Gum boot	12.35	741,269	-	-	1,,674	-
Umbrella	8.45	507,184	-	-	1,030,882	-
Backpack small	18.20	1,092,397	-	-	-	-
MUAC tape measure	1.82	218,479	-	-	444,072	-
Smart phone	117.30	-	3,541,691	1,691,235	3,568,513	3,136,873
Pair of scissors	1.30	-	39,352	18,792	39,650	34,854
Solar lamp + charger	12.35	741,269	-	-	-	-
Medicine box	23.66	1,420,116	-	-	-	-
T Shirt	6.76	405,747	-	660,183	-	953,904
Thermometer	3.90	234,085	-	380,875	-	550,329
Reusable face shield	2.08	124,845	-	-	253,756	-
Reusable apron	4.16	249,691	-	-	-	-
Reusable masks	1.30	312,113	461,812	507,833	634,389	733,772
Safety boxes	6.50	390,142	-	-	-	-
Bicycles	65.00		525,477			
Backpack large	24.70		199,681			
Smart phone	117.00		478,374			
Printer ink cartridge	130.00	-	141	147	153	159
Laptop	897.00	1,794	-	-	-	-
Printer	1,625.00		1761	-	-	-

*Has 10% mark up

H. Detailed Annualized Cost Breakdown (US\$)

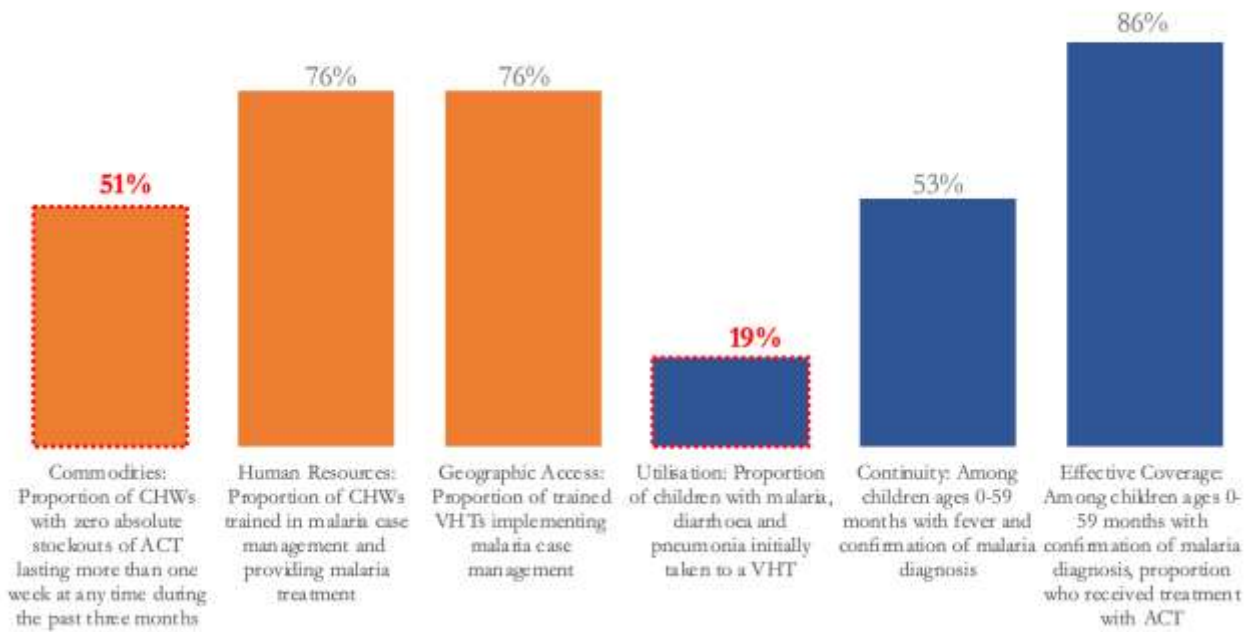
	2021	2022	2023	2024	2025	2026
I. VHT Salaries						
VHT Public	-	-	-	-	-	-
VHT Private	838,640	967,697	1,321,267	1,395,712	1,674,865	1,860,949
Total VHT Salary Costs	838,640	967,697	1,321,267	1,395,712	1,674,865	1,860,949
II. VHT Equipment						
VHT Public	1,622,930	4,969,599	8,335,261	6,745,174	12,648,249	10,835,241
VHT Private	-	565,422	1,118,887	486,658	1,621,925	978,845
Total VHT Equipment Costs	1,622,930	5,535,021	9,454,148	7,231,832	14,270,174	11,814,086
III. Medicines and Supplies						
VHT Public	4,725,904	6,792,596	9,362,652	12,502,769	18,976,434	23,606,560
VHT Private	952,413	1,368,914	1,886,858	2,519,686	3,824,326	4,757,436
Total	5,678,317	8,161,509	11,249,510	15,022,455	22,800,760	28,363,996
IV. Supervision						
IV-A. Supervisor Salary Costs						
Facility Supervisor (FS)	137,057	269,384	285,393	343,536	374,437	414,325
Health Assistant (HA)	222,548	437,416	463,411	557,820	607,997	672,765
Total VHT Supervisor Salary Costs	359,605	706,800	748,804	901,356	982,434	1,087,089
IV-B. Supervisor Equipment Costs						
HA	-	-	17,117	71,274	37,098	50,205
Parish Coordinator (PC)	-	-	69,876	184,712	123,531	156,417
Total VHT Supervisor Equipment Costs	-	-	86,993	255,986	160,629	206,622
IV-C. Supervision Visits and VHT Meeting Costs						
PC	263,266	411,623	450,362	559,861	630,199	720,161
FS, HA	487,244	794,723	869,516	1,080,927	1,216,728	1,390,418
Total Supervision Visit and VHT Meeting Costs	750,510	1,206,346	1,319,878	1,640,788	1,846,927	2,110,579
Supervision cost—allocated across supervisor categories						
FS	243,622	397,362	434,758	540,463	608,364	695,209
HA	243,622	397,362	434,758	540,463	608,364	695,209
PC	263,266	411,623	450,362	559,861	630,199	720,161
Total	750,510	1,206,346	1,319,878	1,640,788	1,846,927	2,110,579
Total Supervision Costs	1,110,115	1,913,146	2,155,674	2,798,130	2,989,990	3,404,290
V. Training						
V-A. Initial and Replacement VHT Training Costs						
VHT Public	-	2,214,583	4,174,304	2,524,011	4,477,455	4,191,655
VHT Private	-	866,881	1,292,298	1,051,038	1,516,689	1,529,616
Total	-	3,081,464	5,466,602	3,575,049	5,994,144	5,721,271
V-B. Recurrent VHT Training Costs						
VHT Public	2,243,971	-	-	3,718,623	-	-
VHT Private	-	632,999	-	1,046,642	-	1,410,954
Total	2,243,971	632,999	-	4,765,265	-	1,410,954
Recurrent Training cost—allocated across VHT categories						
VHT Public	2,243,971	-	-	3,718,623	-	-
VHT Private	-	632,999	-	1,046,642	-	1,410,954
Total	2,243,971	632,999	-	4,765,265	-	1,410,954

V-C. Initial and Replacement Supervisor Training Costs						
FS, HA	-	750,811	134,116	388,928	246,100	315,946
FS, HA, PC	-	1,570,410	362,552	995,427	650,635	828,509
Total	-	2,321,221	496,668	1,384,355	896,735	1,144,455
Supervisor initial training cost—allocated across Supervisor categories						
FS	-	710,410	144,399	406,812	261,846	334,713
HA	-	710,410	144,399	406,812	261,846	334,713
PC	-	900,400	207,870	570,732	373,044	475,028
Total	-	2,321,221	496,668	1,384,355	896,735	1,144,455
Supervisor recurrent training cost - allocated across Supervisor categories						
FS	183,120	-	-	478,071	-	-
HA	183,120	-	-	478,071	-	-
Total	366,240	-	-	956,143	-	-
V-D. Management Training Costs						
Initial	45,360	250,211	257,543	334,943	364,271	418,581
Recurrent	98,495	-	-	172,280	-	-
Total	143,855	250,211	257,543	507,223	364,271	418,581
VI. MANAGEMENT						
Management Salaries	17,281	20,575	21,569	24,970	26,828	29,208
Management Equipment	-	1,794	1,902	147	153	159
Management Meeting Costs	276,640	436,500	457,740	542,700	585,180	640,404
Total Management Cost	293,921	458,869	481,211	567,816	612,160	669,771
VII. OTHER RECURRENT COSTS						
Total Other Recurrent Costs	522,784	820,999	898,171	1,116,177	1,256,244	1,435,373
VII. START-UP AND CAPITAL COSTS						
Total Capital Cost	-	-	-	-	-	-
Total Start-up Cost	97,804	2,221,626	585,771	-	-	-
Total Start-up and Capital Costs	97,804	2,221,626	585,771	-	-	-

I. Costs Per Disease

Disease	e/c/y	Episodes in 5 Years	Cost of Medicines	Cost US\$ '000	# Doses
Pneumonia	0.3	7,960,913	Amoxicillin 250mg scored dispersible tablet/PAC of 2 X10 tabs	4,110	6,295,388
			Amoxicillin 250mg scored dispersible tablet/PAC of 10 tabs	667	1,665,525
Malaria	2.4	46,365,289	Artemether 20mg + Lumefantrine 120mg fixed dose dispersible, blister of 12 tabs	31,285	36,265,769
			Artemether 20mg + Lumefantrine 120mg fixed dose dispersible blister of 6 tabs	5,708	10,099,520
			Rectal artesunate 100mg Suppositories	4,595	3,861,921
			Gloves, exam, latex, powder free, medium	1,085	3,861,921
			Malaria Rapid diagnostic test SD Bioline Malaria Ag Pf/Pv with safety lancet	21,139	3,861,921
Diarrhea	1.4	27,234,475	ORS fl.1Lx2+ Zinc 20mg 10tabs.kit/PAC	22,686	27,234,475

J. Bottleneck Analysis



K. Current Status of the iCCM Benchmarks

- a.** Policy setting and governance of iCCM:
Management and coordination of iCCM is shared between relevant MOH departments and their key implementing partners through iCCM TWG. The MOH has formulated policies and set iCCM standards, and tools.
- b.** Supply chain management:
The integrated Procurement and Supply Chain Management system uses a push system to deliver pre-packaged and ring-fenced iCCM medicines and supplies kits to implementing health facilities. Peer supervisors obtain the medicines from the health center and distribute them to iCCM VHTs in parishes. ACTs are pre-packaged for iCCM according to age bands and dosing regimens in color coded. Medicines for diarrhea are provided in the form of ORS/Zinc co-pack, and amoxicillin dispersible tablets and packaged in a red pack for 2–11 months and green pack 1–5 years for pneumonia.
- c.** Human resources:
VHTs are either community volunteers (in public sector) or paid a commission (private sector). Selected for VHTs, they undergo training according to iCCM training manual and receive supervision from health facility staff and peer VHTs. Two iCCM VHTs are deployed per village. The public sector VHTs receive non-financial incentives such as T-shirts while financial incentives are more common in the private sector. They deliver iCCM in the communities while based at their homes; the private sector VHTs visit homes.
- d.** Costing and financing
iCCM currently depends on donor funding and technical support from implementation partners.
- e.** Supervision and performance quality assurance:
iCCM supervision is three-pronged. The health facility staff supervise VHTs to check on performance, ensure quality, provide refresher training, and report collection and replenishment of supplies. The health assistants, not based at but attached to the health facility, mainly check on performance, collect iCCM reports, and replenishment of drugs and supplies. Peer supervisors selected from among the VHTs are given extra supervisory duties and training
- f.** iCCM health information systems:
iCCM is built in the national HMIS as part of community HMIS with iCCM indicators and reporting disaggregated by village. Community HMIS is entered into a parallel community health dataset at the facility level and integrated via the DHIS2 at the district level. Reporting rate of less than 40%. There is a promising simple technology-based tools that has been developed to improve the quality and use of community data.

Documents Reviewed

1. Altaras R, Montague M, Graham K, Strachan CE, Senyonjo L, King R, et al. Integrated community case management in a peri-urban setting: a qualitative evaluation in Wakiso District, Uganda. *BMC Health Serv Res.* 2017;17:785.
2. Awor P, Wamani H, Bwire G, Jagoe G, Peterson S. Private sector drug shops in integrated community case management of malaria, pneumonia, and diarrhea in children in Uganda. *Am J Trop Med.* 2012;87(5_Suppl):92–6.
3. Awor P, Wamani H, Tylleskar T, Jagoe G, Peterson S. Increased access to care and appropriateness of treatment at private sector drug shops with integrated management of malaria, pneumonia and diarrhoea: a quasi-experimental study in Uganda. *PLoS ONE.* 2014;9:e115440.
4. Awor P, Wamani H, Tylleskar T, Peterson S. Drug seller adherence to clinical protocols with integrated management of malaria, pneumonia and diarrhoea at drug shops in Uganda. *Malar J.* 2015;14:277.
5. Bennett S, George A, Rodriguez D, Shearer J, Diallo B, Konate M, et al. Policy challenges facing integrated community case management in sub-Saharan Africa. *Trop Med Int Health.* 2014;19:872–82.
6. Bhutta ZA, Das JK, Walker N, Rizvi A, Campbell H, Rudan I, et al. Interventions to address deaths from childhood pneumonia and diarrhoea equitably: what works and at what cost? *Lancet.* 2013;381:1417–29.
7. Briggs AH, Claxton C, Sculpher M. *Decision modelling for health economic evaluation.* Oxford: Oxford University Press; 2006.
8. Daviaud E, Besada D, Leon N, Rohde S, Sanders D, Oliphant N, et al. Costs of implementing integrated community case management (iCCM) in six African countries: implications for sustainability. *J Glob Health.* 2017;7:010403.
9. Ferrer BE, Webster J, Bruce J, Narh- Bana SA, Narh CT, Allotey N-K, et al. Integrated community case management and community-based health planning and services: a cross sectional study on the effectiveness of the national implementation for the treatment of malaria, diarrhoea and pneumonia. *Malar J.* 2016;15:340.
10. Hansen KS, Ndyomugenyi R, Magnussen P, Lal S, Clarke SE. Cost-effectiveness analysis of malaria rapid diagnostic tests for appropriate treatment of malaria at the community level in Uganda. *Health Policy Plan.* 2017;32:676–89.
11. Jarrah Z, Wright K, Suraratdecha C, Collins D. Costing of integrated community case management in Senegal. Submitted to USAID by the TRAction Project: Management Sciences for Health, 2013.
12. Kasteng F, Settumba S, Källander K, Vassall A, in SSG. Valuing the work of unpaid community health workers and exploring the incentives to volunteering in rural Africa. *Health Policy Plan.* 2016;31:205–16.
13. Kitutu FE, Kalyango JN, Mayora C, Selling KE, Peterson S, Wamani H. Integrated community case management by drug sellers influences appropriate treatment of paediatric febrile illness in South Western Uganda: a quasi-experimental study. *Malar J.* 2017;16:425.
14. Kitutu FE, Mayora C, Johansson EW, Peterson S, Wamani H, Bigdeli M. Health system effects of implementing integrated community case management (iCCM) intervention in private retail drug shops in South Western Uganda: a qualitative study. *BMJ Glob Health.* 2017;2:e000334.
15. Management Sciences for Health. *Community Health Planning and Costing Tool: Tool User Guide.* 2017.
16. Management Sciences for Health. *International Drug Price Indicator Guide.* 2014.
17. Matovu F, Nanyiti A, Rutebemberwa E. Household health care-seeking costs: experiences from a randomized, controlled trial of community-based malaria and pneumonia treatment among under-fives in eastern Uganda. *Malar J.* 2014;13:222.
18. Mukanga D, Tibenderana JK, Peterson S, Pariyo GW, Kiguli J, Waiswa P, et al. Access, acceptability and utilization of community health workers using diagnostics for case management of fever in Ugandan children: a cross-sectional study. *Malar J.* 2012;11:121.
19. Nanyonjo A, Bagorogoza B, Kasteng F, Ayebale G, Makumbi F, Tomson G, et al. Estimating the cost of referral and willingness to pay for referral to higher-level health facilities: a case series study from an integrated community case management programme in Uganda. *BMC Health Serv Res.* 2015;15:347.
20. Seyi S, Frida K. *The INSCALE Baseline Survey Uganda.* 2013.

21. Shillcutt S, Morel C, Goodman C, Coleman P, Bell D, Whitty CJ, et al. Cost-effectiveness of malaria diagnostic methods in sub-Saharan Africa in an era of combination therapy. *Bull World Health Organ.* 2008;86:101–10.
22. Sinyangwe C, Graham K, Nicholas S, King R, Mukupa S, Källander K, et al. Assessing the quality of care for pneumonia in integrated community case management: a cross-sectional mixed methods study. *PLoS ONE.* 2016;11:e0152204-e.
23. Soremekun S, Kasteng F, Lingam R, Vassall A, Kertho E, Settumba S, et al. Variation in the quality and out-of-pocket cost of treatment for childhood malaria, diarrhoea, and pneumonia: Community and facility based care in rural Uganda. *PLoS ONE.* 2018;13:e0200543.
24. Standing H, Chowdhury AM. Producing effective knowledge agents in a pluralistic environment: what future for community health workers? *Soc Sci Med.* 2008;66:2096–107.
25. The United Nations Children’s Fund. *Pneumonia, the forgotten killer of children.* Geneva; 2006.
26. The World Bank. GDP per capita (current US\$) 2020. Available from: <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>.
27. The World Bank. Official exchange rate (LCU per US\$, period average) 2018. Available from: <https://data.worldbank.org/indicator/PA.NUS.FCRF>.
28. Turner HC, Lauer JA, Tran BX, Teerawattananon Y, Jit M. Adjusting for Inflation and Currency Changes Within Health Economic Studies. *Value in Health.* 2019;22:1026–32.
29. Uganda Ministry of Health. *Annual Health Sector Performance Report-*
30. Uganda Ministry of Health. *Integrated community case management of childhood malaria, pneumonia and diarrhea; implementation guide.* Kampala; 2010.
31. Uganda National Development plan 111
32. UNICEF Supply Division. *Medicines and Diagnostics for Community Case Management: Options for Selection.* 2016.
33. UNICEF. *Levels & trends in child mortality: estimates developed by the UN*
34. UNICEF. *Levels and trends in child mortality: report 2020.* New York, USA: United Nations Children’s Fund, World Health Organization, World Bank Group, United Nations Population Division; 2020.
35. Walker D, Kumaranayake L. Allowing for differential timing in cost analyses: Discounting and annualization. *Health Policy Plan.* 2002;17:112–8.
36. WHO. *Guidelines for treatment of malaria.* Geneva: World Health Organization; 2015.
37. World Bank. GDP deflator (base year varies by country) - Uganda, United States 2018. Available from: https://data.worldbank.org/indicator/NY.GDP.DEFL.ZS?locations=UG-US&name_desc=false.
38. Ward Z. Amua: Center for Health Decision Science, Harvard University; 2017. Available from: <https://github.com/zward/Amua/wiki>.