

# **Summative evaluation of the WHO Rapid Access Expansion Initiative Volume 1: Synthesis Report**

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The analysis and recommendations of this report are those of the independent evaluation team and do not necessarily reflect the views of the World Health Organization. This is an independent publication by the WHO Evaluation Office.

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## LANGUAGE AND DISCLAIMERS

To distinguish between the grant provided by Canada to the WHO Global Malaria Programme and the programmes implemented in five countries under this grant, the term ‘initiative’ is used when referring to the grant and the term ‘programme’ when referring to implementation programmes in the five countries.

The grant arrangement document between Canada and the WHO refers to the sub-grantees of the RAcE Initiative as ‘civil society organisations’ (CSOs). This label, however, is understood differently in some programme countries where it does not include international non-governmental organisations. To capture the full range of the types of implementing partners and to avoid any misunderstanding at country level, the term ‘non-state actors’ (NSAs) is used.

Data collection for the evaluation was concluded on February 28. The majority of implementation research studies conducted under the RAcE Initiatives had not yet been documented, activities related to sustainability planning were still ongoing in some programmes, and new data from population surveys such as the Niger 2017 Demographic and Health Survey (DHS) were not yet available. Any data or information that became available after February 2018 could not be considered in the analysis.

## ABBREVIATIONS

ACT	Artemisinin-based Combination Therapy
CA	Contribution Analysis
CBMNCH	Community-based Maternal, Neonatal and Child Health (package in Malawi)
CCMm	Community Case Management of Malaria
CHAI	Clinton Health Access Initiative
CHW	Community Health Worker
CSO	Civil Society Organisation
cStock	Mobile phone-supported supply management system (in Malawi)
DALY	Disability-adjusted life year
DHIS2	Cloud-based electronic health management information platform
DHS	Demographic and Health Survey
EMG	Evaluation Management Group
FGD	Focus Group Discussion
GAC	Global Affairs Canada
GMP	(WHO) Global Malaria Programme
iCCM	Integrated Community Case Management
ICF	A US-based consulting agency
IMCI	Integrated Management of Childhood Illnesses
IRC	International Rescue Committee
IST	(WHO) Inter-country Support Team
KII	Key Informant Interview
LGA	Local Government Area
LiST	Lives Saved Tool
M&E	Monitoring and Evaluation
MC	Malaria Consortium
mHealth	Mobile phone-supported health data reporting system
MICS	Multiple Indicator Cluster Survey
MOH	Ministry of Health
NPO	(WHO) National Programme Officer
NSA	Non-state Actor
ORS	Oral Rehydration Solution
PLA	Participatory Learning and Action (tool)
PMF	Performance Monitoring Framework
PMI	(US) President's Malaria Initiative
PSM	Procurement and Supply-chain Management
PT	Process Tracing
QoC	Quality of Care
RACe	Rapid Access Expansion
RDT	Rapid Diagnostic Test (for malaria)
SC	Save the Children
SFH	Society for Family Health
TGF	The Global Fund to Fight AIDS, Tuberculosis and Malaria
TOC	Theory of Change
TOR	Terms of Reference

U5MR	Under-five Mortality Rate
WCO	WHO Country Office
WV	World Vision

# EXECUTIVE SUMMARY

## BACKGROUND OF THE RAcE INITIATIVE

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1. Integrated community case management (iCCM) refers to health care provided by community health workers (CHWs) to children with limited access to health facilities. It generally comprises the diagnosis and treatment of diarrhoea, malaria and respiratory infections among children aged from 2-59 months but may also include the diagnosis and treatment of acute malnutrition, neonatal care and interventions for health promotion and disease prevention.
2. The Rapid Access Expansion (RAcE) Initiative was funded by the Government of Canada in 2012 with a grant of C\$ 75 million over six years to the WHO Global Malaria Programme (GMP) to increase the coverage of iCCM services for the achievement of the health-related Millennium Development Goals and to generate evidence to inform WHO policy recommendations and guidance on iCCM.
3. Under the Initiative, WHO provided renewable sub-grants to five non-state actors (NSAs) to implement six iCCM programmes in five countries in cooperation with national and sub-national authorities. Two of these countries, Malawi and Mozambique, had established iCCM services that the RAcE programmes intended to strengthen. In the other three countries, the Democratic Republic of Congo (DRC), Niger and Nigeria, RAcE introduced iCCM services in regions where they did not yet exist. The RAcE initiative distinguished itself from other internationally funded iCCM programmes by aiming to achieve universal health coverage (UHC) for all children in hard-to-reach areas within selected geographic boundaries. The number of children covered was estimated at 1.9 million.

## EVALUATION PURPOSE, OBJECTIVES, SCOPE AND METHODOLOGY

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4. The evaluation of the RAcE Initiative was implemented by **hera**, a consulting company based in Belgium, under contract to the WHO Evaluation Office. Data were collected between November 1<sup>st</sup> 2017 and February 28<sup>th</sup> 2018. The scope of the evaluation was defined by five indicative areas of investigation:
  - 1) The extent to which the original design of the RAcE Initiative responded to the needs and priorities of the main stakeholders in national health systems and was in line with national health strategies.
  - 2) The extent to which the RAcE Initiative, through country level activities in combination with implementation research activities, was able to contribute to enhancing the utilisation of essential health commodities and supplies needed to diagnose and treat the main causes of death among children under five in programme countries.
  - 3) The extent to which the RAcE Initiative contributed to a supportive policy and regulatory environment in support of iCCM as a key component of health care service delivery.
  - 4) The extent to which the assessed changes in iCCM treatment coverage and the changes in child mortality in RAcE programme areas identified in the evaluations conducted by ICF, as well as the plausible contributions of RAcE to any changes, can be independently corroborated.
  - 5) The extent to which the RAcE Initiative contributed to the achievements of gender equality results.

5. The evaluation covered all six programmes funded under the RAcE Initiative with field visits and the preparation of country briefs for each of the five programme countries. In preparation of the country missions, the evaluation team conducted a literature review of recent studies and reports about iCCM in the five programme countries.

6. The evaluation employed a qualitative methodological approach, using a combination of Contribution Analysis (CA) and Process Tracing (PT) by assigning a prior probability that an impact has occurred and testing it to determine a posterior probability in the light of new evidence. The evaluation design included the post-hoc development of a Theory of Change (TOC) framework and the preparation of an evaluation matrix including evaluation questions, assumptions, indicators, data sources and data collection methods and a chain of reasoning linking the evaluation question to the TOC. Data were collected in document reviews, key informant interviews (KIIs) and focus group discussions (FGDs). The data collection tools were pretested during an inception mission to Niger State, Nigeria. The data of baseline and end-line household surveys conducted by the implementing partners were used throughout the evaluation as evidence of programme results, triangulated with data from KIIs, FGDs and the review of documents and databases.

## FINDINGS AND CONCLUSIONS

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### KEY FINDINGS AND CONCLUSIONS

7. The RAcE Initiative showed that iCCM can fill important gaps in national strategies for universal health coverage (UHC) by creating access to essential health services to children who need timely treatment for malaria, diarrhoea and acute respiratory infections but who do not have easy access to primary health care facilities. iCCM is an effective contribution to child survival when it is applied to overcome geographic barriers in access to care. The services are highly appreciated by caregivers of children. The key to effective iCCM is its link to health systems building blocks, particularly:

- the uninterrupted supply of quality medicines
- a human resources for health framework that includes CHWs
- a health management information system (HMIS) that includes community-level data
- the integration of iCCM in the national health financing framework
- effective community engagement and demand generation

8. iCCM services, as they were delivered under the RAcE Initiative, are highly dependent on international funding which is their greatest threat to sustainability. In contrast to facility-based services that can mitigate periods of medicine stock-outs or financing bottlenecks, iCCM services are vulnerable to interruptions in medicine supplies and supervision as there are no alternatives for mitigation.

9. Despite many years of experience in the implementation of iCCM, important knowledge gaps persist, particularly in the African context. More studies about the modalities and the effectiveness of iCCM have been conducted in Asia, and there is a persistent need for validation of this evidence in Africa. Additional knowledge needs to be generated on:

- The status, the incentives and the motivation of CHWs
- Effective approaches to community engagement in support of iCCM
- Gender equality in the supply and demand for community health services

10. While the RAcE Initiative has generated qualitative evidence that iCCM has an impact on reducing child mortality, the evaluation found that this impact could not be estimated by the application of epidemiological models because input data for reliable modelling were not available. These will only become available when there are significant improvements in national civil registration and vital statistics systems and in community health information systems.

**DID THE RAcE INITIATIVE RESPOND TO THE NEEDS AND PRIORITIES OF THE MAIN STAKEHOLDERS IN NATIONAL HEALTH SYSTEMS AND WAS IT IN LINE WITH NATIONAL HEALTH STRATEGIES?**

11. The RAcE Initiative was well aligned with national health policies and strategies in all five programme countries. Ministries of health were closely involved in designing and planning the RAcE programmes, including in the selection of regions and communities to receive services. Supported by the WHO Country Offices (WCOs), the ministries of health led the coordination fora and technical working groups on iCCM in all countries and had primary responsibility for assuring the complementarity and coordination of internationally-supported iCCM programmes.

12. The RAcE Initiative demonstrated that iCCM complements national efforts to achieve UHC by reaching a large number of children who have no access to health facilities. The limitations are in thinly populated regions where some communities are so remote that they even cannot be reached with iCCM services. In all five programme countries, a significant proportion of caregivers changed their pattern of care-seeking towards consulting CHWs. In some programme areas, however, private and public service providers already provided a relatively high level of access to care, although of uncertain quality. In these cases, overall access to care did not increase or only increased marginally. The limitations to access in these programme areas were not primarily due to geographic distance, but rather to cost and perceived quality. In such contexts, iCCM may not be the only solution to increasing access. Other options to reduce point of service user charges and increase quality of care exist.

**DID THE RAcE INITIATIVE CONTRIBUTE TO ENHANCING THE UTILISATION OF ESSENTIAL HEALTH COMMODITIES TO DIAGNOSE AND TREAT CHILDREN IN PROGRAMME COUNTRIES?**

13. The national capacity to implement iCCM was strengthened in all programmes by the collaboration of the WCOs with ministries of health at the national level and the operational support to the ministries by contracted NSAs at the decentralised level. RAcE contributed to the development or revision of strategies, guidelines and tools in all countries. CHW reporting systems and tools were established or improved, and the programmes supported the flow of data from the community sites via supervisors to the health district level. Repeated data quality audits confirmed an increasing quality of transmitted information. Community health data were already integrated in the national HMIS in Malawi and partially in Mozambique. In the other programmes this was not achieved although some progress was observed.

14. National systems for procurement and supply-chain management (PSM) of iCCM commodities were used fully or partially in all countries except Malawi where a parallel system was maintained throughout the programme. In Mozambique, national PSM systems were used from the start, in the other programmes there was a gradual transfer of responsibility to national PSM, combined with some capacity strengthening of national institutions. All programmes experienced some stock-outs of medicines. Major stock-outs over long periods were only



reported in Mozambique and the DRC but stock-outs were also reported by the other programmes towards the end of the RAcE implementation period.

15. Programmes under the RAcE Initiative reached more than twice the targeted number of 750,000 children per year with nearly eight million consultations performed by RAcE-supported CHWs over the programme period. Quality of care assessments that were available from four programmes indicated that between 48 to 55 percent of children were assessed and treated for all conditions according to the standards of an observing clinician. In community FGDs, caregivers universally expressed a high level of satisfaction with the services provided by CHWs.

16. iCCM is an element of the health system service delivery building block. Effective service delivery requires the provision of a continuum of care, and effective iCCM requires a reliable first level referral service for children who cannot be treated by CHWs. Several NSA programme proposals included plans to strengthen the capacity of primary health care facilities, but they were not fully implemented. District supervisors in several programmes noted that CHWs often perform better in adhering to diagnostic and treatment algorithms than staff in primary health care facilities. Shortage of medicines in facilities was a common complaint heard in community FGDs. In three programme reviews, respondents mentioned that sick children were referred by health facility staff to CHWs because medicines were not available at the health facility.

17. The RAcE Initiative achieved the target of 7,500 CHWs trained and supported. Indeed, about 8,900 CHWs were trained of whom about 7,400 were active at the time of programme closure or the time of the evaluation mission. Attrition rates were highest in the DRC which was to a large extent explained by the insecurity in the programme region and related displacements of communities. Training and re-training was conducted according to national curricula or curricula based on the UNICEF/WHO curriculum 'Caring for the sick child in the community' that was adapted to local needs and contexts. CHWs were supervised by trained facility-based health staff. All programmes except in Malawi provided financial incentives, and in some cases bicycles, motorcycles or canoes to supervisors. Systems for the supervision of supervisors by district health authorities, and joint supervisions of CHWs and supervisors were implemented in all programmes.

18. CHWs are volunteers, except in Malawi, where they are salaried employees of the Ministry of Health. Different approaches to maintain their motivation and retention were used by RAcE programmes in line with national policies. They ranged from strictly material support (e.g. provision of a bicycle) to the payment of a fixed allowance contingent on the submission of monthly reports. Interviewed CHWs in all programmes affirmed that training opportunities, the uninterrupted supply of commodities and the recognition and status in the community were their main motivating factors. Stipends and financial incentives were considered important and emphasised more by male than by female CHWs, but they were also considered insufficient by all interviewed CHWs. A common complaint was that they were not adjusted to inflation nor to expansion of the scope of assigned tasks. Material or financial support from the community (construction of houses, bicycles, stipends, etc.) were promoted and monitored by several programmes and highlighted in annual programme reports. A number of interviewed CHWs acknowledged receiving some support, but none considered it a substantive contribution to their own motivation.

19. The RAcE programmes used multiple approaches for demand creation for iCCM services that were largely effective. This is documented in the surveys and FGDs which confirmed that the

great majority of community members considered CHWs as trusted health care providers and would choose them as their first source of care for a sick child. Community engagement strategies to promote the support of CHWs by their communities, however, had mixed results. Some highly successful examples were cited in programme reports, but the KIIs and FGDs conducted by the evaluation team indicated that these were exceptional and anecdotal. Several community discussions revealed a disconnect between the offer of iCCM as a service to the community, and the expectation that communities provide support to maintain this service.

#### **DID THE RAcE INITIATIVE CONTRIBUTE TO A SUPPORTIVE POLICY AND REGULATORY ENVIRONMENT FOR ICCM AS A KEY COMPONENT OF HEALTH CARE SERVICE DELIVERY?**

20. The RAcE Initiative was implemented by WHO through sub-contracts to national or international NSAs that were selected through competitive bidding. The results of this modality of programme delivery were positive and widely appreciated. The WCOs, with support of the Regional Office (RO) and the GMP, provided normative support for the development or revision of iCCM policies, strategies and tools to central governments. This resulted in all countries in progress towards a more supportive policy and regulatory environment for iCCM. The contracted NSAs, on the other hand, provided operational support to decentralised levels of government. There was an effective flow of information between the decentralised implementation and the central policy level, assuring that the experience of RAcE fed into national policies and strategies and into the partner coordination dialogue.

21. Some key informants at national and global level, however, cautioned that the sub-granting approach should not be viewed as a universal best practice, but rather as a transitional approach to be applied on the basis of an assessment of systems and capacities of governments and potential NSA implementing partners.

22. The NSA implementing partners, in collaboration with ministries of health, conducted ten operational research projects on issues such as supervision systems for CHWs, appropriate training and data collection tools, or the use of mHealth for improving quality of care and data collection. Some of these research projects were completed at the time of data collection for the evaluation and had already resulted in programme improvements. The final results of most, however, had not yet been disseminated or discussed. Other research results and lessons drawn at the level of the RAcE Initiative were also still being prepared for documentation. Data collected by the end of February 2018 did not yet allow a full assessment of the contribution of the RAcE Initiative to new knowledge about iCCM at global, regional and national levels. Work in this area by the GMP is on-going and is expected to generate results that will likely contribute to more and better guidance for national policy and regulatory frameworks on iCCM.

23. The national policy and regulatory environment for iCCM is a major determinant of the sustainability of services. The RAcE programmes contributed extensively to this dimension, for instance by supporting the inclusion of iCCM in national health strategies. While much was achieved in this area, including the creation of iCCM budget lines in national or sub-national health budgets, iCCM services in the five programme countries continue to be predominately funded by international development partners. Appropriation of funds for iCCM budgets from national resources was at best partial and in most countries contingent on on-going international grant negotiations. This created critical situations of medicine stock-outs and reductions of CHW supervision as the RAcE programmes were nearing their end. To avoid iCCM service gaps in RAcE

programme areas, a process of sustainability planning was initiated in 2016. It was still on-going in some countries at the time of the evaluation. While the structured process was highly appreciated by all key informants at country level, most were of the opinion that starting it in the last programme year was too late, and that financing gaps could have been avoided if a sustainability roadmap would have been developed and implemented from the start of the programme.

#### **DID THE EVALUATION CORROBORATE THE ESTIMATED CHANGES IN ICCM TREATMENT COVERAGE AND CHILD MORTALITY MODELLED BY ICF?**

24. Data collected by the evaluation provide evidence that the RAcE Initiative contributed to a reduction in child mortality. This evidence is based on qualitative data collected in focus groups and interviews. Reliable health facility data that documented a reduction of admissions of children with severe life-threatening conditions were only partially available in one programme. Population surveys conducted after the evaluation may provide further evidence of reduced child mortality in RAcE programme areas. The mortality reduction estimated with the aid of the Lives Saved Tool (LiST) model could, however, not be corroborated. Reliable input data of baseline mortality and of specific treatment coverage were not available to generate credible model outputs. This is the same finding as in a previous multi-country iCCM evaluation in 2014.

#### **DID THE RAcE INITIATIVE CONTRIBUTE TO ACHIEVEMENTS OF GENDER EQUALITY RESULTS?**

25. The RAcE Initiative did not live up to its commitments on gender mainstreaming. The evaluation found no evidence that a gender analysis was done in any of the programmes nor that gender mainstreaming was pursued actively. The indicators in the quarterly performance reports asking for sex-disaggregated data in all programmes except the DRC were consistently ignored. Differences in access to treatment observed in baseline and end-line surveys were not analysed for causes. Low literacy rates of women in rural areas were uniformly cited as the only reason for difficulties in recruiting female CHWs. In interviews, however, many other reasons related to gender relations in communities were mentioned. No analysis or approaches to address these issues were explored beyond encouragements for communities to nominate female CHW candidates. The findings of the overall lack of gender awareness of the RAcE Initiative mirrors the findings of the literature review which found practically no discussion of gender issues.

### **RECOMMENDATIONS**

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26. The evaluation of the RAcE Initiative generated four key recommendations to WHO

**Recommendation 1.** Considering that iCCM services established under the RAcE Initiative are threatened by financing gaps, WHO should take immediate action to assure that the achievements of the RAcE Initiative are not lost by:

- Working with partner governments in assessing potential funding gaps for iCCM in RAcE programme areas and assisting ministries of health in resource mobilisation to assure that the services established in these areas continue without interruption.

**Recommendation 2.** Considering the effectiveness of implementing the RAcE Initiative through sub-grantee contracts with non-state actors, WHO should:

- Include programme implementation through NSAs as a possible alternate option to the established approach of direct implementation through governments, based on a contextual analysis and a capacity assessment of potential government and NSA programme partners.

**Recommendation 3.** Considering that the RAcE Initiative generated new evidence on implementing iCCM as a health systems intervention for the achievement of universal health coverage which is, however, not yet fully documented and disseminated, WHO should:

- Consolidate and disseminate the lessons learned by RAcE and apply them in consultation with technical partners to updating the guidelines for 'Caring for the Sick Child in the Community' that are currently integrated in the multi-agency planning handbook 'Caring for Newborns and Children in the Community'
- Initiate actions to close persistent knowledge gaps, by:
  - Supporting research to better understand the role and the effectiveness of community engagement strategies for iCCM, including an assessment of the community role in contributing to CHW motivation and retention.
  - Conducting, in collaboration with interested partners, a systematic review of gender equality issues in the supply and demand of iCCM in different social and cultural contexts.

**Recommendation 4.** Considering that the RAcE Initiative underlined the role of iCCM services in national health systems development for the achievement of universal health coverage, WHO should focus its technical and programme support on iCCM to ministries of health and development partners at country level on:

- Targeting iCCM services at remote rural communities living distant from health facilities, while in each case examining all possible options to assure that children have timely access to quality health care, including alternate options to iCCM if these exist.
- Embedding programme support to iCCM firmly in a system of a continuum of care by assuring that first level referral facilities for CHWs have the capacity to provide accessible and affordable quality services to referred children.
- Assuring that national systems are in place to manage the provision of an uninterrupted supply of iCCM commodities to the community level, or that support to iCCM programming is paralleled by support to the development of such national systems.
- Advocating for the inclusion of CHWs in the national human resources for health framework as a salaried workforce or, where this is not accepted by governments, as a volunteer cadre with a fixed minimal level of stipends and incentives that is commensurate to the scope of expected services.
- Supporting the development and implementation of quality civil registration and vital statistics systems, as well as the integration of reliable community health data in national health management information systems in order to generate valid information about the impact of iCCM on the reduction of child mortality.
- Assuring that financing of iCCM services (from domestic or international sources) is firmly embedded in the national health financing framework, keeping in mind that iCCM services easily break down when there are financing gaps interrupting supervision and the flow of commodities.

## KEY LESSONS FOR GOVERNMENT PARTNERS IN THE RAcE INITIATIVE

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27. The evaluation was based on data collected at programme level, but it was not an evaluation of each country programme. While the recommendations of the evaluation are directed to WHO, there are a number of lessons that can be drawn by partner governments in

the RAcE Initiative. The Initiative demonstrated that iCCM is a mature component of a UHC strategy in countries with populations that live beyond easy reach of primary health care facilities. As such, iCCM has to be treated as an integral part of the national health system which requires that governments:

- 1) Assess the feasibility, efficiency and effectiveness of all options to increase health service coverage and access, including through iCCM, keeping in mind that timeliness of access is critical for child survival. iCCM services should be targeted at communities where constraints of providing services through health care facilities cannot be overcome with available means and resources.
- 2) Assure that the uninterrupted supply of quality commodities for the community level are an integral part of national procurement and supply planning and management systems. iCCM services can only function when there is an uninterrupted supply of commodities at community care site.
- 3) Acknowledge that CHWs are part of the national health workforce. The option of salaried CHWs may not be feasible or acceptable in all countries. Volunteer workers, however, also require financial support that is commensurate to their scope of services and the associated effort. A situation where incentives and stipends are negotiated separately for each international health project is not conducive to maintaining a stable cadre of volunteers providing iCCM. Supervision of CHWs also has to be included in national human resource planning.
- 4) Assure that there are functional systems and mechanisms to feed iCCM data into the national health management information system. iCCM services are part of national health service delivery, and they can only be planned and resourced when there are reliable monitoring data on the same level and platform and in the same format as other health service monitoring data.
- 5) Integrate the cost of providing iCCM in the national health financing framework and budget estimates and assure that iCCM receives equal attention in budgeting and financing from national and international sources as other priority health services.
- 6) Analyse, on the basis of services to be provided and on the basis of social context, whether iCCM services are best provided by male or female CHWs, or if they require paired CHWs of both sexes. Analyse any gender-related constraints in recruiting CHWs such as differential education levels or systemic gender discrimination and develop strategies to overcome them.

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# INTRODUCTION

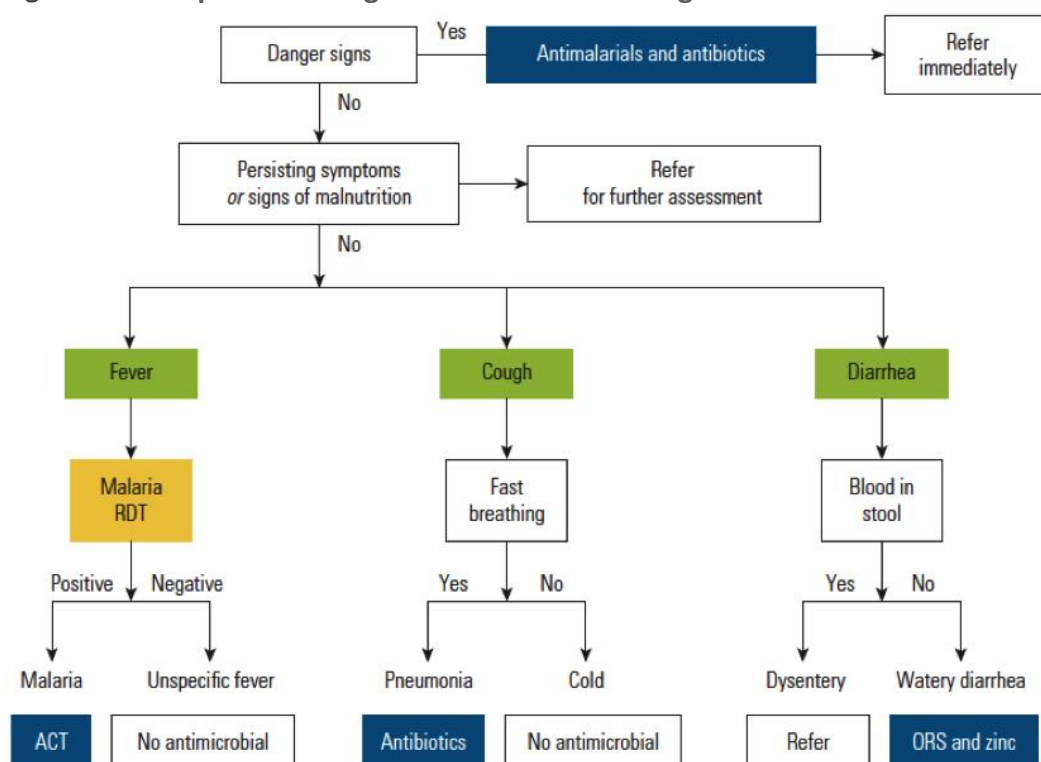
## INTEGRATED COMMUNITY CASE MANAGEMENT

28. Integrated community case management (iCCM) refers to health care provided by community health workers (CHWs) to children with limited access to health facilities suffering of diseases that are responsible for the greatest number of illness and death among children worldwide. It is generally limited to the treatment of diarrhoea, malaria and respiratory infections among children aged from 2-59 months.

29. The scope of tasks delegated to CHWs differs. In some countries it is limited to the diagnosis and treatment of the three conditions among children living more than five kilometres from a health facility. The geographic coverage area may be more flexibly defined and other treatment and prevention services may be added, for instance for malnutrition, neonatal care, tuberculosis control or HIV prevention. In a 2014 survey of community case management (CCM) in Africa, 35 countries reported the implementation of CCM services for diarrhoea, 33 for malaria, 28 for pneumonia, 6 for neonatal sepsis, and 31 for malnutrition. Integrated programmes for community case management of diarrhoea, malaria and pneumonia were reported by 28 countries.[1]

30. The practice of iCCM is based on an algorithm alerting CHWs to signs and symptoms of life-threatening conditions that require treatment in a health facility, while guiding them in the care of illnesses that can be treated in the community. A general scheme of such an algorithm is presented in the review of Disease Control Priorities in Developing Countries (DCP3).[2]

**Figure 1. Sample iCCM diagnosis and treatment algorithm**



Source: DCP3 [2] (ACT = artemisinin-based combination therapy; ORS = oral rehydration solution; RDT = rapid diagnostic test)

31. The quality, safety and effectiveness of case management of diarrhoea and malaria by CHWs has been documented in several studies. Pneumonia case management has also been found to be effective, however, studies have documented that CHWs often found it difficult to accurately count the respiratory rate, emphasising the need for enhanced supervision, training and quality control.[2]



## THE RAcE INITIATIVE

32. The RAcE Initiative was funded with a grant of C\$ 75 million over six years (April 2012 to March 2018) by the Government of Canada to the WHO Global Malaria Programme (GMP) to ‘*increase coverage of diagnostic, treatment and referral services for the major causes of childhood mortality (malaria, pneumonia and diarrhoea), thereby accelerating the achievement of the health-related Millennium Development Goals.*’ The secondary objective of the initiative was to ‘*generate evidence to inform WHO policy recommendations and guidance on iCCM and [community case management of malaria]*’.[3]

33. Under the initiative, WHO provided renewable sub-grants to five non-state actors (NSAs) to implement six iCCM programmes in cooperation with national and sub-national governments in five countries. The RAcE Initiative distinguished itself from other internationally funded iCCM programmes by aiming to achieve universal coverage of all children in hard-to-reach areas within selected geographic boundaries. Additional programme funds were allocated to normative activities, technical support and monitoring and evaluation (M&E). Table 1 provides an overview of preliminary expenditure estimates for different programme components.

**Table 1. Expenditure estimates of the RAcE Initiative**

Programme expenditures for the implementation of iCCM programmes including operational research		
Location	NSA Implementing Partner	Amount (in ,000 US\$)
DRC, Tanganyika Province, all health zones	International Rescue Committee (IRC)	11,248
Malawi, 8/28 districts in 2/3 regions	Save the Children (SC)	10,884
Mozambique, 52 districts in 4/10 provinces	Save the Children (SC)	8,444
Niger, 4 districts in 2/7 regions	World Vision (WV)	8,854
Nigeria, Abia State, 15/17 LGAs	Society for Family Health (SFH)	4,825
Nigeria, Niger State, 6/25 LGAs	Malaria Consortium (MC)	5,210
Other programmatic expenditures		
WCOs for technical support and normative work		1,208
ICF for programme monitoring		3,930
ICF for sustainability planning		730
Swiss Tropical and Public Health Institute for health systems research		199
<b>Total programmatic expenditures</b>		<b>US\$ 55,532,000</b>

Source: Expenditure estimates up to 31/3/2018 by the RAcE Secretariat. LGA = Local Government Area

34. The roles and responsibilities of WHO offices in the RAcE Initiative were outlined in a presentation to the International Steering Group (ISG) in 2015.[4] The RAcE Secretariat at the WHO Global Malaria Programme (GMP) in Geneva provided primarily financial and contract management. The WHO Regional Office for Africa (AFRO) and the intercountry support teams (IST) acted as the secretariat of the two oversight bodies (the ISG and the Project Review Panel) and were therefore charged with general oversight of the RAcE Initiative. They also provided technical support for surveys, assessments, periodic reviews and evaluations. The WHO Country Offices (WCOs) directly supervised the implementation of the programmes by the contracted NSA partners. The presentation did not mention the role of the designated iCCM focal points in the WCOs in supporting governments in normative and coordination tasks, which, according to the findings of the evaluation was substantive. According to information provided by the RAcE Secretariat, it also underemphasised the role of the WHO GMP which took on additional responsibilities for technical support over the course of the Initiative.

35. In September 2017, the WHO Evaluation Office contracted **hera** to implement the summative evaluation of the RAcE Initiative. The terms of reference of the evaluation are presented in Annex 1. The purpose of the evaluation was to:

- Contribute to relevant and practical lessons to inform the global policy and dialogue on iCCM
- Inform the WHO maternal, newborn and child health policy dialogue, programming design and implementation and GAC; and
- Ensure accountability of public funds to stakeholders

36. The specific objectives of the evaluation were to:

- Assess the effectiveness, efficiency, relevance, impact and sustainability of results of the RAcE Initiative
- Assess the sub-grantees' delivery model of iCCM
- Peer-review and validate ICF's evaluation of the RAcE programmes' contribution to the estimated impact; and
- Provide relevant and practical findings, conclusions, recommendations, and lessons to inform the policy dialogue, and future design and implementation of iCCM

37. The main focus of the evaluation was on the implementation of programmes at country level. The evaluation covered all six programmes funded under the RAcE Initiative with field visits and the preparation of country briefs for each programme country. The briefs are presented in Volume 3.

38. The RAcE Initiative had a monitoring and evaluation component contracted to ICF that included technical assistance and provision of standardised tools for monitoring and for conducting baseline and end-line household surveys, as well as a final evaluation of each programme. The evaluation team did not repeat the work performed by ICF.

- It reviewed the methodology for data collection and analysis applied by ICF;
- it validated reported programme outcomes by triangulation with alternate data sources; and
- it triangulated reported conclusions about effects and impact of the programmes by applying a probabilistic analysis of the strength of evidence based on a post-hoc Theory of Change (TOC).

39. In line with UNEG guidance on integrating human rights and gender equality in evaluation, the evaluation team assessed the extent to which the interrelated principles of inclusion, participation and fair power relations were implemented by the programmes at the level of duty bearers (e.g. gender equality in human resource policies and practices) and rights holders (e.g. participation of communities in decision-making).

40. The evaluation was implemented from October 2017 to April 2018 by a team of four international consultants from **hera** supported by five national consultants in the RAcE programme countries. The evaluation was overseen by an Evaluation Management Group (EMG) that included staff of the WHO Evaluation Office, the Diplomacy, Trade and Corporate Evaluation Division of Global Affairs Canada (GAC) and the UNICEF Evaluation Office. An Evaluation Reference Group (ERG) was established to support the evaluation at key moments and to ensure broad participation in the conceptualisation of the exercise, access to information, high technical quality of the evaluation products as well as learning and knowledge generation. The timetable of the evaluation is outlined in Table 2.

**Table 2. Evaluation milestones of the RAcE Initiative**

Timing	Activity
October 2017	Evaluation inception meeting in Geneva
October 2017	Attendance of the RAcE dissemination meeting in Abuja
October-November 2017	Preparation of the inception report / piloting of tools in Nigeria
December 2017 – January 2018	Country case studies / global key informant interviews / literature review
February 28, 2018	End of data collection period
February-March 2018	Preparation of country briefs and synthesis report
April 2018	Workshop to present evaluation findings, conclusions and recommendations

## METHODOLOGY (SUMMARY)

41. The evaluation team applied a combination of Contribution Analysis (CA) and Process Tracing (PT) to respond to the questions under the five investigation areas defined in the terms of reference (TORs) presented in Annex 1. The investigation areas and associated evaluation questions did not include questions about cost, value for money, or efficiency with which inputs were converted into outputs and outcomes. The detailed methodology is presented in Annex 2.

42. CA is useful for evaluating impacts that are generated by a complex combination of causes. It aims to increase the confidence that the evaluated intervention had the intended impact. It unpacks the intervention and facilitates understanding on how different factors form causal chains that produce results at impact level. It examines evidence to firm up the probability that inputs provided under the RAcE Initiative contributed to the observed outcomes and impact. The limitations of CA are the subjectivity in assessing the strengths of the contribution claim. To bridge this, the evaluation team combined CA with PT which uses a number of tests in the causal chain to confirm or to fail to confirm the contribution of outputs and outcomes.

43. CA provided the framework for the design and the implementation of the evaluation and was overlaid with PT throughout. The evaluation design included three stages:

- **Development of a generic theory of change (TOC)** for the RAcE Initiative outlining prior causal probabilities for achieving improvements in the well-being and survival of children. This included the definition of general and specific assumptions that were verified by analysing evidence from different data sources. The TOC framework is presented in Annex 4.
- **Development of an evaluation matrix** including evaluation questions, assumptions, indicators, data sources and data collection methods and a chain of reasoning to link the evaluation questions to the TOC. (Annex 5)
- **Development of data collection tools** including guides for focus group discussions (FGD) at the community level and key informant interviews (KII) of national and global informants. (Annex 9) Participatory learning and action (PLA) tools were used in the FGDs. The tools were pre-tested in Niger State, Nigeria in October 2017.

44. Country briefs (see Volume 3) were prepared on the basis of missions to the six RAcE programme sites. In preparation of the programme visits, the evaluation team conducted extensive document reviews, including a review of the literature (Annex 3), and prepared country-specific TOC frameworks that were validated during the programme visits in participatory workshops.

45. The sampling strategy for the identification of national and global key informants was purposeful, based on a stakeholder map developed during the inception phase. (Annex 7) For the selection of the regions, districts and communities to be visited, purposeful sampling strategies were

applied in Mozambique, Nigeria, Malawi and Niger, including critical case sampling (at regional level) and random and criterion sampling (at the level of districts, health zones and communities). In the DRC, the sampling frame was restricted by the volatile security situation and availability of in-country flights. The applied strategy was therefore opportunistic and based on feasibility. The data at programme level were collected in:

- five Theory of Change validation workshops,
- 99 key informant interviews (including group interviews) at all levels of the health system including international health partners active in child health in the country,
- 17 focus group discussions with CHWs,
- 30 community focus group discussions, and
- the review of national health documents and databases, reports and databases of implementing partners, ICF M&E reports (DQA, Surveys, Final Evaluation, Sustainability Planning), and international partner documents

46. Additional data were collected at global and regional level through document reviews and key informant interviews with global stakeholders.

47. The data were analysed through qualitative content analysis using the Computer Assisted Qualitative Data Analysis (CAQDAS) software MAXQDA. This software allows quantifying the frequency and similarity of responses, experiences and reactions, in order to generate evidence in response to the causal mechanisms and evaluation questions. All available evidence was coded under specific causal mechanisms to carry out process tracing tests and enabled the evaluation team to develop a narrative describing the contribution rationale in light of the strength of available evidence.

## **METHODOLOGICAL LIMITATIONS**

48. The approach used by the evaluation was strictly qualitative. No numerical values were assigned to the probabilities of causes and contributing factors, and no statistical analysis was done to quantify contribution claims. Such an analysis was not possible within the time and level of effort allocated to the evaluation. To minimise bias and to cross-validate data and evidence, different triangulation methods were used, including investigation, method, data and theory triangulation.

49. Data limitations include the exclusion of communities that were too distant from health facilities or in areas with difficult access because of limited time available for field visits. In the selected communities, FGD participants and key informants were identified by community leaders and CHWs which may have biased the results in favour of positive perceptions of the RAcE programmes.

50. In the DRC and Niger, certain districts or health zones had to be excluded from the sample due to insecurity and non-availability of in-country flight to reach the selected health zones during the period of data collection (in the DRC). In Malawi, Mozambique, the programmes had already ended at the time of the evaluation and key staff of the implementing partner agencies were no longer available to be interviewed. This also applied to the evaluation in Niger State, Nigeria where the Programme Director of the Malaria Consortium had retired just prior to the evaluation mission. Access to some documents in Malawi and Mozambique proved to be challenging and not all documents from implementing partners were made available or could be retrieved. At community level, CHWs and caregivers were not always able to distinguish between what happened during the time of the RAcE programme implementation and after it had ended. This, as well as gaps in available documentation and inability to reach former programme staff may have biased the results.

51. The data of baseline and end-line household surveys conducted by the implementing partners were used throughout the evaluation as evidence of programme results, triangulated with data from KIIs, FGDs and the review of documents and databases. A summary of key survey results is presented in

Annex 6. The baseline surveys were conducted between September 2013 and May 2014, the end-line surveys between August 2016 and February 2017. The data were summarised for each programme in end-line survey reports prepared by ICF. The data have limitations that are documented in the reports of ICF. As in any household survey, they include response biases, for instance an over-reporting of adherence to referral advice. Common limitations of the survey reports were:

- Data in the tables on treatment coverage and access presented in the reports were not disaggregated by sex. Sex-disaggregated data were collected in the surveys and were used by ICF in a chapter on gender presented in the final evaluation reports. The findings of these analyses, however, did not always concur with data obtained from the analysis of the programme databases by the evaluation team. A likely reason is that the surveys did not have sufficient power to detect sex differences in access to treatment.
- The sampling areas and sampling frames of the baseline and end-line surveys did not always match. The reasons are context specific, for instance related to insecurity in the DRC, the exclusion of Inhambane Province from the baseline survey in Mozambique because of a concern about ‘over-surveying’ communities in that province, or the assignment of iCCM-trained CHWs to communities by the MOH in Malawi that was not foreseen at the start of the programme and was outside the programme’s control. In response to the issues in Malawi and Mozambique, ICF performed sub-analyses of survey results from areas for which both baseline and end-line data were available. These were used by the evaluation team.
- The evaluation questionnaires in baseline and end-line surveys did not record the sex of the respondent caregiver. Although it was assumed that in most cases the questionnaire was applied to mothers of children, it may also have been applied to fathers who, in some of the programme countries, have significantly less involvement in the care of their children and would therefore have provided less reliable responses to the questions.
- Information on treatment provided by CHWs or by other appropriate care providers (as defined in the local context) was collected from caregivers who may not always be aware whether their child was treated with an antibiotic, an antimalarial or an antipyretic. They often also do not know whether the treatment was ‘appropriate’, i.e. based on a positive rapid diagnostic test for malaria or on a correct assessment of the respiratory rate for the diagnosis of pneumonia. As documented in a study published in 2013, even in a carefully conducted survey with high specificity and sensitivity, the positive predictive value, i.e. the proportion of children with reported symptoms of pneumonia who truly have pneumonia, is only about 22 percent and the denominator is therefore not reliable.[12]

52. ICF developed the protocol and tools for household surveys, including the questionnaires, training materials, data entry programme and analysis plan. The NSA grantees led the survey fieldwork in collaboration with local partners and with on-site or remote technical assistance from ICF. Baseline survey data were analysed by the grantees with ICF support, while end-line survey data were analysed by ICF. Data quality issues of the baseline and end-line surveys were documented by ICF.

## LITERATURE REVIEW (SUMMARY)

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53. In preparation of the evaluation, the team reviewed recent published and unpublished studies and reports of community case management in the five programme countries. A detailed report of the literature review is presented in Annex 3. It includes the review of 55 documents, the methodology of the literature search, and a full list of references. The review was structured according to seven themes that triangulated with the five investigation areas of the evaluation. The themes were: (i) impact on

child mortality; (ii) economic analysis; (iii) community health workers; (iv) supply management; (v) community mobilisation and demand generation; (vi) gender equality; and (vii) policy. The review is summarised in the following paragraphs. A full list of references is provided in Annex 3.

54. A modelling study published in 2017, applied the Lives Saved Tool (LiST) to data in 42 African countries. It estimated that a 50 percent coverage of community-based interventions would decrease under-five mortality by 20 percent, and a 90 percent coverage would decrease it by 45 percent. The analysis was not restricted to iCCM but also included prevention programmes such as immunisation and insecticide-treated bed nets.[5] The evaluation in 2014 of a large iCCM initiative in six countries, including Mozambique, Malawi and Niger, documented a reduction in child mortality among the target population, however it reported that a causal attribution of impact to the programme was not possible due to the complexity of the environments.[6]

55. A limited number of economic analyses of iCCM reported that community case management was cost effective in terms of cost of disability adjusted life years (DALYs) lost, that community care was more cost effective than facility-based care, and that it substantially lowered household out-of-pocket costs of care. The total economic cost of service provision by CHWs per child treated, was, however, highly dependent on utilisation rates, with estimated average costs per treatment ranging from US\$ 2.15 in Malawi to US\$ 16.11 in Cameroon.[7,8]

56. A regional survey of community case management (CCM) in Africa published in 2014 reported that CCM was provided in some form in 42 out of 45 countries, including iCCM in 28 of them.[1] The training of CHWs varied from three days to one year, recruitment may be by community election or government appointment, and their position ranged from full volunteer status without any incentive payment to salaried government employees. Several papers analysed motivating factors of CHWs. Some emphasised their satisfaction on being of service to their communities, while others discussed monetary allowances and incentives such as accommodation, bicycles or other equipment provided by communities, NGOs or ministries of health.

57. Interruption in the regular supply of medicines was mentioned as a demotivating factor for CHWs in several studies. Weaknesses in the supply chain were the main causes cited, undermining the credibility of CHWs and contributing to the risk of inappropriate treatment of children. Because of weaknesses in the national supply chain for medicines, international partners often established parallel supply systems. Two studies in 2014 and 2017 reported that the iCCM supply chain in Malawi was successfully strengthened through a mobile phone application and the appointment of quality improvement teams to monitor the supply system.[9,10]

58. While the service offer of iCCM is designed to overcome financial and geographic barriers to access, other factors such as caregivers' understanding of illness, preferences for home remedies and alternative treatments, limited decision-making autonomy to seek care, and mistrust in the quality of iCCM services constitute barriers of access that require additional demand-side interventions. Although this is discussed in several studies, very little, if any, published evidence was found about the effectiveness of different types of community engagement strategies in the programme countries.

59. There was very little information about gender equality in the retrieved documents on community case management. Two studies reported no sex differences in access to treatment. One multi-country evaluation in 2014 postulated that moving child health services closer to communities reduced the time and cost of seeking care and therefore empowered women by removing barriers to independent care-seeking, but it did not provide any evidence that this actually happened. The gender mix among CHWs varied among countries from mostly male in nine countries to mostly female in another nine.

60. Policy analyses in several African countries reported that iCCM was primarily promoted by ministry of health (MOH) technical officers with a public health or primary health care background, supported by WHO, UNICEF and some bilateral development partners. Senior health policy makers, especially those with a clinical background, were often more difficult to convince of the benefit of community case management. Multilateral organisations, according to this study, have an important role in facilitating the transfer of policy innovation from global to national levels.

61. Although the drivers for iCCM policy development and uptake differed among countries, as did the level of political commitment, all documents that were reviewed for the evaluation underlined that iCCM programmes in the five countries included in the RAcE Initiative were highly dependent on international funding. While there was broad consensus that community case management saves children's lives, authors called for more health systems research to understand the implication of delivering community case management at scale in the differing contexts of countries' health systems. Key issues to resolve, according to the studies, were financial sustainability, the persistence of user-fees and mark-ups in several countries, the integration of community data in national health information systems, the position of CHWs in the national framework of human resources for health, including the debate about voluntarism or salaried employment.

## MAIN FINDINGS AND ANALYSIS

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62. The main findings and analyses of the evaluation are presented under the headings of the five investigation areas defined in the terms of reference. A total of 15 evaluation questions were addressed under the five headings. This was one more than planned at inception. One question was added during data collection under Investigation Area 3 and the evaluation matrix under this area was rearranged for better alignment with the collected data. Responses to evaluation questions, where relevant, were disaggregated under sub-headings that summarise findings responding to sub-questions listed in the matrix. The evaluation matrix is presented in Annex 5.

### INVESTIGATION AREA 1

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63. The first investigation area explored the relevance and alignment of the RAcE Initiative through the lens of three evaluation questions. It looked at the extent to which the six programmes were designed to respond to the needs and priorities of national health strategies and the extent of their complementarity to other large scale maternal and child health programmes.

## EVALUATION QUESTION 1

**To what extent was the design of the RAcE programmes at inception aligned with national health strategies? To what extent were the programmes complementary to other large-scale health programmes, and was there effective collaboration with other health programmes implemented in the same areas?**

The RAcE programmes in the five countries were closely aligned with national policies and community and primary health care strategies. They strengthened existing national iCCM programmes in Mozambique and Malawi, supported the implementation of the national iCCM policy in a new province in the DRC, contributed to a revision of the national approach to iCCM in Niger, and facilitated the formulation and introduction of a national iCCM policy in Nigeria.

RAcE programme partners, particularly the WCOs, coordinated their support to the ministries of health with other international partners active in community case management. There is no evidence of any substantive overlap of RAcE programmes with other large-scale programmes implemented in the same areas, and there is evidence of collaboration with other partner-funded programmes, especially in the areas of procurement and supply management.

64. Across all six RAcE programmes, the alignment with national policies and community and primary health care strategies was strong. They adhered to national guidelines on community case management and contributed significantly to the further development of strategies and guidelines. Relevant departments of the national ministries of health were involved in the development of the programmes. The programme proposals provided specific information on how each programme responded to current government priorities and policy documents.

65. In the **DRC**, the national diarrhoeal disease control programme had the mandate to lead on iCCM policies, but the national malaria programme and the primary health care directorate were also working on community care strategies with the support of international partners, primarily the Global Fund (TGF), USAID, the US President's Malaria Initiative (PMI) and UNICEF. The RAcE programme worked with the diarrhoeal diseases control programme and networked extensively with the other two MOH departments.

66. In **Malawi** and **Mozambique**, the RAcE programmes supported existing national iCCM programmes with the aim of strengthening their quality. In the **DRC**, iCCM policies and guidelines existed, but they had not been rolled out in Tanganyika Province where the RAcE programme was implemented. In **Niger**, iCCM was previously implemented with UNICEF support, but services were provided through paid health professionals based in 'health huts'. The RAcE programme was the first to introduce iCCM services provided by CHWs. In **Nigeria**, the two RAcE programmes introduced iCCM for the first time and catalysed a rapid endorsement of iCCM by the federal MOH and the National Council on Health, as well as the support from state governments and technical and financial partners.

67. Overall, the complementarity of the RAcE programmes with other maternal and child health interventions in the same areas was high, in particular with prevention programmes for the distribution of insecticide-treated bed nets, immunisation and chemoprevention of malaria. There was no evidence of any substantial overlap with other programmes providing the same or similar services. There was evidence of active collaboration, especially in procurement and supply management with programmes supported by other international partners in **Nigeria** (TGF and the Clinton Health Access Initiative – CHAI), the **DRC** (PMI) and **Malawi** (TGF and PMI).

68. In terms of coordination, the implementing partners supported and participated in relevant health sector meetings to ensure that key national partners in iCCM were continuously informed about the activities and lessons of the RAcE programme. Key informants in all countries, primarily MOH



officers at district level and health facility staff, cited examples of working with RAcE programme-supported CHWs to roll out other interventions in immunisation, nutrition and hygiene, water and sanitation.

## EVALUATION QUESTION 2

### **Did the RAcE programmes target the populations in the countries that are most vulnerable and / or difficult to reach? How were districts and communities selected?**

Regions for RAcE programme implementation were selected jointly with government partners according to well-defined criteria. Not all regions selected had the highest vulnerability profile in terms of child mortality or access to health services because, in addition to epidemiological and health service criteria, government commitment, feasibility of implementation and the presence of other programmes were considered in the selection process.

Communities were selected primarily on the basis of geographic limitation of access to health facilities with some contextual variations. The functionality of available primary health care facilities, as well as user charges levied by available non-state facilities were taken into consideration to varying degrees in defining barriers to access. Criteria such as poverty levels or marginalisation for ethnic, religious or other reasons were not taken into consideration in the selection process.

69. The selection of programme areas and communities was a multi-staged process in all countries. The first step was to identify regions, states or provinces, and, if full coverage was out of reach, zones, districts, departments or local government areas within these political divisions. The second step concerned the selection of communities. The evaluation team analysed to what extent equity criteria played a role during these two steps and what efforts were undertaken to reach the most vulnerable populations.

70. In all countries, the WCOs, the contracted NSAs and the ministries of health worked closely together during the selection process. Each of the programmes used a set of pre-defined criteria to identify the regions that varied from country to country, but always included iCCM-relevant indicators such as the under-five mortality rate (U5MR) and the proportion of rural population. Additional criteria were the support of the region from other large internationally-supported primary health care or iCCM programmes, the security situation and the commitment and capacity of the regional government. In **Nigeria**, the political imperative to balance investments between southern and northern states was also taken into consideration. Due to these additional criteria, the selected regions were not necessarily those with the highest U5MR, the highest level of poverty, or the lowest access to primary health care services. In **Malawi** and **Mozambique**, the application of the selection criteria resulted in the selection of regions with both the highest and the lowest U5MR. In **Mozambique**, the region with the lowest U5MR also had treatment access indicators that were higher than or close to the national average. In **Abia State**, primary health care facilities were generally within reach for a large proportion of the population. The pre-defined population target for the RAcE programme could only be attained by applying strict criteria of functionality of facilities that resulted in 90 percent of health facilities being declared 'non-functional'. In **Niger**, the main selection criterion was the U5MR. One of two selected regions had the highest U5MR and the second a U5MR that was considerably higher than the national average. In the **DRC**, the selected region scored consistently among the most vulnerable provinces in the country in terms of all health and social indicators.

71. Communities were selected by mapping exercises, often with the assistance of specialised national agencies, applying the geographic definition of distance to the health facility, as well as the consideration of other physical barriers such as rivers or mountains. No selection was made in **Malawi** as the community care sites were defined by the national iCCM programme. A mapping exercise was,

however, conducted in 2014 to verify hard-to-reach areas based on current criteria. In the **DRC** and in **Mozambique**, communities that were too remote and too difficult to reach for support and supervision were excluded. Communities that were too dispersed and did not have a critical mass of agglomeration for a community care site were also excluded, for instance in **Niger** and in the **DRC**. The criterion of functionality of the nearest public health facility was applied systematically in **Nigeria**. In **Abia State**, geographic access to Ward Health Centres was not a major issue, and the targeted population size was only reached because 90 percent of these health facilities were classified as ‘non-functional’. In **Malawi**, communities that were within reach of primary health facilities that operated under the umbrella of the Christian Health Association of Malawi were included in the national selection because the user fees charged by these facilities were considered a barrier to access. There was no evidence in any programme that other vulnerability indicators were considered in the selection of communities, such as poverty, percentage of ethnic minorities or recent exposure to disaster. However, the events of civil unrest in the **DRC** resulted in several trained CHWs fleeing to refugee camps where some of them continued their work.

72. In summary, not all RAcE programmes consistently targeted communities with difficult access to primary health care facilities. Although a major increase in care-seeking from iCCM-trained CHWs was observed in all programmes as illustrated in Table 3, the increase in access to care by an appropriate provider<sup>1</sup> was much smaller in some of the programme areas as illustrated in Table 4. This suggests that among these populations, the effects of the programmes were not primarily an increase in access to care, but rather a shift of care-seeking from other providers to CHWs. Although the increases in access to care in all programme areas without pre-existing iCCM services (i.e. **DRC**, **Niger** and **Nigeria**) were statistically significant, there are questions about the programmatic significance of the smaller increase observed in **Abia State**.

**Table 3. Proportion of caregivers selecting CHWs as first source of care**

Programme	Baseline survey	End-line survey	Difference	Statistical significance (p)
DRC	0.5%	67.1%	66.6%	<0.01
Malawi*	30.4%	45.8%	15.4%	<0.01
Mozambique	23.1%	57.0%	33.9%	<0.01
Niger	0.1%	75.5%	75.4%	<0.01
Nigeria, Abia State	0.1%	37.7%	37.6%	<0.01
Nigeria, Niger State	--	76.6%	--	n.a.

*Source: ICF (2017) RAcE Programme final evaluation reports, except: Malawi\* where only data from the surveys in 33 evaluation clusters are included that had active iCCM providers (source: survey databases). n.a. = not applicable*

<sup>1</sup> The definitions of ‘appropriate provider’ differs from country to country. It always includes private or public hospitals, health centres, health posts, clinics, or iCCM-trained CHWs. Pharmacies and private proprietary medicine vendors are included in some surveys for treatment of fever and diarrhoea, but not for treatment of respiratory infections with fast breathing.

**Table 4. Proportion of caregivers who sought care from an appropriate provider<sup>1</sup>**

Programme	Baseline survey	End-line survey	Difference	Statistical significance (p)
DRC	53.3%	81.1%	27.8%	<0.01
Malawi*	68.5%	73.9%	5.4%	N.S.
Mozambique	79.1%	79.5%	0.4%	N.S.
Niger	68.8%	84.7%	15.9%	<0.01
Nigeria, Abia State	68.7%	76.8%	8.1%	<0.01
Nigeria, Niger State	75.5%	91.4%	15.9%	<0.01

Source: ICF (2017) RAcE Programme final evaluation reports, except: Malawi\* where only data from the surveys in 33 evaluation clusters are included that had active iCCM providers (source: survey databases); N.S. = not statistically significant at  $p < 0.01$

### EVALUATION QUESTION 3

#### **To what extent were the ministries of health and the target communities involved in the planning and design of the RAcE programmes?**

The ministries of health at central and decentralised levels were closely involved in the design and planning of the RAcE programmes.

The involvement of communities in the planning and design of RAcE programmes was not part of the design of the RAcE Initiative. Communities were, however, closely involved in discussing operational activities at the community level, including the nomination or election of CHWs in four of the five programme countries.

#### *Involvement of the MOH in designing and in developing operational plans*

73. There was conclusive evidence that relevant departments of the ministries of health were closely involved and, at times, leading the planning and the design process of the RAcE programmes in all countries. The ministries had a leading role in the selection of intervention areas, the definition of coordination mechanisms and the identification of needs for technical and institutional support and capacity building of involved government entities.

74. The ministries of health at central and decentralised level participated meaningfully in the design and implementation of operational plans in all countries. At national level, the ministries took the lead through the coordination of national iCCM working groups or task forces (e.g. **Malawi**, **Nigeria** and **Mozambique**) or through a technical committee attached to the RAcE programme (e.g. **Niger**). The degree of decentralisation of health service governance varied among the programme countries. In the highly decentralised countries (**DRC** and **Nigeria**), sub-national iCCM coordinating structures were headed by the provincial or state MOH. In the other countries, joint micro- planning meetings were coordinated and facilitated by the MOH with technical support from the WCO and the implementing NSA.

#### *Community participation in designing and planning RAcE programmes*

75. All RAcE programmes were designed at national level in consultation with decentralised MOH structures. Community participation in planning and designing the programmes was not part of the RAcE Initiative design. The communities were selected after the design process. Communities participated in four ways in the planning of RAcE programmes:

- In all programmes, except in **Malawi**, village authorities or village assemblies led the identification of CHWs according to nationally defined selection criteria. The community-led identification of

<sup>1</sup> For children with any of the iCCM treatable conditions

CHWs intended to create buy-in from community leaders and enhanced acceptance of CHWs which was achieved in the five programmes where it was practiced. (see Table 3)

- In all programmes, except in **Niger**, community health committees were set up or revived to support the roll out of iCCM activities. The committees provided input in planning and reviewing iCCM activities. Women were represented in the committees in all countries, but there was no conclusive evidence on the quality and scope of the committees' participation in iCCM programmes.
- Across all programmes, the CHWs (as the community representative for iCCM) contributed to operational planning by submitting reports, procurement forecasts and by sharing challenges and difficulties with supervisors from health facilities.
- In some instances, community representatives also participated in health zone committees (e.g. the COGES in **Niger**) or in the Health and District Product Availability Teams (in **Malawi**) which are responsible for planning the supply of medicines and commodities at health district level.

## INVESTIGATION AREA 2

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76. Under this investigation area, the contribution of the RAcE Initiative to catalysing the scale-up of iCCM, and to increasing the coverage of diagnostic, treatment, and referral services were assessed. Evaluation questions four to nine are included under this area.

### EVALUATION QUESTION 4

**To what extent have the RAcE programmes contributed to increased capacity of government and health providers to deliver and monitor iCCM services for children under five at district, state/region, and national level?**

The RAcE programmes contributed to an increase in the capacity of governments and health providers to deliver iCCM services through the review and development of tools, standards and guidelines to diagnose and treat diseases affecting children under five in all countries.

The RAcE programmes contributed to increased capacity of health personnel and government officials in monitoring iCCM services. Reporting and monitoring systems were set up (DRC, Niger, Nigeria) or strengthened (Malawi, Mozambique). The quality of data improved, and the integration of community-generated data into the national health information system was achieved in Malawi and to some extent in Mozambique, Niger and the DRC. There is limited evidence that the mHealth application piloted in Malawi and Niger contributed to improved data quality and availability, although the mHealth pilot project in Malawi documented improvements in the quality of care.

### *RAcE contribution to increased capacity for delivering iCCM services*

77. There is evidence that all RAcE programmes contributed to a noticeable increase in the capacity of governments and health providers to deliver iCCM services. The maturity of iCCM programmes in the five countries differed at the start of the RAcE Initiative which influenced the strategies used and progress made.

78. **Nigeria** did not have a national iCCM policy or guidelines prior to inception of the two RAcE programmes in the country. New guidelines and tools were developed that were adopted by the federal MOH which led the process and promoted nation-wide adoption. Tanganyika province in the **DRC** was newly created in 2015 and the provincial MOH required significant support to operationalise the national iCCM guidelines. The RAcE programme developed new registers, training and reporting materials and tested them through operational research which confirmed major improvements in the

quality of services and data, and supported province-wide introduction. Country-wide adoption of the new tools was still under discussion at the time of the evaluation mission.

79. In **Niger** and **Mozambique**, implementing agencies provided technical support for the revision of existing tools and validation of training guidelines and tools. New protocols were developed, for example on stock management and medicine wastage control in **Mozambique**. The tools, guidelines and protocols developed with the support of RAcE were adopted nation-wide in both countries under leadership of the national health ministries.

80. In **Malawi**, most tools and training materials already existed and were adopted by the RAcE programme. The programme, however, supported the revision of policies and guidelines, specifically for the change of the first-line antibiotic for the treatment of pneumonia from cotrimoxazole to amoxicillin, and for the introduction of RDT testing for malaria. In line with these changes, the programme also supported the revisions of the training curriculum and the supervision and mentorship tools.

### *MOH involvement in monitoring and evaluation*

81. The RAcE programmes contributed to increased capacity of the ministries of health in monitoring iCCM services. Data collection tools and indicators were either developed (**Nigeria, Niger, DRC**) or revised (**Mozambique, Malawi**), and CHWs and supervisors received training and tools to improve reporting in all countries. In **Malawi** and **Mozambique**, additional training sessions on data analysis and use were organised for health personnel. M&E support was provided at central/national level through the secondment of one (**Malawi**) or two (**Mozambique**) full-time M&E staff.

82. Functional reporting and monitoring systems were established (**Niger, DRC, Nigeria**) or strengthened (**Malawi, Mozambique**) to collect data from CHWs via health facility-based supervisors to district, zonal, provincial or local government levels. The evaluation team reviewed the registers and reporting forms used by CHWs in all countries, as well as the data flow and mechanisms of data aggregation at the first administrative levels. Repeated data quality audits were conducted by ICF in all countries. They document that identified data quality issues in the first year of the programme were addressed, and the quality of data improved in all programmes. The data flow from these first administrative levels to the next higher level was not equally functional in all countries. It functioned well in **Malawi** and **Mozambique** but not yet automatically in **Niger**, where the iCCM database was managed by the provincial MOH. Integration of CHW data in the database, however, relied on financial and technical support to health districts by World Vision (WV). In the **DRC** and in **Nigeria**, the RAcE partners still managed the iCCM databases at the time of the evaluation and shared them with the provincial or state MOH.

83. There is evidence that the quality of data improved in all countries. Revision and simplification of registers, regular supervision and joint reviews of monitoring data as well as data quality assessments conducted with support of ICF contributed to better quality of reporting. In **Malawi**, a mobile phone application (mHealth) was piloted to improve the quality of diagnosis and treatment and reduce the likelihood of human error when applying the iCCM algorithm. The application was developed by the SC consortium partner D-Tree International. The application guided CHWs through the assessment of sick children while sending data to a central database controlled by D-Tree, allowing programme managers to follow up with CHWs not submitting data, making errors, or experiencing difficulties. An evaluation conducted by ICF in 2017 found that the availability and completeness of data collected in the (paper-based) village clinic registers and monthly summary forms was better than data collected through the mHealth application. However, CHWs using mHealth tended to assess sick children according to the iCCM protocol more often than those using paper tools, and more than 80 percent of the CHWs who used the mHealth application correctly classified sick children across all common illnesses and danger

signs, compared to 58 percent of those who used paper forms.[11] In another mHealth pilot in **Niger**, the application was used by CHWs in addition of paper-based reports. Data were only accessible to WV and not shared with the MOH. In **Mozambique**, the Malaria Consortium (MC) piloted an mHealth application, although not with financial support of the RAcE programme. The feedback on data quality was positive and the application is being extended to include additional modules. It is being rolled out in other provinces with UNICEF support.

#### ***RAcE contribution to the development of community-based health information systems***

84. Community-level data were used at district and provincial level for decision-making, in particular in **Malawi** and **Mozambique** and to some extent in the **DRC**, **Niger** and **Nigeria**. Use of data by the MOH at central/national level was also reported in **Malawi**, **Mozambique** and **Niger**. The integration of community-generated data into the national health information system was fully achieved in **Malawi** and partially in **Mozambique** where only malaria data were integrated but not through a contribution of the RAcE programme. In **Niger**, only data from RAcE programme communities were integrated with support by the RAcE partners. This is unlikely to continue after the programme ends. In the **DRC** a data entry module for the on-line DHIS2 exists but at the time of the evaluation no data had been entered. In **Nigeria**, a list of indicators for community-level data was agreed among health partners, but they were not yet integrated in the national DHIS2 platform. The national health information system in **Niger** was the only one among the five that included sex-disaggregated data for children under five.

#### **EVALUATION QUESTION 5**

**To what extent have RAcE programmes contributed to sustained improvement in the supply of essential medicines and commodities for the first-line treatment of childhood malaria, diarrhoea and pneumonia? To what extent did stock-outs affect the effectiveness of RAcE programmes?**

The RAcE programmes contributed to increased national capacity for stock management and distribution of essential medicines and commodities for first-line treatment of childhood malaria, diarrhoea and pneumonia in the DRC and Nigeria. Evidence of increased capacity is limited in Malawi, Mozambique and Niger.

Different mechanisms for timely and regular supply of essential medicines and commodities to CHW were used with varying levels of effectiveness: Programmes in Niger and in Nigeria experienced few stock-outs until 2017 when there were increasing reports of disruptions in supplies. Uninterrupted supply was not achieved in the DRC, however availability was reported better than in non-RAcE supported iCCM sites. Only in Malawi was a parallel procurement and supply system used throughout the programme period; the programme experienced some stock-outs of commodities in year three. In Mozambique, UNICEF, PMI and the Global Fund were responsible for supporting the procurement and supply management of iCCM commodities. An uninterrupted supply of commodities was not achieved.

While the use of rectal Artesunate was included in all national iCCM protocols, it was only supplied to CHWs in the DRC, Malawi and Mozambique and suffered from protracted stock-outs.

#### ***Contribution to national capacity for procurement and supply chain management***

85. The RAcE programme contributed to increased national capacity for procurement and supply chain management (PSM) of essential medicines and commodities for first-line treatment of childhood malaria, diarrhoea and pneumonia in the **DRC** and **Nigeria**. In the **DRC**, the programme transferred all PSM functions in stepwise process to the provincial pharmacy which fully executed all PSM functions since 2016. In **Abia State**, a PSM system was developed with support of Crown Agents and transferred

to public sector management in 2015. In **Niger State**, the State MOH was responsible for supply chain management while procurement was still facilitated by MC at the time of the evaluation.

86. In **Malawi**, stakeholders agreed to set up a parallel procurement, storage and distribution system for RAcE because of the limited capacity of the Central Medical Stores Trust. According to key informants, this contributed to improved availability of essential medicines and commodities in RAcE-supported districts. The parallel system, however, did not continue after the end of the programme. At peripheral level, the programme contributed to the revitalisation of Health and District Product Availability Teams to monitor the availability of medicines at community level and discuss solutions for supply chain challenges of iCCM commodities. CHWs and supervisors were trained in the use of cStock, an SMS-based logistics management information system used to determine quantities for the resupply of iCCM commodities.

87. Evidence of increased capacity in supply chain management as a result of RAcE was limited in **Mozambique** and **Niger**. Some training and technical support was provided to improve forecasting, stock planning and management. The national medicines supply and distribution system in **Mozambique** used a 'push' system for the supply of provinces with essential medicines and commodities in two standard kits (Kit AL for malaria commodities and Kit C for others). RAcE partners supported distribution from provincial to district and health facility level, but procurement and supply-chain management up to the district level was supported by UNICEF for Kit C and the Global Fund and PMI for Kit AL and was not in the remit of the RAcE programme. In **Niger**, World Vision signed an MoU with the national medicines authority for making iCCM medicines available at district level and ensured the distribution to the health facility level until March 2017. Since then, the distribution is managed by districts. Capacity building in stock management at health facility level was not sustained. As these facilities experienced high staff turnovers, little evidence of improved capacity was noted in interviews by the evaluation team.

88. Different monitoring systems were in place to monitor the stock levels of CHWs. In the **DRC**, **Niger** and **Nigeria**, CHWs submitted monthly stock reports that were used to calculate resupply quantities. In **Abia State**, the data captured from the treatment register database also included the number of children that could not be treated because of stock-outs. In **Malawi**, resupply was calculated on the basis of monthly reports of stock levels sent by CHWs via SMS and entered in the cStock application at national level. Supplies for CHWs were sent to health facilities, from where CHWs collected their supplies. cStock did not monitor the stock available for CHWs at the health facility level, and CHW supplies were often used by health centre staff. At the start of the programme, CHWs in **Niger State** were supplied through a 'push system' which was changed to a 'pull system' at the end of first year. In **Mozambique**, medicines were still supplied using a 'push system'. The RAcE programme supported the revision of a medicines consumption form and its roll-out in 2016 but this was considered too late to make any changes during the RAcE programme period. The evaluation team observed that CHWs in Inhambane received medicines based on the number of treatments provided, however the quantities of commodities delivered from central to provincial levels remained fixed for all provinces.

89. In most countries, CHWs stored the medicines in dedicated storage boxes. The quality of the boxes varied across countries, with good quality boxes observed in **DRC**, **Niger**, **Malawi** and **Niger State**. The storage boxes observed in **Abia State** were of poor quality. In **Mozambique** CHWs complained about the lack of adequate storage facilities in their houses. In response, WHO developed a design for a low-cost storage box and procured 300 boxes for Inhambane and Manica in 2016. At the time of the evaluation, storage boxes were being procured for all provinces with the support of UNICEF.

### *Incidence and effects of stock-outs*

90. An uninterrupted supply of essential medicines and commodities was achieved in **Niger** where stock-outs were minimal until October 2017. Since then stocks outs of ORS/Zinc and Amoxicillin were reported by CHWs despite availability at district level. In **Niger State**, few stock-outs were experienced until September 2017. In the last quarter of 2017, a majority of CORPs were out of stock of ACTs, and many also of other medicines. In **Abia State**, shortages of medicines were recorded between May and August 2016 and September to November 2017, primarily of ACTs. Although they affected less than two percent of children seen by CORPs between 2014 and 2017, they were mentioned in all KIIs and FGDs and coincided with relatively large decreases in care-seeking.

91. In **Malawi**, the supply of commodities was stable throughout most of the programme implementation period. The average availability of all the six key commodities over the entire programme period was higher than 90 percent. In year three, however, challenges were faced with the availability of four commodities: 24 percent of CHWs reported stock-outs of amoxicillin, 11 and 16 percent of the two formulations of ACT respectively, and 14 percent of ORS. Key informants reported higher levels of stock-out since the end of the RAcE programme in September 2017.

92. An uninterrupted supply of commodities was not achieved in the **DRC**. Key informants, however, reported that the availability of medicines in RAcE-supported iCCM sites was comparable or better than in iCCM sites in other provinces. More than 50 percent of CHWs experienced stock-outs of Amoxicillin over seven months in 2014, and again over five months in 2016. Excluding rectal Artesunate, the average number of CHWs who, up to September 2017, reported that they had all commodities in stock at the end of each month was 79 percent (86% for diarrhoea medicines, 85% for malaria medicines, and 64% for amoxicillin).

93. An uninterrupted supply of essential medicines and commodities was not achieved in **Mozambique**. Stock-outs of Kit C (all commodities except malaria) were frequent in 2013 and 2014 but improved in 2015 and were minimal in 2016. Stock-outs of Kit AL (malaria commodities) were frequent, particularly in 2014, 2015 and 2016. CHWs reported stock-outs ranging from one to three months, mostly for Kit AL. Communities and CHWs complained about frequent non-availability of medicines. Supporting the procurement and the delivery of the kits to district level was not within the remit of the RAcE programme. UNICEF supported PSM for Kit C, and the Global Fund and PMI jointly for Kit AL.

94. The provision of rectal Artesunate for pre-referral treatment of children with severe malaria was included in all national iCCM algorithms and was also included in the CHW training in all RAcE programmes. However, until June 2017, there was no WHO prequalified supplier and the medicine could therefore only be procured through parallel mechanisms or by international partners as in the **DRC, Malawi and Mozambique**. It was never supplied in **Niger** and in **Nigeria**. All programmes experienced extended periods of stock-outs of this medicine because of complicated procurement issues.



## EVALUATION QUESTION 6

### To what extent and how have the RAcE programmes contributed to increasing the scope, coverage and quality of child health services provided by CHWs to hard-to-reach populations?

There is evidence that the RAcE programmes contributed to an increased availability of child health services in all countries. Community groups in all programme areas except in Malawi reported that they were satisfied with the availability and accessibility of iCCM services.

The training and supportive supervision mechanisms supported by the RAcE programmes contributed to improved quality of services provided by CHWs. The supervision systems were effective and CHWs consistently rank supervision as important, except in Malawi where not all CHWs considered supervision useful. A reduced frequency of supervision at the end of the programme was observed in the countries where the programmes had already ended at the time of the evaluation.

The RAcE programmes contributed to improved quality of community health services. All caregivers interviewed in FGDs considered the services provided by CHWs of good quality. However, the baseline and end-line surveys in Malawi document a deterioration in community confidence in iCCM service quality. The surveys document an increase in diarrhoea treatment with ORS and zinc in all programme areas except in Malawi. Diagnostic blood testing for malaria increased everywhere except in Mozambique. The expansion of iCCM services is the most likely explanation for these increases.

Referral systems were in place or established in all programmes. They were used appropriately in Malawi, Mozambique and Niger and to a lesser extent in DRC and Nigeria. Although end-line surveys reported high levels of adherence to referral advice, register data and key informant interviews indicate that these reports were biased, and adherence was much lower.

There is no evidence of the effectiveness of the newborn and maternal health package that was added to iCCM services in one district in Malawi. While communities appreciated the support of CHWs during pregnancy and after delivery, the intended coverage targets were not achieved.

### *Mobilisation, motivation and satisfaction of CHWs*

95. There is evidence that the RAcE programmes contributed to an increased number of iCCM trained and motivated CHWs, and an increased availability of child health services in all countries. The RAcE programmes supported the training of 8,865 CHWs. After five years of implementation 7,407 CHWs were reported to provide iCCM services to an estimated 1,895,619 children under five and reported nearly eight million consultations during the programme implementation period.

**Table 5. Trained and active CHWs**

Programme	Number of trained CHWs	Number of trained CHWs active (date of reporting)	Estimated number of children covered
DRC	1,866	1,220 (Oct 2017)	154,000
Malawi	1,192	995 (Oct 2017)	427,831
Mozambique	1,445	1,344 (Mar 2017)	719,444
Niger	1,313	1,277 (Mar 2017)	230,833
Nigeria, Abia State	1,351	1,155 (Nov 2017)	202,998
Nigeria, Niger State	1,692	1,251* (Oct 2017)	161,513
<b>TOTAL</b>	<b>8,865</b>	<b>7,407</b>	<b>1,896,619</b>

Sources: Latest available reports from implementing agency and ICF final evaluation reports,

\* Number could not be confirmed by the evaluation team. An analysis of the MC database found that on average only 971 CHWs submitted monthly reports in the last half of 2017

**Table 6. Number of consultations (new cases) by RAcE-supported CHWs**

Programme	Girls	Boys	Total	From	To	Source
DRC	703,987	702,494	1,406,481	Jan-14	Sep-17	IRC Database*
Malawi**	N/A	N/A	2,243,476	Apr-13	Sep-17	SC Final Report
Mozambique	N/A	N/A	1,578,418	Apr-14	Dec-16	MC/SC Database*
Niger	N/A	N/A	992,301	Jan-13	Dec-17	WV Database*
Abia State	481,024	458,589	939,613	Nov-14	Nov-17	SFH Database*
Niger State	199,541	224,412	423,953	Oct-14	Nov-17	MC Database*
<b>TOTAL</b>	<b>N/A</b>	<b>N/A</b>	<b>7,584,242</b>			

Sources: \* Latest database version available at time of the evaluation missions

\*\* For Malawi, the number of consultations was not available. This is the number of treatments that double-counts children treated for two or more conditions and does not count referred children and children with fever or respiratory tract infection who were not treated with ACT or antibiotics.

96. Table 5 provides the number of active CHWs according to the latest information available to the evaluation team. Table 6 provides the number of total consultations listed in the databases of the implementing NSAs which cover most, but not all of the implementation period. The data in the two tables allow a calculation that suggests that the number of sick children seen by CHWs in the RAcE programme areas each month ranged from nine in **Niger State** to 43 in **Malawi**. This is, however, misleading. **Mozambique** and **Malawi** had established programmes with active provision of iCCM services from the start of RAcE. Their average monthly caseload of 43 in **Malawi** and 37 in **Mozambique** is likely a correct estimate, whereby the numbers are not strictly comparable because they are for consultations in **Mozambique** and treatments in **Malawi**. The other four programmes started up slowly with a gradual increase in the number of trained CHWs. Using the number of active CHWs at the end of the programmes as the denominator therefore greatly underestimates the average consultation rate.

97. As previously discussed, not all children seen by CHWs lacked access to health care prior to the start of RAcE. In **Malawi** and **Mozambique** iCCM services were already provided in some of the programme areas, and the focus of the programmes were primarily on improving the quality of care. Although in all programmes, the baseline and end-line surveys documented a significant increase in care-seeking from CHWs (see Table 3), the proportion of children who received care from any appropriate provider (as previously defined) did not increase in **Malawi** and **Mozambique**, and only to a minor degree in **Abia State**. (see Table 4). This indicates that there was a shift in care-seeking from other health care providers towards iCCM-trained CHWs. This was not necessarily related to geographic distance and may also have been motivated by convenience of access, cost, perception of quality or greater inter-personal comfort in relating to CHWs rather than to nurses in health facilities.

98. CHWs are considered volunteers, except in **Malawi** where they are employed by the MOH. Motivation strategies varied across countries including financial incentives (a salary in **Malawi**, nationally agreed stipends in **Niger** and **Mozambique**, a transport allowance in **Nigeria** that was, however, contingent on attending meetings in **Niger State**), refresher training and regular supervision. In the **DRC**, earlier transport allowances were later replaced by the provision of a bicycle. In **Nigeria**, there was no national policy specifying the levels and modalities of stipends or expense reimbursements. In **Abia State**, CHWs received a monthly transport allowance which interviewed CHWs considered to be largely insufficient although this did not affect their high level of motivation. In **Niger State**, changes in procedures for the payment of travel allowances contributed to demotivation of CHWs as reflected in reduced submissions of monthly data and recounted in FGDs. In the **DRC**, **Malawi**, **Nigeria** and **Niger**, the programmes actively mobilised communities to provide incentives to CHWs. The programmes in the **DRC** and in **Niger State** cited examples of communities building houses for CHWs (12 in **Niger State** and 2 in the **DRC**). One community in **Niger State** provided a motorcycle to the CHW.

These were, however, isolated examples. The CHWs interviewed by the evaluation team in both programmes were unanimous in stating that community support was insufficient and did not even cover the cost of batteries for the torchlights they used when examining children at night. The programme in **Niger State** analysed and documented community mobilisation for the support of CHWs and presented the results at the RAcE dissemination meeting in Abuja. It estimated the value of in-kind incentives provided by communities to CHWs during the RAcE implementation period at US\$ 121,000.[13]

99. Turnover among CHWs ranged between seven percent (in **Abia State, Mozambique** and **Niger**) to 34 percent in the **DRC**. Displacement by violence was a main reason for attrition in the **DRC**, with several of the CHWs reported to continue working in internal refugee camps. Insecurity was also a reason for attrition cited in **Mozambique**, dissatisfaction with the financial incentives were cited in **Niger State, Niger** and **Mozambique**, career progression in **Malawi**, and move for marriage or employment in all programmes. Regular uninterrupted supply of medicines was mentioned as an important factor motivating CHWs to keep providing services; it was ranked as the most important factor by CHWs in all FGDs in **Nigeria**. Social prestige, community approval and recognition by the health facility staff were also mentioned by CHWs in all programmes. In **Mozambique** and **Niger**, male CHWs ranked the financial incentives higher than female CHWs who considered the availability of medicines as more important.

100. In interviews and FGDs at community level, caregivers reported that CHWs were easy to access and almost always available except in Malawi. Only 51 percent of the CHWs in Malawi resided in their catchment area in January 2017, and the large majority (83%) provide iCCM services only two days per week in the village clinics. Community groups in Malawi expressed concerns about limited availability and opening hours of village clinics. Key informants in **Niger State** also mentioned that CHWs were often absent during farming season.

101. The RAcE programme in the **DRC** found that not all children living more than five kilometres from a health facility could be reached with iCCM. Some communities in this thinly populated province were too remote to feasibly establish iCCM sites while others were inaccessible for security reasons. The programme reached an estimated 2/3 of children with difficult access to health facilities. In **Malawi**, the recruitment of CHWs is the responsibility of the MOH and RAcE did therefore not directly contribute to an increased coverage. In **Mozambique**, universal coverage was achieved in Inhambane where CHWs served all districts and on average 2,000 people each in line with the national policy. It was, however, far from reached in the other three provinces where a considerable number of communities are found in areas that are too remote for the establishment of iCCM sites. In **Niger**, the national policy states that each community should have two CHWs for 300 people, however each of the 1,313 CHWs supported by the RAcE programme served on average a population of about 900. In **Nigeria**, all four local government iCCM focal points interviewed by the evaluation team expressed the need for more CHWs to cover their LGA, although there are questions about the definition of iCCM eligible areas in **Abia State** where geographic access to health services is not a major limitation.

### *Training and supervision of CHWs*

102. There is evidence that the training and supervision supported by the RAcE programmes contributed to improvements in the quality of iCCM services. Training curricula for CHWs were defined in national iCCM guidelines which were applied by the RAcE programmes in all countries. The training materials were mostly country-specific and based on the six-day training curriculum developed by WHO and UNICEF.[14] The curriculum for CHW training in **Malawi** was revised with support of RAcE partners to include, for example, the use of rapid diagnostic tests (RDTs) for malaria. Duration of training varied from six to ten days in the **DRC, Niger** and **Nigeria**. In **Malawi**, a six-day module of iCCM training was

added to the basic training course for CHWs. In **Mozambique**, five weeks of iCCM training are integrated in the 4.5 months course for CHWs. CHWs interviewed were generally satisfied with the training received and considered it sufficient, however in **Niger** and **Malawi** the interviewed CHWs requested more refresher training.

103. Supportive supervision mechanisms were set up in all programme countries and contributed to improved quality of care and data quality. CHWs were supervised monthly by facility-based health staff in their communities and in meetings at the health facilities. Supervision included direct observation of treatments and review of the registers. The frequency was monthly but changed to quarterly in **Mozambique** and in some health zones in **Niger** in the latter part of the programme. All supervisors were trained, and most were equipped with tools and checklists. All programmes except in Malawi provided financial incentives, and in some cases bicycles, motorcycles or canoes to supervisors. Systems for supervision of the supervisors by the health administration authorities at higher levels, and joint supervision at all levels with programme staff of the RAcE partners were also established and implemented in all countries.

104. The profile and training of supervisors was less standardised across the countries. In the **DRC** and in **Mozambique**, the health professionals in charge of the nearest health facilities were responsible for CHW supervision. The supervisors received refresher trainings and those interviewed were generally satisfied with the quality of training. In **Malawi** the direct supervision was conducted by more experienced peers (Senior Health Surveillance Assistants), as well as by joint teams of the district health office (DHO) and SC. In **Nigeria** supervision was provided by facility-based community health staff (Community Health Extension Workers) in both programmes, with a system of mentoring by clinical staff. Clinical aspects were addressed in regular mentorship sessions conducted at the health facilities. In **Niger**, supervision was done by RAcE partners in the first two years and handed over to health facility supervisors in March 2017.

105. Supervision systems (supervision schedules, guidelines, tools and reports) were in place in all programmes observed by the evaluation team. Interviewed CHWs consistently ranked supervision as important and helpful. In **Malawi**, not all interviewed CHWs considered the supervision by Senior Health Surveillance Assistants useful but appreciated the supervision by the DHO and SC. CHWs and supervisors interviewed in **Niger** and in **Mozambique** reported that the frequency of supervision visits decreased since the end of the RAcE programme. In **Niger State**, supervision changed from monthly on-site visits to 'cluster' meetings of small groups of CHWs with their supervisors and then back again to monthly on-site visits, however the irregularity of monthly reporting in the last year of the programme indicates that this change was not fully implemented.

### *Quality of services by CHWs*

106. All caregivers interviewed by the evaluation team considered that the services provided by CHWs were of good quality, although caregivers in community focus groups in **Mozambique** complained that CHWs did not always have all medicines available. The end-line household surveys conducted by the programmes in the areas where iCCM services did not exist prior to RAcE reported that between 84 and 98 percent of caregivers who consulted a CHW within the last two weeks believed that they provided good quality services. Baseline data for these areas are not available or they are unstable because of very small denominators. In **Mozambique** and **Malawi**, however, where baseline data were available, the confidence of caregivers in the quality of care provided by CHWs did not change and was overall moderate in the region of 62 to 77 percent.

**Table 7. Proportion of caregivers who believe CHWs provide quality service**

Programme	Baseline survey	End-line survey	Statistical significance (p)
DRC	--*	96.0%	N/A
Malawi	67.7%	62.0%	N.S.
Mozambique	74.8%	76.7%	N.S.
Niger	--*	97.6%	N/A
Nigeria, Abia State	--*	84.0%	N/A
Nigeria, Niger State	--*	95.6%	N/A

Source: ICF (2017). Final evaluation reports (all programmes), baseline survey reports in Abia and DRC, and end-line survey database for 33 survey clusters with active CHW in Malawi. \* denominators at baseline were too small to calculate a stable proportion. N.S. = not statistically significant at  $p < 0.01$ ; N/A = not available

107. Baseline and end-line surveys also collected data from caregivers about the diagnosis and treatment their children received from CHWs and from 'any provider'. Diagnosing malaria and pneumonia requires diagnostic tests (RDT or respiratory rate count). It is uncertain whether caregivers responded to the survey question according to their perception of the child's illness or according to the confirmed diagnosis based on a positive malaria test or a rapid respiratory rate. The low positive predictive value of the pneumonia denominator in household surveys is well known.[12] In situations where RDTs for malaria had only just been introduced at the community level, this would also apply to malaria although the situation may stabilise once these tests become routine at all levels of care, including in community pharmacies. The only reliable survey indicators that reflect the quality of care are therefore the treatment of diarrhoea with ORS + zinc, and the use of blood tests in the assessment of children with fever.

**Table 8. Proportion of children who received appropriate treatment for diarrhoea**

Programme	ORS + Zn by a CHW			ORS + Zn by any provider		
	Baseline	End-line	p	Base-line	End-line	p
DRC	--	49.5%	N/A	1.6%	52.9%	<0.01
Malawi	8.9%	13.7%	N.S.	19.8%	24.5%	N.S.
Mozambique	2.2%	22.6%	<0.01	8.1%	31.1%	<0.01
Niger	--	60.1%	N/A.	23.3%	64.4%	<0.01
Abia State	--	26.5%	N/A	6.4%	35.2%	<0.01
Niger State	--	66.3%	N/A	12.8%	74.0%	<0.01

Source: ICF (2017). Final evaluation reports except Malawi: survey database for 33 survey clusters that had active CHWs  
N.A. = data not available; N.S. = not statistically significant at  $p < 0.01$

**Table 9. Proportion of children with fever who had a blood test**

Programme	Blood test by a CHW			Blood test by any provider		
	Baseline	End-line	p	Base-line	End-line	p
DRC	--	90.5%	N/A	22.0%	75.8%	<0.01
Malawi	0%	61.2%	<0.01	32.2%	60.8%	<0.01
Mozambique	19.1%	51.2%	<0.01	43.9%	51.1%	N.S.
Niger	--	75.4%	N/A	20.6%	68.2%	<0.01
Abia State	--	77.3%	N/A	9.3%	41.0%	<0.01
Niger State	--	77.1%	N/A	33.9%	76.7%	<0.01

Source: ICF (2017). Final evaluation reports reports except Malawi: survey database for 33 survey clusters that had active CHWs  
N.A. = data not available; N.S. = not statistically significant at  $p < 0.01$

108. At baseline, iCCM-trained CHWs were only present in **Malawi** and **Mozambique**. In both programmes, they significantly increased their use of RDT testing for malaria, but only in **Mozambique** did they increase their use of ORS + zinc for the treatment of diarrhoea. The data on the care received

by children in all programme areas from any health care provider show significant increases in the access to malaria blood testing everywhere except in Mozambique and to ORS + zinc treatment everywhere except in Malawi. The increases in these two indicators were generally the largest in the programme areas where few alternatives to iCCM services existed, i.e. in the **DRC** and in **Niger State**.

109. The 2016 annual progress report by WHO lists nine completed quality of care (QoC) assessments by the six programmes. The evaluation team was, however, only able to obtain four reports from the implementing NSAs. These included two reports of quality of care studies by the implementing partners in **Niger State** [17] and **Mozambique** [15], a draft operational research study report from the **DRC** [16] and the evaluation report of the mHealth intervention in **Malawi** [11]. The draft report of the study in **Niger State** found that in 1175 observed consultations, 50 percent of children were correctly classified and treated for all illnesses. The performance was highest for malaria treatment (63%); for diarrhoea it was 33 percent, and for the treatment of respiratory infections 28 percent. The data presented in the draft report were still being reviewed at the time of the evaluation. In **Mozambique**, 48 percent of children were correctly treated or referred (malaria 76%, respiratory infections 56%, diarrhoea 22%). The mHealth evaluation in **Malawi** reported that overall, children with malaria, diarrhoea, or cough with fast breathing received correct treatments for their illnesses, regardless of the tool used. Better performance was correlated with more recent training. The study of new training and reporting tools in the DRC reported that the group using the simplified tools provided significantly better quality of care than the group using the standard tools, with an overall score for correct treatment or referral of all children of 55 percent (fever 69%, respiratory infection 57%, diarrhoea 65%). Correct counting of the respiratory rate was not reported in all studies, but interviews by the evaluation team with CHWs and supervisors in **Nigeria** and the **DRC** confirmed published research from Malawi which found that CHWs found it difficult to correctly count respiratory rates.[18]

110. Referral systems were in place in all programme countries and appropriately used in **Malawi**, **Mozambique** and **Niger** and to a lesser extent in the **DRC** and **Nigeria**. Reverse referrals from health facilities to CHWs were reported in interviews in **Malawi**, **Abia State** and the **DRC** when health facilities were out of stock or caregivers unable to pay consultation fees.

111. Baseline and end-line household surveys reported a high level of adherence of caregivers to referral advice in all programmes. However, the review of the CHW databases in which this information was included indicated that adherence was below 30 percent. Interviews at community and facility levels suggested that both data sources may be biased, the surveys by response biases, and the CHW databases by the fact that not all referred children were followed up by the CHWs. The main reasons for non-adherence to referral advice mentioned in interviews with caregivers included distance to the health facility, user fees, unavailability of medicines, low confidence in the effectiveness of treatment, and unfriendly reception.

### ***Impact of adding a newborn and maternal health package***

112. The first project to add community-based maternal and newborn care (CBMNC) to iCCM in **Malawi** was piloted in 2007. It was initially not included in the WHO sub-grant for the implementation of the RAcE programme by SC but was added in September 2014. The CBMNC package was revised with RAcE programme support and implemented in only one RAcE-supported district (Ntcheu). 288 CHWs and 52 supervisors were trained in health education for women during pregnancy and the post-partum period and in the follow up of new-borns. The CHWs conducted on average 12-13 home visits per quarter (against a target of 66); 31 percent of women surveyed received at least one home visit during pregnancy (against target of >45%); and only 11 percent of post-partum mothers were visited by CHWs within three days of delivery (against target of >30%). Lack of appropriate transport, limited access of

male CHWs to pregnant and post-partum women in their homes, difficulties in planning home visits and an inefficient birth notification system were cited as the main reasons for low coverage. The CBMNC package was not fully integrated in the RAcE programme, and parallel systems were implemented for supervision and data collection. Key informants stated that CBMNC did not receive the attention required for adequate and successful implementation. Monitoring of the implementation of the package was not included in the contract between WHO and ICF, and it was therefore not included in the final programme evaluation report prepared by ICF. Although the intended results of the integration of maternal and newborn care in the RAcE programme were not achieved, other development partners supported CBMNC in several other districts and a national roll-out of the package was planned.

## EVALUATION QUESTION 7

### Has operational research conducted under the RAcE programmes generated new knowledge about the implementation of iCCM locally or nationally?

Ten operational research studies were conducted during the RAcE Initiative. At the time of the evaluation, (preliminary) findings of only three studies had been disseminated and had contributed to policy or programme changes in Nigeria, Malawi and the DRC.

**Table 10. Operational research conducted by RAcE programmes**

Programme	Research topic	Status
DRC	Development and testing of simplified tools and an improved curriculum for iCCM	Completed and disseminated
Malawi	Treatment of young infant infection in Ntcheu District	Completed, preliminary results disseminated
Mozambique	Workload of APEs	Completed, not disseminated
	Comparison of two supportive supervision models	Completed, not disseminated
	Quality of sick child case management provided by APEs	Completed, not disseminated
Niger	RComs compliance with IMCI diagnostic and treatment protocols	Completed, not disseminated
	Clinical case-case study on the use of smartphone by RComs for the diagnosis and treatment of children's diseases in western Niger	Completed, not disseminated
Abia State	Effectiveness of peer-to-peer supervision of CORPs	Completed and disseminated
Niger State	Effectiveness of peer-to-peer supervision of CORPs	Not completed
	Community management of severe pneumonia	Not completed

*APE, RCom, CORP = abbreviations for CHWs in Mozambique, Niger and Nigeria*

113. The findings of only two completed operational research studies were disseminated and have informed programmatic changes. The study on peer-to-peer supervision in **Abia State** found no advantage of peer-supervision and recommended that traditional supervisory models and structures should not be replaced. This led to the abandonment of peer-to-peer supervision pilots in **Abia** and **Niger State**. In the **DRC**, a controlled study of the revised simplified registers and training tools documented improved quality of services and of data as well as improved efficiency and lower cost of iCCM service provision. The tools were adopted by the provincial MOH and are being reviewed in other provinces and discussed at national level. There have also been requests for copies from other countries. Although not yet completed, preliminary findings of the operational research on the treatment of serious bacterial infections in primary health care facilities **Malawi** were disseminated and have informed a decision to expand this pilot intervention. The majority of operational research studies were completed at the time of data collection for the evaluation, but reports were not yet available to

the evaluation team and the findings had not yet been disseminated, except for the presentation of the above-mentioned studies at the RAcE programme dissemination meeting in Abuja in October 2017.

## EVALUATION QUESTION 8 AND 9

**What has been the contribution of the RAcE programmes to the strengthening of community participation and inclusion in health systems?**

**To what extent have the RAcE programmes contributed to increased satisfaction by communities with child health services provided by CHWs?**

All RAcE programmes involved community leaders and members in decision-making processes, but the degree of involvement and participation varied. Communities participated in the election or nomination of CHWs in all programmes except in Malawi. Existing health committees were revitalised and supported in the DRC, Malawi, Mozambique and Nigeria, however evidence of effectiveness is limited.

Evidence for the effectiveness of strategies to encourage communities to support CHWs is not conclusive although examples of community support were reported in the DRC, Malawi and Niger State.

Social mobilisation and awareness raising activities were implemented in all programmes. Caregivers were well aware of the presence of a CHW in their community and a large majority were able to mention at least two services provided, except in Malawi. Caregiver knowledge about the cause of malaria, however, did not change significantly.

Community groups and community leaders consistently expressed satisfaction with CHW services. Caregiver groups ranked CHWs as the first point of contact for care-seeking in all programmes.

End-line household surveys confirmed major shifts in care-seeking from any appropriate provider to CHWs. This change was statistically significant in all countries, but particularly high in Niger, Niger State and the DRC and to a lesser extent in Abia State, Mozambique and Malawi.

### *Community participation and inclusion in health systems*

114. All RAcE programmes involved community leaders and members in decision-making processes, but the degree of involvement and participation varied. Community members nominated the CHWs by election in the **DRC**, and in **Mozambique**. In **Niger** and in **Nigeria** they were nominated by local leaders.

115. Other strategies used to involve community members were the revitalisation of existing health committees (**DRC, Malawi, Mozambique** and **Nigeria**) and training of their members in community mobilisation activities. The effectiveness of these strategies is not conclusive. In the **DRC**, key informants acknowledged that the capacity of community structures was insufficiently strengthened to support the operation of the community care sites. In **Malawi**, 4,605 members of existing community structures were trained on raising awareness and community mobilisation, but follow-up and monitoring of the mobilisation activities were limited. Similarly, in **Mozambique**, community health committee members received training on community dialogue and community mobilisation activities, but no data are available on the number of activities conducted. A qualitative assessment conducted by the Malaria Consortium in **Mozambique** found that communities that received training had higher degrees of community participation.[19] In **Nigeria**, ward development committees and village health committees were supported, and sensitisation meetings were conducted especially in **Niger State**. The support provided by communities to CHWs in **Niger State** was reported to be higher than in other programmes. This could not be confirmed in interviews and focus group discussions conducted during the evaluation mission.

116. Different strategies were used by the RAcE programme to encourage communities to support iCCM services in their community. They were somewhat effective in **Nigeria**, to a limited extent in



**Malawi** and the **DRC**, and very limited in **Niger**. In **Niger**, community chiefs were involved in sustainability planning to advocate for long lasting commitments to support CHWs with material or financial resources and signed a written statement on their commitment to support CHWs. Village chiefs were generally supportive, but very few material or financial resources were mobilised. Community members were reluctant to contribute to the support of CHWs because iCCM services had been announced to be free-of-charge. In the **DRC**, CHWs reported that many community members believed that they were paid for their services and therefore did not see any need to support them. They did, however, receive recognition by their village chiefs. In **Niger State** in-kind and financial community support to CHWs over the programme period was estimated by Malaria Consortium at US\$121,000.[13] Interviewed CHWs confirmed in-kind support such as assistance in farm work and exemption from community tasks and levies, and to a lesser extent material support from their communities, but considered it insufficient and unsatisfactory. Recognition of CHWs for their services by community leaders was mentioned as an important form of community support in both programmes in **Nigeria**. The CHWs interviewed in **Abia State** reported that they did not receive material support from their communities, but they received recognition, status and some privileges which they considered as major factors contributing to their motivation. In **Malawi**, village health committee members participated in stock management at village clinic through a double lock system of the medicine box and were also encouraged to support the construction of houses for CHWs and waste facilities of village clinics, although without any direct contribution by the RAcE programme.

#### *Caregivers knowledge and perception about iCCM services*

117. Social mobilisation and awareness raising activities were organised in all countries either through sub-contracted organisations (**Nigeria, Mozambique**), trained community members (**Mozambique, Malawi**) or CHWs (**DRC, Mozambique, Niger**). In **Nigeria**, community-based organisations were engaged to gain access to communities. This was largely effective in overcoming initial slow uptake of iCCM services. Social mobilisation and public education activities included media campaigns, promotion materials, community dialogues, community drama and other sensitisation activities. RAcE partners in **Mozambique** also launched a behaviour change communication campaign with promotional materials and 10 radio dramas produced in local languages. The impact of the campaign was not evaluated by the programme and could not be confirmed by the evaluation team. Awareness raising activities were also conducted in the **DRC, Malawi, Mozambique** and **Niger** either by trained community mobilisers or by the CHWs. In **Niger**, the interviewed caregivers and the CHWs perceived awareness raising as important to help caregivers understand the work of the CHWs including its limitations, and to support caregivers in adopting preventive health practices. Many other health programmes also conducted awareness raising activities in the RAcE programme areas.

118. Overall, caregivers were well aware of the presence of a CHW in their community (although to a lesser extent in **Abia State**) and a large majority were able to mention two curative services provided, except in **Malawi**. However, caregiver knowledge on the cause of malaria did not change significantly.

**Table 11. Selected indicators of caregiver knowledge**

Programme	Knows the cause of malaria			Knows iCCM trained CHW			Knows 2 services provided		
	Baseline	End-line	p	Baseline	End-line	p	Baseline	End-line	p
DRC	n/a	42.0%	N/A	10.4%	94.7%	<0.01	43.4%	77.5%	<0.01
Malawi	91.1%	83.6%	N.S.	92.4%	93.1%	N.S.	38.4%	35.0%	N.S.
Mozambique	67.4%	75.9%	N.S.	62.0%	93.4%	<0.01	49.2%	69.1%	N.S.
Niger	89.9%	84.8%	N.S.	1.0%	99.8%	<0.01	n/a	77.4%	N/A
Abia State	69.2%	70.8%	N.S.	2.1%	65.4%	<0.01	n/a	71.6%	N/A
Niger State	61.2%	77.8%	N.S.	--	92.9%	N/A	14.3%	78.1%	<0.01

Source: ICF (2017). Final evaluation reports except Malawi were data are from the database of 33 survey clusters that had active CHWs)

n/a = data not available or sample too small to calculate rate; N/A = not applicable; N.S. = not statistically significant at  $p < 0.01$

119. In focus group discussions, community groups and community leaders consistently expressed satisfaction with CHW services. In the **DRC**, **Niger** and **Niger State**, satisfaction rates were very high (ranging between 94% and 99%) and communities expressed that there were few accepted alternatives to parents. In **Abia State**, satisfaction rates were also high (83%) and caregivers cited easy access, absence of user charges, and familiarity/friendliness as the main reason for shifting to CHWs for child health care. In **Malawi** and **Mozambique**, satisfaction rates were slightly lower (70% and 78% respectively) and while communities interviewed in both countries were appreciative, they also expressed concerns about limited availability and opening hours (**Malawi**), a lack of regular availability of medicines (**Mozambique**) and a limited range of health services provided (**Malawi**, **Mozambique**). In **Mozambique**, the evaluation team frequently observed the tension between demand for more curative services by communities and the national policy which specifies that CHWs should spend only 20 percent of their time on curative services.

### *Choice of CHWs as first option of care*

120. In all countries, community focus groups ranked the CHWs as the first point of contact for seeking care for their sick children. This confirms the findings of end-line household surveys (see Table 3). Increases ranged from 38 percent in **Abia State** to 77 percent in **Niger State**. In some communities in **Niger State** and **Mozambique** the nearest health facility was ranked as the most important source of care, but the groups still identified the CHWs as the first contact. Caregivers in **Mozambique** and **Niger** also reported that they sought care sooner. Survey data suggest that there was a major shift in health seeking from any health provider to CHWs. This change was statistically significant in all countries, but particularly high in **Niger**, **Niger State** and the **DRC**.

## INVESTIGATION AREA 3

121. The evaluation in this area examined the extent to which the RAcE programmes contributed to supportive policy and regulatory environments for iCCM as key components of health service delivery. Two evaluation questions were formulated under this area in the evaluation matrix prepared at inception. During the course of the evaluation, the evaluation team realised that two sub-questions in this matrix dealing with the sub-grantee deliver model and with sustainability planning, addressed quite separate aspects of the evaluation. The evaluation team therefore disaggregated them by creating a third evaluation question and adjusted the evaluation matrix accordingly.

## EVALUATION QUESTION 10

### **What has been the contribution of the RAcE Initiative to local, national and global evidence on iCCM?**

The RAcE Initiative demonstrated that it is feasible to deliver iCCM with region-wide coverage and thereby improve the access to quality health care for children in rural areas with poor health service infrastructure as an important contribution to the achievement of universal health coverage. It documented the importance of linking iCCM to other health systems building blocks in order to assure an uninterrupted supply of quality medicines, functional supportive supervision and continued motivation of CHWs, as well as the integration of community health data in the national health management information system.

The RAcE Initiative was not designed to generate or strengthen the evidence of the efficacy of iCCM. It provided qualitative evidence that iCCM is effective in reducing child mortality, but national vital statistic and health information systems were not sufficiently developed to confirm this with an estimate of numbers or rates of reduction.

Limited evidence was generated by the RAcE Initiative on effective approaches to increase community engagement in the support of iCCM and on gender equality issues in the supply and demand of iCCM services.

### *Evidence of the feasibility and the health system requirements for scaling up iCCM*

122. The RAcE Initiative demonstrated that it is feasible to deliver iCCM with region-wide coverage and thereby improve the access to quality health care for children in rural regions with poor health service infrastructure. This applied also to regions that were challenged by long-standing civil unrest as for instance the eastern **DRC**. The development of selection criteria for iCCM sites, however, has to be done carefully and the selection requires frequent reviews because the coverage of the health facility infrastructure is not static. When community case management sites are established in communities that have access to public or private alternatives for health service provision, the result may be a shift of care-seeking towards CHWs because of convenience, cost or perceived quality. It can also result in reverse referral from facilities to community sites. This was observed in several RAcE programmes, particularly in **Abia State**. It resulted in greater satisfaction with services by the caregivers of children, and according to end-line survey results, in better quality care. However, iCCM was not the only option to increase the availability and quality of services in communities where geographic distance was a minor barrier to access. Only a comparative analysis of alternative approaches could determine whether it was the best option.

123. The evaluation of the RAcE Initiative documented that the uninterrupted supply of quality medicines is a key factor in promoting community support and timely care-seeking as well as continued motivation by CHWs and the provision of quality services. However, the procurement and supply management systems for community-level services are weak and underdeveloped in many countries, including those participating in the RAcE Initiative. While the supply situation was relatively stable (with some exceptions) during the RAcE programme implementation period, deteriorations were reported in all countries where the programme had already ended at the time of the evaluation. This points to the need for planning iCCM scale-up initiatives with longer time frames and a longer transition to sustainability.

124. The RAcE Initiative demonstrated that well trained and closely supervised CHWs are able to deliver quality care, including diagnosis of malaria using RDTs, and appropriate malaria treatment. It confirmed other reports (see literature review) that the counting of respiratory rates for the diagnosis of childhood pneumonia is difficult and requires frequent supportive supervision and re-training. Tools

such as counting beads were used in some programmes (e.g. **DRC**) but their relative effectiveness was not evaluated. The issue of the status of CHWs and the types of incentives necessary to keep CHWs motivated was not resolved, and a solution that can be generalised across different countries is not likely. However, demotivational effects of changes in modalities and levels of incentives provided could be observed in **Niger State**. These are more likely to occur when iCCM programmes are implemented as projects of limited duration with modalities defined by international partners, pointing to a need for the implementation of national policies and guidelines on iCCM, including for incentivising CHWs.

125. A three-country study by the Swiss Tropical and Public Health Institute of the health systems effects of iCCM and the RAcE programme was on-going at the time of the evaluation and no reports were available. The evaluation team could not assess its contribution to global or regional evidence.

126. A study in the **DRC** assessed whether simplified and pictorial reporting and training tools for CHWs affected the quality of care, CHW workload and cost-effectiveness of iCCM. The study found that CHWs using simplified tools were five times more likely to correctly investigate all danger signs, and children were three times more likely to receive the correct treatment. CHWs who used simplified tools spent on average 11 minutes less for case management, which, according to the study, translated to more than six hours of reduced workload per month. Cost savings of US\$ 4,418 per 100 CHWs in the first year of operation were calculated because of reduced production and distribution costs compared to the national registers used.[16] The reporting and training tools were adopted by the provincial MOH. According to programme staff this has also increased the recruitment of female CHWs who were underrepresented because of the low level of education among rural women in the programme area.

### *Evidence of the effectiveness of community case management*

127. The RAcE Initiative was not designed to generate evidence of the efficacy of community case management. The evaluation only identified two efficacy studies conducted with RAcE programme support. In **Niger State** a study was conducted on community management of severe pneumonia in children as diagnosed by the sign of chest indrawing.[21] Results of the study were not yet available at the time of the evaluation. A study in **Malawi**, researched the possibility of providing care for severe respiratory infections through a combination of first-level facility treatment with gentamycin and community follow-up by CHWs. Preliminary results showed that this approach was more acceptable to caregivers than referral to hospital, and that levels of adherence to treatment and follow-up were high.[20] The analysis of treatment outcomes was not yet completed at the time of the evaluation.

128. The RAcE Initiative contributed to nearly eight million children accessing live-saving health care. (see Table 6) In some programme areas, alternative care providers were available as indicated by the baseline survey data presented in Table 4, but the RAcE programmes contributed to the improvement in the quality of care according to survey data presented in Table 8 and Table 9. Community members, health facility staff and health administrative authorities interviewed by the evaluation team unanimously expressed their perception that the programmes resulted in major reduction in child mortality in the RAcE programme communities. While this is credible qualitative evidence, mortality data to confirm it and provide quantified estimates were not available. Vital statistics and civil registration systems in the programme countries did not capture child deaths in communities, community health information systems were being developed but were not yet fully functional in most countries, and national population surveys conducted prior to the inception of the initiative did not have a time and sampling frame to generate appropriate input data for an epidemiological model. The estimates of total and disease-specific mortality reduction that were made by ICF with the use of the LiST model are not credible because of the lack of reliable input data. This is further discussed under evaluation question 13.

### ***Evidence of the effectiveness of community engagement and demand generation strategies***

129. Limited to no evidence was generated by the RAcE Initiative on demand-side barriers that affect caregivers' understanding of illness, preferences for home remedies and alternative treatments, limited decision-making autonomy to seek care, and trust in the quality of iCCM services. While the baseline and end-line surveys collected some indicators that provide information on whether there were changes in terms of knowledge of danger signs and awareness and trust in the CHWs, the factors that affect observed positive or negative changes were not examined. A study on behavioural barriers to appropriate health care seeking behaviour was initially scheduled in **Mozambique** but was eventually removed from the RAcE programme and conducted with other funding.

130. All programmes implemented activities to engage communities in supporting iCCM services. The programmes in the **DRC, Malawi, Niger and Nigeria** included activities to motivate communities to provide incentives to retain their CHW. The approaches included working through religious and community leaders, village health committees or trained volunteer community motivators. The results were mixed, with some success stories of communities constructing houses or village clinics for CHWs in **Malawi, DRC and Niger State**, or of providing bicycles, farming tools or stipends. These were, however, in all cases singular examples. The issue of community incentives was discussed by the evaluation team in all focus groups with CHWs. The FGD participants generally expressed appreciation for the recognition and privileges they received because of their position as CHWs, for instance the exemption from community levies and community duties. The overwhelming majority, however, stated that their communities did not understand the need to provide even minimal material support, for instance to purchase pens for completing registers or torchlight batteries to examine children at night.

131. No evidence was generated for the effect of iCCM on gender equality in the supply and the demand for services by any of the programmes. The evaluation team heard several reports of the empowerment of women as CHWs and of increased decision-making powers in care-seeking of mothers for their children. None of these were, however, supported by a gender analysis to convincingly document changes that could be attributed to the RAcE Initiative. This is further discussed under evaluation questions 14 and 15.

### **EVALUATION QUESTION 11**

**To what extent did the sub-grantee delivery model used by the RAcE Initiative contribute to increased government ownership and capacity to implement iCCM at district, state/region, and national level?**

The adoption of the sub-grantee approach by the RAcE Initiative assured effective implementation of the programmes concurrent with the strengthening of national structures, policies and ownership of iCCM.

132. The grant agreement between the Government of Canada and the WHO Global Malaria Programme specified that *'RAcE 2015 will award grants up to US\$ 2,000,000 annually, renewable for up to five years, to selected institutions or organisations submitting successful proposals that aim to strengthen ... iCCM'*.<sup>[3]</sup> In a competitive process, four international and one national NSAs were selected to deliver the RAcE programmes in the five countries in partnership with national and sub-national governments. This created a tripartite structure in each programme country of the relevant department of the MOH, the WCO and the contracted NSA, each with distinct, but sometimes overlapping roles in the implementation of the programme. For the WCOs and the national MOHs, this was a new situation as they generally cooperate directly without a third intermediate partner. As one key MOH informant told the evaluation team: *'WHO is our agency, it belongs to us'*, reflecting the membership nature of the organisation.

### ***RAcE contribution to national iCCM policies, strategies and guidelines***

133. The opinions of stakeholders about the effectiveness and appropriateness of the sub-grantee approach differed among countries and also among stakeholders at central and decentralised level. Senior national MOH officials in **Nigeria** and **Malawi** expressed some dissatisfaction, arguing that their own ministries were capable of implementing the programme, and that the additional recruitment of an NSA only increased the costs. At the decentralised (province, state or region) level, however, there was unanimous appreciation of the implementation support provided by the NSA partner in all programmes. This was especially true for programmes implemented in remote regions of highly decentralised countries, as for instance in the **DRC**.

134. In all country programme reviews, the evaluation teams found that there was a very functional division of tasks between the WCOs and the implementing NSAs. Dedicated iCCM focal points in the WCOs acted as policy advisors and advocates for iCCM to governments; promoted and coordinated RAcE programme interventions with international financial and technical partners (particularly UNICEF, the principal recipients of TGF grants, and the implementing agencies of PMI funding including USAID); were instrumental in supporting the development or revision of policies, strategies and guidelines on iCCM by national health authorities; as well as assuring that lessons generated by the implementation of the RAcE programme at field level were continuously fed into the discussions of national iCCM task forces and technical working groups in which the implementing NSAs also participated. In addition, they provided oversight over the field operations of the sub-contracted NSAs, including through joint monitoring missions with central-level MOH staff and sometimes other partners.

135. Representatives of international health partner organisations in countries expressed overall positive opinions about the role of the WCOs as technical and policy advisors to national governments and as convenors of nationally led iCCM task forces and technical committees. In only one country were reservations voiced by one international development partner about a perceived insufficient engagement of the WCO with the forum of international donor agencies. Although there was evidence that the WCO iCCM focal point presented the progress of the RAcE programme to the forum, the WCO indicated that WHO is not a 'donor agency' and therefore not a member of the forum of donors.

136. Key informants at global and regional level, including WHO and GAC staff, expressed differing views about the effectiveness of the sub-grantee model. One informant pointed out that the initial design of the RAcE Initiative foresaw that national government agencies and NSAs would compete for grants at the same level. This is confirmed by the text of the grant agreement between Canada and WHO which states that '*funding is open to government and non-governmental entities*'.<sup>[3]</sup> After initial discussions of issuing open requests for proposals to which governments could also apply, WHO decided to open the competition only to NSAs, however placing the emphasis in selection on their commitment and capacity to support government services. The same respondent also noted that WHO saw the sub-grantee approach as a transitional model to assist countries in scaling up iCCM, and that it should then be phased out. This was the approach pursued in **Mozambique**, where the RAcE programme provided necessary support for nation-wide scale up. Questions can be raised about the appropriateness of this approach in **Malawi**, where iCCM was already well established nationally.

### ***RAcE contribution to national capacity to deliver iCCM programmes***

137. The NSA sub-grantees had highly operational roles in programme implementation. They worked closely with decentralised government structures through a variety of models including being fully embedded in the structure as in **Abia State** and secondment of NSA staff to MOH departments as in **Niger**. In the programme sites where iCCM implementation units of the MOH did not exist, e.g. in the **DRC** and **Nigeria**, the NSA partners promoted the creation of these units and supported them

throughout the duration of the programme. They also had a major role in the establishment and support of decentralised iCCM technical and coordination committees.

138. Overall, the evidence collected by the evaluation team confirms that the adoption of the sub-grantee approach by the RAcE Initiative assured effective implementation of the programmes concurrent with the strengthening of national structures, policies and ownership of iCCM. There are some views that existing national iCCM programmes that have acquired a high level of maturity may be supported more efficiently without an intermediate sub-contracted NSA, but the evaluation team did not find counterfactual evidence to confirm this.

## EVALUATION QUESTION 12

### **Have the RAcE programmes developed and implemented realistic and effective sustainability plans?**

Proactive sustainability planning at country level was initiated in 2015. ICF was contracted to support the process of developing a sustainability framework and roadmap in all countries. The documents were finalised in 2017, but only the roadmap in Niger State had been validated by the State MOH at the time of the evaluation. While MOH officials in the states and countries appreciated the participatory process and its outcomes, they also expressed reservations about the late timing of the exercise. At the time of the evaluation, funding to continue support for iCCM in the communities covered by the initiative had only been mobilised in Mozambique and Malawi. In the DRC, Niger and Nigeria funds to continue the services had not yet been appropriated with the high likelihood of financing gaps and a decrease in treatment access and quality.

### *Feasibility of sustainability plans*

139. In 2015, at about mid-term of the RAcE Initiative, WHO GMP observed that the sustainability of the programmes funded under the initiative did not receive sufficient and equal attention by the implementing partners. It therefore launched a call for proposals to *'support a sustainable handover for the six individual RAcE projects to the Ministries of Health'*.<sup>[22]</sup> The contract was awarded to ICF in March 2016.

140. ICF supported a structured process of sustainability planning involving the participatory development of sustainability frameworks and country-specific roadmaps as well as transition plans for the transition of functions from the NSAs to the MOH. The sustainability roadmaps, most of them finalised in early 2017, were formatted to be published under the national MOH logo. At the time of the evaluation mission, only the roadmap for **Niger State** had been validated by the State Commissioner of Health.<sup>[23]</sup> The other five roadmap documents reviewed by the evaluation team only had placeholders for ministerial endorsements and their status as MOH documents was not clear. Most of the transition plans were developed and finalised in the last quarter of 2016. After monitoring the implementation of the roadmaps which, during the first months included primarily actions to be taken by the implementing NSAs, ICF prepared final synthesis reports about the sustainability planning process and facilitated national meetings to discuss achievements and challenges. Not all of these meetings had been concluded at the time of the evaluation.

141. A review of the roadmaps, monitoring reports and final synthesis reports for all programmes reveals similar patterns. The NSAs generally implemented or initiated implementation of the planned activities for 2017 that were in their domain. These frequently involved training, transition of materials to the government partner, establishing operational plans and systems to continue supervision and medicine supply, and full transfer of iCCM data management if this was still partially done by the NSAs.

142. Senior government officials (Director General of Director level) interviewed during the evaluation mission expressed a high level of appreciation of the transition planning process and

acknowledged their participation in the meetings and conferences. In **Malawi**, **Mozambique** and in **Niger State** there was evidence that the MOH had initiated activities of the roadmap that were exclusively in their domain and had used the roadmap to some extent for operational planning. The evaluation did not find evidence of MOH action or use in the **DRC**, **Niger** or in **Abia State**, nor at the federal level in **Nigeria**. More junior staff interviewed during the evaluation, such as iCCM focal points in decentralised services of the MOH, also acknowledged their awareness of the transition planning process and several also their participation in transition planning meetings, but most of them had not seen the actual roadmap or only had partial knowledge about its content. In **Malawi** and **Mozambique**, the evaluation team observed provincial or district level transition plans, which were considered useful during the transition period and after the end of the programme.

#### *Inclusion of iCCM as a costed element in the national health sector plans and budgets*

143. Sustainability of iCCM services has a different dimension in **Malawi** and **Mozambique**, where iCCM services were already established at the start of the RAcE Initiative, and sustainability was to a large extent achieved but not solely as a result of RAcE. In the **DRC**, **Niger** and **Nigeria**, MOH officials were generally positive that the structures for managing iCCM programmes were in place and could be operated by their ministries. But the common bottleneck for sustainable iCCM programming in all countries was the shortage of funds for procuring medicines, training CHWs, providing stipends, and assuring that supervisors were available and had the necessary means of transport to continue regular supportive supervision.

144. In all countries of the RAcE Initiative, iCCM was highly dependent on external partner financing. Ministries of health in most countries had established budget lines or drafted costed operational plans for continued iCCM programming. This was confirmed in interviews with senior MOH staff in **Niger State**, **Abia State** and the Province of Tanganyika in the **DRC**. However, they also acknowledged that no funds had yet been appropriated to this budget. The State MOH in **Niger State** had a costed operational plan for 2018, but for each costed line, a responsible international partner was identified. In fact, negotiations for grant funding from TGF, the PMI, the World Bank or the Bill and Melinda Gates Foundation (BMGF) were ongoing in the **DRC** and **Nigeria**. There were partially well-founded expectations that these agencies would take up continued funding of iCCM. This will, however, not avoid long programme gaps during which time no medicines and no funds for supervision and support of CHWs will be available. In **Niger**, iCCM had already been scaled up through a new joint programme of UNICEF/ TGF in 2016. This programme could have contributed to ensure the sustainability of interventions in the RAcE communities, but it was rolled out in new areas. In **Mozambique** and **Malawi** funds had also been mobilised for the continuation of the iCCM programmes, predominantly through external funding. In **Malawi**, the amount mobilised through domestic funding was largely insufficient for the full implementation of iCCM according to the national protocol.

145. MOH officials and some of the WCO iCCM focal points in all RAcE countries as well as some of the regional and global level stakeholders stated in KIIs with the evaluation team that the sustainability planning process was very useful and that it correctly captured the achievements and constraints for sustaining quality iCCM services. The overwhelming majority of respondents, however, mentioned that in order to be effective it should have been started in the first rather than the last year of the iCCM initiative.

#### INVESTIGATION AREA 4

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146. The evaluation in this area examined the extent to which the impact of the RAcE programmes reported by ICF could be independently validated.



## EVALUATION QUESTION 13

### **Can the contribution of the RAcE programmes to the reduction in disease-specific and total child morbidity and mortality in the programme areas as reported by ICF be externally validated?**

The baseline estimates of under-five mortality in the programme areas are not sufficiently representative of child mortality in the programme areas to provide credible modelled estimates of total mortality reduction. Few survey data are available that can be used to validate the modelled estimates, but those that are cannot be reconciled with the modelled estimates.

The estimate of a total of 3,599 lives saved over three years through appropriate case management of the three childhood diseases cannot be validated because there are too many major uncertainties about the validity of model input data used to generate a credible estimate.

#### *Estimated reduction in total child mortality*

147. The terms of reference for the final evaluation of each of the six RAcE programmes by ICF included the estimation of the changes in child mortality in RAcE programme areas using Lives Saved Tool (LiST) modelling.<sup>1</sup> Morbidity changes, as indicated in the evaluation question, were not estimated by ICF. Plausible changes in morbidity due to iCCM would only be registered for the conditions of severe malaria, severe pneumonia and severe dehydration or malnutrition which could be prevented by timely treatment. But these conditions were not monitored and would be difficult to model, although health facility staff in the **DRC, Niger** and in **Niger State** reported that they saw fewer cases of severe child illnesses since the start of the RAcE programmes. This was to some extent confirmed by HMIS data, however the evaluation could not access validated HMIS data beyond 2015 which was too early to confirm reliable trends.

148. LiST uses linear extrapolation of data to estimate the impact of health programmes on maternal, newborn and child deaths based on changes in population-level coverage of a range of interventions while taking into account the baseline mortality rates, cause-specific mortality estimates, and the best estimates of the efficacy of the interventions. In a global LiST modelling exercise, the impact of increasing the coverage of health services provided by CHWs to 90 percent by 2020 would save an estimated 864,000 lives of African children aged one to 59 months in the final year.[5] The modelling inputs included a comprehensive list of community interventions, including nutrition, hygiene, immunisation and malaria prevention. Community case management of diarrhoea, malaria and pneumonia was estimated to account for roughly half of the number of lives saved.

149. In the final evaluation of the RAcE programmes, ICF applied the LiST modelling tool to estimate changes in the under-five mortality rate (U5MR) in the programme areas between 2013 and 2016, as well as the number of lives saved each year by iCCM interventions. The baseline U5MR of the programme areas are not identical to national estimates, which was one of the rationales for the RAcE Initiative which focused on areas with high mortality due to limited access to health facilities. ICF used subnational data from Demographic and Health Surveys (DHS) to approach the baseline values as closely as possible to those experienced in the programme areas. This proved to be challenging because (a) the sampling frames for the available subnational data were frequently not representative of the programme areas, and (b) the U5MRs published in the DHS are average mortality rates experienced over ten-year periods. During a time when all countries strived to achieve the millennium development goals, the average rate over the past ten years is unlikely to reflect the U5MR at initiation of the initiative. Challenges related to the baseline U5MRs used in the LiST models are detailed in Table 12.

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<sup>1</sup> [www.livessavedtool.org/](http://www.livessavedtool.org/)

150. Readers of Table 12 should keep in mind that the estimated reductions in U5MR are not only based on changes in coverage of iCCM interventions, but also on estimated changes in immunisation rates, bed net coverage, HIV incidence, family planning uptake and other health sector interventions that were calculated by the modelling tool using linear extrapolations of trends since the preceding DHS or from other data sources. Linear extrapolation of data trends among populations that were not fully representative of the target populations and that reached back to ten years or more before the start of the RAcE Initiative, was applied in all models except in **Malawi** where data from the 2015/16 DHS were available. This further challenged the validity of the modelled estimates.

**Table 12. Modelled estimates in U5MR reduction and modelling challenges**

Programme	Data Source	Change in U5MR (‰)	Challenges
DRC	DHS 2013/14	121.0 to 103.5 <b>(-17.5)</b>	The baseline U5MR applies to the period from 2003 to 2013 in Katanga Province which at the time included the programme province of Tanganyika. It also included four other new provinces some with a social profile and health infrastructure well above national average. It is not likely to reflect the reality of the programme area in 2013.
Malawi	DHS 2010	124.3 to 118.5 <b>(-5.8)</b>	The baseline U5MR of 124.3‰ is based on an extrapolation of the rural U5MR for the period from 2000 to 2010 reported in the 2010 DHS (130‰). Data from the 2015/16 DHS (U5MR 77‰ from 2005 to 2015) indicate that the extrapolation significantly underestimated the rate of change between 2010 and 2013. The baseline rate used in the model is unlikely to reflect the 2013 U5MR in the programme area.
Mozambique	DHS 2011	94.0 to 92.3 <b>(-1.7)</b>	The baseline U5MR of 94‰ applies to the period of 2001 to 2011 for the combined four programme provinces which ranged from 48‰ in Inhambane to 142‰ in Zambezia. It did not account for the significantly different levels of programme coverage among the provinces which was highest in Inhambane and is therefore unlikely to be representative of the RAcE target populations in 2013.
Niger	DHS 2012	137.0 to 117.2 <b>(-19.8)</b>	The baseline U5MR of 137‰ applies to the period of 2002 to 2012 for rural areas in the two programme regions of Dosso and Tahoua. Although this is likely the best geographical approximation of the survey sample and the RAcE programme areas, the long historic period over which the U5MR was estimated makes it unlikely that the baseline U5MR of the model reflects the rate experienced in 2013 in the two programme areas.
Nigeria Abia State	DHS 2013	131.0 to 113.8 <b>(-17.2)</b>	The baseline U5MR of 131‰ applies to the period from 2003 to 2013 in the south-east region of Nigeria which includes five states. According to MICS estimates in 2011, the U5MR in these states ranged from 111 to 194‰. The baseline rate used in the model is unlikely to reflect the 2013 U5MR in the RAcE programme area in 15 programme LGAs of Abia State.
Nigeria Niger State	DHS 2013	100.0 to 88.0 <b>(-12.0)</b>	The baseline U5MR of 100‰ applies to the period from 2003 to 2013 in the north-central region of Nigeria which includes six states and the Federal Capital Region. According to MICS estimates in 2011, the U5MR in these states ranged from 110 to 182‰. The baseline rate used in the model is unlikely to reflect the 2013 U5MR in the RAcE programme area in the six programme LGAs of Niger State.

*Data source: ICF Final evaluation reports (all programmes)*

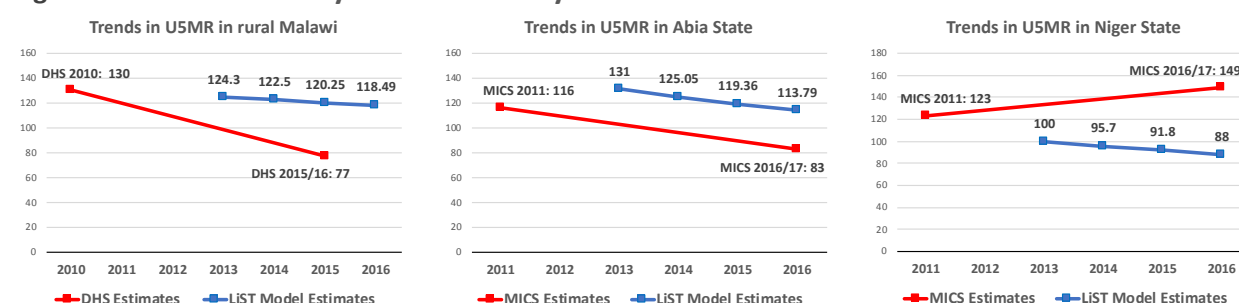
151. The challenges in determining the baseline U5MR as input to the LiST model underline the challenges of applying the model to sub-populations for which fully representative survey data are not available. There were few alternate sources to validate the modelled results. Published population surveys that include estimates of the U5MR and that span the implementation period of the RAcE Initiative were the **Nigeria** MICS 2016/17 and the **Malawi** DHS 2015/16. Both sources have the same limitations of presenting mortality rates estimated over several years among populations that are not representative of the RAcE target populations. The trends published in these surveys are nevertheless a indicators against which the validity of the modelled results can be assessed. Data collection for the **Niger** DHS 2017 was completed at the time of the evaluation but the results were not yet available.

**Table 13. Modelled and measured average annual change in the under-five mortality rate**

Programme	LiST model for RAcE programme areas 2013-2016	Malawi DHS 2010 and 2015/16 (rural Malawi)	Nigeria MICS 2011 and 2016/17 (State estimates)
Malawi	-1.9‰	- 10.6‰	--
Nigeria, Abia State	- 5.8‰	--	- 6.6‰
Nigeria, Niger State	- 4.0‰	--	+ 5.2‰

Sources: ICF Final evaluation reports; Malawi DHS 2010 and 2015/16; Nigeria MICS 2011 and 2016/17

**Figure 2. Child mortality trends in surveys and modelled estimates**



Sources: ICF Final evaluation reports; Malawi DHS 2010 and 2015/16; Nigeria MICS 2011 and 2016/17

152. As shown in the table and figure, the modelled rate of change in the U5MR only matched the survey estimates in **Abia State**, albeit at a very different level of mortality. According to two successive MICS reports, Niger State experienced an increase in child mortality, but this does not necessarily apply to the RAcE programme area which only covered six of the 25 local government areas. The conclusion is that neither the successive DHS or MICS population surveys nor the LiST model provide reliable estimates of the mortality impact of the RAcE programmes.

153. In **Mozambique**, community deaths of children under five are reported by APEs and captured in the national APE database. An analysis of the data by the evaluation team (see Volume 3) suggests a steady decrease in mortality throughout the RAcE implementation period in all provinces of Mozambique. The decrease was more pronounced than the national average in the RAcE programme provinces of Manica and Inhambane, it closely followed the national trend in Nampula, and it was less than the national trend in Zambezia. These data can, however, not be triangulated with the modelled reduction in U5MR because they do not include denominators.

154. All respondents interviewed at community and health facility levels expressed their firm perceptions that there were fewer deaths of children in the villages since the start of the programmes. The modelled estimates of mortality reduction could, however, not be confirmed. This is the same finding as was reported by the external evaluation of the multi-country evaluation of the Catalytic Initiative / Integrated Health Systems Strengthening Programme in 2014 which reported that *'the modelled mortality rates did not align with those measured in household surveys. Two potential reasons*

for this misalignment could be that factors outside of the health sector could have contributed to mortality declines, and/or incorrect assumptions were used for coverage of high impact interventions without empirical data available to run the LiST model.’[6]

#### *Estimated reduction in disease-specific mortality*

155. For the modelling of reduction in disease-specific mortality, ICF entered data on appropriate treatment for malaria, diarrhoea and pneumonia by any provider from the baseline and end-line surveys into the model which applies standardised estimates of treatment effectiveness based on global evidence analysed by expert groups. The model generated estimates of a total of 3,599 deaths averted, ranging from 1,667 lives saved in the DRC to a negative estimate of 2,445 additional deaths in Mozambique because of reduced coverage of antibiotic and antimalarial treatments.

**Table 14. Modelled estimates in reduction of cause-specific mortality (number of lives saved)**

Programme	ORS	Zinc	Antibiotics*	ACTs in 24 hrs	Total
DRC	395	136	521	615	1,667
Malawi	20	48	534	- 2	600
Mozambique	15	213	- 1,247	- 1,426	- 2,445
Niger	562	178	53	327	1,120
Nigeria, Abia State	375	102	517	399	1,393
Nigeria, Niger State	275	88	415	486	1,264
<b>Total</b>	<b>1,642</b>	<b>765</b>	<b>793</b>	<b>399</b>	<b>3,599</b>

Source: ICF final evaluation reports (all programmes) \* No distinction was made between Amoxicillin and Cotrimoxazole used in several countries at the time of the baseline survey

156. The modelled estimates of the number of lives saved with ORS and Zinc treatment for diarrhoea were the highest, but when the idiosyncratic modelling results from **Mozambique** were discounted, the estimated number of lives saved by community treatment for malaria and pneumonia are in the same order of magnitude. This is surprising as the main cause of mortality in the programme areas was malaria. The highest impact of community case management would have been expected for malaria treatment. In interviews with health facility staff by the evaluation team, reduced mortality from malaria was most often mentioned.

157. The LiST model does not differentiate between the sites of treatment, whether in a hospital, health centre or in the community which is acknowledged in the ICF reports as a possible confounder. However, the main problem with the input data is that they were based on treatment reports provided by caregivers in survey responses.

158. Caregivers asked about the treatments given to their sick children are not always able to distinguish between an antibiotic, antimalarial or antipyretic medication, especially when they are questioned about treatments by ‘any provider’. Although the medicines dispensed by the iCCM-trained CHWs had a standardised formulation that could be shown to the respondent by the survey team, ‘any provider’ would have included pharmacies and other treatment outlets that would have provided many different types of medicines with different appearances and formulations. Furthermore, the introduction of RDT testing for malaria in the period between the baseline and the end-line survey would have decreased the use of malaria treatments in children with fever who did not test positive. It is unlikely that caregivers were fully aware of this change, thereby inflating the denominator of children with malaria. For pneumonia this is a common and well documented issue. A 2013 study that examined the use of the antibiotic treatment indicator in DHS and MICS surveys found that the great majority of

children with reported symptoms of pneumonia by their caregivers did not have pneumonia and the responses therefore highly inflated the denominator.[12]

159. Because of these constraints, the only credible model estimate of specific mortality reduction is for diarrhoea treatment with ORS and zinc. The diagnosis of diarrhoea does not require a diagnostic test. Modelled estimates of mortality reduction through treatment for malaria and pneumonia are likely to be grossly underestimated because the input data are not sufficiently reliable to generate a valid model output.

## INVESTIGATION AREA 5

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160. The evaluation in this area examined the extent to which the RAcE Initiative contributed to the achievements of gender equality results. Two evaluation questions were formulated under this area and further stratified in a number of sub-questions.

### EVALUATION QUESTION 14

#### **To what extent were gender equality dimensions included in the design and development of RAcE programmes?**

Gender was mainstreamed in the proposal submitted by WHO GMP to Canada. Commitments included the monitoring of sex disaggregated data for diagnosis and treatment indicators, gender equality in the selection and training of CHW, gender sensitivity in new or revised iCCM documents as well as the identification of a gender equality advisor for the Initiative. None of these commitments were consistently implemented and there was little evidence of effective actions to address barriers to gender equality, for example, in the recruitment of CHWs. One of the likely root causes for this is that none of the programmes carried out a gender analysis at the start of the Initiative.

161. The proposal of WHO to Canada states that *‘enhancing access to appropriate care for malaria, pneumonia and diarrhoea in young children is inherently a gender rather than a biological/medical issue’*. [24] To mainstream gender in the programmes, the proposal included four commitments:

- The overall performance monitoring framework requires for all indicators to assess gender and environmental dimensions where possible. In the same line, the WHO/GMP proposal commits to reporting results disaggregated by sex for the *‘number of boys vs. number of girls receiving diagnosis and treatment’*.
- The proposal also stresses that efforts will be undertaken to *‘ensure gender equality in the selection and training of CHWs, as in accordance with local sensitivities in project countries’* and commits to deliver gender-disaggregated reports on CHWs recruited and trained.
- The RAcE logic model incorporates an output on the development of iCCM norms, standards and guidance *‘including those related to gender equality’*.
- The proposal committed to identifying *‘a gender equality advisor or specialist to be part of the project team and be responsible for gender equality aspects in project implementation.’*

162. In 2015, in response to questions by Canada on the 2014 Annual Report by WHO, the RAcE Secretariat summarised the information on gender equality issues obtained primarily from baseline survey reports and reports from implementing partners.[25] Although this summary includes some information about demand and supply-side gender equality issues, it was not further analysed, nor did it result in any suggestion for a gender analysis or a gender mainstreaming strategy. In the 2016 Annual Report, the gender equality dimension of the RAcE programme was summarised as follows, without, however, providing evidence or analysis:[26]

- No country has reported any observations of a gender bias in treatment of children.

- All countries actively promote recruitment of female community health workers, both as policy and in practice.
- Most countries describe an increasing consensus that female CHWs see more sick children, perform duties better, and have greater access to caregivers.
- All countries report social mobilisation activities targeting both genders, and the resulting group is a mix of men and women, but with a higher level of female participation.
- Women often are primary caregivers. The presence of a community health worker in proximity contributes not only to their ability to accomplish daily tasks efficiently, but also increases the likelihood of care-seeking from a trained health worker and receiving free and appropriate treatment.
- In some areas like **Niger State**, Nigeria, women's groups and women's religious groups are influential, and RAcE community mobilisers specifically target these organisations as partners and leaders in increasing care-seeking activities.

163. The evaluation did not find evidence that any of the commitments to gender mainstreaming were consistently planned for or delivered. There was no information on the appointment of a gender equality advisor in any of the documents or key informant interviews. Reports of implementing partners did not disaggregate data by sex for diagnosis and treatment indicators. Few efforts were visible to ensure gender awareness in iCCM norms, standards and guidance and the reviewed documents are by and large mostly gender neutral or unaware. Gender equality among CHWs was only achieved in two districts in the five countries. In the remaining districts either a majority of women or a majority of men were nominated as CHWs. The last recruitment of CHWs in **Malawi** predates the inception of the RAcE programme.

164. To get a more nuanced perspective on gender equality in the design and development of the programme, the evaluation question was analysed in depth through three sub-questions focussing on (a) the conduct and use of a gender analysis, (b) gender awareness in monitoring practices and (c) treatment differentials between boys and girls.

### *Participatory gender analysis*

165. The conduct of a gender analysis was neither planned nor executed in four of the five countries (**DRC, Nigeria, Mozambique** and **Malawi**). Key informants of the implementing partners in these countries highlighted that the activity was not part of their contract with WHO. This was different in **Niger** where gender was mainstreamed in the programme design and a gender analysis and the development of a gender strategy were part of the first Grant Agreement Letter signed by WHO and World Vision. There was no evidence, however, that these two components were implemented.

### *Monitoring, analysing and communicating sex-disaggregated data*

166. Data were disaggregated by sex in the CHW registers in all countries. The level of detail recorded, and the quality of the data varied. In **Nigeria, DRC, Malawi** and **Mozambique**, the disaggregation by sex is progressively lost in the process of data integration in the national health information system. This was different in **Niger** where data in the national health information system are disaggregated by sex. The latter, however, does currently not disaggregate between community, and health care facility data which means that sex-disaggregated data from the community level were also not available.

167. There was no evidence in any of the programmes that monitoring data were analysed disaggregated by sex. This was the case even for **Nigeria**, where both the base- and end-line surveys and

the CHW databases documented diagnosis and treatment differentials between boys and girls. A review of the Malaria Consortium database of Lapai LGA of **Niger State** by the evaluation team, for instance noted that over the past five months 22 percent more boys than girls had accessed iCCM services. This finding, which may have several reasons including data entry errors, had not been noticed nor analysed by the programme partners.

168. Because sex-disaggregated data for specific treatments were not generated from CHW reports in the programme databases, these data were collected in end-line household surveys or data review studies. The results were reported in the final evaluation reports of ICF, including some statistically significant differences for specific treatment indicators in **Nigeria** and **Malawi**. No statistically significant sex differences in access to care were, however, detected. An end-line population survey, however, is not a monitoring tool, and detecting sex differences in treatment access after the programme has finished does not help in analysing and addressing causes. Monthly information about sex differences in access to iCCM services were available from CHW registers and could have been analysed in real time and reported in the quarterly reports to WHO. The registers did not include information of sex-differences in access to specific treatments, although this information could also be generated from some of the databases. It is, however, less relevant for monitoring gender equality than information about overall differential access to treatment which could have been tabulated each month with relatively little effort.

169. The performance monitoring frameworks (PMF) in all but one of the programmes (**DRC**) requested for disaggregation by sex for all diagnosis and treatment indicators. None of quarterly and annual reports reviewed by the evaluation team complied with this requirement. Considering the contractual commitments on gender between WHO and Canada (and between WHO and implementing agencies in **Niger, Nigeria, Mozambique** and **Malawi**), it is surprising that this non-compliance was not addressed.

### *Reflection on potential reasons for gaps in treatment access between girls and boys*

170. As described in the previous paragraphs, there was no evidence that monitoring data were analysed disaggregated by sex in any of the countries. In the two countries where specific gender gaps were found during the end-line survey, i.e. in **Nigeria** and **Malawi**, the reasons for the differences were not analysed nor further communicated.

## **EVALUATION QUESTION 15**

**To what extent has the RAcE programme contributed to gender equality among community health workers and members of the targeted communities?**

There was no conclusive evidence that the RAcE programme made consistent and successful efforts in promoting a gender balance in the recruitment of CHWs.

Due to lack of gender mainstreaming in the programme design, the RAcE programme made few intentional contributions to addressing gender inequality or systemic gender discrimination on the demand and supply side of iCCM.

171. The promotion of gender equality in the selection and training of CHWs was part of the commitments of the RAcE proposal but there was no commitment to changing gender related perceptions and practices for child health care at the community level. Due to the absence of a gender analysis at the start of the programmes, and data inconsistencies in country progress reports, the investigation of this evaluation question was not without challenges. In focus group discussions with CHWs and caregivers, examples of effects of the programme on gender equality in the communities were rarely mentioned and could not be triangulated with information from other data sources.

## Gender dimensions in the selection of CHWs

172. Despite the commitment in the WHO/ GMP grant proposal to undertake efforts for reaching a gender balance among CHWs, the results were inconsistent and only two districts, one in **Mozambique** and one in **Niger** met the target. The CHWs in the district in **Mozambique** had been mostly recruited before the start of the RAcE programme. The sex of CHWs was not generally monitored, but some information is available from programme reports and from the RAcE Secretariat Response to Canada on questions about the RAcE Annual Report 2014.[25]

**Table 15. Proportion of female CHWs in 2017**

Programme	Female CHWs
DRC*	20%
Malawi**	30% - 35%
Mozambique*	31%
Niger*	32%
Abia State*	88%
Niger State*	14%

Sources: \*RAcE Secretariat response to questions by Canada on 2014 Annual Report;[25]; \*\* The RAcE programme has no influence on CHW recruitment, but SC reported that 35% of CHWs attending training were female and the ICF end-line survey reported that 30% of CHWs in sampled communities were female

173. In **Malawi**, the RAcE programme was not involved in the recruitment of CHWs and most CHWs were already in place before the programme commenced. There is no evidence that the programme invested efforts to influence the government and communities to progressively increase the number of female CHWs by replacing male drop-outs with women, although this was mentioned by one interviewed respondent. In **Mozambique**, there was also no evidence that the RAcE programme affected the gender balance of CHWs. Although challenges related to recruiting women were discussed, no actions were taken to increase their enrolment.

174. In **Nigeria** and the **DRC**, the election or nomination of female CHWs was actively promoted by the programmes. This resulted in an overrepresentation of female CHWs in **Abia State** where the literacy of women is high. In **Niger State**, practically no women were nominated by village leaders. The high level of illiteracy among rural women in northern **Nigeria** was cited as the main reason. In the **DRC**, high illiteracy among women was also mentioned as the reason for the predominance of male CHWs. According to key informants, some changes were noted after the introduction of the simplified pictorial registers and training tools with an increasing number of women being proposed as CHW candidates by their communities.

175. In **Niger**, equal gender representation was formulated as a target in the proposal, but key informants gave inconsistent information about efforts to increase the nomination of female CHWs.

176. The two root causes of constraint for recruiting female CHW in all programmes were low literacy levels of women and unequal power relationships in households. According to some FGD and KII responses, women in some communities require the authorisation of their spouses to apply for a CHW position which may be denied because they are expected to be absent from the house for training and meetings. Other than the introduction of pictorial reporting tools in the **DRC**, no strategy was developed by any programme to respond to the issue of female illiteracy. The results show that the promotion of female candidates was insufficient to achieve gender equality among CHWs in contexts where the literacy level of women is low and unequal power relationships prevail.

177. There was no conclusive evidence on whether or not the appointment of male or of female CHW was more advantageous. Focus groups In Muslim communities mentioned that women could more easily carry out follow-up visits in homes than their male counterparts because men are not allowed to



enter the patients' houses in the absence of the family head. This was also reported in **Malawi**, especially for the maternal and neonatal community care sites. At the same time, female CHWs in some communities are more restricted in their movements, in particular in insecure areas and after nightfall which may be an obstacle to their ability to carry out follow-up visits. In some community groups, women reported that it was easier for them to consult CHWs of the same sex, but this was not universal. Supervisors and programme staff in several, but not all, programmes reported that female CHWs were more reliable and motivated, more available and had lower attrition rates as they were less likely to migrate for work.

### *Inclusion of gender equality dimensions in iCCM training materials*

178. To assess the level of gender awareness of the iCCM training materials, the evaluation team analysed the type of images and examples used, and screened the content for the inclusion of gender specific social norms and practices related to child care in the country. Images and graphics were rated as gender sensitive/ aware when both men and women were shown in the role of care seekers and health care professionals. They were rated as gender neutral when the sex of the caregiver or health care professional was not mentioned or visible in the text. Manuals that used only women as care seekers and only men as health care professionals were classified as gender unaware because they contribute to perpetuating stereotypes that women and girls are solely responsible for child health and that positions of health care professionals are reserved for men.

179. The analysis of the training material showed that only one manual – the one of the **DRC** – was gender sensitive. It shows both men and women involved in health care and includes a discussion on gender roles in child health care. None of the guidance materials of the other four countries includes a section on gender norms and practices in child health care. The materials from **Nigeria** contain very few images. The images are gender balanced for health care professionals, but not for care-seeking where only female caregivers are used as examples. The manuals of **Niger** and **Mozambique** make use of either gender-neutral or gender-unaware images. In **Malawi**, only images of women are used to depict caregivers and health care professionals in iCCM training materials. Overall, it can be concluded that the RAcE program made little use of the opportunity for promoting gender equality in child health care during the development or revision of iCCM training material.

### *Participation of women in health service design, delivery and review*

180. The triangulation of data confirmed that women participation in health care delivery increased due to the presence of female CHWs and the representation of women in community health care committees.

181. The evaluation team did not find evidence of an increased participation of women in planning and designing health care delivery at the community level. In some focus group discussions in **Malawi**, participants reported that the increased involvement of women in community action groups resulted in an increase in the participation of women in health service reviews.

### *Empowerment of women to make informed health choices*

182. To answer questions on empowerment, the evaluation team analysed the following dimensions: increase in knowledge of female caretakers to recognise the signs of severe childhood illnesses, care seeking decision-making at household level and qualitative evidence that the programme strengthened the status of women in the community.

- The indicator on caregivers' ability to recognise two or more signs of severe childhood illnesses was measured in the base- and end-line surveys. The results on this indicator were mixed. Knowledge

remained high and without significant changes in **Malawi** and **Niger**. In the **DRC**, the percentage of caregivers knowledgeable about childhood illnesses decreased (from 85% to 41%) which is a surprising finding. In **Mozambique** and the two programmes in **Nigeria**, the knowledge of mothers on childhood illnesses significantly increased.

- Data on decision-making about care-seeking were also collected in the baseline and end-line surveys. The findings showed changes in some countries, but none in others. In **Niger** and **Malawi**, joint decision making of parents to seek health care increased significantly which suggests an increased involvement of fathers in child health care. In the **DRC**, on the other hand, joint decision making of spouses decreased whereas autonomous decision making by women for seeking health care for children increased.
- Changes in the status of women were mentioned rarely in interviews and focus group discussions. Respondents, especially in **Abia State**, mentioned that female CHWs became more respected and autonomous as a result of their work.

183. Due to the absence of a gender analysis, however, it cannot be concluded that the RAcE programme impacted positively or negatively on the status of women and their capacity to make informed choices to protect their health and rights and those of their children.

## CONCLUSIONS

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### WHAT DID THE RAcE INITIATIVE ACHIEVE?

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184. The RAcE Initiative was not a 'proof of concept' programme to further strengthen the evidence of the efficacy of comprehensive community case management of childhood illnesses. It set out to show that proven effective approaches to service delivery at community level can be delivered as components of national health systems. It did this by providing support to strengthen these system components where they already existed, i.e. in **Malawi** and **Mozambique**, to operationalise them where they were already included in national policies and strategies, i.e. in **Niger** and the **DRC**, and to introduce them where they did not exist, i.e. in **Nigeria**.

185. In all these contexts, the RAcE Initiative showed that iCCM can fill important gaps in national strategies for universal health coverage (UHC) by creating access to essential health services for children who need timely treatment for malaria, diarrhoea and acute respiratory infections but who live in communities that were too remote to have timely easy access to primary health care facilities. It documented that community case management services in areas where there are no health facilities are readily taken up and highly appreciated by the caregivers of children. It underlined that delivering iCCM as a health systems component requires its integration in the other health systems building blocks rather than operating community case management as a parallel programme activity. This includes:

- Systems that assure the uninterrupted supply of quality medicines to the community level
- National human resources for health frameworks that include CHWs
- A national health management information system that routinely captures community treatment data
- The integration of iCCM in the national health system financing framework
- The implementation of effective strategies for community engagement and demand generation

186. The RAcE Initiative showed that iCCM services continue to be highly dependent on international funding which is their greatest threat to sustainability. While the delivery of facility-based services can mitigate financing gaps and medicine stock-outs by charging users fees or issuing prescriptions, these

options do not exist for community treatment services which are therefore more vulnerable to interruptions in medicine supplies and supervision.

187. Despite the fact that there is strong evidence for the efficacy of iCCM as a strategy for child survival, important knowledge gaps remain. These are primarily contextual. More evidence on iCCM has been generated in the Asian than in the African context. The evaluation of the RAcE Initiative concluded that for the effective integration of iCCM in health systems and UHC strategies in Africa, additional knowledge needs to be generated, particularly about:

- How to establish and maintain a motivated cadre of CHWs
- How to effectively engage communities in supporting and maintaining iCCM services
- What is the most appropriate gender profile of CHWs and how to achieve it
- How to mainstream the objective of gender equality in the delivery of iCCM services

188. While the evaluation of the RAcE Initiative documented qualitative evidence that iCCM contributed to the reduction of child mortality, it could not validate the modelled estimates of the rate of reduction because input data for reliable modelling were not available. These will only become available when there are significant improvements in national civil registration and vital statistics systems and in community health information systems.

#### DID THE RAcE INITIATIVE RESPOND TO THE NEEDS AND PRIORITIES OF THE MAIN STAKEHOLDERS IN NATIONAL HEALTH SYSTEMS AND WAS IT IN LINE WITH NATIONAL HEALTH STRATEGIES?

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189. The RAcE Initiative was well aligned with national health policies and strategies in all five programme countries. Ministries of health were closely involved in designing and planning the RAcE programmes, including in the selection of regions and communities to receive services. Supported by the WCOs, the ministries of health led the coordination fora and technical working groups on iCCM in all countries and had primary responsibility for assuring the complementarity and coordination of internationally-supported iCCM programmes.

190. The RAcE Initiative reached a very large number of children and met the objectives of iCCM to increase access to health care, especially in areas where children had previously no access to effective treatment of malaria, diarrhoea and pneumonia. Conclusions that can be drawn from the RAcE Initiative about meeting the needs of children include:

- iCCM is an effective health systems intervention to meet the health care needs of children in rural areas with weak health facility infrastructure.
- iCCM has limitations in serving communities that are too dispersed or too remote from health facilities to assure regular supply and supervision of CHWs. For children in these communities, alternatives to iCCM need to be explored.
- When alternatives to iCCM exist, such as private providers who charge for services or public facilities without 24 hr access or available medicines, caregivers will readily switch their care-seeking towards well supplied CHWs who provide services free of charge. In the context of the RAcE Initiative, this increased the quality of care, but it is not certain that this is always the best option from a health systems perspective.

191. **Based on these findings, the evaluation recommends that national health authorities be supported in mapping communities and health services in order to target the provision of iCCM services to those communities where iCCM offers the most effective and the most cost-effective option for timely quality health service delivery to children. This should include the evaluation of all alternative options to improve access to care that may exist.**

## DID THE RAcE INITIATIVE CONTRIBUTE TO ENHANCING THE UTILISATION OF ESSENTIAL HEALTH COMMODITIES TO DIAGNOSE AND TREAT CHILDREN IN PROGRAMME COUNTRIES?

192. National systems for procurement and supply-chain management (PSM) of iCCM commodities were used fully or partially in all countries except in **Malawi** where a parallel system was maintained throughout the programme. In **Mozambique**, national PSM systems were used from the start, but support for procurement and supply up to district level was provided by other development partners and not included in the RAcE programme. In the other programmes there was a gradual transfer of responsibility to national PSM, combined with some capacity strengthening of national institutions which was, however, in all cases only partial and only applied to specifically identified weak links in the supply chain. All programmes experienced some stock-outs of medicines. Major stock-outs over long periods were only reported in **Mozambique** and the **DRC**. As the programmes were nearing their end, or after they had ended, the frequency and extent of stock-outs increased. The reasons in some countries were financial related to the allocation of budgets for the continuation of services, but they were also due to systems weaknesses to move commodities from central to community sites according to needs. Even minor interruptions of commodity supplies can have major effects on community confidence and adherence to iCCM services.

193. **Based on these findings, the evaluation recommends that support for the introduction or expansion of iCCM should be based on the assurance that there are functional national systems for an uninterrupted supply of iCCM commodities to the community level.**

194. Integrating iCCM in the health system as supported under the RAcE Initiative has drawn attention to the requirement of assuring a functional continuum of care. Effective iCCM requires a reliable first level referral service for children who cannot be treated by CHWs. Several RAcE programme proposals by sub-grantee agencies included plans to strengthen the capacity of primary health care facilities, but they were not fully implemented. District supervisors in several programmes noted that CHWs often perform better in adhering to diagnostic and treatment algorithms than staff in primary health care facilities. Shortage of medicines in facilities was a common complaint heard in community FGDs. In three programme reviews, respondents mentioned that sick children were referred by health facility staff to CHWs because medicines were not available at the health facility.

195. **Based on these findings, the evaluation recommends that support for iCCM be firmly linked to a needs analysis for the continuum of care, and that first level referral facilities for CHWs are included in the support to assure that they have the capacity and the supplies to treat referred children.**

196. Under the RAcE Initiative, about 8,900 CHWs were trained of whom about 7,400 were active at the time of programme closure or the time of the evaluation mission. Attrition rates were highest in the **DRC** which was to a large extent explained by the insecurity in the programme region and related displacement of communities. CHWs in the RAcE programme countries are volunteers, except in **Malawi**, where they are salaried employees of the Ministry of Health. Different approaches to maintain their motivation and retention were used by RAcE programmes in line with national policies. Interviewed CHWs in all programmes affirmed that training opportunities, supportive supervision, the uninterrupted supply of commodities and the recognition and status in the community were their main motivating factors. However, all of them also stated that they required financial support to compensate them for the time spent on treatment, follow-up and reporting. Common issues raised were the low level of stipend payments that did not keep pace with inflation, the irregularity of payments, and the insecurity of stipend payments that varied with the source of international funding and did not always follow national guidelines where they existed. Material or financial support of CHWs by their communities (construction of houses, bicycles, stipends, etc.) were promoted and monitored by several

programmes and highlighted in annual programme reports. A number of interviewed CHWs acknowledged receiving some support, but none considered it a substantive contribution to their own motivation.

**197. Based on these findings, the evaluation recommends that support for the roll-out of iCCM should include advocacy for the inclusion of CHWs in the national human resources for health framework as a salaried workforce or, where this is not accepted by governments, as a volunteer cadre with a fixed minimal level of stipends and incentives that is commensurate to the scope of expected services.**

198. The RAcE programmes used multiple approaches for demand creation for iCCM services that were largely effective. This is documented in the surveys and FGDs which confirmed that the great majority of community members considered CHWs as trusted health care providers and would choose them as their first source of care for a sick child. Community engagement strategies to promote the support of CHWs by their communities, however, had mixed results. Some successful examples were cited in programme reports, but the KIIs and FGDs conducted by the evaluation team indicated that these were exceptional and anecdotal. Several community discussions revealed a disconnect between the offer of iCCM as a 'free health service' to communities, and the expectation that communities provide support to maintain this service.

**199. Based on these findings, the evaluation recommends that further research is conducted to better understand the role and the effectiveness of community engagement strategies for iCCM, including an assessment of the community role in contributing to CHW motivation and retention.**

#### DID THE RAcE INITIATIVE CONTRIBUTE TO A SUPPORTIVE POLICY AND REGULATORY ENVIRONMENT FOR iCCM AS A KEY COMPONENT OF HEALTH CARE SERVICE DELIVERY?

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200. The RAcE Initiative was implemented by WHO through sub-contracts to national or international NSAs that were selected through competitive bidding. This was a new programme modality for WHO which usually implements programmes through direct support of government. The results of sub-grantee implementation were positive and they were appreciated by the majority of respondents in KIIs. The WCOs, with support of the Regional Office (RO) and the GMP, provided normative support for the development or revision of iCCM policies, strategies and tools to central governments. This generated progress towards more supportive policy and regulatory environments for iCCM. The contracted NSAs, on the other hand, provided operational support to decentralised levels of government. There was an effective flow of information between the decentralised implementation and the central policy level, assuring that the experience of RAcE fed into national policies and strategies and into the partner coordination dialogue. Some key informants at national and global level, however, cautioned that the sub-granting approach should not be viewed as a universal best practice, but rather as a transitional approach to be applied on the basis of an assessment of systems and capacities of governments and potential NSA implementing partners.

**201. Based on these findings, the evaluation recommends that programme implementation through NSAs be adopted as a possible alternate option to the established approach of direct implementation support to governments, based on a contextual analysis and a capacity assessment of potential future government and NSA programme partners.**

202. The RAcE implementing partners conducted ten operational research studies on issues such as supervision systems for CHWs, appropriate training and data collection tools, or the use of mHealth for improving quality of care and data collection. The final results of most had not yet been disseminated or discussed at the time of the evaluation. Other research results and lessons drawn at the level of the RAcE Initiative were also still being prepared for documentation by WHO. At the time of the evaluation,

it was too early for a full assessment of the contribution of the RAcE Initiative to new knowledge and to improved guidance on iCCM as a component of national health systems.

**203. Based on this finding, the evaluation recommends that the work on consolidating, documenting and communicating the knowledge generated by the RAcE Initiative should be concluded as soon as possible and fed into updated and improved normative guides on iCCM policies and programmes.**

204. The national policy and regulatory environment for iCCM is a major determinant of the sustainability of services. The RAcE programmes contributed extensively to this dimension, for instance by supporting the inclusion of iCCM in national health strategies. While much was achieved in this area, including the creation of iCCM budget lines in national or sub-national health budgets, iCCM services in the five programme countries continue to be predominately funded by international development partners. Appropriation of funds for iCCM budgets from national resources was at best partial and in most countries contingent on on-going international grant negotiations. This created critical situations of medicine stock-outs and reductions of CHW supervision as the RAcE programmes were nearing their end. To avoid iCCM service gaps in RAcE programme areas, a process of sustainability planning was initiated in 2016. It was still on-going in some countries at the time of the evaluation. While the structured process was highly appreciated by all key informants at country level, most were of the opinion that starting it in the last programme year was too late, and that financing gaps could have been avoided if a sustainability roadmap would have been developed and implemented from the start of the programme.

**205. Based on these findings, the evaluation recommends the assessment of the funding gaps for the continued financing needs of iCCM services in the RAcE programme areas, and the provision of assistance to partner governments in mobilising resources to avoid the disruption of services. Furthermore, in future support to iCCM, the financing needs of iCCM should be estimated beyond the planned programme support period, and activities implemented from the start to mobilise funds from national and international sources to continue services after the end of the planned support programme.**

#### DID THE EVALUATION CORROBORATE THE ESTIMATED CHANGES IN iCCM TREATMENT COVERAGE AND CHILD MORTALITY MODELLED BY ICF?

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206. Data collected by the evaluation provide evidence that the RAcE Initiative contributed to a reduction in child mortality. This evidence is based on qualitative data collected in focus groups and interviews. The mortality reduction estimated with the aid of the Lives Saved Tool (LiST) model could, however, not be corroborated. An assessment of the input data used for the model estimates found that they were not sufficiently reliable or sufficiently specific for the population covered to generate credible model outputs. Input data for valid modelling of the impact of iCCM on child mortality in the RAcE programme countries did not exist.

**207. Based on this finding, the evaluation recommends that enhanced support be provided for the development and implementation of quality civil registration and vital statistics systems, as well as the integration of reliable community health data in national health management information systems in order to generate information about the impact of iCCM that can be used for planning health services.**



## DID THE RAcE INITIATIVE CONTRIBUTE TO ACHIEVEMENTS OF GENDER EQUALITY RESULTS?

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208. The RAcE Initiative did not live up to its commitments on gender mainstreaming. The evaluation found no evidence that a gender analysis was done in any of the programmes nor that gender mainstreaming was pursued actively. Causes for sex differences in treatment access were not analysed. Gender issues in the performance, the status and the recruitment of CHWs were noted but root causes were not explored and addressed. Effects of the introduction of iCCM services on decision making about care-seeking in families were commented but not systematically documented. The low level of gender-awareness of the RAcE Initiative programmes was a missed opportunity to generate knowledge about gender equality issues on the supply and demand side of iCCM services.

209. **Based on this finding, the evaluation recommends that systematic reviews of gender equality issues in the supply and demand of iCCM be conducted in different social and cultural contexts with the aim to provide input on gender equality and gender mainstreaming in iCCM policies and guidelines.**

## KEY LESSONS FOR GOVERNMENT PARTNERS IN THE RAcE INITIATIVE

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210. The evaluation was based on data collected at programme level, but it was not an evaluation of each country programme. While the recommendations of the evaluation are addressed to WHO, there are a number of lessons that can be drawn for partner governments in the RAcE Initiative. The Initiative demonstrated that iCCM is a mature component of a UHC strategy in countries with populations that live beyond easy reach of primary health care facilities. As such, iCCM has to be treated as an integral part of the national health system which requires governments to:

- 1) Assess the feasibility, efficiency and effectiveness of all options to increase health service coverage and access, including through iCCM, keeping in mind that timeliness of access is critical for child survival. iCCM services should be targeted at communities where constraints of providing services through health care facilities cannot be overcome with other available means and resources.
- 2) Assure that the uninterrupted supply of quality commodities for the community level are an integral part of national procurement and supply planning and management systems. iCCM services can only function when there is an uninterrupted supply of commodities.
- 3) Acknowledge that CHWs are part of the national health service workforce. The option of salaried CHWs may not be feasible or acceptable in all countries. Volunteer workers, however, also require financial support that is commensurate to their scope of services and the associated effort. A situation where incentives and stipends are negotiated separately by each international health project is not conducive to maintaining a stable cadre of volunteers providing iCCM. Supervision of CHWs also has to be included in national human resource planning.
- 4) Assure that there are functional systems and mechanisms to feed iCCM data into the national health management information system. iCCM services are part of national health service delivery, and they can only be planned and resourced when there are reliable monitoring data on the same level and platform and in the same format as other health service monitoring data.
- 5) Integrate the cost of providing iCCM in the national health financing framework and budget estimates and assure that iCCM receives equal attention in budgeting and financing from national and international sources as other priority health services.
- 6) Analyse, on the basis of services to be provided and on the basis of social context, whether iCCM services are best provided by male or female CHWs, or if they require paired CHWs of both sexes.

Analyse any gender-related constraints in recruiting CHWs such as differential education levels or systemic gender discrimination and develop strategies to overcome them.



## RECOMMENDATIONS

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211. The evaluation of the RAcE Initiative generated four key recommendations to WHO

**Recommendation 1.** Considering that iCCM services established under the RAcE Initiative are threatened by financing gaps, WHO should take immediate action to assure that the achievements of the RAcE Initiative are not lost by:

- Working with partner governments in assessing potential funding gaps for iCCM in RAcE programme areas and assisting ministries of health in resource mobilisation to assure that the services established in these areas continue without interruption.

**Recommendation 2.** Considering the effectiveness of implementing the RAcE Initiative through sub-grantee contracts with non-state actors, WHO should:

- Include programme implementation through NSAs as a possible alternate option to the established approach of direct implementation through governments, based on a contextual analysis and a capacity assessment of potential government and NSA programme partners.

**Recommendation 3.** Considering that the RAcE Initiative generated new evidence on implementing iCCM as a health systems intervention for the achievement of universal health coverage which is, however, not yet fully documented and disseminated, WHO should:

- Consolidate and disseminate the lessons learned by RAcE and apply them in consultation with technical partners to updating the guidelines for 'Caring for the Sick Child in the Community' that are currently integrated in the multi-agency planning handbook 'Caring for Newborns and Children in the Community'
- Initiate actions to close persistent knowledge gaps, by:
  - Supporting research to better understand the role and the effectiveness of community engagement strategies for iCCM, including an assessment of the community role in contributing to CHW motivation and retention.
  - Conducting, in collaboration with interested partners, a systematic review of gender equality issues in the supply and demand of iCCM in different social and cultural contexts.

**Recommendation 4.** Considering that the RAcE Initiative underlined the role of iCCM services in national health systems development for the achievement of universal health coverage, WHO should focus its technical and programme support on iCCM to ministries of health and development partners at country level on:

- Targeting iCCM services at remote rural communities living distant from health facilities, while in each case examining all possible options to assure that children have timely access to quality health care, including alternate options to iCCM if these exist.
- Embedding programme support to iCCM firmly in a system of a continuum of care by assuring that first level referral facilities for CHWs have the capacity to provide accessible and affordable quality services to referred children.
- Assuring that national systems are in place to manage the provision of an uninterrupted supply of iCCM commodities to the community level, or that support to iCCM programming is paralleled by support to the development of such national systems.
- Advocating for the inclusion of CHWs in the national human resources for health framework as a salaried workforce or, where this is not accepted by governments, as a volunteer cadre with a fixed minimal level of stipends and incentives that is commensurate to the scope of expected services.
- Supporting the development and implementation of quality civil registration and vital statistics systems, as well as the integration of reliable community health data in national health

management information systems in order to generate valid information about the impact of iCCM on the reduction of child mortality.

- Assuring that financing of iCCM services (from domestic or international sources) is firmly embedded in the national health financing framework, keeping in mind that iCCM services easily break down when there are financing gaps interrupting supervision and the flow of commodities.

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