Health Policy and Planning, 30, 2015, ii3–ii11
doi: 10.1093/heapol/czv096
Supplement article

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iCCM policy analysis: strategic contributions to understanding its character, design and scale up in sub-Saharan Africa

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Abstract

Pneumonia, diarrhoea and malaria remain leading causes of death for children under 5 years of age and access to effective and appropriate treatment for sick children is extremely low where it is needed most. Integrated community case management (iCCM) enables community health workers to provide basic lifesaving treatment for sick children living in remote communities for these diseases. While many governments in sub-Saharan Africa recently changed policies to support iCCM, large variations in implementation remain. As a result, the collaboration represented in this supplement examined the policy processes underpinning iCCM through qualitative case study research in six purposively identified countries (Niger, Burkina Faso, Mali, Kenya, Malawi and Mozambique) and the global context. We introduce the supplement, by reviewing how policy analysis can inform: (a) how we frame iCCM and negotiate its boundaries, (b) how we tailor iCCM for national health systems and (c) how we foster accountability and learning for iCCM. In terms of framing, iCCM boundaries reflect how an array of actors use evidence to prioritize particular aspects of child mortality (lack of access to treatment), and how this underpins the ability to reach consensus and legitimate specific policy enterprises. When promoted at national level, contextual health system factors, such as the profile of CHWs and the history of primary health care, cannot be ignored. Adaptation to these contextual realities may lead to unintended consequences not forseen by technical or managerial expertize alone. Further scaling up of iCCM requires understanding of the political accountabilities involved, how ownership can be fostered and learning for improved policies and programs sustained. Collectively these articles demonstrate that iCCM, although often compartmentalized as a technical intervention, also reflects the larger and messier real world of health politics, policy and practice, for which policy analysis is vital, as an integral component of public health programming.

Key words: Child health, community case management, policy analysis, policy process

Key Messages

- Social science informed policy analyses seeks to understand the critical processes that support decision making within health systems, and how policy is translated into implementation—or not.
- Policy analysis helps us understand that iCCM and the lack of iCCM policy and implementation are not purely technical or operational concerns.
- Policy analysis allows us to better understand how the nature of the intervention itself, along with the inclusion or exclusion of different actors and use of current evidence, reflect negotiations and compromises that are dynamic, reverberating across health systems with both intended effects and unintended consequences.
- Much of the policy resistance to scaling up iCCM is not an aversion to what the intervention promises, but an acknowledgement that the health system effects of iCCM are broad ranging, requiring strategic analysis and resourceful management; skill sets that are under-represented in resource constrained health systems.
- As the evidence base underpinning iCCM is evolving and at times contested, an inclusive deliberative consensus-building process with active facilitation of stakeholders that fosters learning and broadens accountability is required, as definitive solutions or closure is elusive.

iCCM background and rationale for policy analysis

While the number of under 5 child deaths has declined by almost half since 1990, 6.3 million children under the age of five died in 2013, mostly in the poorest regions of the world (UNICEF 2014a). Pneumonia, diarrhoea and malaria remain leading causes of death for children under 5 years of age and access to effective and appropriate treatment for sick children is extremely low where it is needed most. In sub-Saharan Africa, only 31% of children with diarrhoea receive oral rehydration salts; 37% of children with fever receive any antimalarial and 39% of children with symptoms of pneumonia receive an antibiotic (UNICEF 2014b).

Starting in 2004, through a series of joint statements, WHO and UNICEF endorsed integrated community case management (iCCM) (WHO and UNICEF 2004a, b; 2012). iCCM for childhood illnesses involves treatment of (a) pneumonia with oral antibiotics, (b) diarrhoea with zinc and low osmolarity oral rehydration salts (ORS), (c) malaria with artemisinin combination therapy (ACT) and other antimalarials. Building on previous child survival initiatives, iCCM raises the role of community or lay health workers (CHWs) in primary care and supports them in delivering basic curative care at household and/or community levels. By doing so, iCCM intends to improve access to lifesaving treatment for sick children living in remote communities and resource-constrained health systems, address large inequities in coverage of essential child health interventions and galvanize efforts to decrease child mortality.

In 2008, a key barrier in increasing the scale of iCCM was the lack of supportive policies at national level in sub-Saharan Africa (Marsh *et al.* 2008). Since then progress has been made (George *et al.* 2012). Most recently in 2013, out of 44 sub-Saharan African countries, 36 had written policies, memos or national guidelines supportive of treatment of diarrhoea by community health workers; 35 had similar policy documents for malaria and 31 had corresponding policy documents for pneumonia (Rasanathan *et al.* 2014a). Nonetheless, large variations in scale and depth of implementation remain (Marsh *et al.* 2008, George *et al.* 2012; Rasanathan *et al.* 2014a).

Moving beyond counting whether government documents endorse iCCM or report implementing iCCM, more in depth qualitative research highlights factors to consider when comparing iCCM policy across contexts. The range of policy documents in which iCCM is legitimated is broad, spanning high level strategic plans to operational training manuals. While these documents are essential, they do not by themselves ensure that governments scale up iCCM. Actual policy traction for iCCM has relied on national concern with meeting Millennium Development Goal targets combined with a recognition of previous failings of child survival programs; country ownership and alignment with national health systems including the varied nature of CHWs and the historical precedence of primary health care; and the role of technocrats and donors in brokering evidence and supporting funding (Bennett *et al.* 2014). Considerable negotiation and political skill is required to spark interest and foster buy-in from multiple levels of government and development partners for iCCM through processes that are not always certain (George *et al.* 2010). In depth applied and problem-based policy analyses aims to understand these critical processes and factors that support decision making within health systems, and how policy is translated into implementation—or not.

Unlike mainstream policy analysis, which in the USA is concerned with method-driven universal truths, problem-driven, contextualized policy analysis applies itself to addressing real world challenges (Schram *et al.* 2013). While still in its infancy in LMIC contexts (Gilson and Raphaely 2008), policy analysis frameworks consider the influence of context, the characteristics of the policy itself, and the influence of interests (groups and individuals who stand to gain or lose from change), ideas (including arguments and evidence) and institutions (the structures and rules which shape how decisions are made) (Gilson *et al.* 2008). It sheds light on the social processes that frame problems and solutions, the actors involved or excluded, the social contexts in which it is embedded, including what values and interests are highlighted or suppressed—and how these factors interact with the practical and logistical challenges of implementation. At its heart, policy analysis enables us to have a deeper understanding of a phenomenon and how power shapes it and with what effects/consequences.

The iCCM policy analysis collaboration

With an appreciation of how policy analysis can illuminate a fuller understanding of the factors that underpin the development of interventions and that facilitate or inhibit their adoption and scale up, USAID's Translating Research into Action Project and UNICEF commissioned an independent research team to undertake comparative qualitative iCCM policy analyses. The team purposively

identified six countries - Niger, Burkina Faso, Mali, Kenya, Malawi and Mozambique—to reflect diverse regions of sub-Saharan Africa (east, west, southern), different types of CHWs (paid/unpaid and with varying lengths of training) and different phases of the iCCM policy cycle (from no policy in place, to fully developed and implemented) (Bennett *et al.* 2014). In addition, research was undertaken at the global level to complement country analyses through an exploration of how global iCCM policy was developed and disseminated.

Investigators started with the foundation of the 'policy triangle' (Walt and Gilson 1994) to guide research on iCCM policy. This framework moves from a technocratic focus on policy content alone to a social analysis of the interactions between policy content, processes, context and actors. To further understand iCCM policy dynamics, we adopted a case study approach (Yin 2009) and drew from document reviews and in-depth interviews. Research teams were comprised of faculty at Johns Hopkins University, five research teams with country-based investigators at national universities or local research organizations, and two doctoral candidates. The teams were funded for 1 year, with one meeting in Kenya and another in Senegal, to collectively plan research, review conceptual frameworks, develop interview guides, reflect on analysis and finalize reports.

Apart from generating an overarching synthesis oriented to program managers and technical policy makers (Bennett *et al.* 2014), the collaboration extended to explore how iCCM could shed insights for the role of policy analysis in LMIC more broadly. The latter is the aim of this supplement with five articles generating analysis from specific country contexts; two others drawing from across country contexts to review evidence use and policy diffusion and a final article exploring the global dimensions of iCCM policymaking. Our analysis contributes to literature that examines how policy processes for a single phenomenon evolved across different national contexts (Shiffman 2007; Woelk *et al.* 2009; Cliff *et al.* 2010; Burchett *et al.* 2012; Smith *et al.* 2014). It also extends understanding of how policy processes permeate and interact across subnational, national and global levels, extending previous work (Lush *et al.* 2003, Ogden *et al.* 2003, Schneider *et al.* 2006). Our work also demonstrates how multi-country case studies with uniform goals and methodology can use a range of policy theories to examine nuances in policy processes and diverse drivers of change across different settings.

iCCM policy analysis insights

In this introduction, we draw from the research collaboration and our own experience in iCCM to introduce the supplement articles. More than an aggregate summary of key findings, our synthesis draws from social science insights into wicked problems (Rittel and Webber 1973), to highlight how policy analysis helps us to understand: (a) how we frame iCCM and negotiate its boundaries, (b) how we tailor iCCM for national health systems and (c) how we foster accountability and learning for iCCM.

How we frame iCCM and negotiate its boundaries

Policy analysis can promote understanding of the underlying complexity of policy problems and solutions, despite attempts to frame them decisively, and reveal how these tensions can affect implementation. In this section, we revisit the origins of iCCM by examining the evidence that prioritized specific child survival problems, explore how this underpinned iCCM as a solution and the consequences of such framing for the issues and actors involved.

iCCM has a hybrid heritage, as multiple factors and communities coalesced to birth it as a policy enterprise over various phases of collaboration. A key formative factor was the multi-country evaluations that highlighted shortcomings of earlier key child survival initiatives. These evaluations and subsequent evidence highlighted the potential (modelled) role of improving access to treatment for non-severe forms of diarrhoea, malaria and pneumonia as having the most impact on child mortality at community level (Dalglish *et al.* 2015a). This dovetailed with national survey data highlighting the persistence of child mortality in remote areas and lack of access to care (Rodriguez *et al.* 2015a, b, Chilundo *et al.* 2015).

As iCCM was framed primarily as an issue of access to treatment through CHWs, other critical health systems challenges that also underpin child mortality were sometimes neglected, even though they had stymied earlier child survival efforts, such as facility based Integrated Management of Childhood Illness (IMCI). IMCI improved health worker skills and quality of care, yet the projected impact on mortality did not materialize due to inadequate scale of implementation, lack of household recognition of symptoms and low prioritization of care seeking, and in some instances competing private sector services (WHO *et al.* 2003; Arifeen *et al.* 2009; Chopra *et al.* 2012). Although iCCM was presented as way to address shortcomings of IMCI, similar challenges affect iCCM roll out. Questions about how to engage, supervise and supply CHWs, and how to address low utilization of iCCM services, remain critical implementation concerns for iCCM (George *et al.* 2011; Wazny *et al.* 2014; Yansaneh *et al.* 2014; Miller *et al.* 2014).

Concurrently, there is growing recognition that other aspects of child survival remain critical to address. Newborn conditions and malnutrition contribute significantly as causes of death for children under 5 years of age (UNICEF 2014a). In addition, there are important health promotion and preventive strategies, such as exclusive breastfeeding, handwashing with soap, sanitation and environmental cleanliness, which are essential to combat the three illnesses iCCM focuses on. Following this understanding, in Malawi, child survival was seen as requiring multisectoral efforts and the roll out of iCCM entailed extensive consultation with Ministries of Agriculture, Water and Education (Rodriguez *et al.* 2015a). In contrast to the Malawian example that sought to infuse iCCM policy with multisectoral inputs, global policymakers have sometimes sought to focus iCCM as an approach within the health sector, delinking it from diffuse notions of broader community health efforts previously espoused by Community-IMCI (C-IMCI). Considering the transaction costs of crossing the organizational boundaries that mark public health areas between and within global agencies (Shiffman 2010), this de-linking streamlined iCCM policy making (Dalglish *et al.* 2015a).

Moving from technical foci and organizational actors to local levels, iCCM policy framing has also sometimes suffered from a lack of participation from communities and CHWs themselves. In Mozambique, community members were appreciative of the revitalized *Agentes Polivalentes Elementares* (APE), particularly their curative roles, and were involved in steps regarding identifying and selecting APEs, but largely not consulted during policy formulation. District officials continued to build health posts, inadvertently undermining the community embeddedness of APEs, largely due to their lack of involvement in the policy design (Chilundo *et al.* 2015). In contrast, in Malawi, there was more targeted inclusion of community and district level perspectives during the policy process

(Rodriguez *et al.* 2015a). In Niger, the *Agent de Santé Communautaire* (ASCs) due to their unionized status were represented in policy meetings, but rarely had the self-assurance to contribute to them (Dalglish *et al.* 2015b). Yet in other contexts, policy processes have been aided by CHW mobilization and mediated by implementing actors (Mason *et al.* 2011; Lehmann and Gilson 2013). At a minimum, understanding the perspectives of CHWs themselves may reveal the contradictions of their roles more powerfully, highlighting areas of policy reform that are critical, yet often neglected (Daniels *et al.* 2012; Nanyongo *et al.* 2012; Puett *et al.* 2013; Maes *et al.* 2014). Furthermore considering the support for iCCM by communities (Buchner *et al.* 2014), their lack of political mobilization around iCCM may represent a missed opportunity for securing broader political commitments to iCCM.

All country case studies also documented that Ministries of Finance were not involved in iCCM policy design. Although the financial implications of iCCM fuelled policy maker resistance at national level in Kenya (Juma *et al.* 2015) and hesitancy at decentralized levels in Mali, scaling up of iCCM was significantly aided in Niger and Malawi by the channelling of Highly Indebted and Poor Countries (HIPC) debt relief and Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) funding aimed at strengthening community level delivery systems (Dalglish *et al.* 2015b; Rodriguez *et al.* 2015a). While global level actors initially pursued policy legitimation by seeking to demonstrate iCCM effectiveness, policy concerns regarding its financial viability loomed large at country level. If national financial actors were involved in the framing of iCCM then this may have led to different policy formulations being pursued.

Even if the current set of actors involved in framing iCCM remain the same, there could be alternative iCCM models that have yet to become visible or that are being currently developed. iCCM design and implementation may change in response to diverse health system and social developments such as, the emergence of viruses such as Ebola; the underlying prevalence of malaria; the implementation of performance-based financing and other strategies aiming to improve service quality; innovations in information technology and new diagnostics; coordination across sectors such as transport, communications and water; evolution in the boundaries between markets and government responsibilities in health; as well as transformations in gender relations and social accountability. For example, the WHO training guidelines for iCCM had to be updated due to the advent of rapid diagnostic tests (RDTs) for malaria. This was not just a minor technical adjustment, as it paved the way for a broader reassessment of the practice of presumptively treating all fevers in sub-Saharan Africa as malarious. Furthermore, it enabled a reconsideration of the cost of wrongly treating children with ACT and brokered a strategic partnership facilitating the integration of malaria within iCCM with ensuing financial support from GFATM (Dalglish *et al.* 2015a).

When considering the existence or lack of existence of iCCM policy and implementation, policy analysis helps us understand that these are not purely technical or operational concerns. iCCM itself is socially constructed, with its boundaries negotiated by how an array of actors use evidence to prioritize particular aspects of child mortality, and how this in turn affects the ability to reach consensus and legitimate specific policy enterprises. These policy processes interact dynamically within broader contexts that also fluctuate. Understanding this spectrum of evidence, actors and broader contextual developments is essential in crafting the nature of iCCM policy and supporting its effective implementation at scale. Readers interested in further findings about the framing of iCCM are directed to Dalglish *et al.* (2015a) who examine more closely the formation of epistemic communities in support of global iCCM policy making, as well as Rodriguez *et al.* (2015b) who examine the types and uses of evidence used in support of iCCM policy making across country case studies.

How we tailor iCCM policy for national health systems

In this section, we consider how iCCM policy adapted to different country contexts. Policy negotiations continue as iCCM policy is implemented at country level, and as national contexts evolve they trigger change and feedback loops, including at times engendering policy resistance.

Global actors mainly describe and promote a standardized label or brand of iCCM, distinct from former child survival programs[1] However, policy analysis at the national level revealed that when community treatment of these common childhood illnesses was approved, it rarely adopted the iCCM nomenclature. Rather, many national actors referred to the C-IMCI programs they had initiated under previous child survival regimes and adapted these programs to include iCCM components. In addition, as iCCM is integrated into primary services at the community level in diverse country contexts, there are variations influencing the range of interventions offered and how they are made available (Table 1). Adaptations to iCCM policy concern not just the technical specifications and selection of interventions, but also the current nature of CHWs and the history of primary health care in each country. With regards to CHWs, in Burkina Faso, policymakers are grappling with how to expand iCCM through existing community volunteers (Shearer 2015). In contrast, a key turning point in Mozambique and Mali was the decision to create or upgrade a CHW cadre that would be paid for iCCM and other community services (Bennett *et al.* 2014; Chilundo *et al.* 2015). In Niger and Malawi, governments chose to build on existing platforms of paid CHWs, rather than on community volunteers that also existed in these countries. As alluded to earlier, only in Niger are the paid CHWs unionized, yet they are not part of the civil service, and are not the only cadre working at the *cases de santé,* which is responsible for service delivery at the community level. Due to lack of employment opportunities in the country, nurses also work in the *case de santé* and more recent policy reforms empower them rather than the paid CHWs to carry out newborn treatment (Dalglish *et al.* 2015b). In Kenya, the availability of unemployed nurses also drew into question whether community level service delivery should rely on CHWs at all (Juma *et al.* 2015). Finally, Malawi is the only country where CHWs are part of the civil service.

In summary, CHWs are extremely varied in nature, in terms of level of education, training, payment and the degree to which they are formally integrated into national health systems. Yet they all form the base for provision of health services in communities, supporting a range of health activities including and beyond iCCM (Table 2). Strategic decisions that establish whether they are a temporary, 'stop-gap' solution or long term investment in health systems are critical. Similarly, the balance between preventive/promotive and curative tasks, how the gender balance relates to their responsibilities, and whether they are community vs. health care service owned are fundamental to defining their role. Once a new cadre of CHWs is established, or professionalized, who takes responsibility for it? These health system implications weigh on the minds of policy makers and have significant implications for the implementation of iCCM.

Table 1. Content of ICCM policy across country case studies in 2012

Country case studies	Burkina Faso	Mali	Niger	Kenya	Malawi	Mozambique
Policy supporting provision for children at community level of . . .						
Treatment of uncomplicated diarrhoea with low osmolarity ORS and zinc	✓	✓	✓	✓	✓	✓
Treatment of uncomplicated malaria with ACTs	✓	✓ With RDTs	✓	✓ With RDTs	✓ With RDTs	✓ With RDTs
Treatment of uncomplicated pneumonia with antibiotics	✓ Cotrimoxazole	✓ Amoxicillin	✓ Cotrimoxazole		✓ Cotrimoxazole	✓ Amoxicillin
Home visits for newborns in the first week of life	✓	✓	✓	✓	✓	✓
Any treatment of newborn sepsis with antibiotics			✓ Ampicillin		✓ Amoxicillin	
Other services for child health at community level						
Provision of paracetemol	✓	✓	✓	✓	✓	✓
Provision of vitamin A	✓	✓	✓		✓	
Provision of immunization			✓		✓	
Pre-referral dose of artesunate suppository for severe malaria						✓
Treatment of red eye			✓		✓	✓
Treatment of severe and acute malnutrition						

Table 2. Profile of CHWs who deliver ICCM in 2012

CHW profile	Burkina Faso	Mali	Niger	Kenya	Malawi	Mozambique
Title	Agent de santé communautaire	Agent de santé communautaire	Agent de santé communautaire	Community health workers	Health surveillance assistants	Agente polivalente elementar
Existing prior to iCCM?	Yes, but re-engaged	No	Yes	Yes, but upgraded	Yes	Yes, but upgraded
Remit is more than child health	Yes	Yes	Yes	Yes	Yes	Yes
Education required	Primary when available	Middle school	Middle school	Can read and write	Middle school	Minimal literacy and arithmetic
Gender	One male and one female (male CHW more likely to work on iCCM)	Mostly male	Mostly male	Mostly female	Mostly male	Mostly male. although policy intended them to be mostly female
CCM training	1 week	15 days	1 week	1 week	1 week	4 weeks
General training	Unknown	Health aide diploma	6 months	2–6 weeks	3 months basic, more added due to specific programs	14 weeks
Salary	Volunteer but keeps 25% of some drug revenues	US$67–89 monthly for full-time	US$100 monthly for full-time	US$24 monthly if available part-time	US$100 monthly for full-time	US$43 monthly part-time
Based in	Community	Community	Health post	Community	Village Health Clinics	Community
Population Coverage	Two CHWs per village	1500 pop within a radius of 3 km	One health post per 5000 pop	250 households < 500 households but in the arid north eastern and upper eastern provinces will cover 50 households	500 households < 1000 households	500–2000 inhabitants
Reporting to	Health centre	Local health committee	Health centre	Health centre	Health centre	Health centre
Part of civil service	No	No	No	No	Yes	No

Implementing iCCM policy at country level, also entails engaging with other health system issues, whether strategic (drug regulations, civil service rules, community embeddedness, long-term financial sustainability) or operational (supply chain and logistics systems; supervision, referral and quality of care; monitoring and evaluation). Policy analysis reveals that these decisions are not purely technical, managerial or operational in nature, but also socially, economically and politically mediated, as they change incentives and set precedents in health systems, with affected stakeholders responding in unexpected ways. For example, in Mozambique, to avoid repeating the failures encountered with the previous volunteer APE program, the reforms involving iCCM introduced a monthly stipend for APEs. Despite guidelines giving preference to females, more males were selected by community members to be APEs, as gendered community norms deemed men as being more in need of remunerated employment than women (Chilundo *et al.* 2015).

Despite the extensive changes in health systems that iCCM implies, current funding is primarily reliant on external multilateral and bilateral donors (Rasanathan *et al.* 2014a). How this funding is managed by Ministries of Health, and whether it is integrated into routine financing of primary care, varied across the country case studies. For instance, policy makers in Malawi are concerned that integration of iCCM funding into the Sector-Wide Approach (SWAP) would endanger the prioritization of iCCM funds (Rodriguez *et al.* 2015a). Nigerien policy makers kept budgets for reproductive and child health separate due to similar concerns (Dalglish *et al.* 2015b). Nonetheless, managing separate financing channels specific to each donor or implementing partner has transactions costs. In Mozambique, while dependence on development assistance enabled policy implementation, the fragmented nature of donor assistance skewed scale up and required significant coordination (Chilundo *et al.* 2015).

A key lesson regarding how iCCM policy is tailored to national health systems is the recognition that contextual health system factors, such as the profile of CHWs and the history of primary health care, cannot be ignored during policy design and implementation. Further, adaptation to these contextual realities may lead to unintended consequences not foreseen by technical or managerial expertize alone. Much of the policy resistance to scaling up iCCM is not an aversion to what the intervention promises, but an acknowledgement that the health system effects of iCCM are broad ranging, requiring strategic analysis and resourceful management; skill sets that are under-represented in resource constrained health systems. Articles in this issue expand further on how iCCM policy has adapted to national contexts. Rodriguez *et al.* 2015a address how innovation and institutional characteristics of iCCM interacted with implementation contexts in Malawi and Chilundo *et al.* 2015 examine the sustainability of the revitalization of the APE cadre in Mozambique that is intertwined with iCCM policy.

How we foster accountability and sustain learning for iCCM

Policy analysis is required to understand iCCM, not only because the health system implications of iCCM are wide-ranging, affecting varied stakeholders in unpredictable and dynamic ways, but these implications also bear potentially political consequences and challenges for achieving scale and sustainability. Ultimately, iCCM is meant to save sick children from untimely deaths that should be rare rather than routine. However if implemented in ways that inhibit its effectiveness, investment in iCCM might be better spent on other child survival strategies and interventions. Policy analysis helps us to examine what are the political accountabilities involved, how ownership can be fostered and learning for improved policies and programs sustained.

A striking finding across all the country case studies was the 'depoliticized' nature of iCCM policy making. Generally, iCCM policy remained in the realm of mid-level actors in Ministries of Health and technical experts in development partners. A key exception in this supplement is Niger, where a former president was instrumental in developing the foundations of community health services (Dalglish *et al.* 2015b). Similarly, in Rwanda and Ethiopia, significant political leadership from heads of state and Ministers of Health supported CHWs as national flagship programs, establishing platforms for subsequent iCCM roll-out. Whether constrained to Ministry of Health and development partners' technical officers or elevated to key leaders, a remaining question is whether actors involved in iCCM own iCCM policy and are held accountable for its development, financing and implementation.

Across all study countries, international actors, whether bilateral development partners or UN agencies, acted as powerful brokers, although their influence and role varied across national contexts. One reason for this is the predominant reliance on external funding for iCCM. The offer of external financing is a powerful driver behind decision-making, as for instance in the introduction and scaling up of new vaccines, which can obscure concern about long-term financial sustainability (Burchett *et al.*2012). For iCCM, the availability of external funding was a significant form of power sustaining scale up in Niger, after the foundation of health posts were laid and user fees removed (Dalglish *et al.* 2015b). Yet in Burkina Faso, the availability of funding and support from international actors alone did not trigger policy change, without the facilitation of key policy entrepreneurs who could afford the risk of working against accepted policy positions and had the autonomy to do so (Shearer 2015). In Kenya, the government has made no commitment to paying CHWs or scaling up iCCM. Donors have tried to encourage policy change, but have also shied away from providing the significant additional funding that would be necessary (Juma *et al.* 2015). While donor funding did significantly underwrite iCCM scale up in Malawi, it is not clear that it facilitated policy change, or whether the policy plans to scale up iCCM prompted further funding (Rodriguez *et al.* 2015a). Overall negotiations regarding financing of iCCM policy are subtle, reflecting bargaining power on both sides, as international actors recognize the dangers of stressing aid conditionality, particularly when also concerned about long term sustainability and ownership (Bennett *et al.* 2015), and national actors are often not keen to mobilize domestic financing or identify budget lines when donor financing seems readily available.

Another powerful role played by UN agencies is their brokering of evidence and deployment of normative power (Bennett *et al.* 2015). In comparison, technical officers in Ministries of Health at country level were less able to access evidence on their own. In Niger, their limited ability to access such evidence weakened their influence and power (Dalglish *et al.* 2015b). In contrast, Malawians were quite adept at positioning themselves to benefit from ongoing international guideline development and evaluation efforts (Rodriguez *et al.* 2015a). Overall, UN agencies have needed to reconcile being trusted brokers at national level, advocates for specific policies, recipients of donor funding and mediators of donor interests (Bennett *et al.* 2015).

As discussed earlier, evidence is itself not neutral, and different types of evidence were used to support different aspects of iCCM policy making. Policy makers valued a range of evidence for iCCM, particularly local evidence, but evidence alone did not dictate their

acceptance of iCCM (Rodriguez *et al.* 2015b). Moreover, despite considerable advances in acceptance of iCCM as a strategy, there are differing interpretations of the evidence supporting iCCM and its health system implications (Druetz *et al.* 2013a,b; Hamer *et al.* 2013; Amouzou *et al.* 2014). Numerous operational questions remain, not to mention questions regarding its implementation outcomes at scale and health system effects. In Kenya, resistance to iCCM is at least in part due to quite deeply embedded concerns about the model and the appropriateness of evidence from elsewhere given the context of human resources for health in Kenya (Juma *et al.* 2015).

Fostering a learning environment that explores the complexity of iCCM implementation and engages and conveys findings to a broad range of stakeholders may help strengthen accountability and broaden engagement in iCCM policy. As the evidence base underpinning iCCM is evolving and at times contested, interpretation is not just a technical matter but also a political skill. An inclusive deliberative consensus-building process with active facilitation of stakeholders is required, as definitive solutions or closure is elusive (Rittel and Webber 1973). Bennett *et al.* (2015) argue that policy transfer was facilitated from global to national levels through learning, coercion and socialization, while Rodriguez *et al.* (2015b) examine how global and national actors used evidence for iCCM policy. Understanding the accountabilities that foreground deliberations and decision-making also entails examining the financial relationships that underpin them. Further analysis of the political dynamics and reasoning underpinning policy scepticism of iCCM can be found in the Kenya article (Juma *et al.* 2015), the nature of political, financial and technical power expressed during iCCM policy making is examined in Niger (Dalglish *et al.* 2015b) and the convergence of policy entrepreneurs with key structural factors facilitating iCCM policy change is reviewed in Burkina Faso (Shearer 2015).

iCCM policy analysis limitations and future directions

The collaboration and analysis represented in this supplement is one step towards broadening the types of social science theories applied to iCCM, and health policy and systems research more broadly. Methodologically the articles drew mainly from the field of policy studies and were restricted to qualitative interviews at capital cities where the bulk of policy development took place, within relatively short study time frames. Information on financial commitments to iCCM was particularly elusive, limiting a full understanding of the economics of iCCM and its underlying political drivers. Although, Shearer (2015) illuminates her analysis with social network analysis, alternative methodologies drawing more broadly from the social sciences, in terms of ethnography or participatory action research could also be explored in future. Further studies that aim to analyse district level processes, as well as capture perspectives from and potentially empower marginalized policy stakeholders, such as CHWs, communities and other subnational actors, require more sustained funding and capacity to undertake. Other disciplinary perspectives that foreground historical, sociological, anthropological, feminist or political economy analysis, may also yield additional insights or context for iCCM policy development and implementation, and require further multi-disciplinary engagement to undertake.

The analysis in this supplement was retrospective in nature. Not only was recall at times a problem, particularly when policy decisions or events had taken place several years prior to data collection, but institutional memory was sometimes problematic due to high turnover among key government positions. Stakeholders not only had contrasting subjectivities, recalling specific events distinctly, but the changing positionality of some respondents in and out of government also made ascribing findings to particular organizations challenging. For these reasons, our collaboration drew significant strength by being anchored by researchers based in or collaborating with national universities or local research organizations, enabling a longer term understanding of policy context and dynamics than the short duration of study funding would usually allow. The efforts invested in adapting study protocols to local contexts, jointly developing study instruments and code books, collaboratively reviewing analysis and co-drafting publications required significant capacity-building in some cases, but yielded rich learning for all. Longitudinal or prospective policy analysis would have contributed different insights, and would also require strong collaborative relationships, but are rarely funded.

The supplement articles examine a range of iCCM policy implementation contexts, from no implementation in Kenya, to initial implementation in Mali, Mozambique and Burkina Faso, to national scale up in Malawi and Niger. Future analysis may also want to examine policy processes in countries that are scaling up CHW models that explicitly exclude iCCM (such as Tanzania). Policy analysis findings may differ if considering conflict affected countries (such as DRC or south Sudan), health systems that are undergoing significant health reforms (such as the health insurance reforms in Ghana) or nations that have charismatic centralized leadership invested in development allied to implementation (such as Ethiopia or Rwanda). Similarly, as the supplement presents findings from sub-Saharan Africa, future policy analysis may want to examine how policy processes differ in Asian or Latin American contexts with different CHW cadres, primary care contexts and political histories.

Final reflections

Collectively these articles demonstrate that iCCM, although often compartmentalized as a technical intervention, is also a prism reflecting the larger and messier real world of health policy and practice in health systems. Policy analysis allows us to better understand how the nature of the intervention itself, along with the inclusion or exclusion of different actors and use of current evidence, reflect negotiations and compromises that are dynamic, reverberating across health systems with both intended effects and unintended consequences. Explicit consideration of the consequences of these insights for specific aspects of policy formulation and implementation would be productive with respect to iCCM, as well as for other health programs. Moreover, the continued neglect of policy analysis in policy design, implementation and evaluation contributes to inappropriate decisions, ineffective programs and inequitable consequences hindering our ability to reach widely endorsed global health goals.

Twenty-five years ago, evaluations of CHW programs (Berman *et al.* 1987; Gilson *et al.* 1989; Walt *et al.* 1989) found variable implementation and success due to 'unrealistic expectations, poor initial planning, problems of sustainability, and the difficulties of maintaining quality' (Gilson *et al.* 1989). iCCM policy making could certainly draw deeper from such historical lessons. Nonetheless, considering the dynamic ways in which countries have adapted iCCM, the diverse actors involved and the uncertainties that remain to be overcome, it is unrealistic to expect policy making to foresee all the eventualities encountered. What is therefore essential is an investment in mechanisms to support learning and the

courage to doubt or check assumptions through a deliberative process with the broad and disparate stakeholders involved in iCCM to ensure just outcomes. Policy analysis is one tool that can support that end, and is essential to realizing the opportunity for iCCM to help deliver the long-held vision of CHWs as effective, respected and core participants in national health systems and realize the potential of significant reductions in deaths of young children.

Ethics review

The study was reviewed and exempted by Johns Hopkins School of Public Health's Institutional Review Board.

Acknowledgements

The study team thank respondents in all study countries for the time and insights they contributed to this project, without which this study would not be possible. The authors thank all study team participants: Karen Akongo, Hastings Banda, Baltazar Chilundo, Julie Cliff, Brahima Diallo, Aissa Diarra, Sarah Dalglish, Abdoutan Harouna, Pamela Juma, Mamadou Kani Konate, Alda Mariano, Irene Namakhoma, Jessica Shearer and Kankou Soumbounou. The team acknowledges the support of the Technical Advisory Group, including Sam Adjei, Dave Nichols, Jim Sherry and Steve Wall. We also appreciate inputs from colleagues in UNICEF regional, country and headquarters offices, particularly Rory Nefdt, Mariame Sylla and Mark Young.

Funding

This study was funded by UNICEF (#43114640) and the USAID TRAction project (FY11-G06-6990). Both UNICEF and USAID staff advised the study team, but did not substantively affect the study design, instruments or interpretation of data. The views expressed in this article are those of the authors only and do not necessarily reflect the views or policies of UNICEF or USAID.

Conflict of interest statement. None declared.

Endnote

1 While many global documents endorsing iCCM do mark it as distinct from former child survival initiatives, a few operational guidelines do suggest iCCM as being the curative arm of C-IMCI (Core Group 2010).

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