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ORIGINAL ARTICLE

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

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ABSTRACT

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

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

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

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

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

INTRODUCTION

In 2011, 60 of the Countdown to 2015 priority countries were implementing integrated community case management of childhood illness (iCCM) programs (1). Among many implementation challenges, country programs struggle to monitor and measure implementation and overall progress in iCCM. Program managers require feasible, timely, reliable, and valid measures of iCCM implementation to identify prob-

lems and assess progress. Additionally, good quality data are needed as a basis for reports to stakeholders, including donors, at national and international levels. Evaluators and researchers require better indicators of iCCM implementation to help explain evaluation and research results.

To meet this demand, the Maternal and Child Health Integrated Program (MCHIP), with support from the United States Agency for International Development (USAID), convened a Global iCCM Task Force to provide resources for program implementers. In 2010, USAID and partners developed the iCCM

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Benchmark Framework, a program planning tool that outlined 70 steps spanning eight components to assist program managers to design, introduce and scale up iCCM (2). The eight components of the iCCM Benchmark Framework are: 1) coordination and policy setting; 2) costing and financing; 3) human resources; 4) supply chain management; 5) service delivery and referral; 6) communication and social mobilization; 7) supervision and performance quality assurance; and 8) M&E and health management information systems (HMIS) (3). In 2012, the Task Force finalized a set of 47 iCCM benchmark indicators to guide implementers when developing or improving monitoring and evaluation (M&E) systems. The 47 indicators, the focus of this paper, complement the 70 benchmarks by defining standard metrics to measure strength of implementation and progress towards results.

Ethiopia has implemented iCCM of common childhood illnesses since 2010 (5). Health Extension Workers (HEWs) provide preventive, promotive, and basic curative services to under-five children in rural areas treating diarrhea, pneumonia, severe acute malnutrition, and malaria through health posts. The Federal Ministry of Health (FMOH) is still refining and rolling out the M&E system, and will soon integrate iCCM data into the national HMIS. The aim of this report is to assess Ethiopia's iCCM M&E system against global benchmark indicators.

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MATERIALS AND METHODS

Design, setting and subjects: The TRAction iCCM-IDIP (Improving Data to Improve Programs) group developed standard methods and benchmark indicator assessment tools, which were adapted for the Ethiopia context (6). We conducted a desk review of iCCM national policy documents, implementation strategy and guideline documents, M&E plans, monitoring tools and reports, survey reports, and the national health information system (HIS) implementation and reporting documents. We also conducted key informant interviews with Ministry of Health representatives supporting the national iCCM program, lead technical officers from implementing partners, and technical experts who support the national HIS and contribute to the global child survival

strategy in Ethiopia. A consultant collected data during the fourth quarter of 2013 supported by Save the Children with technical assistance and oversight from the IIP-JHU.

Variables and analysis We categorized indicators by data source (Box).

Benchmark indicator categories

Type 1: Indicators measured through routine sources and expected to be available over time at the facility, district, and regional levels, in most cases. These indicators are primarily for use by program managers.

Type 2: Indicators measured through household surveys or other special studies that are collected periodically for use by both program managers and national stakeholders. Some indicators can be measured both routinely and periodically (considered as both Type 1 and Type 2 indicators).

Type 3: National milestone indicators assessed through document reviews and key informant interviews. These are not collected regularly and are closer to program milestones than to traditional indicators.

From the desk review and interviews, we detailed the routine M&E system components and summarized how partners engage in routine iCCM monitoring. We assessed the availability and feasibility of data collection for the iCCM Task Force benchmark indicators. We assessed which iCCM indicators were currently collected in Ethiopia and which indicators *could* be collected, given the available data, tools and partner plans. For each indicator we recorded the source of indicator data whether existing or planned; and for those indicators currently not being collected, we investigated challenges to collecting them. The indicators were then color-coded: green indicates that the data for the indicator are currently available; yellow indicates data for the indicator are potentially available either through planned data collection or with modification to existing system; and red indicates the data for the indicator are not available and there is no clear plan to collect.

Ethics This activity was submitted to the Johns Hopkins University Institutional Review Board (IRB) and considered non-human subject research and exempt from IRB review. A written letter of support from Save the Children International, Ethiopia Office was submitted to the partner organizations and verbal consent was obtained from each respondent.

RESULTS

We conducted 18 key informant interviews, including nearly all partners (10/11) supporting implementation of iCCM or the M&E system; and we reviewed 32 documents.

M&E system overview: The Maternal and Child Health Directorate of the MOH, supported by implementing partners, developed, introduced (in 2010), and scaled up a routine system for reporting iCCM program data from the health posts to the central level.

Indicators: The FMOH, with input from UNICEF and other technical working groups, proposed 27 national indicators to measure iCCM implementation. The current HMIS lacks some key iCCM indicators for children under five, such as the proportion with diarrhea treated with ORT or treated with zinc, the proportion with pneumonia treated with antibiotics, the proportion with fever tested for malaria and

the proportion of those with positive tests treated with an anti-malarial, and the proportion whose weight is monitored. The FMOH is in the process of developing guidelines to incorporate these.

Data flow and management: Table 1 shows the main forms used at health posts, their purpose, and how the information is reported. There are several reporting paths: through NGOs to the FMOH and through the *woreda* (district) health office, zonal health departments, and regional health bureaus to specific departments of the FMOH, such as the Pharmaceuticals Fund Supply Agency (PFSA). The MOH indicators are collected through the routine reporting systems on a monthly or quarterly basis.

Each health post is meant to receive a quarterly Performance Review and Clinical Mentoring Meeting (PRCMM), which provides data on quality of care, service utilization, drug/supply stocks, and other information that is compiled and submitted to PRCMM iCCM database (supported by implementing partners) and reported to the FMOH (7).

Table 1: Routine monitoring tools, purpose and reporting

iCCM Program Tools	Purpose	Reporting
iCCM Monthly Report (<i>Forms A1, A2 and A3</i>)	Tracks iCCM training and clinical mentoring for HEWs, supervisors and facility staff.	Databases kept by UNICEF and partners and reported to the FMOH.
iCCM Activity Register	Job Aid for the HEW.	Kept at HP; monitoring forms extract information.
Supportive Supervision Report/ <i>Form C</i>	Information on cases treated, quality of care through register review, drug/supply stocks and other information.	Collected during the PRCCM meetings.
iCCM Supervision Checklist	Used by the <i>woreda</i> health office to track training, iCCM provision and other indicators at the HP.	Entered in a database at the <i>woreda</i> level.
Health Post Monthly Report and Re-supply Form (consumption)	HP reports on drug and supply stocks.	Submitted to the <i>woreda</i> / health facility. Aggregated reports are sent to PFSA and entered into LMIS for replenishment.

Monitoring human resources: UNICEF and the FMOH developed and maintained a database that includes the HEW iCCM trainings, clinical mentoring by PRCMM, and lists and maps of iCCM implementing partners. *Form A1* details HEW training, *Form A2* details iCCM training of HEW supervisors, and *Form A3* details IMNCI training of health facility workers. The purpose of the database is to track process indicators (inputs, activities, outputs) for these trainings. The database includes individual level identifiers, such as name, cell phone number, date of iCCM training, date of clinical mentoring visits, competency acquisition, and other information. Implementing partners produce a quarterly activity report that is reported to the FMOH.

Sick child registers: Each health post uses two iCCM registers to record their curative and promotive activities during sick child encounters, one for young infants <2 months and one for children 2-59 months. The registers record the classification, treatment, outcome, follow-up, referral, and immunization status. Information from the registers is primarily reported through the PRCMM quarterly meetings and supportive supervision report.

Supervision: The FMOH and partners developed a standard supervision training package for the iCCM program that includes training manual and supporting materials. The iCCM Supervision Checklist (*Form C*) includes: key issues from the previous visit, availability of drugs and supplies, appropriate storage of drugs and supplies, consistency of data in register against reports, classification-treatment consistency as a proxy of service quality, appropriateness of referral, knowledge of HEW, main positive findings, weaknesses, and summary of feedback. The checklist is completed quarterly; however, coverage gaps occur. Partners enter data into a *woreda* database for use at national, regional, zonal and district levels. All partners implementing iCCM are now expected to use a standard form, after early inconsistency.

Supply chain management: At the end of the iCCM training, HEWs receive a training kit until the PFSA provides the starter kit. *Form C*—completed by the supervisor—reports the HEW consumption of iCCM medicines and supplies. In addition, the HEW counts each drug and supply at the end of each month, fills the section on the *Health Post Monthly Report and Re-supply Form* (HPMRR), and submits it to the catchment health center or *woreda*.

The aggregated consumption reports from districts are sent to PFSA regional hubs and entered to the Logistic Management Information System (LMIS) and/or to the regional health bureaus. Replenishment is based on demand. However, the supply-chain management system is not yet strong. UNICEF, working with FMOH, has developed an interim “push” strategy to distribute essential iCCM supplies while developing a long-term “pull” system.

Availability and feasibility of collecting benchmark indicators: Table 2 summarizes iCCM benchmark indicator availability by component and whether they are feasible to collect regularly. Currently, Ethiopia collects data to inform most (70% [33/47]) iCCM benchmark indicators, and modest extra effort could boost this to 83% (39/47). Eight (17%) are not available given the current system. Most indicators that track coordination and policy, human resources, service delivery and referral, supply chain management, supervision, and quality assurance are available through the routine monitoring systems, either through the partner or FMOH monitoring systems or periodic surveys. Data on human resources are collected through HMIS or available in government administrative databases. Most of the information on service delivery and referral, supply chain management, supervision, and quality assurance is available through partner-supported monitoring exercises, such as the PRCMM. Most of the supply chain management information comes from the *Form C* and other parallel partner databases.

Table 2: iCCM Indicator Availability and Feasibility in Ethiopia (NM = National Milestone; SS = Special Study; RM = Routine Monitoring)

Component	Indicator (data source)	Data Availability	Feasible to collect
Component 1: Coordination and Policy Setting	iCCM policy (NM)	Yes, described in 2010 national implementation plan iCCM.	Yes, but unlikely to change once 'Yes' value achieved.
	iCCM coordination (NM)	Yes, described in 2010 national implementation plan iCCM.	Yes, should be reviewed every year as required.
	iCCM partner map (NM)	Yes (map available).	Yes, list of partners implementing iCCM program maintained by UNICEF and updated every year.
	iCCM target areas defined (NM)	Yes (areas defined by MOH).	Yes, outlined in iCCM implementation plan document and iCCM M&E plan.
Component 2: Costing and Financing	Annual iCCM costed operational plan (NM)	Yes (costed plan for three years developed in 2010).	Yes, MOH-led amendment of such plans annually is incorporated in to the comprehensive plan of FMOH.
	iCCM national financial contribution (SS)	No.	Resource dependent – but could be estimated from annual FMOH report as it relates to HSDP-IV target and by interviewing partners.
	Expenditure (1): iCCM proportion of disease program (SS)	No.	Resource-dependent but could be indirectly found on the annual Health and health related indicator* bulletin. National Health Account (NHA) could bring data on expenditure related to under five morbidity. NHA 2013 is under finalization.
	Expenditure (2): Average iCCM expenditure per capita (child) by disease program (SS)	No.	Resource dependent, but estimated per capita by disease in the national iCCM implementation plan. The 2013 NHA could bring in this data.
	Expenditure (3): Average per iCCM contact (SS)	No.	Resource dependent and challenging to obtain but estimated cost is set in the national iCCM implementation plan

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Component 3: Human Re- sources	Training strategy (NM)	Yes, 2010 national implementation plan of iCCM and iCCM training manuals and materials.	Yes, should be reviewed every 3 years until achieved.
	iCCM Health Extension worker Density (HEW) density ^s (RM)	Yes, through MOH and partner databases.	Yes, the HMIS collects ratio of (trained and untrained) HEW to population. Catchment area population will be available when the Family Folder system is fully implemented. Data also available through partner databases (<i>Form A</i>).
	Targeted HEWs providing iCCM ^s (RM)	Yes, district health office and partners.	Yes, able to track annually through the MOH administrative data and partners <i>Form A</i> and iCCM database.
	Annual iCCM HEW retention (RM/SS)	Yes, through MOH and partner databases. No special studies planning to collect.	Yes, annual retention is tracked by HMIS. Partners also track how many of their trained HEWs are still active by <i>Form A</i> and iCCM database.
Component 4: Supply Chain Management	Medicine and diagnostic registration (NM)	Yes (all iCCM medicines and diagnostics registered except Amoxicillin).	Yes, medicine and diagnostics registration documents are captured at Pharmaceutical Fund and Supply Agency (PFSA) for replenishment kits and UNICEF.
	Medicine and diagnostic availability (RM/SS)	Partial, for HPs receiving supervision with <i>Form C</i> ; also available through partner stock management reports and periodic surveys.	Yes, but supervision needs to be 100% and standardization of reporting is required across each partner. Training kit supply managed by UNICEF and implementing partners. Replenishment kit supply managed by PFSA and reported accordingly.
	Medicine and diagnostic continuous stock (RM/SS)	Partial, for HPs receiving supervision with <i>Form C</i> ; also available through partner stock management reports and periodic surveys.	Yes, but supervision needs to be 100% and standardization of reporting is required across each partner. Data captured through partners and UNICEF stock management report and supportive supervision report.
	Medicine and diagnostic storage (RM/SS)	Partial, for HPs receiving supervision with <i>Form C</i> . Not collected through special studies.	Yes, but supervision needs to be 100% and standardization of reporting is required across each partner.
	Medicine and diagnostic validity (RM/SS)	Partial, for HPs receiving supervision with <i>Form C</i> . Not collected through special studies.	Yes, but supervision needs to be 100% and standardization of reporting is required across each partner.

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Component 5: Service Delivery and Referral	iCCM treatment rate ^s (RM)	Yes, iCCM Treatment register (<i>Form C</i>) and Health Post Monthly Disease Report Form reports on monthly consumption data.	Yes, the HEWs set annual target for iCCM treatment coverage against which the treatment rate is measured and reported. The revised registers and reporting forms will ensure that iCCM treatments are disaggregated by age and sex. Catchment area population available through Family Folder system.
	Case load by HEW(RM)	No, only aggregated numbers of treated cases are reported. Not by HEW.	Yes, possible to collection through special studies.
	Referral rate (RM)	Yes, through periodic surveys and routine reporting.	Yes, periodically through HF surveys but also through <i>Form C</i> Supportive supervision report.
	Treatment coverage (SS)	Yes, regional and zonal through periodic surveys.	Yes, through regional surveys and partner surveys for pneumonia, diarrhea, malaria and SAM cases.
	iCCM treatment coverage by HEWs (SS)	Yes, captured through national and partner surveys.	Yes, captured through national and partner surveys.
	First source of care (SS)	Yes, captured through national and partner surveys.	Yes, captured through national and partner surveys.
	Follow up rate (SS)	Yes, through periodic surveys and routine reporting.	Yes, periodically through HF surveys but also through <i>Form C</i> Supportive supervision report extracted from the iCCM register
	Successful referral (SS)	No.	Not feasible with current system. Incomplete and incorrect recording at health centers is a barrier.
Component 6: Communication and Social Mobilization	Communication strategy (NM)	Yes, FMOH has a communication strategy as part of the HDA program. Partners such as UNICEF and IRC have also developed communication strategies for all health programs including iCCM.	Yes, should be reviewed every 1-2 years.
	Caregiver knowledge of HEWs (SS)	Yes, quality of services surveys by partner.	Yes, but only periodically through special surveys
	Caregiver knowledge of illness signs (SS)	Yes, quality of services surveys by partner.	Yes, but only periodically through special surveys.

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Component 7: Supervision and Performance Quality Assurance	Supervision strategy (NM)	Yes, 2010 national implementation plan of iCCM and supervision guidelines.	Yes, should be reviewed every 1-2 years.
	iCCM supervisor training (RM)	Yes, through MOH and partner training records.	Yes, data on number of HEWs and supervisors are captured through HMIS and <i>Form A2</i> (partner training report).
	HEWs to supervisor ratio (RM)	Partial, could be tracked by MOH and partner training records	Yes, could be calculated from HEWs' and supervisors' administrative and training records
	Routine supervision coverage (RM/SS)	Yes, regional through partner surveys; included in <i>Form C</i> .	Yes, reported through <i>Form C</i> and would be feasible for MOH to collect and report quarterly.
	Clinical supervision coverage (RM/SS)	Yes, regional through partner surveys and PRCCM database.	Yes, collected through special partner studies and routinely through PRCCM report.
	Correct case management (knowledge) (RM/SS)	Yes, regional through PRCCM.	Yes, collected through PRCCM.
	Correct count of respiratory rate (RM/SS)	Yes, through periodic surveys, but not routinely.	Yes, collected through partner surveys; may not appropriate to include in RM.
	Complete and consistent registration (RM/SS)	Yes, through periodic surveys and <i>Form C</i> .	Yes, this is collected through partner surveys and through <i>Form C</i> .
	Correct case management (observed) (SS)	Yes, quality of services surveys by partner.	Yes, but only periodically through special surveys.
	Appropriate RDT use (SS)	Yes, quality of services and caretaker adherence surveys.	Yes, but only periodically through special surveys.
	Appropriate prescribing practice for positive RDTs (SS)	Yes, quality of services and caretaker adherence surveys.	Yes, but only periodically through special surveys.
	Appropriate prescribing practice for negative RDTs (SS)	Yes, quality of services and caretaker adherence surveys.	Yes, but only periodically through special surveys.
	First dose (SS)	Yes, quality of service surveys by partner.	Yes, but only periodically through special surveys.
	Counseling quality (SS)	No.	Resource dependent.
	Correct referral (SS)	Yes, quality of service surveys by partner.	Yes, but only periodically through special surveys.

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Component 8: Monitoring & Evaluation and Health Infor- mation Systems	National monitoring and evaluation plan for iCCM (NM)	Yes, iCCM M&E plan includes indicators, tools, etc.	Yes, should be reviewed every 3 years until achieved.
	iCCM utilization indicators included in HMIS (NM)	Partial, HMIS does not currently include iCCM, but is under revision and will include community data.	Yes, should be reviewed every 3 years until achieved.
	District reporting (RM)	Yes, number of districts reporting completely and on-time is available.	Quarterly performance review meeting show this information.

*This is an annually produced bulletin, which publishes information on basic health indicators, health related MDG indicators, demographic and vital statistics, maternal and child health disease prevention and control (disaggregated by age and sex), assets, and proportion of health sector budget compared to the total budget for the country, among other information.

DISCUSSION

Ethiopia's iCCM M&E system collects much information through several channels. Many benchmark indicators are available or feasible to collect through routine monitoring or periodic surveys; however, the M&E system is fragmented, and the reporting burden is heavy. Information on costing indicators is scant, especially compared to training, supervision, and M&E. The supply chain management is not yet strong, and the plans for a *pull* system with tools and indicators are welcome.

Compared to findings from similar M&E system desk reviews conducted in Malawi, Mozambique, and Mali by the iCCM-IDIP, Ethiopia has more benchmark indicators available through the routine monitoring system and surveys (8-10). We also found more national documentation on the policies and strategies of iCCM and M&E implementation. The iCCM-IDIP found that parallel, non-standard partner M&E systems are not unique to Ethiopia. Other countries are working to integrate parallel systems into the national HMIS. Gaps in indicator data for supply chain management are another cross-country finding. Many indicators for service delivery, referral, supervision, and quality are available through the Ethiopian DHS or other smaller-scale partner surveys. National documentation of iCCM policy, coordination, and strategy is complete. However, little information is available on iCCM costing. Our report has limitations. First, the benchmark indicators aim to provide a full picture on the status of iCCM implementation; however, they are guidelines

for, not a definitive list of, required data for a successful M&E system. Some indicators may not align with country priorities, and others may be difficult to collect. The framework is limited for demand indicators, which is critical for Ethiopia where HP utilization is low (11). Second, we focused only on the indicator availability; however, assessing quality and use of data is essential. Finally, although we attempted to contact all implementing partners and review all relevant documents, we may have missed some relevant information.

Two opportunities lie ahead in Ethiopia. First, the FMOH has recognized the need to standardize and integrate tools and indicators among the many implementing partners (12). This will provide an opportunity to prioritize what data are needed to make decisions at each level and to reduce the reporting burden. Second, Ethiopia is integrating iCCM data into the HMIS. This also will require reviewing and prioritizing feasible benchmark and other indicators.

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For more information on TRAction's work, please visit <http://www.tractionproject.org/>. The findings of this study are the sole responsibility of the Institute for International Programs at Johns Hopkins University, and do not necessarily reflect the views of USAID or the United States Government

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