



UNICEF-WHO
Overview and Latest Update on Integrated Community Case Management:
Potential for Benefit to Malaria Programs
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KEY MESSAGE

Integrated community case management (iCCM) is a strategy to increase access to effective case management for young children suffering from malaria, pneumonia and diarrhea, especially in hard to reach areas and among vulnerable populations who otherwise may be neglected. Programmatic experience shows that this can be a highly cost effective approach if well-utilized, and the current evidence base establishes iCCM as a key public health strategy to increase coverage of quality treatment services for children, especially in malaria-endemic countries in Africa.

Executive summary

Every year 6.3 million children die before the age of five. Malaria, pneumonia and diarrhea account for about one-third of these deaths, despite the availability of effective medicines to treat these diseases. However, physical access to these medicines and care remains a major challenge. There is, however, good evidence that community health workers (CHWs) can diagnose and correctly treat these children, significantly lowering the burden of these diseases. Evidence also shows that integrated community case management (iCCM) can increase the coverage of services that deliver treatments for the above mentioned illnesses. iCCM can increase early care seeking for illness and early access to appropriate treatment for children, reduce the workload of health centres, and potentially decrease all-cause mortality for children under age five years. iCCM programs especially have the potential to benefit malaria treatment programs through more rational use of artemisinin-based combination therapy (ACTs), thereby bringing about better use of malaria resources and lowering the potential of developing antimicrobial resistance.

Justification for an integrated community-based approach

Young children often present with multiple conditions and there is also significant overlap in symptoms of malaria and pneumonia. In many settings, with a high burden of child mortality, access to timely treatment and care is limited. Most children who die from malaria, pneumonia or diarrhea live in areas underserved by the health system, with poor access to health facilities for prompt, appropriate management of common childhood illnesses (1). In addition access to care is often complicated by shortages of essential medicines and insufficient human resources (2). Weak and fragmented health systems in many countries hinder the scaling-up of essential interventions for maternal, newborn, and child health (3), and improvement in health facilities alone is insufficient to avert a large proportion of child deaths (4). However, experience has demonstrated the critical role of Community Health Workers (CHWs) in bringing quality care close to home, and there is growing recognition that strengthening community-based interventions has the potential to accelerate progress in reaching the MDGs in high mortality settings (5-7). In response, the WHO, UNICEF, USAID and other partners have developed a strategy for integrated case management of malaria, pneumonia and diarrhea at the community level, termed integrated community case management (iCCM) (8). iCCM is an equity-based strategy to equip, train, support and supervise CHWs to deliver life-saving treatment interventions for malaria, pneumonia and diarrhea to children in communities who

otherwise lack easy access to case management in health facilities. To reach the full benefit of iCCM, the implementation needs to be a country-led and owned process to ensure sustainability. A recent survey shows that 28 countries in sub-Saharan Africa are implementing iCCM programs (treatment for all three conditions) – an increase since 2010 – and most countries are planning further expansion (9). The purpose of this document is to provide a collection of evidence on the feasibility, safety, effectiveness and impact of iCCM on the three treatable diseases it targets.

Community case management of individual diseases

The effectiveness and feasibility of community-based management for individual disease conditions has been demonstrated for pneumonia, diarrheal disease, and malaria. It is estimated that community case management of malaria can reduce overall and malaria-specific mortality in under-five children by 40% and 60% respectively (10), and severe malaria morbidity by 53% (11). Community based pneumonia case management has the potential to reduce under five mortality by up to 24% (12), and could result in up to 70% mortality reduction for pneumonia (13) with universal coverage. Treatment with oral rehydration solution (ORS) and zinc has been found to reduce diarrhea mortality in home and community settings, with ORS estimated to prevent 93% of diarrhea deaths, and zinc estimated to decrease diarrhea mortality by 23% (14). Regarding feasibility, there is evidence that effective CHWs require adequate initial training, regular re-supply of essential commodities, and ongoing supportive supervision (15-22). However a recent systematic review of factors influencing success or failure of community case management of malaria with rapid diagnostic tests (22) noted that the inappropriate provision of ACTs may be a problem in some settings, particularly if only community case management for malaria is in place (23-25).

Integrated community case management – feasibility and safety

Studies provide evidence that CHWs can accurately and safely manage malaria, pneumonia, and diarrhea in children through integrated community-based service delivery. A study in Zambia that evaluated two models of integrated delivery of treatment for malaria and pneumonia demonstrated that CHWs correctly classified children who presented with fever or fast or difficult breathing as having malaria and/or pneumonia 94% to 100% of the time, and appropriate treatment based on disease classification was correct in 94% to 100% of episodes (26). A study in Uganda found that case management of multiple diseases carried out with appropriate diagnostic technologies at the community level (iCCM) is acceptable, increases access, and is the first choice for caregivers of febrile children (18). The same study found that CHWs can be trained to use RDTs and timers to assess and manage malaria and pneumonia in children (27), and that the additional tasks of iCCM do not have a negative impact on how malaria cases are handled (28). Similarly, studies in Malawi (29) and Ethiopia (30) have shown that CHWs can correctly manage multiple illnesses and provide good quality of care for sick children. A few studies, however, have highlighted the challenges CHWs encounter in measuring respiratory rate and/or classifying pneumonia without intensive supervision and follow-up (31-32). There is also a lack of evidence on the efficacy and effectiveness of pneumonia case management in communities in sub-Saharan Africa (33).

A recent review on care seeking for illness in children in sub-Saharan Africa suggests that the availability of a comprehensive diagnostic and treatment package for multiple diseases may promote appropriate care seeking behaviours (34). Recent systematic reviews have analysed findings from over 25 studies on community case management of childhood illness (22, 35) and show that iCCM maintains the quality of malaria case management provided sufficient training and supervision occurs. Studies in Zambia (26, 36), Uganda (18), and in a multi-country study conducted in Burkina Faso, Ghana and Uganda (37) show that inappropriate prescription of ACTs to children with a negative RDT occurs much less frequently in programs in which ACTs are dispensed in the context of an iCCM package that includes alternative diagnostic and treatment measures for pneumonia and diarrhea together with malaria.

Integrated community case management – effectiveness and impact

iCCM offers the opportunity to increase access to effective treatment at the community level (38), while decreasing the workload at primary health care centers (21, 39). National Community Health Worker programs which include curative interventions for malaria, pneumonia and diarrhea have the potential to decrease all-cause mortality for children under age five years by up to 63% (40). The integration of pneumonia with malaria management in rural Zambia resulted in 68% of children with pneumonia receiving early and appropriate therapy, defined as within 24-48 hours of symptom onset, as opposed to only 13% of children referred to health centers for evaluation (36). In rural Uganda, a cluster-randomized trial that compared malaria case management only versus integrated community case management of malaria and pneumonia at the community level demonstrated that children in areas where case management was integrated were significantly more likely to receive prompt and appropriate antibiotics for pneumonia compared to children in areas where only malaria CCM was offered (18). Notably, this study also found that children in iCCM areas were less likely to have persistent fever on day four than in the malaria-only management areas (18). A recent scoping review of 29 selected iCCM programs found that large, multi-faceted iCCM programs with strong components of training, supervision, and including additional support for equipment and supplies, seemed to improve selected quality of care outcomes (21)

Limited data exists about the cost effectiveness of iCCM. An economic analysis of a study in Ghana found that the cost per DALY averted was US\$90.25 in ACT-alone clusters and US\$114.21 in ACT plus amoxicillin clusters (41). A cost-effectiveness analysis of malaria case management using RDTs and artemether-lumefantrine in Zambia revealed that home-based management was more cost effective than facility-based management (US\$4.22 per case at the home versus US\$6.12 at the facility) (42). A cost analysis from Pakistan that focused on household costs of illness found that home management of chest indrawing pneumonia by CHWs was associated with a substantially lower cost to the household than for children who were referred for treatment (43). A recent multi-country analysis of iCCM program costs found total recurrent cost per treatment to range between US\$1.70 and US\$17.54, and concluded that, to be cost-effective and affordable, iCCM programs must be well-utilized while program management and supervision should be organized to minimize costs and ensure quality of care (44). A recent external evaluation of iCCM programs in six countries of sub-Saharan Africa found that careseeking to CHWs for diarrhea, malaria, and suspected pneumonia ranged from 3% to 16% but iCCM's share of total public health expenditure ranged from 1% to 3% (or 1% to 6% of government's own health expenditure), suggesting a favorable cost to outcome ratio (45).

Conclusion

Programmatic experience clearly shows that iCCM can increase the coverage of high quality treatment services for diarrhea, malaria, and pneumonia. There is evidence that iCCM increases correct treatment coverage of malaria control programmes in tandem with other programmes and strengthens health systems – including ensuring more effective use of resources (financial as well as pharmaceutical (e.g. anti-malarials, etc), thus providing a strong argument for establishing iCCM as a key catalytic public health strategy for increasing service coverage.

Sustainable iCCM implementation is not a stand-alone activity but fits within the existing health system. It needs to be country led and owned with high-level political commitment and broad-based community support. The success of an iCCM program is determined in part by a broader multi-sectoral, in-country process that links immediate needs (through iCCM) and long-term health vision (46). And strong links between the community and the health system are critical for successful iCCM - its implementation therefore needs to be rationalized within existing activities aimed at improving health at both community and facility level.

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