What Did USAID's Child Survival and Health Grants Program Learn about Community Case Management and How Can It Learn More?

A Review of 22 Projects Since 2000

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The Maternal and Child Health Integrated Program (MCHIP) is the USAID Bureau for Global Health's flagship maternal, neonatal and child health (MNCH) program. MCHIP supports programming in maternal, newborn and child health, immunization, family planning, malaria and HIV/AIDS, and strongly encourages opportunities for integration. Cross-cutting technical areas include water, sanitation, hygiene, urban health and health systems strengthening.

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Acronyms

ACT	Artemisinin-combination therapy
AR	Annual report
ARI	Acute respiratory infection
BCC	Behavior change communication
CCM	Community case management
CFI	Child Fund International
CHS	Center for Human Services
CHW	Community health worker
C-IMCI	Community Integrated Management of Childhood Illness
CRS	Catholic Relief Services
CSHGP	Child Survival and Health Grants Program
CWI	Concern Worldwide
iCCM	Integrated community case management
DHS	Demographic and health survey
DIP	Detailed implementation plan
DRC	Democratic Republic of Congo
FE	Final evaluation
HEW	Health Extension Worker
HMIS	Health management information system
IMCI	Integrated Management of Childhood Illness
IRC	International Rescue Committee
LiST	Lives Saved Tool
M&E	Monitoring and evaluation
MC	Mercy Corps
MCDI	Medical Care Development International
MCHIP	Maternal and Child Health Integrated Program
MICS	Multiple indicator cluster survey
MOH	Ministry of Health
MTE	Mid-term evaluation
NGO	Nongovernmental organization
ORS	Oral rehydration solution
ORT	Oral rehydration therapy
OR	Operations research
SC	Save the Children
U5MR	Under-five mortality rate
UNICEF	United Nations Children's Fund
USAID	U.S. Agency for International Development
WR	World Relief
WV	World Vision
WHO	World Health Organization

Executive Summary

In 2012, the U.S. Agency for International Development, through its Child Survival and Health Grants Program (CSHGP), launched a systematic review of projects, including operations research components, to assess implementation and policy facilitators and barriers to community case management (CCM) of childhood illness. The objective was to assess the learning potential of projects, facilitate the scale-up of key findings, and ultimately improve the effectiveness, equity, and quality of child health services.

Methodology. The study was conducted in four parts: a desk review of CCM projects; a review of project monitoring indicators; benchmark mapping; and case studies. CSHGP projects since 2000 were selected for the review based on the extent to which they implemented CCM interventions for febrile illness. Projects that had at least a 35% level of effort for one or more CCM condition were shortlisted, not including projects focused solely on diarrheal disease. Of 152 projects screened, 10 completed and 12 ongoing projects fulfilled the selection criteria. The portfolio was then described by access, quality, demand, and environment, and project monitoring indicators were reviewed. Five projects were mapped using the CCM Benchmark framework, based on the World Health Organization (WHO) Health Systems Building Blocks and broken out into eight components: policy, costing, human resources, logistics, service delivery, social mobilization, supervision, and monitoring and evaluation. Three projects were used to develop detailed case studies.

Findings. The implementation context varied, and projects ranged widely in the size of the under-five population served. In total, the 22 projects reached 1.75 million children under-five. Projects were typically implemented in one or more districts. The 10 completed projects yielded 24 instances of change in population-based treatment coverage—and/or care-seeking in the case of pneumonia—for an indicator for the three conditions: pneumonia, malaria, and diarrhea. Three projects reported decreases in under-five mortality.

Access. In general, projects targeted underserved communities; strengthened referral pathways to facilities; and selected, trained, and deployed community health workers to increase and sustain access to services. All completed projects asserted that increasing access to curative services mitigated some of the inequity inherent in low geographical access.

Quality. The majority of completed projects documented the quality of case management, although methods, diseases, and specific indicators varied; case management for pneumonia and malaria was more commonly reported than for diarrhea. Caseload was reported in varying ways, and logistics systems were not routinely tracked.

Demand. Demand strategies for CCM were documented using multi-channeled, multi-targeted approaches and nested alongside messages promoting other high-impact interventions. Multiple projects reported care-seeking information, and two stratified by first and/or second source of care.

Enabling Environment. Several projects reported increases in community engagement through various strategies, such as: establishing village health committees, ensuring community-level monitoring, and increasing health knowledge. Completed projects documented substantive contributions to policy, with nearly half contributing at the national level.

Conclusions and Recommendations. Given the adverse mortality, ecologic profile, and the likely cause-structure of child mortality in project sites, CSHGP project settings are well-suited for CCM. Generalizing results requires caution because these impact areas are generally more

challenging than typical rural African settings. Nevertheless, it was found that CSHGP projects build CCM capacity by sharing, championing and supporting the global CCM research agenda. The portfolio could be further strengthened through the following recommendations:

- Share, champion and support the revision of the global CCM research agenda.
- Guide grantees' selection of, adaptation of, use of, and learning from globally vetted CCM indicators, especially those that can be applied through routine monitoring at the district level.
- Guide grantees' CCM demand strategy (including sensitization strategy), informed by emerging global technical guidance.
- Develop and test—collaboratively with grantees:
  - CCM project brief templates at important project cycle stages.
  - Data collection form for projects implementing CCM to optimize and standardize information yield on context, approaches, and results.
  - Periodic, longitudinal CCM benchmark mapping (with supporting evidence for NGO role) as countries plan for, introduce, and scale up CCM. Consider adapting the benchmark mapping methods for district or project level.
- Consider "document of the year" (or quarter) recognition to motivate grantees' documentation and to better capture post-project documentation.
- Convene a technical advisory group to specify and publish CCM best practices based on systematically accrued experience as a brief supplement to CCM Essentials.
- Clarify terminology regarding interventions and explore methods to estimate levels of effort devoted to delivering curative interventions at the community versus facility.

Implications for Policy, Delivery, and Practice. Informed by the review and emerging global experience, several best practices for CCM emerge. Areas for further exploration included:

- Financing and logistics are not receiving sufficient attention to maximize the strength of health systems and cost-recovery schemes within CCM could inform the equity versus efficiency debate surrounding user fees.
- Alternative financing mechanisms are being explored in different settings, such as insurance and health savings groups.
- Annual benchmark mapping would allow tracing common paths for countries as they introduce and scale up CCM, and allow for the identification of areas for strengthening the health system to maximize performance.

Background

COMMUNITY CASE MANAGEMENT (CCM)

A concise list of evidence-based, lifesaving interventions guides health policymakers, planners, and program implementers to decrease child mortality in low- and middle-income countries.[1,2] Adding to the list, through "discovery science," is challenging and exciting. Bringing existing interventions to families who need them, through "delivery science" or "implementation science" is at the same time more challenging, a bit less exciting, and probably more life-saving. The greatest gains to be made in intervention coverage across the continuum of care are for newly introduced interventions—as expected—and for existing *curative* interventions.[3] Similarly, country modeling exercises have repeatedly shown that the greatest reductions in under-five mortality are to be achieved by increasing the coverage of treatment interventions for childhood pneumonia, malaria, and diarrhea.[4]

However, millions live at the periphery of the health system—making it difficult to reach them with interventions. Integrated community case management (iCCM) is a strategy to train, support, and supply community health workers (CHWs) to provide antibiotics for pneumonia, oral rehydration solution (ORS) and zinc for diarrhea, and antimalarials where malaria is a public health problem for sick children of families lacking access to case management at health facilities.[5] A pro-equity strategy, CCM is not easy to implement. Health systems tend to be the most challenged in those high mortality settings where iCCM is most needed. Moreover, case management has many steps that must be performed sequentially and completely. Deviations can have bad outcomes for the sick child, the community (i.e., increased drug resistance), and the program. In addition, CHWs delivering iCCM must master ancillary skills, such as documentation and medicine box management, among others. The global health community needs guidance for implementing iCCM.

RESOURCES FOR CCM

Indeed, several aids for the CCM strategy have appeared in recent years, including: 1) program guides like *CCM Essentials*:[6] 2) a training package;[7] 3) tools;[8,9] 4) an evaluation framework;[10] 5) an operations research agenda;[11, 10] 6) indicators;[12,13] and 7) benchmarks.[14] In addition, the global CCM Task Force and Operations Research Group provide forums for partners to share experiences, coordinate in-country work, advocate, mobilize resources, and advance the state of the art.

CCM Essentials

CCM Essentials is a guide for program managers that was developed from emerging evidence and experience in the late 2000s. In response to feedback that the guide lacked examples of important tools, Save the Children (SC) developed a compendium of linked tools and indicators, currently in its third edition;[9] and the CCM Task Force launched a review of global tools, many of which are downloadable from CCMCentral, a website housed at U.S. Agency for International Development's (USAID's) Maternal and Child Health Integrated Program (MCHIP).[15] Meanwhile, the continued lack of evidence regarding best practices for training, supervising, supplying, and retaining CHWs led to the formation of an Operations Research Group that, in turn, codified an evaluation framework and an action research agenda.[10] The Task Force also further refined indicators and program benchmarks.[12] The 46 indicators are cross-linked to the results framework in *CCM Essentials* (which informed the evaluation framework) and the CCM benchmarks. The 68 benchmarks are proposed as essential factors among eight health system components across three program phases. The components are: coordination and policy setting; costing and financing; human resources; supply chain management; service delivery and referral; communication and social mobilization; supervision and performance quality assurance; monitoring and evaluation

(M&E); and health information systems. The program phases are: advocacy and planning, pilot testing and early implementation, and expansion and scale-up.

CHILD SURVIVAL AND HEALTH GRANTS PROGRAM (CSHGP)

The CSHGP portfolio of past, current, and future projects is a global program learning resource for USAID and the wider global health and development community, including grantees. To date, USAID has awarded 450 projects to nongovernmental organizations (NGOs) to save lives and build capacity for integrated maternal, newborn, and child health projects, with robust standardized M&E and common strategic programming principles. Program learning within CSHGP projects is possible because of the high standards required for documenting project strategies, plans, annual progress, and evaluations, including standard population-based indicators.

In 2012, the CSHGP conducted a portfolio review to characterize learning, identify gaps in knowledge, and contribute to global learning for CCM. This review sought to: 1) assess grantees' documentation of CCM program implementation, specifically elements that contribute to program success, gaps faced in achieving CCM targets, and lessons learned; and 2) make recommendations to CSHGP to improve documentation. Thus, the review aimed to contribute both now and in the future to the global learning agenda of the CCM Task Force.

Methods

Design. We conducted four sub-studies: 1) a desk review to "landscape" the portfolio of CCM projects; 2) an indicator review; 3) case studies; and 4) benchmark maps.

"LANDSCAPE" DESK REVIEW

Sample

We considered all 152 CSHGP projects that began on or after October 1, 2000, of which 123 had some level of effort for malaria, pneumonia, and/or diarrhea. We reviewed completed projects that: 1) had at least 35% total level of effort devoted to pneumonia case management, control of diarrheal disease, and/or malaria prevention and treatment (e.g., categories from CSHGP's interventions list from which grantees must select and apportion effort), excluding those that supported **only** control of diarrheal disease; 2) provided curative interventions (antimalarial for malaria, antibiotic for pneumonia, and/or ORS with or without zinc for diarrhea) delivered at the community level; and 3) had project documentation with CCM and contextual detail. We applied the same criteria to ongoing projects, except that there was no minimum requirement for level of intervention effort.

Measurements

We used recent global consensus documents on CCM frameworks,[10] benchmarks,[14] and indicators[12] to prioritize variables. Thus, we sought information on: 1) project identification (grantee, country, years, intervention level of effort); 2) national CCM strategy (e.g., age group and syndromes targeted, treatments, CHW characteristics, policy); 3) project context (e.g., mortality levels, population size, ecology, baseline coverage, non-CCM interventions supported); 4) project strategies and approaches to increase access to, quality of, demand for, or to enable the environment for services delivering CCM; and 5) results in terms of CCM-related access, quality, demand, environment, intervention use or coverage, mortality, and other.

Data Extraction

This desk review involved reviewing selected documents required of grantees and archived by the CSHGP. For closed projects, we mainly reviewed detailed implementation plans (DIPs) and final evaluations (FEs) supplemented with working papers and/or publications. For ongoing projects, we reviewed documents relevant to the particular stage: application, DIP, annual reports (ARs), mid-term evaluation (MTE), research protocols and the like. We used a 68-item pre-tested data extraction form (Table 1A). When we compared a junior researcher's findings to the "gold standard" of a senior researcher, disagreement was low in the two projects reviewed (disagreed and incorrect [0%; 0/136 items]; disagreed and also correct [4%; 6/136 items]), justifying a single reviewer thereafter.

We also conducted a small sub-study to specify messages used to mobilize demand for CCM services using a word search for "message" in electronic copies of FEs, DIPs, MTEs, and selected ARs and annexes.

Analysis

We divided 11 themes among the research team, with a single researcher tabulating extracted information quantitatively and qualitatively for a given theme, characterizing each item as yes (present), no (absent), not known or not clear. "Absent" meant the item was explicitly stated as not included, which was an unusual occurrence. "Not known" meant that the reviewer did not find the information. "Not clear" meant that the information was insufficiently detailed or confusing or contradictory. The researcher also qualitatively elaborated each item with examples. Then the research team met to generate provisional conclusions and recommendations.
We aimed to assess the quantity and quality of documentation, to characterize the breadth of practice, and to compare findings to emerging accepted practice. We stratified projects into three groups by stage of implementation: completed, ongoing post-MTE, and ongoing pre-MTE. We use the term "information yield" to refer to the proportion of projects with clear information for a variable or group of variables.

INDICATORS

Sample

We reviewed each project's M&E table (a USAID/CSHGP requirement for its DIP), examining the quantitative and/or qualitative measures of program performance relating to CCM.

Variables

We assessed indicators in terms of the number proposed to monitor each of the eight health system components[14] as well as their consistency with current globally recommended CCM indicators. We did not expect indicators to match global recommendations exactly because the plans pre-dated these recommendations–which, in fact, are still under review. Moreover, performance monitoring needs vary based on context. We accepted indicators that measured the same phenomena, even if the metrics were different.

Analysis

We calculated the "indicator yield" across projects (proportion of projects measuring a given indicator) and "indicator density" within projects (proportion of recommended indicators measured by a given project).

CASE STUDIES

Sample

We selected three CCM projects for case studies based on: 1) level of documentation and program learning and/or policy accomplishments (Ethiopia, Rwanda); or 2) unusual context, such as post-conflict setting (Sierra Leone).

Variables

For cases, we developed, tested, and applied a 46-item "fill-in-the-blanks" template (see last Annex)—analogous to a hospital discharge summary with recognizable sections and expected content. This template was structured to systematically and concisely (~1,000 words) capture highlights of the health context; project objectives; CCM context; strategies and approaches to improve access, quality, demand, and environment; CCM tools; and results, accomplishments, and lessons learned.

Output

We drafted provisional case studies from data extracted during the landscape review and then invited knowledgeable informants from the grantee organization to provide input.

Analysis

When the case studies were final, three researchers independently reviewed each, identified likely approaches (access, quality, demand, or enabling environment) that may have explained their success, and reached consensus through plenary discussion.

BENCHMARK MAPPING

Sample

We mapped five CCM projects: the above-mentioned three case study projects (Ethiopia, Rwanda, Sierra Leone), plus Malawi and Zambia. We surveyed in-country grantee representatives and an informant from the Ministry of Health (MOH), United Nations Children's Fund (UNICEF), or MCHIP for each country. We selected Malawi, a project from the most recent pre-MTE batch, to test the methodology because the grantee had been active in CCM at the national level with support from the Canadian International Development Agency.

Measurements

We developed a data collection form (Table 1B) to assess each of the original 68 benchmarks. We asked grantees to characterize each benchmark in terms of national achievement (no/partial/yes), project activities for the benchmark at the project or the national level (no/yes), and project activities that helped achieve the national benchmark (no/yes—with supporting evidence). We also asked informants to estimate the years of each of five phases: pilot-testing, advocacy, planning, introduction, and expansion (or scale-up). We assured informants that the five steps—especially the first three—were not necessarily in chronological order. We asked how long respondents required to complete the form.

Analysis

We scored responses for national achievement as 0 (no), 1 (partial), or 2 (yes). Occasionally, responses from NGO and non-NGO informants differed regarding national achievement. In such cases, we accepted the response of the national informant. We scored NGO role as 0 (no) or 2 (yes). In cases where the national informant denied the achievement of a national benchmark, we scored NGO contribution as 0—even if the NGO informant stated that the benchmark was partially achieved and that the NGO had, indeed, contributed to this partial achievement. Rarely, the national informant felt that the NGO had overstated its role, and the reviewers

adjusted the score down (from 2 to 0). We analyzed CCM benchmark achievements by health system component and country and NGO role in helping to achieve these, as well as by health system component and country. The findings are, therefore, conservative in that they may underestimate both national achievement and NGO role.

Output

We prepared "benchmark maps," charts and tables displaying the status of all CCM benchmarks including grantee role.

Results: "Landscape" Desk Review

SAMPLE

We identified 10 completed and 12 ongoing projects that fulfilled the CCM criteria (Tables 2A–B). The levels of effort to control pneumonia, diarrhea, and/or malaria were similar for both completed and ongoing projects (56.2% [range: 35–100%] vs. 53.4% [range: 30–75%]). The CSHGP portfolio has had one or more projects with CCM commencing during each year of the review (range: 1–4 projects beginning per year) (Figure 1). Indeed, CCM is more common in ongoing than in completed projects (# projects commencing per year: 2.4 vs. 1.7, respectively), consistent with the likelihood that grantees and/or the Program have prioritized the strategy.

The projects were distributed among 12 grantees: one each for seven grantees; two each for World Vision (WV), International Rescue Committee (IRC) and Child Fund International (CFI); four for Concern Worldwide (CWI); and five for SC. The projects were implemented in 18 countries, all but two (Afghanistan and Honduras) in sub-Saharan Africa. These four countries had two projects: Democratic Republic of Congo (DRC), Ethiopia, Sierra Leone, and Uganda.

As expected, all countries, with the exception of Honduras, had high under-five mortality (U5MR) as assessed by national or sub-national Demographic and Health Survey (DHS) or multiple indicator cluster surveys (MICS) near the beginning of the project (U5MR $\geq$139 in completed and $\geq$96 in ongoing projects and mean U5MR: 180 vs. 166 in completed vs. ongoing projects). Where data were available, the mortality in the project site was always worse than for the country overall at the start-up of the project. The ecology of the settings varied widely, but common qualifiers included: drought-prone, sparsely settled, inaccessible during rainy season, post-conflict, and/or food insecure; and the population was commonly described as nomadic, agro-pastoralist, and/or displaced.

Also, as expected for high mortality countries (again excluding Honduras), the proportion of mortality due to pneumonia, diarrhea, and malaria was high (56%; range: 45–66%). Countries with the lowest combined proportionate mortality were non-endemic for malaria (i.e., Afghanistan and Ethiopia).

Projects ranged widely in the size of the under-five population served, from 13,000 in Uganda to 318,438 in Rwanda. In total, the 22 projects reached 1.75 million children under-five with up to 8.6 million child-years of service, after accounting for the varying durations of each project. Projects—especially the complex CCM strategy—were not operational throughout the entire grant period so this figure is a theoretical ceiling.

Settlement pattern as reflected in population density, when available, explained some of the wide variation in population served. For example, the CWI/Rwanda project reached 318,438 children under-five at a density of 400 total population/square kilometer, and the PLAN/Cameroon project reached 212,000 (density: 235); whereas, the SC/Zambia project reached only 15,000 (density 10),

and the SC/Ethiopia-1 project reached only 13,000 (density 6). Population density measures—an important contextual factor for CCM—were only available for six of 22 projects.

Projects were implemented at scales consistent with government partners' administrative units, typically one or more districts (range: 1 sub-district in Uganda to 11 districts in Cameroon in those 14 settings with districts). Exceptions included slums in Freetown, Sierra Leone (CWI), and underserved or hard-to-reach areas within a large urban district, Blantyre, Malawi (SC).

NATIONAL CCM CONTEXT

We sought 10 variables regarding the national CCM program and policy context (Tables 3A–B). The information from completed projects was as complete as post-MTE ongoing projects (82% [82/100] vs. 80% [48/60]).

More than half of documents (14/22) specified the **years of the project's CCM** strategy. Many failed to specify the CCM targeted **age group**, either providing no information (2) or just mentioning "under fives." Since CCM rarely targets young infants 0–1.9 months of age, we assumed that "under fives" was *not* a precisely targeted age group. On the other hand, Ethiopia does include sick children 1 week–59 months of age, and Uganda targets children 0–6 days and 2–59 months of age—although in neither case is treatment given to the young infants. Seventeen projects had information about national **policy for CCM for pneumonia** at the time of the project, and most either approved or planned to approve (13) or wanted to test (1) it; three forbade it.

Most projects (19/22) specified the approach for **fast breathing/pneumonia**, usually cotrimoxazole (7), amoxicillin (4), an unspecified antibiotic (4), or a referral (4). Two countries, Honduras and Zambia, only authorized a single pre-referral antibiotic dose. Even more specified **treatment for diarrhea**: ORS and zinc (14) or ORS alone (7). All 20 projects in countries where malaria is a public health program specified **malaria treatment** as combination therapy (16), mono-therapy (2), "antimalarial" (2), or referral (1). One would have hoped for more than the drug class ("antibiotic" or "antimalarial"), but confirmation of curative interventions for pneumonia or malaria was useful. The iCCM strategies sometimes targeted **other conditions**, such as red eyes and measles (SC/Ethiopia-1), red eyes (SC/Malawi), malnutrition (Center for Human Services [CHS]/Benin), or young infant danger signs for referral (SC/Zambia).

Regarding CHWs, most projects with information (17/18) indicated that the CHW was an **official cadre**, the exception being SC/Ethiopia-1, which pilot-tested the strategy before the Health Extension Program and Worker existed. Most (20/22) projects had information on **salary**: all CHWs from completed projects (10/10) were non-salaried, but about a third (3/10) of CHWs in ongoing projects were salaried. Some non-salaried CHWs (6/17) received financial support, mostly from markup on medicines in francophone countries; another seven specified non-financial incentives. Two-thirds of projects (14/22) specified CHW **literacy**; most (12/14) CHWs were literate; two were mixed. Less than half (9/22) of projects specified CHW **sex**: male (5), mixed (3) and female (1), i.e., Ethiopia's Health Extension Worker (HEW).

Overall, grantees provided much useful context, but some important information was missing: CCM age group and medicine (as opposed to medicine class) and aspects of CHW selection criteria, such as literacy and sex.

ACCESS APPROACHES

Information for five access variables was more commonly retrievable from completed rather than from either post-MTE or pre-MTE, ongoing projects (74% [37/50] vs. 43% [13/30] or 53% [16/30]) (Tables 4A–B). **Mapping** is a basic public health approach. Two-thirds of projects

(14/22) mentioned mapping—either to select communities or to identify households within communities. One project mapped all of a district's health facility catchment areas to model access with or without CCM, using data from Malawi, Mali, and Zambia.[16] Many projects (15/22) documented approaches to strengthen **referral**, including guidelines, training, referral and counter-referral forms, cart ambulance, and link strengthening. One (SC/Ethiopia with the extreme low population density) observed that referral was just not feasible in many cases.

Two-thirds of projects (15/22) reported **CHW selection**, almost always (14/15) involving communities. **CHW deployment** was quantified in various ways, including: 1 CHW/50–75 households (PLAN/Cameroon), 1 HEW/1,000–3,000 total population (SC/Ethiopia-2), 1 Health Surveillance Assistant/1,313 total population (SC/Malawi), 1 health post/1,500 total population (WV/South Sudan), and 1 CHW/1,000 total population—half the national plan (SC/Zambia). Less than half of projects (9/22) documented **CHW retention** approaches. Approaches included cost-recovery in francophone Africa (CWI/Rwanda, PLAN/Cameroon, and CFI/Senegal) and a variety of non-monetary methods (e.g., recognition, training, social status, tools, bicycles, and help with their farms). Clearly, this reckoning is an under estimate, given that training and supervision (especially if supportive) are generally regarded as motivating.

While the level of retrievable detail varied, projects generally identified underserved communities; strengthened referral pathways to facilities; and selected, deployed, and attempted to retain CHWs to increase and sustain access to services.

QUALITY APPROACHES

We examined 17 variables for approaches to assure quality, most of which related to training (4), implementation (3), or supervision (8) (Tables 5A–B). Information was equally available from completed and from ongoing projects (51% [86/170] vs. 54% [111/204] whether pre- or post-MTE). Two-thirds of projects (16/22) specified **selection criteria** for CHWs, most commonly literacy, schooling or age ceilings (perhaps a proxy for literacy), and local residence. More than half of projects (13/22) provided information about **competency-based training**. Methods included pre- and post-tests of knowledge or, in one case, assessing case management skills. Two projects specified criteria for a "pass," 60% (SC/Ethiopia-1) and 40% (MTI/Uganda)—both rather low. Projects often specified (16/22) the **training package**, often the World Health Organization (WHO)-UNICEF "gold standard" training package, *Caring for the Sick Child in the Community,* especially in ongoing projects (7/9). Only about a third of all projects (7/22) specified the **proportion of training that was clinical**, **competency-based certification**, or **job aids** to sustain competencies. Examples of the latter included a video of illness signs (CWI/Rwanda) and a color-coded case management chart book (SC/Ethiopia-1), which was later replaced by an official register, the columns of which mirrored the steps in case management (SC/Ethiopia-2). Regarding tools used in implementation, about half of projects specified a case management **guideline** (10/22) or patient **register** (12/22); three-quarters (16/22) specified **monthly reports**. In general, projects trained CHWs to use paper-based tools. Additional tools used include: drug sale/supply forms, referral forms, mother and child (client) booklet, etc. Medical Care Development International (MCDI)/Madagascar made special note that their recording forms aligned to the Health Management Information System (HMIS).

Details of **competency-based supervisor training** were rare (4/22), and limited to ongoing projects. Most projects (19/22) affirmed **supervisor deployment**, but omitted important details like CHW/supervisor ratio. Nearly half of projects (9/22) mentioned **competency-based supervision**, most commonly by checking skills, providing updates, and mentoring with case scenarios. More than half of projects (13/22) yielded information regarding **supervision frequency** (actual vs. plan), for example 40% and 100% in SC/Ethiopia-2's two districts, >60% in CWI/Rwanda, and 92% in PLAN/Cameroon. We found information about **supervision content** in about half of projects (10/22). Common activities included reviewing report forms,

monthly reports or registers; interviewing CHWs, community members, or parents of a recently sick child; observing case management or ability to count respirations; conducting an inventory of medicines and supplies; providing advice; encouraging; training; and using a checklist. Two-thirds (15/22) specified a supervision **checklist**. Incentives and actual frequency of supervision varied by project. About half of projects (13/22) specified the **supervision locus**, always at the community and sometimes supplemented by group meetings at the health facility. About a third (8/22) specified the **supervision of supervisors**. An encouraging trend—although still low—is that post-MTE projects more commonly documented supervision of supervisors and competency-based supervisor training rather than pre-MTE projects (3/12 vs. 1/12 for each variable).

Overall, the collective experience of grantees illustrates many good practices, but important details were commonly lacking, especially for the proportion of training that was clinical, competency-based certification, job aids, competency-based supervisor training, supervision content, and supervision of the supervisor.

DEMAND APPROACHES

Information for five demand variables was more commonly retrievable from completed (58% [29/50]) and ongoing post-MTE projects (57% [17/30]) rather than from ongoing pre-MTE projects (43% [13/30]) (Tables 6A–B). Projects uncommonly (5/22) documented initial **sensitization**, with targets including various stakeholders and communities. We found no example of a sensitization strategy.

We looked for four behavior communication elements: messages, targets, channels, and products. Three-quarters of projects (16/22) reported selecting **messages**, usually from existing lists (i.e., Integrated Management of Childhood Illness [IMCI], Family and Community Practices, and 16 "packages"). Low coverage on baseline household surveys prioritized interventions and/or messages. Rigorous formative research (e.g., BEHAVE Framework) was documented in four projects. Projects always delivered more than CCM so the message list was frequently long, at least twice observed as "too long" in evaluations. Caregivers were **targets** in all 13 projects that specified one or more targets. Ongoing projects tended to both refine targeting to achieve equity (adolescent mothers and female-headed households [CWI/Niger]) and expand targeting to mobilize change (fathers and grandmothers [MTI/Uganda] and teachers and traditional healers [CWI/Burundi]). **Channels** were well-documented (15/22) and included: integration with life options, Care Groups, mass media, theatre, newspapers, flyers, festivals, home visits, demonstrations, influential community members, women's solidarity circles, religious leaders and functions, food-for-work functions, market day outreach, *a capella* song, child health days, one-on-one counseling during illness or other encounters, teachers, and model families. Half the projects (11/22) documented behavior change communication (BCC) **products**, including posters, "behavior maps," counseling cards, *boîtes d'image*, Tippy Taps, and "IMCI bulletins" to track use of care.

The Care Group model, used in Rwanda, Burundi and Mozambique, deserves mention as a census-based approach to increase care-seeking for CCM and other interventions. Care Groups are household-based groups of 15 volunteer, community-based health promoters—also called "leader mothers"—who regularly meet and visit 10–15 neighborhood households, sharing what they learn about illness recognition and prompt, appropriate care-seeking and collecting information on pregnancies, births, deaths, and illness. If a sick or malnourished child is recognized, the group also facilitates CCM care-seeking.

Three projects (World Relief [WR]/Mozambique, IRC/DRC, and Concern/Burundi) specified the actual messages; the rest mentioned topics (13) or were silent (6) (Tables 7A-B). Most projects referred to "key messages," but did not list them. The most commonly specified messages—in

descending order of prevalence—had information about: illness and danger signs, where to seek care, timeliness of care-seeking, and compliance with treatment.

Overall, most projects documented demand strategies for CCM using multi-channeled, multi-targeted approaches and put them alongside messages promoting other high-impact interventions; however, the messages themselves were lacking.

APPROACHES TO ENABLE THE ENVIRONMENT

Similar levels of information were available from completed and ongoing projects (65% [26/40] vs. 65% [31/48]) (Tables 8A–B). Nearly three-quarters (15/22) of projects mentioned increasing **community capacity** to plan, manage, and track implementation through training, experience exchange in multi-cadre forums, and reporting.

Nearly half of projects (10/22) contributed at the national **policy** level by participating in national working groups, testing updated treatment protocols (e.g., artemisinin-combination therapy [ACT], zinc), or partnering to conduct implementation research to inform the national and potentially global **evidence** base. Indeed, ongoing research by grantees is positioned to inform eight of the current 32 research questions comprising the global CCM research agenda (Table 9).[8] Even more (12/22) projects generate valuable **experience**, especially the processes of and findings from monitoring, which are discussed below. Many projects advocated integrating community-level data into the national HMIS—often a lengthy process– and/or utilizing administrative data. In some contexts, data collection tools were developed for low-literacy CHWs. CWI/Niger uses Frontline SMS (texting) to transmit HMIS data for resupply orders. A few projects (e.g., CF/Honduras) conducted costing studies, both for advocacy and to assess the feasibility of scale-up.

ACCESS RESULTS

Document review of completed projects yielded nearly two-thirds (26/40) of the information we sought; ongoing, post-MTE projects had some information (5/24) (Tables 10A–B). All completed projects reported CCM **CHW coverage** in their project areas (see box), but some responses were not clear. Common formulations were one or more of the following: worker per community, per administrative unit, per total population, per household, and/or per health hut; or proportion of population with access. Similarly, all completed projects asserted–not unreasonably–that increasing access to curative services mitigated some of the **inequity** inherent in low geographical access.

Variation in Characterizing CHW Density across Projects

- 2 per village, 6,162 active CHWs/1,878,466 population (CWI/Rwanda)
- 2,332 per 52 communes (MCDI/Madagascar)
- 1 for every 50–75 households > 5km from a health facility(PLAN/Cameroon)
- 2 each per 477 Village Drug Kit in 464 villages (SC/Mali)
- Staffed ORT corner in all villages and Community-Based Distributors in 260 communities (96% of all villages in the project area) (IRC/Sierra Leone)
- 280 CHWs at 120 health huts (CFI/Senegal)
- 1 CCM worker per 2,736 total population (range: 1,293–6,554); 45 serve in 25 of 37 kebeles—currently not enough to cover the project area (SC/Ethiopia - 1)
- At midterm, 46 *Socorristas* trained so 75% of the population within 5 km of health services; by endline, 59 *Socorristas* at health posts so access better (WR/Mozambique)

Three completed projects quantified **attrition**. CWI/Rwanda reported that: a) 6,162 of 6,177 trained CHWs remained active at the time of the final evaluation; b) attrition over the last year of the project was 9%; and c) 463 replacements were trained because of "natural attrition" due to marriage or death. Catholic Relief Services (CRS)/DRC noted that when CHWs realized that they would not be remunerated, one-half to two-thirds of the 4,348 became inactive.

SC/Ethiopia-1 reported 5% (2/40) CHW attrition for the first year of a pilot project, which was one-tenth of the attrition observed for the district's health facility staff (50% [7/14]) during the same time period.

Four projects quantified **referral** in various ways, i.e., the proportion of appropriate, recommended, or successful referral. PLAN/Cameroon noted that 100% of CHWs appropriately referred sick children to the hospital. SC/Mali reported that routine referral data indicated that 2,111 cases of suspected severe malaria were referred with compliance of 39% (vs. 87% for diarrhea and 32% for acute respiratory infection [ARI]). IRC/Sierra Leone reported in its fourth AR that recommended referrals for ARI stayed steady, but the level of successful referral increased from less than 25% to 94%. SC/Ethiopia-1 reported very few recommended referrals (<1% [41/4,787] case seen) noting that referral was rarely practicable, given the remoteness of the CCM communities.

QUALITY RESULTS

Nearly two-thirds of completed projects (18/30) had useful information on three types of quality variables (Tables 11A–B). Many projects (7/10) documented aspects of the **quality of case management**, although methods, diseases, and specific indicators varied. For example, case management for pneumonia (5/7) and malaria (4/7) was more commonly reported than for diarrhea (2/7). Examples of indicator variation include the following. MCDI/Madagascar reported supervision data on the good agreement between diagnosis and treatment for malaria (85%), pneumonia (80%), and diarrhea (83%). PLAN/Cameroon stratified CHWs' correct treatment with amoxicillin by age: for children 2–11 months (99%) and for children 12–59 months (100%). IRC/Sierra Leone reported that nearly all (96%) of 582 patients received correct treatment, and even more (99%) CHWs filled their registers correctly. One post-MTE project (SC/Ethiopia-2) noted that, given a structured case scenario, most HEWs at 11 health posts classified correctly (82%) and referred or treated correctly (100%), but that only one team (9%) completed each case management step. Recording in the register was good, with most (93%) of the last five cases in the 11 reviewed registers showing complete, consistent recording.

Four completed projects reported **caseload** in three different ways. For example, CWI/Rwanda reported average caseload per CHW per month load as 5 (minimum: 1), noting that the project was associated with a modest caseload increase compared to non-project areas (4.1 vs. 3.8). SC/Ethiopia-1 reported average caseload of 13 with a range of 2–38. IRC/Sierra Leone reported 4,736 health facility treatments vs. 59,793 (13-fold more) community treatments (mean: 11 cases/CHW/month) over the same 17-month period. IRC/DRC reported 5,418 children with diarrhea over a 20-month period. One post-MTE project (SC/Ethiopia-2) reported district-specific caseloads for HEWs: Shebedino District (13/month; range 10–17) vs. Lanfero District (19/month; range 3–39).

Most completed projects (7) reported on **medicine availability**, but many comments were qualitative, sometimes just describing the supply system. For example, CRS/DRC reported that the project ensured access to paracetamol, cotrimoxizole, ACTs, ORS, and zinc through replenishment from the health center during monthly supervisory visits. CWI/Rwanda reported that drugs were generally available but stock-outs occurred and that zinc was out of stock during the final evaluation. PLAN/Cameroon noted that the MOH made ACTs available to the CHWs once they were trained, but the CHW kits were distributed nine months after their training. The FE team found that many CHWs had experienced prolonged ACT stock-outs. The IRC/Sierra Leone project experienced a zinc stock-out because the existing supplies had expired and there was no new stock available. More quantitatively, SC/Mali noted that 90% of the village drug kits had no ORS stock-out during the third quarter of 2009. The FE of the SC/Ethiopia-1 project reviewed supervisor's records of CCM workers' registers, which indicated no stock-out of cotrimoxazole (45/45 [100%]) in the previous month. One post-MTE project

(SC/Ethiopia-2) reported quantitatively: seven of 11 (64%) health posts had continuous zinc (no stock-out) in the prior quarter, and all but one (10/11 [91%]) had zinc on the day of evaluation.

We found few reports of any of these three variables in the six post-MTE ongoing projects (4/18), which was surprising given that routine administrative records could inform them.

DEMAND RESULTS

The yield for demand results among completed projects was low (33% [10/30])–and very low among ongoing post- and pre-MTE projects (2/18 and 0/18 data points) not surprising because these indicators usually require household surveys (Tables 12A–B). Six projects quantified caregivers' **knowledge of illness signs** in various ways, according to the number and/or type of sign. Mothers' knowledge of *two or more* danger signs increased from 66% to 77% (PLAN/Cameroon), decreased slightly from 62% to 56% (CRS/DRC), or increased dramatically from 24% to 83% (WR/Mozambique). Mother's knowledge of *three or more* danger signs remained static 61% to 63% (SC/Mali); CFI reported mothers' knowledge of *two or more danger signs by sickness* at endline: diarrhea (83%), malaria (95%), ARI (81%). SC/Ethiopa-1 reported that mothers' knowledge of fast or difficult breathing as *illness signs of pneumonia* increased from 39 to 92%.[25]

Regarding **first source of care**, PLAN/Cameroon reported that 91% of mothers who had a child sick with cough and difficult or rapid breathing in the two weeks preceding the survey first sought care from the CHW. CWI/Rwanda reported analyses about both first and second points of contact. CHWs were sought first by 31% of caregivers if a child had diarrhea or respiratory symptoms (vs. 23–27% choosing a health center) and by 45% of caregivers if a child had fever (vs. 29% choosing a health center). Over half of caregivers sought a second consult after an initial CHW or health center visit (61% vs. 54%, respectively). After an initial CHW consultation, 68% of those seeking a second consultation went to the same or another CHW (vs. 27% choosing a health center). After an initial health center consultation, nearly half (48%) of those who consulted a second source went to a CHW (vs. 44% choosing a health center).

Others reported care-seeking information but did not clearly stratify the source of care. For example, SC/Mali noted that care-seeking (either from a CHW or health center) increased for children with fever from 29% to 83% and for children with watery diarrhea from 18% to 68%. Finally, the locus of care-seeking (CHW vs. facility) can be ambiguous when CHWs work from facilities, i.e., Ethiopia's HEW at health posts or South Sudan's Home Health Promoters at health huts.

Two projects reported **knowledge of CHWs** as a source of care. SC/Mali reported that caregivers' knowledge of where the drug kit was located increased from 30% to 75%. From focus group discussions, SC/Ethiopia-1 asserted that mothers knew their CCM worker and the conditions he treated.

ENVIRONMENT RESULTS

A few completed projects (3/10) specified increases in **community capacity** (Tables 13A–B). SC/Ethiopia-1 noted that most communities (43/47 [91%]) had three or more Health Action Committee members attending three or more meetings with the MOH in the prior year. SC/Mali reported that most Oversight Committees had received training in management (90%), monitoring (80%), roles and responsibilities (95%), and noticeably less (55%) on disease prevention and control. Moreover, the coverage of supervision of these committees by health center staff increased dramatically (11% at baseline to 75% at final evaluation)–although the interval (e.g., "in last quarter") was not specified. WR/Mozambique reported in focus group findings that the village population had become empowered through knowing how to improve

their health and the health of their children. Clearly these three reports are not the sum of capacity building within these 10 projects.

We found more documentation of **policy** contributions among completed projects (6/10). IRC/DRC piloted the national CCM strategy, contributing to the experience base as the MOH further developed the Community Integrated Management of Childhood Illness (C-IMCI) policy, and was cited in that policy. IRC/Sierra Leone successfully advocated for the C-IMCI strategy based on project experience. As a result, the strategy received local and then national authorization. IRC gained the attention of the host government and several donors to expand to the entire district of Kono and beyond. SC/Mali used results of an effectiveness trial to inform national zinc policy for treating diarrhea[17,18,19,20,21] and for including ACTs in the village drug kits.[22] Zinc was added to the national essential medicines list and was included in drug kits, and the National Malaria Control Program endorsed dispensing of ACTs through trained drug kit managers.

PLAN/Cameroon received permission to pilot-test CCM of pneumonia within the existing home management of malaria strategy in Bafut District. Experience showed that CHWs could treat pneumonia competently, that the community accepted pneumonia care delivered by CHWs, and that adding pneumonia treatment did not compromise CHWs' treatment of malaria. In April 2012, the MOH permitted pneumonia CCM in Cameroon. This same project enabled PLAN's success in Global Fund Round 9 to scale up CCM/malaria nationally. MCDI/Madagascar integrated project activities within regional and district plans, contributing to the National Community-based Health Care Policy and was able to scale up CCM. One project (CF/Honduras) provided valuable input to a frequently underutilized benchmark component and conducted costing studies.

SC/Ethiopia-1 provided experience, evidence, a "pneumonia memo,"[23] a scientific presentation,[24] and a publication[25]–all demonstrating that CHWs could treat pneumonia. Indeed, after SC's presentation at the 10th Annual Ethiopian Paediatrics Association meeting, the pediatricians endorsed CCM for pneumonia. This was an unexpectedly welcome outcome, given that pediatricians commonly oppose equipping paraprofessionals with curative skills. This experience, coupled with John Snow Inc.'s Bolo Sosore CCM of pneumonia experience, global advocacy (i.e., World Pneumonia Day), and a UNICEF-supported study tour to Abhay Bang's Society for Education, Action and Research in Child Health in Gadchiroli, India, resulted in the government modifying its CCM policy to allow HEWs to deliver pneumonia case management.

As expected, documentation among ongoing projects was less common (2/12). CWI/Burundi noted that its advocacy goals for CCM/malaria had been achieved in that the national Malaria Program included a CCM/malaria pilot in its strategic plan, specified the pilot site, and signed a memorandum of understanding with CWI detailing roles in the pilot-test. SC/Ethiopia-2 benefited from SC/Ethiopia-1 in that the policy changed during the former; thus, SC/Ethiopia-2 was able to demonstrate, for the first time in Ethiopia, all three components of a full IMCI strategy: full case management, system support, and activities promoting community practices. Moreover, based on CSHGP's support for CCM in Ethiopia through SC (first in Oromiya, then in Southern Region), UNICEF, and USAID's President's Malaria Initiative are now partnering with SC (US and UK) and other partners to roll out full CCM in hundreds of districts.

USE RESULTS

Overall, the 10 completed projects yielded 24 instances of *change* in population-based **coverage** of treatment (and/or care-seeking in the case of pneumonia) for one of the four indicators for the three diseases: pneumonia (6 for care-seeking and 3 for treatment), diarrhea (7 [2 of which reported changes in both ORS and zinc]), and malaria/fever (6) (Tables 14A–B, 15; Charts 1A–D). Nearly all paired measures showed increases, some marked (average absolute increase: +26.5%, which was similar across diseases: pneumonia [+27.2%], diarrhea [+27.8%], and malaria [+23.5%]).

For ***pneumonia care-seeking***, indicator wording varied widely, reflecting local adaptations, but are probably similar enough to be comparable, i.e., chest-related cough and fast and/or difficult breathing, taken to an appropriate health provider (CWI/Rwanda); cough and fast/difficult breathing, taken to a health facility or a trained alternative source (PLAN/Cameroon); cough and difficult breathing, taken to health center (CRS/DRC); throat problem, taken to a clinic or respiratory problem, taken to a health center (IRC/DRC); and care-seeking stratified by source (CFI/Senegal and SC/Ethiopia-1). For example, SC/Ethiopia-1, with the benefit of two consecutive project cycles in the Liben District, showed that demand generation and IMCI training of facility-based staff correlated with an increase in care-seeking for possible pneumonia from 30% to 54%; adding CCM increased care-seeking to 84% (of which 50% was at the facility and 34% at the community). For ***pneumonia treatment***, only one project, IRC/Sierra Leone, presented baseline and endline levels of coverage of *correct* treatment (42% vs. 86% treated within 24 hours of onset); however, no project stratified treatment by site.

For ***diarrhea treatment***, most projects that measured levels of diarrhea treatment (6/7) reported ORS plus recommended home fluids (RHF) or "oral rehydration therapy" (ORT). Only CWI/Rwanda reported credible increases in both ORS and zinc through CCM (19% to 33% and 5% to 22%, respectively). CRS/DRC reported a dramatic increase in zinc (0% to 85%), but the lack of even a modest increase in use of ORS (13% to 17%) is puzzling. IRC/Sierra Leone reported high endline coverage of ORS (86%) and zinc (57%), but neither source of treatment nor baseline values were reported. CFI/Senegal noted near perfect use of ORT (96%). For ***malaria***, all reporting projects included treatment within 24 hours; PLAN/Cameroon added prompt initiation of *full* treatment. IRC/Sierra Leone reported that timely (within 24 hours), correct treatment for fever increased from 11% at MTE to 56% at endline, without specifying the source of treatment. In fact, most grantees did not specify source of care.

A few completed projects presented treatment **counts** (8/40), either aggregated (4) or by disease (4). Some of the ***aggregate*** counts were impressive, for example 183,959 treatments by CWI/Rwanda over 12 months. Regarding ***pneumonia***, IRC/Sierra Leone reported that during four months in 2008 (February–May), 3,297 cases of pneumonia were treated, most of which (92%) were treated through CCM. SC/Ethiopia-2 reported a pneumonia treatment ratio of 0.120 treatments/child/year, of which 0.065 (i.e., 54%) was through CCM. IRC/Sierra Leone reported that from February–May 2008, 5,769 ***diarrhea*** and 7,653 ***malaria*** cases were treated, 97% and 90%, respectively, of which were through CCM.

Some projects reported non-standard, aggregate measures of use. CWI/Rwanda reported that the final household survey showed that most mothers (69%) of children 0–23 months frequented one of 6,200 CHWs at least once when the child was ill. MCDI/Madagascar reported that over 80% of sick children at the community level received treatment for pneumonia, malaria, and diarrhea.

MORBIDITY OR MORTALITY RESULTS

PLAN/Cameroon reported that CCM was associated with a change in the **morbidity** profile for pneumonia. That is, the increased access to early treatment of non-severe pneumonia at the community level resulted in a decrease in the proportion of pneumonia classified as "severe," going from 83% to 14%.

Three projects reported **mortality** effects. SC/Ethiopia-1 used a Lives Saved Tool (LiST)[4] analysis (J. Hartness, personal communication, 2011) to project that 80 lives were saved during the year of CCM based on the changes in presumed coverage of pneumonia treatment.[26] This analysis made two coverage assumptions: care-seeking was for the right reason (i.e., fast breathing) and treatment was given; thus, the lives saved estimate is a ceiling.

Two projects reported measured a decline in the U5MR. WR/Mozambique, employing vital registration through Care Groups during the last two years of the project, estimated that under-five mortality declined by a third from 98 to 67/1,000 live births. Meanwhile, a LiST analysis, modeling mortality change and lives saved based on changes in coverage of a range of preventive and curative interventions, estimated a 21% reduction in under-five mortality, averting 534 child deaths. IRC/Sierra Leone reported a 52% reduction in under-five mortality, from 73 to 38/1,000 live births through "mortality surveys," the methodological details of which were not readily available.

Results: Indicators

Nearly all (21/22) specified CCM monitoring plans. Globally vetted CCM indicators have appeared since 2011,[14] and some projects have contributed to testing all or most of them, despite the heavy measurement burden.

CSHGP projects have, and are measuring, performance data for each of the eight CCM health system components and are using or testing nearly all the recommended indicators. In total, the 21 projects tracked 140 indicators to monitor CCM performance, of which 51 closely match the recommended indicators, with another 89 measuring similar phenomena by different metrics.

Projects applied the most indicators to measure the following health system components: service delivery (44 indicators), supervision and quality assurance (27 indicators), and communication and social mobilization (24 indicators). The most commonly measured indicators were caregiver knowledge of illness signs (68% [15/21]), treatment coverage (59% [13/21]), and medicine and diagnostic availability (45% [10/21])–indicators #35, 19, and 15 from the most recent reference [12] (Chart 2).

CSHGP projects span several technical areas, and their M&E plans reflect the monitoring needs of the whole project; thus, the level of attention to monitoring CCM varied. Four projects measured more than 10 CCM indicators: SC/Ethiopia-2 (22), WV/South Sudan (20), SC/Zambia (15), and CHS/Benin (14) (Chart 3).

Collectively, CSHGP CCM projects measured all the recently prioritized "implementation strength" indicators: CCM CHW density, targeted CHWs providing CCM, annual CCM CHW retention, medicine and diagnostic availability, routine supervision coverage, clinical supervision coverage–especially logistics monitoring (10/21 projects).

Results: Benchmark Mapping

Benchmark mapping (Figures 2A, C, E, and G) provides a unique "fingerprint" of the status of CCM programs within each mapped country. The programs began scale-up in 2006 (Rwanda), 2009 (Malawi), 2010 (Ethiopia), and 2011 (Sierra Leone). Overall benchmark achievement suggests three mature programs (90% for Rwanda, 83% for Ethiopia, and 77% for Malawi), while Sierra Leone has further to go (43%) (Chart 4). The lagging health system components are costing and finance (58%), human resources (69%), and communication and social mobilization (70%). Benchmark achievement was strongest, somewhat surprisingly, for supply chain management (83%) and for policy and coordination (79%) and M&E (79%).

NGOs reported having contributed to achieving many benchmarks (Figures 2B, 2D, 2F) or planning to do so (2H). This experimental methodology did not attempt to quantify actual or

planned contributions toward achieving any benchmark, but NGOs reported playing a role in three quarters (75%) of benchmarks for mature programs and planning to support a third (31%) for Sierra Leone (Chart 5). NGOs' most common actual or planned support was for supervision (81%), monitoring (75%), supply chain (75%), and service delivery (72%), and least commonly for costing and finance (52%), communication and social mobilization (54%), and human resources (58%). The range of illustrative actual activities spans all components (Table 16) and undeniably includes examples of important national-level inputs, such as curriculum and tools development, among others.

NGO respondents required about an hour to score all 68 benchmarks and supply supporting information.

Results: Case Studies

The three case studies (see Annex) were by design brief. Nonetheless, they highlighted approaches and strategies that likely explained some of their achievements (Table 17).

Regarding access, village-selected CHWs occurred in all three cases. Clearly, village vetting assumes a level of acceptability and therefore likely increases use of services. SC/Ethiopia-1 also mapped communities and selected remote, but not the most remote, villages for CCM. This highlights an extreme case of the central tension in CCM: it is most difficult to implement where it is most needed. Indeed, it cannot be implemented where it is absolutely the most needed because the health system must be able to at least occasionally reach the CHWs.

Promising quality approaches covered training, supervision, and medicine supply. SC/Ethiopia-1 first trained health facility staff in IMCI, but then used CCM training approaches that might not be scalable, e.g., one trainer for three trainees with a refresher training six months later. Competency-based certification meant that failure was a possibility. CWI/Rwanda devoted a large portion (30%) of CCM training to clinical practice, a clear best practice. Moreover, they used performance-based financing with health facilities to encourage supervision per plan. IRC/Sierra Leone had three supervision approaches: peer problem-solving meetings, register review with health facility staff, and on-site observation of case management. All three cases went to great length to assure medicine supply, including direct procurement in two cases, which is not a replicable, scalable approach.

Demand approaches were only identified for CWI/Rwanda, which partnered with communities to elaborate the communication strategy and used Care Groups to both disseminate messages and to encourage adherence to messages through gentle social pressure.

Approaches leveraging or enabling the environment ranged from partnering with women's groups to support CHWs (IRC/Sierra Leone) and sharing results at the community level, to presenting findings at a national pediatric meeting (SC/Ethiopia-1) and leveraging national decentralization as articulated by Rwanda's President (CWI).

Possible "effect modifiers" could include the fact that one project (IRC/Sierra Leone) was in a post-conflict setting with unusually weak infrastructure, perhaps increasing the likelihood of success given the low starting point–the programming challenges notwithstanding. In another case (SC/Ethiopia-1), the CCM project was implemented late in the second project cycle, thereby able to benefit from nearly nine years of program learning.

Discussion

The 22 reviewed projects represent a sizeable investment of resources, $46 million from USAID plus another $20 million match from grantees. One cannot estimate the actual investment in CCM, however, because projects specify level of effort neither by strategy nor by locus (facility vs. community). These projects with CCM are heterogeneous; nevertheless, some generalizations are possible.

First, this report may under-estimate the value of the program learning from these projects because learning may have occurred that was not documented, or, if documented, was not captured by the reviewers. The level of effort devoted to the four studies was approximately 80% for landscaping, 8% for benchmarking, 8% for case studies, and 4% for indicator review; and the return may not have been proportional to the time invested. Each project generates hundreds of pages of usually dense documentation, and resources precluded review of all documentation for each project. The case studies and benchmarking confirm both program learning and the achievement of results for those projects. With sufficient time, no doubt additional cases could be developed–perhaps facilitated by the template or an adaptation.

Second, the information gaps in this report are unlikely *all* due to the review methods; thus, some of the gaps are either due to incomplete documentation or to omission from project plans, activities, and/or results. Information yield varied widely, depending on variable and program stage (Table 18, Chart 6). Unlike results, projects at any stage might document approaches or strategies to increase intermediate results (access, quality, demand, and environment) or use. Overall, though, the information yield on approaches was modest, between 47%–65%. Given the global attention and guidance given to CCM in recent years, one might expect that the documentation of approaches would be more complete in later projects, but this was not observed. Regarding results (excluding morbidity and mortality), the information yield from the 10 completed projects ranged from 33%–65%, with access and quality somewhat better represented than other results. Asking for information will increase the yield; CSHGP could develop a data collection form, perhaps based on the form used for the landscape review. The *content* of the information will be discussed below.

Third, given the adverse mortality, ecologic profile, and the likely cause-structure of child mortality in project sites, these settings were well-suited for CCM, a strategy to redress inequity due to low access to lifesaving curative interventions. Nearly all projects were implemented at meaningful administrative scales (one or more districts) using official cadres to deliver CCM, which further increases the potential for health system learning. Nearly all were in rural sub-Saharan Africa. On the other hand, generalizing results requires caution because these impact areas are generally more challenging than typical rural African settings because grantees prefer, and often their government partners insist, to program in underserved areas. Assessing the external validity of any given project's experience is further challenged by inconsistently detailed information about the project context.

For example, population density is readily calculated, but was retrieved in few projects (6/22), nearly all (5) in completed projects. The range of total population per square kilometer–from 6 in Ethiopia to 400 in Rwanda–has important implications for many aspects of CCM, including the optimal caseload to maintain skills yet not overwork the provider and the feasibility of referral, supply, and supervision, among many other factors. CCM is commonly most needed where it is most difficult to implement, and population density may be a good marker of difficulty both from health system and ecological perspectives. Obviously, settings differ in myriad ways, but a shortlist of parameters collected across projects could inform a typology of settings that would inform generalizability of lessons learned. Recommended context variables

would more completely and consistently characterize the population (density, settlement pattern, range of community size); the health system (level of training of health facility staff in IMCI, approach at community and facility to sick young infant, medicine supply); and epidemiology, among others.[27]

Fourth, the reviewers took extra time to identify projects that met the case definition of CCM. That is, the CSHGP's list of so-called intervention areas is really a heterogeneous list of disease treatment (pneumonia case management) and disease control packages (control of diarrheal disease and/or malaria prevention and treatment). None of the three is an intervention as specified by the globally accepted *Lancet* reviews.[1,2] The USAID list may have historical justification, make programmatic sense, and/or align with funding streams, but the list does not include interventions as it claims. We recommend that either CSHGP abandon the current terminology or cross-tabulate its terms with an accepted list of evidence-based, high-impact, lifesaving interventions (Table 19) to enable precise communication–and to facilitate categorization of projects now and in the future. In addition, given the strategic importance of CCM in the medium term, CSHGP might consider asking grantees to estimate the level of effort for curative strategies between facility and community settings. This undertaking would require methodological guidance.

Fifth, information gaps notwithstanding, some findings deserve comment. Regarding the national CCM context, the **cost-recovery** schemes within CCM, mainly in Francophone Africa, could inform the equity vs. efficiency debate surrounding user fees.[28] These or similar projects could provide settings to quantify the cost of this approach (i.e., increased recordkeeping and other control measures, limited financial access, and decreased use among the poorest and presumably sickest) vs. the likely benefit of sustaining CCM, thereby creating an argument for making treatments available to most, if not all. . In addition, alternative financing mechanisms are being explored in different settings, such as *mutuelles* (insurance) and health savings groups. Trade-offs between equity and sustainability are value-laden, but proper sensitivity analyses could satisfy most consumers of the findings. CHWs were predominantly an **official** cadre, **male**, and **literate**. This pattern is not surprising because literacy is a common prerequisite for official government cadres perhaps because they are believed easier to train, and literacy favors males who generally receive more schooling. However, CCM has well-tested curricula and tools for non-literate CHWs as in Nepal and Uganda, among others.[29] The portfolio is well-positioned to inform these and other globally prioritized CCM research questions. Questions must arise from specific contexts and be of interest to government partners, but knowledgeable guidance can help frame the questions so that the answers can have wide generalizability.

Sixth, informed by the review and emerging global experience, the following discussion tentatively *suggests* some "best practices" for CCM.

Regarding **access approaches**, **mapping** seemed less common as time passes. Mapping communities suitable for CCM, a recommended global indicator, is a CCM benchmark and has recently been proposed as an implementation "milestone" by USAID's TRAction Project (personal communication, Tanya Guenther, April 2012). Selecting communities involves diverse interests–ranging from public health criteria to politics–but distance from other sources of standard case management seems essential, and this requires mapping. Project documentation on **CHW selection** varied widely. Again, diverse factors are in play, such as likely ability to deliver and record CCM, community acceptability, and likely retention. The combination of social, health system, and technical factors suggests that a joint or two-step process makes sense. That is, either the community or the health staff could suggest a roster of individuals from which the other party selects. **CHW deployment**, as for all other indicators, must be presented in standard ways to allow comparisons. For example, as "CHW density" (# CHWs/1,000 children) or "targeted CHWs

providing CCM" (proportion targeted for CCM training who are trained and active). Targets for CHW density yield a minimum value because dispersed populations or small communities will require more CHWs per population to assure geographical access.††

The portfolio provides a wide array of **CHW retention** approaches, many of which recur across projects. CHW job satisfaction, motivation, and retention are complex constructs that deserve prioritization for implementation research. The CSHGP might commission a technical paper with menus of approaches to leverage program learning. Apropos to the comment above about the sex of the CHW, the acceptability and retention of female CHWs in Uganda is greater than that of males because the latter are prone to evening alcohol consumption (unfortunately when childhood fevers tend to peak) and leaving the community for other work. Finally, most projects specified **strengthening referral**. Although SC-Ethiopia-1 alone noted the infeasibility of referral from most CCM communities in its district, this phenomenon is surely widespread, given that low geographic access is the main justification for CCM. Policymakers are understandably reluctant to authorize CHWs to treat severe disease; however, a "plan B" for families who will not or cannot travel to a health facility must be discussed, especially if the quality of health facility services are not assured. Moreover, there is precedent. Uganda's CCM strategy includes initial rectal artesunate (and referral) for severe malaria. Recently, CHWs in Pakistan were demonstrated to be effective in treating severe pneumonia.[30] Children with severe dehydration will not likely survive referral. The recent interest in CCM for emergency settings might provide opportunities to test the feasibility and effect of CCM for severe syndromes.

Regarding **quality approaches**, the main themes are training and supervision. Most projects specified the **training package**, which commonly was an adaptation of the WHO-UNICEF IMCI materials or *Caring for the Sick Child in the Community,* which itself is an adaptation of IMCI. These packages can impart competence in case management, but **competency-based training** requires trainers to assess the competence of each trainee and coach until each skill is demonstrated, thereby justifying **competency-based certification**. Some projects mentioned pre- and post-training tests of knowledge. However, the low cutoffs for a "pass" suggest a mismatch between the trainees, the material, the trainers, the training methods and/or the time allotted. Moreover, knowledge does not denote competence in many of the psychomotor skills of case management (i.e., asking, looking, deciding, counseling, referring, and recording–each having several steps). On one hand, pre- and post-tests are feasible and give the trainers and the program confidence since mean scores invariably increase. On the other hand, skill assessments are costly in time. Furthermore, identifying trainees unable to demonstrate competence presents a challenge. Full deployment is unethical, non-deployment is inefficient, and provisional deployment with extra support is complex. SC/Ethiopia-1 deployed the non-performing trainee with the honorific title of "CCM mobilizer," not provider, but this approach would be costly at scale. Perhaps the CSHGP could study the efficiency of various combinations of selection criteria, training, and supervision to inform best practice.

CCM is arguably the most complex package asked of CHWs because it has multiple steps, which must be performed correctly and in sequence, the absence of which risks untoward results for the patient and the community. Affordable approaches to impart and sustain case management skills are a global priority. The review uncommonly identified case management **job aids**, but CHWs from Malawi and Ethiopia valued their treatment registers, which recapitulate the case management steps from the Sick Child Recording Form, the heart of *Caring for the Sick Child in the Community*. Mobile phone versions of the form are currently undergoing testing in Malawi, Tanzania, and elsewhere. WHO and partners are also developing an expanded library

†† In this regard, the authors strongly advocate **retaining** "Indicator 14" ("Target Area Coverage" or the percentage of catchment areas targeted for CCM that have a CHW trained and deployed in CCM), which was provisionally recommended for deletion at a CCM Indicator Consultation at MCHIP, Washington, DC, June 18, 2012.

of CCM signs (0–59 months) in multiple cultural settings, suitable for training, refreshing, and supervision.

The yield of information within the supervision theme was low. Most projects confirmed **supervisor deployment**, but did not specify the ratio of CHW to supervisor, a global indicator. Specifying and imparting skills through **competency-based supervisor training** was rarely documented. Malawi has just started introducing a three-day course for CHW supervisors.[31] **Competency-based supervision** of CHWs, also uncommon in the review, requires a checklist for routine or clinical supervision (both inform global indicators) matched to core CHW competencies, accompanied by training in the requirements for a "pass"–as in the Malawi package. **Supervising the supervisor** with a checklist keyed this time to the *supervisor's* essential skills can help assure performance, but it rarely occurs. An annual spot-check might suffice. Decisions regarding the **frequency**, **content**, and **locus** of supervision have many local adaptations; however, actual experience commonly falls short of the plan often because of limited transport and competence. Mobile phone-based technology can potentially reduce these limitations through automated transfer of some information and through electronic competency-based checklists with tips on coaching to remedy non-performance.

Regarding **demand approaches**, the review was hard-pressed to find BCC details specific to CCM, in part because the strategy was embedded in projects delivering many other interventions. Even the case studies' demand approaches seemed less detailed than for supply. It is possible that this aspect of CCM may be underdeveloped, perhaps because the supply side (access and quality) is so complex and because one assumes (incorrectly in many cases) that caregivers already recognize and seek care for sick children. Moreover, the categorization of "signs" within CCM is complicated (general danger signs, illness-specific severity signs, illness signs, and signs indicating the need for urgent re-evaluation), and **messages** to caregivers sometimes included examples of all four. Moreover, messages may lack urgency, source of care, adherence to care, and the need for complete understanding of providers' recommendations. Projects' BCC **targets** and **channels** were familiar and reasonable, while CCM-specific BCC **products** were less common.

The global CCM community–perhaps a sub-group of the CCM Task Force–could systematize the demand aspect of the strategy, clarifying messages and developing a library of products for adaptation to local cultures. The forthcoming WHO-UNICEF "Caring for the Healthy Child in the Community" has a practical approach to messaging, which should be tracked and shared as appropriate. The counseling cards advise: (1) for children <24 months: seek care for cough, diarrhea, fever or feels cold, or has any other signs of illness and seek urgent care for inability to breastfeed well, convulsions or fits, difficult or fast breathing, feels hot or unusually cold; and (2) for children $\geq$ 24 months: seek care if stops drinking or breastfeeding well, has convulsions or fits, has difficult or fast breathing, or feels hot or unusually cold. The CSHGP might consider requesting a CCM (or general) BCC table cross-tabulation of explicit messages by delivery channel.

Specifics of **sensitization** were uncommon, perhaps in some cases because projects supported CCM in pre-sensitized areas. On the other hand, grantees' history of programming in challenging settings probably means that pre-sensitization was uncommon. A CCM sensitization strategy should specify target audiences (i.e., government partners at various levels, facility-based providers, CHWs, communities, private providers), content (i.e., CCM justification and components, roles, and questions and answers), number and schedule of sessions, and desired outcomes. Good examples exist as reference.[32]

Regarding **approaches** to **enable the environment**, the CSHGP application and implementation process already requires grantees to explain how their findings have relevance at the community and national health system levels, so this area of inquiry has great potential. Reporting could be

more systematic and learning more complete across projects through the following: 1) grantees specifying methods to enhance community capacity (i.e., Positive Deviance,[33] Community Action Cycle,[34] among others); 2) grantees measuring and reporting on parameters of community capacity for which indicators have been proposed;[35,36] 3) grantees mapping a country's CCM benchmark status at baseline, indicating those which it intends to influence, and periodically re-mapping for both accountability and learning the "natural history" of new programs; 4) grantees matching project against global CCM indicators to alert the monitoring community of the potential for program learning in this rapidly changing field; 5) CSHGP, through MCHIP, making the global research priorities known to applicants and awardees so that they can propose and design research to advance not only country but also global learning; 6) CSHGP strengthening its centralized research matrix both to characterize research (noting **central** research question and important methodological details) and to track its course to fruition (noting dates of initiation and completion of data collection, presentation of results, and publication); and 7) CSHGP developing a centralized bibliography for CCM (and perhaps other subject areas) of working papers and publications related to supported research and allied program learning. Finally, this report would be incomplete without noting that the funds provided by CSHGP for research are modest, and that the cost of a university partner, which is almost always needed, is high.

Regarding **access results** in completed projects, the information yield was mixed. Equity was generally asserted as increased, but the review found no quantification. Indeed, no standard indicators have been proposed for measuring **equity**, which generally requires stratifying levels of access, quality, or use by common determinants of inequity, such as age, sex, socio-economic status, ethnicity, residence, religion, and the like. This is a CSHGP priority, and others can better inform this. CHW/population was well, but not consistently, reported. The current CCM indicator reference sheets[12] recommend how to measure **CHW density** (per 1,000 children), **attrition** (the converse, retention: the proportion providing CCM one year after training), and **referral** (as the levels of appropriate referral [i.e., of those with danger signs], overall referral, and successful referral).

Regarding **quality results** in completed projects, information yield was good, especially for case management and medicine availability, each of which has until recently multiple accepted methods of reporting. Not surprising, comparisons across programs are not possible given the various definitions. Grantees should always use national indicators, remaining mindful of the emerging global consensus for quality indicators, perhaps advocating for adopting these and/or measuring to support both national and global comparisons. The gold standard of assessing case management, direct observation with case re-assessment by the assessor, was not reported. This method is costly, and not recommended as routine. Indeed, the reviewers were unable to find reports of step-by-step case management assessment. Various proxy measures for direct observation are proposed, ranging from the consistency between assessment, classification, and treatment recorded in the register (admittedly a "distant proxy") to case scenarios, which measure some essential skills, step by step. For example, Malawi has a set of 12 case scenarios with information for the "identify," "ask" and "look" steps matched to a given month to assure rotation over time.[30] The supervisor requests the CHW to transfer the information to a Sick Child Recording Form and then to decide, treat, counsel, and record based on this information. This approach seems like a workable compromise. Measuring and reporting the quality of case management cannot be over-emphasized. Coverage is insufficient. Indeed, high coverage of case management at low quality is public health malpractice. CSHGP should insist on quality processes and measures for CCM.

Regarding **demand results** in completed projects, information yield was low. Global consensus for demand indicators includes knowledge of illness signs, knowledge of CHW's name, and first source of care-seeking. As noted above, the typology of "signs" is confusing; furthermore, the syndromes within a country's CCM strategy vary. On the other hand, technical guidance from

WHO and UNICEF is at readily available. Regardless, the messaging for and the surveying knowledge of signs must be from the caregiver's perspective. The signs should be common enough to justify messaging and serious enough to trigger prompt care-seeking outside the home. The CCM provider then elicits additional signs through asking and looking. The elegant analysis by CWI/Rwanda of first and second sources of care deserves special recognition.

Regarding **enabled environment results** in completed projects, the information yield was modest, but the results that were documented and that the review found were impressive, especially at the **policy** level. The case study details and the supporting evidence from benchmark mapping were rich, indeed. Moreover, the findings were surely an under-representation because CSHGP lacks a method to capture documentation that occurred after project close-out. The Program might consider annual recognition for the best "documentation of the year" arising from its projects. This reminder might produce a more complete bibliography, the documents of which could have key searchable words and be accessible through a knowledge management hub linked to *CCMCentral*.[29]

The benchmark maps, especially when corroborated by third parties, confirm the contributions of grantees in many components across several countries. Annual benchmark mapping would allow tracing common paths for countries as they introduce and scale up CCM, which is of interest to health policy academia. Mapping during project planning would allow grantees to specify benchmarks that they intended to support; annual mapping thereafter would facilitate real-time tracking of advocacy and results.

Nine projects currently are conducting **research** to inform eight of the 32 priority global questions (Table 8). Not surprisingly, most topics deal with front-line health workers or direct implementation. The list needs updating, which is tentatively planned to coincide with the Tropical Medicine meetings in November 2012 and the release of the *American Journal of Tropical Medicine and Hygiene* special supplement for CCM. The CSHGP attention to implementation research is welcome, but the allowable support is not always sufficient, given the cost of university partnerships.

Enabling the **community** environment is surely understated since grantees routinely train community caregivers, committees, and providers in new skills. SC has proposed domains, sub-domains, and indicators for community capacity,[35] which could inform more precise characterization of community enablement. The same grantee's ongoing evaluation of teams of CHWs, trained traditional birth attendants, and Neighborhood Health Committees to deliver CCM in Zambia (supported by CSHGP)[37] could also inform approaches to measure aspects of community empowerment.

The landscape survey may have yielded modest results, but the benchmark survey and the case studies strongly suggest that CSHGP grantees have positively enabled many national environments for CCM. The supporting evidence that accompanied the benchmarking and the information required by the structured format of the case study templates seemed both fruitful and efficient. Unqualified support for benchmark mapping is not yet justified, however, because benchmarks do not comprise the totality of a health system component. Benchmarks are markers or milestones. The achievement of supply chain benchmarks, for example, can be viewed as a necessary but insufficient step along a path toward assuring CCM medicine availability.

Regarding **use results** in completed projects non-standardized approaches are common, sometimes for case definition (i.e., pneumonia or better "ARI needing assessment") and often for source of care. However, the variation in case definitions for pneumonia is similar to that seen in DHS surveys and should not preclude drawing conclusions across projects. Standardization of

or at least stratification to allow reporting source of care is critical; however, for understanding task shifting from facility to community treatment and for attributing results to the strategy. Of course, *treatment* is the main desirable, measurable result, regardless of where it is obtained, but program managers and planners want to know where the treatment is obtained. Treatment, regardless of source, can inform a LiST analysis to project averted mortality.

Until recently, care-seeking for "ARI needing assessment" was the sole pneumonia "coverage" indicator (although it is closer to an indicator of "demand"). Both pneumonia indicators have challenges. Household coverage surveys rely on a respondent's recall of one or more disease signs (denominator) for both indicators and time interval to initiate treatment and specifics of treatment regimen for numerator of treatment coverage. The pay-off is a population-based indicator that is not possible through routine service statistics. Research is ongoing to develop, test, and validate better population-based indicators. Ironically, pneumonia is perhaps the CCM syndrome that can best quantify the role of population-based treatment at the community (vs. facility) because diarrhea can (and should) often be managed at home–if zinc is not available and because antimalarial treatment is commonly available in medicine shops.

Interestingly, counts of treatments and syndromes from service statistics are probably better than those from household surveys. Moreover, counts directly inform source of treatment (community vs. facility). They are continuously available and readily understandable. Annualized counts can be standardized to estimated catchment area population, though admittedly imprecise, to yield estimates of disease-specific treatment rates or to the annualized expected disease burden to yield treatment ratios. Both should be stratified by source of care. Global CCM indicators explain and recommend both coverage and counts, and grantees should select from them.

Regarding **morbidity results**, the single report from PLAN/Cameroon of a change in the morbidity profile of pneumonia concomitant with introduction of CCM is important. One struggles to imagine that 83% of baseline pneumonia was really "severe," yet one would expect (at least hope) that more accessible, evidence-based treatment would lead to earlier and better treatment, which would halt the progression of some cases, thereby reducing the level of severe cases. Were this to be true, then the cost-savings from a change in the morbidity profile achieved through CCM could disarm those who criticize the cost of the strategy. Not surprisingly, a priority research question (Table 8) relates to the health system effects of CCM on referral and caseload and mix.

Regarding **mortality results**, the two reports of large reductions in U5MRs are believable given the marked increase in the coverage of all three treatment interventions–or at least the high endline levels without baseline values. It is beyond the scope of this report to evaluate the methods used. Notwithstanding, the recommendation that projects are not held accountable to demonstrating changes in mortality (which usually require costly surveys of thousands of households) still stands. More affordable, yet valid, approaches to estimate mortality rates are an active public health priority.[38] In the meantime, LiST analyses based on changes in coverage suffice.

Summary and Recommendations

The CSHGP CCM portfolio is robust, informing national and global policy and learning, building capacity, and saving lives. Projects not only reflect local policy and plans, but they can also represent global best practice to countries. CCM is complex to implement and to document. There may be truth to the adage, "if it wasn't documented, it didn't happen."‡‡ Grantees and their consultants already face daunting documentation burdens. What we propose is not necessarily more, but rather better, documentation, which would be more complete, concise, and clear to capture the essentials of CCM projects, programs, and results. Technical guidance for aspects of CCM has recently advanced, so it is unfair to hold projects retroactively accountable to new recommendations. However, CSHGP can build CCM capacity (and learn) through the following recommendations:

- Share, champion, and support the revision of the global CCM **research** agenda:
  - Consider **prioritizing several** CCM research questions for CSHGP to inform.
  - Guide grantees to **frame research questions** to inform both local and global priority research questions.
  - Take a position on "Plan B" (CCM of **severe disease** in certain situations) and seek opportunities to learn.
- Refine the matrix to better **track CCM research**, both implementation and documentation.
- Guide grantees' selection of, adaptation of, use of, and learning from globally vetted **CCM indicators**, especially those that can be applied through routine monitoring at the district level:
  - Insist on standardized CCM measures of implementation strength (guided with dummy tables), use, and coverage (stratified by source of care), and quality.
  - Guide grantees to measure community capacity.
- Guide grantees' CCM **demand strategy** (including sensitization strategy), informed by emerging global technical guidance.
- Develop and test, in collaboration with grantees:
  - CCM **project brief templates** at important project cycle stages.
  - A **data collection** form for projects implementing CCM to optimize and standardize information yield on context, approaches, and results.
  - Periodic, longitudinal CCM **benchmark mapping** (with supporting evidence for NGO role) as countries plan for, introduce, and scale up CCM. Consider adapting the benchmark mapping methods for district or project level.
- Consider **"document of the year"** (or quarter) recognition to motivate grantees' documentation and to better capture post-project documentation.
- Convene a Technical Advisory Group to specify and publish CCM **best practices** based on systematically accrued experience–a brief supplement to *CCM Essentials*.
- Clarify **terminology** regarding interventions and explore methods to estimate levels of effort devoted to delivering curative interventions at the community vs. facility level.

‡‡ The expression had 17,000 results on Google on the day of this writing (June 12, 2010).

[1] Jones G, Steketee R, Black RE, Bhutta ZA, Morris SS, and the Bellagio Child Survival Study Group, How many child deaths can we prevent this year? *The Lancet* 2003; 362:65–71.

[2] Darmstadt GL, Bhutta ZA, Cousens S, Adam T, Walker N, de Bernis L, for the Lancet Neonatal Steering Team, Evidence-based, cost-effective interventions: how many newborn babies can we save? *The Lancet* 2005; 365:977–988.

[3] World Health Organization and UNICEF, Countdown to 2015 decade report (2000–2010): Taking stock of maternal, newborn and child survival, 2010.

[4] Bryce B, Friberg IK, Kraushaar D, Nsona H, Afenyadu GY, Nare N, Kyei-Faried S, Walker N, LiST as a catalyst in program planning: experiences from Burkina Faso, Ghana and Malawi, *International J Epi*, 2010; 39:i40–i47.

[5] Young M, Wolfheim C, Marsh DR, Hammamy D, Inter-Agency Joint Statement: Integrated community case management: an equity-focused strategy to improve access to essential treatment services for children, *American Journal of Tropical Medicine and Hygiene*, in press 2012.

[6] CORE Group, Save the Children, BASICS and MCHIP, Community Case Management Essentials: Treating Common Childhood Illnesses in the Community – A Guide for Program Managers, Washington, D.C., 2010.

[7] WHO and UNICEF, Manual for the Community Health Worker - Caring for the sick child in the community (part of Caring for Newborns and Children in the Community), 2009.

[8] http://www.ccmcentral.com/?q=tools_and_documents (accessed June 21, 2012).

[9] Save the Children, Tools to introduce community case management of serious childhood infection, 2010.

[10] Marsh DR, Peterson S, Pagnoni F, Hamer DH, Introduction to CCM research supplement to *American Journal of Tropical Medicine and Hygiene*, in press 2012.

[11] http://www.ccmcentral.com/?q=operations_research (accessed June 21, 2012).

[12] Williams T, et al, Integrated Community Case Management (CCM) Benchmark Indicators, MCHIP, 2012.

[13] http://www.ccmcentral.com/?q=indicators_and_benchmarks (accessed June 21, 2012).

[14] McGorman L, Marsh DR, Guenther T, Gilroy K, Barat L, Hammamy D, Wansi E, Peterson S, Hamer DH and George A, A Health Systems Approach to Integrated Community Case Management of Childhood Illness: Methods and Tools, *American Journal of Tropical Medicine and Hygiene*, in press 2012.

[15] http://www.ccmcentral.com/ (accessed June 21, 2012).

[16] Guenther T, Sadruddin S, Chimuna T, Sichamba B, Yeboah-Antwi K, Diakite B, Modibo B, Swedberg E, Marsh D, Beyond distance: an approach to measure effective access to case management for sick children in Africa, *American Journal of Tropical Medicine and Hygiene*, in press 2012.

[17] Winch PJ, Gilroy KE, Doumbia S, Patterson AE, Daou Z, Coulibaly S, Swedberg E, Black RE, Fontaine O, Short Communication: Prescription and Administration of a 14-Day Regimen of Zinc Treatment for Childhood Diarrhea in Mali. *American Journal of Tropical Medicine and Hygiene* 2006; 74(5): 880–883.

[18] Winch PJ, Gilroy KE, Doumbia S, Patterson AE, Daou Z, Coulibaly S, Swedberg E, Black RE, Fontaine O, Short Communication: Prescription and Administration of a 14-Day Regimen of Zinc Treatment for Childhood Diarrhea in Mali. *American Journal of Tropical Medicine and Hygiene* 2006; 74(5): 880–883.

[19] Ellis AA, Winch P, Daou Z, Gilroy KE, Swedberg E., Home management of childhood diarrhoea in southern Mali-Implications for the introduction of zinc treatment, *Soc Sci Med* 2007; 64:701–12.

[20] Winch PJ, Doumbia S, Kante M, Male AD, Swedberg E, Gilroy KE, Ellis AA, Cisse G, Sidibe B, Differential Community Response to Introduction of Zinc for Childhood Diarrhea and Combination Therapy for Malaria in Southern Mali, *Journal of Nutrition* 2008; 138 (3): 642–645.

[21] Winch PJ, Gilroy KE, Doumbia S, Patterson AE, Daou Z, Diawara A, Swedberg E, Black RE, Fontaine O, Pilot introduction of zinc supplementation for childhood diarrhoea management in Bougouni District, Mali, *Journal of Health, Population and Nutrition* 2008; 26(2): 151–162.

[22] Winch PJ, Bagayoko A, Diawara A, Kané M, Thiero F, Gilroy K, Daou Z, Berthé Z, Swedberg E, Increases in correct administration of chloroquine in the home and referral of sick children to health facilities through a community-based intervention in Bougouni District, Mali, *Transactions of the Royal Society of Tropical Medicine and Hygiene* 2003; 97: 481–490.

[23] Marsh DR, Degefie T, Pearson L, Controlling Childhood Pneumonia in Ethiopia, 2008.

[24] Degefie T, Marsh D, Gebremariam A, Tefera W, Osborn G, Waltensperger, Community case management improves use of life-saving curative interventions among pastoralists in Oromiya Region, Ethiopian Paediatrics Society, Addis Ababa, May 29–30, 2008.

[25] Degefie T, Marsh DR, Gebremariam A, Tefera W, Osborn G, Waltensperger K, Community Case Management Improves Use of Treatment for Childhood Diarrhea, Malaria and Pneumonia in a Remote District in Ethiopia's Oromiya Region, Ethiopian Journal of Health Development 2009; 23(2):120–126.

[26] Marsh DR, Combat the #1 killer of children with skilled health workers, in "The Battle to Save 1 Billion Worldwide," An Independent Supplement by Mediaplanet to USA Today, September 15, 2011.

[27] Victora CG, Schellenberg JA, Huicho L, et al. Context matters: interpreting impact findings in child survival evaluations, *Health Policy Plan* (December 2005) 20 (suppl 1): i18-i31. doi: 10.1093/heapol/czi050.

[28] Gwatkin D, Paying for health care: moving beyond the user fee debate, *The Lancet* 2012; doi:10.1016/S0140-6736(12)60684–9.

[29] http://www.ccmcentral.com/?q=tools_and_documents (accessed June 22, 2012).

[30] Bari A, Sadruddin S, Khan A, Khan IuH, Khan A, Thea D, Macleod WB, Fox M, Qazi S, Cluster Randomized Trial of Community Case Management of Severe Pneumonia with Oral Amoxicillin in Children 2-59 Months of Age in Haripur District, Pakistan, *Lancet* 2011; 378: 1796–1803.

[31] Ministry of Health of Malawi (Integrated Management of Childhood Illness, Caring for Newborns and Children in the Community), Facilitators' guide community case management supervisors' training, 2012.

[32] Ministry of Health, Republic of Uganda, Integrated community case management of childhood malaria, pneumonia and diarrhea: Implementation Guideline, May 2010.

[33] http://www.positivedeviance.org/ (accessed June 22, 2012).

[34] Howard-Grabman L and Snetro G, How to mobilize communities for health and social change: A health communication partnership field guide. Baltimore, MD: The Health Communication Partnership based at Johns Hopkins Bloomberg School of Public Health/Center for Communication Programs, 2003.

[35] Vijayrhagavan J, An initiative to measure community capacity for health and social change, Health Communication Partnership Zambia and Save the Children Uganda, January 2008.

[36] Underwood C, Boulay M, Snetro-Plewman G, Marsh DR, Community Capacity in Rural Zambia: Defined, Measured and Strengthened, *Social Science and Medicine*, under review.

[37] Yeboah-Antwi K, Snetro-Plewman G, Waltensperger KZ, Hamer DH, Kambikambi C, MacLeod W, Filumba S, Sichamba B, Marsh D, Measuring the structure, function and determinants of community-based "teams" delivering life-saving health interventions in rural Zambia, in preparation.

[38] The Institute for International Programs, The John Hopkins Bloomberg School of Public Health, Expert consultation on methodological alternatives for monitoring child mortality, Baltimore, Maryland, 12–13 July 2007.

CSHGP—Annexes

TABLE 1A: DATE EXTRACTION FORM

Reviewer:

Date:

Documents Reviewed:

Time to Review:

#	Variable	Response	Doc/Pg Ref
IDENTIFYING DATA			
1	NGO		
2	Country		
3	Project years		
ICCM DESCRIPTION within PROJECT			
4	ICCM years		
5	Age group		
6	Syndromes		
7	Treatments (or referral)		
8	CHW (age, sex literacy)		
9	Duration of CHW training: total and ICCM		
10	Sick child recording form or case management guideline		
11	Register		
12	Supervision checklist		
13	Monthly reports		
14	Other interventions delivered by CHW		
15	CHW salary, incentives		
16	CHW cadre recognized by MOH		
17	Cost-recovery		
18	Other		
CONTEXT			
19	U5MR (national)		
20	CCM policy environment		
21	Project site (name and administrative size)		
22	Project site ecology		
23	Project population (<5s)		
24	Project site population density (TP/square km)		
25	Project site private sector and CCM		
26	Baseline coverage of relevant interventions		
26	Non-CCM interventions project supports		
27	Other		
PROJECT EFFECTS			
28	Mortality change, actual vs. modeled		
29	**Use** as coverage		
30	**Use** as counts		
31	**Access** as CHW/ population		
32	**Access** as Equity		
33	**Access** as Attrition		

#	Variable	Response	Doc/Pg Ref
34	**Access** as Referral		
35	**Quality** of case management		
36	**Quality** as Case load		
37	**Quality** as Medicine availability		
38	**Demand** as Knowledge of illness signs		
39	**Demand** as Care-seeking (1st source of care)		
40	**Demand** as Care-seeking (knowledge of CHW)		
41	**Environment** (community, policy)		
42	Other intended effects		
43	Unintended effects		
PROJECT STRATEGIES, APPROACHES AND ACTIVITIES			
44	To improve **access:** *Mapping*		
45	To improve **access:** *CHW selection*		
46	To improve **access:** *CHW deployment*		
47	To improve **access:** *Retention strategies*		
48	To improve **access:** *Referral strengthening*		
49	To improve **access:** *Other*		
50	To assure **quality:** *CHW selection criteria*		
51	To assure **quality:** *Competency-based training*		
52	To assure **quality:** *Training package*		
53	To assure **quality:** *% Training clinical*		
54	To assure **quality:** *Competency-based certification*		
55	To assure **quality:** *Competency-based job aids*		
56	To assure **quality:** *Competency-based supervisor training*		
57	To assure **quality:** *Deploying supervisors*		
58	To assure **quality:** *Competency-based supervision of CHWs*		
59	To assure **quality:** *Frequency of supervision (plan vs. actual)*		
60	To assure **quality:** *Supervision content (clinical, etc.)*		
61	To assure **quality:** *Supervision locus*		
62	To assure **quality:** *Supervision of supervisors*		
63	To assure **quality:** *Other*		
64	To mobilize **demand:** *Initial sensitization*		
65	To mobilize **demand:** *BCC messages*		
66	To mobilize **demand:** *BCC targets*		
67	To mobilize **demand:** *BCC channels*		
68	To mobilize **demand:** *BCC products*		
69	To mobilize **demand:** *Other*		
70	To enable the **environment:** *Community capacity*		
71	To enable the **environment:** *Policy informing experience*		
72	To enable the **environment:** *Policy informing evidence*		
73	To enable the **environment:** *Other*		
74	**Cross-cutting:** *Monitoring plan*		
75	**Cross-cutting:** *Other*		
76	**ANYTHING ELSE**		

TABLE 1B: BENCHMARKS FOR COMMUNITY CASE MANAGEMENT BY COMPONENT

Thank you for agreeing to pilot test this application of the CCM benchmarks. There are a few questions (in blue) at the top and bottom. The main exercise concerns the 70 benchmarks in eight health system components. After you have answered the first question in blue, please consider each benchmark and tick the appropriate columns: country status ("No" vs. "Partial" vs. "Yes" vs. "Don't know"), project activities at the local level, project activities at the national level, and project activities helping to achieve a national benchmark. Not all projects work at the national level or influence national level outcomes, but if you think that your project DID help achieve a national benchmark, then please write a phrase or sentence explaining how the project helped achieve the national benchmark in the "How" column. All feedback is VERY welcome. Thank you in advance.

Health system experts distinguish different **phases** for new programs. Can you please estimate the **year** that your country began each of the following phases for iCCM? Not all countries will have completed all steps, and the steps do not have to be in chronological order.

(1) Pilot_____; (2) Advocacy _____;

(3) Planning _____; (4) Introduction _____; and

(5) Expansion or Scale-Up _____.

Component	Benchmark	Has Your Country Achieved this Benchmark?				Did Your Project...			If your project helped achieve the National Benchmark, how?
		No	Partial	Yes	Do Not Know	...have activities for this bench-mark at *project* level?	...have activities for this bench-mark at *national* level?	...help achieving this *national* bench-mark?	
1: Coordination and Policy Setting	a) Mapping CCM partners conducted								
	b) Technical advisory group (TAG) established, including community leaders, CCM champion and CHW representation								
	c) Needs assessment and situation analysis conducted								
	d) Stakeholder meetings held to define roles and discuss policies								
	e) National policies and guidelines reviewed								
	CCM target areas defined (not an original BM)								
	f) MOH CCM leadership established								
	g) Policy discussions (if necessary) completed								
	h) MOH leadership institutionalized								
	i) Stakeholder meetings regularly held								

Component	Benchmark	Has Your Country Achieved this Benchmark?				Did Your Project...			If your project helped achieve the National Benchmark, how?
		No	Partial	Yes	Do Not Know	...have activities for this bench-mark at *project* level?	...have activities for this bench-mark at *national* level?	...help achieving this *national* bench-mark?	
2: Costing and Financing	a) CCM costing estimates made based on all service requirements								
	b) Finances secured for CCM medicines, supplies, and all program costs								
	c) Financing gap analysis completed								
	d) MOH funds invested in CCM								
	e) Long-term strategy developed for sustainability and financial viability								
	f) MOH investment sustained in CCM								
3: Human Resources	a) Roles defined for CHWs, communities, and referral service providers								
	b) Criteria defined for CHW recruitment								
	c) Training plan developed for CHW training and refreshing (modules, training of trainers, monitoring and evaluation)								
	d) CHW retention strategies (incentive/motivation) developed								
	e) Role and expectations of CHW made clear to community and referral service providers								
	f) CHWs trained								
	CHWs deployed post training with medicines/supplies (not original BM)								
	g) CHW retention strategies (incentive/motivation) implemented								
	h) Process for update and discussion of role/expectations for CHW in place								
	i) CHWs refreshed								
	j) CHW retention strategies reviewed and revised								
	k) Advancement, promotion, retirement offered								
4: Supply Chain Management	a) Medicines and supplies (i.e., RDTs) included in essential drug list and consistent with national policies								
	b) Quantifications completed for CCM medicines and supplies								
	c) Procurement plan developed for medicines and supplies								
	d) Inventory control and resupply logistic system developed								

Component	Benchmark	Has Your Country Achieved this Benchmark?				Did Your Project...			If your project helped achieve the National Benchmark, how?
		No	Partial	Yes	Do Not Know	...have activities for this bench-mark at *project* level?	...have activities for this bench-mark at *national* level?	...help achieving this *national* bench-mark?	
	e) Medicines and supplies procured								
	f) Systems implemented								
	g) Stocks of medicines and supplies monitored at all levels								
	h) Systems adapted and effective								
5: Service Delivery and Referral	a) Plan developed for rational use of medicines (and RDTs)								
	b) Guidelines developed for case management and referral								
	c) Referral and counter referral system developed								
	d) Good quality CCM delivered								
	e) Guidelines reviewed and modified based on pilot								
	f) Systems implemented								
	g) Timely receipt of CCM is the norm								
	h) Guidelines reviewed and modified by experience								
	i) Systems working								
6: Communication and Social Mobilization	a) CSM strategies developed for policymakers, local leaders, health providers, CHWs, and communities								
	b) CSM content for materials (training, job aids, etc.) developed								
	c) Messages, materials, and targets for CCM defined								
	d) CSM plans implemented								
	e) Materials produced								
	f) CHWs deliver messages								
	g) CSM plan and implementation reviewed and refined								
7: Supervision and Performance Quality Assurance	a) Supervision checklists and other tools developed								
	b) Supervision plan established								
	c) Supervisors trained and equipped with supervision tools								
	d) Supervision every 1-3 months, with reviewing reports, monitoring of data								
	e) Supervisor visits community, makes home visits, coaches								
	f) CCM supervision is part of supervisor's performance review								

Component	Benchmark	Has Your Country Achieved this Benchmark?				Did Your Project...			If your project helped achieve the National Benchmark, how?
		No	Partial	Yes	Do Not Know	...have activities for this bench-mark at *project* level?	...have activities for this bench-mark at *national* level?	...help achieving this *national* bench-mark?	
	g) CHWs routinely supervised for QA and performance								
	h) Data from reports and community feedback used for problem solving and coaching								
	i) Yearly evaluation includes individual performance and coverage or monitoring data								
8: Monitoring, Evaluation and Health Information Systems	a) Monitoring framework developed for all components with information sources								
	b) Registers and report forms standardized								
	c) Indicators and standards for HMIS and CCM surveys defined								
	d) Research agenda for CCM documented and circulated								
	e) Monitoring framework tested and modified accordingly								
	f) Registers and forms reviewed								
	g) All levels trained to use framework								
	h) Monitoring and evaluation ongoing through HMIS data								
	i) OR and external evaluations of CCM performed as necessary								

Thank you! How long did it take you to complete this? _____

Do you have any suggestions for strengthening this inquiry? _____

_____

Do you have any suggestions to strengthen the benchmarks? Is anything missing? Redundant? Unclear?_

_____

_____

Anything else?_____

_____

_____

TABLE 2A: SAMPLE (COMPLETED PROJECTS)

#	NGO	Country	Years	U5MR (year)	% U5MR due to Pneumonia, Diarrhea and Malaria (WHO, 2006)	Project Level of Effort (PCM, CDD, MPT)	Impact Area			
							Total Pop U5 (x 1000)	Total Pop per sq km	Administrative Unit(s)	Ecology
1	SC	Ethiopia	'01–'06	166 (DHS, 2000) 171 (UNICEF, 2002) 123 (UNICEF, 2006)	22%, 17%, 6% **(45% total)**	15%, 10%, 10% **(35% total)**	26	6	1 district (Liben) in Borana Zone, Oromia Region	Agro-pastoralist; harsh, semi-arid (5-7 cm rain/year) climate with low, unreliable and unevenly distributed rainfall; sparsely settled
2	CFI	Senegal	'02–'06	139 (DHS, 1997) 121 (DHS, 2005) 138 (UNICEF, 2002) 116 (UNICEF, 2006)	21%, 17%, 28% **(66% total)**	10%, 10%, 15% **(35% total)**	31	Not found	4 districts (Thiadiaye, Popenguine, Mbour, Loal)	Drought-prone
3	IRC	DR Congo	'02–'07	270 (not dated) 205 (UNICEF, 2002) 205 (UNICEF, 2006)	23%, 18%, 17% **(58% total)**	15%, 15%, 25% **(55% total)**	27	Not found	20 health areas of a Health Zone in South Kivu Province, eastern DRC	Land tenure traditionally held by village chiefs whom families must pay; soil quality poor; fish farming down due to population displacements from the war and lack of capital investment
4	IRC	Sierra Leone	'03–'08	140 (DHS, 2008) 284 (UNICEF, 2002) 270 (UNICEF, 2006)	26%, 20%, 12% **(58% total)**	15%, 20%, 25% **(60% total)**	16	Not found	1 district (Kono)	Epicenter of recent 10-year civil war
5	WRC	Mozambique	'04–'09	152 (DHS, 2003) 197 (UNICEF, 2002) 138 (UNICEF, 2006)	21%, 17%, 19% **(57% total)**	10%, 20%, 20% **(50% total)**	34	Not found	5 rural districts in the Gaza Province (Massinger, Chibuto, Chicualacuala, Chigubo, Massangena)	Food insecurity, sparsely populated; mostly subsistence agriculture; villages reachable by unpaved roads parts of the year
6	SC	Mali	'04–'09	229 (DHS, 2001) 222 (UNICEF, 2002) 217 (UNICEF, 2006)	24%, 18%, 17% **(59% total)**	10%, 10%, 17% **(37% total)**	178	Not found	5 districts in the Sikasso Region (Yorosso, Selingue, Bougouni, Yanfolila, Kolondieba)	Not found

#	NGO	Country	Years	U5MR (year)	% U5MR due to Pneumonia, Diarrhea and Malaria (WHO, 2006)	Project Level of Effort (PCM, CDD, MPT)	Impact Area			
							Total Pop U5 (x 1000)	Total Pop per sq km	Administrative Unit(s)	Ecology
7	CRS	DR Congo	'05–'10	148 (DHS, 2007) 205 (UNICEF, 2002) 205 (UNICEF, 2006)	23%, 18%, 17% **(58% total)**	10%, 20%, 40% **(70% total)**	142	2 to 16 (more typical)	2 districts (Mwene-Ditu and Sankuru) in Kasai Province in south-central DRC, 2.5 hours by plane from Kinshasa; the non-contiguous districts are 2.5 days' drive apart.	Wet season makes rural roads impassable, dry season makes rivers to interior impassible due to low water levels
8	PLAN	Cameroon	'05–'12	144 (DHS, 2004) 149 (UNICEF, 2006)	22%, 17%, 23% **(62% total)**	10%, 10%, 40% **(60% total)**	212	235 in Bafut District	11 districts from 3 provinces: Bertoua, Doume, Nguelemenduka and Batouri (East Province); Akonolinga, Awae and Esse (Center Province); Ndop, Fundong, Mbengwi and Bafut (Northwest Province).	Limited geographical access to health care and cost of transport is a barrier
9	MCDI	Madagascar	'06–'09	94, but 140 in project province (DHS, 2003-04) 115 (UNICEF, 2006)	21%, 17%, 20% **(58% total)**	20%, 20%, 20% **(60% total)**	193	16	9 districts in Région Atsimo Andrefana (RAA) of the former Toliara Province of Madagascar (Southwest)	Nomadic due to drought. Economy: agriculture, livestock, fishing, mining of precious stones and tourism; sapphire mining in the RAA has caused labor migration
10	CWI	Rwanda	'06–'11	152 (DHS, 2005); 76 (DHS, 2010); 160 (UNICEF, 2006)	23%, 19%, 5% **(47% total)**	30%, 35%, 35% **(100% total)**	318	400	6 districts (Gisagara, Kirehe, Ngoma, Nyamagabe, Nyamasheke and Nyaruguru)	Over exploitation of land, indoor air pollution (wood burning); endemic for malaria

TABLE 2B: SAMPLE (ONGOING PROJECTS)

#	NGO	Country	Years	U5MR (year)	% U5MR due to Pneumonia, Diarrhea and Malaria (WHO, 2006)	Project Level of Effort (PCM, CDD, MPT)	Impact Area			
							Total Pop U5 (x 1000)	Total Pop per sq km	Administrative Unit(s)	Ecology
11	SC	Ethiopia	'07-12	123 (DHS, 2005) 123 (UNICEF, 2006)	22%, 17%, 6% **(45% total)**	35%, 20%, 20% **(75% total)**	70	Not found	2 districts (Lanfero and Shebedino) in SNNPR	Lanfero: lowland and mostly midland, subsistence farming; Shebedino highland and mid-highland, rural, 1150 mm/year rain
12	ERD	Uganda	'08-'12	137 (DHS, 2006) 134 (UNICEF, 2006) 250 in both Amuru and Gulu Districts (district development plans)	21%, 17%, 23% **(61% total)**	15%, 15%, 20% **(50% total)**	13	Not found	2 sub-counties, one each in Amuru and Gulu Districts (Northern Uganda)	Not found
13	WV	Afghanistan	'08-'12	257 (UNICEF, 2006)	25%, 19%, 1% **(45% total)**	15%, 15%, 0% **(30% total)**	52	Not found	4 districts in Herat Province (Karukh, Chest-I-Sharif, Zindajan, Kohsan)	Food insecure during the winter months
14	CWI	Burundi	'08-'13	96 (DHS, 2010) 181 (UNICEF, 2006)	23%, 18%, 8% **(49% total)**	15%, 20%, 25% **(60% total)**	44	Not found	3 communes (Mugina, Bukinanyana, and Mabayi) in Mabayi Health District in Cibitoke Province	Bukinanyana is the largest, most populous and most underserved of the 3 communes; conflict and instability have also ravaged this area
15	CFI	Honduras	'09-'13	30 (DHS, 2005-6) 27 (UNICEF, 2006)	Not known	12%, 0%, 25% **(37% total)**	15	Not found	12 municipalities of Department of Francisco Morazán, which includes 293 communities	Not found
16	MTI	Uganda	'09-'14	137 (DHS, 2006) 134 (UNICEF, 2006)	21%, 17%, 23% **(61% total)**	25%, 20%, 0% **(45% total)**	22	Not found	1 sub-district (Erute North) of Lira District	Not found
17	CWI	Niger	'09-'14	253 (UNICEF, 2006) 198 (DHS, 2006)	25%, 20%, 14% **(59% total)**	20%, 20%, 30% **(70% total)**	165	Not found	2 districts (Tahoua and Illéla) of 8 in Tahoua Region in northwestern Niger. Specifically, 6 rural communes of Tahoua District and limited activities in five HCs in Illéla District.	Primarily savanna with limited agriculture and grazing for livestock; soil erosion, deforestation, overgrazing and recurring droughts. These are primarily rural and agricultural populations with some regional migratory workers and nomads

#	NGO	Country	Years	U5MR (year)	% U5MR due to Pneumonia, Diarrhea and Malaria (WHO, 2006)	Project Level of Effort (PCM, CDD, MPT)	Impact Area			
							Total Pop U5 (x 1000)	Total Pop per sq km	Administrative Unit(s)	Ecology
18	SC	Zambia	'09-'14	119 (DHS, 2007) 182 (UNICEF, 2006)	22%, 18%, 19% **(59% total)**	20%, 20%, 20% **(60% total)**	15	10	1 district (Lufwanyama) in Copperbelt Region	Rural, sparsely populated, no paved roads, often impassible in rainy season, no hospital, no electricity apart from diesel generators
19	WV	South Sudan	'10-'14	176 for Warrab State (not dated)	16%, 13%, 21% **(50% total)** (for Sudan)	20%, 20%, 20% **(60% total)**	26.5	Not found	Warrab State	Malaria endemic
20	CHS	Benin	'10-'14	125 (DHS, 2006) 148 (UNICEF, 2006)	21%, 17%, 27% **(65% total)**	15%, 20%, 10% **(45% total)**	13.7	Not found	3 Health zones: Alada/Ze/Toffo (AZT), Dassa/Glazoue (DAGLA) , Save/Ouesse (SAO)	Not found
21	CWI	Sierra Leone	'11-'16	140 (DHS, 2008) 270 (UNICEF, 2006)	26%, 20%, 12% **(58% total)**	15%, 15%, 25% **(55% total)**	35.5	Not found	10 slums in Freetown	Malaria endemic
22	SC	Malawi	'11-'16	112 (DHS, 2010) but 121 in Blantyre (MICS, 2006) 120 (UNICEF, 2006)	23%, 18%, 14% **(55% total)**	18%, 18%, 18% **(54% total)**	91.5	Not found	Rural and under-served peri-urban communities in Blantyre District	Varied elevation (780-1620 m above sea level), tropical, two rainy seasons; 7 ethnic groups; subsistence farmers; literacy (72% m vs. 63% f)

TABLE 3A: ICCM CHARACTERISTICS (COMPLETED PROJECTS)

#	NGO	Country	CCM Years	Age Group (mos)	Treatments or Referral by Syndrome			CHW				Policy Context at Time of Project
					FB/P	D	F/M	Salaried?	Literate?	Sex	Official MOH Cadre	
1	SC	Ethiopia	2005–6	1 week to 59 mos	Cotrimoxazole	ORS	Chloroquine and Fansidar	No	Yes	100% male	No	Project coincided with introduction of HEP/HEW who were mainly preventive, but did treat malaria and diarrhea. GOE and USAID/ Ethiopia initially forbade HEWs to treat pneumonia in the community
2	CFI	Senegal	2006	Not found	Cotrimoxazole	ORS	SP-amodiaquine -> ACT	No, but cost recovery on drug markup (not clear if this is national policy, or project only)	Mixed; wanted literate, but 40% non-literate.	Not found	Not found	Not specified, but partnered with BASICS to test PCM
3	IRC	DR Congo	2004–06	0–59?	Refer	ORS previously promoted. MOH encourages home solutions	Refer	No	Not found	Not found	Not found	In June 2005, the MOH adopted community treatment for diarrhea with ORS and zinc, and malaria and pneumonia with first-line treatment, but policy became restrictive —mainly satellite health posts with “care sites” in a few remote villages, i.e., physical structures staffed full-time by rotating community workers
4	IRC	Sierra Leone	Not found	0–59?	Not found	ORS and zinc	ACT	No	Yes	Not found	Yes	IRC advocated for C-IMCI based on PWBB project. C-IMCI received local and then national approval through the National Malaria Program; CCM/P prohibited
5	WRC	Mozambique	Not found	0–59?	Unclear	ORS	Chloroquine	Not exactly, but village health committee establishes a fee for service which socorrista collects	Yes	Not found	Yes	Project consistent with GRM policies for individual interventions and C-IMCI strategy; yes (IMCI guidelines promoted, MOH staff undergo trainings to ensure treatment/recognition)

#	NGO	Country	CCM Years	Age Group (mos)	Treatments or Referral by Syndrome			CHW				Policy Context at Time of Project
					FB/P	D	F/M	Salaried?	Literate?	Sex	Official MOH Cadre	
6	SC	Mali	2006–09	0–59?	Refer	ORS	Artesunate + Amodia-quine (plans to introduce ACT)	No, but incentivized by trust, respect of the elders, helping community health, and links with health center	Mixed	Overwhelmingly male (selected by male chiefs)	Yes	National Malaria Program in 2009 allowed ACT in VDKs if DK Managers are trained; "Policy, Standards and Procedures in Health" contains case management of ARI guidelines/procedures
7	CRS	DR Congo	2007–12	0–24	Cotrimoxazole	ORS and zinc	ACT	No, but plan for 25% of medicine sale profits for bonuses (may not have been implemented)	Yes	iCCM VHAs: male	Yes	National ARI program (since 2003)
8	PLAN	Cameroon	2006–10	2–59	Amoxicillin	ORS and zinc	ACT	No, but receive markup for medicines sold	Not found	Not found	Yes	Strong Home Management for Malaria Policy (through RBM), but not for pneumonia
9	MCDI	Madagascar	Not found	0–59?	Cotrimoxazole	ORS and zinc	ACT	No, but receive expenses for training and meetings and priority for financial incentives "when available"	Not found	Not found	Not found	New decentralization policy mandates community health committees and volunteers in NGO projects and promotes CCM, including for pneumonia
10	CWI	Rwanda	2007–11	2–59	Amoxicillin	ORS and zinc	ACT	No, but some cash support through contract between government and CHW co-ops since 2010	Yes; primary education+J20	1 male and 1 female in every village	Yes	Strong Community Health Policy since 2006; interested in field-testing CCM for pneumonia

TABLE 3B: ICCM CHARACTERISTICS (ONGOING PROJECTS)

#	NGO	Country	CCM Years	Age Group (mos)	Treatments or Referral by Syndrome			CHW				Policy Context at Time of Project
					FB/P	D	F/M	Salaried?	Literate?	Sex	Official MOH Cadre	
11	SC	Ethiopia	2007–12, but PCM added 2010	1 week to 59 mos	Cotrimoxazole, as of 2009	ORS and zinc	ACT for falciparum, chloroquine for vivax	Yes	Yes; 10th grade education	100% female	Yes	Health Extension Program (HEP) provides 2 Health Extension Workers per kebele (~5000 total population) to treat malaria (with RDT), diarrhea, and fast breathing as of late 2009
12	ERD	Uganda	Not found	0–59?	Antibiotic	ORS	first line anti-malarial	No, but incentivizes: savings and loan groups	Yes	Not found	Yes	Full iCCM policy.
13	WV	Afghanistan	Not found	0–59?	Antibiotic (?)	Zinc, ORS	Not applicable	Not found	Not found	Not found	Not found	Zinc is not an MoPH policy but BHAMC received approval to implement zinc; MoPH approval for CHWs to provide CCM, including antibiotics
14	CWI	Burundi	2012–13	0–59?	Referral	ORS	RDTs and ACTs	No, but incentives: T-shirt, resources funneled back into community through COSAs based on indicators	Yes	~40% female	Yes	At DIP, no national CCM policy, but the MOH was open to piloting it, starting with diarrhea, then malaria and perhaps pneumonia. In 12/09 MOH decided that pilot unnecessary and CCM scale-up should proceed
15	CFI	Honduras	Not found	0–59?	1st dose of antibiotic and refer	Not found ("first-line treatment")	Not applicable	No, but incentives: MOH ID card, uniforms, free health care for volunteer and family, training, certificate, annual prize for the best performance	Not found	Not found	Yes	C-IMCI implemented in the context of AIN-C (Integrated Community Child Health Program) and UCOS, usually by NGOs in rural areas; National 'norm' for IMCI treatment and follow-up for pneumonia included

#	NGO	Country	CCM Years	Age Group (mos)	Treatments or Referral by Syndrome			CHW				Policy Context at Time of Project
					FB/P	D	F/M	Salaried?	Literate?	Sex	Official MOH Cadre	
16	MTI	Uganda	2010–14	0–59?	Refer	ORS and zinc	ACT	No, but community members think they are being paid, leading to jealousy in some communities.	Not found	Not found (at MTE, 24% of VHTs are women)	Yes	Full iCCM policy, but not in all districts
17	CWI	Niger	2012–14	0–59?	Cotrimoxazole	ORS and Zinc	Coartem	Not found	Yes	Mother Leaders: female; CHAs: male, female, too?	Yes	Not found
18	SC	Zambia	2009–14	2–59	1st dose Amoxicillin and refer or treat if not possible	ORS and zinc	RDT + ACT	No, but CHWs and TBAs receive kid goats from project if successfully complete training; TBAs receive in-kind payments for services	Yes (CHWs); Mixed (TBAs)	CHWs: younger males; TBAs: older females	Yes (but TBAs "ambi-guous")	Full iCCM policy.
19	WV	South Sudan	Not found	2–59	Amoxicillin	ORS and zinc	ACT	No, but compensated through material and non-material incentives.	Not found	Not found	Yes	Not found
20	CHS	Benin	2012–	0–59?	Cotrimoxazole	ORS and zinc	ACT	Yes. 10,000 cfa (approx $22)/month, plus up to 5,000 cfa (frequency unspecified) as a performance bonus	Yes	Mixed	Yes	Not Found
21	CWI	Sierra Leone	Not found	Not found	Antibiotic	ORS and zinc	ACT	No, but Incentives will be provided according to CHW policy	Not found	Community Health Volunteers	Yes	Not found
22	SC	Malawi	2011–2016	2–59	Cotrimoxazole	ORS and zinc	ACT	Yes	Yes	Health Surveillance Assistants	Yes.	Full iCCM policy.

TABLE 4A: ACCESS APPROACHES (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
Mapping	7		3		10
CHW Selection	9		1		10
CHW Deployment	8		1	1	10
Retention Strategies	5	1	2	2	10
Referral Strengthening	8	1	1		10
Total	37	2	8	3	50

TABLE 4B: ACCESS APPROACHES (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Mapping	3	4		1	2	1	1		12
CHW Selection	4	2	1	1	1	1		2	12
CHW Deployment	4	1		1	1	4	1		12
Retention Strategies	3	1			3	5			12
Referral Strengthening	2	5			3	1	1		12
Total	16	13	1	3	10	12	3	2	60

TABLE 5A: QUALITY APPROACHES (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
CHW selection criteria	9		1		10
Competency-based training	4	3	3		10
Training package	7		3		10
% Training clinical	3		6	1	10
Competency-based certification	3	2	5		10
Competency-based job aids	3		5	2	10
Competency-based supervisor training			3	7	10
Deploying supervisors	7		2	1	10
Sick child record, form or case management guideline	7		3		10
Register	5		2	3	10
Monthly reports	8		1	1	10
Competency-based supervision of CHWs	3		4	3	10
Frequency of supervision (plan vs. actual)	4		4	2	10
Supervision content (clinical, etc.)	7		2	1	10
Supervision checklist	6		3	1	10
Supervision locus	6		3	1	10
Supervision of supervisors	4		6		10
Total	86	5	56	23	170

TABLE 5B: QUALITY APPROACHES (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
CHW selection criteria	4	3	0	0	2	3	0	0	12
Competency-based training	5	4	0	0	1	1	0	1	12
Training package	4	5	0	0	1	0	1	1	12
% Training clinical	2	2	0	0	2	3	2	1	12
Competency-based certification	2	2	0	0	4	3	0	1	12
Competency-based job aids	2	2	0	0	3	3	1	1	12
Competency-based supervisor training	1	3	0	0	5	2	0	1	12
Deploying supervisors	6	6	0	0	0	0	0	0	12
Sick child record. form or case management guideline	2	1			3	2	1	3	12
Register	4	3			1	2	1	1	12
Monthly reports	4	4			2	2			12
Competency-based supervision of CHWs	4	2	0	0	1	1	1	3	12
Frequency of supervision (plan vs. actual)	4	5	0	0	1	1	1	0	12
Supervision content (clinical, etc.)	3	2	0	0	2	1	1	3	12

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Supervision checklist	4	5			2	1			12
Supervision locus	4	3	0	0	0	2	2	1	12
Supervision of supervisors	1	3	0	0	3	2	2	1	12
Total	56	55	0	0	33	29	13	18	204

TABLE 6A: DEMAND APPROACHES (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
Initial sensitization	4		6		10
BCC messages	6		3	1	10
Messages specified	2	1		7	10
BCC targets	7		3		10
BCC channels	7		2	1	10
BCC products	5		4	1	10
Total	31	1	18	10	60

TABLE 6B: DEMAND APPROACHES (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Initial sensitization		1			6	5			12
BCC messages	4	5			2	1			12
Messages specified	0	1	3	2			3	3	12
BCC targets	2	4			4	2			12
BCC channels	4	4			1	1	1	1	12
BCC products	3	3			3	2		1	12
Total	13	18	3	2	16	11	4	5	72

TABLE 7A: CCM DEMAND CREATION MESSAGES BY PROJECT AND TOPIC (COMPLETED PROJECTS)

NGO	Country	Years	Topic			
			Malaria	Pneumonia	Diarrhea	Other
SC	Ethiopia	'01–'06				
CFI	Senegal	'02–'06			Use of home fluids or ORS	Increase knowledge of danger signs and the need for timely referral to health posts
IRC	DR Congo	'02–'07	You should bring your child to the health center if: ▪ She has a fever ▪ She cannot eat or drink ▪ She has convulsions ▪ She is unable to do the basic things she is usually capable of (such as talking, walking, staying awake)	▪ It is best to take your child to the health center for respiratory or throat problems ▪ Medicines there can help your child get better ▪ Uvulectomies can kill or seriously harm your child ▪ If your child has rapid or difficult breathing, take her to the health center	▪ If your child has diarrhea, giving her ORS will help protect her from being dehydrated, or "dry," which can be very dangerous ▪ If your child has "floppy skin," sunken eyes, a dry mouth, or is urinating less than usual, or if he has a sunken fontanel if he is less than 12 months old, this probably means that he is very dehydrated. You should give him ORS at once and take him to the health center	Taking your children to pirates is bad and kills children
IRC	Sierra Leone	'03–'08		Danger signs of pneumonia	ORS preparation, and recognition of dehydration	
WRC	Mozambique	'04–'09	▪ Fever, convulsions, and severe anemia can be signs of malaria, and early treatment is essential to reduce mortality. Children and pregnant women are at particular risk	▪ There are many infections of the upper respiratory track that are not life threatening and may cause cough and fever. However, pneumonia is a leading cause of death in children and is caused by infection in the lungs. The symptoms are, in addition to cough and fever, rapid breathing and (sometimes) retractions between the ribs when a child inhales ▪ If a child develops rapid breathing along with other symptoms such as cough, fever, or difficult respirations, the child may have pneumonia. Retractions between the ribs on inhalation are a sign of severe pneumonia	▪ Diarrhea can cause dehydration, which can be fatal. Dehydration produces lethargy, a depressed fontanel (in babies), decreased urine output and tearing, and loss of skin turgor ▪ Dehydration is best treated with fluids, including breast milk, oral rehydration solution, and home-based fluids such as tea, coconut water, rice water, water with milled maize, or fruit juice ▪ Take the child to the Health Center if the child's diarrhea does not stop after 7 days, if the child has fever with diarrhea, if there is blood with the diarrhea, if there is malnutrition with the diarrhea, if the diarrhea is severe, or the child won't drink or suckle	

NGO	Country	Years	Topic			
			Malaria	Pneumonia	Diarrhea	Other
SC	Mali	'04–'09	Fever case management, recognition of danger signs, counseling mothers of children with fever		ORS/zinc use, danger sign recognition	Better care seeking
CRS	DR Congo	'05–'10			ORS administration for child with diarrhea	Timely care seeking when child is ill
PLAN	Cameroon	'05–'12			Proper use of zinc with ORS	Mentioned a message booklet but not sure what the messages were
MCDI	Madagascar	'06–'09				Case management of the sick child at home, particularly on the recognition of the danger signs and care seeking for childhood illnesses (including malaria, ARI, diarrhea)
CWI	Rwanda	'06–'11	Children under five are treated with appropriate anti-malarial within 24 hours of fever	Seek care from trained providers for children with signs of pneumonia	▪ Children under five with diarrhea receive ORS ▪ Mothers of children under five with diarrhea seek care and receive zinc treatment for the child	

TABLE 7B: CCM DEMAND CREATION MESSAGES BY PROJECT AND TOPIC (ON-GOING PROJECTS)

NGO	Country	Years	Topic			
			Malaria	Pneumonia	Diarrhea	Other
SC	Ethiopia	'07–12			Home management of diarrheal episodes (use of ORT, care-seeking for zinc therapy)	▪ Recognition of newborn and child danger signs; ▪ Prompt and appropriate care-seeking
ERD	Uganda	'08–'12	Malaria symptoms, treatment	ARI symptoms, treatment	Diarrhea symptoms, treatment	
WV	Afghanistan	'08–'12				
CWI	Burundi	'08–'13	▪ • A child with fever should be brought to the clinic immediately (within 24 hours) ▪ Danger sign recognition and care seeking	A child with cough/rapid breathing should be brought to the clinic immediately	Home-based management of diarrhea, danger signs, and care seeking	
CFI	Honduras	'09–'13				
MTI	Uganda	'09–'14		▪ Early recognition of danger	▪ Respond to recognized danger	

NGO	Country	Years	Topic			
			Malaria	Pneumonia	Diarrhea	Other
				signs for ARI/pneumonia ▪ Appropriate care for children with serious ARI/pneumonia	signs for severe diarrhea and dehydration by giving ORS and taking child to health facility ▪ Children with diarrhea are treated with zinc for 14 days	
CWI	Niger	'09–'14				▪ Give sick children appropriate home treatment for infections (diarrhea, malaria, pneumonia) ▪ Recognize when sick children need treatment outside the home and seek care from appropriate providers ▪ Follow the health provider's advice on treatment, follow-up, and referral
SC	Zambia	'09–'14			Appropriate home management of simple diarrhea episodes	▪ Recognition of danger signs for newborn and childhood illness ▪ Timely and appropriate care-seeking for, and compliance with, treatment and/or referral
WV	South Sudan	'10–'14				
CHS	Benin	'10–'14				Encourage patients to seek out the CHW in their community when appropriate
CWI	Sierra Leone	'11–'16				
SC	Malawi	'11–'16				

TABLE 8A: ENVIRONMENT APPROACHES (COMPLETED PROJECTS, N=10)

Variable	Yes	No	DK	Unclear	Total
Community capacity	8		1	1	10
Policy evidence	3	1	4	2	10
Policy experience	6		2	2	10
M&E Plan	8		1	1	10
Total	25	1	8	6	40

TABLE 8B: ENVIRONMENT APPROACHES (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		DK		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Community capacity	4	4			2	2			12
Policy evidence	4	1			2	5			12
Policy experience	3	3			2	2		2	12
M&E Plan	6	6							12
Total	17	14	0	0	6	9	0	2	48

TABLE 9: GLOBAL CCM RESEARCH AGENDA VS. ONGOING RESEARCH BY CSHGP GRANTEES

Topic	Question	Project
Front-line health workers	1. What is the effect on the performance of CHW when management of **one or more disease is added** to the existing responsibility?	SC/Malawi
	2. Are CHWs able to assess, classify, and treat various illnesses under **integrated CCM**?	
	3. What are the best ways to improve and **sustain performance** of CHWs?	CHS/Benin
	4. What are the cost and performance of different **training methods** for (illiterate/literate) CHWs?	WV/South Sudan
	5. What are the best methods for **evaluating the quality** of service provided by CHW?	
	6. What is the **optimal number of CHWs** to give near universal coverage to a given geographic area?	
	7. What are the best ways of **supervising** CHWs?	WV/South Sudan
	8. Which factors **increase recruitment and reduce attrition**?	
	9. Which methods of **remuneration/incentivization** are effective and sustainable?	
Implementation	10. What are the **costs and cost-effectiveness** of CCM?	CFI/Honduras
	11. What are appropriate methods for **cost recovery** and financing?	
	12. How can effective coverage be achieved by CCM (**equity**, community effectiveness, etc.)?	WV/Afghanistan
	13. How can the **private sector** become involved in delivering integrated CCM?	
	14. How **acceptable are CHWs** to the health system?	CWI/Niger; SC/Zambia
	15. How can CCM **requirements for drugs, supplies, supervision**, etc. be met?	
	16. What are health system effects of CCM on referral and **case load and mix**?	
	17. What is the effect of CCM on **antibiotic resistance**?	
	18. What is the impact of CCM on **drug use** and **therapeutic outcomes** in the community?	
Management of illness	19. How can available **tools** (RDTs, clinical signs, timers, drugs, pulse oximeters, etc.) be combined into clinical algorithms?	
	20. What is the **algorithm** performance in different epidemiologic scenarios?	
	21. What is the appropriate d**uration of antibiotic treatment of WHO-defined non-severe pneumonia in African** settings?	
	22. Can CHWs treat WHO-defined **severe pneumonia in the community**?	
	23. How can **age-dose regimens** for different drugs be harmonized, and what are the effects on treatment of different **packaging** techniques?	
	24. What is the **impact of pre-referral drugs** on clinical outcomes of children with severe disease?	
	25. What is the most appropriate **antibiotic for treatment of pneumonia**?	

Topic	Question	Project
	26. What is the most appropriate **formulation** of antibiotics?	
Families and caregivers	27. Do family members **recognize** the disease and promptly seek care?	
	28. What are the elements that facilitate family members to **utilize CCM services**?	CWI/Burundi
	29. Do family members **follow treatment recommendations** properly?	
	30. How does prescription of multiple medicines for multiple diseases (e.g., malaria and pneumonia) impact **adherence**?	
Impact	31. What is the impact of integrated CCM on health and **survival** of children?	
	32. Does CCM lead to increased penetration in terms of reaching **the poor**? (effective coverage)	

TABLE 10A: ACCESS RESULTS (COMPLETED PROJECTS, N=10)

Variable	Yes	No	DK	Unclear	Total
CHW/Population	7			3	10
Equity	10				10
Attrition	3		7		10
Referral	6		2	2	10
Total	26	0	9	5	40

TABLE 10B: ACCESS RESULTS (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		DK		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
CHW/Population	1	3			5	1		2	12
Equity		1			5	2	1	3	12
Attrition					6	5		1	12
Referral		1			6	4		1	12
Total	1	5	0	0	22	12	1	7	48

TABLE 11A: QUALITY RESULTS (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
Case Management	7		3		10
Case Load	4		6		10
Medicine Availability	7		3		10
Total	18	0	12	0	30

TABLE 11B: QUALITY RESULTS (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Case Management		1			6	5			12
Case Load		1			6	5			12
Medicine Availability		2			6	2		2	12
Total	0	4	0	0	18	12	0	2	36

TABLE 12A: DEMAND RESULTS (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
Knowledge of Illness Signs	6	3	1		10
1st Source of Care	2		4	4	10
Knowledge of CHW	2		8		10
Total	10	3	13	4	30

TABLE 12B: DEMAND RESULTS (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Knowledge of Illness Signs		2			6	4			12
1st Source of Care					6	6			12
Knowledge of CHW					6	6			12
Total	0	2	0	0	18	16	0	0	36

TABLE 13A: ENVIRONMENT RESULTS (COMPLETED PROJECTS, N=10)

Variable	Yes	No	Don't Know	Unclear	Total
Community	3		7		10
Policy	6		4		10
Total	9	0	11	0	20
Publication	1		9		10
Other	3		7		10

TABLE 13B: ENVIRONMENT RESULTS (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		Don't Know		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Community					6	6			12
Policy		2			6	4			12
Total	0	2	0	0	12	10	0	0	24
Publication					6	6			12
Other		1			6	5			12

TABLE 14A: USE RESULTS (COMPLETED PROJECTS, N=10)

Variable	Yes	No	DK	Unclear	Total
Coverage Change					
Pneumonia care-seeking	6		3	1	10
Pneumonia treatment	4		5	1	10
Diarrhea treatment	8		2		10
Malaria treatment	6		4		10
Total	24	0	14	2	40
Counts/1000 <5yr					
Aggregate	4		6		10
Pneumonia care-seeking or treatment	2		8		10
Diarrhea treatment	1		9		10
Malaria treatment	1		9		10
Mortality change	3		7		10

TABLE 14B: USE RESULTS (ONGOING PROJECTS, N=12, STRATIFIED BY PRE- VS. POST-MTE [6 EACH])

Variable	Yes		No		DK		Unclear		Total
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	
Coverage Change									
Pneumonia care-seeking or treatment					6	6			12
Diarrhea treatment					6	6			12
Malaria treatment					6	6			12
Total	0	0	0	0	18	18	0	0	36
Counts/1000 <5yr									
Pneumonia care-seeking or treatment		1			6	5			12
Diarrhea treatment		1			6	5			12
Malaria treatment		1			6	5			12
Mortality change					6	6			12

TABLE 15: COVERAGE (%) OF CCM INTERVENTIONS IN 10 COMPLETED PROJECTS

Project	Age range (months)	Diarrhea Treatment: ORS		Diarrhea Treatment: Zinc		Malaria Treatment		Pneumonia Care-Seeking		Pneumonia Treatment	
		Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline	Baseline	Endline
CWI Rwanda	0–59	19	33	5	22	20	43	13	63	n/a	54
MCDI Madagascar	0–23	54	Not done			17	Not done	28	Not done		
PLAN Cameroon	0–59, 0–23	50	68			12	52	37	74		
CRS DRC	0–23	13	17	0	85	1	5	44	36	32	33
IRC DRC	12–23	39	39					17	44		
IRC Sierra Leone	0–59	Not done	86	Not done	57	11	56			42	86
SC Mali	0–23	18	68			26	83**	25	45***		
CFI Senegal	0–23	50	96			64	82	74	88		
SC Ethiopia	0–23	64	94*					58	84		
WRC Mozambique	0–23	54	71			17	62			10	64

INDICATOR NOTES: Diarrhea Treatment ORS PLAN/Cameroon, CRS/DRC, SC/Mali and CFI/Senegal: ORS and/or recommended home fluids. *SC/Ethiopia % seeking care from trained health worker for diarrheal-related danger sign. **Diarrhea Treatment Zinc** CRS/DRC values seem high in light of level of use of ORS. **Malaria Treatment** CWI/Rwanda, IRC/Sierra Leone, and CFI/Senegal: appropriate anti-malarial treatment within 24 hours; PLAN Cameroon: full course initiated within 24 hours; CRS/DRC: treatment or seeking care within 24 hours from a trained provider; WRC/Mozambique: treatment at facility within 24 hours. **SC/Mali: % seeking care from drug kit provider or health center for fever. **Pneumonia Care-Seeking** CWI/Rwanda**:** chest-related cough and fast and/or difficult breathing taken to an appropriate health provider; PLAN/Cameroon: cough and fast/difficult taken to a health facility or a trained alternative source; CRS/DRC: cough and difficult breathing taken to health center; IRC/DRC: % seeking care at a clinic for throat problem or % seeking care at health centers for respiratory problem; CFI/Senegal and SC/Ethiopia: % seeking care—stratified by source. ***SC/Mali %<5s with difficult or rapid breathing going to village drug kit provider and referred to health center. **Pneumonia Treatment** CWI/Rwanda: % cough or respiratory difficulty in past 2 weeks who received correct first-line antibiotics from a trained provider; CRS/DRC: cough and fast or difficult breathing in past two weeks treated with antibiotic; IRC/Sierra Leone: % with difficult breathing who receive correct treatment within 24 hours from authorized providers; WRC/Mozambique: % with rapid/difficult breathing (suspected pneumonia) treated within 24 hours at a health facility.

TABLE 16: ILLUSTRATIVE NGO ROLES IN SUPPORT OF ACHIEVING NATIONAL CCM BENCHMARKS BY COUNTRY AND HEALTH SYSTEM COMPONENT

Health System Component	Country				
	Ethiopia (SC)	Malawi (SC)*	Rwanda (CWI)	Sierra Leone (IRC)	Zambia (SC)
Coordination and Policy	▪ As member of Child Survival Technical Working Group (CSTWG): participated in mapping, defining HEW roles, reviewing policies and guidelines and launching CCM strategy; and produced and presented technical papers ▪ Established first CSTWG in Southern Region	▪ Conducted health facility assessment in all health facilities of 6 districts at the beginning of project implementation ▪ Successfully advocated for HSA residence and accrediting to provide CCM ▪ Reviewed guidelines ▪ Participate in host stakeholder meetings	▪ Member of TWG from outset and hosted project sites for pilot testing		
Costing and Finance		▪ Lobbied with IMCI unit and district health offices for districts to include CCM activities in annual budgets			
Human Resources	▪ CS23 was first to introduce CCM for pneumonia, informing training strategy ▪ Both "Best Performing HEW" awards to CS23 HEWs ▪ As member of CSTWG, reviewed retention strategy	▪ Supplied HSAs with bicycles (motivation) ▪ Conduct refresher trainings	▪ Invested heavily in CHW curriculum and training		
Supply Chain	▪ As member of CSTWG, contributed to develop implementation plan	▪ Participated in national quantification for community products ▪ Conducted monthly *ad hoc* checks on supply	• Dedicated TWG to handle CCM supply		
Service Delivery and Referral	▪ As member of CSTWG, contributed to develop implementation plan ▪ CS23 district was pilot site for national TOT ▪ CS23 staff facilitated CCM guideline pre-test, training, and review		▪ ~1/3 of all CCM treatments in the last project year in project districts		

Health System Component	Country				
	Ethiopia (SC)	Malawi (SC)*	Rwanda (CWI)	Sierra Leone (IRC)	Zambia (SC)
Communication and Social Mobilization		▪ Trained and oriented community leaders ▪ Adapted posters from malaria, sanitation and diarrhea programs	▪ BEHAVE framework informed formative research and Care Groups disseminated messages		
Supervision and Performance QA		▪ Facilitated developing supervision guidelines ▪ Organized quarterly supervision to districts by MOH HQ	▪ Supported supervision through performance-based financing		
Monitoring and Evaluation and HIS	▪ CS23 monitoring framework informed national framework and indicators ▪ National research agenda informed by global CCM OR agenda introduced by SC HQ ▪ OR planned, workshop conducted, concept note developed, but… MOH changed policy	▪ Reviewed M&E tools ▪ Checking expected vs. actual cases managed by HSAs ▪ Trained all HSAs on the revised data collection tools	▪ IMCI Bulletin visually displayed performance and encouraged discussion and action		

*These activities, part of a CIDA funded "Community Fever" project, will inform the *current* SC/Malawi CSGHP CCM project.

TABLE 17: APPROACHES THAT LIKELY INFLUENCED THE ACHIEVEMENT OF SELECTED PROJECTS (SEE CASE STUDIES)

Approach	IRC/Sierra Leone	SC/Ethiopia	CWI/Rwanda
Access	▪ Village-selected CHW	▪ CHWs = pre-existing volunteers ▪ Mapping and selecting remote, but not inaccessible	▪ Village-based selection
Quality	▪ CHW (peer) meetings to problem solve ▪ Supervision with PHU staff to discuss monthly reports ▪ On site supervision to assess competence ▪ Worked with MOH and UNICEF for sustainable supply of medicines	▪ HF staff trained in IMCI ▪ CCM training with 1 day of clinical training ▪ 3 trainees/ trainer ▪ Competency-based certification ▪ 3-day CCM refresher 6 months later ▪ CCM assessment by direct observation or case scenario ▪ Project procured ▪ Medicines	▪ 30% clinical training ▪ Competency-based certification ▪ Performance-based financing to HF for supervision ▪ Performance contract ▪ Direct observation and caregiver exit interviews ▪ CHW peer groups (“care groups”) ▪ Procurement of amoxicillin, ORS, zinc
Demand			▪ Participatory development of strategy ▪ CHW care groups
Enabling Environment	▪ Partnership with women’s groups to support CHWs	▪ Presentation at EPA meeting	▪ Decentralization championed ▪ Sharing results with communities ▪ National advocacy
Other	▪ Low baseline, given post-conflict	▪ 10 years of program learning	

TABLE 18: INFORMATION YIELD BY VARIABLE, VARIABLE GROUP, AND PROJECT STATUS

Variable	Overall			Completed Projects			Ongoing Projects (Post-MTE)			Ongoing Projects (Pre-MTE)		
	N	D	%	N	D	%	N	D	%	N	D	%
Population Density	6	22	27%	5	10	50%	0	6	0%	1	6	17%
National CCM Context, of which	**126**	**152**	**83%**	**58**	**70**	**83%**	**31**	**40**	**78%**	**37**	**42**	**88%**
Years of CCM Strategy	14	22	64%	7	10	70%	3	6	50%	4	6	67%
CCC Targeted Age Group	20	22	91%	9	10	90%	6	6	100%	5	6	83%
Specified approach to pneumonia	19	22	86%	8	10	80%	5	6	83%	6	6	100%
Specified approach to diarrhea	21	22	95%	10	10	100%	5	6	83%	6	6	100%
Specified approach to malaria	20	20	100%	10	10	100%	4	4	100%	6	6	100%
CHW official cadre	18	22	82%	7	10	70%	5	6	83%	6	6	100%
CHW literacy	14	22	64%	7	10	70%	3	6	50%	4	6	67%
Access Approaches, of which	**66**	**110**	**60%**	**37**	**50**	**74%**	**13**	**30**	**43%**	**16**	**30**	**53%**
Mapping	14	22	64%	7	10	70%	4	6	67%	3	6	50%
CHW selection	15	22	68%	9	10	90%	2	6	33%	4	6	67%
CHW deployment	13	22	59%	8	10	80%	1	6	17%	4	6	67%
Retention strategies	9	22	41%	5	10	50%	1	6	17%	3	6	50%
Referral strengthening	15	22	68%	8	10	80%	5	6	83%	2	6	33%
Quality Approaches, of which	**197**	**374**	**53%**	**86**	**170**	**51%**	**55**	**102**	**54%**	**56**	**102**	**55%**
CHW selection criteria	16	22	73%	9	10	90%	3	6	50%	4	6	67%
Competency-based training	13	22	59%	4	10	40%	4	6	67%	5	6	83%
Training package	16	22	73%	7	10	70%	5	6	83%	4	6	67%
% Training clinical	7	22	32%	3	10	30%	2	6	33%	2	6	33%
Competency-based certification	7	22	32%	3	10	30%	2	6	33%	2	6	33%
Competency-based job aids	7	22	32%	3	10	30%	2	6	33%	2	6	33%
Competency-based supervisor training	4	22	18%	0	10	0%	3	6	50%	1	6	17%
Deploying supervisors	19	22	86%	7	10	70%	6	6	100%	6	6	100%
Sick child recording form or case management guideline	10	22	45%	7	10	70%	1	6	17%	2	6	33%

Variable	Overall			Completed Projects			Ongoing Projects (Post-MTE)			Ongoing Projects (Pre-MTE)		
	N	D	%	N	D	%	N	D	%	N	D	%
Register	12	22	55%	5	10	50%	3	6	50%	4	6	67%
Monthly reports	16	22	73%	8	10	80%	4	6	67%	4	6	67%
Competency-based supervision of CHWs	9	22	41%	3	10	30%	2	6	33%	4	6	67%
Frequency of supervision (plan vs. actual)	13	22	59%	4	10	40%	5	6	83%	4	6	67%
Supervision content (clinical, etc.)	12	22	55%	7	10	70%	2	6	33%	3	6	50%
Supervision checklist	15	22	68%	6	10	60%	5	6	83%	4	6	67%
Supervision locus	13	22	59%	6	10	60%	3	6	50%	4	6	67%
Supervision of supervisors	8	22	36%	4	10	40%	3	6	50%	1	6	17%
Demand Approaches, of which	**62**	**132**	**47%**	**31**	**60**	**52%**	**18**	**36**	**50%**	**13**	**36**	**36%**
Initial sensitization	5	22	23%	4	10	40%	1	6	17%	0	6	0%
BCC messages	15	22	68%	6	10	60%	5	6	83%	4	6	67%
Messages specified	3	22	14%	2	10	20%	1	6	17%	0	6	0%
BCC targets	13	22	59%	7	10	70%	4	6	67%	2	6	33%
BCC channels	15	22	68%	7	10	70%	4	6	67%	4	6	67%
BCC products	11	22	50%	5	10	50%	3	6	50%	3	6	50%
Enabling Environment Approaches, of which	**57**	**88**	**65%**	**26**	**40**	65%	**14**	**24**	**58%**	**17**	**24**	**71%**
Community capacity	15	22	68%	7	10	70%	4	6	67%	4	6	67%
Policy experience	12	22	55%	6	10	60%	3	6	50%	3	6	50%
Policy evidence	10	22	45%	5	10	50%	1	6	17%	4	6	67%
M&E plan	20	22	91%	8	10	80%	6	6	100%	6	6	100%
Access Results, of which	**32**	**88**	**36%**	**26**	**40**	**65%**	**5**	**24**	**21%**	**1**	**24**	**4%**
CHW/Population	11	22	50%	7	10	70%	3	6	50%	1	6	17%
Equity	11	22	50%	10	10	100%	1	6	17%	0	6	0%
Attrition	3	22	14%	3	10	30%	0	6	0%	0	6	0%
Referral	7	22	32%	6	10	60%	1	6	17%	0	6	0%
Quality Results, of which	**22**	**66**	**33%**	**18**	**30**	**60%**	**4**	**18**	**22%**	**0**	**18**	**0%**

Variable	Overall			Completed Projects			Ongoing Projects (Post-MTE)			Ongoing Projects (Pre-MTE)		
	N	D	%	N	D	%	N	D	%	N	D	%
Case management	8	22	36%	7	10	70%	1	6	17%	0	6	0%
Case load	5	22	23%	4	10	40%	1	6	17%	0	6	0%
Medicine availability	9	22	41%	7	10	70%	2	6	33%	0	6	0%
Demand Results, of which	**12**	**66**	**18%**	**10**	**30**	**33%**	**2**	**18**	**11%**	**0**	**18**	**0%**
Knowledge of Illness signs	8	22	36%	6	10	60%	2	6	33%	0	6	0%
1st source of care	2	22	9%	2	10	20%	0	6	0%	0	6	0%
Knowledge of CHW	2	22	9%	2	10	20%	0	6	0%	0	6	0%
Environment Results, of which	**11**	**44**	**25%**	**9**	**20**	**45%**	**2**	**12**	**17%**	**0**	**12**	**0%**
Community capacity	3	22	14%	3	10	30%	0	6	0%	0	6	0%
Policy	8	22	36%	6	10	60%	2	6	33%	0	6	0%
Use Results, of which	**34**	**176**	**19%**	**31**	**80**	**39%**	**3**	**48**	**6%**	**0**	**48**	**0%**
Coverage pneumonia (care-seeking)	6	22	27%	6	10	60%	0	6	0%	0	6	0%
Coverage pneumonia (treatment)	4	22	18%	4	10	40%	0	6	0%	0	6	0%
Coverage diarrhea	7	22	32%	7	10	70%	0	6	0%	0	6	0%
Coverage malaria	6	22	27%	6	10	60%	0	6	0%	0	6	0%
Count aggregate	4	22	18%	4	10	40%	0	6	0%	0	6	0%
Count pneumonia	3	22	14%	2	10	20%	1	6	17%	0	6	0%
Count diarrhea	2	22	9%	1	10	10%	1	6	17%	0	6	0%
Count malaria	2	22	9%	1	10	10%	1	6	17%	0	6	0%
Morbidity and Mortality Results, of which	**4**	**44**	**9%**	**4**	**20**	**20%**	**0**	**12**	**0%**	**0**	**12**	**0%**
Morbidity	1	22	5%	1	10	10%	0	6	0%	0	6	0%
Mortality	3	22	14%	3	10	30%	0	6	0%	0	6	0%

TABLE 19: INTERVENTION TERMINOLOGY

CSHGP "Intervention"	*Lancet* Intervention	
	Curative (CCM)	Preventive or Promotive
Pneumonia case management	▪ Antibiotic for pneumonia	▪ Haemophilus influenzae, b vaccine ▪ Pneumococcal conjugate vaccine ▪ Optimal breastfeeding, etc.
Control of diarrheal disease	▪ Oral rehydration solution ▪ Zinc	▪ Sanitation ▪ Clean water ▪ Appropriate handwashing ▪ Optimal breastfeeding, etc.
Malaria prevention and treatment	▪ Antimalarial	▪ Long-lasting insecticide-treated bed nets ▪ Intermittent presumptive treatment in pregnancy ▪ Indoor residual spraying, etc.

Figure 1. Timelines of Reviewed Projects

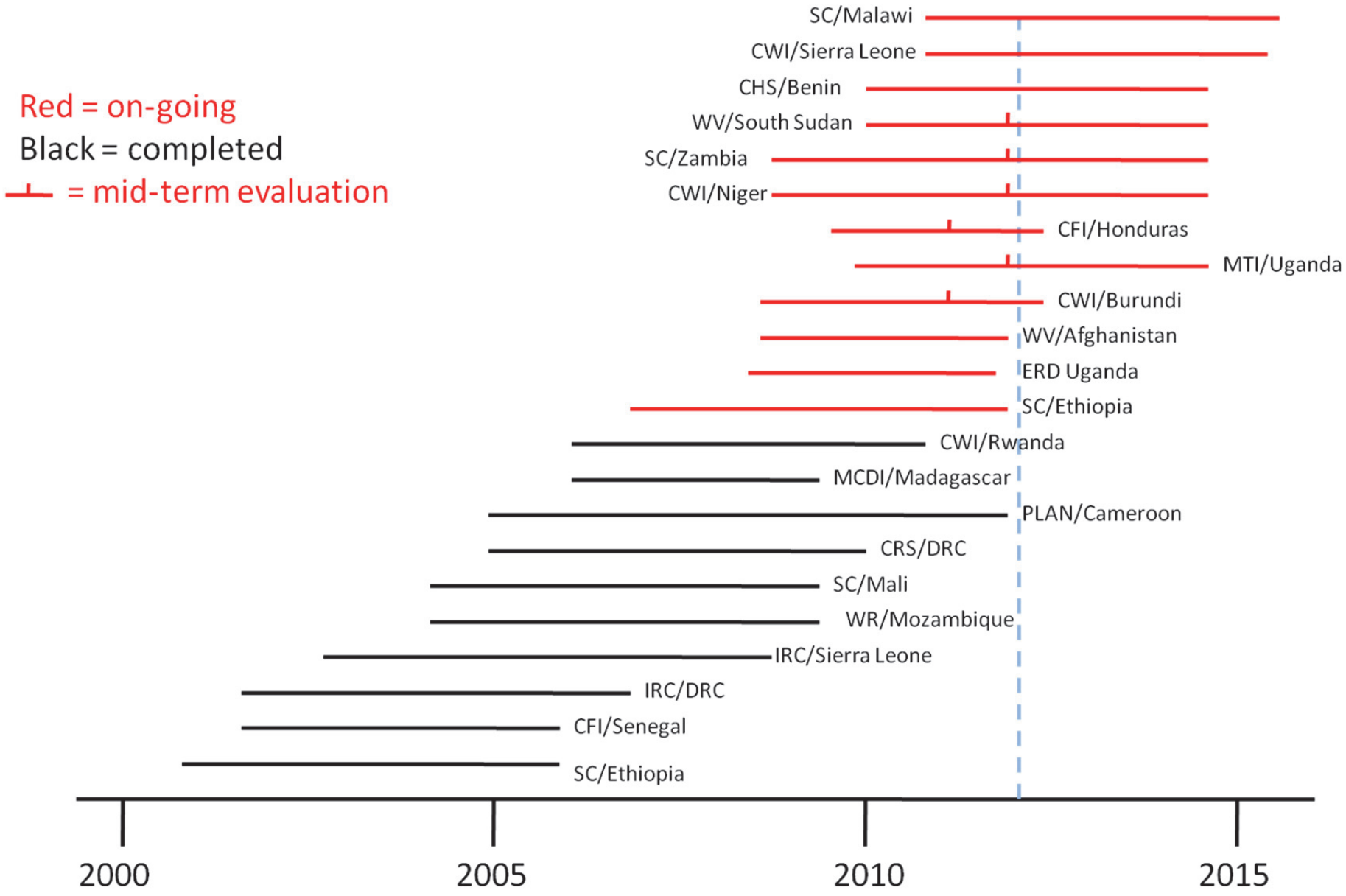


Fig 2A: CCM National Benchmarks: Ethiopia*

Component	Advocacy and Planning					Pilot and Early Implementation				Expansion and Scale Up			
1. Coordination & Policy Setting	a	b	c	d	e	f		g		h		i	
2. Costing & Finance	a			b		c		d		e		f	
3. Human Resources	a		b	c	d	e	f	g		h	i	j	k
4. Supply Chain Management	a		b	c	d	e		f		g		h	
5. Service Del. & Referral	a		b		c	d	e	f		g	h	i	
6. Communic. & Social Mobil.	a		b		c	d	e	f		g			
7. Supervision & Performance QA	a		b		c	d	e	f		g	h	i	
8. M&E and HIS	a	b	c	d		e	f	g		h		i	

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved

*Reported by Hailu Tesfaye, Save the Children and Tedbab Degefie, UNICEF, Ethiopia 6/12

Fig 2B: Ethiopia Benchmarks: NGO Role*

Component	Advocacy and Planning					Pilot and Early Implementation				Expansion and Scale Up			
1. Coordination & Policy Setting	a	b	c	d	e	f		g		h		i	
2. Costing & Finance	a			b		c		d		e		f	
3. Human Resources	a		b	c	d	e	f	g		h	i	j	k
4. Supply Chain Management	a		b	c	d	e		f		g		h	
5. Service Del. & Referral	a		b		c	d	e	f		g	h	i	
6. Communic. & Social Mobil.	a		b		c	d	e	f		g			
7. Supervision & Performance QA	a		b		c	d	e	f		g	h	i	
8. M&E and HIS	a	b	c	d		e	f	g		h		i	

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved; dark green or dark yellow= NGO helped achieve

*Reported by Hailu Tesfaye, Save the Children and Tedbab Degefie, UNICEF, Ethiopia 6/12

Fig 2C: CCM National Benchmarks: Malawi*

Component	Advocacy and Planning					Pilot and Early Implementation					Expansion and Scale Up				
1. Coordination & Policy Setting	a	b	c	d	e	f		g			h		i		
2. Costing & Finance	a			b		c		d			e		f		
3. Human Resources	a		b		c	d	e		f	g	h	i		j	k
4. Supply Chain Management	a		b		c	d	e		f		g		h		
5. Service Del. & Referral	a		b		c		d	e		f	g		h		i
6. Communic. & Social Mobil.	a		b		c		d	e		f	g				
7. Supervision & Performance QA	a		b		c		d	e		f	g		h		i
8. M&E and HIS	a		b		c	d	e		f	g	h		i		

*Reported by Humphreys Nsona, IMCI Unity, MOH, and Tiyese Chimuna, Save the Childreh, Malawi, June 2012

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved

Fig 2D: Malawi Benchmarks: NGO Role*

Component	Advocacy and Planning					Pilot and Early Implementation					Expansion and Scale Up				
1. Coordination & Policy Setting	a	b	c	d	e	f		g			h		i		
2. Costing & Finance	a			b		c		d			e		f		
3. Human Resources	a		b		c	d	e		f	g	h	i		j	k
4. Supply Chain Management	a		b		c	d	e		f		g		h		
5. Service Del. & Referral	a		b		c		d	e		f	g		h		i
6. Communic. & Social Mobil.	a		b		c		d	e		f	g				
7. Supervision & Performance QA	a		b		c		d	e		f	g		h		i
8. M&E and HIS	a		b		c	d	e		f	g	h		i		

*Reported by Humphreys Nsona, IMCI Unity, MOH, and Tiyese Chimuna, Save the Childreh, Malawi, June 2012

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved; dark green or dark yellow= NGO helped achieve

Fig 2E: CCM National Benchmarks: Rwanda*

Component	Advocacy and Planning					Pilot and Early Implementation							Expansion and Scale Up								
1. Coordination & Policy Setting	a	b	c	d	e	f					g		h						i		
2. Costing & Finance	a					b					c			d			e			f	
3. Human Resources	a		b		c		d		e		f		g	h		i		j		k	
4. Supply Chain Management	a		b		c		d		e			f		g				h			
5. Service Del. & Referral	a			b			c		d		e		f	g			h			i	
6. Communic. & Social Mobil.	a			b			c		d		e		f	g							
7. Supervision & Performance QA	a			b			c		d		e		f	g			h			i	
8. M&E and HIS	a		b		c		d		e		f		g	h				i			

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved

* Reported by Rose Luz, Concern Worldwide, Kigali, Rwanda, April 19, 2012

Fig 2F: Rwanda Benchmarks: NGO Role*

Component	Advocacy and Planning					Pilot and Early Implementation							Expansion and Scale Up								
1. Coordination & Policy Setting	a	b	c	d	e	f					g		h						i		
2. Costing & Finance	a					b					c			d			e			f	
3. Human Resources	a		b		c		d		e		f		g	h		i		J		k	
4. Supply Chain Management	a		b		c		d		e			f		g				h			
5. Service Del. & Referral	a			b			c		d		e		f	g			h			i	
6. Communic. & Social Mobil.	a			b			c		d		e		f	g							
7. Supervision & Performance QA	a			b			c		d		e		f	g			h			i	
8. M&E and HIS	a		b		c		d		e		f		g	h				i			

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved; dark green=NGO helped achieve national benchmark

*Reported by Rose Luz, Concern Worldwide, Kigali, Rwanda, April 19, 2012

Fig 2G: CCM National Benchmarks: Sierra Leone*

Component	Advocacy and Planning					Pilot and Early Implementation			Expansion and Scale Up			
1. Coordination & Policy Setting	a	b	c	d	e	f	g		h	i		
2. Costing & Finance	a		b			c	d		e	f		
3. Human Resources	a	b	c	d		e	f	g	h	i	j	k
4. Supply Chain Management	a	b	c	d		e	f		g	h		
5. Service Del. & Referral	a	b	c			d	e	f	g	h	i	
6. Communic. & Social Mobil.	a	b	c			d	e	f	g			
7. Supervision & Performance QA	a	b	c			d	e	f	g	h	i	
8. M&E and HIS	a	b	c	d		e	f	g	h	i		

Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved

* Reported by Laura Hastings, CWI, Sierra Leone, June 22, 2012

Fig 2H: CCM National Benchmarks: NGO Plans*

Component	Advocacy and Planning					Pilot and Early Implementation			Expansion and Scale Up			
1. Coordination & Policy Setting	a	b	c	d	e	f	g		h	i		
2. Costing & Finance	a		b			c	d		e	f		
3. Human Resources	a	b	c	d		e	f	g	h	i	j	k
4. Supply Chain Management	a	b	c	d		e	f		g	h		
5. Service Del. & Referral	a	b	c			d	e	f	g	h	i	
6. Communic. & Social Mobil.	a	b	c			d	e	f	g			
7. Supervision & Performance QA	a	b	c			d	e	f	g	h	i	
8. M&E and HIS	a	b	c	d		e	f	g	h	i		

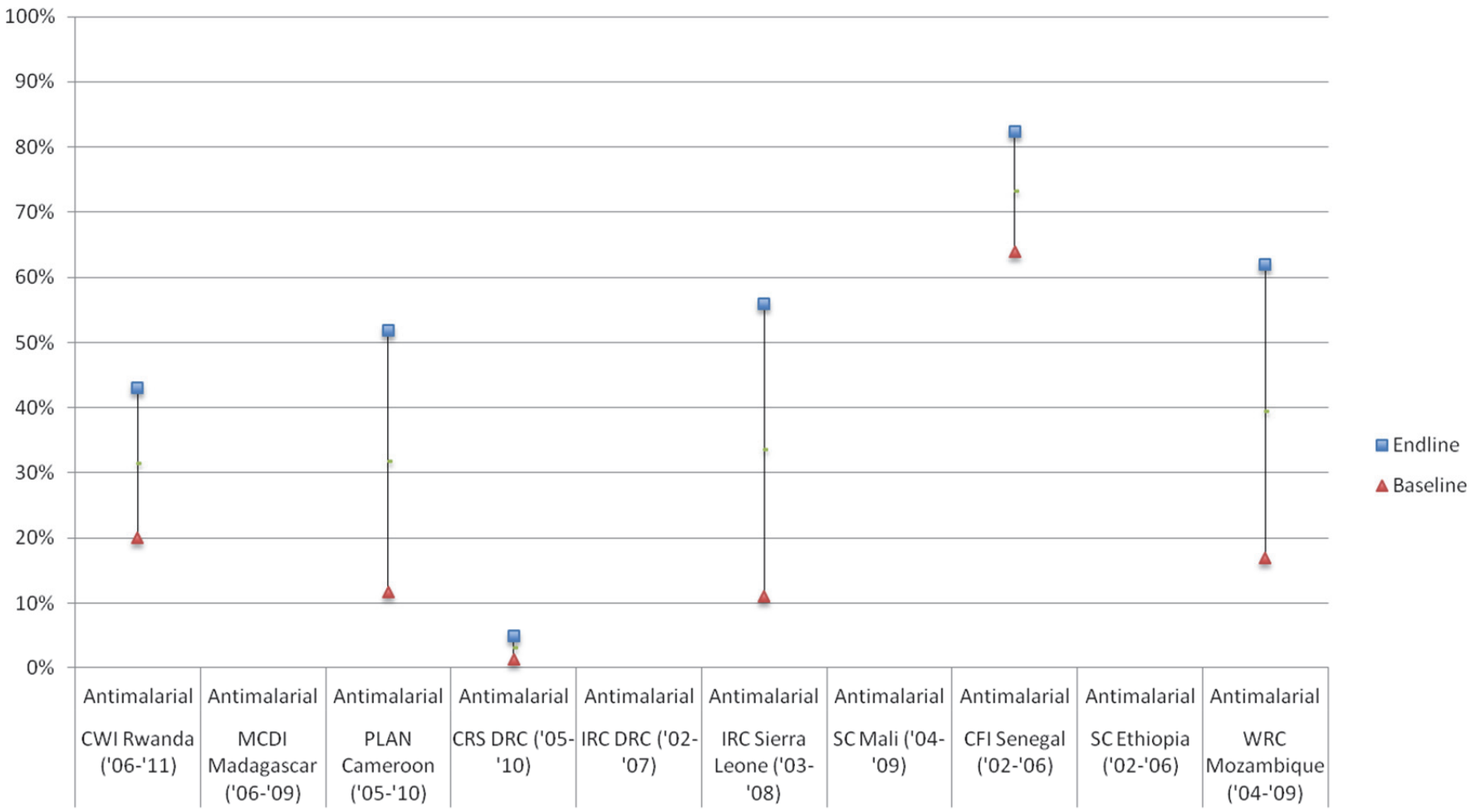
Key

1a. Mapping	5a. Rational med use
1b. TAG est'd	5b. CCM guidelines
1c. Needs ass'd	5c. Referral guidelines
1d. Stakehold mtgs	5d. CCM implemented
1e. Policy rev	5e. Guide rev p pilot
1f. MOH lead est'd	5f. Systems impl
1g. Pol rev done	5g. Timely CCM use
1h. MOH lead inst	5h. Guide rev @ scale
1i. Regular mtgs	5i. Systems working
2a. Costing	6a. CSM strategy
2b. Finances had	6b. CSM content
2c. Gap analysis	6c. CSM messages
2d. MOH invested	6d. CSM plan
2e. Long fin'l strat	6e. CSM materials
2f. MOH inv sust'd	6f. CHWs deliver
3a. CHW role def	6g. CSM plan rev
3b. Recruit strat	7a. Sup'n tools
3c. Training strat	7b. Sup'n strategy
3d. Retain strat	7c. Sup'rs trained
3e. Role commun	7d. Sup'n q 3m
3f. CHWs trained	7e. Sup'n @ comm
3g. Retain impl	7f. Sup'r perf rev
3h. Role rev	7g. Sup'n w QA
3i. Refresher trg	7h. Data used
3j. Retain rev	7i CHW perf rev
3k. CHW career	8a. M&E framework
4a. Meds on ED lst	8b. Register/report
4b. Quantification	8c. Indicators
4c. Procur't plan	8d. Research agenda
4d. LMIS dev'd	8e. Framework rev
4e. Meds procured	8f. Docs rev
4f. LMIS impl	8g. Framework trg
4g. Stock monit.	8h. Monitoring impl
4h. LMIS effective	8i. OR/eval impl

Green=achieved; yellow=partially achieved; red=not achieved; dark green/dark yellow/orange=NGO plans to help achieve national benchmark

* Reported by Laura Hastings, CWI, Sierra Leone, June 22, 2012

Chart 1A: Coverage (%) of Curative Treatment for Malaria by Country



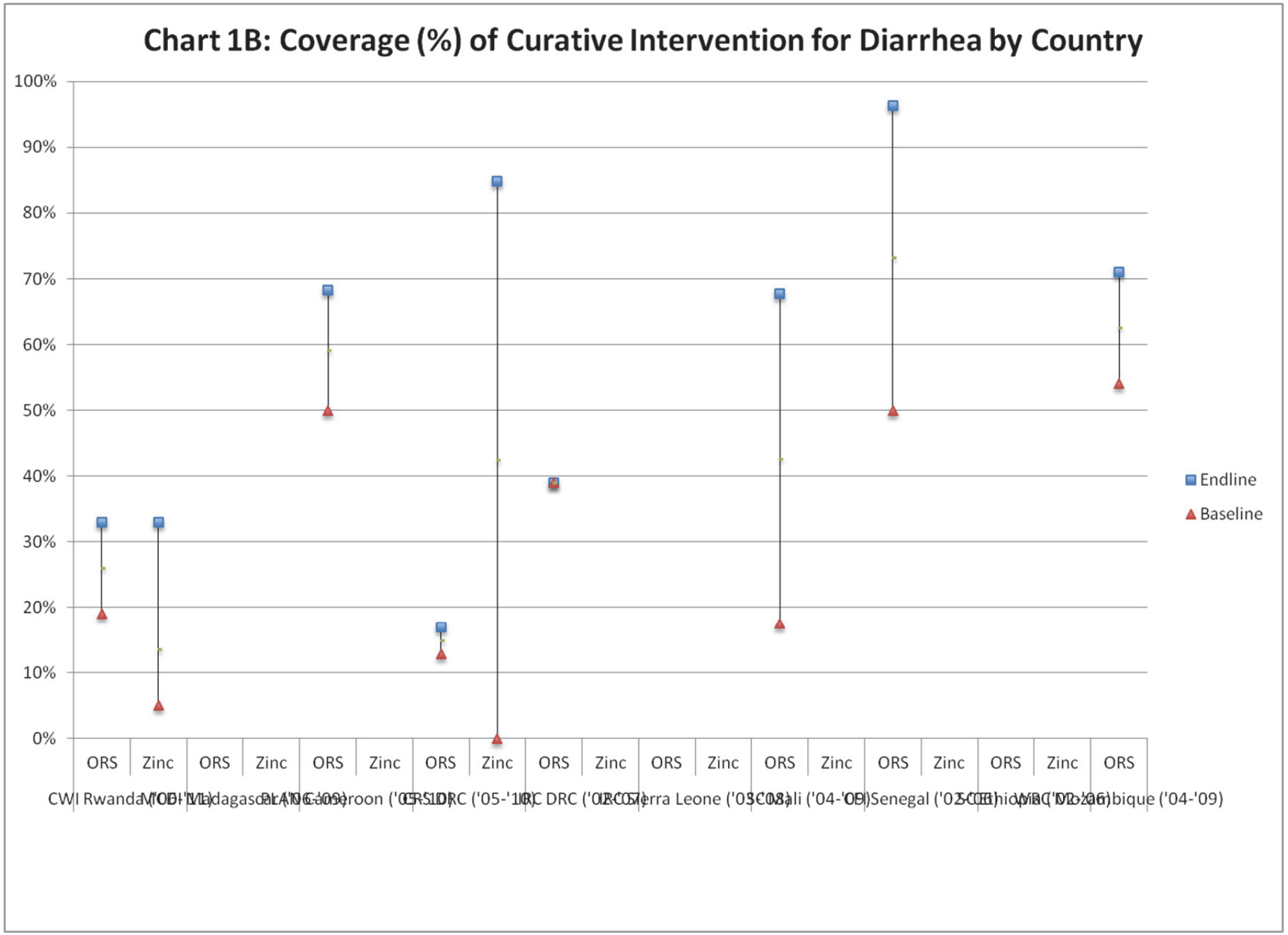


Chart 1B: Coverage (%) of Curative Intervention for Diarrhea by Country
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
ORS
Zinc
Endline
Baseline
CWI Rwanda ('05-'10)
Madagascar ('04-'09)
Cameroon ('05-'11)
DRC ('05-'10)
DRC ('02-'07)
Sierra Leone ('03-'08)
Mali ('04-'09)
Senegal ('05-'11)
Ethiopia ('05-'10)
Mozambique ('04-'09)

Chart 1C: Coverage (%) of Curative Interventions for Pneumonia by Country

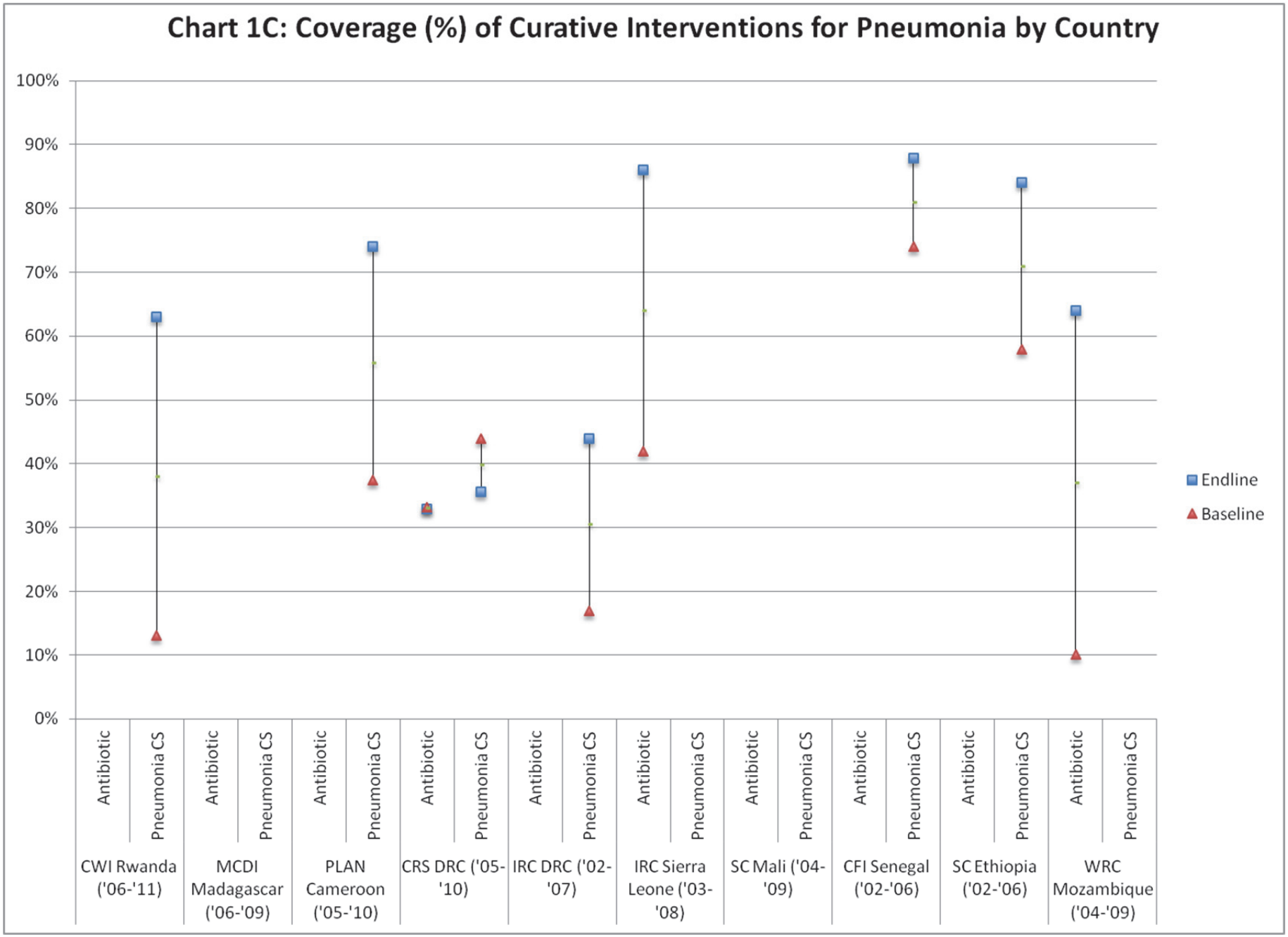
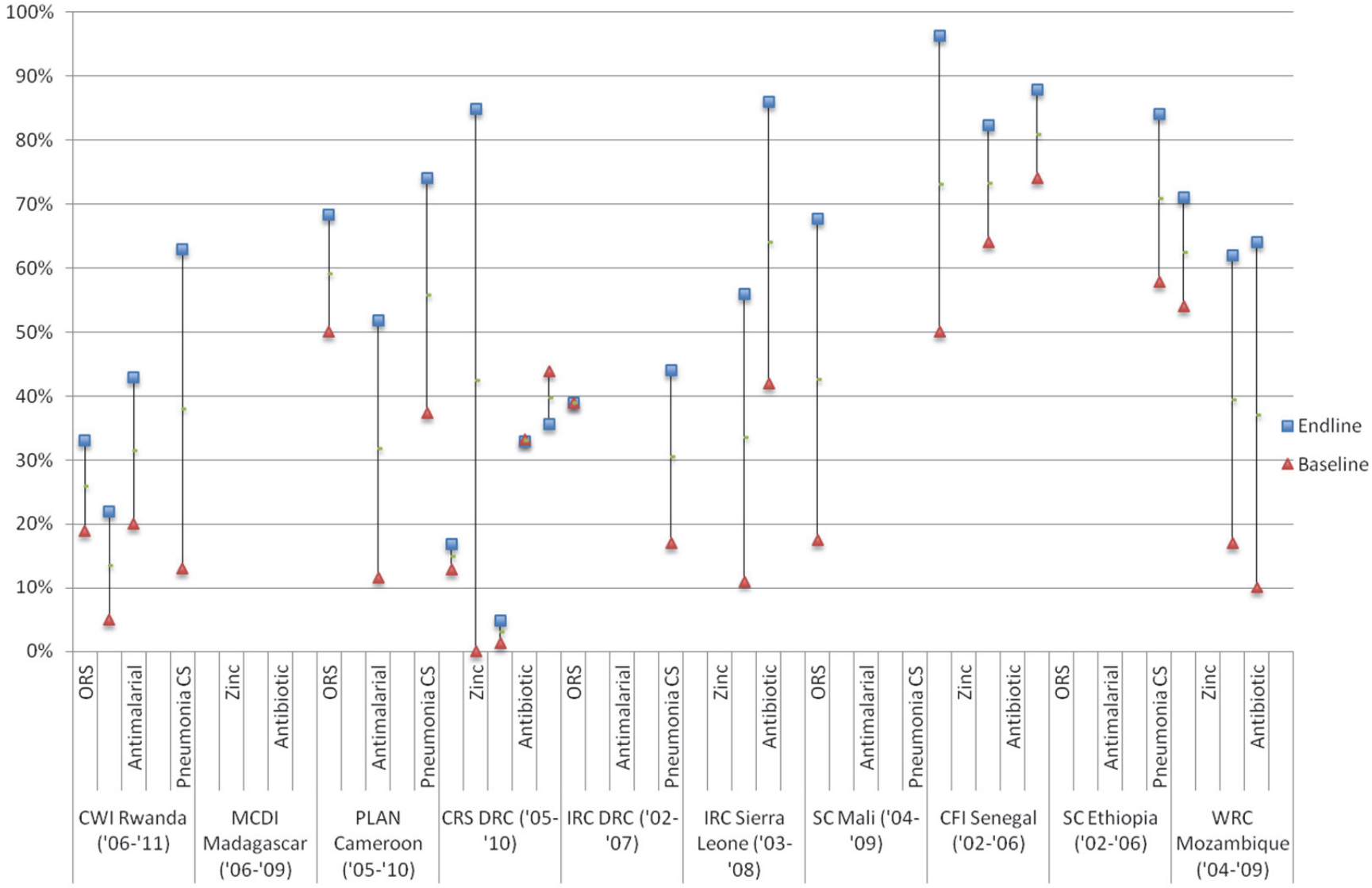


Chart 1D: Coverage (%) of Curative Interventions by Indicator and Country



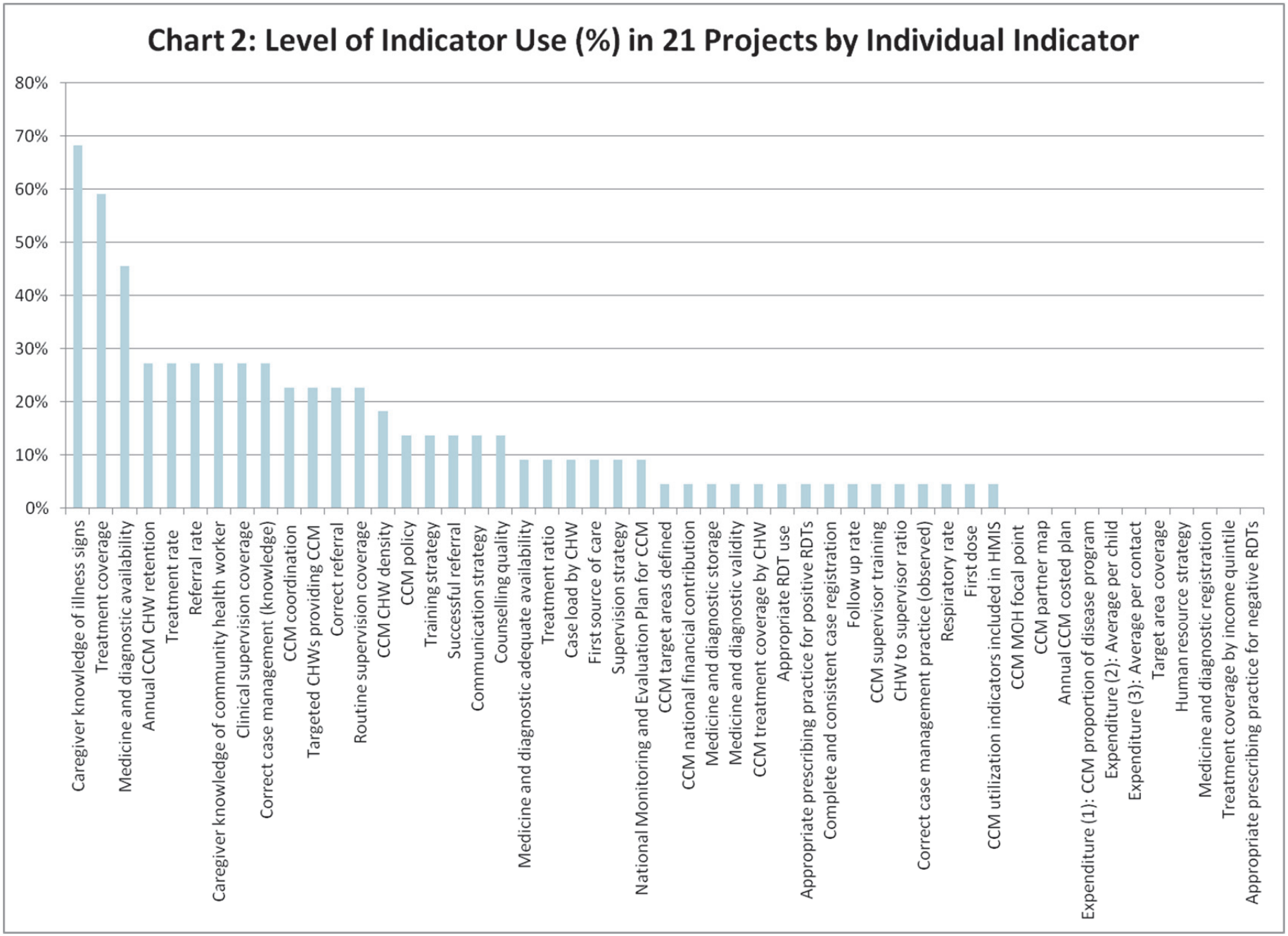


Chart 2: Level of Indicator Use (%) in 21 Projects by Individual Indicator
80%
70%
60%
50%
40%
30%
20%
10%
0%
Caregiver knowledge of illness signs
Treatment coverage
Medicine and diagnostic availability
Annual CCM CHW retention
Treatment rate
Referral rate
Caregiver knowledge of community health worker
Clinical supervision coverage
Correct case management (knowledge)
CCM coordination
Targeted CHWs providing CCM
Correct referral
Routine supervision coverage
CCM CHW density
CCM policy
Training strategy
Successful referral
Communication strategy
Counselling quality
Medicine and diagnostic adequate availability
Treatment ratio
Case load by CHW
First source of care
Supervision strategy
National Monitoring and Evaluation Plan for CCM
CCM target areas defined
CCM national financial contribution
Medicine and diagnostic storage
Medicine and diagnostic validity
CCM treatment coverage by CHW
Appropriate RDT use
Appropriate prescribing practice for positive RDTs
Complete and consistent case registration
Follow up rate
CCM supervisor training
CHW to supervisor ratio
Correct case management practice (observed)
Respiratory rate
First dose
CCM utilization indicators included in HMIS
CCM MOH focal point
CCM partner map
Annual CCM costed plan
Expenditure (1): CCM proportion of disease program
Expenditure (2): Average per child
Expenditure (3): Average per contact
Target area coverage
Human resource strategy
Medicine and diagnostic registration
Treatment coverage by income quintile
Appropriate prescribing practice for negative RDTs

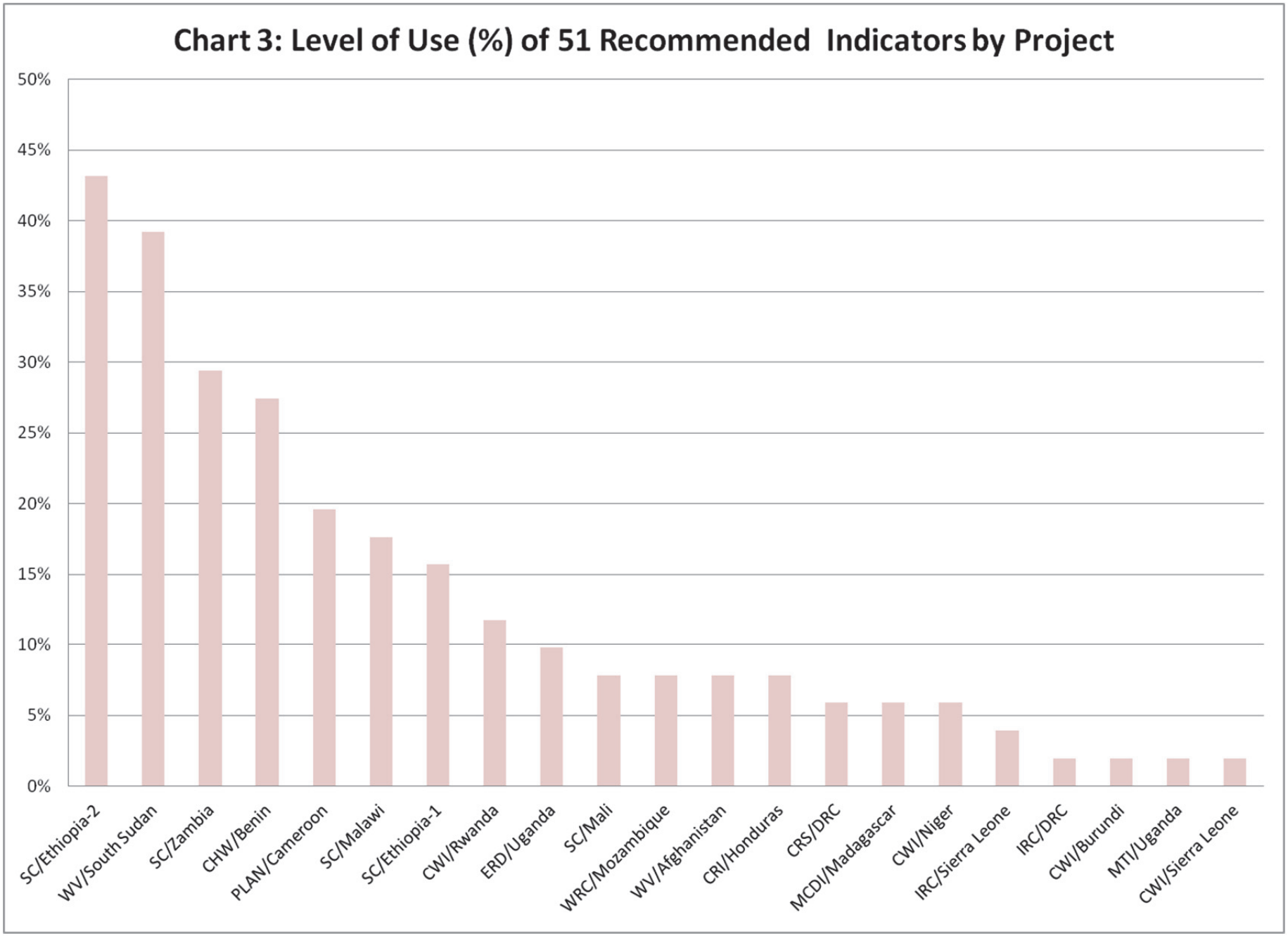


Chart 3: Level of Use (%) of 51 Recommended Indicators by Project
50%
45%
40%
35%
30%
25%
20%
15%
10%
5%
0%
SC/Ethiopia-2
WV/South Sudan
SC/Zambia
CHW/Benin
PLAN/Cameroon
SC/Malawi
SC/Ethiopia-1
CWI/Rwanda
ERD/Uganda
SC/Mali
WRC/Mozambique
WV/Afghanistan
CRI/Honduras
CRS/DRC
MCDI/Madagascar
CWI/Niger
IRC/Sierra Leone
IRC/DRC
CWI/Burundi
MTI/Uganda
CWI/Sierra Leone

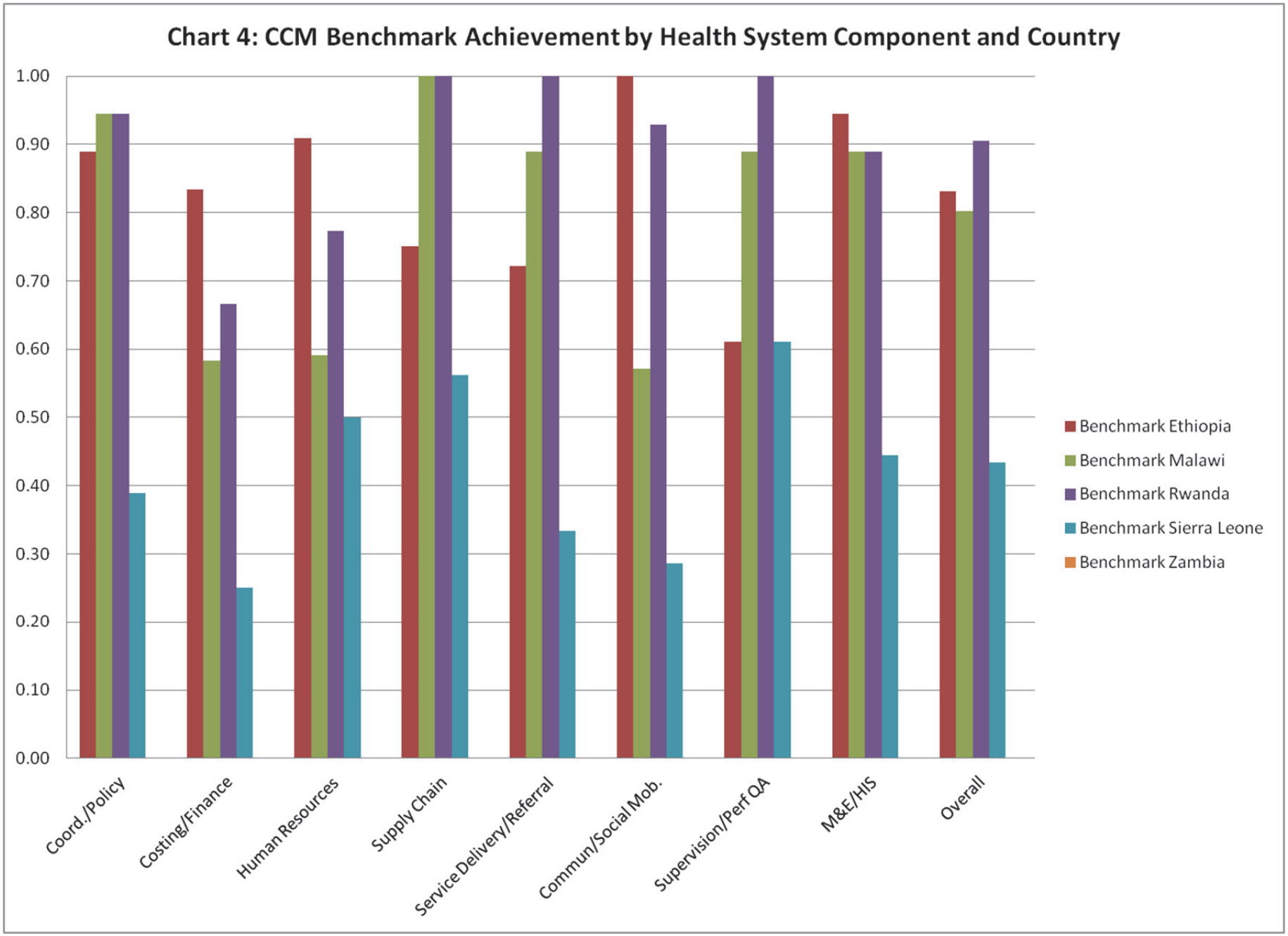


Chart 4: CCM Benchmark Achievement by Health System Component and Country
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Coord./Policy
Costing/Finance
Human Resources
Supply Chain
Service Delivery/Referral
Commun/Social Mob.
Supervision/Perf QA
M&E/HIS
Overall
Benchmark Ethiopia
Benchmark Malawi
Benchmark Rwanda
Benchmark Sierra Leone
Benchmark Zambia

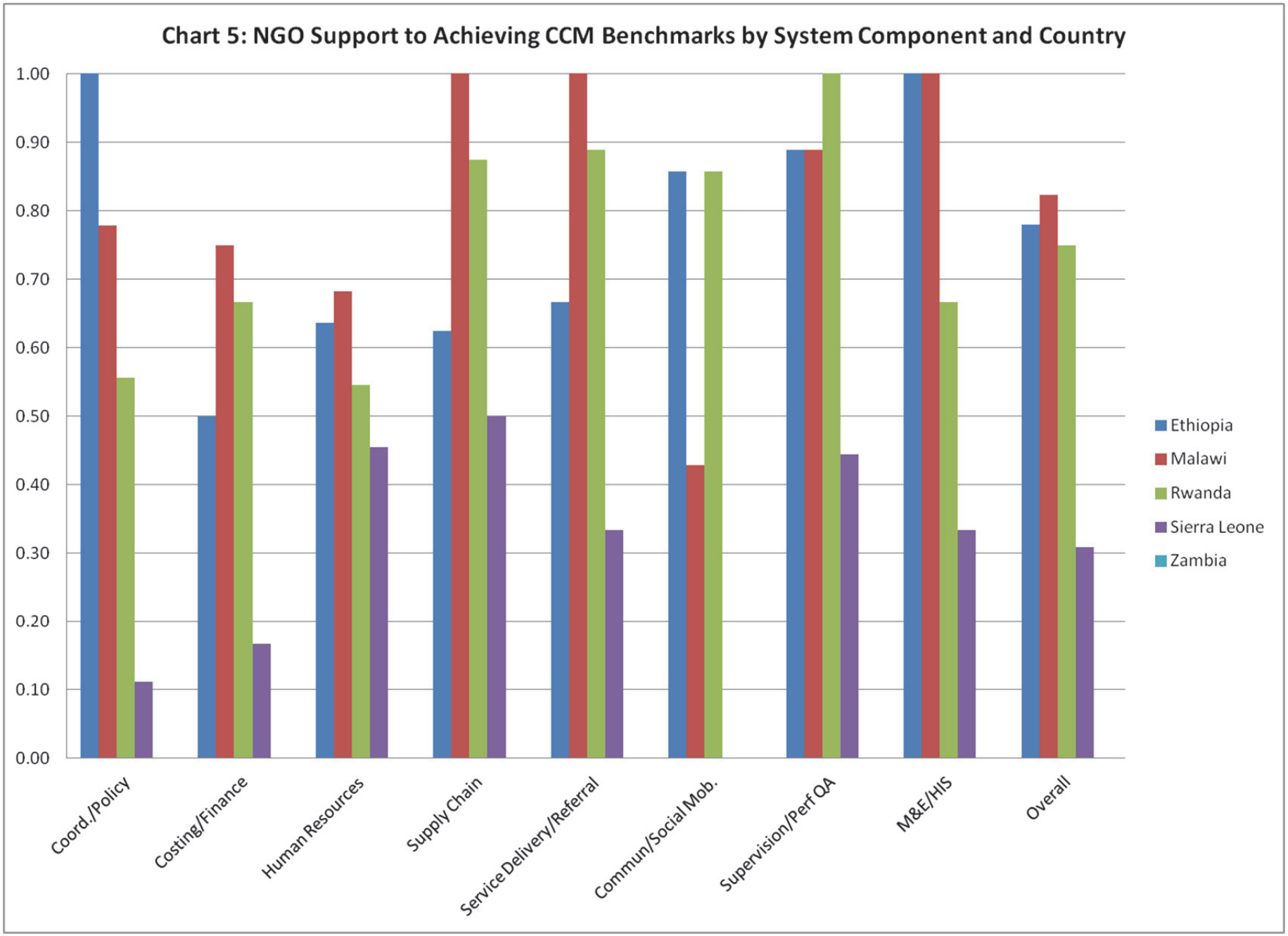
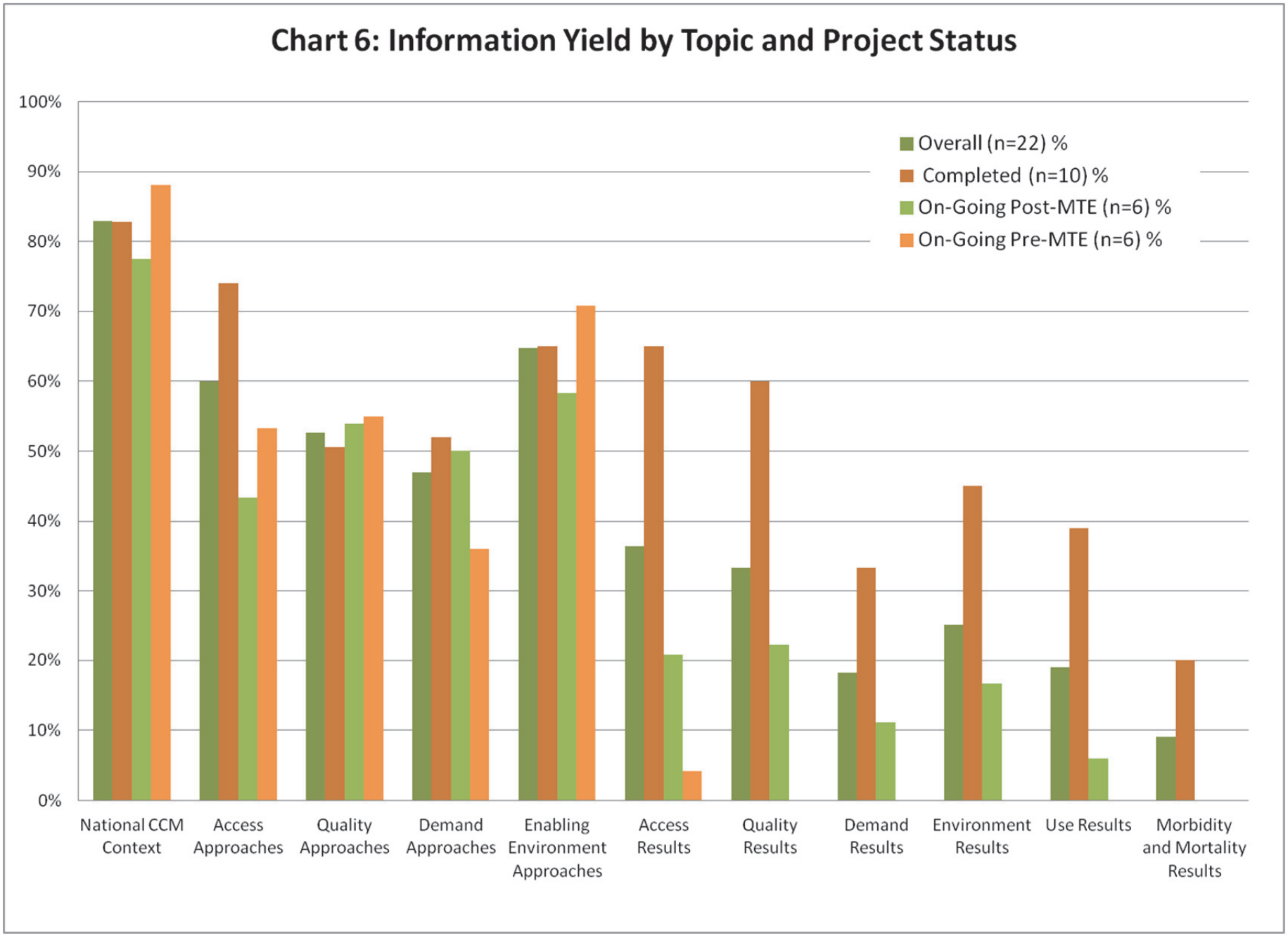


Chart 5: NGO Support to Achieving CCM Benchmarks by System Component and Country
1.00
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
Coord./Policy
Costing/Finance
Human Resources
Supply Chain
Service Delivery/Referral
Commun/Social Mob.
Supervision/Perf QA
M&E/HIS
Overall
Ethiopia
Malawi
Rwanda
Sierra Leone
Zambia

Chart 6: Information Yield by Topic and Project Status



CASE STUDY 1: COMMUNITY CASE MANAGEMENT SAVES LIVES IN A POST-CONFLICT SETTING: KONO DISTRICT, SIERRA LEONE, 2003-2008

Situation

Sierra Leone had a high under-five mortality rate (284/1000 [UNICEF, 2003]), with many preventable child deaths due to pneumonia, diarrhea and malaria (proportionate mortality: 26, 20, and 12%, respectively) (WHO, 2006). Baseline levels of coverage for curative interventions were 20% for care-seeking for treatment of ARI needing assessment, 70% for treatment of diarrhea with ORS, and 24% for treatment of fever/malaria (KAP, 2003). Thus, International Rescue Committee's five-year "Kono Child Survival Project" (2003-2008) aimed to improve the health and survival of 17,000 children under-five years of age through increasing the use of high-impact treatment interventions delivered through the Community Case Management (CCM) strategy.

CCM Context

The impact area, Kono District in Eastern Province, was the center of the Sierra Leone Civil War (1991–2002), which resulted in the breakdown of infrastructure and displacement of thousands. Health services were interrupted, and coverage rates remained low during the rebuilding process. The CCM package included curative interventions for sick children under-five years of age: cotrimoxazole for pneumonia/ARI, oral rehydration solution (ORS) and zinc for diarrhea, and artemisinin-combination therapy (ACT) for malaria. The community health workers who delivered CCM were an official, unsalaried, low literate, generally male cadre.

Strategies

Strategies and approaches to increase ***access*** to CCM included: 1) village-selected CHWs; 2) extension of services to all villages served by Peripheral Health Units (PHUs); 3) referral registers to increase referral success to PHUs; and 4) retention of CHWs through motivation including training and feedback. Approaches to assure CCM ***quality*** through medicine availability included: 1) working with the Ministry of Health and Sanitation (MoHS) and UNICEF to develop a sustainable supply of ORS, zinc and ACT during the project; and 2) subsidized ORS packets. Approaches to assure the CCM ***quality*** through training included District Health Management Team (DHMT) and IRC staff training PHU staff in quality assurance and improvement. Approaches to assure the CCM ***quality*** through supervision included: 1) monthly CHW meetings to problem-solve; 2) regular meetings of CHWs with PHU staff to discuss monthly reports; and 3) on-site supervision of CHWs by PHU and Project staff to assess competence and effectiveness. Strategies to increase ***demand*** for CCM services included: 1) sensitization and community health education; and 2) multi-channel behavior change communication (radio, flashcards, posters, interpersonal communication, and skits). Strategies to enable the community ***environment*** for CCM included: 1) working with community leaders and well-known community members; and 2) partnerships with women's groups for fundraising, event organization and CHW support. Strategies to enable the national ***environment*** for CCM included evaluating the impact of diarrhea prevention strategies and pricing on ORS demand and use. Measures of success included indicators of use (% of children with difficult breathing who receive correct treatment within 24 hours from authorized providers; % with diarrhea who receive zinc), quality (% of caretakers satisfied with quality of diarrhea care at PHUs), and demand (% mothers who know at least two signs of childhood illness).

Tools

Key CCM forms used by CHWs – patient register, drug register and referral tickets – were adapted for low-literate workers and included graphics. A referral ticket, a picture of the relevant danger sign, was given to the mother of the sick child to take to the health facility.

CHW supervisors used a Quality of Care checklist to assess CHWs monthly. Supervisors observed supplies of drugs and other materials, evaluated CHWs' ability to determine fast breathing by using a respiratory timer and knowledge of danger signs and cut-off points for fast breathing/pneumonia, and performed a compliance check (a visit to a child that was recently treated by the CHW). Each supervisor compiled a monthly report (a single form containing information from all his/her CHWs) drawn from the Quality of Care checklist. A health facility monthly report aggregated supervisor reports for a health facility catchment area.

Results

Main quantitative results are presented in the table below. Baseline values were sometimes unavailable because CCM was not initially a program strategy. Overall, the Project decreased rates of under-five mortality by half in Kono District (see table below) as determined by a mortality assessment completed by the Project. The Project likely achieved this through increased treatment and increased household knowledge of and care-seeking for signs of pneumonia, malaria, and diarrhea. What distinguished the Project was its post-conflict setting, collaboration with various levels of the health system, particularly the DHMT and local women's groups, and the impact on the country's health policy. Approval of the CCM strategy at the national level contributed to expansion in other areas of the country and bolstered the decentralization of health services. The main challenges were the late addition of CCM (2007) into the project (and LOE) and the non-salaried CHW position, which jeopardized retention and sustainability. This program experienced a stock-out of zinc beginning in April 2008 because the existing supplies had expired and there were no new stocks available.

Main Project Results

Result	Indicator	Global	Baseline	Endline
Quality Assured	% of caretakers satisfied with quality of diarrhea care at PHUs			
Demand Mobilized	% of mothers of children 0-11 months who recognize rapid or difficult breathing as a danger sign for childhood illness	Yes (#38)	7%	n/a
Use (Coverage) Increased	% of children 12-23 months whose last bout of diarrhea was treated with ORS		<20%	>45%
	% of children less than five years of age whose diarrhea is treated with oral rehydration fluids. (ORS)		n/a	86%
	% of children with diarrhea who receive zinc		n/a	57%
	% of children <5 who receive correct first-line treatment for fever within 24 hours	Yes (#22)	11% (MTE)	56%
	% of children 0-23 months who slept under a correctly treated bed net the previous night		1%	83%
	% of sick children who receive increased fluids		28%	46%
	% of children less than five years of age with difficult breathing who receive correct treatment within 24 hours from authorized providers		42% (MTE)	86%
	% of children 0-23 months whose mother reports handwashing with soap/ash before food preparation, feeding children, after defecation and attending to child who has defecated		13	30
	% of children 0-23 months whose mother reports handwashing on 2 occasions		45	78
Mortality	Deaths/1,000/month among children < 59 months		6.1	3.1
	Deaths/1,000/month among children $\geq$ 59 months		2.7	3.2

CASE STUDY 2: COMMUNITY CASE MANAGEMENT IMPROVES USE OF TREATMENTS FOR CHILDHOOD DIARRHEA, MALARIA AND PNEUMONIA IN A REMOTE DISTRICT OF ETHIOPIA[1]

Situation

Ethiopia had a high under-five mortality rate (123/1000 live births in 2006 [UNICEF, 2006]), with many preventable child deaths due to pneumonia (22%), diarrhea (17%), and malaria (6%) (WHO, 2006). Baseline levels of coverage for curative interventions were 19% for care-seeking for treatment of ARI needing assessment, 15% for treatment of diarrhea with ORS, and 3% for treatment of fever/malaria (DHS, 2005). Thus, Save the Children's five-year Phase 2 "WomanWise Project" (2001-2006) aimed to improve the health and survival of 18,150 children under-five years of age through increasing the use of high-impact treatment interventions delivered through the Community Case Management Strategy (CCM).

CCM Context

The impact area, Liben District in Guji Zone in Oromiya Region was sparsely populated (total population/square kilometer: 14); the terrain was arid and drought-prone; and the population was agro-pastoralist. The CCM package included cotrimoxazole for fast breathing, chloroquine and sulfadixine-pyrimethamine (Fansidar) for fever, tetracycline eye ointment for red eye, ORS for diarrhea, and vitamin A for measles for sick children age 1 week to 59 months of age. Due to the lengthy process to obtain government permission to train community health workers (CHW) to deliver an antibiotic for presumed pneumonia, the CCM strategy was only in place for the last 15 months of the Project. The CHWs who deliver CCM (members of so-called Bridge-to-Health Teams [BHT]) were an unofficial (pre-Health Extension Worker), literate volunteer cadre of worker. SC opted for all-male CHWs for CCM to assure literacy, given the compressed testing period.

Strategies

Strategies and approaches to increase ***access*** to CCM included: 1) mapping the district to identify 24 remote (but not completely inaccessible) communities; 2) selecting with communities, two volunteers per community for CCM training based on performance, residency, literacy and respect; and 3) deploying the volunteers back in their remote communities. The Project procured all medicines to assure availability. Approaches to assure the CCM ***quality*** through training included: 1) an 11-day IMCI training for 13 facility-based health workers to ensure consistent treatment between community and facility; 2) a five-day facilitation training for three trainers; 3) an 11-day (later seven-day) competency-based training for 45 volunteers for case management (including one day of clinical training) and recording; 4) a low trainee/trainer ratio (3/1); 5) competency-based certification through written and practical tests (40 of 45 certified and deployed with medicines); and 6) a three-day refresher training after six months' deployment. Approaches to assure CCM ***quality*** through supervision included: 1) facility-based supervisors trained in IMNCI; 2) monthly community-based supervision by health facility, district and/or Project personnel; 2) case management assessment through direct observation or simulation; and 3) register review. Strategies to increase ***demand*** for CCM services included: 1) male and female BHT members delivering illness sign and care-seeking messages – and many other "emphasis behaviors" – through home visits, public talks, meetings of community leadership, food-for-work, religious functions, and schools; and 2) designating volunteers failing to achieve CCM competence as special "CCM mobilizers." Strategies to enable the community ***environment*** for CCM included: 1) BHTs comprised of respected former traditional healers; and 2) Health Action Teams mobilized their communities. Strategies to

[1] Adapted from Degefie T, Marsh D, Gebremariam A et al's report of the same name in *Ethio. J. Health. Devel*. 2009; 23(2):120-126, CSHGP project documents and *USA Today*, Sep 16, 1011.

enable the national ***environment*** for CCM included: 1) testing, evaluating and documenting the feasibility, acceptability, quality and effect of CCM delivered through volunteers in a pre-HEW setting; and 2) advocating for CCM, especially CCM for pneumonia.

Implementation

Key CCM documents were: the case management chart booklet, patient register, referral form, and quarterly report; there was no supervision checklist. The six one-page case management charts (one per disease per age group: 7-59 d and 2-59 m) were modified from those for IMCI. The literate patient register was also a job aid mirroring the steps of case management in the chart book; it also tracked follow-up status and outcome. The referral form had patient identification, classification and treatment given. The quarterly report included training, supervision, stock status, treatments given and outcome.

Results

The quantitative results are in the table below, including 13 globally vetted indicators. Overall, the Project saved lives by demonstrating that CHWs could deliver good quality curative care that was widely used in an extremely demanding setting. Save the Children presented the results at the 10th annual Ethiopian Paediatrics Association where the pediatricians endorsed CCM for pneumonia and published the results in a national, peer-reviewed journal. Thus, the Project informed both global CCM indicators and an eventual policy change in Ethiopia to allow Health Extension Workers (HEWs) to treat childhood pneumonia in the community. The Project was a link in 15 years of program learning in Ethiopia, leveraging a prior CSHGP project (1997-2001) in Liben District and leading to a follow-on CSHGP project for CCM in Southern Region (2007-12), which in turn positioned Save the Children for a CCM partnership with UNICEF and USAID to support CCM introduction in 95 and 29 districts, respectively. Perhaps what mostly distinguished this Project was how much was learned in so short a time at such an affordable cost – i.e., with no studies beyond the standard evaluations. The main challenges were the prolonged approval process and the limited testing time, which precluded developing a supervision system and testing cost recovery.

Main Project Results

Result	Indicator	Global	Baseline	Endline
Access Increased	Target areas defined	Y (#5)	Yes	Yes
	Target area coverage (by community)	Y (#14)	19%	65%
	CCM CHW density (CHW/1000 children)	Y (#13)	0	2.09
	Annual CCM CHW retention	Y (#12)	n/a	95%[2]
Quality Assured	Caseload (# cases/CHW/month) (range)	Y (#27)	n/a	13 (2-38)
	Cotrimoxazole available: no stock-out in prior month	Y (#18)	n/a	100%
	Complete, consistent case registration (pneumonia)	Y (#32)	n/a	97%
	Case management knowledge	Y (#34)	n/a	80%
Demand Mobilized	Caregiver knowledge of illness signs (pneumonia)	Y (#38)	39%	92%
	Caregiver knowledge of CHW (by FGD)	Y (#37)	n/a	"Yes"
Environment Enabled	Presentation to Ethiopian Paediatric Association	N	n/a	Yes
	Publication in Ethiopian Journal of Health and Development	N	n/a	Yes
Use (Coverage) Increased	Treatment coverage by CHW (CCM/[CCM+HF])	Y (#23)	n/a	75%
	Treatment coverage: diarrhea, pneumonia	Y (#22)	58, 64%	83, 93%
	Treatment ratio (treated/expected): pneumonia	Y (#26)	n/a	34%
Mortality	Lives Saved Tool (LiST): (deaths/averted/y)	N	n/a	80

[2] Vs. 50% (7/14) retention for IMCI-trained health facility staff.

CASE STUDY 3: "LIFE FOR A CHILD"—A PARTNERSHIP BETWEEN CONCERN WORLDWIDE, INTERNATIONAL RESCUE COMMITTEE AND WORLD RELIEF TO REDUCE CHILD MORTALITY IN SIX DISTRICTS IN RWANDA.

Situation

Rwanda had a high under-five mortality rate (152/1000 live births in 2005 [DHS, 2005]), with many preventable child deaths due to pneumonia (23.2%), malaria (4.6%) and diarrhea (18.5%) [WHO, 2006]. Baseline levels of coverage of curative interventions were 13% for treatment of ARI needing assessment, 10-36% across project area districts for treatment of diarrhea with ORS, and 20% for treatment of fever/malaria (EIP KPC, 2007; DHS, 2005). Thus, Concern Worldwide's five-year "Kabeho Mwana—Life for a Child" Project (2006-2011) aimed to improve the health and survival of 318,438 children under-five through increasing the use of high-impact treatment interventions delivered through the Community Case Management (CCM) strategy.

CCM Context

The impact area in six districts in southern and eastern Rwanda was densely populated (total population/square kilometer: 400). The terrain was overexploited and becoming continuously less fertile; the population was mostly (90%) involved in agriculture with diminishing land holdings. The CCM package included ORS and zinc for diarrhea, ACT for fever, amoxicillin for fast breathing for sick children 2-59 months of age. The community health workers (CHWs) who delivered CCM are an official cadre known as *Binomes*, literate volunteers with at least a primary school education. Selection was generally gender-balanced with one male and one female in every village. Rwanda's Development Vision of 2000 (Umurenge 2020) and the Decentralization Policy of 2001 were important contextual factors for CCM, which aligned with the country's vision and strategy, thereby leveraging political will from the President, the MOH, other ministries, and District Mayors.

Strategies

Strategies and approaches to increase ***access*** to CCM included: 1) improving geographical access using local CHWs; 2) referral strengthening through CHW training and supervision; 3) village-based CHW selection and deployment; 4) Care Groups to link CHWs in various villages (including non-CCM CHWs); and 5) expanding CCM for malaria to include pneumonia and diarrhea to all six districts. Approaches to assure CCM ***quality*** through medicine availability included: 1) subsidy for amoxicillin, ORS and zinc; 2) drug management systems available at each district and health center to improve procurement and prevent stock-outs; and 3) direct procurement of zinc, ORS, and amoxicillin for the first three years with matched funds from PVOs. The National Integrated Malaria Control Program also ensured low cost of Coartem with financing from the Global Fund and the President's Malaria Initiative. Approaches to assure the CCM ***quality*** through training included: 1) 30% clinical training for CHWs; 2) use of video and visual aids to simulate danger signs; and 3) competency-based certification via post-training performance testing. Approaches to assure the CCM ***quality*** through supervision included: 1) supervision performance contracts with each district; 2) use of data from CHW tools to inform the "IMCI" Bulletin and its participatory discussion at monthly feedback meetings to detect issues with quality of case management; 3) direct observation of case management and caregiver exit interviews; and 4) quarterly supervision at village and monthly supervision at health facility. Strategies to increase ***demand*** for CCM services included: 1) participatory development and use of visual aids, songs, and counseling cards to promote BCC messages; 2) integrated message and device (e.g., "Tippy-Tap") to increase handwashing; 3) Care Groups for community-based health education and home visiting; and 4) radios as a main communication channel for BCC messaging.

Strategies to strengthen the community ***environment*** for CCM included: 1) community selection of CHWs for increased accountability to the community; 2) sector-level meetings as a feedback forum for local authorities and opinion; 3) recruiting experienced community mobilizers; 4) open communication to build partnerships between Project staff and CHWs; and 5) communication of monitoring results to communities. Strategies to enable the national ***environment*** for CCM included: 1) advocacy for national incorporation of CCM into the national health insurance system (*Mutelles de Santé*); 2) piloting CCM for pneumonia; 3) working with the IMCI task force to build national training, financial, and M&E capacity; and 4) reinforcing ownership and the potential for national replication.

Implementation

Key CCM documents were: CHW transfer sheets for cases referred to health facilities, CHW vital event registers, community supervision checklists, CHW treatment registers, health center reports, CHW registers, and health center supervision checklist. The sick child recording form was designed for a literate CHW with most items (treatment, symptoms, danger signs) in checklist format. The patient register, also designed for a literate CHW, requires written symptoms, danger signs, treatments, and follow-up classifications. The referral form requires identifying information and has a checklist for reasons for referral and a counter-referral form. The monthly report, completed by the Community Health Charge, tracks the counts of children seen by the CHW and parameters of nutrition, maternal health, supervision and follow-up. The health center staff supervision checklist (mainly ticks and tallies) tracked availability of medicines and supplies, CHW register quality, follow-up and referrals. If a peer supervisor (cell coordinator) performed the supervision, the checklist included information from a home interview with the caregiver of a recently treated child.

Results

Overall, the Project increased use of CHW services in targeted districts and helped build CHW capacity (see table below) and CHW camaraderie through peer support groups. In addition, the Project illustrated the importance of technical assistance in the field for successful CCM scale up. What mostly distinguished this Project was the extensive population covered (nearly 18% of Rwanda's total population), credible experience with CHWs as first-line treatment for sick children under-five, and well-integrated field presence. The Project also informed the national CHW curriculum and Care Groups for community mobilization and health education. The main challenges were threats to sustainability, including: 1) decreasing returns from CHW cooperatives and other sources for Performance-Based Financing; 2) filling the non-hierarchical, supportive, technical assistance role played by the Project; 3) procurement and supply of community health drugs; 4) integrating the health information system into MOH system; and 5) additional tasks being required of CHWs such as screening for malnutrition, training communities in kitchen gardening and family planning.

Main Project Results

Result	Indicator	Global	Baseline	Endline
Access	Treatment/child/year (fever, diarrhea, pneumonia)		Fever: 0.5 Diarrhea: 0.2 Pneumonia: 0.1	Fever: 1.18 Diarrhea: 0.28 Pneumonia: 0.15
Quality Assured	% of CU5<5s with diarrhea in past two weeks who received correct first-line treatment from a trained provider	Yes (#45)	n/a	14%
	% of children under-five with cough in past two weeks who received correct first-line treatment from a trained provider		n/a	54%
Demand Mobilized	% of children age 0-23 months with cough, fast breathing in last two weeks taken to an appropriate health provider		13%	63%
	% of mothers of children 0-59 months who consulted a CHW in the preceding two weeks for fever, diarrhea, resp. symptoms	Yes	n/a	41%
Environment Enabled	% of children whose families are current mutuelle members		n/a	82%
Use (Coverage) Increased	% of children under-five with diarrhea who received ORT		19%	33%
	% of children 0-23 months with febrile episode in past two weeks treated with an effective anti-malarial drug within 24 hours	Yes (#22)	20%	43%
Mortality Averted	% of treated children who are cured (malaria)		n/a	70%

SUMMARY TEMPLATE FOR PROJECTS DELIVERING COMMUNITY CASE MANAGEMENT[3] (DRAFT APRIL 20, 2012)

Situation

XXX[i] has a high under-five mortality rate (XXX[ii] [XXX][iii]), with many preventable child deaths due to pneumonia (##[iv]%), malaria (##%) and diarrhea (##%). Baseline levels of coverage of curative interventions were XXX[v] and XXX for care-seeking for and treatment of ARI needing assessment, XXX for treatment of diarrhea with ORS, and XXX for treatment of fever/malaria (XXX[vi]). Thus, XXX's[vii] #-year "XXX[viii] Project" (20##-20##[ix]) aims/aimed to improve the health and survival of ##,000 children under-five years of age through increasing the use of high-impact treatment interventions delivered through the Community Case Management (CCM) Strategy.

CCM Context

The impact area in ##[x] districts in XX[xi] Province is XXX[xii]-populated (total population/square kilometer: ##[xiii]); the terrain is XXX[xiv]; and the population is XXX.[xv] The CCM package includes curative interventions (XXX[xvi] for XXX,[xvii] XXX for XXX, XXX for XXX) for sick children age ##-##[xviii] months of age. The community health workers (called XXX) who deliver CCM are an XXX[xix], XXX[xx], XXX[xxi] cadre of worker, generally XXX.[xxii] Other contextual factors for CCM included XXX[xxiii].

Strategies

Strategies and approaches to increase <u>access</u> to CCM include(d): 1) XXX;[xxiv] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Approaches to assure CCM <u>quality</u> through medicine availability include(d): 1) XXX; 2) XXX; and 3) XXX. [xxv] Approaches to assure the CCM <u>quality</u> through training include(d): 1) XXX;[xxvi] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Approaches to assure the CCM <u>quality</u> through supervision include(d): 1) XXX;[xxvii] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Strategies to increase <u>demand</u> for CCM services include(d): 1) XXX;[xxviii] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Strategies to enable the community <u>environment</u> for CCM include(d): 1) XXX;[xxix] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Strategies to enable the national <u>environment</u> for CCM include(d): 1) XXX;[xxx] 2) XXX; 3) XXX; 4) XXX; and 5) XXX. Measures of success include(d) indicators of use (XXX[xxxi]), access (XXX[xxxii]), quality, (XXX[xxxiii]), demand (XXX[xxxiv]), and an enabled environment (XXX[xxxv]).

Tools

Key CCM documents were: XXX.[xxxvi] The sick child recording form XXX.[xxxvii] The patient register XXX[xxxviii]. The referral form XXX.[xxxix] The periodic report XXX.[xl] The supervision checklist tracked XXX.[xli]

[3] This note can either be framed as a summary for completed projects or a progress report for on-going projects.

Results

The quantitative results are in the table. Overall, the Project XXX.[xlii] In addition, the Project XXX.[xliii] What mostly distinguished this Project is/was XXX.[xliv] The main challenges are XXX.[xlv]

Main Project Results

Result	Indicator	Global[xlvi]	Baseline	Endline
Access Increased	XXX[xlvii]			
	XXX			
Quality Assured	XXX			
	XXX			
Demand Mobilized	XXX			
	XXX			
Environment Enabled	XXX			
	XXX			
Use (Coverage) Increased	XXX			
	XXX			
Mortality Averted	XXX			
	XXX			

[i] Name of country.
[ii] Level of under-five mortality.
[iii] Source of U5MR.
[iv] Proportionate mortality value – from MGD report.
[v] Indicator values.
[vi] Source of indicator values.
[vii] Name of NGO.
[viii] Name of project.
[ix] Project dates.
[x] Number of districts.
[xi] Name of province.
[xii] Sparsely vs. densely.
[xiii] TP/square km.
[xiv] Ecology, i.e., drought-prone, flood-prone, mountainous, semi-arid, arid, hilly, fertile, etc.
[xv] Settled in fixed communities vs. agro-pastoralist vs. nomadic, etc.
[xvi] Name of medicine.
[xvii] Name of syndrome (diarrhea, fast breathing, fever or RDT-positive fever).
[xviii] Specify age in months.
[xix] Official vs. unofficial cadre.
[xx] Salaried vs. volunteer.
[xxi] Literate vs. semi-literate vs. non-illiterate.
[xxii] Mostly male vs. balanced male and female vs. mostly female.
[xxiii] Specify any other factors, i.e., ecological, political, policy, etc.
[xxiv] List up to five (e.g., mapping, CHW selection for access, CHW deployment, CHW retention, referral strengthening, etc.).
[xxv] Specify if the project relied on government supplies or purchased medicines, along with logistical support approaches.
[xxvi] List up to five (e.g., CHW selection for quality, competency-based training, training package selected, training duration, % clinical, competency-based certification, competency-based job aids, etc.).
[xxvii] List up to five (e.g., competency-based supervisor training, deploying supervisors, competency-based supervision of CHWs, frequency of supervision [plan vs. actual], supervision content, supervision locus, supervision of supervisors, etc.).
[xxviii] List up to five (e.g., sensitization, messages, targets, channels, products, etc.).
[xxix] List up to five.
[xxx] List up to five (e.g., advocate, demonstrate, evaluate, conduct research, contribute to technical advisory group, etc.).
[xxxi] Specify one to three indicators.
[xxxii] Specify one to three indicators.
[xxxiii] Specify one to three indicators.
[xxxiv] Specify one to three indicators.
[xxxv] Specify one to three indicators.
[xxxvi] Specify from: sick child recording form, patient register, referral form, periodic report, supervision checklist, mentoring checklist, etc.
[xxxvii] Characterize: literate vs. non-literate, adaptations from WHO/UNICEF, etc.
[xxxviii] Specify: literate vs. non-literate, open-ended vs. tick-based, # columns, and general contents (columns for identifying data, assessment, classification, treatment, referral, follow-up, outcome).
[xxxix] Specify: literate vs. non-literate; format (open-ended vs. pre-formatted); and back- or counter-referral (yes or no).
[xl] Specify: who completed it, what it tracked (syndromes, age groups, sex, referrals, outcomes, medicines used and supplied), and how it was used (monitoring, coaching, discussion with community, not used much).
[xli] Specify contents (apart from identifying information): a) case management by observation vs. scenario; b) quality, completeness, and/or consistency of register recording; c) availability of medicines; d) availability of supplies; e) medicine storage; f) community involvement; g) problems; h) recommendations; i) other.
[xlii] Add a concise phrase, like “increased the use of treatment interventions that were generally delivered according to acceptable quality.”
[xliii] Specify important additional qualitative contributions, i.e., scientific presentations given, documents produced – especially if taken up by government (training packages, BCC materials, forms, etc.), manuscripts or publications, resources mobilized, unusual advocacy events (visits by politicians, celebrities), institutions planted, and the like.
[xliv] Specify one to three characteristics.

[xlv] Specify one to three main challenges, such as: assuring quality of case management, retaining CHWs, assuring availability of medicines, scaling up, etc.
[xlvi] Tick if indicator is selected or adapted from global consensus indicator list.
[xlvii] Specify main indicators for each result.