

## EDITORIALS

### *Foreword*

#### INTEGRATED COMMUNITY CASE MANAGEMENT OF SICK CHILDREN IN ETHIOPIA

Kesetebirhan Admasu, MD, MPH <sup>1</sup>

In the last decade, the under-five mortality (U5MR) was halved in Ethiopia, with a current estimate of 68/1000 live births, according to the 2012 report from UN Inter-agency Group for Child Mortality Estimation (IGME). Decentralizing preventive, promotive, and basic curative maternal, newborn, and child health and nutrition services through the platform of the Health Extension Programme has significantly contributed to the reduction alongside advances made in economy, education and other aspects of social development. To accelerate the trend of U5MR reduction, it is essential to scale up all the evidence-based interventions feasible at household, community and health facility levels.

Since its inception, the Health Extension Programme has been going through a process of evolution. In the beginning, Health Extension Workers (HEW) mainly focused on scaling up preventive and promotive health services, such as hygiene and sanitation, breast-feeding, family planning (condoms and pills), and distribution and promotion of the use of insecticide-treated bed nets. Gradually, HEWs became involved with services that required more skills, such as long-term family planning (Depo-Provera and Implanon), treatment of malaria and diarrhea, antenatal care and clean delivery, after receiving in-service training. The demand from the rural people has been changing, too. There is more awareness of the benefit of modern health services. However, recent policy debates focused on balancing preventive and curative care, avoiding misuse of antibiotics, and deciding when to expand HEWs' repertoire of curative care beyond community treatment of malaria and diarrhea.

After the success of the Malaria Control Programme, pneumonia, diarrhea, severe acute malnutrition, and newborn complications contributed to a higher proportion of the U5MR. To reach Millennium Development Goal 4 and end preventable deaths, it became essential to scale-up community-based pneumonia management and essential newborn care. The deployment of 36,000 rural HEWs throughout Ethiopia presents a unique opportunity for integrated case management of childhood illnesses (iCCM) at scale. In addition to international evidence, the local pilot of community-based case management of pneumonia in Bolososorie and Liben Districts, supported by JSI and Save the Children USA with USAID funding, documented that community health workers and HEWs were able to assess, classify, and treat childhood pneumonia correctly. In addition, the provision of basic curative health services by HEWs gained more trust from the community members also to accept HEWs' messages related to preventive health care.

The national iCCM programme was officially launched on 23 February 2010. The programme started in areas that had scaled up the HEP preventive and promotive packages, and gradually reached national coverage. The iCCM programme can save thousands of young lives every year in Ethiopia. Based on the modeling done by the Life Saved Tool (LiST), if community based case management of pneumonia is scaled up, more than 40,000 deaths could be prevented every year (1). Since 2010, nearly 30,000 HEWs have been trained and supported to provide iCCM services in over 14,000 health posts. The speedy and good quality implementation has benefitted from government leadership, coordinated implementation support by the development partners, skill-based training and clinical mentoring, enhanced supervision, and improved supply and logistics systems to avoid stock-outs of essential drugs and commodities. This supplement of the *Ethiopian Medical Journal* collects 22 articles that present the achievements, experience, and lessons of the iCCM programme so far. We wish to share our experience with other countries that are planning or implementing iCCM programs.

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## INTRODUCTION TO A SPECIAL SUPPLEMENT: DELIVERING INTEGRATED COMMUNITY CASE MANAGEMENT TO TREAT CHILDHOOD ILLNESS AT SCALE IN ETHIOPIA

David R. Marsh, MD, MPH<sup>1</sup>; Rory Nefdt, PhD<sup>2</sup>; Elizabeth Hazel, MHS<sup>3</sup>

**Globally** The good news for children is that in 2012 only an estimated 6.6 million under-fives died of largely preventable causes, which represents a dramatic decrease from the 12.6 million who died in 1990 (1). Three of the five leading causes of death in this age group remain pneumonia, diarrhea and malaria. More good news is that the global health community has evidence-based preventive and treatment interventions to control these killers. Yet over two million children continue to die from these infections. The challenge is to deliver these interventions to families and children who need them.

To accomplish this, one strategy is integrated community case management (iCCM) is a strategy to do this. More precisely, iCCM is a strategy to select, train, supply, deploy, support and supervise community health workers to deliver curative interventions to sick children who reside in communities that lack access to health facilities – and to mobilize families to appropriately seek care. High mortality countries are widely introducing and scaling up iCCM, supported by global policy endorsement and implementation tools, such as *CCM Essentials* and recommended indicators and evidence (2-5).

Since 2006, the global iCCM Task Force and its Operations Research Working Group, have specified global priorities for iCCM research– initially through ad hoc gatherings (6-8), then upon reflecting on publications in a 2012 special iCCM supplement to the *American Journal of Tropical Medicine and Hygiene* (9), and currently through an on-going global Child Health and Nutrition Research Initiative (CHNRI) systematic prioritization exercise, which the Guest Editors of the 2012 supplement recommended. Ethiopia is a vast, complex, populous country facing many challenges in health. Partly in response, in 2012 the Government of Ethiopia joined the Governments of India and the United States, together with UNICEF, to launch *Committing to Child Survival: A Promise Renewed* (10). Over 170 countries have joined this movement to stop children dying from largely preventable causes. Furthermore, at the national level and with the support of partners, Ethiopia introduced and rapidly scaled up iCCM within the Health Extension Program as a central strategy to mitigate avoidable child death. Part of the national adaptation of iCCM was to prioritize operations or implementation research questions of local relevance

This supplement features Ethiopia's iCCM experience and Ethiopia's research questions, documented largely by Ethiopian public health scientists in an Ethiopian peer-reviewed journal, for an Ethiopian readership – and beyond. We adapted the so-called "Stockholm Framework" to evaluate iCCM that was used in the 2012 iCCM supplement (Figure 1) (8). The framework shows programmatic pathways for reducing under-five mortality (top row) by increasing the use or coverage of life-saving interventions (second row), which in turn requires that the interventions are accessible, of high quality, demanded, and supported by policy (third row)–all of which depend on the activities of eight system components (bottom row). A desirable by-product of strong implementation of iCCM is a strengthened health system (second row). The framework also accommodates external factors (to the right) and unintended consequences (in the background).

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## EDITORIAL

### INTEGRATED COMMUNITY CASE MANAGEMENT OF CHILDHOOD ILLNESSES: ADAPTATIONS FOR THE DEVELOPING REGIONS OF ETHIOPIA

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Integrated Community Case Management (iCCM) of childhood illnesses started from areas with a stronger Health Extension Program in 2010, followed in 2011 by gradual expansion to the four developing regions of Benishangul, Gambella, Afar, and Somali. The developing regions present different challenges for iCCM than the areas with stronger Health Extension Programs. Adaptation is needed. For example, Health Extension Workers (HEWs) in developing regions have less formal education and thus receive a 6-month pre-service training compared to 12 months in developed regions. Due to unsatisfactory performance of HEWs in the developing regions in 2011, the government mapped HEWs, retained those performing well, and replaced those who were not. The new HEWs received a one year (9 months in Afar) pre-service training and, once sufficient numbers graduated, the regional health bureaus introduced the iCCM program in collaboration with development partners.

Although the four developing regions cover over 50% of the geographic area of Ethiopia, they have only 10% of the population, mostly pastoralists who are mobile or semi-mobile. Afar and Somali Regions adapted the national guidelines and translated the training materials into the local languages for their unique and challenging settings, and added iCCM training to the end of pre-service training for new HEWs. Unlike regions with more dense populations, health posts in the four developing regions have HEWs, frontline workers, and junior nurses providing basic curative care. Therefore, correct division of labor is critical to balance preventive and curative services, and different regions have different models. For example, in Afar Region, the frontline health workers and the nurses are the direct iCCM service providers, while the HEWs mainly facilitate demand creation and referral. Alternatively, Mobile Health and Nutrition Teams (MHNT) in Somali Region complement static services provided at the health posts and health centers. Since 2008, the Somali Region has over 40 MHNTs providing scheduled weekly outreach including free IMNCI service to villages in the emergency and conflict-affected areas.

As in other areas, weak demand for curative services by communities in the developing regions is a barrier to treatment of children. Chiefs, religious leaders, and traditional verbal communication channels, such as the *Dagu* system in Afar, can help mobilize communities to use services. This should be supported and linked with health education activities provided by health staff, including HEWs, and through outreach and MHNTs. The unit cost of the iCCM program is higher in developing regions mainly due to long distances, geographic dispersion, and greater time required to build capacity and strengthen implementation through training, supervision, and clinical mentoring. Resource mobilization is required to sustain, consolidate, and increase use of health care services in developing regions.

It is commendable that all four developing regions are implementing iCCM programs that are adapted to their local settings. Further operations research is needed to document lessons and experience of these unique iCCM strategies. The hope is that these iCCM programs will boost the Health Extension Program in developing regions and provide more equitable health services to these under-served communities.

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## EDITORIAL

### FROM INTEGRATED COMMUNITY CASE MANAGEMENT TO COMMUNITY-BASED NEWBORN CARE

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In Ethiopia, the under-five mortality rate (U5MR) was reduced by 28% between 2005 and 2011, but the neonatal mortality rate (NMR) remains unchanged and now accounts for 42% of all U5 deaths. This burden is even greater for the large rural population due to poor access to and utilization of maternal and newborn health services. To achieve Millennium Development Goal 4, neonatal mortality must be addressed, specifically the major direct causes – sepsis, birth asphyxia, and preterm delivery. Neonatal sepsis, the major newborn killer in Ethiopia, accounts for more than one third of neonatal deaths, 75% in first week of life when even modest delays in receiving effective care can be deadly.

The national scale-up of integrated Community Case Management (iCCM) in 2010-2012 provided a needed boost to the Health Extension Program (HEP) by introducing a package of high quality basic curative interventions meeting the demand of the communities. According to the national guidelines for iCCM, Health Extension Workers assess and classify newborn infections and then refer them to health centers and hospitals for treatment. When referral is not possible or delayed, they can provide pre-referral or even complete treatment with oral antibiotics. There is limited care seeking by caregivers for sick young infants under 2 months of age in the iCCM program.

The Federal Ministry of Health (FMOH) established a working group that presented a strategy paper, “Exploring the potential for community-based case management of neonatal sepsis in Ethiopia” in February 2012. The paper analyzed the potential benefits and challenges of introducing community-based sepsis management. Reducing neonatal mortality is increasingly important not only because the *proportion* of U5 deaths in the neonatal period is increasing, but also because the health interventions to address neonatal deaths generally differ from those to address other under-five deaths. High levels of home delivery (90%) and cultural beliefs of secluding the newborn challenge identifying and treating sick newborns. Active pregnancy and birth surveillance and postpartum home visits early in the first week are required to identify and manage sick neonates.

In September 2012, following the successful introduction and scale-up of iCCM, the FMOH agreed to introduce community-based newborn sepsis management through the HEP. To support the implementation, the FMOH and development partners conducted a joint learning trip to Nepal to study the experience of scaling up newborn care as a national program. An important lesson was to scale up an integrated package of maternal and newborn care interventions at the community and health facility. The national guidelines for community-based newborn care developed under FMOH leadership were launched in March 2013. A strong HEP and iCCM program, coupled with community mobilization through the Health Development Army and other local mechanisms, are critical for successful community-based newborn care. Good practices from the iCCM program experience, such as clinical mentoring, supervision, and program review meetings for quality improvement; a balance between preventive and curative care; and resource mobilization and coordination will be applied to the national scale-up of community-based newborn care, a daunting but not impossible task. This is an important step towards ending all preventable death among Ethiopia’s children.

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## EDITORIAL

### **CAN TRAINING HEALTH EXTENSION WORKERS IN THE INTEGRATED PHARMACEUTICAL LOGISTICS SYSTEM (IPLS) BE EFFECTIVE, AFFORDABLE, AND OPPORTUNISTIC?**

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Critical to the success of integrated Community Case Management (iCCM) is the availability of life-saving curative interventions at health posts (HP), which is dependent on Health Extension Workers (HEWs) trained on supply and logistics management. Results from our 2010 baseline assessment showed that the availability of key iCCM products at HPs was low on the day of inspection: ORS for diarrhea (56%), malaria rapid diagnostic tests (22%), Coartem 1X6 (10%), Coartem 2X6 (18%), cotrimoxazole 120mg for pneumonia (0%), and zinc 20mg for diarrhea (0%). Likewise, we observed a lack of basic supply chain knowledge and skills among HEWs and their health center (HC) supervisors, with only 11% and 8%, respectively, having received any training in SC management.

Training 34,000 HEWs to order, maintain, and store health products requires an effective, rapid, affordable, and efficient approach. Partnering with Ethiopia's Pharmaceutical Fund and Supply Agency (PFSA) and the USAID | DELIVER Project, we developed five one-hour modules that could be incorporated into existing opportunities where HC staff and HEWs meet, such as monthly Primary Health Care Unit meetings (suitable for group training) and resupply or salary collection interactions (suitable for on-the-job training [OJT]). The topics were: Introduction to IPLS for HEWs, Completing the Bin Card, Monthly Report and Request Form, Receiving and Conducting Physical Count, and Proper Storage of Pharmaceuticals. PFSA hub and Regional Health Bureau staff trained HC supervisors to conduct each module in an interactive, practical way. HC staff were also trained in problem-solving skills so they could help HEWs find local solutions and in communicating issues such as national stock shortages, which often drive stockouts at HC and community levels.

We surveyed 263 HEWs to assess training coverage and competency in basic SC tasks six months after training 987 HC staff. About half (54%) of HEWs had been trained, a five-fold increase over baseline. Coverage was higher (84%) in areas where the HEWs were trained as a group and when HC staff received higher level support to organize the trainings. HEW competency varied by task: higher for the simple task of starting a bin card (85%) and lower for the most complicated skill of completing the Health Post Monthly Report and Resupply form (49%). The latter modest performance score was, in fact, a dramatic improvement over baseline (0%), and would likely improve further over time with practice and targeted supportive supervision.

The evaluation has shaped the ongoing SC training approach implemented by PFSA and its partners. The most important finding is that using HC staff to train HEWs in basic SC knowledge and skills, by incorporating lessons into existing activities, can improve training levels in a short time. It is also affordable, since it does not require extra travel or allowances, and it improves competency. Reinforcing these skills through problem-solving sessions and OJT, especially for more difficult topics, such as the monthly report and resupply form, is essential if HEWs are to fully master the SC skills. Improving HEW skills in SC management is an essential first step to enhancing iCCM product availability at HPs and should be a priority for reducing child mortality. As efforts are made to improve national availability of iCCM products, this knowledge and these skills will ensure HEWs know how to access the products they need to save lives.

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More detailed results in: SC4CCM Project Team. 2013. IPLS for HEWs Training Midline Evaluation, October to December 2012. Arlington, CM. Available from: [http://sc4ccm.jsi.com/files/2013/09/Ethiopia-Midline-Report\\_FINAL.pdf](http://sc4ccm.jsi.com/files/2013/09/Ethiopia-Midline-Report_FINAL.pdf)

## EDITORIAL

### HOW DO ETHIOPIA'S HEALTH EXTENSION WORKERS SPEND THEIR TIME?

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How much time do Health Extension Workers (HEWs) spend at the health post? In the community? Conducting non-health activities? How does clinic vs. community time allocation change if a health post is staffed by a pair of HEWs vs. a single HEW? How is the time apportioned between service and travel? How much time do volunteers spend promoting health?

We developed a rapid assessment to characterize how HEWs spend their time. We extensively probed HEWs to list all their activities over a year – then the frequency and average time duration for activity, preparation, and round-trip travel for each. We programmed Excel© (Windows 7, Microsoft Corporation, Washington, USA) to convert duration input to hours and frequency input to number per month, yielding prorated values as hours/month. We entered the values on a computer in the field and shared the results with the interviewees upon completing the interview, generating much interest.

In August 2012, we applied the technique in Shebedino District, Sidama Zone, Southern Nations, Nationalities and Peoples' Region, a year after Save the Children and partners trained HEWs in integrated community case management. We interviewed five HEWs and a volunteer Community Health Promoter for comparison. Two HEWs worked alone at their health post; one was a member of a pair; and two others comprised the same pair. We asked the latter three to describe their pair's activities and then divided by two to yield individual profiles. Each interview took about an hour.

HEWs reported working 193 hours/month with solo HEWs working more than their paired counterparts (217 vs. 170 hours/month, respectively). Solo HEWs reported wide variation in the proportion of time spent in the community (7 to 59% of total), while paired HEWs reported similar levels (42% of total, range 36-48%). Preparation time was low (mean: 3 hours/month), but travel accounted for up to 53% of community time. The two paired HEWs reported spending almost two thirds of their community time conducting home visits (63%), followed by meeting supervisors (9%), and group health talks (8%). They reported spending little community time on non-health activities (6%), such as community gatherings arranged by the *kebele*, cabinet meetings, visiting the Women and Child Affairs Office, and meeting with the development team. The volunteer contributed 44 hours/month in preparation (9%), travel (27%), and actual activity (64%). As demand for HEWs' curative services increases, the proportion of time at health posts might increase.

Our rapid method seems credible because the sum of reported activities approximated full-time work. This activity-by-activity approach seems less susceptible to over-reporting than global summary statements. Moreover, solo HEWs reported working more than their paired counterparts, which is sensible. HEWs have fixed working hours and watches and are well schooled, supporting the validity of their reports. Unpaid volunteers reported approximately a 0.23 full-time equivalent that may be difficult to sustain. We cannot generalize from a small sample, but this method, quicker and less costly than diaries or direct observation, may be worth repeating and/or adapting for other questions. If further experience confirms validation, the approach could have wide applicability.

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## ORIGINAL ARTICLES

Hailemariam Legesse, Tedbabe Degeffie, Mihret Hiluf, Kassahun Sime, Challa Tesfaye, Hailu Abebe, Helina Kebede, Luwei Pearson, Assaye Kassaye, Mary Taylor. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

### ORIGINAL ARTICLE

#### NATIONAL SCALE-UP OF INTEGRATED COMMUNITY CASE MANAGEMENT IN RURAL ETHIOPIA: IMPLEMENTATION AND EARLY LESSONS LEARNED

Hailemariam Legesse, MD<sup>1</sup>; Tedbabe Degeffie MD, MPH<sup>1</sup>; Mihret Hiluf, MPH<sup>1</sup>; Kassahun Sime<sup>2</sup>; Challa Tesfaye<sup>2</sup>; Hailu Abebe, MPH<sup>2</sup>; Helina Kebede, MD<sup>2</sup>; Luwei Pearson, MD, MSc<sup>1</sup>; Assaye Kassaye, MD<sup>3</sup>; Mary Taylor PhD<sup>4</sup>

#### ABSTRACT

**Background.** Although under-five mortality in Ethiopia has decreased 67% in the past two decades, many children still die from preventable or treatable conditions, mainly pneumonia, newborn problems, diarrhea, malaria and malnutrition. Most of these deaths can be avoided with timely and appropriate care, but access to and use of treatment remains inadequate. Community health workers, appropriately trained, supervised, and supplied with essential equipment and medicines, can deliver case management or referral to most sick children. In 2010, Ethiopia added pneumonia to diarrhea, malaria and severe acute malnutrition, targeted for treatment in the integrated community case management (iCCM) strategy.

**Purpose.** This article describes the national scale-up of iCCM implementation and early lessons learned.

**Methods.** We reviewed data related to iCCM program inputs and processes from reports, minutes, and related documents from January 2010 through July 2013. We describe introduction and scale-up through eight health system components.

**Results.** The government and partners trained and supplied 27,116 of the total 32,000 Health Extension Workers and mentored 80% of them to deliver iCCM services to over one million children. The government led a strong iCCM partnership that attracted development partners in implementation, monitoring, evaluation, and research. Service utilization and weak supply chain remain major challenges.

**Conclusion:** Strong MOH leadership, policy support, and national partnerships helped successful national iCCM scale-up and should help settle remaining challenges.

**Key Words:** Ethiopia, child health, community health worker, community case management, health system, implementation

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### ORIGINAL ARTICLE

#### PERFORMANCE OF ETHIOPIA'S HEALTH SYSTEM IN DELIVERING INTEGRATED COMMUNITY-BASED CASE MANAGEMENT

David R. Marsh, MD, MPH<sup>1</sup>; Hailu Tesfaye, MD, MPhil<sup>2</sup>; Tedbabe Degeffie, MD, MPH<sup>3</sup>; Hailemariam Legesse, MD<sup>3</sup>; Hailu Abebe, MPH<sup>4</sup>; Efrem Teferi, MD<sup>5</sup>; Addis Ashenafi, MPH<sup>6</sup>; Agazi Ameha, MSc<sup>6</sup>; Helina Kebede, MD<sup>4</sup>

#### ABSTRACT

**Background.** Analyzing complex health programs by their components and sub-components serves design, documentation, evaluation, research, and gap identification and prioritization. In 2012, we developed a rapid methodology to characterize integrated community case management (iCCM) programs by assessing benchmarks for eight health system components in three program phases.

**Objective.** To assess iCCM benchmarks in Ethiopia three years after scale-up commenced, and to compare the benchmarks across the geographical region.

**Methods.** Six national iCCM experts scored each of 70 benchmarks (no, partial, or yes) and then were facilitated to reach consensus.

**Results.** Overall, iCCM benchmark achievement in Ethiopia was high (87.3%), highest for pre-introduction (93.0%), followed by introduction (87.9%) and scale-up (78.1%) phases. Achievement by system component was highest for coordination and policy (94.2%) and lowest for costing and finance (70.3%). Six regional countries' benchmark assessments, including two from Ethiopia 14 months apart, were highly correlated with program duration at scale (correlation coefficient: +0.88).

**Conclusion.** Ethiopia has a mature, broad-based iCCM program. Despite limitations, the method described here rapidly, systematically, and validly characterized a complex program and highlighted areas for attention through government or partners.

**Key Words:** Ethiopia, child health, community health worker, community case management, health system, benchmarks

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## ORIGINAL ARTICLE

# COVERAGE AND EQUITABILITY OF INTERVENTIONS TO PREVENT CHILD MORTALITY IN RURAL JIMMA AND WEST HARARGHE ZONES, OROMIA REGION, ETHIOPIA

Nathan P Miller, PhD<sup>1</sup>; Tedbabe Degefie, MD, MPH<sup>2</sup>; Elizabeth Hazel, MHS<sup>1</sup>; Hailemariam Legesse, MD<sup>2</sup>; Taye Tolera, MD<sup>3</sup>; Agbessi Amouzou, PhD<sup>1</sup>

## ABSTRACT

**Background:** Interventions to prevent childhood illnesses are important components of the Ethiopian Health Extension Program (HEP). Although the HEP was designed to reduce inequities in access to health care, there is little evidence on equitability of preventive interventions in Ethiopia.

**Purpose:** This article describes coverage of preventive interventions and how many interventions individual children received. We also examined which factors were associated with the number of preventive interventions received, and assessed the extent to which interventions were equitably distributed.

**Methods:** We conducted a cross-sectional survey in 3,200 randomly selected households in the rural Jimma and West Hararghe Zones of Ethiopia's Oromia Region. We calculated coverage of 10 preventive interventions and a composite of eight interventions (co-coverage) representing the number of interventions received by children. Multiple linear regressions were used to assess associations between co-coverage and explanatory variables. Finally, we assessed the equitability of preventive interventions by comparing coverage among children in the poorest and the least poor wealth quintiles.

**Results:** Coverage was less than 50% for six of the 10 interventions. Children received on average only three of the eight interventions included in the co-coverage calculation. Zone, gender, caretaker age, religion, and household wealth were all significantly associated with co-coverage, controlling for key covariates. Exclusive breastfeeding,



vaccine uptake, and vitamin A supplementation were all relatively equitable. On the other hand, coverage of insecticide-treated nets or indoor residual spraying (ITN/IRS) and access to safe water were significantly higher among the least poor children compared to children in the poorest quintile.

**Conclusion:** Coverage of key interventions to prevent childhood illnesses is generally low in Jimma and West Hararghe. Although a number of interventions were equitably distributed, there were marked wealth-based inequities for interventions that are possessed at the household level, even among relatively homogeneous rural communities.

**Key words:** Ethiopia, Oromia, child health, disease prevention, coverage, equity

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**ORIGINAL ARTICLE**

## **UTILIZATION OF INTEGRATED COMMUNITY CASE MANAGEMENT SERVICES IN THREE REGIONS IN ETHIOPIA AFTER TWO YEARS OF IMPLEMENTATION**

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### **ABSTRACT**

**Background:** The integrated community case management (iCCM) strategy has brought fully integrated treatment for sick children to the community in Ethiopia since 2010.

**Objectives:** To describe patterns of use of iCCM services in 31 woredas (districts) in three regions of Ethiopia.

**Methods:** We analyzed all 60,452 encounters (58,341 [98.2%] for children 2-59 months of age and 2079 [1.8%] for children <2 months of age) recorded in iCCM registration books from December 24, 2012 to January 15, 2013 in 622 randomly sampled health posts.

**Results:** Children 2-23 months constituted more than half (58.9%) of the total children treated, and about half of the registered infants <2 months (1000/2079 [48.1%]) were not sick since some Health Extension Workers (HEWs) were recording well-infant visits. On average, sick children had 1.3 symptoms, more among children 2-59 months than among young infants (1.4 vs. 1.04, respectively). The main classifications for children 2-59 months were diarrhea with some or no dehydration (29.8%), pneumonia (20.7%), severe uncomplicated malnutrition (18.5%), malaria (11.2%), and other severe diseases (4.0%). More than half the sick children <2 months (52.7%) had very severe disease. Treatment rates (per 1000 children per year) were low for all classifications: 11.9 for malaria (in malarious kebeles only), 20.3 for malnutrition, 21.2 for pneumonia, and 29.2 for diarrhea with wide regional variations, except for pneumonia. Nearly two-thirds of health posts (64%) treated  $\leq 5$  cases/month, but one treated 40. Health Extension Workers saw 60% more sick children 2-59 months in the third quarter of 2012 than in the third quarter of 2011.

**Conclusion:** The use of iCCM services is low and increasing slowly, and the few busy health posts deserve further study. Recording healthy young infants in sick registers complicates tracking this vulnerable group.

**Key Words:** Ethiopia, child health, community health worker, community case management, service utilization, treatment rate.

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ORIGINAL ARTICLE

**EFFECT OF THE HEALTH EXTENSION PROGRAM AND OTHER ACCESSIBILITY FACTORS ON CARE-SEEKING BEHAVIORS FOR COMMON CHILDHOOD ILLNESSES IN RURAL ETHIOPIA**

Addis Ashenafi MPH<sup>1</sup>; Ali Mehryar Karim, PhD<sup>1</sup>; Agazi Ameha, MS<sup>2</sup>; Amano Erbo, MPH<sup>1</sup>; Nebiyu Getachew, MA<sup>1</sup>; and Wuleta Betemariam, MPH<sup>1</sup>

**ABSTRACT**

**Background.** In January 2011, Health Extension Workers (HEWs) of Ethiopia's Health Extension Program (HEP) began providing pneumonia case management for children less than five years of age through the integrated Community Case Management (iCCM) strategy.

**Objective.** To report the effect of HEP, following the introduction of iCCM, and other accessibility factors on care-seeking behaviors for common childhood illnesses (acute respiratory infection [ARI], diarrhea, and fever).

**Methods.** Three possible care-seeking outcomes for childhood illnesses were considered: not seeking appropriate care, seeking care from HEP sources, or seeking care from other appropriate sources. The baseline care-seeking outcomes from the Ethiopian Demographic and Health Survey, 2011, were compared with the care-seeking outcomes in a follow-up iCCM survey in December 2012. The effects of the HEP intensity and other factors on care-seeking outcomes were estimated using regression analyses.

**Results.** Appropriate care-seeking for children with acute respiratory infection, ARI, diarrhea, or fever increased two-fold, from 19% at baseline to 38% at follow-up, mainly due to an increase in seeking care for common childhood illnesses from HEWs. Higher intensity of the HEP and other accessibility factors were associated with higher care-seeking for childhood illnesses from HEP sources.

**Conclusion.** Incorporating iCCM within the HEP service package significantly improved the appropriate care-seeking behaviors for childhood illnesses in rural Ethiopia.

**Key words:** Ethiopia, child health, Health extension program, community case management, community health worker, program evaluation, care-seeking behavior

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Agazi Ameha, Ali Mehryar Karim, Amano Erbo, Addis Ashenafi, Mulu Hailu, Berhan Hailu, Abebe Folla, Simre Bizuwork, Wuleta Betemariam. *Ethiop Med J*, 2014, Vol. 52, Supp 3

ORIGINAL ARTICLE

**EFFECTIVENESS OF SUPPORTIVE SUPERVISION ON THE CONSISTENCY OF INTEGRATED COMMUNITY CASES MANAGEMENT SKILLS OF THE HEALTH EXTENSION WORKERS IN 113 DISTRICTS OF ETHIOPIA**

Agazi Ameha, MS<sup>1</sup>; Ali Mehryar Karim, PhD<sup>2</sup>; Amano Erbo, MPH<sup>2</sup>; Addis Ashenafi, MPH<sup>2</sup>; Mulu Hailu<sup>2</sup>; Berhan Hailu<sup>2</sup>; Abebe Folla<sup>2</sup>; Simret Bizuwork, MPH<sup>2</sup>; Wuleta Betemariam, MPH<sup>2</sup>

**ABSTRACT**

**Background.** Consistency in the adherence to integrated Community Case Management (iCCM) protocols for common childhood illnesses provided by Ethiopia's Health Extension Program (HEP) frontline workers. One

approach is to provide regular clinical mentoring to the frontline health workers of the HEP at their health posts (HP) through supportive supervision (SS) following the initial training.

**Objective.** To Assess the effectiveness of visits to improve the consistency of iCCM skills (CoS) of the HEWs in 113 districts in Ethiopia.

**Methods.** We analyzed data from 3,909 supportive supervision visits between January 2011 and June 2013 in 113 districts in Ethiopia. From case assessment registers, a health post was classified as consistent in managing pneumonia, malaria, or diarrhea cases if the disease classification, treatment, and follow-up of the last two cases managed at the health posts were consistent with the protocol. We used regression models to assess the effects of SS on CoS.

**Results:** All HPs (2,368) received at least one supportive supervision visit, 41% received two, and 15% received more than two. During the observation period, HP management consistency in pneumonia, malaria, and diarrhea increased by 3.0, 2.7 and 4.4-fold, respectively. After controlling for secular trend and other factors, significant dose-response relationships were observed between number of SS visits and CoS indicators.

**Conclusions:** The SS visits following the initial training were effective in improving the CoS.

**Key words:** Ethiopia, child health, child survival, community case management, supportive supervision, community-based program, health extension program.

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Birkety Mengistu, Ali Mehyar Karim, Andargachew Eniyew, Abraham Yitabrek, Antenane Eniyew, Sentayehu Tsegaye, Fekadu Muluye, Hailu Tesfaye, Berhanu Demeke, David R. Marsh. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

## ORIGINAL ARTICLE

### EFFECT OF PERFORMANCE REVIEW AND CLINICAL MENTORING MEETINGS (PRCMM) ON RECORDING OF COMMUNITY CASE MANAGEMENT BY HEALTH EXTENSION WORKERS IN ETHIOPIA

Birkety Mengistu, MD, MPH<sup>1</sup>; Ali Mehyar Karim, MBBS, MSc, PhD<sup>2</sup>; Andargachew Eniyew, MPH<sup>3</sup>; Abraham Yitabrek<sup>1</sup>, MPH; Antenane Eniyew, MBA<sup>3</sup>; Sentayehu Tsegaye, MD, MPH<sup>1</sup>; Fekadu Muluye, MSc<sup>3</sup>; Hailu Tesfaye, MD, MPH<sup>4</sup>; Berhanu Demeke, MD, MPH<sup>1</sup>; David R. Marsh, MD, MPH<sup>5</sup>

## ABSTRACT

**Background:** *The Performance Review and Clinical Mentoring Meeting (PRCMM) is an approach to improve and sustain Health Extension Worker (HEW) skills and performance in integrated Community Case Management (iCCM).*

**Objective:** *To compare HEW performance in recording case management before and after they participated in PRCMM.*

**Methods:** *We conducted a historical cohort analysis of iCCM case records between September 2010 and December 2012 from 622 randomly selected health posts representing 31 intervention woredas (districts) of Amhara, Oromia and Southern Nations Nationalities and Peoples' Regions. We used longitudinal regression analysis comparing the trend in the consistency of the classification with the assessment, treatment and follow-up date as well as caseload in the periods before and after PRCMM, with 5511 and 7901 case records, respectively.*

**Results:** *Overall consistency improved after PRCMM for all common classifications as follows: pneumonia (54.1% [95% CI: 47.7%–60.5%] vs. 78.2% [73.9%–82.5%]), malaria (50.8% [42.9%–58.7%] vs. 78.9% [73.4%–84.4%]), and diarrhea (33.7% [27.9%–39.5%] vs. 70.0% [64.7%–75.3%]). This improvement was consistently observed comparing the six months before and the six months after PRCMM in all the common classifications except for malaria where the improvement observed during the first three post-PRCMM months disappeared during the fifth and sixth months. Caseload increased significantly after PRCMM (6.6 [95% CI: 5.9–7.3] vs. 9.2 [8.5–9.9] cases/health post/month).*

**Conclusion:** *PRCMM seemed to improve iCCM performance of HEWs and should be integrated within the PHC system and given about every six months, at least at first, to sustain improvement.*

**Key Words:** Ethiopia, child health, community health worker, community case management, supervision, mentoring, quality of care

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Robinah Najjemba, Lilian Kiapi, Shiferaw Dechasa Demissie, Tadesse Gossaye, Mezgebu Engida, Ruwan Ratnayake, Tedbabe Degeffie, Hailemariam Legesse, Ataklti Fisseha Lemma, Hiwot Getachew, Muluken Gebrie. *Ethiop Med J*, 2014, Vol. 52, Supp 3

## ORIGINAL ARTICLE

### INTEGRATED COMMUNITY CASE MANAGEMENT: QUALITY OF CARE AND ADHERENCE TO MEDICATION IN BENESHANGUL-GUMUZ REGION, ETHIOPIA

Robinah Najjemba, MD, MPH<sup>1</sup>; Lilian Kiapi, MD, MPH<sup>2</sup>; Shiferaw Dechasa Demissie, MPH<sup>3</sup>; Tadesse Gossaye, MPH, MBA<sup>4</sup>; Mezgebu Engida, CRN<sup>5</sup>; Ruwan Ratnayake, MHS<sup>7</sup>; Tedbabe Degeffie, MD, MPH<sup>7</sup>; Hailemariam Legesse, MD<sup>8</sup>; Ataklti Fisseha Lemma, MPH<sup>9</sup>; Hiwot Getachew, MPH<sup>10</sup>; Muluken Gebrie, BSc<sup>11</sup>

## ABSTRACT

**Background:** The International Rescue Committee (IRC) supports implementation of integrated Community Case Management (iCCM) in all 20 woredas (districts) of Benishangul Gumuz Region (BSG) in Ethiopia.

**Objectives:** To identify the gaps in the provision of quality iCCM services provided by Health Extension Workers (HEWs) and to assess caregivers' adherence to prescribed medicines for children under five years of age.

**Methods:** We conducted a cross-sectional descriptive study with both quantitative and qualitative study methods. We interviewed 233 HEWs and 384 caregivers, reviewed HEW records of 1,082 cases, and organized eight focus groups.

**Results:** Most cases (98%) seen by HEWs were children 2-59 months old, and 85% of the HEWs did not see any sick young infant. The HEWs' knowledge on assessments and classification and need for referral of cases was above 80%. However, some reported challenges, especially in carrying out assessment correctly and not checking for danger signs. Over 90% of caretakers reported compliance with HEWs' prescription.

**Conclusion:** Partners have successfully deployed trained HEWs who can deliver iCCM according to protocol; however, additional support is needed to assure a supply of medicines and to mobilize demand for services, especially for young infants.

**Key words:** Ethiopia, child health, Health Extension worker, community case management, Malaria, Pneumonia, Caretakers adherence, Child treatment, Child Survival, Health Extension Program.

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Efrem Teferi, Dedefo Teno, Ismael Ali, Hibret Alemu, Tesfaye Bulto. *Ethiop Med J*, 2014, Vol. 52, Sup.3

## ORIGINAL ARTICLE

### QUALITY AND USE OF IMNCI SERVICES AT HEALTH CENTER UNDER-FIVE CLINICS AFTER INTRODUCTION OF INTEGRATED COMMUNITY-BASED CASE MANAGEMENT (ICCM) IN THREE REGIONS OF ETHIOPIA

Efrem Teferi, MD;<sup>1</sup> Dedefo Teno, MPH;<sup>1</sup> Ismael Ali, MPH;<sup>1</sup>  
Hibret Alemu, PhD;<sup>1</sup> Tesfaye Bulto, MD, MPH<sup>1</sup>

## ABSTRACT

**Background.** The Integrated Management of New born and Childhood Illness (IMNCI) and the related Integrated Community Case Management (iCCM) are evidence-based strategies to reduce childhood mortality in Ethiopia at health centres and community health posts, respectively. The effect of introducing iCCM on IMNCI is not known.

**Objective.** To assess the caseload and quality of IMNCI service in under-five clinics in health centres after iCCM implementation.

**Methods.** This cross-sectional study used register review to assess the IMNCI service use (before and after iCCM, in 2010 and 2012, respectively) and quality throughout the period in randomly selected health centers in three regions of the Integrated Family Health Program (Oromia, SNNPR [Southern Nations and Nationalities and Peoples Region] and Tigray).

**Results.** Caseload of sick children at 28 health centers increased by 16% after iCCM implementation (21,443 vs. 24,882 children in 2010 and 2012, respectively). The consistency of IMNCI treatment with classification for pneumonia, diarrhea and malaria was low (78, 45, and 67%, respectively) compared to iCCM treatment (86, 80, and 91%, respectively).

**Conclusion.** Health center case load increased modestly after iCCM was introduced, but was lower than expected, even when combined with health post use from other studies. The demand strategy for sick children needs review. The quality of IMNCI needs improving even to bring it to the quality of iCCM at health posts, as measured by the same methods. Successful quality assurance approaches from iCCM, e.g., the Performance Review and Clinical Mentoring Meeting, could be adapted for IMNCI. **Key words;** IMNCI, iCCM, case load ,Oromia ,SNNP, Tigray

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Ajema Wogi, Dedefo Teno, Tesfaye Bulto, Wakgari Deressa, Hibret Alemu, Mesfin Nigussie. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

## ORIGINAL ARTICLE

### EFFECT OF INTEGRATED COMMUNITY CASE MANAGEMENT OF COMMON CHILDHOOD ILLNESSES ON THE QUALITY OF MALARIA CASE MANAGEMENT PROVIDED BY HEALTH EXTENSION WORKERS AT HEALTH POSTS

Ajema Wogi, MPH<sup>1</sup>; Dedefo Teno, MPH<sup>1</sup>; Tesfaye Bulto, MD, MPH<sup>1</sup>; Wakgari Deressa, PhD<sup>2</sup>;  
Hibret Alemu, PhD<sup>1</sup>; Mesfin Nigussie, MPH<sup>1</sup>

## ABSTRACT

**Introduction:** The Integrated Family Health Program supported the government of Ethiopia to implement the Integrated Community Case Management (iCCM) strategy to control childhood illness of which malaria is a major cause.

**Objective:** To assess the effect of iCCM training on quality of malaria case management at health posts.

**Methods:** A comparative cross-sectional study was conducted among 170 Health Extension Workers (HEW) providing either integrated or vertical malaria case management for children less than five years of age in 14 woredas (districts) of West Hararghe Zone using a multi-stage sampling procedure. HEWs in seven intervention woredas were trained in malaria case management and rapid diagnostic test (RDT) procedures through iCCM, and HEWs in comparison woredas were trained vertically through the national malaria control program. Performance was assessed using interview, review of registers, and observation of RDT procedure.

**Results:** Intervention HEWs performed better than their counterparts in correct drug prescription (90.8 vs. 81.0%, p=0.03), treatment duration (97.7 vs. 89.9%, p=0.001), and treatment schedule (95.4 vs. 75.9%, p=0.000). Intervention HEWs recorded case management with more consistency than their counterparts ( $\geq 80\%$  consistency between: classification and assessment [23.0 vs. 3.8%; p=0.000], classification and treatment [24.1 vs. 7.6%;

p=0.003], and classification and follow up [24.1% vs. 0.0%; p=0.000]); however, there is room for improvement.

**Conclusion:** ICCM training has a positive effect on the quality of malaria case management at the community level.

**Key Words:** Ethiopia, child health, community health worker, community case management, quality of case management, integrated approach

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Worku Tefera, Hailu Tesfaye, Abeba Bekele, Elias Kayessa, Karen Z. Waltensperger, David R. Marsh. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

## ORIGINAL ARTICLE

### FACTORS INFLUENCING THE LOW UTILIZATION OF CURATIVE CHILD HEALTH SERVICES IN SHEBEDINO DISTRICT, SIDAMA ZONE, ETHIOPIA

Worku Tefera, MSW<sup>1</sup>; Hailu Tesfaye, MD, MPhil<sup>1</sup>; Abeba Bekele, MD, MPH, MA<sup>2</sup>;  
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#### ABSTRACT

**Background:** Use and coverage of curative interventions for childhood pneumonia, diarrhea, and malaria were low in Ethiopia before integrated community-based case management (iCCM).

**Objectives:** To examine factors accounting for low use of iCCM in Shebedino District applying a “Pathway to Survival” approach to assess illness recognition; home care; labeling and decision-making; patterns of care-seeking; access, availability and quality of care; and referral.

**Methods:** Shortly after introduction of iCCM, we conducted five studies in Shebedino District in May 2011: a population-based household survey; focus group discussions of mothers of recently ill children; key informant interviews, including knowledge assessment, with Health Extension Workers at health posts and with health workers at health centers; and an inventory of drugs, supplies, and job aids at health posts and health centers.

**Results:** The many barriers to use of evidence-based treatment included: (1) home remedies of uncertain effect and safety that delay care-seeking; (2) absent decision-maker; (3) fear of stigma; (4) expectation of non-availability of service or medicine; (5) geographic and financial barriers; (6) perception of (or actual) poor quality of care; and (7) accessible, available, affordable, reliable, non-standard, alternative sources of care.

**Conclusion:** Only a system-strengthening approach can overcome such manifold barriers to use of curative care that has not increased much after iCCM introduction.

**Key Words:** Ethiopia, child health, community health worker, community case management, care seeking, access

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Dereje Mamo, Elizabeth Hazel, Israel Lemma, Tanya Guenther, Abeba Bekele, Berhanu Demeke. *Ethiop Med J*, 2014, Vol. 52, Sup. 3

## ORIGINAL ARTICLE

### ASSESSMENT OF THE MONITORING AND EVALUATION SYSTEM FOR INTEGRATED COMMUNITY CASE MANAGEMENT (ICCM) IN ETHIOPIA: A COMPARISON AGAINST GLOBAL BENCHMARK INDICATORS

Dereje Mamo MSc<sup>1</sup>; Elizabeth Hazel, MHS<sup>2</sup>; Israel Lemma MSc<sup>3</sup>; Tanya Guenther, MSc<sup>4</sup>;  
Abeba Bekele, MD, MPH, MA<sup>5</sup>; Berhanu Demeke, MD, MPH<sup>5</sup>

## ABSTRACT

**Background.** Program managers require feasible, timely, reliable, and valid measures of iCCM implementation to identify problems and assess progress. The global iCCM Task Force developed benchmark indicators to guide implementers to develop or improve monitoring and evaluation (M&E) systems.

**Objective.** To assess Ethiopia's iCCM M&E system by determining the availability and feasibility of the iCCM benchmark indicators.

**Methods.** We conducted a desk review of iCCM policy documents, monitoring tools, survey reports, and other relevant documents; and key informant interviews with government and implementing partners involved in iCCM scale-up and M&E.

**Results.** Currently, Ethiopia collects data to inform most (70% [33/47]) iCCM benchmark indicators, and modest extra effort could boost this to 83% (39/47). Eight (17%) are not available given the current system. Most benchmark indicators that track coordination and policy, human resources, service delivery and referral, supervision, and quality assurance are available through the routine monitoring systems or periodic surveys. Indicators for supply chain management are less available due to limited consumption data and a weak link with treatment data. Little information is available on iCCM costs.

**Conclusion.** Benchmark indicators can detail the status of iCCM implementation; however, some indicators may not fit country priorities, and others may be difficult to collect. The government of Ethiopia and partners should review and prioritize the benchmark indicators to determine which should be included in the routine M&E system, especially since iCCM data are being reviewed for addition to the HMIS. Moreover, the Health Extension Worker's reporting burden can be minimized by an integrated reporting approach.

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Luwei Pearson, Elizabeth Hazel, Yvonne Tam. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

## ORIGINAL ARTICLE

### MODELING POTENTIAL REDUCTION OF CHILD MORTALITY AFTER NATIONAL SCALE-UP OF COMMUNITY-BASED TREATMENT OF CHILDHOOD ILLNESSES IN ETHIOPIA

Luwei Pearson, MD, MSc<sup>1</sup>; Elizabeth Hazel, MHS<sup>2</sup>; Yvonne Tam, MHS<sup>2</sup>

## ABSTRACT

**Background.** Since 2010, 28,000 female health extension workers (HEWs) received training and support to provide integrated community based case management (iCCM) of childhood pneumonia, diarrhea, malaria, and severe malnutrition in Ethiopia.

**Objective.** We conducted a modeling exercise using two scenarios to project the potential reduction of the under five mortality rate due to the iCCM program in the four agrarian regions of Ethiopia.

**Methods.** We created three projections: (1) baseline projection without iCCM; (2) a "moderate" projection using 2012 coverage data scaled up to 30% by 2015 and (3) a "best case" scenario scaled up to 80% with 50% of newborns with sepsis receiving effective treatment by 2015.

**Results.** If the 2012 coverage gains (moderate projection) were applied to the four agrarian regions, we project that the iCCM program could have saved over 10,000 additional lives per year among children age 1-59 months. If iCCM coverage reaches the "best case" scenario, nearly 80,000 additional lives among children 1-59 months of age

would be saved between 2012 and 2015.

**Conclusion.** High quality iCCM, delivered and used at scale, is an important contributor to the reduction of under five mortality in rural Ethiopia. Continued investments in iCCM are critical to sustaining and improving recent declines in child mortality.

**Key Words:** Ethiopia, child health, community health worker, and community case management, Lives Saved Tool

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Rory Nefdt, Eric Ribaira, Khassoum Diallo. *Ethiop Med J*, 2014, Vol. 52, Supp. 3

## ORIGINAL ARTICLE

# COSTING COMMODITY AND HUMAN RESOURCE NEEDS FOR INTEGRATED COMMUNITY CASE MANAGEMENT IN THE DIFFERING COMMUNITY HEALTH STRATEGIES OF ETHIOPIA, KENYA AND ZAMBIA

Rory Nefdt, PhD<sup>1</sup>; Eric Ribaira, MPH<sup>1</sup>; Khassoum Diallo, PhD<sup>1</sup>

## ABSTRACT

**Background:** To ensure correct and appropriate funding is available, there is a need to estimate resource needs for improved planning and implementation of integrated Community Case Management (iCCM).

**Objective:** To compare and estimate costs for commodity and human resource needs for iCCM, based on treatment coverage rates, bottlenecks and national targets in Ethiopia, Kenya and Zambia from 2014 to 2016.

**Methods:** Resource needs were estimated using Ministry of Health (MoH) targets from 2014 to 2016 for implementation of case management of pneumonia, diarrhea and malaria through iCCM based on epidemiological, demographic, economic, intervention coverage and other health system parameters. Bottleneck analysis adjusted cost estimates against system barriers. Ethiopia, Kenya and Zambia were chosen to compare differences in iCCM costs in different programmatic implementation landscapes.

**Results:** Coverage treatment rates through iCCM are lowest in Ethiopia, followed by Kenya and Zambia, but Ethiopia had the greatest increases between 2009 and 2012. Deployment of health extension workers (HEWs) in Ethiopia is more advanced compared to Kenya and Zambia, which have fewer equivalent cadres (called community health workers (CHWs)) covering a smaller proportion of the population. Between 2014 and 2016, the proportion of treatments through iCCM compared to health centres are set to increase from 30% to 81% in Ethiopia, 1% to 18% in Kenya and 3% to 22% in Zambia. The total estimated cost of iCCM for these three years are USD 75,531,376 for Ethiopia, USD 19,839,780 for Kenya and USD 33,667,742 for Zambia. Projected per capita expenditure for 2016 is USD 0.28 for Ethiopia, USD 0.20 in Kenya and USD 0.98 in Zambia. Commodity costs for pneumonia and diarrhea were a small fraction of the total iCCM budget for all three countries (less than 3%) while around 80% of the costs related to human resources.

**Conclusion:** Analysis of coverage, demography and epidemiology data improves estimates of funding requirements for iCCM. Bottleneck analysis adjusts cost estimates by including system barriers, thus reflecting a more accurate estimate of potential resource utilization. Adding pneumonia and diarrhea interventions to existing large scale community-based malaria case management programs is likely to require relatively small and nationally affordable investments. iCCM can be implemented for USD 0.09 to 0.98 per capita per annum, depending on the stage of scale-up and targets set by the MoH.

**Key Words:** Ethiopia, Zambia, Kenya, treatment, community case management, costing

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## BRIEF COMMUNICATIONS

Efrem Teferi, Hibret Alemu, Tesfaye Bulto, Ismael Ali, Dedefo Teno. *Ethiop Med J*, 2014, Vol. 52, Sup. 3

### BRIEF COMMUNICATION

## A DESCRIPTIVE STUDY OF THE CHANGES IN COVERAGE OF PREVENTIVE AND PROMOTIVE INTERVENTIONS BEFORE AND AFTER THE INTRODUCTION OF INTEGRATED COMMUNITY CASE MANAGEMENT (ICCM) IN ETHIOPIA

Efrem Teferi, MD<sup>1</sup>; Hibret Alemu, PhD<sup>1</sup>; Tesfaye Bulto, MD, MPH<sup>1</sup>;  
Ismael Ali, MPH<sup>1</sup>; Dedefo Teno, MPH<sup>1</sup>

### ABSTRACT

**Background:** The effect of integrated community case management (iCCM) of common childhood illness on use of vital preventive services is not known.

**Objective:** To measure the coverage of maternal and child health preventive and promotive interventions before and after scaling up iCCM.

**Methods:** In 2011 and 2013, we conducted cross-sectional, population-based, household coverage surveys in four Integrated Family Health Program target regions: Amhara, Oromia, SNNP, and Tigray.

**Results:** Coverage increased for 10 of 15 indicators, mainly for maternal, immunization, and nutrition services. In some cases, we observed dramatic increases, i.e., for  $\geq 4$  antenatal care visits, antenatal iron and folate, and exclusive breastfeeding. Some increase occurred even when 2011 levels were already high, i.e., for immunization. Three indicators remained high and unchanged (bednet ownership, children sleeping under bednets, and any latrine). Two indicators decreased (tetanus toxoid and households with  $\geq 2$  bednets).

**Conclusion:** Scale-up of iCCM was consistent with increased coverage of most preventative and promotive interventions, which may contribute to the life-saving effect of iCCM.

**Key Words:** Ethiopia, child health, community health worker, community case management, preventive interventions

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### BRIEF COMMUNICATION

## ILLNESS RECOGNITION, HOME CARE, AND CARE-SEEKING FOR SICK INFANTS LESS THAN TWO MONTHS OF AGE IN SHEBEDINO DISTRICT, SIDAMA ZONE, ETHIOPIA

Worku Tefera, MSW;<sup>1</sup> Hailu Tesfaye, MD, MPhil<sup>1</sup>; Abeba Bekele, MD, MPH, MA<sup>2</sup>; Elias Kayessa, RN, MA<sup>1</sup>;  
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### ABSTRACT

**Background:** The incidence of newborn and young infant health danger signs is unknown in Ethiopia. Nevertheless, experience shows that care-seeking is far lower than conservative morbidity estimates would project.

**Objectives:** To examine illness recognition, home care, decision-making, and care-seeking for sick infants less than two months of age in Shebedino District, Southern Nations, Nationalities and Peoples Region in 2011.

**Methods:** Focus group interviews of mothers (n=60) of recently ill children.

**Results:** Mothers reported recognizing many, but not all, evidence-based newborn danger signs. Home care ranged from probably harmless to harmful and delayed definitive care-seeking. Decision-making was widespread, but patterns of care-seeking rarely led to prompt, evidence-based care. Mothers reported 10 barriers to care-seeking at health posts: lack of knowledge about availability of curative services, fear of evil eye, social stigma, perceived financial barrier, perceived young infant fragility, an elder's contrary advice, distance, husband's refusal, fear of

injection, and belief in recovery without medicine.

**Conclusion:** Young infants are more vulnerable to illness than their older counterparts, yet they are less likely to receive the care they need without a targeted, contextualized communication strategy to generate demand for case management services that are accessible, available, and of good quality.

**Key Words:** Ethiopia, child health, community health worker, community case management, care seeking, young infant, newborn

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## CONCLUSIONS: DELIVERING INTEGRATED COMMUNITY CASE MANAGEMENT (iCCM) TO TREAT CHILDHOOD ILLNESS AT SCALE IN ETHIOPIA

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This special supplement presents experience and evidence implementing integrated community case management (iCCM) in Ethiopia during scale-up from 2010-2012. Ethiopia's iCCM program is the largest in Africa, and this collection represents the largest iCCM "case study" of published reports from a single country of which we are aware.

We used the "Stockholm Framework" for evaluating iCCM to organize the findings (1). Figure 1 shows the framework with abbreviated messages from each of the supplement's papers. **Mortality** No paper measured mortality, given the cost, limited time, and on-going work by others; however, a mortality effect was modeled (see below). **Use** Several papers reported changes in use, measured as coverage by household survey or as utilization by service statistics. Miller et al. reported inequitable use of *preventive* interventions at baseline, consistent with the need for both a better demand strategy for these interventions, and for iCCM (2). Teferi et al. showed that introducing iCCM was consistent with maintaining or even increasing coverage of preventive interventions (3). Utilization of iCCM was generally low (3). Utilization was particularly low for infants less than age two months, given their special vulnerability and the observation that many of the recorded visits were actually for healthy check-ups (4,5). Use increased a bit over time and was associated with the density of Health Extension Worker (HEW) deployment, among other factors (4,6). Despite low use, some health posts were busy, which deserves study to identify replicable factors that explain their uncommon success (4). Najjemba et al. provided evidence from Beneshangul-Gumuz Region that use was "effective," in that caregivers' reported high compliance with iCCM treatments, except for a 10-day course of zinc (5).

**Health system strengthening** The possible salutary effect of iCCM on the levels of preventive and promotive interventions warrants emphasis. Anecdotal reports of enhanced community health worker confidence and credibility to deliver other messages after adding curative interventions to their armamentarium deserve further study. Whether high coverage of preventive and promotive interventions can be sustained after use of iCCM services increases – perhaps five- to ten-fold – remains to be seen. In a second paper, Teferi et al. also reported modestly increased – but still low – sick child caseloads at health *centers* after introducing iCCM at health *posts*, a possible indicator of a stronger health system (7). Follow-on work should also tally encounters for *severe* disease by level since level-specific care-seeking for disease severity is an indicator of a rationalized health system.

**Access** Ethiopia achieved rapid access to iCCM in the vast agrarian regions, as described by Legesse et al. (8). This is a critical determinant of use (5). Marsh et al. proposed in an editorial a rapid time study to characterize HEW availability, a potentially useful inquiry for assessing feasibility as service use and/or scope increases (9). **Quality** Reports in this supplement usually used register reviews or case scenarios as proxies for the quality of case management. Ameha et al. and Mengistu et al. showed that supportive supervision and Performance Review and Clinical Mentoring Meetings, respectively, increased the quality of recording in treatment registers (10,11). The relative role of each remains to be determined, but this may be possible to assess with datasets in hand (personal communication: Ali Mehryar Karim, September 2013). Najjemba et al. reported that case scenarios revealed that the

quality of assessment and classification was better than the quality of treatment and follow-up (5). Wogi et al. provided evidence—in part obtained through direct observation—suggesting that iCCM training resulted in better malaria case management than vertical malaria training; however, other factors, such as drug supply may have played a role (12). Nigatu et al. reported in an editorial that HEWs could master essential drug logistics skills through opportunistic training, a necessary but insufficient step to assure drug availability (13). *Demand* Tefera et al. contributed two papers from Shebedino District in SNNPR that described many demand-side barriers to using iCCM for young infants and for older children, respectively, and recommended a systems-approach to increase use (14,15).

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