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ABBREVIATIONS

General	
ACT	Artemisinin-based Combination Therapy
AL	Artemether/lumefantrine (ACT)
BCC	Behaviour Change Communication
BMGF	Bill and Melinda Gates Foundation
CA	Contribution Analysis
CCM	Community Case Management (of malaria)
CD	Community Dialogue
CHAI	Clinton Health Access Initiative
CHE	Current Health Expenditure
DHIS2	District Health Information System (cloud-based HMIS platform)
DHS	Demographic and Health Survey
FGD	Focus Group Discussion
FP	Family Planning
GAC	Global Affairs Canada
GAL	Grant Agreement Letter
HF	Health Facility
HMIS	Health Management Information System
iCCM	Integrated Community Case Management
ICF	ICF (US consulting company)
IMCI	Integrated Management of Childhood Illnesses
IRC	International Rescue Committee
KII	Key Informant Interview
LiST	Lives Saved Tool
LQAS	Lot Quality Assurance Sampling
MC	Malaria Consortium
MICS	Multiple Indicator Cluster Survey
MIS	Malaria Indicator Survey
MOH	Ministry of Health
ORS/Zn	Oral Rehydration Salt & Zinc
PCR	Polymerase Chain Reaction
PMI	Presidential Malaria Initiative
PPH	Post-partum Haemorrhage
PSI	Population Services International
PSM	Procurement and Supply Management
PT	Process Tracing
QoC	Quality of Care
RAcE	Rapid Access Expansion (Initiative)
RDT	Rapid Diagnostic Test

RUTF	Ready-to-Use Therapeutic Food
SC	Save the Children
SFH	Society for Family Health
Sida	(Development Agency of the Government of Sweden)
TBA	Traditional Birth Attendant
TGF	The Global Fund to Fight AIDS, Tuberculosis and Malaria
THE	Total Health Expenditure
ToC	Theory of Change
ToT	Training of trainers
U5MR	Under-five Mortality Rate
DRC	
AS	Aire de Santé
ASF	Association de Santé Familiale
BCZS	Bureau Central de la Zone de Santé
CADMETA	Centrale d'Achat et de Distribution des Médicaments Essentiels dans le Tanganyika
DPS	Division Provinciale de la Santé
ECZS	Équipe Cadre de la Zone de Santé
GIBS	Groupe International de Bailleurs en Santé
IT	Infirmier/ière Titulaire
ITA	Infirmier/ière Titulaire Adjoint
MSP	Ministère de Santé Publique
PECIME	Prise en Charge Intégrée des Maladies de l'Enfant
PECp	Prise en charge des cas de paludisme au niveau communautaire
PNDS	Plan National de Développement Sanitaire
PNLMD	Programme National de Lutte contre les Maladies Diarrhéiques
PNLP	Programme National de Lutte Contre le Paludisme
ReCo	Relais Communautaire (Community Health Worker)
SNIS	Système National d'Information Sanitaire
SSC	Site de Soins Communautaire
ZS	Zone de Santé
Malawi	
CAG	Community Action Group
CBMNC	Community Based Maternal and Newborn Care
CHAM	Christian Health Association Malawi
CMST	Central Medical Stores Trust
CMT	Community Mobilisation Team
cPHC	community Primary Health Care
DHMT	District Health Management Team
DHO	District Health Office
DPAT	District Product Availability Teams
EHP	Essential Health Package

HPAT	Health Product Availability Teams
HSA	Health Surveillance Assistant
HSSP	Health Sector Strategic Plan
HTRA	Hard-to-reach area
MCDI	Medical Care Development International
NCHS	National Community Health Strategy
PSBI	Possible Serious Bacterial Infections
SHSA	Senior Health Surveillance Assistant
TYIIN	Treatment of Young Infant infection in Ntcheu District
VHC	Village Health Clinic
Mozambique	
APE	Agente Polivalente Elementar
CHC	Community Health Committee
DPS	Direção Provincial de Saúde
MISAU	Ministerio de Saúde
PESS	Plan Estratégico do Sector de Saúde
SDSMAS	Serviço Distrital de Saúde, Mulher e Acção Social
Niger	
ASC	Agents de Santé Communautaire
CPADS	Centre de Perfectionnement des Agents de District Sanitaire
CHR	Centre Hospitalier Régional
COGES	Comité de Gestion
CNS	Comptes Nationaux de la Santé
CS	Case de Santé
CSI	Centre de Santé Intégré
CSME	Centre de Santé de la Mère et de l'Enfant
DEP	Direction des Etudes et de la Programmation
DGSR	Direction Générale de la Santé de la Reproduction
DOS	Direction de l'Organisation des Soins
DRSP	Direction Régionale de la Santé Publique
DS	Direction de la Statistique
DSME	Direction de la Santé de la Mère et de l'Enfant
ECD	Equipe Cadre de District
GF	Global Fund
HD	Hôpital du District
HN	Hôpitaux Nationaux
MSP	Ministère de Santé Publique
ONPPC	Office National des Produits Pharmaceutiques et Chimiques
OMS	Organisation Mondiale de la Santé
PCIME	Prise en Charge Intégrée des Maladies de l'Enfant
PCIME-C	Prise en Charge Intégrée des Maladies de l'Enfant au niveau Communautaire (iCCM)
PECADOM	Prise en charge des cas de paludisme à domicile
PSSE	Plan Stratégique National de Survie de l'Enfant au Niger 2016-2020
RCom	Relais Communautaire (Community Health Worker)

SNIS	Système National d'Information Sanitaire
TPI	Traitement Préventif Intermittent
Nigeria	
CHEW	Community Health Extension Worker
CHO	Community Health Officer
CORP	Community-Oriented Resource Person
FoMWAN	Federation of Muslim Women's Associations in Nigeria
GRACODEV	Grassroots Community Development Initiative
LG	Local Government
LGA	Local Government Area
NNHS	National Nutrition and Health Survey
NPHCDA	National Primary Health Care Development Agency
OIC	Officer in Charge
SMOH	State Ministry of Health
SPHCDA	State Primary Health Care Development Agency
VDC	Village Development Committee
VHW	Village Health Worker
WDC	Ward Development Committee

BACKGROUND, APPROACH AND METHODOLOGY

1. The background of the WHO Rapid Access Expansion Initiative (RAcE Initiative) and of the summative evaluation is presented in the main synthesis report (Volume 1). The RAcE Initiative was implemented in six programmes in five countries: Democratic Republic of the Congo, Malawi, Mozambique, Niger, and two programmes in Nigeria in Abia and Niger States. The evaluation team conducted country missions to each country to prepare the country briefs presented in this volume.

2. The approach and methodology of Contribution Analysis and Process Tracing (CA/PT) was applied in the preparation of each of the five country briefs. It is described in detail in Volume 1 and Volume 2 of the evaluation report. The six RAcE programmes were not planned and developed with the use of a theory of change (ToC) framework which is a necessary basis for the methodological approach of CA/PT. For the preparation of the country briefs, the evaluation teams therefore drafted post hoc ToC frameworks. An overall programmatic ToC developed on the basis of the logical model annexed to the GAC contract with WHO served as a template that was adapted to the specific country context with information collected from reports and monitoring frameworks of each of the six RAcE projects. In a workshop at the start of each field mission, the draft ToC frameworks was presented to a group of implementing partners. All intended inputs, outputs and outcomes were reviewed, and the framework was jointly corrected. The evaluation team subsequently added the links to complete the logic chain of changes from inputs to final outcomes. In summary, the common approach followed for the preparation of the country briefs included:

- The preparation of a post hoc theory of change (ToC) framework for each of the six programmes by the evaluation team based on document reviews
- The revision and validation of the ToC frameworks with programme stakeholders in a workshop at the start of the country mission. The participation of stakeholders varied among programmes but generally included programme staff of the implementing NGOs, government partners, and in some countries also external stakeholders involved in iCCM programming
- Data collection in key informant interviews, focus group discussions, site visits to central and decentralised medical stores and reviews of programme documents and databases
- Presentation and discussion of preliminary findings with implementing partners and high level government stakeholders at national, state or provincial level

3. The methodology was applied separately in the two programmes in Nigeria, but because of the central role of the Federal Ministry of Health a single country brief was prepared. Although the same evaluation approach was applied to all programmes, they were implemented in very different environments. In Nigeria, iCCM was introduced by the RAcE initiative; in the DRC, a national policy for iCCM existed, but no prior implementation structure in the programme area; in Niger, Mozambique and Malawi iCCM programmes were already well established with services delivered by volunteer community health workers (CHWs) in Mozambique and Niger, and by salaried Ministry of Health staff in Malawi. Community case management of malaria (CCM) was implemented prior to the RAcE initiative in some form and with varying coverage in all countries and programme areas.

4. For the CA/PT analysis, each of the intended changes at the output, immediate outcome, intermediate outcome and final outcome level of the ToC was evaluated. Question were asked, whether the intended changes occurred fully, partially, or not at all. Some of the changes are complex and have several components. If there were reservations about just one of the components of the output or outcome that was otherwise achieved, this was also noted. The evidence for the assessment of

achievement was collected from the review of databases, surveys, programme documents, national, provincial and district documents of the ministries of health, key informant interviews and focus group discussions. The levels of achievement were coded as follows:

 The intended change was fully achieved

 The intended change was partially achieved

 The intended change was achieved with some reservations

 The intended change was not achieved

5. In a next step, the evidence for the contribution of the RAcE programme to each achievement was analysed by examining the evidence for each of the numbered links of the framework that connect inputs, outputs and outcomes. Three levels of evidence were considered:

- **'Hoop evidence'** assesses the essential conditions that must be met to infer a causal contribution of the programme to the changes at the next higher level of the Theory of Change. For instance, if the reported change is the mobilisation of a given number of community health workers (CHWs), then the training of these CHWs must have taken place. This is a minimal condition which allows a further analysis because the link in the ToC framework 'passes the hoop'. If it is not met, no further assessment is warranted because no contribution of the programme is possible.
- **'Smoking gun evidence'** assess the probability of the programme contribution to the achievement of the intended change. The type of evidence collected in document reviews, key informant interviews and focus group discussions aims at assessing the level of confidence in the validity of the links between inputs, outputs and outcomes. The stronger the evidence for a programme contribution to the observed change, the less likely is the probability that the change occurred because of an external reason. For instance, when all focus groups and key informants affirm that the establishment of community treatment sites by the RAcE programme increased the access to health services, then the confidence in the probability of a programme contribution to this change is strong.
- **'Other influencing factors'** need to be taken into consideration when assessing the evidence. They may modify the observed change by either interfering with achievements, for instance through population displacement, or by contributing to it with factors outside the programme framework, for instance by the provision of community level care for children supported by other programmes.

6. The decision on the strength of the evidence was not based on an analysis of the frequency of responses, but rather on probabilities based on saturation of consistent information from multiple sources. The evidence was assessed on three levels:

		
The evidence for a contribution of the RAcE programme to the intended change is strong	There is evidence that the RAcE programme contributed to the intended change, but it is not strong	There is no evidence that the RAcE programme contributed to the intended change

7. The achievements and the evidence for the probability of the RAcE contribution are summarised, in the main section of each country brief. Some changes or results were not captured in the ToC framework, but they were nevertheless included in the enquiry. They are of two types:

- Intended changes or results of the overall (5 country) ToC framework of the RAcE initiative that are not captured in country project-specific frameworks, but that are nevertheless subject to the contribution analysis of the overall programme in the synthesis report. They include, for instance, changes in gender equality in the supply and demand for health services.

- Collateral changes, either positive or negative, that were observed and documented, but that were not anticipated in the ToC of the country RAcE project.

8. At the end of the process, the ToC framework as a whole was assessed with a **doubly decisive test**. The question to be validated during the doubly decisive test is whether or not the ToC (in combination with identified external factors) provides the only and most plausible explanation for the achievement of high-level outcomes. Confirming the ToC through a doubly decisive test validates the overall evidence for the RAcE country programmes' contribution to the observed outcomes.

Democratic Republic of the Congo

CONTEXT

1. The 2016 Human Development Report of UNDP ranked the DRC among the countries in the lower half of the countries with low human development (position 176 out of 188).[10] In the national context, the health and development situation of Tanganyika Province, the site of the RAcE programme in DRC, is even more critical as documented by data from the 2013/14 Demographic and Health Survey (DHS).[11,12] Poverty is more widespread in Tanganyika Province than in the country overall, with 63 percent of the provincial population in the two lowest nationally determined wealth quintiles; 76 percent of women are without education or with only incomplete primary education compared to a national average of 44 percent; and the prevalence of malaria in children under five as determined by PCR testing was 62 percent compared to a national average of 34 percent. In all health and social development indicators, Tanganyika is consistently placed among the bottom five of all 26 provinces.

Selected social and health service indicators of Tanganyika Province in the DRC

	Tanganyika Province	National
Population in lowest two national wealth quintiles (%)	63	--
Literacy rate female (%)	32	**64**
U5MR (per 1,000 live births) *	121	**104**
Care seeking for diarrhoea for U5 children (%)	49	**39**
ORS treatment for U5 children with diarrhoea (%) **	64	**42**
Care seeking for U5 children with fever (%)	32	**40**
ACT treatment for U5 children with fever (%) *	5	**6**
Care seeking for U5 children with respiratory infection (%)*	53	**42**

*Source: DHS 2013/14; *Indicator for the former Katanga Province including the new Tanganyika Province; ** ORS or recommended home-made solution*

2. Tanganyika became a province in 2015. It was previously a territory under the administration of the Provincial Government of Katanga. It occupies an area of about 135 thousand km^2 (about the same size as Greece) that is sparsely populated with only 22 inhabitants per km^2. There are 268 public sector health centres in the province to serve a population of about 2.9 million, but not all of them are functional.[5] An estimated 53 percent of the population lives more than five km distance from the nearest health facility, and 40 percent more than 10 km. The road network is dilapidated, and some villages can only be reached by foot or by boat. The province is in a protracted humanitarian and security crisis with incursions of several Mai Mai militia groups fighting for access to mineral resources. In 2015 a new armed conflict arose between the Twa and Bantu ethnic groups around land rights and local taxes. The conflicts have resulted in major population displacements and the abandonment of health facilities and SSCs (*Sites de Soins Communautaire /* SSC).[8] The estimated number of internally displaced people in Tanganyika in mid 2017 was 500,000, about 17 percent of the total population.[9]

3. Health service administration and governance in the DRC are decentralised to the provinces, although domestic government health expenditures are largely controlled by the central government. The consolidated provincial health budget for 2017 prepared by the provincial health directorate (*Division Provinciale de la Santé / DPS*) of Tanganyika included planned expenditures of US$ 18 million to be financed to 61 percent by international partners, 28 percent by the central government, eight percent by households, and to only three percent by the provincial government.[19] According to key informants, however, not all budgeted funds were executed. Public sector health facility staff generally do not receive a regular, fair or sufficient salary and derive their income from user fees and bonuses

paid by internationally-financed health programmes. According to estimates published by WHO, 37 percent of current health expenditures in the DRC are financed by families with out-of-pocket payments.[20]

4. Integrated Community Case Management (iCCM) has been institutionalised in the health system of the Democratic Republic of Congo (DRC / RDC) since 2005.[18] The first implementation guide for SSCs was issued by the Ministry of Public Health (*Ministère de Santé Publique / MSP*) in 2007 and updated in 2015.[1,2] The guide identifies two issues to be addressed by the creation of the sites operated by volunteer community health workers (*Relais communautaire / ReCo*):[2]

- Geographic access: SSCs are to be established in villages or communities that are more than five kilometres from a health facility, or that are cut-off from a facility by a natural barrier.
- Quality medicines: SSCs are to make quality-controlled essential generic medicines available for children in the community to eliminate the circulation of poor quality medicines of doubtful origin.

5. According to the national strategic plan for health 2016-2020 (*Plan national de développement sanitaire / PNDS*), a total of 3,828 SSCs were operational in March 2015, providing a complete package of treatment for malaria, pneumonia and diarrhoea in children under five years of age. Expansion of SSCs is one of the objectives of the national plan under the strategic axis of health district development. [3]

6. At national level, iCCM is coordinated by the MSP programme for diarrhoeal diseases (*Programme National de Lutte contre les Maladies Diarrhéiques / PNLMD*) which developed a national iCCM strategy in 2017, however not yet validated by the MSP.[6] There are competing strategic interests by the primary health care directorate (*Direction de Développement des Soins de Santé Primaires*) which is currently developing a strategy for community participation [7], and the national malaria programme (*Programme National de Lutte Contre le Paludisme / PNLP*) which coordinates a larger overlapping network of community treatment sites for malaria (*Prise en charge des cas de paludisme au niveau communautaire / PECp*).

THE RACE PROGRAMME IN THE DRC

Main objective	Increase the coverage and quality of iCCM to reduce morbidity and mortality among children ages 2–59 months
Contract agency	International Rescue Committee (IRC)
Government partner	Ministry of Public Health, Diarrhoeal Disease Control Programme at national level, and Provincial Health Directorate in Tanganyika Province
Contract Period	01/09/2013 – 28/02/2018
Budget	3 tranches totalling US$ 10,988,770
Geographical coverage	7/11 health zones in year one scaled up in steps to cover all 11 health zones of the province in year three
Population coverage	Provincial population of 3 million in 2017 of which an estimated 960,000 (including 154,000 children under five) were covered by the programme in September 2017
iCCM target	One million (153,000 children under 5)

7. In August 2013, WHO signed the first of three grant agreements and two amendments with IRC that together cover the total grant period from September 2013 to February 2018 (54 months).[4] IRC was one of the first organisations supporting iCCM in the DRC under several internationally funded programmes starting in South Kivu and Kasai Occidental in 2006. The RAcE programme included the funding of an operational research project to test the use of a revised training package and simplified,

pictorial reporting tools to improve the quality and reduce the cost of iCCM services using a non-experimental static group comparison design.

8. The RAcE programme started implementation in seven health zones, including two zones where IRC was already implementing a Sida-funded health systems strengthening programme. In 2015 three health zones were added, and in 2016 the eleventh health zone. Population coverage in 2017 ranged from a low of 13 percent in Kalemie which has the largest urban population to a high of 47 percent in Mbulula.

THE COUNTRY EVALUATION MISSION

9. The brief for the DRC RAcE programme was prepared within the framework of the overall summative evaluation of the RAcE initiative. The approach and methodology for each of the country missions was standardised and is described in Volume 1 of the synthesis report. The evaluation questions were adapted to fit the context of the RAcE programme in the DRC. An initial work plan was established, including a preliminary list of key informants at national and provincial level, as well as a sample of districts and community sites to be visited. The country mission was conducted from November 27 to December 9, 2017.

10. The post hoc Theory of Change (ToC) framework prepared on the basis of available programme documents was validated and revised in a participatory workshop with IRC and DSP programme staff prior to field-level data collection. The initial work plan for data collection had to be largely discarded because intra-provincial flights to the health zone of Manono were not available. The zone was selected to include one of the zones added in the scale-up in 2015. The only available flight was to Moba which permitted the inclusion of the health zones of Moba and Kansimba. Travel by road was restricted to a 20 km radius of the towns of Kalemie and Moba and to daylight hours according to UN security advice. This severely limited the sampling frame for data collection at the community level. Initial plans to interview members of the Twa community were shelved because of heightened inter-ethnic tension.

11. The final evaluation sample included four health zones, Kalemie and Nyemba with zonal offices based in Kalemie, and Moba and Kansimba with zonal offices based in Kalemie. In the health zones of Kalemie, Moba and Kansimba focus group discussions with ReCos were conducted in a health facility within the 20 km radius of the zonal headquarters, and one community was visited in each zone for a focus group discussion with caregivers. Plans to repeat this in the Nyemba health zone had to be cancelled because the return flight from Moba to Kalemie was delayed by one day. Because of travel restrictions and difficult road conditions, the sampling of health facilities and communities was entirely opportunistic and based on the feasibility of access and return within daylight hours. A total of 16 KIIs were conducted in Tanganyika Province, eight with provincial and zonal directors and iCCM focal points of the MSP, three with nurse supervisors or ReCos, two with ReCos, one with the IRC project manager and M&E officer, and three with external partners including the CADMETA, ASF & ICF (PMI-funded programme), and the Fondation Damien. At the start of the field mission, the evaluation team briefed the Provincial Minister of Health of Tanganyika, and at the end debriefed a meeting of key partners chaired by the Director of Provincial Health Services.

12. KIIs at national level were conducted prior to travelling to Tanganyika province and upon return to Kinshasa. Not all planned meetings could be conducted because key officials had travelled out of the country or were busy with concurrent meetings. Two interviews were conducted by telephone after the mission. The seven KIIs at national level included WHO; the national malaria, diarrhoea and primary health care programmes of the MSP; UNICEF, MCHP (USAID), and the Canadian Embassy. The WHO Resident Representative was briefed and debriefed at the start and end of the mission.

MAIN FINDINGS

FINDINGS OF THE CONTRIBUTION ANALYSIS

13. Community case management has been part of health service delivery in the DRC for more than 10 years. Detailed national guidelines for implementation exist since 2007.[1,2] In 2016, iCCM was explicitly included in the national health strategy.[3,13] At the national level, WHO used the RAcE experience extensively in the policy dialogue with government and partners to promote iCCM and to support the development of strategies towards universal coverage.

14. At the provincial level, IRC and WHO worked closely with the DPS and succeeded to embed iCCM firmly in the provincial system of health service delivery. In this highly disadvantaged province of the DRC, the RAcE programme came closer to support the achievement of universal coverage of service delivery to communities with difficult access to health services than any other province in the country.[6]

15. At national level, the diarrhoeal disease programme of the MSP which has the delegated responsibility for iCCM, relied heavily on technical and policy support from WHO. The national situation is complex because other MSP units (primarily malaria and primary health care) are competing for influence and international support in this area. WHO was able to bring these actors together, although there is still evidence of tension and competition. Provincial health directorates have considerable autonomy. Tanganyika is a new province created during the RAcE implementation period. The new DPS required the operational support of IRC to translate national iCCM policies into field implementation. Key MSP informants at national and provincial level confirmed that the functional division of tasks established under the sub-contracting model of the RAcE programme, between national policy support by WHO and provincial implementation support by IRC, contributed to the success of the programme in the DRC.

16. The RAcE programme largely adhered to the national guidelines for establishing community treatment sites. It achieved greater population and geographic coverage by supporting only one ReCo per site, rather than two as defined in the national guideline. It developed new registers, training and reporting materials, tested them in an operational research project that confirmed major improvements in the quality of services and data, and supported province-wide introduction in Tanganyika. The provincial health authorities adopted these materials as provincial standards. Other provinces and some international partners have shown interest in adoption. There are concerns among partners working in malaria that the new tools do not capture all data in the national malaria database, and therefore some resistance to adopting them. ASF, the agency implementing PMI support in 187 SSCs in Tanganyika has not introduced the new tools.

17. At national level, WHO used the RAcE experience and results to promote iCCM with other programmes of the MSP and with key international partners such as the PMI, the Global Fund and UNICEF. One key informant thought that the engagement of WHO with the group of international health partners (GIPS) was not sufficiently strong. At provincial level, few major partners were involved in community-based treatment of children. A consortium of ASF and ICF were implementing a malaria programme funded by PMI, including the support of 187 community treatment sites associated with selected health centres. IRC collaborated with these agencies to overcome bottlenecks in the supply of medicines and they generally kept each other informed, including by participating in meetings of the RAcE evaluation. According to key informants, PMI has accepted to include diarrhoea and pneumonia treatment in future sites based on the experience of the RAcE programme. In two health zones, the

RAcE programme works closely with an integrated primary health care project of the Fondation Damien, conducting joint supervision and logistic support, including for the RAcE evaluation team.

18. The estimated reduction of child mortality of a 14.5 percent in RAcE programme area derived by mathematical modelling applied by ICF [14] could not be confirmed with available data. The latest population-based survey was conducted in 2013/14. It includes only limited provincial data because the province was only created at the time of the survey. Applying data of the former Katanga Province is problematic because in comparison with the other three new provinces that were part of Katanga Province, Tanganyika has a very different and much more disadvantaged social, economic and health service profile. The national health information system (SNIS) has changed to the DHIS2 platform which has not yet been populated in the province. All key informants interviewed from the community to provincial level were convinced of a reduction in child mortality. Some were able to back this anecdotal information with data of reduced numbers of children requiring blood transfusion because of severe anaemia. This is also confirmed by SNIS data of 2015. Together with RAcE survey data of increased treatment access, this is interpreted by the evaluation team as sufficient evidence to support the finding of a decrease in child mortality that can, however, not be quantified.

19. All planned inputs of the RAcE programme were provided, and outputs were largely achieved. Overall, the evidence of the contribution of the programme to the achievement of the planned changes as outlined in the post-hoc Theory of Change framework is strong. Many constraints in outcome achievement and contribution identified by the evaluation team are related to other influencing factors:

- All ReCos interviewed were highly motivated and the recognition of ReCos by interviewed community members was very high. However, the term 'motivation' is used in the DRC to refer to material or financial goods received for providing services. In this sense, some dissatisfaction was voiced by ReCos. It primarily referred to a lack of support by communities, which often do not fully understand the volunteer nature of the ReCo position, and therefore do not support them with inputs such as flashlight batteries to examine children at night, bicycle spare parts or pens to complete registers. It points to a weakness of the programme's work with community committees (COGESITE) whose functions and roles are defined in the MSP guidelines, but who received relatively little attention in the establishment and management of SSCs by the RAcE programme.
- Continuous uninterrupted supply of all medicines to all SSCs was not achieved by the RAcE programme. The main shortage was for Artesunate suppositories. This is a critical medicine for pre-transfer treatment of children with severe malaria. It therefore did not affect a very large number of treatments. A WHO-prequalified supplier of Artesunate suppositories did not exist prior to June 2017, and the medicine was therefore difficult to procure by CADMETA which only procures medicines from prequalified sources. In 2014, more than 50 percent of SSCs experienced stock-outs of Amoxicillin over seven months, and again over five months in 2016. Excluding Artesunate suppositories, the average availability of all medicines was 79 percent (86% for diarrhoea medicines, 85% for malaria medicines, and 64% for amoxicillin). This is not a perfect score but it compares favourably with other iCCM programmes in the country.[18] Stock-outs of medicines are not unique to SSCs but also frequently affect health facilities. District medical officers interviewed by the evaluation team stated that the medicine supply of SSCs supported by RAcE was considerably better than the supply to sites supported by other programmes currently or in the past.
- Weaknesses of the national health information system were a major constraint in the integration and management of iCCM by the public sector. The programme worked well with a database maintained by IRC that was shared with the DPS. In the sites and districts visited, data were

submitted consistently to the SNIS staff at district level. However, no reliable data were generated by the national DHIS2 system since 2016. The PNLP maintains a separated database that, since 2017, also captures community treatment data for malaria. Neither of these data sources could be reconciled with the IRC RAcE database for a number of reasons (different time frames, inclusion and exclusion of different reporting sites, internal inconsistencies, data entry errors).

- The training, registration and reporting materials for SSCs tested in the operational research project were accepted by the DPS as provincial standards, however some international partners have not accepted them, and some expressed reluctance to change. One or more rounds of reviews, consultations and possible revisions are required before they can possibly be validated by the MSP as national tools. The forthcoming publication in a peer reviewed journal may accelerate the process.
- Interviewed MSP staff at provincial, zonal and facility level confirmed that ReCos provided effective treatment and referred children correctly, but less than half of all parents followed the referral advice. The reasons, in all cases, was the difficulties of accessing health centres and the user charges at health centre level. This is an issue beyond the scope of the RAcE programme.
- Similarly beyond scope is the achievement of universal coverage in a province where the health facility coverage is too sparse and the road network underdeveloped. Even if Tanganyika Province had not experienced conflict and displacement, a considerable proportion of the population would be out of reach for community care coverage because they live in communities that are too dispersed and too inaccessible because of distance and geographic barriers.
- iCCM has the goal of reducing under-five mortality while community-based malaria treatment has the objective of malaria control. There is large overlap among these two objectives and combining them is desirable. This is being discussed in DRC, but the task may be too complex to achieve because removing age limits for patients treated by ReCos (as practiced by malaria treatment sites) greatly expands the scope, volume and complexity of their services, as well as the complexity of managing and monitoring medicines and supplies.
- Plans and strategies for a country-wide scale-up of iCCM exist, but in the DRC, just as in the Province of Tanganyika, the realisation of these plans are entirely contingent on the availability of international financial support. Even minimal efforts to allocate some domestic public funding to iCCM have so far not been made. The achievement of the strategic objective will therefore continue to depend on a) the availability of international partner funding, and b) the capacity of the MSP to coordinate the international partners to adhere to a national model using national systems for implementation.

20. Some evaluation findings were not captured by the ToC evaluation. They are presented under the following four headings.

GENDER EQUALITY

21. Gender equality outcomes are not included in the ToC framework of the RAcE programme in DRC. In interviews and in the start-up TOC workshop, IRC staff pointed out that the terms of reference of the grant agreements negotiated with WHO did not include a gender analysis. The guidelines for applicants formulated by the WHO Global Malaria Programme in October 2012 include no reference to gender equality or gender analysis.[17]

22. The programme, nevertheless, was not gender-blind:

- Treatment data collected by RAcE were consistently sex-disaggregated, although the SNIS does not disaggregate data and the disaggregation was therefore lost in the national statistics. Access to treatment, according to IRC data was equal for girls and boys, with 659,290 boys and 660,627 girls seen by ReCos up until August 2017
- In community mobilisation meetings for the election of ReCos, IRC and MSP staff consistently promoted the election of female community members. The intention to increase the recruitment of female ReCos was included in the IRC proposal, and the constraints in pursuing this goal were discussed. The gender balance of trained ReCos is reported in the IRC progress reports, but statistics of active ReCos are not sex-disaggregated in the RAcE database.
- In the end-line survey questionnaire, a module on household decision-making was added. At baseline, however, only a question on joint decision-making was included. Some inferences can therefore be made on changes in decision-making powers by women. The evidence is, however, not robust.
- The final evaluation report by ICF includes a brief section on 'gender factors and differentials in iCCM treatment'. It presents the results of the baseline and end-line surveys that there were no sex differences in access to treatment, and that joint decision-making in households about care-seeking decreased and independent decision-making increased.

23. The findings of the evaluation on gender equality are as follows:

Gender analysis	The programme did not conduct a gender analysis of the supply-side or demand-side of iCCM because it was not included in the terms of the contract with WHO
Gender equality in access to treatment	The proportion of girls and boys treated was equal which is well documented and in line with findings of iCCM programmes throughout Africa
Gender equality among care providers	IRC reported that by October 2017, 18 percent of ReCos were female with variations by district. Data to verify this information were not available
Gender sensitivity of ReCo training	The materials for ReCo training and the graphics included in the guidelines for ReCos use images of involvement of men and women in child care appropriately according to context (see Annex 2)
Gender equality in the community	Survey data document that at end-line, a lower proportion of decisions to seek care for a sick child were taken jointly. This is supporting evidence for the assumption that the RAcE programme contributed to an increase in decisions to seek care that were made autonomously by (female) care givers of children. (increase from 10% to 31%, statistically significant)

24. Key informants did not note any effect of the programme on gender equality in the community. There was no convincing evidence to confirm or reject hypotheses that easier access to child health services through SSCs changed the workload or overall decision-power of women in their families, or that the programme increased the participation of women in the health system.

25. Information on the recruitment of female ReCos was mixed. All respondents affirmed that the election of women was strongly promoted during community mobilisation meetings. Constraints were the low literacy rates of women in rural Tanganyika, as well as traditional gender power relationships that required women to ask for permission of their male partners before submitting their candidature as a ReCo. The effect of the lower educational status of women was to some extent mitigated by the introduction of the new registers, reporting forms and guides by RAcE because they extensively used

pictorial images. Initial problems with incorrect completion of forms by less literate ReCos were largely resolved.

26. Several informants noted that female ReCos generally were more reliable, more readily available in the villages as they were more consistently found in the home and had lower attrition rates because they were less likely to seek employment outside the community. A minority of informants mentioned that women found it easier to consult a female ReCo on short notice when their child was ill.

27. The question whether a higher proportion of female ReCos changed the status of women cannot be answered. On the one hand, a female ReCo may increase the recognition of women in the community hierarchy. On the other hand, the added task of volunteering services as a ReCo may increase the workload and responsibility of women who are already overburdened with the responsibilities of managing households, without changing their economic power in the family.

28. During the ToC workshop, the participants agreed that definitive answers about effects of the RAcE programme on gender equality would have required a formal gender analysis at the start and the end of the programme.

SOCIAL EQUITY AND VULNERABLE POPULATIONS

29. The RAcE programme in Tanganyika Province strived to achieve universal access to child health services among all communities with difficult access to health facilities. Social status and health indicators published in the 2013/14 DHS report consistently place the population of Tanganyika Province among the most vulnerable in the country. (see Section 1)

30. Because of the low population density (22/km^2), poor road network, low density of health facilities and chronic insecurity, universal coverage could not be achieved, however about 32 percent of the total population was covered by iCCM services supported by RAcE, which is an estimated two thirds of all people living more than five kilometres from a public-sector health facility in the province. The wealth profile of the population covered by RAcE as analysed by ICF in the end-line survey found that 57 percent were in the two lowest wealth quintiles which is within statistical error margins of the provincial profile.

31. The main minority ethnic group in the Province are the Twa which represent about 15 percent of the population, but a higher proportion in some districts. The Twa were previously nomadic but have today primarily settled near agricultural villages of the dominant Bantu population where they work as hired labourers. They are a marginalised and discriminated group with little access to public services. According to key informants, they rarely form organised villages, and their education status is much lower than that of the dominant Bantu groups. These were cited as the main reasons why only three members of the Twa community were ever recruited as ReCos by the RAcE programme. All informants stated that Twa children had equal access to iCCM services. At the time of the evaluation mission, the Twa and Bantu populations were embroiled in a violent inter-ethnic conflict. It was therefore not possible to verify the information provided by MSP and IRC respondents.

SUSTAINABILITY PLANNING

32. Sustainability planning was initiated in the third programme year of RAcE with the development of a roadmap for sustainability in a national workshop in September 2016 that was then translated into a transition plan in 2017.[15,16] The roadmap sets out an ambitious agenda until 2030. Development was participative and involved the MSP at national and provincial level, as well as representatives of international partner programmes. The draft document is labelled as a document of the MSP and its existence was acknowledged by the PNLMD nationally and the DPS at provincial level. Because of its far-

reaching scope, however, its implementation would require an endorsement by the General Secretary of Public Health for which there is currently no evidence.

33. The transition plan is an excerpt of the first phase of the road map (2017-18) and assigns more specific responsibilities for each of the 56 actions to be taken. Four of them are assigned to IRC and they are largely addressed. A further six are assigned to the joint responsibility of the DPS and IRC. They would be feasible if the programme would continue for another three years. However, 14 critical actions are assigned to 'partners' or to the joint responsibility of partners and the DPS. They include high cost items such as the supply of medicines and transport for supervision.

34. The issue of community support and functional community committees is critical for maintaining effective community care sites. It is included in the transition plan, but the responsibility is assigned to the head nurses of health centres and to community members themselves, rather than being elevated as a critical activity to be addressed by the DPS and its international partners.

35. The dependency on international funding is the main challenge for sustainable iCCM programming in the DRC, including for the sustainability of the RAcE programme results in Tanganyika Province. Progress in the implementation of the roadmap to sustainability was assessed in June 2017. [21] Although considerable progress in terms of establishing national and local structures and processes is documented, the risk of a financing gap at the end of the RAcE programme is very high. Considering that iCCM in DRC and in Tanganyika Province will be dependent on external financing for some time to come, sustainability planning was arguably started too late to develop the necessary plans and strategies for fund-raising to allow a seamless continuation of the programme.

UNPLANNED COLLATERAL OUTCOMES

36. The evaluation found no evidence for negative collateral outcomes of the RAcE programme.

STRENGTHENING OF NATIONAL MEDICINE SUPPLY SYSTEMS

37. The main unplanned positive collateral outcome was the strengthening of the provincial structure for the procurement and supply management of essential medicines (CADMETA). The CADMETA is a parastatal institution financed primarily by the sales margins and storage fees for medicines supplied to public sector facilities and internationally funded programmes. All medicines are quality-controlled, and prices are therefore often not competitive with the private sector. The private sector market, however, has a major problem of contamination with counterfeit, expired and stolen drugs.

38. In March 2015, CADMETA signed an agreement with IRC for the storage and distribution of medicines and commodities to the SSCs, and in 2016 and 2017 also managed the procurement for the RAcE programme. The programme thereby became the largest customer of the CADMETA with the development of the volume of sales in US$ as presented in the table.

	2015	2016	2017
RAcE Programme	90,230 $	647,643 $	635,587 $
Other sales	60,179 $	11,066 $	40,762 $
Total sales	150,409 $	658,709 $	676,349$

39. According to the Director of CADMETA, the increased sales volume and associated margin allowed the institution to finance a rolling fund for providing credit to public health facilities purchasing medicines from CADMETA, and thereby increasing the availability of quality-assured medicines in the public sector. These achievements are threatened by the closure of RAcE in 2018.

CONCLUSIONS

40. The sub-contracting model of the RAcE initiative has proven itself in the DRC, with field support provided by the effective cooperation of IRC with the provincial health department of Tanganyika, while policy development and coordination were addressed by the support to national policy processes provided by WHO. At operational levels, a near-universal coverage of iCCM in a difficult and highly disadvantaged province was achieved, while at the national health policy level, the scale-up of iCCM was explicitly included in the national health strategy, and a national strategic plan for iCCM was drafted.

41. The cooperation of IRC and the DPS in Tanganyika Province achieved the establishment of a network of community care sites that covers two thirds of the population in need in a very difficult environment. Through this network approximately 1.6 million children received quality medical care for malaria, pneumonia and diarrhoea during the programme period, and many preventable child deaths were prevented, although routine health information data are not sufficiently robust to validate the modelled estimate of a 14.5 percent decrease in under-five mortality by ICF.[14]

42. The operation of the network of iCCM sites established with the support of RAcE is fully embedded in the provincial and national public-sector health system, including national procurement and supply management of essential medicines. It is operated by district health staff, but it also continues to be fully dependent on external resources to finance operational costs and the costs of medicines.

43. Among the systemic constraints that affect the implementation of iCCM in Tanganyika is the inability of the national health information system to generate timely reliable data for monitoring and planning despite the efforts made by the programme to assure data capture and entry at the community and district level.

44. A major achievement of the RAcE programme in DRC was the development and testing of new training, recording and reporting materials for community health workers in a well-documented operational research project, the subsequent adoption of these materials by the provincial health department, and the initiation of a national discussion about the revision of guidelines for community health workers.

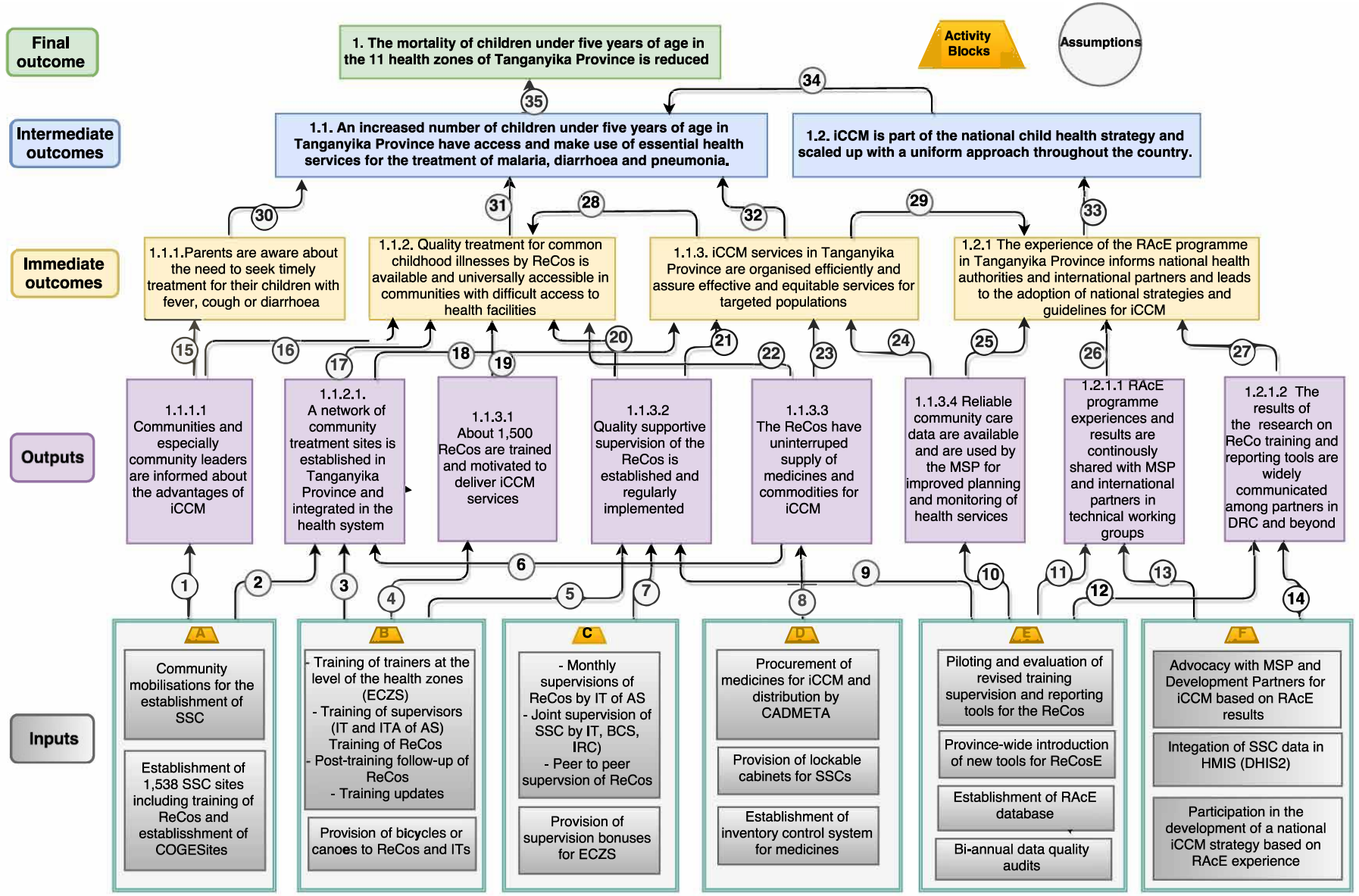
45. The implementation of the RAcE programme in DRC was gender-sensitive. Treatment data were consistently sex-disaggregated by the project, although this disaggregation was lost in the transfer of data to the national health information system. Training materials acknowledged the roles of men and women in child care, and emphasis was placed on recruiting female community health workers within the recruitment standards and procedures proscribed by the MSP. However, a gender analysis was not included in the terms of reference of the IRC contract and was not performed, and no conclusions can therefore be made about potentially gender-transformative results of the programme.

46. Two weaknesses of the RAcE programme in Tanganyika were identified by the evaluation team:

- In the process of mobilising communities and establishing community treatment sites, insufficient attention was given to strengthening the community structures and committees to support the operation of these sites.

The process of sustainability and transition planning identified key issues and required actions to assure sustainability, however it was initiated too late to allow timely and effective implementation. Field work for RAcE started in January 2014, but the first workshop for transition planning and for the development of a sustainability roadmap was only organised in the third year, in September 2016.

THEORY OF CHANGE



CONTRIBUTION ANALYSIS AND PROCESS TRACING

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the output level					
1	1.1.1.1 Communities and especially community leaders are informed about the advantages of iCCM	• Community mobilisation activities to establish 1,866 SSCs were realised by October 2017 **(IRC reports)**	• IRC end-line household surveys reported 95% awareness of SSCs and 98% trust in ReCos **(survey)** • Community groups, community leaders consistently express their appreciation of the SSCs **(KIIs & FGDs)**		• Armed conflicts and population displacements in the programme area. **(documents, KIIs)**
2,3,6	1.1.2.1 A network of community treatment sites is established in Tanganyika Province and integrated in the health system	• 1,372 SSCs were active in villages with difficult access to health services in Oct. 2017, serving about one third of the population in the province **(IRC reports)** • The MSP led in the establishment of SSCs (mapping, mobilisation, training), and provided monitoring, supervision and supply services for the SSCs **(KIIs)**	• 1,220 SSCs submitted reports of activities in Oct 2017 **(IRC database)** • ITs of AS and Supervisors of BCZS monitor and supervise SSCs and 1,080 SSCs were supervised at least once in October 2017 **(IRC database, KIIs)** • SSCs are integrated in district and provincial operational plans and budgets. **(MSP documents, KIIs)** • Logistics of medicine procurement and supply for SSCs is provided by CADMETA **(KIIs)**		• About 100 SSCs closed and additional SSCs not accessible because of armed conflict **(KIIs)** • Additional 187 SSCs for malaria are supported by ASF/PSI with financing from PMI **(KIIs)**
4	1.1.3.1 About 1,500 ReCos are trained and motivated to deliver iCCM services	• Of the 1,866 trained ReCos, 1,277 were retrained and 1,600 bicycles or canoes were distributed to support their motivation **(IRC reports)**	• 1,220 ReCos submitted reports of activities in Oct. 2017 **(IRC database)** • Supervisors report lack of motivation as only a minor contributor to ReCo attrition **(KIIs)** • ReCos, MSP and IRC staff report that few community committees invest in support of ReCos (e.g. purchase of flashlight batteries, bicycle spare parts) and interviewed ReCos consider 'motivation' received from RAcE as insufficient **(KIIs)**		• Additional 187 sites for community-based malaria treatment (PECp) are supported by ASF/PSI with financing from PMI. **(KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
5,7,9	1.1.3.2 Quality supportive supervision of the ReCos is established and regularly implemented	• ReCo supervisors were trained **(IRC reports, KIIs)** • AS and BCZS were supported to assume main responsibility for supervision **(KIIs)** • New registers and supervision report forms were introduced **(KIIs)**	• More than 80% of SSCs were supervised each month **(IRC database)** • All interviewed ReCos reported that they received monthly supervision visits **(KIIs and FGDs)** • All interviewed ITs and BCZS Supervisors reported that they had regular supervision schedules for SSCs **(KIIs)** • Registers and report forms of the DPS in the format developed by the RAcE programme were seen in all SSCs and Health Centres visited **(site visits)**		• ASF/PSI has not adopted the new registers, reporting and supervision format introduced by the DPS with RAcE support for the 187 SSCs supported by PMI
8	1.1.3.3 The ReCos have an uninterrupted supply of medicines and commodities for iCCM	• Systems for procurement, supply management and distribution of medicines were established **(KIIs)**	• More than 50% SSCs had stock-out of Amoxicillin 2014 (7 mo.) & 2016 (5 mo.)/ 36% SSCs had all medicines since start/ excluding Artesunate suppositories: average monthly availability of 5 key medicines was 79% **(IRC Database)** • Key informants at AS, BCZS and DPS level stated that stock-outs of medicines was not a major issue affecting SSCs **(KIIs)** • Communities mentioned availability of medicines as main achievement, but also mentioned stock-outs **(FGDs)**		• Prior to June 2017, there was no WHO prequalified manufacturer of Artesunate suppositories and the medicine was therefore difficult to procure
10	1.1.3.4 Reliable community care data are available and are used by the MSP for improved planning and monitoring of health services	• Systems for data collection and data quality control were implemented **(KIIs, ICF Reports)** • ReCos and ITs were trained in data collection and transmission **(KIIs, review of data tools)**	• IRC maintained detailed database. Data quality issues were largely resolved after introduction of new registers **(ICF documents, KIIs)** • BCZS and DPS received monthly data from SSCs (via the AS) and used them to monitor child morbidity **(KIIs)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
13	1.2.1.1 RAcE programme experiences and results are continuously shared with the MSP and international partners in technical working groups	• WHO participated actively in the national policy dialogue on child health. **(KIIs, document review)** • Biannual review meetings of the RAcE programme were conducted in Tanganyika Province with participation of national MSP representatives **(KIIs, document review)**	• Key Informants at national level (PNLP, PNLMD, UNICEF, MCHP) were aware of RAcE results and acknowledged RAcE contribution to national ICCM strategy. However, one key informant noted inconsistent participation of WHO in the international health partner group (GIBS) **(KIIs)** • SSC registers and reporting tools developed by RAcE were adopted as provincial standards by DPS Tanganyika and are being discussed for introduction in other provinces **(KIIs)** • Community treatment data are available in SNIS (2016) and PNLP (2017) databases but data are largely inconsistent (internally and with IRC data **(database reviews)** • The online DHIS2 database (active for SNIS since 2016) contains no data on SSCs in Tanganyika **(database review)**		• Support to SNIS is provided by MEASURE Evaluation with PMI funding • DRC changed in 2016 to the collection and storage of SNIS data on the DHIS2 platform, but the DHIS data fields for Tanganyika are largely empty
12,14	1.2.1.2 The results of research on ReCo training and reporting tools are widely communicated among partners in the DRC and beyond	• Research findings were documented and validated **(document review)**	• The results of the RAcE research on SSC registers and reporting tools are well known to the government and development partners nationally. Use outside Tanganyika Province is being discussed **(KIIs)** • A publication of the research results in a peer reviewed international journal is in preparation **(KIIs)** • A final version of a draft national iCCM strategy exists. It was developed with a major contribution by RAcE **(KIIs, document review)**		• The PNLMD (responsible for iCCM at national level) endorsed the tools, but there is overlap in responsibility with the MSP Directorate for Primary Health Care (developing a community participation strategy) and with the PNLP (coordinating a PECp strategy).

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the immediate outcome level					
15	1.1.1 Parents are aware of the need to seek timely treatment for their children with fever, cough or diarrhoea	• Communities are satisfied with the treatment services provided by ReCos **(FGDs and KIIs, IRC surveys)**	• End-line household survey reported awareness of SSCs of 95% and care seeking from ReCos of 67%. **(survey)** • Community groups consistently rank SSCs/ReCos as the first point of contact for seeking care for their sick children **(FGDs)**		• none
16,17, 20	1.1.2 Quality treatment for common childhood illnesses is available and universally accessible in communities with difficult access to health facilities	• The network of SSCs established by the RAcE programme achieved wide coverage. Coverage is, however, not universal. Based on an estimate that 53% of the population in Tanganyika live >5km from a health facility, about 600,000 people with difficult access to health facilities are not covered **(IRC documents, KIIs)**	• Active SSCs supported by RAcE covered between 13% and 47% of the population in the 11 districts **(IRC data)** • By October 2017, ReCos supported by RAcE treated about 1.4 million children; the majority of them would not have had any access to effective treatment **(IRC data, KIIs)** • ReCos referred 2% children to health centres but only 49% of parents complied because of distance and user charges **(IRC data, KIIs)** • All interviewed BCZS staff mentioned the need for additional SSCs to achieve full coverage, as well as inaccessible communities where no SSCs could be established **(KIIs)**		• Low population density, low density of health facilities, poor transport infrastructure, difficult geographic terrain, and chronic insecurity constrain the achievement of universal access to iCCM **(KIIs, document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
18,21, 23,24	1.1.3 iCCM services in Tanganyika Province are organised efficiently and assure effective and equitable services for targeted populations	• iCCM services are fully integrated in the provincial health care delivery system and are to a large extent managed by MSP staff **(KIIs)** • Network of SSCs exists with organised supervision, supply of medicines and community data collection. **(KIIs, document review)**	• An estimated 2/3 of the population living >5 km from a health facility was covered by SSCs supported by RAcE in 2017 **(IRC and DPS data)** • ECZS and AS staff assured regular supervision of SSCs **(KIIs, IRC data)** • National systems were strengthened and used for the procurement and supply management of medicines and commodities **(KIIs)** • The DPS had no reliable timely data for the management of SSCs from the SNIS **(data review, KIIs)** • Operational costs of SSCs were included in the provincial and district budgets, but there was no allocation to these budget lines from domestic sources (**DPS and ZS documents)**		• 77% of public sector health services in the province are financed by international partners and most clinical staff do not receive a salary from the national or provincial government **(DSP Report)**
25,26, 27	1.2.1 The experience of the RAcE programme in Tanganyika Province informs national health authorities and international partners and leads to the adoption of national strategies and guidelines for iCCM	• RAcE programme results and experiences were shared widely **(KIIs)** • WHO and IRC participated in technical working groups on child health and community care at national and provincial level **(KIIs)** • Biannual programme review meetings were organised in Kalemie and attended by national MSP staff. **(KIIs)**	• Interviewed national and international partners confirmed knowledge of RAcE and active participation of WHO in working groups (except GIBS) **(KIIs)** • Scale-up of iCCM is part of the PNDS 2016-2020. It was not included in the PNDS 2011-2015. **(document review)** • A strategic plan for iCCM was drafted by the PNLMD with major support of WHO **(KIIs)** • Biannual review meetings of RAcE results were organised in Tanganyika and attended by national and provincial partners **(KIIs, document review)** • SSC training and reporting tools developed by RAcE were adopted by the DPS Tanganyika and are being reviewed by national partners **(KIIs)**		• National guidelines for iCCM existed in the DRC since 2007 **(document review)** • Competition among national programmes (PNLMD, PNLP, 5th Directorate) for international support **(KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the intermediate outcome level					
30, 31, 32, 34	1.1 An increased number of children under five years of age in Tanganyika Province have access to, and make use of, essential health services for the treatment of malaria, diarrhoea and pneumonia.	• Data from PNLP and SNIS suggest an increase in malaria treatments delivered between 2013 and 2016, although databases are internally inconsistent and have many gaps **(data review)**	• IRC data document 1.6 million treatments provided between Jan 2014 and Sep 2017, although data are not consistent with PNLP and SNIS data **(data review)** • All KIIs and FGDs confirm that a large number of children were treated at SSCs that would otherwise have not been treated or treated by traditional healers or informal medicine sellers. Few parents refused SSC treatment for religious reasons **(KIIs and FGD)** • Baseline and end-line surveys document an increase in appropriate treatment seeking by parents of children <5 from 66% to 89% (fever 55%-84%; diarrhoea 52%-79%; resp infection 53%-80%). **(survey)**		• Community treatment for malaria was also provided by 187 PECp sites supported by AFS

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
33	1.2 iCCM is part of the national child health strategy and scaled up with a uniform approach throughout the country.	• Validated and draft health and iCCM strategy document were available. **(document review)**	• PMI partners confirmed that pneumonia and diarrhoea treatment was added to PECp sites in Tanganyika in 2017, but target number of SSCs for 2018 is not known and reduction was suggested **(KIIs)** • ReCos consistently mentioned frustration that treatment at SSC sites was limited to children <5. PECp sites provide community treatment for all people with malaria. The goals of these two initiatives are distinct (child survival and malaria control) and integration is a complex task **(KIIs)** • The main international partners for the support of iCCM (Global Fund, PMI and DFID) have agreed on a map of support covering the whole country, but there is no information about the extent of coverage within the provinces targeted for support **(KIIs, document review)**		• iCCM was part of the national health strategy prior to RAcE **(document review)** • The national scale-up of iCCM is mainly contingent on international partner funding **(KIIs, document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the final outcome level					
35	1. The mortality of children under five years of age in the 11 health zones of Tanganyika Province is reduced	• About 1.6 million treatments provided between Jan 2014 and Sep 2017 for children with malaria, diarrhoea and pneumonia addressed the major causes of childhood mortality, responsible for 44% of deaths (all ages) in the province. **(IRC database, DHS report)**	• There are no reliable SNIS data to validate the modelled mortality reduction estimates of IFC International. PNLP data show decreasing number of severe malaria and deaths in children <5 between 2015-2017. All MSP key informants mention major decrease in blood transfusion for anaemia. **(KIIs, SNIS and PNLP databases)** • Reports from 3 Zones (Ankoro, Kongolo and Nyunzu) presented at 6-monthly programme review meeting in March 2017 consistently showed major decrease in severe malaria, blood transfusion and child deaths in communities with RAcE programme between 2014 and 2016. **(document review)** • Community members and primary level health staff unanimously confirm that child mortality has decreased since the start of SSC support by RAcE. **(KIIs and FGDs)**		• SNIS changed to DHIS2 in 2016. DHIS2 database for Tanganyika is largely empty. • Services for the treatment of malaria, the main cause of child mortality, were supported during the RAcE programme period with funding from the Global Fund and PMI at the health facility level and to a lesser at the community level • Other child health programmes (immunisation, bed-nets, hygiene) were implemented in the province.

ANNEX: COUNTRY BRIEF DRC

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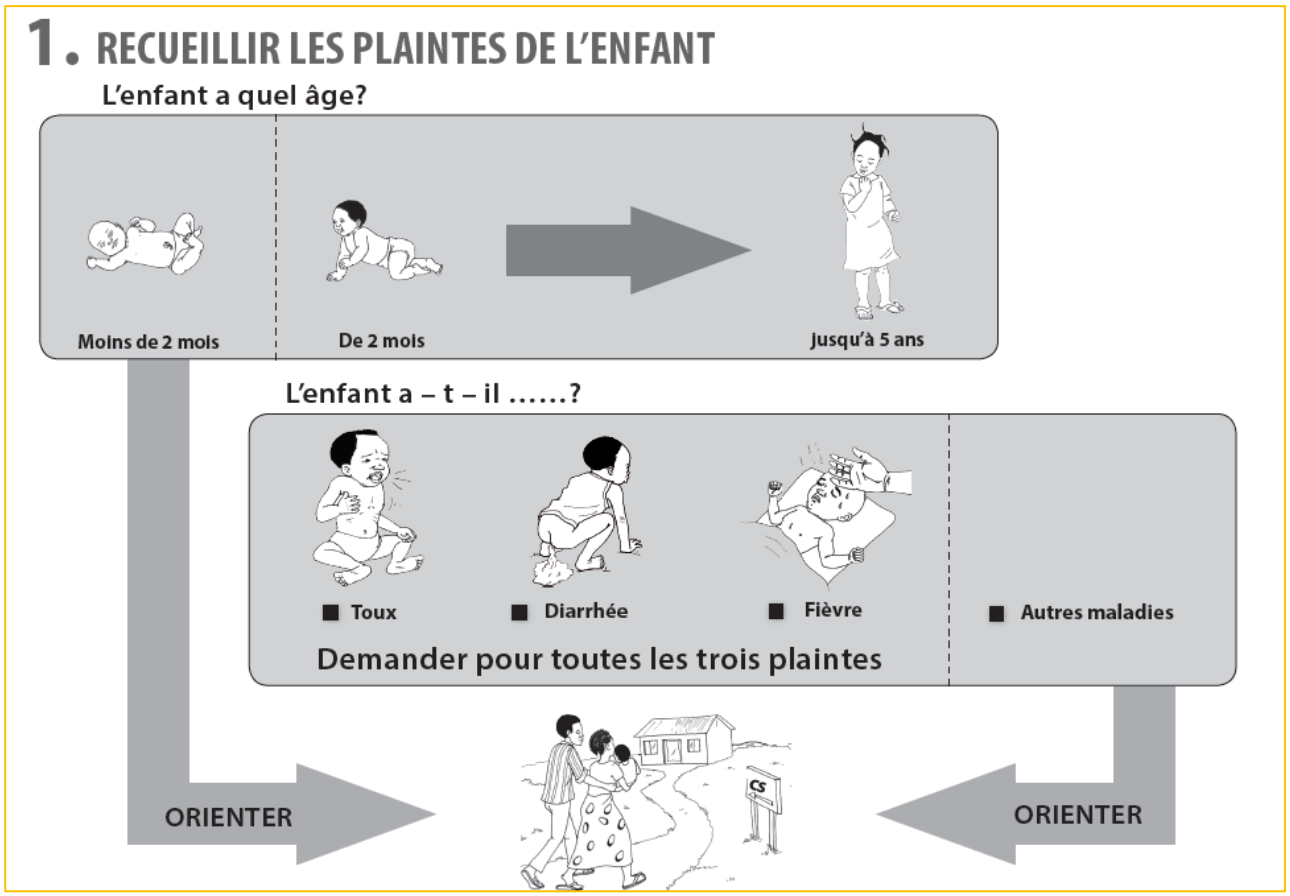
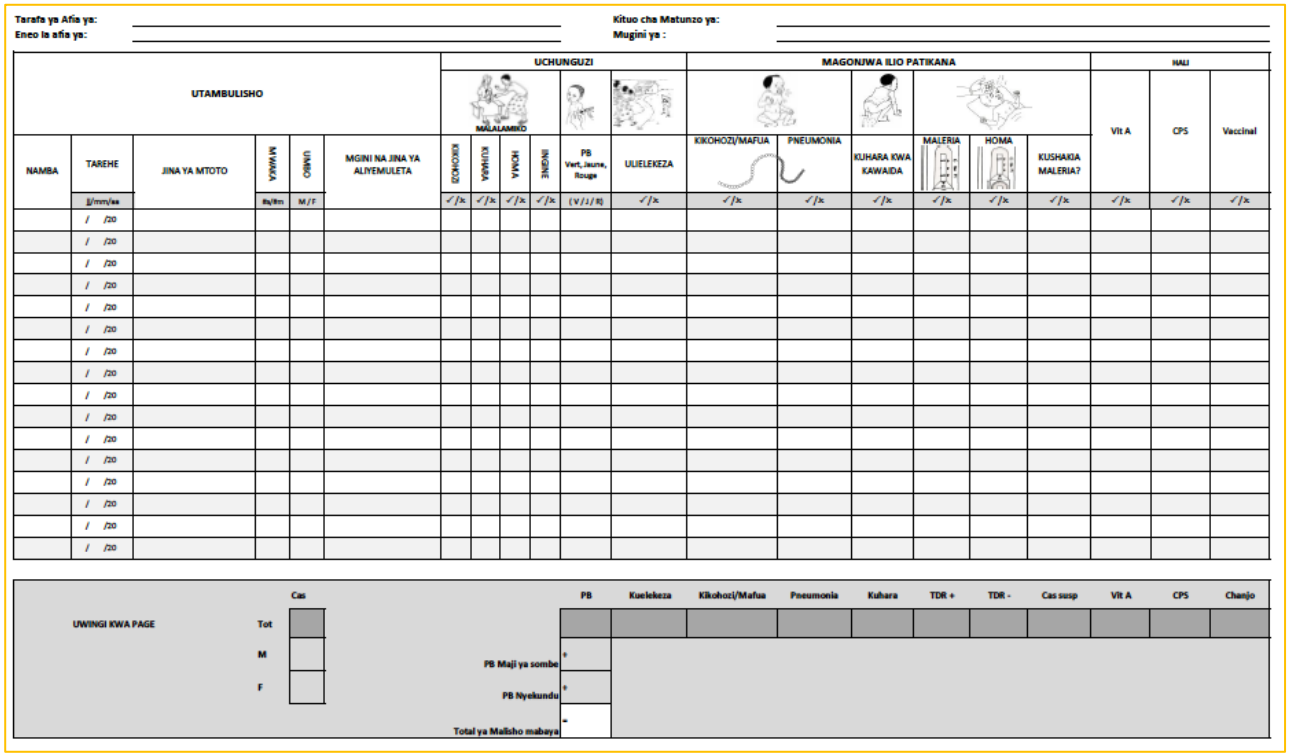
Excerpt from the guide for ReCos developed by the RAcE programme (page 1 of 14)



Excerpt from the register for ReCos in Kiswahili developed by the RAcE programme (page 1 of 2)



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Eneo la afia ya: _____ Mugini ya : _____

UTAMBULISHO						UCHUNGUZI						MAGONJWA ILIO PATIKANA							HALI		
						MALALAMIKO															
NAMBA	TAREHE	JINA YA MTOTO	UMRI	JINSI	MGINI NA JINA YA ALIYEMULETA	KIKOHOZI	KUHARA	HOMA	NGENGE	PB Vert, Jaune, Rouge	ULIELEKEZA	KIKOHOZI/MAFUA	PNEUMONIA	KUHARA KWA KAWAIDA	MALERIA	HOMA	KUSHAKIA MALERIA?	Vit A	CPS	Vaccinal
	J/mm/aa		Ra/Rm	M / F		✓/x	✓/x	✓/x	✓/x	(V / J / R)	✓/x	✓/x	✓/x	✓/x	✓/x	✓/x	✓/x	✓/x	✓/x	✓/x
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Tot												
M		PB Maji ya sombe										
F		PB Nyekundu										
		Total ya Malisho mabaya										

Malawi

CONTEXT

1. The under-5 mortality rate in Malawi shows a decreasing trend, with 234 deaths per 1,000 live births in 1992 to 63 in 2015/16. The targets for under-5 mortality as per the Health Sector Strategic Plan 2011-2016 (HSSP-I) were surpassed with 63 versus 78 deaths per 1,000 live births. There is however a considerable difference between the country's three regions; it is lowest in the Northern region, and highest in the Central region with 57 and 81 deaths per 1,000 live births respectively.[1][9]

2. Integrated Management of Childhood Illnesses (IMCI) was adopted in 1998. In 2007, a five-year National Strategic Plan for Accelerated Child Survival and Development was launched. Global guidelines for Integrated Community Case Management (iCCM) were adapted to the national context in 2007, and since 2009 iCCM was rolled out at national scale. The HSSP-II (2017-2022) includes key components of iCCM as guiding principles, and confirms iCCM interventions are part of the Essential Health Package (EHP).[1] The National Child Health Strategy for Survival and Health Development of under-five Children in Malawi 2014-2020, and the National Community Health Strategy 2017-2022 (NCHS) also refer to iCCM.[2][3]

3. iCCM services are provided by Health Surveillance Assistance (HSAs, the term used for community health workers in Malawi) in village clinics and focus on communities living in hard-to-reach areas (HTRAs). The definition of HTRAs includes a maximum radius from a health facility as well as geographical and financial barriers.[1] HSAs are salaried employees of the Ministry of Health (MOH) and are meant to live in the communities they serve (catchment areas). They have a broad range of responsibilities and are supported by Senior HSAs (SHSAs). In July 2017, a total of 7,932 HSAs and 1,282 SHSAs were operational nationwide.[1]

4. At national level, the IMCI unit of the MOH is responsible for planning, facilitation, coordination and oversight of iCCM interventions. This unit falls under the direct responsibility of the Directorate of Preventive Health Services. The Directorate of Reproductive Health played an important role in the development of the Community-Based Maternal and Newborn Component (CBMNC). The MOHs newly set up community Primary Health Care Directorate (cPHC) leads community health interventions. Collaboration between the different entities within the MOH is strong. At district level, the focal points for IMCI are responsible for coordination of iCCM interventions.

5. In 2013, when the RAcE programme in Malawi started, iCCM was implemented in all 28 districts covering the three regions of the country. Some districts received support from other development partners (The Global Fund to Fight AIDS, Tuberculosis and Malaria (TGF), UNICEF, and Population Services International (PSI)). The RAcE programme strategy was based on lessons learned from other projects and focused on addressing access issues. Districts were selected in collaboration with the MOH, based on a set of selection criteria including iCCM coverage, under-5 mortality rates, equity, leadership capacity, and development partner support.

6. The eight districts where the RAcE programme was implemented are located in the Central and Northern region. According to the HTRA mapping conducted in 2017, the total population covered by the RAcE programme is 4.6 million, including three million people living in HTRAs. Of the three million

[1] All persons interviewed mentioned the 5 km radius as official definition for iCCM, although official MOH documentation is ambiguous on the radius applied for iCCM. Some documents state a 5 km radius (eg. NCHS), while others state an 8 km radius (HSSP II). HTRA in general are referred to as areas more than 8 km away from a health facility. Health facilities managed by the Christian Health Association of Malawi (CHAM) apply user charges for health services which are considered financial barriers for access to services.

people in HTRAs, almost 515,000 are children under-five. 276,000 of them live in HTRAs where iCCM services are provided by HSAs.[18][1] RAcE-supported districts include 1,726 HTRAs. On average, 24 percent of Malawians do not live within five km of a health facility. [3]

7. The Malawi Demographic and Health Survey (DHS) 2015/16 reported a total fertility rate of 4.4 children per woman, a decline from 6.7 in 1992, and a maternal mortality ratio of 439 deaths per 100,000 live births during the seven years prior to the survey. Health and social development indicators did not differ much among the regions in Malawi, except for some higher indicators in the Northern region, for instance the literacy rate among women (81 percent in the Northern region versus 72 percent nationally), and the percentage of women aged 15-49 having problems accessing health care (53 percent in the Northern region versus 72 percent nationally).[9] The case fatality rate for malaria decreased from 46 percent in 2011 to 24 percent in 2014.[1]

Selected social and health service indicators for the 8 RAcE supported districts in Malawi

	Ded	Lil	Nte	Nti	Lik	Mzi	Nkh	Rum	National
Population in lowest two national wealth quintiles (%)	45				27				--
Literacy rate female (%)	60	73	75	74	90	82	76	87	**72**
U5MR (per 1,000 live births)	84	84	80	84	57	52	74	62	**73**
Care seeking for diarrhoea for U5 children (%)	61	63	79	83	(81)	65	71	69	**66**
ORS/Zn treatment for U5 children with diarrhoea (%)	16	26	33	24	(23)	23	22	30	**24**
Care seeking for U5 children with fever (%)	71	63	70	78	84	50	69	71	**67**
ACT treatment for U5 children with fever (%)*	40				39				**39**
Care seeking for U5 children with respiratory infection (%)	80				78				**78**

*Source: DHS 2015/16 and *MIS 2014 (**Central Region**: Ded=Dedza, Lil=Lilongwe, Nte=Ntcheu, Nti=Ntchisi; **Northern Region**: Lik=Likomke, Mzi=Mzimba, Nkh=Nkhata Bay, Rum=Rumphi) Figures in parentheses are based on small unweighted samples*

8. The public health system in Malawi is decentralised. At central level, the MOH has among its main responsibilities the development of policies, strategic planning, and resource mobilisation. The districts, through District Health Offices (DHOs), are responsible for coordination and management of services in public health facilities at district level at primary and secondary levels. The community is the first level where health services are provided.

9. In the public sector, health services are provided for free at the point of use. However, household expenditures accounted for 13 percent of Total Health Expenditure (THE) between 2012 and 2015. More than 60 percent of the THE was provided by development partners and 25 percent by government with domestic revenues. The health sector in Malawi thus remains highly dependent on external funding.[1] Other challenges of the health system reported in the HSSP-II include shortages of health commodities, and a high staff vacancy rates.

10. In 2016, UNDP ranked Malawi in potion 170 out of 188 countries in the Human Development Index (UNDP).[16] In the Northern region, 27 percent of the population are within the two lowest

[1] The ICF final evaluation quotes a coverage of 2.3 million inhabitants, including 400,000 children under five years of age. The HTRA definition applied in the HTRA mapping is a 5 km radius from a health facility.

wealth quintiles, while the proportion is 45 percent in the Central region. An estimated 69 percent of the population live with less than US$ 1.25 per day, and 81 percent with less than two US$.[1]

THE RACE PROGRAMME IN MALAWI

Main objective	To assure significant expansion of the use of high quality integrated Community Case Management services at the community level
Contract agency	Save the Children
Government partner	Ministry of Health, in particular the Preventive Health / IMCI Programme
Contract Period	1/04/2013 – 30/09/2017
Budget	3 tranches totalling US$ 11.9 million
Geographical coverage	8 districts (in the Central Region: Dedza, Lilongwe, Ntcheu, and Ntchisi, and in the Northern Region: Likoma, Mzimba North, Nkhata Bay, and Rumphi
Population coverage	Overall population: 4.6 million, of which 3 million living in HTRAs Children under five: 515,000, including 276,000 living in HTRAs
iCCM target	427,831 children (2-59 months of age) in hard-to-reach areas in all of the eight priority districts accessing high quality iCCM services

11. The RAcE programme was implemented by SC Malawi, leading a consortium that included the Clinton Health Access Initiative (CHAI), Medical Care Development International (MCDI), and D-Tree International (D-Tree). SC works in Malawi since 1983 and focuses on maternal and child health. At the time of the RAcE proposal development, SC was implementing a Canadian-funded multi-country initiative in Malawi, Mozambique, and South Sudan for the delivery of iCCM services to remote communities. CHAI had extensive experience with procurement and supply management (PSM) in Malawi and led PSM activities for RAcE during the first two years of the project. As planned, CHAI left the partnership in March 2015. MCDI provided extensive support for the development of standards and provision of quality assurance for malaria Rapid Diagnostic Test (RDT). D-Tree upgraded and expanded the existing mobile phone applications for HSAs.

12. The first grant agreement letter (GAL) between WHO and Save the Children (SC) was signed in March 2013, and covered four districts (Dedza, Ntcheu, Ntchisi and Mzimba North). Two more GALs were signed, one in April 2014, and the last one in August 2015. The three agreement letters add up to a total of USD 11.9 million for the period of April 2013 to September 2017 (54 months). In September 2014, the programme expanded to four additional districts (Likoma, Lilongwe Rural, Nkhata Bay and Rumphi), and started piloting the component for community-based maternal and newborn care (CBMNC) in the district of Ntcheu.[14]

THE COUNTRY EVALUATION MISSION

13. The brief for the Malawi RAcE programme was prepared within the framework of the overall summative evaluation of the RAcE initiative. The approach and methodology for each of the country missions was standardised and is described in Volume 1 of the synthesis report. The evaluation questions were adapted to fit the context of the RAcE programme in Malawi. An initial work plan was established, including a preliminary list of key informants at national and provincial level, as well as a sample of districts and community sites to be visited.

14. Information available for the development of the sampling plan for the visits of health facilities and village clinics in the selected districts was limited. For health facilities that supervised at least five

HSAs implementing iCCM in their communities, random sampling was applied. To select communities for focus group discussions (FGD) random sampling was applied among those with a HSA implementing iCCM services. The original plan included a field visits to 4 districts, but one district visit was cancelled as more time was required for interviews at central level. More than a third of the RAcE supported districts were visited, and this sample provides a reliable representation.

15. During the country visit, 9 focus group discussions were conducted (with HSAs, caregivers of children under five, and members of VHCs). Furthermore, a total of 18 key informants were interviewed at central, district and health centre level. Among the key informants were representatives of government, programme implementers, and other stakeholders.

16. The country mission took place two months after the end of the RAcE programme. Almost all SC staff involved in implementation, both at central as well as at district level, were no longer available to share in-depth knowledge and experience, particularly at district level. IMCI/iCCM coordinators from District Health Management Teams (DHMTs) were actively involved in the implementation of the programme, and their views and experiences were collected. The consortium partner Medical Care Development International (MCDI) is no longer present in Malawi. The closure of the RAcE programme limited the access to relevant additional documentation at SC level.

MAIN FINDINGS

FINDINGS OF THE CONTRIBUTION ANALYSIS

17. Since 2007, the MOH IMCI unit manages iCCM implementation in all 28 districts of the country. At national level, interventions are coordinated through technical working groups led by the MOH IMCI unit and supported by the RAcE programme. Throughout the duration of the programme, these working groups were an important platform to share key results from the RAcE programme and discuss next steps. Supported by evidence generated by the RAcE programme and technical support from WHO, the Malawi MOH adapted the iCCM treatment protocols: for malaria from presumptive to confirmed treatment through the introduction of RDT at village clinic level (in May 2015), and for pneumonia through the change from cotrimoxazole to dispersible amoxicillin as the first-line antibiotic.[12][8]

18. The human resource capacity is generally limited at district level. In RAcE-supported districts, the DHO IMCI focal points were supported by full-time SC district coordinators, assuring an increased level of implementation and monitoring of activities.

19. FGD with community members confirmed a tailor-made approach by the RAcE programme for supporting community mobilisation and engagement. The RAcE programme made, to the maximum extent possible, efficient use of existing structures in communities that varied from community to community. Key informants at district level admitted that follow-up and accompaniment of community mobilisation activities after training was limited.

20. Key strengths of the RAcE programme reported by almost all informants include the support of health commodity supplies at HSA level (better availability), and the improved supervision and mentorship structures through which access and quality of services improved considerably in the RAcE supported districts. Joint review meetings to discuss results with HSAs were appreciated and led to better performance and engagement of HSAs and their supervisors and/or mentors. HSA case management performance improved from 68 percent at the start of the programme in 2013, to 91 percent at the end in 2017.[11]

21. The RAcE programme used a vertical supply system which was not continued after the programme ended. The decision to establish a vertical system was taken by the consortium in agreement with key stakeholders, when it became clear that the Central Medical Stores Trust (CMST) could not ensure an uninterrupted supply of commodities to the HSAs. In the meantime, CMST was supported by other development partners, and key informants reported reforms implemented at the CMST led to improved capacity and service delivery.

22. The use of the vertical supply system increased commodities availability at village clinic level in the RAcE supported districts. Nevertheless, due to insufficient supplies to health facilities by the national system, some health facilities used stock intended for use at the village clinics. Existing reporting systems do not include stock levels. cStock, a well-functioning Rapid-SMS based logistics management information system for community-level health commodities, is used to determine quantities for resupply to HSAs, but does not monitor stocks for HSAs once these are delivered to the health facilities, and accountability is low. Nevertheless, interviewees at all levels confirmed the availability of health commodities for iCCM in RAcE supported districts was considerably better than the availability in non-RAcE districts. Since September 2017, iCCM commodities for RAcE districts are fully managed by MOH, and first signs of interruption in the supply chain were observed by the evaluation team during field visits.

23. The RAcE operational research project Treatment of Young Infant infection in Ntcheu (TYINN) also reported supply problems during the expanded pilot phase, in particular for gentamicin, and oral amoxicillin.

24. In the RAcE supported districts, a total of 1,192 HSAs were trained, of whom 995 are providing iCCM services (83%). [11] Universal coverage of service delivery to communities in the RAcE-supported districts could however not be fully achieved, for reasons which were beyond the scope of the RAcE programme: lack of possibilities at MOH to recruit HSAs, inefficient implementation of the deployment strategy for HSAs to eligible communities, and resistance of some DHMTs to train HSAs not residing in their catchment area. The insufficient numbers of iCCM-trained HSAs residing in their catchment areas may have influenced other changes that could not be fully achieved by the RAcE programme, such as the level of improvement of health care seeking behaviour and demand, and increased availability of and equitable access to iCCM services. Community members mentioned in FGDs that some caregivers sought care from other service providers, or postponed care seeking because of the limited opening hours of the village clinic.

25. According to the national definition, HTRA are areas further than eight km from a health facility.[1] Nevertheless, the NCHS notes an ongoing discussion to change the eight km radius to five km in order to align with global standards.[3] Document review and key informants confirm that during the implementation period of the RAcE programme the definition of HTRA used by the RAcE programme already changed from eight to five kilometres, but this definition is not confirmed in the main health strategy documents. When considering the five-kilometre radius as the standard, the number of HTRAs in the RAcE supported districts increased from 1,292 in 2014 to 1,727 in 2017. Consequently, iCCM coverage decreased, as more HSAs were required to ensure universal coverage, but no recruitment of HSAs took place.[1]

26. The workload of HSAs is very high and also includes duties at health facilities. Time available to provide iCCM services to their assigned communities is therefore limited. Surveys report 83 percent of HSAs provides iCCM services only two days per week, but HSAs interviewed declared to spend between 50 to 75 percent of their time providing iCCM services.[6][12] Transport remains problematic, even with the bicycles that were provided. Some catchment areas are large and have geographical barriers that complicate cycling, in particular for female HSAs. A decrease in immunisation coverage from 81 percent in 2010 to 71 percent in 2016 has been related to an overload of tasks and responsibilities for HSAs.[1]

27. HSAs are a key human resource for service delivery in the Malawian health system, and they received considerable support from development partners over the past years. Health centres however, are often understaffed, and the supply of health commodities at this level is unstable. Examples of counter-referral (from health centre to village clinic) due to the lack of health commodities at health centre level were reported repeatedly. The RAcE programme succeeded in ensuring a consistent supply of health commodities to village clinics but did not include the health centre level.

28. The sub-grantee delivery model established for the implementation of the RAcE programme was not unanimously perceived as positive. The roles and responsibilities of each of the implementers were clear and collaboration was generally adequate. Some key informants at central level from government and development partners, however, expressed doubts about the cost effectiveness and efficiency of programme implementation by NGOs, citing high costs for human resources and delays because of

[1] The Malawi end-line survey states that the Government of Malawi changed the definition of HTRAs in 2013, decreasing the distance to the nearest health facility from eight to five kilometres, but does not make reference to an official government document where this change is confirmed.

organisational regulations and policies. Nevertheless, the approach brought together technical and financial support from development partners under the leadership of MOH, contributed to significant achievements in a broad range of areas (e.g. policy, training, supervision, community mobilisation). At district level, key informants expressed their appreciation for the support received through SC.

29. The MOH IMCI unit is technically strong, and its capacity was further strengthened by the specific support provided by WHO (e.g. coordination and policy) and SC (e.g. M&E). Functional systems are established, and sufficient knowledge exists to adequately manage the iCCM programme at national level. Financial sustainability, however, continues to be a key weakness of the MOHs capacity to run the iCCM programme. Without external support, iCCM cannot be implemented according to the national guidelines.

30. Data available to the evaluation team could not confirm the reduction of child mortality of 4.7 percent in the districts supported by the RAcE programme as estimated by ICF with the application of the LiST model. The model input data on treatment for malaria and pneumonia are derived from baseline and end-line surveys. Between the surveys, the approach to diagnosis of malaria had changed by the introduction of RDTs in community case management and the treatment protocol for pneumonia had changed from cotrimoxazole to amoxicillin. The reliability of caregiver assessments of the denominators (i.e. confirmed pneumonia and confirmed malaria) is known to be very low. Some assumptions may have led to overestimations of lives saved, and others to underestimates, but evidence is not robust enough to confirm the final estimate.[8] At national level there is strong evidence to support the finding of an overall decrease in under-five mortality with 112 deaths per 1,000 live births in 2010 to 63 in 2015/16,[9] however district specific data are too limited to confirm the estimated reduction in RAcE supported districts.[15]

31. The evaluation team did not observe any contradicting findings from previous evaluations, and most of the causal mechanisms as presented in the ToC hold. Efforts were made to implement the RAcE programme as planned, and, despite several challenges, outputs were achieved to a large extent. The main challenges faced were related to HSA management issues (e.g. recruitment, deployment), as a result of which universal coverage could not be reached. Evidence for contribution of the RAcE programme to most of the intended changes outlined in the ToC framework is strong, both from available documentation as well as from primary data collected by the evaluation team. For some causal mechanisms however, evidence from the base- and end-line surveys differs considerably from evidence gathered through KIIs and FGDs conducted by the evaluation team. For these particular causal mechanisms, evidence is less robust. This is also the case for interventions that involve advocacy (e.g. advocacy for re-deployment of HSAs to vacant catchment areas).

32. The following sections expand on findings that were not or not sufficiently captured by the ToC evaluation.

GENDER EQUALITY

33. Gender equality outcomes are not included in the ToC framework of the RAcE programme in Malawi. None of the documents reviewed made mention of a gender analysis, which was confirmed by key informants.

34. The RAcE programme was not involved in recruitment of HSAs (the last recruitment of HSAs took place in 2008), and hence did not have any influence on the gender profile of the HSA workforce. A study published in 2014 reported that 75 percent of 838 HSAs were male. [20] An HSA survey conducted in parallel with the RAcE programme end-line survey in 2017 sampled 47 HSAs of whom 33 were male (70%).[6] SC reported that among the HSAs trained in 2015/16, 35 percent were female. The gender

balance among members of the village health committees (VHC) trained under the RAcE programme, however, were predominately female. SC annual reports include gender profiles for most training courses conducted in the reporting period.[11][12] However, the HTRA mapping conducted in 2017 for RAcE-supported districts does not include the gender profile of HSAs.[18]

35. The village clinic monthly report forms include sex-disaggregated data for children seen, but not for new cases per disease/condition. DHIS2, the national health information system platform, only includes sex-disaggregated data for adults, but not for children under five years. The reports of the base- and end-line RAcE programme household surveys demonstrate that care from an appropriate provide was sought for a higher proportion of boys than for girls, and that more girls than boys received treatment of malaria within 24 hours by an HSA. Adherence to HSA referral decreased for boys. Although the sex differences for care seeking and malaria treatment at end-line, and the sex difference of adherence to referral at baseline were statistically significant, the confidence levels overlapped, and their programmatic significance is questionable.[8]

Summary of findings on gender equality

Gender analysis	No gender analysis was conducted
Gender equality in access to treatment	The proportion of girls and boys treated was generally equal which is in line with published research about sex difference in care-seeking for children in Africa.[17]
Gender equality among care providers	The majority of HSAs are male, although training reports of SC and data of the 2017 HSA survey (based on a small sample) suggest a slight shift from the reported male/female balance of 75/25 reported in 2014. HSAs met during field visits were about 60 percent male. Key informants at district and health centre level indicated that most supervisors and mentors are male.
Gender sensitivity of HSA training	The materials for iCCM training and manual for CHWs (2016) are rather gender unaware; the large majority of images show female caregivers as well as CHWs. Examples used in the manual mainly refer to mothers as caregivers, however overall text is gender neutral.[21]
Gender equality in the community	Since baseline, no changes were noticed in the decision-making to seek care for a sick child (approximately 46 percent joint decision). Joint decision making for general care-seeking however increased from 21 percent at baseline to 44 percent at end-line[1] which may be an indication of increased male involvement in health care. SC annual reports show the majority of members of VHC and/or Community Action Groups (CAGs) trained were female. This was confirmed by community members interviewed.

36. Key informants at district and community level, as well as community members through focus group discussions, noted that easier access to child health services through village clinics changed the workload of both men and women; women generally spent less time on child care as services are closer to their communities, which allows them to better support their partners with their activities. Women feel more empowered as their knowledge on health increased.

[1] For the end-line survey 60 clusters were sampled, based on census enumeration areas. As these areas did not fully align with the iCCM eligible areas, from the 60 clusters, only 33 had an active, iCCM trained HSA. The end-line survey report presents results for some indicators separately for the active clusters and the non-active clusters, while for other indicators no distinctions are made between the different cluster types.

37. The constraints for the recruitment of female HSAs mentioned by most key informants included the low literacy rates of women in rural areas, although these rates are relatively high for women in the Northern and Central region with 81 percent and 71 percent respectively.[9] Women's power, however, varies among the districts. Particularly in the Northern region, most women require the permission of their male partners to apply for a position as HSA.

38. Community members do not have any influence on the selection of the HSA deployed to their community. Most of the community members interviewed did not report preference for a male or female HSA. Several key informants at district and health facility level, however, indicated that female HSAs tend to be more reliable and are more consistently found in the village clinics (and in their homes). At the same time, key informants mentioned that attrition is higher among female HSAs as they relocate for marriage or follow their husbands when he moves for reasons of employment.

39. For the CBMNC services, the situation is different. According to interviews and FGDs in communities, women who recently gave birth will not seek care for themselves or for their new-born child from a male HSA, whether at a village clinic or for a home visit. They prefer to seek care in a health facility where they are sure to find a female nurse. Nonetheless, the CBMNC package is based on home visits and therefore involves traveling within the community. Due to limited transportation means and geographical barriers (hills, rivers), this is more difficult for female than for male HSAs.

40. All persons interviewed noticed signs of increased male involvement in children's health, which they believe is a result of increased community awareness achieved through the HSAs' work. Commonly, men are involved in care seeking during the night, and for serious cases, and they escort their wives to health facilities when distances are far. More than one third of women interviewed for the CBMNC end-line reported that husbands/partners were present for at least one of the HSAs' home visits during pregnancy.[10]

41. An increased involvement and participation of women in health service delivery and review at community health levels is noted, mainly through the VHC and/or CAGs. Male HSAs confirmed increased recognition of their position since they provide iCCM services. Women HSAs did not report such change in recognition although they confirmed that their position improved.

COMMUNITY BASED MATERNAL AND NEWBORN CARE (CBMNC)

42. Under the leadership of MOH IMCI unit, and with support from various development partners, CBMNC is being implemented since 2011, based on a package developed between 2007 and 2009. At the end of 2014, the MOH, supported by the RAcE programme, revised the WHO Caring for the Sick Newborn package to align it to the Malawian context, policies and strategies. Training materials were adapted and translated into the main local language Chichewa for adequate use during home visits. Under the RAcE programme, the CBMNC package was implemented in the district of Ntcheu; a total of 288 HSAs and 26 supervisors were trained, and essential commodities provided.[1] The package focuses on home visits (two during pregnancy and three within the first 8 days after delivery), during which key messages on topics related pregnancy, postnatal, and newborn care are conveyed.[10]

43. Community members interviewed consistently expressed their appreciation for the involvement and support of HSAs during pregnancy. Focus group discussions with community members revealed that there is a strong collaboration between HSAs and health facilities for antenatal care and related

[1] Essential commodities for CBMNC include a scale, thermometer, timer, counselling materials, CBMNC register, exercise book for pregnancy listing and newborn referral slips. The CBMNC package is also implemented in Mzimba North, Ntchisi and Dedza, but not supported through the RAcE programme in these districts.

services. Community members were not able to clearly distinguish the different roles and responsibilities of health facilities and HSAs with regard to maternal health. Women particularly valued the support from HSAs, and their efforts to involve men in child care.

44. The CBMNC end-line survey conducted in 2016 reported the following main results:[10]

- 31 percent of mothers surveyed received at least one home visit by an HSA during pregnancy (target >45 percent)
- 11 percent of mothers and their newborn infants surveyed were visited by an HSA within 3 days of delivery and 5 percent within 24 hours (target >30 percent)
- 94 percent of mothers surveyed were able to mention at least two danger signs for newborn infants

45. The HSA survey found that most of the HSAs trained in CBMNC were equipped to adequately provide CBMNC services, yet the number of home visits remained too low to measure outcome changes. Considering the average HSA catchment population, crude birth rate, and CBMNC guidelines, an HSA should conduct around 66 home visits per quarter, yet, currently HSAs report on average 12-13 home visits.[10] Main reasons for the low coverage reportedly include the lack of appropriate transport, limited access for male HSAs to the homes of pregnant women or young mothers, difficulties to adequately plan home visits, and an inefficient birth notification systems. The DHS 2015/16 confirmed that newborn mortality rates remains high with 30 deaths per 1,000 live births in Ntcheu, and 25 nationally.[9]

46. The general lack of CBMNC implementation data is a serious observed weakness. Supervision systems are weak and are implemented in parallel to regular iCCM supervision. Mechanisms to collect and manage CBMNC data are insufficient. Indicators for assessing iCCM implementation strength, and iCCM supervision check lists do not include any CBMNC intervention. Regular RAcE documentation and reporting provides minimal information on CBMNC. The *Roadmap for sustainable iCCM services in Malawi 2017 - 2021* does not include any activity to sustain implementation of CBMNC.[4][13] Overall, CBMNC did not receive the attention required for adequate and successful implementation.

mHEALTH APPLICATION

47. The RAcE programme supported the implementation of mHealth, developed on a mangologic platform,[1] in the four districts that were supported from the start of the programme. The evaluation report of May 2017 reported positive results for the classification of sick children, and somewhat negative results for the use of the application as a reporting tool.[7]

48. The main challenges for the use of mHealth were related to technical issues such as software bugs, unreliable internet connections, and lack of power for charging phones. After the most recent update of the application just before the end of the RAcE programme, system issues aggravated. Unfortunately, at that same time, technical support by D-Tree ended because of the programme.

49. According to key informants, the technical and financial capacity of the MOH to support mHealth is limited. Despite efforts by D-Tree to prepare the MOH and DHOs to assume responsibility for continuous use of the application beyond the RAcE programme (training of super users, and district IMCI coordinators), the application's (correct) use by HSAs is likely to decrease, unless further support is provided by a technical partner.

[1] www.mangologic.com

50. The respondents stated that there is no national policy on the use of information technology and mobile applications in health and little or no government financing. Most mHealth initiatives are therefore parts of international projects. Different applications are being implemented in different districts, mainly depending on the choice of the development partner. Implementation is not sufficiently based on existing knowledge and experience with particular applications.

51. Most HSAs interviewed were trained in the use of mHealth, but use varies considerably. A short demonstration of the application by one of the HSAs interviewed showed a well-functioning yet slow system. A full child assessment using the application is a time-consuming activity.

52. Lessons learned regarding the use of mHealth through the RAcE programme show that interventions were not mainstreamed, but guided by development partners, and under-resourced for adequate, nationwide implementation. Feasibility of a roll-out at national scale in the short term is limited. Meanwhile, cStock, also a mobile application, is functional throughout the country, and appreciated by all persons interviewed. This application is technically simple and straightforward which is a likely reason contributing to its success.

Operational research: Treatment of Young Infant infection

53. The aim of the operational research supported by RAcE, Treatment of Young Infant infection in Ntcheu District (TYIIN), is twofold: 1) evaluation of the feasibility of treatment of possible serious bacterial infections (PSBI) and fast breathing for young infants at the first level health facilities, and 2) evaluation of health centre capacities to deliver quality care for children with PSBI and fast breathing. The latter involved capacity assessments of HSAs to follow up PSBI and the acceptability of caregivers of PSBI treatment provided at first level health facilities.

54. Although final study results are not yet published, preliminary findings confirm that, when hospital referral is impossible, adequate management of PSBI and fast breathing management in young infants can be provided by first-level health facilities.[5] Based on this conclusion, Malawi is committed to change the policy, and, already defined next steps. Ntcheu district will expand the pilot throughout the district, and depending on the results of this pilot, the national policy will be adapted. WHO supports Malawi to change and adopt its policy and facilitates the exchange of lessons learned from other countries (eg. Nigeria, Ethiopia, Pakistan, DRC). A technical working group that brings together all key stakeholders, is leading this process. USAID committed to support a few districts with implementation of the new policy.

Sustainability planning

55. In August 2016, 6 months before the official programme's end date[1], a start was made with the elaboration of a sustainability plan in a one-day meeting with key iCCM stakeholders from the national level, followed by a two-day meeting with district level stakeholders from the RAcE supported districts. The objective of these meetings was to develop, in a participatory manner, a strategy for transition activities and responsibilities under the RAcE programme to the MOH, in order to allow for continuation of iCCM services provision in the eight RAcE-supported districts. The transition plan formed the foundation for the *Roadmap for sustainable iCCM services in Malawi 2017 – 2021.*

56. The transition plan contains a detailed list of activities (for MOH, DHMT, and the RAcE programme), covering seven key topics. The plan was supposed to be fully implemented within 90 days, starting in October 2016. For several activities listed, this period is not realistic (eg. MOH to recruit and

[1] The RAcE programme officially ended in March 2017 but continued till September 2017 with a no-cost extension.

train adequate numbers of additional HSAs, lobbying activities for funding from development partners). Other activities need involvement from different entities than those listed in the plan (eg. CMST to start procuring dispersible amoxicillin, as this product is not on the national essential medicines list).

57. Two main achievements were reported: a rapid assessment of the HTRAs in the RAcE districts in early 2017, and the purchase of an upfront buffer stock for six months. The latter was realised through two purchases, each for three months of stock required for RAcE-supported districts. Government, through CMST, however does not yet include the needs for RAcE supplies in their budget and planning, and supply planning is not yet coordinated. The last SC annual report (May 2017) lists several activities conducted to ensure continuity after the RAcE programme's end that are not included in the transition plan (eg. support to World Vision to ensure a DHIS component to strengthen TGF national level work plan on iCCM activities). Several activities to sustain the mHealth application were undertaken.[12]

58. The roadmap vision for 2021 focuses on quality improvement of services provided by the HSAs, which is in line with the current mature status of iCCM in Malawi. The twelve issues prioritised in the roadmap correspond to observations on iCCM in the programme reports and related documentation. Key interventions involve broader health system strengthening and are strongly linked with overarching strategies of the HSSP-II and NCHS. The roadmap addresses specific activities for four key stakeholders at MOH and DHO level. A list of indicators is included in the roadmap, yet for three of the four outcome indicators no targets are mentioned.

59. Overall, activities proposed to address the priority issues are adequate, although activities and benchmarks require more detail to facilitate an unequivocal understanding. Benchmarks are presented as indicators, but targets are not included. More importantly, some proposed activities will most likely not lead to a sustainable solution of the issue they are supposed to address:

- To improve the current inefficient referral system, development of a mHealth/digital health for community and referral system is suggested. It is uncertain whether this intervention is an appropriate solution given the lack of government support to mHealth, and the minimal coverage currently provided by the telecom companies.
- To solve the transport challenges of HSAs, the purchase of bicycles is proposed. Interviewees however indicated that the geography of many areas makes cycling difficult, if not impossible.

60. Two key issues are not covered by the roadmap: activities to support implementation of CBMNC, and continuous and sufficient funding for adequate iCCM provision (including CBMNC). The latter however, indicated as a key concern by almost all key informants, particularly applies to those iCCM components that are currently largely donor dependent: the supply of commodities, regular supervision and mentorship, and the mHealth application.

61. Uncoordinated implementation by partners is listed as a prioritised issue to be addressed, yet all key informants, including staff of government and development partners, praised the strong leadership of the MOH IMCI unit. It is therefore assumed this prioritised issue relates to the district level, as human resources capacity at that level is limited, particularly now that the SC coordinators are no longer supporting the DHOs.

62. The ambiguity in the definition of HTRA persists in the roadmap; both the eight-kilometre and the five-kilometre radius are mentioned. This difference greatly affects the number of HSAs for universal coverage. At the end of 2017, the roadmap was not yet disseminated. The delay since the workshops in August 2016 affected the ownership of the transition plans, particularly at district level. Many persons interviewed who participated in the initial meetings were not aware of the current situation of the

roadmap, although most key informants acknowledged that the roadmap was a useful tool to prioritise activities.

CONCLUSIONS

63. Malawi succeeded in optimising the possibilities provided by the RAcE programme to strengthen iCCM policies and implementation systems. Existing guidelines, knowledge and experience gathered through several years of implementation was efficiently used to design a programme that allowed for expansion, improvement of quality of services, and strengthening of existing systems. Through the flexible approach of the RAcE programme, specific interventions could be piloted, and lessons were learned and used to improve policies and guidelines.

64. With support from the RAcE programme, Malawi made the change from presumptive to confirmed malaria treatment through the introduction of RDT at village clinic level. The policy for first line antibiotic treatment of pneumonia changed from cotrimoxazole to dispersible amoxicillin. Based on positive preliminary results from the operational research TYIIN, plans are developed to change the national policy for treatment of PSBI. WHO is committed to continue supporting Malawi with the policy revision and implementation after the end of the RAcE programme. National health strategies, such as the HSSP-II and the NCHS, that were developed during the time of the RAcE programme included important lessons about iCCM implementation.

65. Findings on health care-seeking and demand generation are somewhat contradictory. Whereas communities visited appreciated the iCCM services and all referred to the HSA as their first point of care for sick children, the analysis of survey data show a slight decrease in care-seeking and stagnation in adherence to referral (both not statistically significant). The decrease reported may be related to the limited availability of HSAs for provision of iCCM in the village clinics (the large majority of village clinics are functional only two days a week), and the communities' limited acceptance of the scope of the iCCM approach in terms of age and conditions. The latter confirms awareness raising is a constant requirement for optimal iCCM implementation.

66. The implementation of the RAcE programme in Malawi was gender-sensitive. General treatment data collected at village clinic level were sex-disaggregated, although this disaggregation is lost in the transfer of data to DHIS2. The RAcE programme did not cover HSA recruitment and did not have direct influence on deployment of HSAs. Health workers and communities were positive about the increased involvement of fathers in health care for their children. However, a gender analysis was not included in the terms of reference of the SC contract and was not performed, and therefore no conclusions can be made about potentially gender-transformative results of the programme.

67. Through the RAcE programme, approximately 2.2 million treatments were provided to children under 5 years of age for malaria, pneumonia and diarrhoea over the 4.5-year programme period, and many child deaths were prevented. The 4.7 percent decrease in under-five mortality estimated with the application of the LiST model by ICF is low when compared to other RAcE programme sites, however it has to be interpreted in context. The RAcE programme in Malawi was implemented within an existing, already mature iCCM programme led by the MOH. When it started in 2013, iCCM was already implemented in all districts, and a decreasing trend of under-five mortality was already observed. HSAs were already in place, and the RAcE programme did not have any influence on their training programmes and deployment.

68. Key constraints encountered during implementation of the RAcE programme were mainly related to systemic issues. Two weaknesses in the health system that potentially constrained the programme to fully achieving its objectives where the insufficient human resources capacity to realise universal coverage, and the unreliable supply of health commodities for the village clinics. Only one of those weaknesses was (temporarily) addressed by RAcE. In contrast to what was initially planned, the

RAcE programme provided the full quantities of health commodities required for iCCM in the RAcE-supported districts. Without this contribution, the RAcE programme would not have been able to succeed.

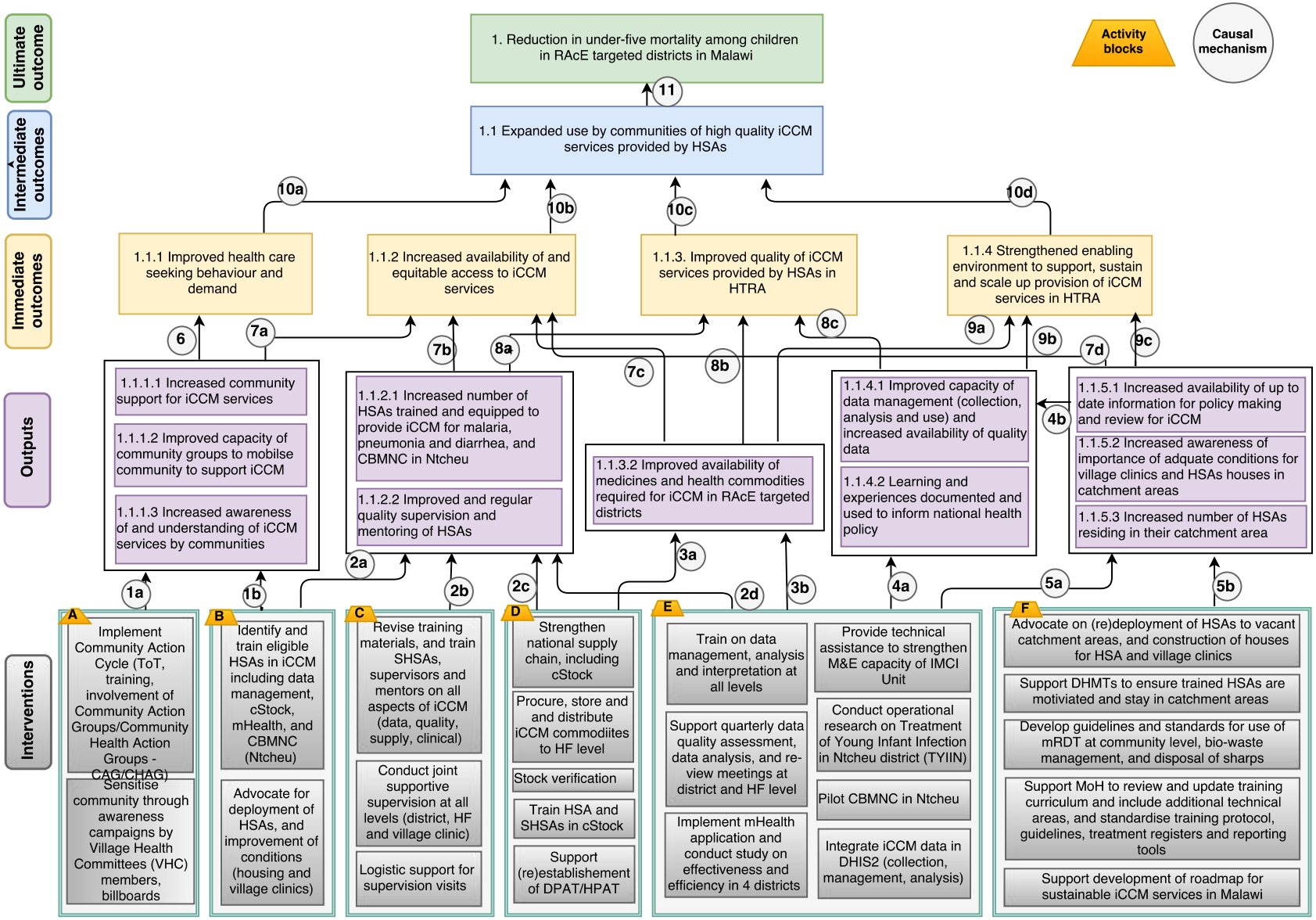
69. The WHO country office played an important role in policy development, overall coordination and technical guidance of the RAcE programme in Malawi. WHO and the MOH IMCI unit have a longstanding relationship characterised by mutual trust and appreciation. Therefore, the general opinion among stakeholders was that the MOH IMCI unit could have managed the RAcE funding, without input by SC or other NGO subcontractors.

70. The post-hoc Theory of Change framework, including the influencing factors listed, clearly describes and confirms the package of interventions implemented. There is sufficient evidence to conclude that the programme outcomes were achieved according to the logic of iterative changes starting from the programme inputs and activities. Nevertheless, not all intended changes were fully achieved, for different – plausible – reasons, and the evidence that the RAcE programme contributed to the intended changes is not equally strong for all causal mechanisms, particularly the ones at intermediate and final outcome level. Due to the maturity of the national iCCM programme in Malawi, and in particular the full institutionalisation of the programme before the start of the RAcE Initiative in 2013, the RAcE programme focused its support on the improvement of the quality of iCCM delivery. To achieve these quality improvements required, in several instances, changes in other health systems components that were out of scope of a community-centred service programme, for instance in the areas of facility-based primary health service delivery, health financing and health information management.

71. The following weaknesses of the RAcE programme in Malawi were identified by the evaluation team:

- Health facilities play an important role in iCCM service delivery through their support and supervision of HSAs, and by ensuring adequate care and treatment for referred cases. Apart from training of supervisors and mentors, the RAcE programme did not include support to these facilities. However, many of these facilities require improvement in terms of staffing and supplies.
- Community awareness and mobilisation are key factors for successful implementation of iCCM that require continuous attention. However, follow up community interventions after training of community committees was limited.
- The transition plan and roadmap, developed with support of the RAcE programme, are important steps towards sustainable iCCM provision. Transitions planning, however, started too late and the time to implement the activities to ensure continuity was too short.

THEORY OF CHANGE



Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the output level					
1	1.1.1.1 Increased awareness of and understanding of iCCM services by communities 1.1.1.2 Improved capacity of community groups to mobilise communities to support iCCM 1.1.1.3 Increased community support for iCCM services	• By March 2017, 436 community mobilisation teams (CMT) members were trained **(reports SC)** • By March 2017, 4,605 village health committees (VHC) and/or Community Action Groups (CAG) members were trained **(draft final report SC)**	• The end-line survey reported 93% of households were aware of the presence of an iCCM-trained HSA in their communities in active clusters, and no statistically significant difference was reported between baseline and end-line **(surveys)**[1] • The end-line survey reported 35% of households were aware of the role of the iCCM-trained HSAs in active clusters, and no statistically significant difference has been reported between baseline and end-line **(surveys)** • In mid-2016, 94% of caregivers knew at least two newborn dangers signs (no baseline data available for review) **(SC reports)** • In Jan 2017, 19% of trained HSAs providing iCCM were living in houses constructed or supported (payment of rental) by communities (baseline data not available), and 77% of village clinics had waste disposal facilities provided by communities (64% in 2016) **(report SC, HTRA mapping)** • VHC members were involved in stock management of the village clinic through a double lock system of the drugs box **(document review, KII, observation)**		• none

[1] The ICF end-line survey was conducted in the four original project districts only and did not take into consideration the additional four districts. In 33 of the 60 clusters surveyed at end-line an iCCM-trained HSA was active, hence sub-analyses of the 'active' and 'non-active' clusters were performed.

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
2a, 2b, 2c	1.1.2.1 Increased number of HSAs trained and equipped to provide iCCM for malaria, pneumonia and diarrhoea; and for CBMNC in Ntcheu 1.1.2.2 Improved and regular quality supervision and mentoring of HSAs	• Out of the targeted 1,366 HSAs, 1,192 were trained in iCCM (87%) **(reports SC)** • 299 HSAs (225 where targeted) and 52 SHSAs (final targets unclear) were trained in CBMNC in Ntcheu **(reports SC)** • 517 HSAs and 108 supervisors were trained for mHealth (final targets unclear) **(draft final report SC)** • 345 supervisors were trained, and 574 received a refresher training (final targets unclear) (**SC reports**) • 425 new mentors were trained, and 429 received a refresher training (final targets unclear) (**SC reports**)	• 69% of iCCM-trained HSAs submit activity reports vs 87% of iCCM-trained HSAs reported as active at baseline **(reports SC, ICF)** • 373 of 1,192 (31%) trained HSAs stopped providing iCCM services (**draft final report SC**) • 93% of HSAs trained in CBMNC implement the intervention **(reports SC)** • 87% of CBMNC trained HSAs submit reports on CBMNC activities (no baseline data available for review) **(CBMNC end-line survey)** • Supervision of SHSAs is not well perceived by some HSAs **(KII, FGD)** • HSAs confirm they receive regular supervision visits, and supervision reports were seen in health facilities visited **(KIIs and FGDs)** • Mentors and HSAs admit challenges with implementation of mentorship: mentors are not available and/or HSAs do not show up at HF where mentorship is supposed to take place) **(KII, FGD)** • In programme year 4, 91% of the HSAs providing iCCM services were supervised vs 22% at baseline, and 82% were mentored at least once during the reporting period vs 24% at baseline; levels reported by HSAs at baseline were much higher (71 and 51% respectively **(report SC)** • 13% of HSAs confirmed at least one supervision visit for CBMNC in the past quarter (no baseline data available for review **(CBMNC end-line survey)** • Perception of HSAs as trusted and convenient service providers of quality services decreased between base and end-line (in all and active clusters), which may be related to limited presence of HSAs in their communities/village clinics. Communities interviewed expressed appreciation for HSAs work **(surveys, FGD)**		• SC could not conduct HSA iCCM trainings according to plans due to HSA vacancies and lack of approval from some DHOs to train HSAs not residing in their catchment areas (**reports SC, ICF**) • MOH did not recruit HSAs since 2008 (**KII**)

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
3a, 3b	1.1.3.1 Improved availability of medicines and health commodities required for iCCM in RAcE targeted districts	• A vertical system for procurement, storage and distribution of iCCM commodities was set up, **(document review, KIIs)** • 1,277 HSAs, SHSAs and facility in-charge officers were trained to use cStock (targets unclear) **(reports SC)** • In the first project year, District Product Availability Teams (DPAT) and Health Product Availability Teams (HPAT) were revitalised **(final report SC, KII)**	• The set up and use of vertical supply system strengthened, to a limited extent, some specific aspects of the national supply system (eg. quantification for iCCM commodities) (**document review, KII**) • cStock reporting rates of RAcE supported districts are higher than the national average: 76 vs 57% on completeness **(database cStock)** • High proportion of HSAs reported no stock-out of the 6 key commodities in their monthly reports; percentages varied between 76% (for amoxicillin/ cotrimoxazole) to 99% (for RDT) **(ICF final evaluation)**		• Dispersible amoxicillin is not in the national essential medicines list **(reports ICF, KII)** • Funding for payment of monthly fees for cStock not always available timely (**reports SC**) • Access to internet is challenging in several of the project districts (**reports SC, KII**)
4a, 4b	1.1.4.1 Improved capacity of data management (collection, analysis and use) and increased availability of quality data 1.1.4.2 Learning and experiences documented and used to inform national health policy	• The national health information platform (DHIS2) has provisions for including iCCM data **(KII)** • SC supported one full time technical assistant for M&E activities at the MOH IMCI unit **(reports SC, KII)** • 912 supervisors, mentors, SHSAs and HSAs were trained in data analysis and interpretation of iCCM data (targets unclear) **(document review, KII)**	• The MOH IMCI unit uses DHIS2 for monitoring and programming of activities **(document review, KII)** • iCCM register and report availability high at all levels of the reporting system **(DQA report, ICF final evaluation)** • mHealth did not facilitate use of data for decision making (**ICF evaluation of mobile health application in iCCM program)** • mHealth is not used consistently which complicates data management (mix of paper based and mHealth data) **(KII)** • Data review meetings were held on a regular basis at health facility and district level **(document review, KII)** • Key Informants at national level confirm RAcE learnings contributed to HSSP II and NCHS **(KII)**		• World Vision (with funding of TGF) also supports training on data management **(KII)** • There is no national policy on mHealth, and national funding of mHealth is insufficient **(KII)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
5a, 5b	1.1.5.1 Increased availability of up-to-date information for policy making and review of iCCM 1.1.5.2 Increased awareness of importance of adequate conditions for village clinics and HSAs houses in catchment areas 1.1.5.3 Increased number of HSAs residing in their catchment areas	• Roadmap for sustainable iCCM services in Malawi developed through participatory process **(KII, document review)**	• Some stakeholders interviewed, in particular DHOs staff, were not aware of current status of the roadmap **(KII)** • Houses for HSAs and villages clinics were constructed/rehabilitated with other support than through RAcE **(KII)** • In January 2017, 608 out of 1,192 (51%) iCCM-trained HSAs resided in their catchment area vs 81% in March 2014. (May be influenced by redefinition of HTRAs from 8 to 5 km to nearest health facility). **(document review)** • Change of iCCM guidelines were supported by the RAcE programme (e.g. malaria confirmation with RDT; amoxicillin for pneumonia treatment) **(document review, KII)**		• Implementation of deployment strategy is responsibility of MOH **(document review, KII)** • Material for construction /rehabilitation of HSA houses and village clinics provided by UNICEF and individuals **(KII)** • Ambiguity in the definition of HTRAs for iCCM services. Key informants mentioned a decrease of the radius from 8 to 5 km to the nearest health facility **(document review, KII)**
Changes at the immediate outcome level					
6	1.1.1 Improved health care seeking behaviour and demand	• Communities are satisfied with the iCCM services provided by HSAs **(KII, FGD)**	• Care-seeking from an appropriate provider increased from 69% to 74% between baseline and end-line (not statistically significant) **(surveys)** • Adherence to sick child referral did not increase between baseline and end-line surveys – 90% vs 87% **(surveys)** • Communities interviewed requested for expansion of services by HSAs **(FGD)** • Communities express appreciation of the village clinics/HSAs, but concern about limited availability/opening hours **(KIIs, FGDs)** • HSAs and communities mentioned an increase in male involvement in child health **(KII, FGD)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
7a, 7b, 7c, 7d	1.1.2 Increased availability of and equitable access to iCCM services	• In Jan 2017, HSAs providing iCCM services covered 51% of the HTRAs **(report SC, HTRA mapping)**	• Communities visited consistently rank HSAs as first point of contact for seeking care for their sick children **(FGD)** • iCCM service provision is highly appreciated by the communities **(KII, FGD)** • The end-line survey reported 46% of sick children were taken to an HSA as the first point of contact compared to 30% at baseline **(FGD, ICF final evaluation)** • In Jan 2017, 26% of HSAs provided iCCM services at least 5 days a week; 83% reported providing iCCM services only 2 days per week Communities are concerned about limited availability/opening hours **(KII, FGD, SC reports, surveys)** • By March 2017, HSAs in RAcE supported districts provided more than 2 million treatments for children under 5 **(reports SC)** • Key informants at health facility level noticed a decrease in case load since village clinics are functional **(KII, FGD)** • HSAs referred 21% of children to health facilities. Some referrals were related to stock-outs of commodities at village clinics **(KII, surveys)**		• Malawi needs an additional 7,000 HSAs to meet the national policy requirement of one HSA per 1,000 population **(NCHS, document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
8a, 8b, 8c	1.1.3 Improved quality of iCCM services provided by HSAs in HTRA	• Communities visited were satisfied with the quality of iCCM services provided in the village clinics **(FGD)** • Village clinics exist, are supervised on a regular basis, supplied with essential commodities, and feed data into DHIS2 **(KII, document review)**	• Supply of health commodities for iCCM was managed through a vertical system **(document review, KII)** • Malaria treatment has greatly improved with the rolling out of the use of mRDTs **(document review)** • Supervisors and mentors reported that most HSAs followed the guidelines for diagnosis and treatment **(KII)** • Government and SC staff assured (joint) regular supervision of village clinics/HSAs **(document review, KII)** • mHealth supports protocol adherence and reduces human errors **(KII, document review)** • Timely data on iCCM are available through DHIS2 and cStock **(document review, KII)**		• Persisting (technical) problems limit mHealth use **(KII, ICF evaluation of mobile health application in iCCM program)** • National policy and sufficient (national) funding for mHealth use are not available **(KII)**
9a, 9b, 9c	1.1.4 Strengthened enabling environment to support, sustain and scale up provision of iCCM services in HTRAs	• iCCM is included in planning and budgeting cycle MOH under IMCI **(KII)** • Community-based health data are integrated in DHIS2 **(document review)** • Programme review meetings are held on a regular basis **(KII)** • iCCM technical working group meets on a regular basis **(KII)**	• iCCM is embedded in national strategies such as NCHS and HSSP, and key informants at national level confirm that RAcE learnings contributed to strategy development (**document review, KII)** • RAcE strengthened weak components of iCCM, eg. supervision/ mentorship mechanism **(KII)** • DHOs visited have dedicated iCCM coordinator who remains in charge after the end of the RAcE project **(KII)** • DHOs visited were not aware of status sustainability roadmap **(KII)** • Strong leadership of MOH IMCI unit for policy, planning, andcoordination **(document review, KII)**		• Malawi allocates only 8% of its annual budget to the health sector **(KII)** • National funding for iCCM covers about one tenth of the needs **(KII)** • Several iCCM components highly depend on external funding, e.g. health commodities, supervision/mentorship, mHealth **(KII)**
Changes at the intermediate outcome level					
10a, 10b, 10c, 10d	1.1 Expanded use by communities of high quality iCCM services provided by HSAs	• Limited data available to estimate changes in use of iCCM services by communities (**document review**)	• Communities, HSAs and health facility staff consistently confirm the use of iCCM services **(KII, FGD)**		• iCCM was part of the national health strategy prior to RAcE (**document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the final outcome level					
11	1 Reduction in under-five mortality among children in RAcE targeted districts in Malawi	• About 2.2 million treatments provided between March 2013 2014 and Sep 2017 for children with malaria, diarrhoea and pneumonia addressed the major causes of childhood mortality of children under five in Malawi **(SC reports, WHO statistical profile)**	• Community members and primary level health workers unanimously confirm decreased child mortality due to village clinics **(KII, FGD)** • Input data for the LiST model are not robust for a credible output (data from 4 original districts only, changes in treatment protocol, active/inactive clusters) **(ICF final evaluation)** • Data to review/validate LiST model results are not available, but trend of decreasing under-five mortality is confirmed by other sources **(Malawi Countdown to 2015 country case, DHS 2015-2016)**		• Percentage of children under five years sleeping under an ITN decreased from 55.4% in 2010 to 45% in 2016 **(HSSP-II)**

ANNEX: COUNTRY BRIEF MALAWI

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Mozambique

CONTEXT

1. Since 2016, Mozambique has faced an ongoing economic downturn compounded by the fallout from the discovery of hidden debts. While the first quarter of 2017 showed an increased economic growth, the economic conditions remain challenging and have impacted on people economic ability as the local currency has devaluated almost 50 percent and subsequently food prices increased with 40 percent. The 2016 UNDP Human Development Report ranked Mozambique in the lower half of countries with low human development (position 181 out of 188). [20]

2. The public health system in Mozambique is organised across four levels: the first level implements the Primary Health Care strategy, while level two serves clinical conditions such as obstetric complications and surgical emergencies. Level three and four provide specialised services and reference for the lower levels. These national services are complemented by for-profit and not-for-profit private sector institutions and community-based services, involving traditional birth attendants and community health workers. Key challenges affecting the health sector are sustainable financing, shortages of skilled health professionals and essential medicines, and geographic coverage of health services.

3. The most recent DHS data (2011) document progress in reducing child mortality, with the under-five mortality rate (U5MR) decreasing from 158 to 97 deaths per 1,000 live births between the periods of 1996-2001 and 2006-2011. [8] Yet, this progress was not evenly across the country, and a large number of children, particularly those living in rural areas, remain at risk. According to estimates by the Institute of Health Metrics and Evaluation, lower respiratory tract infections, malaria and diarrhoea accounted for 32 percent of deaths among children under five years of age in 2016.[1]

4. The RAcE programme areas were selected in collaboration with the Ministry of Health (MISAU) based on support available from consortium partners and needs expressed by the APE programme. Key equity and health indicators from 2011 and 2012 show that Nampula and Zambezia were provinces with the lowest social, economic and health service indicators, scoring largely below the national average. These are also the most populous provinces, together accounting for approximately 40 percent of the national population. Manica and Inhambane, on the other hand, scored consistently above the national average, except for ratio of trained medical doctors (and ratio of hospital beds in Manica). On key child health indicators, Nampula scored consistently above the national average, including on the U5MR. Zambezia, however, scored largely under the national average and has the highest U5MR in the country. Manica and Inhambane remained close to the national average, except for children under five sleeping under insecticide-treated bed nets in Inhambane and oral rehydration treatment in Manica. Inhambane had the lowest U5MR in the country. These indicators present large social and economic differences and reflect different investment levels in the health system and service delivery. [8,9]

5. In 2015, a population-based survey focusing on HIV, malaria and selected child and maternal health indicators (IMASIDA) reported that almost all child health indicators in Nampula had deteriorated compared to the 2011 DHS, except for malaria treatment of children under five which increased from 35 to 37 percent. In Zambezia, on the other hand, most indicators improved, except for care seeking for diarrhoea which decreased significantly from 52 to 43 percent and malaria treatment for children under five which decreased from 35 to 32 percent. In Manica, all indicators improved except for malaria treatment which decreased from 40 to 33 percent. Inhambane saw an improvement of all indicators,

[1] IHME. GBD Compare https://vizhub.healthdata.org/gbd-compare/ Accessed 28/02/2018

except for diarrhoea treatment with ORS which can be explained by increased use of zinc. There was a significant increase in the use of zinc for the treatment of diarrhoea in all provinces. [11]

Selected social and health service indicators for the 4 RAcE supported provinces in Mozambique

	Nampula	Zambezia	Manica	Inhambane	National
Population in lowest 2 national wealth quintiles (%)	52	70	18	17	--
Literacy rate female (%)	28	25	49	52	**40**
U5MR (per 1,000 live births)	67	142	114	58	**97**
Care seeking for diarrhoea for U5 children	74	52	49	59	**56**
ORS treatment for U5 children with diarrhoea (%)	63	39	74	57	**62**
Care seeking for U5 children with fever (%)	84 (63)	46 (57)	53 (67)	59 (79)	**56 (63)**
ACT treatment for U5 children with fever (%)	33 (51)	11 (32)	16 (33)	15 (30)	**15 (36)**
Care seeking for U5 children with respiratory infection (%)	--	--	--	--	**50**

Source: DHS 2011 [8]; data in parenthesis are from IMASIDA 2015 [11]

6. Community Health Workers, known as Agentes Polivalentes Elementares (APEs) were first used in 1978 to carry out general health promotion and disease prevention and provide first aid and treat common diseases such as malaria and diarrhoea during the civil war. The programme gradually died away in the early 1990's after the signing of the peace accord, although some APEs continued to work with support of non-governmental organisations. [1] In 2006, the national policy of neonatal and infant health proposed Integrated Management of Childhood Illnesses (IMCI) through mobile brigades, village health days and treatment of common illnesses at community level. [2] In 2010, the APE programme was relaunched with the objective to extend community access to health care by 20 percent. The guidelines stipulate the following: [3,4]

- **Profile**: APEs are selected by the community with support of health facility staff; priority is given to female APEs; APEs should be over 18 years and have minimum literacy and arithmetic skills.
- **Role**: APEs serve as a link between the community and health facility (HF). They serve between 500-2,000 people with primarily health promotion and prevention activities (80%) and curative services (20%), including integrated community case management (iCCM) for malaria, pneumonia and diarrhoea for children between 2 to 59 months. APEs can also treat other ailments (conjunctivitis and scabies) and provide malaria and diarrhoea treatment to those over five years of age.
- **Training**: the training curriculum is updated based on the WHO standard protocol for iCCM and divided in 4 blocks to cover general responsibilities, health promotion and prevention, first aid and iCCM. The training lasts 18 weeks and includes both theory and practice.
- **Deployment**: APEs return to their own communities, which are selected based on their location that is between 8 and 25 kilometers from their nearest HF. APEs receive a working kit, medicines kit and monthly stipend of 1,200 MZN (US$40 in 2010, US$20 in 2017). Monthly supervision are conducted by a health professional at the HF and in the community and the community health committee (CHC) or community leader monitors and supports the daily activities of the APE.

7. At central level, the APE programme in the Ministry of Health (MISAU) was managed by the Department of Health Promotion within the Public Health Department. In 2015 the programme became a national programme alongside malaria, immunisation, HIV and TB. At provincial and district level, the APE programme is coordinated by the Department of Health Promotion. In 2010, the revitalised APE programme was piloted in eight districts through training and deployment of 179 APEs by UNICEF, Save the Children (SC) and Malaria Consortium (MC) who all received funding from the Government of

Canada (GAC) through separate contracts. In 2012, the programme was expanded to 10 provinces and at the end of 2012, 1,213 APEs were trained and operating across 51 districts.

8. The 2014-2019 Health Sector Strategic Plan (PESS) underlines the importance of community health volunteers. APEs are included in a number of health programmes, ranging from sexual and reproductive health (distribution and promotion of family planning), maternal health (promotion of antenatal and post-natal care), child health (follow up on vaccination), malaria (testing and treatment of malaria), expansion of primary health care (promotion, provision of first aid, treatment of diarrhoea and pneumonia) and identification of tropical neglected diseases. Key challenges to be addressed include equitable distribution, quality of services, sustainability and integration into the government workforce. [5] Since 2010 the government expressed its intention to pay for the APE stipend but up to January 2018 stipends continue to be paid with funds from international partners.

9. Health system governance and administration are decentralised to the provinces, but domestic health expenditures are largely controlled by the central government. In 2015, the current health expenditure (CHE) accounted for 5.3 percent of gross domestic product. The CHE per capita decreased from US$34 in 2014 to US$28 in 2015, and the domestic general government health expenditure as a percentage of CHE decreased from 34 to 8 percent between 2014 and 2015. Conversely, the proportion of CHE funded from external sources increased external health expenditures increased from 59 to 85 percent. Out-of-pocket expenditure has remained low at roughly 6.8 percent. [10]

THE RACE PROGRAMME IN MOZAMBIQUE

Main objective	To increase the use of high quality iCCM services at community level in selected areas
Contract agencies	Save the Children (SC) and Malaria Consortium (MC)
Government partner	Ministry of Health in particular the Department of CHWs (APEs)
Contract Period	1/04/2013 – 31/03/2017
Budget	3 tranches totalling US$ 8,136,402
Geographical coverage	52 districts across 4 provinces (Inhambane, Nampula, Manica, Zambezia)
Population coverage	13.6 million (2.6 million children below 5)
iCCM target	4.2 million (719,444 children below 5)

10. In 2012, Save the Children (SC) and the Malaria Consortium (MC) submitted a joint proposal to WHO for the implementation of RAcE in four provinces (Nampula, Inhambane, Manica and Zambezia). WHO signed three agreements and one amendment with SC for the period between April 2013 and March 2017 and a total amount of US$ 8.1 million. [6] RAcE partners proposed to provide technical support and supervision to all APEs in the four provinces and more specifically support the scale up from 10 to 20 districts in Nampula (with financial support from the World Bank for training and stipends), continue to support 13 districts in Inhambane (with financial support from UNICEF for stipends), scale up in six remaining districts in Zambezia (other districts are supported by World Vision with USAID funds and SC with Crown Foundation funding) and support the expansion in Manica province (with financial support from UNICEF for training and stipends).

11. SC was the lead consortium partner responsible for implementation in Nampula, Manica and Zambezia, and MC implemented RAcE in Inhambane. The aim was to increase access to iCCM, improve quality of iCCM, strengthen links between iCCM and their communities and strengthen the national system to support, sustain and scale up iCCM. RAcE partners conducted three operational research studies on the APE workload, supportive supervision models and quality of care, and also supported the roll-out of a new package of services.

THE COUNTRY EVALUATION MISSION

12. The brief for the Mozambique RAcE programme was prepared within the framework of the overall summative evaluation of the RAcE initiative. The approach and methodology for each of the country missions was standardised and is described in Volume 1 of the synthesis report. The evaluation questions were adapted to fit the context of the RAcE programme in Mozambique. An initial work plan was established, including a preliminary list of key informants at national level, as well as a sample of provinces and districts to be visited. Nampula and Inhambane were sampled for the field visits. In each province two districts with distinct features were selected. (the sampling strategy is presented in Annex)

13. The field visit took place in second half of January 2018, one year after the end of the RAcE programme implementation in Mozambique. Because RAcE implementing partners were no longer working with APEs in the selected provinces, the programme and logistics were facilitated by the national APE programme. At the start of the field mission, the draft ToC framework was presented to a group of 7 key informants representing implementers (representatives from SC and MC), WHO and the MISAU (Director and M&E Officer of the APE Programme, Director of Maternal and Child Health). All intended inputs, outputs and outcomes were reviewed, and the framework was jointly corrected and jointly updated. A total of 22 key informant interviews (6 with staff from implementing agencies including WHO, 3 with other development partners and 13 with staff employed by the MISAU) were conducted and complemented with eight focus group discussions (4 with APEs and 4 with parents of children under five). The majority of planned interviews were conducted, although some respondents were absent or too busy. Two additional interviews were conducted by telephone after the mission. The field visit to the district of Mossuril in Nampula was cancelled because it could not be reached after a heavy storm.

14. The timing, one year after the end of the programme, had an impact on the evaluation. On the one hand, it was a limitation because a number of people responsible for implementation of the RAcE programme were no longer working at the implementing agencies and therefore more difficult to reach. Also, in the focus group discussions with APEs and community members it was not always possible to compare the situation from before and after the RAcE programme. On the other hand, the timing facilitated an assessment of the contribution of RAcE in terms of sustainability, which was an added value.

MAIN FINDINGS

RESULTS OF THE CONTRIBUTION ANALYSIS

15. The RAcE programme started in Mozambique at a time when there was a need for external resources for the continuation and expansion of the national APE programme. SC and MC had each separately been working with the MISAU on updating the training curriculum and supporting APEs in Nampula and Inhambane and were therefore well placed to support the scale up of the APE programme.

16. Community case management has been part of primary health care since 1978 [1], however, iCCM protocols as promoted by WHO were only included in the revised training package in 2011. APEs are trained in iCCM but should spend only 20 percent of their time on curative interventions. These guidelines are well understood by APEs and strongly advocated by MISAU. Communities, however, have much more appreciation for curative services. Operational research conducted by RAcE also highlights that case management is the predominant daily activity of APEs as opposed to prevention. [12]

17. Alignment with national policies was strong. The MISAU was fully involved in all decisions related to programme design and implementation. The RAcE programme followed the MISAU recommendations and guidelines for province and district selection to ensure that districts with the highest number of people and communities furthest away from health facilities were supported. This was confirmed by the review of the programme database which showed that 98 percent of communities were located more than eight kilometres from the nearest HF. [19] Community members were not consulted during the design of the programme but confirmed that they participated in the selection of the APEs.

18. RAcE partners collaborated closely with other stakeholders to ensure available funding and technical support was harmonised. RAcE funding was used predominantly to provide logistic support for training and deployment of APEs as well as strong technical support to facilitate supervision, quality of service delivery and improved monitoring. RAcE provided financial resources to increase the number of trained APEs only in Zambezia and also paid for stipends and supervision support.

19. Universal coverage was achieved in Inhambane, where all districts had sufficient APEs. In Nampula all districts were covered but the number of APEs was not sufficient to reach all eligible communities. In 2018 a further 458 APEs will be deployed by the MISAU in Nampula. The RAcE programme was only implemented in 12/22 districts in Zambezia and 6/12 in Manica.

20. While no national policy was changed as a result of RAcE, the programme partners worked closely with the MISAU, UNICEF and USAID to update the training curriculum, review the indicators, update and simplify data collection tools, develop supervision manuals, checklists and job aids. Protocols were developed for reducing wastage and to improve medicines storage conditions. All these tools are now used nation-wide and informants confirm that RAcE has contributed to harmonisation and strengthening of the APE programme processes and tools. RAcE partners also supported the roll-out of a new package of services (including family planning, vitamin A distribution, follow up of HIV and tuberculosis treatment, and support to ante-natal and post-natal care) through supporting the training of APEs on the pilot in and the rollout on the new package in 2015/2016.

21. According to the key informant interviews and observation during the evaluation, the sub-grantee delivery model used in Mozambique was effective. The government clearly had a coordinating and steering role and received technical and financial support from WHO in collaboration with two international NGOs with complementary experience in iCCM programming and geographical distribution. The technical support provided by SC and MC at provincial and district level contributed to

an increased frequency of supervisions, improved quality of supervision and improved quality and regularity of data reported by APEs. However, the type of support provided varied among implementing partners. Due to limited district capacity and a large number of APEs to monitor, SC contracted district supervisors (in addition to a provincial team) to support the APE district coordinator with supervision and data collection. MC only provided support at provincial level due to financial constraints but also in an effort to strengthen provincial capacity.

22. The implementation differences impacted on the supervision models used. In provinces supported by SC, RAcE supervisors were working with APE district coordinators to ensure regular supervision of APEs and HF supervisors. Supervision at community level, however, did not always include the HF supervisor. In Inhambane, supervision levels were initially low but improved significantly when MC changed from only providing financial resources for supervision to organising joint visits involving provincial and district coordinators in supervisions of HF and APEs. Zambezia was the only province were APEs received on average one visit per month. The higher level of supervisions were explained by the fact that some APEs were weak and required more than monthly supervision, and per diems for supervision were consistently paid by RAcE. On-site visits to APEs by clinical supervisors were supposed to happen monthly but were revised down to quarterly by the MISAU in 2016.

23. Regular supervision visits and training on monitoring and use of data contributed to improved consistency and quality of data reported by APEs. [13,14] This was confirmed by the evaluation. HF supervisors reported fewer inconsistencies with APE data. The review of the national database confirmed that data quality issues, such as the number of treatments being higher than number of diagnosed cases, decreased in Inhambane and Zambezia.

24. All planned inputs of the RAcE programme were provided, and outputs were largely achieved. There is evidence to confirm that the programme contributed to the planned intermediate outcomes, however the evidence for the contribution of RAcE is not equally strong and many achievements and constraints are also related to other influencing factors:

- RAcE partners implemented a behaviour change communication (BCC) campaign and community dialogue (CD) methodology to increase the demand for iCCM services, increase community support for APEs and improve health seeking behaviour. The end line survey showed that caregivers' knowledge increased significantly, however the evaluation did not find strong evidence that the RAcE interventions contributed to this change. Most community members referred to improved knowledge but very few mentioned the radio spots or CD as a factor for improved knowledge and prevention. The fact that APEs are required to dedicate the majority of their time on health promotion and that numerous other activists work in the communities, made it difficult to pinpoint the specific inputs that contributed to the observed changes. The timing of the evaluation and small sampling size may have contributed to the limited evidence found.

- RAcE partners focused on improving the quality of care provided by APEs. Clinical assessments of APEs at the health facilities, however, were conducted infrequently, explained by a high workload of the HF supervisors as well as low motivation because no per diems were paid. In HF that had more staff available, APE supervisors tended to be among the lower trained staff who were often highly motivated but did not always have the technical skills to conduct clinical assessments.

- A consistent and adequate supply of essential medicines and commodities was not achieved. The 2016 quality of care (QoC) study observed inadequate stock levels among APEs in Nampula and Zambezia, with less than half having all required medicines. Stocks of AL, paracetamol and amoxicillin were particularly low compared to their availability in HFs. In more populous districts where APEs serve a larger number of people, stock-outs were most common. [16] These findings

are consistent with reports from SC and MC and observation during the field visit and point to issues of regular nation-wide stock outs of the antimalarial kits, delays along the supply chain, and a quantification of medicines based on the country's general epidemiological profile instead of taking into account seasonal and provincial differences, as well as the estimation that each APE serves on average a population of 1,250 which is a large under-estimation.

- RAcE partners alleviated some of the commodity distribution problems and provided technical support to reduce wastage, improve forecasting and stock management processes at provincial level and advocate for a review of AL quantity provided to APEs. However, because the LMIS system is still weak, the country is not yet ready to switch from a 'push' to a 'pull' distribution system. Instead, APEs were allowed to replenish their stock at the HF in when required, however the evaluators could not find evidence that APEs were doing this, often because travel to the HF is time consuming or costly. Some informants stated that RAcE could have generated better evidence on real consumption patterns if a buffer stock had been available throughout.
- Three operational research studies were conducted on the workload of the APEs, the different supervision models and the quality of care. These studies have not yet been disseminated due to lack of budget and very few key informants were aware of the study results.
- Currently, only malaria data from APEs are included in the national HMIS (although aggregated at HF level). Discussions were held during the RAcE implementation period to encourage integration of community level data in the new DHIS2 but this has yet not materialised. In January 2018, discussions were underway to review the feasibility of integrating APE data collected through the UpScale application directly into the DHIS2. The UpScale application was piloted by MC in Inhambane with funding outside of RAcE. The application is said to have contributed to increased quality of care, better real-time supervision and improved quality of data, but this has not yet been confirmed by an independent evaluation.

25. With regards to the intermediate outcome level, the end line survey and FGDs highlight that the first point of care shifted from the HF to the APE. Community members reported that they seek care sooner because of the presence of an APE in the community and HF supervisors report anecdotally that they see fewer cases of severe malaria and diarrhoea. A controlled cross-sectional household study conducted by SC in Nampula in 2012 showed that in areas where an APE was operating the timeliness of treatment was significantly better. [16] APEs are correctly referring patients to the HFs and while not all families adhere, there are reports of CHC members contributing for transport costs to encourage caregivers to take sick children to the HF.

26. The very small reduction (1.8 percent) in under five mortality as estimated by ICF could not be corroborated, due to lack of recent household data or access to HMIS data. Key informants, in particular from the implementing agencies, expressed doubts about the modelled estimates and some of the assumptions made. They were doubtful about the estimates of lives saved through treatment of acute respiratory infections, especially as the number of treatments for pneumonia largely exceeded the target and the QoC study found that APEs had a higher rate of checking respiratory rate than the counterparts at the HFs. [16] This reservation was also made by ICF in the Mozambique final evaluation. [21] The end-line survey does not provide details on the sex of caregivers that participated in the survey which is a limitation. Caregivers in Mozambique are predominately women and if no attention was paid to this during the survey, then the recall bias may be higher because men are less likely to know how the sick child was treated. Furthermore, in light of different intervention models used by SC and MC, as well as differences in provincial social, economic and health indicators, it was a missed opportunity that the end-line survey and final evaluation did not report on provincial differences.

27. Community deaths of children under five are reported by APEs and captured in the national APE database. [18] An analysis of the data (see Annex 4) suggest 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 then the national trend in Zambezia. On average, APEs in Nampula and Zambezia serve larger populations than in Inhambane and Manica: (Zambezia: 3,600; Nampula: 3,300, Manica: 2,300 and Inhambane: 2,000). [17]

28. Some evaluation findings were not captured in the ToC evaluation and contribution analysis and are presented under the following headings.

GENDER EQUALITY

29. No gender analysis was done at the start of RAcE and no gender strategy was implemented. Tools developed with contribution of RAcE do not pay particular attention to gender equality dimensions, as caregivers are mostly depicted as women and APEs as men. The APEs register treatments disaggregated by sex, but when compiled at HF level, treatments are aggregated and only the number of consultations is disaggregated by sex.

30. Increasing the recruitment of female APEs has been a concern and was repeatedly highlighted and discussed as an issue; however, no steps were taken to address the gender imbalance, with women only representing 20 percent of APEs in Nampula, Zambezia and Manica. [19] Inhambane has an almost equal share of female and male APEs but most of them were recruited prior to the start of the RAcE programme. Interviews confirmed that due to the economic and cultural situation of the province, women are more easily identified as APEs because men are already employed. This is not the case in Nampula and Zambezia, where unemployment is high, and the appointment as APE presents an opportunity to earn money, which is perceived as the responsibility of men. In addition, the female illiteracy rates are higher in Nampula which constitutes a barrier for female APEs, and they are usually not the first choice of the community due to their responsibility for the household activities.

31. RAcE partners acknowledged that more could have been done to increase the involvement of male caregivers. Interviews and FGD confirmed that women continue to be responsible for the health of children. Occasionally a man will bring his child to the APE, but only when his wife is not available.

Summary of findings on gender equality

Gender analysis	No gender analysis was conducted because it was not included in the terms of the contract with WHO
Gender equality in access to treatment	There were no notable differences in appropriate assessment or treatment of iCCM illnesses between boys and girls according to the end-line survey
Gender equality among care providers	Twenty-five percent of APEs were female at the end of the programme, with a significant difference between Inhambane (48%) and Nampula (18%), Zambezia (21%) and Manica (22%)
Gender sensitivity of APE tools	Tools developed do not pay particular attention to gender equality dimensions, as caregivers are mostly depicted as women and APEs as men

Gender equality for care-seeking and in the community	Survey data document no significant change on household decision-making about income and care-seeking between baseline and end-line. Joint decision-making on care-seeking for a sick child was 57 percent at end-line however as this indicator was not measured at baseline no progress could be measured. Some caution is warranted in interpreting these results as the sex of the caregiver was not reported and there is no information on whether the interviewed caregivers were mostly male or female.[22**Error! Reference source not found.**]

NEW SEXUAL AND REPRODUCTIVE HEALTH PACKAGE

32. RAcE partners were concerned about the introduction of the new package of services because of the already high workload of the APEs, however they supported the roll-out of the new package by providing logistic support for training and the revision of monitoring tools.

33. The new package was launched in 2016 and insufficient data are available to assess its impact in terms of improved maternal and neonatal health. Informants referred anecdotally to an increased use of FP methods by community members as well as an increase in the number of pregnant women delivering in a HF due to closer follow up by the APE. Data from the HMIS document an upward trend in the number of births delivered at HFs (from 71 to 77 percent between 2014 and 2016) but no data for 2017 were available to confirm this trend.

34. With the introduction of the new package, more efforts are being taken to identify female APEs. In fact, in 2017 300 newly trained APEs in Nampula were predominantly (70 percent) women. Community members and APEs also referred consistently to the introduction of the FP package as an important change for women and men. The fact that APEs have access to oral and injectable contraceptives and are able to discuss FP options with male and female partners in the privacy of their home, is seen as a major trigger for an increased use of FP methods.

35. The new package also includes a pilot project of post-partum haemorrhage (PPH) treatments by traditional birth attendants (TBA) in 35 districts in line with the national strategy to prevent PPH. The APEs facilitate this process by collecting misoprostol at the HF. A situation analysis was conducted by an external consultant in December 2016 and highlighted some positive results in terms of increased delivery in HFs in Inhambane and anecdotal reports about reduced maternal mortality due to fewer cases of PPH reported by TBAs in Nampula. However, there were also issues such as regular stock-outs and lack of regular supervision by the maternal and child health programme.

SUSTAINABILITY PLANNING

36. Sustainability and transition planning was appreciated by most informants. It was participatory and contributed to actions taken before the closure of the programme. The evaluation was able to assess the extent to which the RAcE programme contributed to sustained implementation of iCCM in Mozambique and the assessment was to a large extent positive:

- RAcE partners and the MISAU ensured that other partners closed the funding gap for stipends and supervision in Zambezia. The World Bank and UNICEF continue to provide funding for stipends and supervision in all four provinces. The scale up of the APE programme was also included in the investment case supported by the new Global Financing Facility managed by the World Bank.
- Because RAcE used the national medicines supply and distribution system, APEs continue to receive supplies, although irregularly, but do not notice a major difference in terms of the level of supply

since closure of the RAcE programme. The main difference noted by APEs in Ribaué (Nampula) was that they now have to pick up their supplies at district level because the district has difficulties transporting the APE supplies to the HF.

- APEs continue to be motivated, however many complained that irregular supply of the malaria treatment kit impacts on the quality of service they can provide. Community members confirmed that the APEs often run out of supplies and this is a concern for them. Most APEs are dissatisfied with the stipends because, due to devaluation, it is now worth only half of what it was in 2010, whereas the workload has increased. Male APEs ranked the low stipend higher as a challenge than female APEs who were more concerned about the lack of supplies. APEs in Nampula noted that there was less logistic support available to them. This was less so in Inhambane where MC continues to support the roll-out of the UpScale app.
- HF supervisors continue to conduct supervision visits as planned, especially when they still have access to a motorbike left by the RAcE programme. APEs confirmed that supervision visits were continuing but noted that they were less frequent. In HFs where supervisors do not have access to a vehicle, supervision visits are done less frequently. Having timely funding available for fuel and per diems is a concern expressed by many supervisors.
- Joint supervisions from provincial to district level continue in both Nampula and Inhambane. However, provincial coordinators referred to the reduction of people available for supervision as a challenge. During the implementation of the RAcE programme more staff from SC and MC were available and supervision visits happened more frequently. Now, other DPS staff members participate but they often have their own agenda and do not focus on the full iCCM algorithms. This lack of human resources is also felt at central level. The MISAU was only able to absorb one of the two M&E positions.
- MISAU staff at provincial and central level reported that the frequency of reporting has dropped since the end of the RAcE programme. This is also observed in the national database.

37. A key concern in terms of sustainability, as expressed by partners, is the government's capacity to pay APE stipends. While it has been the MISAU intention since 2010, this has not yet materialised due to legislative hurdles and financial constraints. However, progress is being made to review the legislation to allow the MISAU to start paying the stipends.

CONCLUSIONS

38. The RAcE programme has contributed to a further consolidation of the national APE programme. The tools, guidelines and protocols developed with a contribution of RAcE helped to strengthen the programme nation-wide. While RAcE only contributed with funding for the scale up in Zambezia, technical support was provided in all provinces for all APEs. In this sense, RAcE contributed to increasing the coverage of the APE programme in all four provinces, with universal coverage being reached in Inhambane.

39. The MISAU led the scale up of the APE programme and RAcE has adhered to the national guidelines and policies. The APE programme has received national acknowledgement and stands at the same level of other health service delivery programmes such as malaria, immunisation and HIV/TB. RAcE has played a strong role in strengthening the iCCM component through its focus on improving the quality of iCCM services. While the APEs are recognised by HF staff for their contribution to improving key health indicators, the main role of the APEs continues to be health promotion and prevention.

40. The sub-grantee delivery model worked well in Mozambique. The collaboration of tailored technical support at provincial and district level provided by SC and MC, alongside strategic and policy support in collaboration with WHO was appreciated by all stakeholders. The RAcE programme, however, mobilised additional human resources for APE supervision and management which could not be maintained after the programme's closure. Key informants referred to this reduction in human resources as a major challenge.

41. Improving gender equality has not been part of the contracted mandate of RAcE implementing partners in Mozambique. While some attention was given to improving the gender balance among APEs, little progress was achieved. Consultation and treatment statistics are disaggregated by sex at the level of the APEs, but this is lost when APE data are consolidated at HF level.

42. All key informants agreed that the quality of care provided by APEs improved as a result of the RAcE programme. The focus on improving and increasing supervision was acknowledged by all informants and the sustainability of this effort continues to be a major concern of the central, provincial and district APE coordinators. With the end of RAcE programme, the regularity and intensity of supervision could not be maintained because of human resource and logistic constraints. Quality of care and regular supervision are areas that require continued support.

43. General disappointment was expressed by national RAcE partners about the effect of iCCM interventions on under-five mortality estimated by ICF with the aid of the LiST model. ICF reported that 2,445 more deaths occurred in 2016 than at baseline in 2013, because of reduced treatment coverage for malaria, diarrhoea and pneumonia. [21] While it was acknowledged that frequent stock-outs of antimalarial kits contributed to fewer treatments of children with malaria, informants pointed out that APE treatments for pneumonia largely exceeded the targets, and APEs performed better in diagnosing rapid breathing than their counterparts in HFs. Informants felt that the model underestimated the number of lives saved through APE treatment of pneumonia, a fact that was also mentioned in the ICF final evaluation report. Furthermore, an analysis of the number of child deaths reported by APEs between 2013 and 2016 shows a downward trend in Inhambane, Manica and Nampula that is more pronounced than the national trend. (see Annex 4)

44. The RAcE programme has made deliberate use of the national medicines supply and distribution system, which was a change from previous programmes implemented separately by SC, MC and UNICEF. While this may have contributed to supply gaps in the short run, it strengthened the national system and was a contribution to the sustainability of the national APE programme. However major

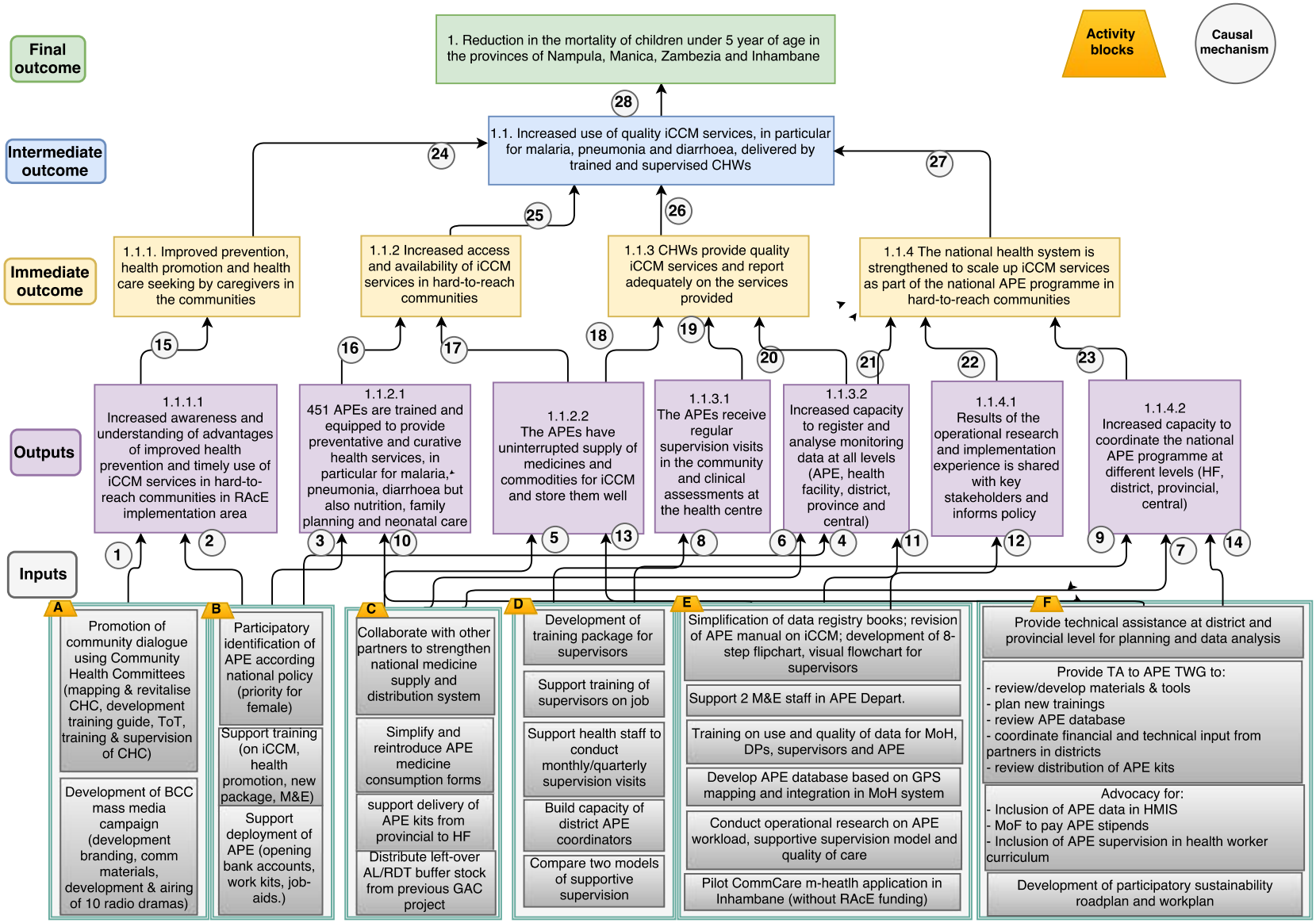
improvements in the national medicine procurement and supply management system were not achieved because of issues that were beyond the scope of the RAcE programme. APE data are not yet integrated in the national HMIS and therefore also not linked to the LMIS. The planned roll-out of the UpScale application and the possibility of integration with the DHIS2 are important steps forward. While RAcE did not directly contribute to these changes, the advocacy by the RAcE partners and the work of MC to pilot and further develop the UpScale app are indirect contributions. Furthermore, some capacity was built at provincial level to improve the forecasting and stock management processes, helping to resolve provincial-level stock-out issues.

45. The following weaknesses of the RAcE programme in Mozambique were identified by the evaluation team:

- The operational studies conducted with support of RAcE did not contribute to policy changes. The results of the APE workload study did not influence the decision to increase the scope of the APE package of services. In general, operational research by the RAcE programme focused more on the operationalisation of iCCM and the APE programme, rather than on iCCM policy. Several key informants were of the opinion that RAcE could have generated more evidence to influence important changes, such as for example the quantification of medicines in the antimalarial kit.
- Community awareness and caregiver's knowledge improved, and the RAcE programme has most likely contributed to this change. However, no directly attributable link of programme inputs and activities to this change could be confirmed. More efforts could have been put into documenting the contribution of the BCC campaign and CD dialogue towards improved community awareness, preventive practices and increased demand for iCCM.
- RAcE was implemented by two organisations using different implementation models. Furthermore, the economic, social and health indicators vary significantly across the four provinces. The baseline and end line surveys were not powered to provide provincial-level estimates because of resource limitations. Not having the province-specific RAcE estimates is a clear limitation for the contribution analysis because limited evidence is available to confirm how different models have (or have not) contributed to changes in care-seeking and intervention coverage in the programme provinces.

46. The contribution analysis based on the post-hoc Theory of Change identified sufficient evidence to confirm that the activities and inputs of the RAcE programme contributed to achieving the higher-level outcomes. Nevertheless, not all outcomes were fully achieved, because they were dependent on factors which were outside the control of the RAcE programme – such as significant improvements needed in the national medicines supply and distribution system. For some of the achieved outcomes, the evidence of a direct contribution by the RAcE programme is limited. In the context of Mozambique, where iCCM was already institutionalised in the national APE programme, RAcE focused on improving the quality of iCCM service delivery, both in terms of services delivered by APEs and the reporting processes from the APE to central level. For these interventions, the sub-grantee delivery model was appropriate as it allowed providing tailored support at provincial and district level. As the national APE programme is further scaled up across the country, these are the areas that will require continuous follow-up alongside significant improvements needed in the national medicines supply and distribution system.

THEORY OF CHANGE



Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the output level					
1,2	1.1.1.1 Increased awareness and understanding of the advantages of improved health prevention and timely use of iCCM services in hard-to-reach communities in RAcE implementation area	• 75 HC received training on how to conduct CD in Inhambane and Manica; 179 HC received training on community involvement in Zambezia and 10 in Nampula **(SC reports)** • 10 radio dramas were produced and aired on national radio in 2015 and on community radio in Inhambane and Manica in 2016 **(SC reports)** • 99% of APEs were located in hard-to-reach communities (>8km -25km from the HF) **(SC database)**	• Qualitative study finds that HC trained on CD in Inhambane have higher degrees of community participation. A study by MC found that CD contributes to increased understanding of childhood disease causes and management, as well as benefit of early care-seeking **(MC qualitative assessment, 2017 research article)** • 93.4% of caregivers are aware of presence of iCCM trained APE in the community (increase of 31.4%) **(SC end line survey)** • 92.9% of caregivers know 2 or more danger signs of childhood illness that require immediate assessment (increase of 6.4%) **(SC end line survey)** • Community leader and members were involved in the selection of the APE **(KII & FGD)** • Only 1 community member in Inhambane referred to the radio spot; no community member in Inhambane had received training on CD **(FGD)**		• 80% of APE activities include health promotion **(APE guideline and database)** • Community health department is responsible for training Health Committees **(KI)** • Many other health programmes work with health committees (malaria, HIV, TB, FP) **(FGD, KII)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
3, 10	1.1.2.1 1,451 APEs are trained and equipped to provide preventive and curative health services, in particular for malaria, pneumonia, diarrhoea but also nutrition, family planning and neonatal care	• RAcE financially supported the pre-service training of 197 APEs in Zambezia and partially covered pre-service training costs for 379 APEs in other provinces **(SC reports)** • # of trained APEs increased from 622 to 1,445 in 4 provinces between 2013 and 2016 **(SC reports)** • RAcE developed and simplified tools to facilitate the work and understanding of APEs **(SC reports, KII)** • The RAcE programme supported APEs with refresher trainings, a starter kit, bicycles and support to open a bank account **(SC reports)**	• Staff turn-over among APEs was limited. Attrition was 7% (1344/1445) **(SC reports, APE database)** • APEs in Nampula mentioned they were more motivated when RAcE was still operating, as there was more logistical support **(FGD)** • APEs continue to provide iCCM services, but complain about delayed payments and reduced value of stipend, lack of some equipment (uniform, lanterns, referral slips, transport) **(FGD)**		• Pre-service training in the 4 provinces were financed by the World Bank (693), UNICEF (303) and Irish Aid (29) • The World Bank provided stipends in Nampula and UNICEF in Inhambane, Zambezia and Manica

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
5, 13	1.1.2.2 The APEs have uninterrupted supply of medicines and commodities for iCCM and store them well	• RAcE used the national medicine supply and distribution system for the APE kit C and Kit AL **(SC reports, KII)** • RAcE distributed left-over stock from previous GAC supported project in 2013-2014 **(SC reports)** • RAcE supported distribution from provincial to HF level and redistribution across districts **(KII, SC reports)** • RAcE provided technical support at central and provincial level to improve forecasting and stock management processes (such as consumption form) **(KII, SC reports)** • RAcE participated in technical working groups and advocated for a review of AL quantities **(KII)** • WHO developed a protocol for a simple low-cost locked box to store medicines and produced 300 boxes for Inhambane and Manica **(KII)**	• Stock outs of APE Kit C improved. Regular stock outs recorded in 2013 and 2014, occasional shortages in 2015 and minimal stock outs in 2016. **(SC reports)** • Stock outs of Kit AL were more frequent, particularly in 2014-2015 and occasionally in 2016 **(SC reports, KII)** • APEs report stock-outs ranging from 1 month up to 3 months, but mostly for AL Kit. There was no significant difference in stock-outs reported during and after RAcE **(KII, FGD)** • District and provincial coordinators confirm stock-outs are still an issue but mostly for antimalarial drugs, also at HF level **(KII)** • In Inhambane consumption forms are being used and APEs are receiving medicines based on number of treatments conducted in previous month **(KII, FGD)** • APEs report that storage of medicines is still an issue, but all provinces have now received funding from UNICEF to produce the low-cost storage boxes **(FGD, KII)**		• Armed conflict between government and opposition caused disruptions to transportation system in central and northern Mozambique in first half of 2014, most of 2015 and all of 2016 • National delays of AL procured by the Global Fund • Delivery of medicines to HF is prioritised over APE kits contributing to stock-outs • UpScale application helps to register the real consumption need and the data were used to revise some quantities

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
8	1.1.3.1 The APEs receive regular supervision visits in the community and clinical assessments at the health centre	• RAcE developed a supervision training package including visual flowchart of diagnostics and treatment algorithm and supervision checklists **(SC reports)** • RAcE trained 685 supervisors and conducted 279 supervision refresher trainings **(SC reports)** • RAcE provided financial and technical support for supervision visits **(KII, SC reports)** • RAcE purchased 47 motorcycles for district supervisors and transferred another 33 to HF supervisors at the end of the programme, in addition to 4 vehicles.	• 21,009 routine supervisions were carried during the programme, which represented an average of 5.6 visits per APE in Inhambane, 4.0 visits in Manica, 15.5 visits in Zambezia and 5.3 visits in Nampula in 2016 **(SC reports)** • 5,648 clinical supervision visits were conducted between April 2014 and Dec 2016, which in 2016 represented an average of 3.0 visits per APE in Inhambane, 3.6 in Manica, 13.6 in Nampula and 1.5 in Nampula **(SC reports)** • Contribution of RAcE to development of supervision tools is well acknowledged **(KII)** • All HF supervisors interviewed confirmed having received training from SC or MC **(KII)** • HF supervisors confirm receiving quarterly supervision from district and provincial level **(KII)** • In Oct 2016 84% of APEs reported receiving supervisory visit in last 3 months and 68% reported receiving clinical supervision with sick child in last 3 months (**End line APE survey)** • APEs confirm that they receive regular visits in the community (once every two to three months in both Nampula and Inhambane) **(FGD)** • APEs in Nampula have noticed a decrease in number of supervisions, this is less the case in Inhambane **(FGD)** • Clinical supervisions continue more frequently because they take place at the HF and are not dependent on transport **(FGD)** • Provincial and district coordinators mention that the reduced number of HR available for supervision after end of RAcE impacts on the frequency and quality of supervision **(KII)**		• Per diems for clinical supervisors are paid by UNICEF and the World Bank and are not always received timely • Large turn-over at the level of clinical supervisors

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
4,7,8	1.1.3.2 Increased capacity to register and analyse monitoring data at all levels (APE, health facility, district, province and central)	• RAcE financed 2 M&E staff at central APE Programme **(SC reports, KII)** • RAcE supported harmonisation, simplification and roll-out of reporting tools **(SC reports, KII)** • 1,325 APEs and key staff from MOH at central, provincial and district level were trained in data quality and use **(SC reports, KII, FGD)** • RAcE staff provided technical support during supervision visits to review data collected **(SC reports, KII)**	• Monthly meetings were institutionalised to review data registered by APE at HF **(KII)** • Functional database of APE data exists and facilitates analysis **(APE database)** • The MISAU has only been able to absorb 1 M&E position at central level **(KII)** • District and provincial APE coordinators report improved capacity to analyse data and include it in their reports **(KII)** • APEs and supervisors received training but were not producing graphs **(KII, FGD)** • Supervisors report that quality of data reported by APE has increased (fewer mistakes are made) **(KII)** • Data quality assessments report increase in data quality from 2.27/3 in 2015 to 2.63/3 in October 2016 **(ICF DQA)**		• none
12	1.1.4.1 Results of the operational research and implementation experience is shared with key stakeholders and informs policy	• 3 operational research studies were conducted in collaboration with INS and MISAU: APE workload study, models of supportive supervision study, quality of care study **(SC reports)** • RAcE partners regularly participated in national technical working groups **(SC reports, KII)**	• Results of the operational research have not been disseminated due to lack of budget **(KII)** • No key informant outside of RAcE is aware of the results of the studies, not even the MISAU **(KII)** • Only the quality data assessment (which is not considered OR) was disseminated at a meeting with the INS **(KII)** • The results of the sustainability roadmap have not been widely shared with key iCCM partners **(KII)**		• UNICEF is supporting the MISAU with finalization of APE national strategy

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
7,9,14	1.1.4.2 Increased capacity to coordinate the APE programme at different levels (HF, district, provincial, central)	• Technical support provided by dedicated SC/MC staff at provincial and district level **(SC reports, KII)** • Technical support provided at central level for revision of training manual and tools, planning of new trainings, revision of national database, harmonisation of DPs contributions and quantification of APE kits (**SC reports and KII)** • Advocacy conducted for inclusion of APE data in HMIS, absorption of APE stipends by MISAU, revision of national iCCM indicators, inclusion of supervision module in HF pre-service training **(SC reports, KII)** • Handover of 80 motorcycles and 4 vehicles **(SC reports, KII)** • Key iCCM partners were invited to the workshop on the sustainability roadmap development but not all participated **(KII)**	• APE coordinators at provincial level report improved skills in terms of supervision and data analysis **(KII)** • Monthly district APE meetings were started in Nampula and continue **(KII)** • District and health facility staff demonstrate great appreciation of APE contributions to community health **(KII)** • MISAU staff refer to vehicles provided by RAcE as increased capacity **(KII)** • Manuals, reporting forms, tools and checklists developed with support of RAcE are used nationally **(KII)** • Reduced number of HR in the provinces after RAcE is reported as a challenge **(KII)** • Sustainability roadmap and transition plans developed in participatory way **(ICF & SC reports, KII)**		• UNICEF and USAID also contribute to the technical working groups

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the immediate outcome level					
15	1.1.1 Improved prevention, health promotion and health care seeking by caregivers in the communities	• APEs in 4 provinces conducted a total of 858,205 awareness raising sessions over 4 years, at an average of 13 sessions per APE per month • No data are available on the number of community dialogues conducted by the CHC trained by RAcE	• 79.5% of caregivers sought advice or treatment from an appropriate provider when child was sick. Not a statistically significant change from baseline **(SC End line survey)** • 81.9% of caregivers perceive APE as a convenient source of treatment. Not a statistically significant change from baseline **(SC End line survey)** • CHC members and APEs mention increased use of latrines **(FGD)** • CHC members, APEs, health staff observe decrease of diarrhoea cases **(FGD)** • Caregivers report more timely response to child illness due to proximity of APE **(FGD)**		• Many other health programmes work with activists who raise awareness in the communities • APEs are required to spend 80% of their time on health prevention and promotion

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
16,17	1.1.2 Increased access and availability of iCCM services in hard-to-reach communities	• # of APEs increased from 622 to 1,445 in 4 provinces **(SC reports)** • # of treatments increased from 240,152 in year 1 to 841,284 in year 3 **(SC reports)** • 99% of APEs were located in hard-to-reach communities **(SC APE database)** • Based on estimates that 40% of population live >8km of HF, universal coverage was reached only in Inhambane (with 46% of population covered in 13/14 districts). In Manica 47% of population were reached in 6/12 districts. In Nampula 37% of population were reached in 20/23 districts and In Zambezia 31% was reached in 12/22 districts **(SC estimated population database)**	• Total of 1.85 million treatments were provided according to SC (although there have been data issues with # of medicines reported instead of # treatments in Inhambane) **(SC reports)** • 82% of caregivers found the APE at first visit. No baseline available **(End line survey)** • 91% of APEs reside in the catchment area **(APE end line survey)** • In Oct 2016 only 44% of APEs had at least one age formulation of AL in stock; only 28% reported no stock-out of AL in previous month; 81% of APEs had amoxicillin and 53% reported no stock out in previous month **(APE end line survey)**		• World Bank, UNICEF and Irish Aid supported the scale up of APEs in Nampula, Manica and Zambezia • Flooding in early 2015 caused destruction to critical infrastructure including roads, bridges and health facilities and displaced many families for weeks

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
18,19, 20,29	1.1.3 CHWs provide quality iCCM services and report adequately on the services provided	• Caregivers are satisfied with services provided by APEs but complain that these often run out of medicines **(FGD)** • Reference system for referrals in place **(KIIs, FGD)** • APEs register document number of referred cases in their registers **(APE national database)**	• In Jan 2016, 63% of children were checked for iCCM disease symptoms but only 48% of sick children received correct treatment from APE; 87% of children with fever were tested for malaria and 75% of children with cough were assessed for fast breathing but only 22% of children with diarrhoea were correctly treated with ORS and zinc **(QoC study)** • In Jan 2016, 82% of APEs reported stock-out of a type of first-line medication in last month against 48% of HF **(QoC study)** • 78.2% of caregivers see APEs as trusted health care providers. Decrease of 4.7% **(End line survey)** • End-line survey found that APEs referred 48% children to HF. Increase of 22% over baseline **(End line survey)**		• In Inhambane APEs refer to UpScale application as tool that helps with assessment, classification, treatment and reporting **(FGD)**
21,22, 23	1.1.4 The national health system is strengthened to scale up iCCM services as part of the national APE programme in hard-to-reach communities	• Tools and manuals revised by RAcE are used nationally **(KII)** • APE monitoring data are used and shared with relevant health programmes and departments (malaria, HIV, TB, nutrition, health promotion) **(KII)** • RAcE worked with partners to ensure trained APEs continue to receive stipends and supervision support after termination **(KII)** • Vehicles left by RAcE are being used by coordinators and supervisors as intended **(KII, observation)**	• RAcE programme contributed to consolidation of national APE programme through financial and technical resources **(KII)** • APE data are not yet included in the HMIS (only data for malaria but aggregated with HF data) but discussions are underway to integrate data generated by UpScale **(KII)** • APE supervision module is not yet integrated in pre-service training **(KII)** • APE stipends are still paid by external partners **(KII)**		• APE programme continues to expand with support from UNICEF and WB. In 2017, 450 APEs were trained and 1,300 more planned to be trained in 2018 **(KII)** • National APE programme strategy still under development with support from UNICEF **(KII)** • UpScale App piloted by MC in Inhambane with other financial support **(KII)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the intermediate outcome level					
24,25, 26,27	1.1 Increased use of quality iCCM services, in particular for malaria, pneumonia and diarrhoea, delivered by trained and supervised CHWs	• There is limited evidence that the outcome of improved health seeking behaviour has been achieved as a result of the RAcE interventions **(document review)** • The outcomes with regard to increased access, improved quality and strengthened national health system were achieved although with some reservations **(document review)**	• 57% of children under 5 who were sick were taken to iCCM trained APE as first source of care. An increase of 33.9% **(End line survey)** • Among those who sought care, APE was first source of care for 67.4% of caregivers. An increase of 40.2% **(End line survey)** • 78.2% of caregivers see APE as trusted health care provided. Decrease of 4.7% **(End line survey)** • Communities consistently point to APE as first source of information for any health-related issue, except in 1 community that was located at less than 5km from HF and caregivers opt between APE and HF as first source depending on illness **(FGD)**		• Armed conflict between government and opposition caused disruptions to transportation system in central and northern Mozambique in first half of 2014, most of 2015 and all of 2016 • National delays of AL procured by the Global Fund • Delivery of medicines to HF is prioritised over APE kits contributing to stock-outs
Changes at the final outcome level					
28	1 Reduction in the mortality of children under 5 years of age in the provinces of Nampula, Manica, Zambezia and Inhambane	• 1.85 million treatments for malaria, pneumonia and diarrhoea were provided to an estimated population of 719,801 children under 5 years in 4 provinces between March 2013 and December 2016, which account for 46% of all U5 deaths in the country. • The targets as per the PMF were almost achieved for malaria (97%), largely exceeded for pneumonia (244%) but not reached for diarrhoea (51%)	• Community level data collected by the National APE programme show a decrease in number of under 5 deaths reported per APE in the 4 provinces with a clear reduction between 2014 and 2016. The decrease is higher than the national (10 province) average in Nampula, Inhambane and Manica **(APE national database trend analysis 2013 to 2017)** • Community members and primary level health staff refer to a decrease in key childhood illnesses, in particular diarrhoea and malaria since the presence of APE in the community **(KIIs and FGDs)**		• Health interventions implemented that may have contributed to reduction in U5 mortality include introduction of pneumococcal and rotavirus vaccination since 2013 in all provinces, distribution of mosquito nets, large-scale cholera campaigns in Nampula and Zambezia

ANNEX: COUNTRY BRIEF MOZAMBIQUE

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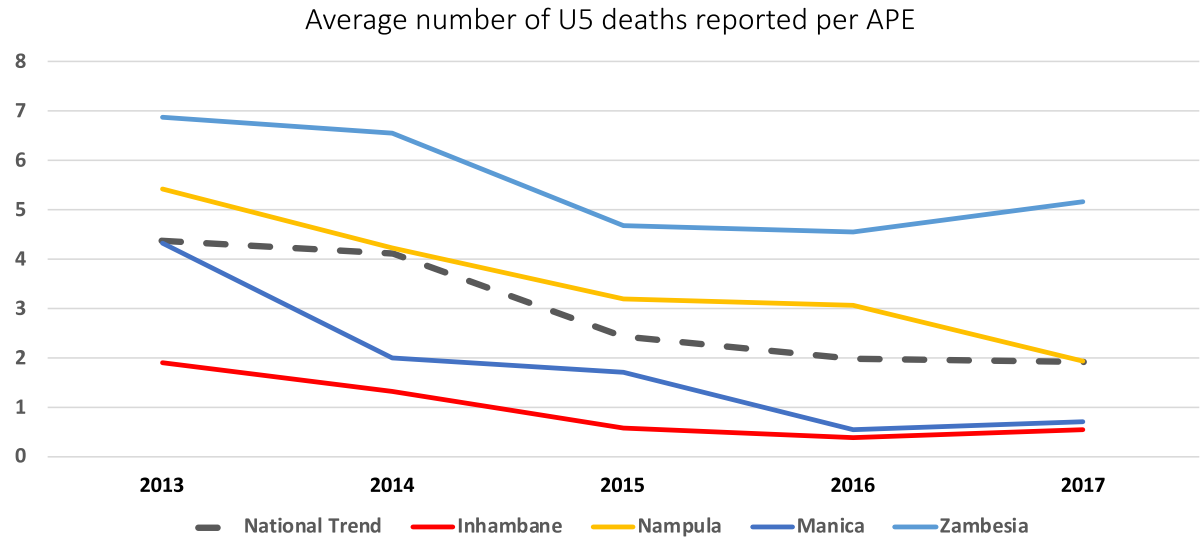
CHILD DEATHS REPORTED BY APES NATIONALLY AND IN RACE PROVINCES

The national APE database records the number of under five deaths reported by the APE every month since 2012 to 2017. While there are concerns about the quality of this database, it is the only alternative data that can be used to corroborate a possible reduction in childhood mortality. Also, it is assumed that there have not been any major changes to the quality of data with regards to this specific indicator between 2012 and 2017.

Data are available for all provinces from 2012 to 2017. For the purpose of this evaluation, we have focused on the national average and annual average for four RAcE provinces between 2013 and 2017. We included 2017 to see whether any difference could be observed after the end of the RAcE programme.

The number of APEs has gradually increased in each province in the period under review. Data on the number of people served by each APE are not consistently available. Not all APEs reported each month, but the database provides the number of APEs who submitted reports. This allows the calculation of the average number of child deaths reported by active APEs in all ten provinces. The number decreased in all provinces, indicating a continuing reduction of child deaths in the communities. Reasons may include the APE programme, but they also may include other health programmes such as immunisation or distribution of bed nets. They may also reflect social or ecological changes. To adjust for all factors not related to RAcE programme interventions, we compared the percentage reduction in child mortality reported by APEs in the four RAcE programme provinces to the national statistic in all 10 provinces.

Average number of deaths reported per APE					
Year	**10 provinces**	**Inhambane**	**Nampula**	**Zambezia**	**Manica**
2013	4,38	1,90	5,42	6,89	4,34
2014	4,11	1,32	4,22	6,55	2,01
2015	2,43	0,59	3,21	4,70	1,72
2016	2,00	0,40	3,07	4,57	0,56
2017	1,91	0,56	1,95	5,18	0,71
% change 2013-17	**-56%**	**-71%**	**-64%**	**-25%**	**-84%**



The analysis suggests that the RAcE programme in Inhambane and Manica contributed to an accelerated reduction in child mortality above national rates of reduction. In Nampula, the contribution

of RAcE is confounded with national secular trends, and in Zambesia, achievements were below the national trend.

SAMPLING STRATEGY FOR FIELD WORK IN MOZAMBIQUE

Multistage sampling was used to ensure representativeness as well as logistical feasibility. The evaluation team was only able to visit two provinces. Nampula and Inhambane were selected based on following criteria:

- Implementation models used: MC and SC used different implementation models. MC only operated in **Inhambane**, so this province was selected.
- Coverage of implementation: SC implemented the project in the other three provinces. **Nampula** saw the largest coverage in terms of number of districts and number of children under five and was therefore selected for the field visit.

In each province, two districts were sampled. To arrive at the sample, the districts were stratified according to the following criteria:

- Share of female versus male community health workers. In all districts the percentage of female and male active CHW was calculated based on Annex D of the Final Cumulative Report (Central APE database). The districts were stratified as follows:

% of female APEs	# of districts in Nampula	# of districts in Inhambane
Greater than 40%	2	8
Less than 25%	13	2

- In Nampula, further stratification was based on geography, to account for differences between the coastal and interior districts.
- In Inhambane, stratification was based on representativeness of Bitonge and Chope ethnic groups.
- Finally, distance and logistics were taken into consideration to identify the following two districts in each province:

Nampula	**Ribaué** (0% female APE, interior district and +/- 1 hour drive from Nampula) **Mossuril** (42% female APE , coastal district and +/- 2 hours drive from Nampula)
Inhambane	**Maxixe** (21% female APE, majority Bitonga, < 1 hour drive from Inhambane)
	Inharrime (54% female APE, majority Chope, +/- 2 hours drive from Inhambane)

For the sampling of communities, support was provided by the DPS and district APE coordinator. In each district the following activities were undertaken:

- A meeting with the district health directorate and the district APE coordinator located at the district hospital.
- A focus group discussion with 4 to 6 APEs at a HF and an interview with the supervisor of the APEs
- One or more focus group discussions with community members, including members of the community health committee, local leaders and mothers and fathers with children under 5.

Niger

CONTEXT

1. Niger is ranked 187 out of 188 on the Human Development Index (UNDP) and has occupied either the second last or last position since 1990 [1]. The poverty headcount ratio at US$1.90 a day is estimated 45.5 percent which represents a significant improvement since 1990 where the indicator was at 78 percent. In the same period the country's population has more than doubled. Despite relative political stability, the security situation has been volatile in Diffa and Tillabery regions as a result of recurrent terrorist attacks across the Malian and Nigerian borders. The government has reacted by scaling up defence and security forces. Niger is also hosting about 300,000 refugees and displaced persons with camps being concentrated in Diffa, Tahoua and Tillaberi [2].

2. The Demographic and Health Surveys (DHS) conducted in Niger in 2006 and 2012 documented a decrease in under-5 mortality rate from 198 to 127 deaths per 1,000 live births.[3,4] A new DHS was ongoing at the time of the data collection and it is expected that it will confirm a continued decreasing trend of child mortality. According to Statistic Review for the year of 2013, three causes account for almost 80 percent of child deaths in Niger with malaria being the leading cause (68.8%), followed by pneumonia (7.6%) and diarrhoea with dehydration (3%). [5] The 2012 DHS indicates that only a minority of children received ACT treatment for malaria (15%) and antibiotic treatment for pneumonia (11%). Treatment rates for diarrhoea were estimated at 47 percent. [4]

Selected social and health service indicators for the two RAcE-supported regions in Niger

	Dosso	Tahoua	National
Population in lowest two national wealth quintiles (%)	37	50	--
Literacy rate female (%)	11	9	**14**
U5MR (per 1,000 live births)	190	140	**127**
Care seeking for diarrhoea for U5 children	54	44	**51**
ORS treatment for U5 children with diarrhoea (%)*	46	44	**47**
Care seeking for U5 children with fever (%)	64	60	**64**
ACT treatment for U5 children with fever (%)	22	7	**15**
Care seeking for U5 children with respiratory infection (%)	61	49	**53**

*Source: DHS 2012; * ORS or recommended home-made solution*

3. The public health system in Niger is structured in three levels: central, regional and peripheral. The national structures include the referral hospitals (hospitals in Niamey, Lamorde and Zinder, as well as the Issaka Gazobi Maternity, and the National reference centre in Niamey). At the regional level, there are regional hospitals (CHRs) (except in the Zinder and Tillabery regions). The peripheral level of care is managed by 72 districts that are responsible for supervising three types of health facilities: The District Hospital (HD), Integrated Health Centres (CSI) and Health Centres (CS). At central level, the MSP has among its main responsibilities the development of policies, strategic planning documents and guidelines and the mobilisation of resources. The regions, through the Regional Directorate for Public Health (DRSP), are responsible for the planning and coordination of health activities for both the public and the private sector.

4. In 2006, a new policy was adopted to ensure free health care to children under five, pregnant women and for family planning. Notwithstanding, the out-of-pocket component of current health expenditures barely decreased and was 52 percent in 2015. The public health sector in Niger has been affected by continuous underfunding despite considerable resource mobilisation efforts. Government

health expenditures in relation to total government expenditures fell from eight percent in 2010 to six percent in 2015 and had never reached the 10 percent commitment of the National Health Policy.[22,6]

5. Niger made significant efforts to reduce child mortality through the scaling up of IMCI programmes. In 1997, an IMCI policy was adopted by the MSP which resulted in the progressive scaling up of health huts (Case de Santé). The provision of iCCM started with the Catalytic Initiative (2007 - 2013) through paid community health agents (*Agents de Santé Communautaire ASC*). They received additional training to provide a minimum package of child health services including diagnosis and treatment of malaria, diarrhoea, and pneumonia in the health huts. [7] In 2012, the National strategy for community-based interventions in health (*Stratégie nationale d'interventions intégrées à assise communautaire en matière de santé*) was approved which laid the foundation for harmonised health interventions at community level and which forged the way for the expansion of curative services provided by trained volunteers, the *Relais Communautaire* (RCom).[8]

THE RACE PROGRAMME IN NIGER

Main objective	Reduce under-five mortality and morbidity of 230,000 children (2-59 months of age) in the target area
Contract agencies	World Vision
Government partner	Ministère de Santé Publique (MSP)
Contract Period	01/07/2013 – 31/03/2018
Budget	Multiple instalments totalling US$ 8,650,000
Geographical coverage	Four districts in two regions (Dosso and Tahoua)
Population coverage	1,214,910 (230,833 children under five)
iCCM target	230,000 children under five

6. The RAcE programme in Niger started in 2013 and was the first programme to provide iCCM services for malaria, pneumonia and diarrhoea at community level through RComs and to include rapid diagnostic tests (RDTs). It was delivered through a tripartite implementation model. World Vision, an international NGO, was selected to implement the programme in collaboration with the *Ministère de Santé publique* (MSP) which ensured coordination and leadership while WHO provided technical and financial support. The monitoring and evaluation component of the programme was supported by ICF which carried out data quality assessments, supported the baseline and end-line surveys and conducted a final evaluation of the programme.

7. The RAcE programme was implemented in four health districts in two regions (Keita in Tahoua region and Boboye, Dogondoutchi, Dosso in the region of Dosso). The total population of the four districts is estimated at 1,872,929. The number of children aged 2-59 months was estimated at 414,079. Only communities located more than five kilometres from the nearest health facility (*Centre de Santé Intégrée - CSI*) were eligible for the programme. Within the first three years, 1,426 RComs were recruited and 1,313 passed the training. Throughout the period of implementation, the Rcom turnover was around seven percent and the number of active RComs in year 5 was 1110. [9, 19]

THE COUNTRY EVALUATION MISSION

8. The brief for the Niger RAcE programme was prepared within the framework of the overall summative evaluation of the RAcE initiative. The approach and methodology for each of the country missions was standardised and is described in Volume 1 of the synthesis report. The evaluation questions were adapted to fit the context of the RAcE programme in Niger. The draft post hoc ToC

framework was reviewed in two working sessions with WHO and World Vision, and its assumptions tested through the collection of additional primary and secondary data. A field work plan was established, including a sample of districts, CSIs and communities to be visited and a list of key informants to be interviewed at regional and at central level. The field mission started on the third day and the evaluation team spent five days in two districts of the Dosso region. The selected districts were Boboye and Doutchi to ensure the representation of all the principal ethnic groups of Dosso region (Fula, Djerma and Haussa).

9. Sampling of regions, districts and communities was based on a combined sampling strategy that was adapted to the needs, time and means of the evaluation. It enabled triangulation and allowed for the necessary flexibility in the fragile security context of Niger. Its objective was to reach saturation and not representativeness. It is described in detail in Annex. At community level, the evaluation team, supported by a focus group facilitator, conducted 12 focus group discussions with parents of children under five and four discussions with RComs. In addition, 32 key informants were interviewed at district (10), regional (3) and national level (19). All but two planned interviews could be conducted; two key informants were unavailable.

10. Because of the volatile security situation in Tahoua, World Vision's security protocol did not allow the evaluation team to collect data in this region without a military escort. A budget to pay for such an escort was not available, and the evaluation team considered that the presence of armed soldiers would not have been conducive to a participatory process of data collection at the community level. The region was therefore excluded from the sample. This represents a limitation of the evaluation. The two regions differ in operating context and child health indicators, and it is uncertain to what extent the results of the field evaluation in Dosso can be applied to the region of Tahoua.

MAIN FINDINGS

RESULTS OF THE CONTRIBUTION ANALYSIS

11. Most of the planned inputs of the RAcE programme were provided and outputs were largely achieved. Some modifications were made to the original proposal, mainly in terms of downscaling the ambition on promoting gender equality and on the number of RComs to be recruited which was reduced by 300 persons. These modifications have been reflected in the ToC.

12. Overall, the evidence of the contribution of the programme to the achievement of the planned changes as outlined in the post-hoc Theory of Change framework is conclusive and underlying assumptions can be validated. The ToC outlines, hence, the best explanation for the major increase in treatment access and a subsequent decrease in child mortality in the four districts where the RAcE programme was implemented.

13. The community led identification of RComs based on a set of criteria was identified as a good practice for achieving community adhesion. Village chiefs have been generally supportive to the RComs, in particular in supporting the RComs for the mobilisation of specific groups for awareness raising activities. After the introduction of the programme at community level, the RAcE programme pursued two types of interventions to enhance community engagement: (a) regular awareness raising activities with parents (e.g. after baptisms and wedding ceremonies and prayer sessions at the mosque) and (b) involvement of community chiefs in sustainability planning to advocate for long lasting commitments to support the RComs either materially or financially. While the first activity delivered conclusive results in terms of raising parental awareness on iCCM services (99.8% of the parents were aware of the presence of the RCom at the time of the end-line survey compared to 1% at the baseline; 98.5% of caregivers perceived them as trusted health care providers), the outcomes of the second activity were more ambiguous. All village chiefs signed a list of commitments to support RComs, but – according to the interviewed parents, RComs and other key informants - these commitments were rarely implemented.

14. The financial incentive of 10,000 FCFA provided to RComs was universally highlighted as an indispensable condition for their motivation and retention. Focus group discussions indicated, however, a gender specific difference. Whereas most female RComs seemed to be satisfied with their working conditions, male RComs of more advanced age (> 35 years) expressed discontent with the provided incentive as they judged it insufficient for sustaining their household charges (which are considerable higher for older men).

15. Monthly supervision (in particular in the first two years) was a key programmatic element for both the quality of care and the adequacy of reports provided by the RComs. Both RComs and supervisors confirmed that the supervision activities were critical to correct mistakes during diagnostic and treatment. Another essential part of the supervision was to support the RComs in filling out their registers and reports. According to key informants, this had been a major challenge in the first two years and had required intensive support due to the low literacy level of most of the RComs. Another effect of the supervision reported by the RComs was that it contributed to strengthening their credibility as health care providers. While some community members voiced scepticism on how someone who was only trained for 10 days could provide diagnoses and treatments, the regular arrival of the supervisor helped to discard these doubts. The supervision was handed over from project-hired supervisors to the CSIs teams in March 2017. This led in most cases to a drop in the frequency of supervision, as CSIs are not sufficiently staffed for this purpose. This applies in particular to CSIs that have more than 20 RComs to supervise or that cover a larger geographic area. The transport facilities (motorbikes and in some

cases, cars) and the financial incentives (20,000 CFA/ month) provided by the programme to CSIs were also considered as necessary measures to enable CSIs to carry out supervision activities.

16. Another key condition for quality iCCM programmes was the sustained availability of free medicines at community level. It played a substantial role in building community adhesion. By and large, stock outs had been minimal until October 2017. For the first three years, World Vision had signed a Memorandum of Understanding with the *Office National des Produits Pharmaceutiques et Chimiques* (ONPPC) to deliver iCCM commodities and medicines to the district level pharmacies from which World Vision ensured the distribution to the CSIs and communities. This distribution mechanism worked well according to all interviewees. In 2017, the stocks for the remaining period of the programme was dispatched by ONPPC to the health districts which took up the responsibility of distributing drugs to the CSIs. The responsibility for medicine provision to the RComs shifted to the CSIs. The change of the distribution model has started to impact negatively on the availability of medicines in some CSIs. At the moment of the evaluation, both CSIs and RComs, particularly in Dogondoutchi, reported stock outs lasting longer than two months for Amoxicillin and ORS/Zinc despite the availability of medicines at district level. Reporting errors from RComs, staff turnovers at CSIs, low motivation by CSI supervisors and lack of communication about the new roles exacerbated the situation.

17. The RAcE programme provided technical support for the revision, piloting and validation of iCCM training guides and tools in the first years of the programme. The validation of context sensitive iCCM training materials was a key milestone for harmonised and scalable iCCM interventions in Niger.

18. The RAcE programme supported the development of a standardised referral system for iCCM in Niger which was successfully piloted and rolled out across all communities. Although parents reported high referral adherence during the end-line survey [10], there is strong evidence that a substantial number of parents do not adhere to referral advice because of cost implications or competing priorities. This applies particularly to communities located at greater distances from CSIs. Parents in several communities also indicated that poorer families are often unable to access the CSIs due to the costs involved (transportation, purchase of the health booklet at first time treatment (1100 FCFA) and the purchase of medicines that are not available at the CSIs).

19. The consolidated data highlighted that the CSIs are the weakest link in the RAcE programme. Respondents reported that the quality and availability of care at CSI level was regularly compromised by the lack of commodities, stock-out of medicines, insufficient staffing and high staff turnover, and disengagement of personnel due to irregular salary payments. In the two districts visited during the mission, most of the staff had not been paid for five months. Parents shared the perception that the quality of reception and care was better with RComs and that the latter had 'more effective medicines'. This was backed up by observations from district medical officers who reported that the RComs apply the IMCI protocol rigorously while CSI staff more frequently jump steps and invest less time in communicating with parents.

20. One key contribution of the RAcE programme to a harmonised scale-up of iCCM was the technical and financial support provided to the *Direction de la Statistique* (DS) for the participatory design of iCCM data collection tools. These tools were piloted with the RAcE programme, validated at national level and have enabled the integration of iCCM data in the national health information system (SNIS). In the first two years, reporting quality was poor, but substantial ameliorations were achieved in the last two years. Data quality assessments and supervision played an important role in progressively improving the data quality.

21. At the time of the evaluation, two operational research studies had been conducted: one investigating the RComs' compliance with the IMCI diagnostic and treatment protocol, and one

evaluating the potential of a mobile phone (mHealth) application to improve the quality of care provided by RComs. The reports of the two studies are available, but none of them has yet been disseminated at national or sub-national level.

22. The sub-grantee delivery model, with the government in a coordinating and steering role, an INGO with experience in iCCM programming in charge of the implementation and the WHO in the role of providing technical and financial support was highly effective. Capacity in the public sector to establish and manage iCCM services was low, particularly for supervision and for the regular supply of medicines and commodities. Key informants, including all interviewees from decentralised health facilities, emphasised that external partners have been and are still necessary to ensure quality and consistency of interventions. The low capacity (understaffing, lack of training, equipment and medicines) of health facilities was also highlighted as a bottleneck in the PSSE.[6]

23. To ensure consistent engagement and leadership of the MSP, relevant ministerial departments, in particular the DOS, DS, DSME and PNLP, participated in the design of the programme. Annual meetings were held for strategic and operational planning. The RAcE programme furthermore supported regular coordination and monitoring meetings at different levels: quarterly meetings with district health staff and bi-annual meetings with regional (DRSP) and national MSP representatives. At national level, the MSP led a technical committee with members of relevant ministry departments and representatives from regions and districts. The meetings of the technical committee focused primarily on coordination as well as on the analysis and discussion of data quality and content. Several key informants provided examples of how these meetings led to evidence-based decisions that enhanced the quality or effectiveness of the programme.

24. The RAcE programme is fully aligned with national health policies and guidelines, in particular with the National strategy for community-based interventions in health and the national free health care policy for children under five, pregnant women and family planning. Moreover, it contributed through technical support and the influence of the WHO to the development and/ or revision and validation of several iCCM- related national policy documents and guidelines:

- the *Stratégie nationale de participation communautaire en matière de santé 2016 – 2020* [12]
- the *Directives Nationales de Mise en Œuvre des interventions intégrées à assise communautaire en matière de santé* (2016) [13]
- the *Plan Stratégique National de Survie de l'Enfant au Niger 2016-2020* (PSSE) [6]
- the *Guide d'orientation et de référence sur le relais communautaire de développement au Niger* (2017) [14]
- the draft *Feuille de route pour des services iCCM durables au Niger* (2017) [15]
- and the draft *Plan stratégique pour la mise à échelle de la prise en charge intégrée des maladies des enfants au niveau communautaire 2017-2021* [16]

25. The direct contribution of the RAcE programme to developing these documents was recognised by almost all key informants at national level as illustrated by the following testimony: *'With our low health coverage of 48 percent, the scaling up of iCCM is a natural thing to do. We might have been able to produce these different guidelines and strategic documents without RAcE, but it would not have been that fast and the quality would not be as good without the learning from the RAcE programme and the support and influence of WHO.'* Some of the documents also include specific references to the RAcE programme and acknowledge the support of WHO. The validation of these documents was another critical milestone in the scale-up of iCCM in Niger. They laid the foundation for the institutionalisation of

RComs in the health system and the future inclusion of a specific line for iCCM in the national health budget. They also represent commitments of the government of Niger to which civil society actors can hold them accountable for accessible health care at community level for children under five. A recent ministerial decree for setting up a national coordination committee for community-based health interventions was another step forward.[17]

26. At national level, the RAcE programme also contributed to lobbying and coordination efforts for the mobilisation of new resources for iCCM programming. These contributed to the launch of a large-scale joint iCCM programme supported by UNICEF and the Global Fund (TGF). WHO also supported discussions with BID (banque islamique du développement) and USAID resulting in an integration of iCCM in US support of malaria control.

27. Another critical outcome and key achievement of the RAcE programme was the high level of community satisfaction with the services provided by the RComs. Parents in all visited communities reported that RComs were available at all hours and provided effective treatment free of charge. The free and easy access to care contributed to care-seeking at the first signs of illness with potential impact on reducing child mortality in the communities.

28. The reduction of child mortality of 14 percent in the RAcE programme areas was estimated by the application of the LiST model by ICF.[9] There are no alternative data to validate the estimated decrease, and several of the assumptions on which the model is based are not robust. It presumes, for example, that the baseline U5MR of 137‰ reflects the rate experienced in 2013 in the two programme areas which is unlikely due to the long historic period over which the U5MR was estimated. Another assumption that does not hold is that the sampling frames from available subnational data from DHS were representative of the intervention areas covered by the RAcE programme which is also highly unlikely as the RAcE programme only worked in a limited number of districts and targeted rural communities located over 5km from the nearest CSI. There is, however, sufficient qualitative and quantitative evidence to support the finding of a major increase in treatment access and an associated decrease in mortality. More than 722,000 children under five were treated by RComs.[19] The extent of the decrease in mortality, however, cannot be confirmed by the current evaluation.

29. The evaluation identified a number of other maternal and child health programmes that contributed to the decrease of child mortality, namely extended vaccination campaigns, distribution of and awareness raising on the use of long-lasting insecticide-treated nets (LLIN), seasonal chemoprevention of malaria (in the district of Keita), water and hygiene, reproductive health and nutrition. All of these programmes focus mainly on prevention and are complementary to the RAcE programme which has put curative service provision at its centre. It was not possible to gauge the extent of the contribution of particular programmes to the decrease in child mortality, but as malaria is by far the leading fatal disease for children under five in Niger, it can be assumed that the chemoprevention programme in the district of Keita and the LLIN distribution programme in the region of Dosso made considerable complementary contributions to the impact of the interventions of the RAcE programme. All programmes are coordinated at the level of the DRSPs which contribute to and have an overview of all planned activities. According to national, regional and district level key informants, programmes were generally implemented in synergy and several examples of effective collaboration were given. The CSIs, for instance, work through the RComs to mobilise parents for vaccination campaigns and to increase the attendance of pregnant women for pre- and postnatal care visits.

GENDER EQUALITY

30. World Vision's final proposal submitted in 2013 [18] incorporated several components aiming at integrating gender mainstreaming in care seeking, health care provision and policy development. During the data collection at country level, however, it became clear that these components had not been implemented. The original proposal, for example, had planned to add a module on gender to the iCCM training package and to provide sex-disaggregated data on treatment access in reports, but this was not done. It had also planned for gender sensitive supervision and the contribution to gender sensitive policies and strategies, but there was no mentioning of this in any of the programme reports. Key informants were either unaware that this had been part of the proposal or responded that this was no longer a priority. Despite the visibly downscaled ambition on gender, the programme still incorporates characteristics that demonstrate a certain degree of gender awareness:

- The baseline and end-line survey included questions on female and male involvement in decision-making at household level and for care seeking
- A conscious effort was made to retain female RComs to ensure the representation of women among the RComs
- The final evaluation report by ICF includes a brief section on gender factors and treatment differentials

31. Further findings of the evaluation on gender equality are summarised in the table below.

Gender analysis	The conduct of a gender analysis and the development of a gender strategy were in the GAL, but not carried out. The first year annual report mentions a study on gender related bottlenecks, but none of the interviewed key informants was aware of the study and the documents could not be found.
Gender equality in access to treatment	The end-line survey investigated illness management and diagnostics by sex. There was no significant difference between girls and boys across all indicators [10]
Gender equality and difference among male and female care providers	The percent of female RComs was 32 percent in the RAcE programme in Niger. The region of Keita had by far the highest representation of women (51%) The proposal aimed at an equal gender representation of male/ female RComs to be recruited, but this target was not reached. Information provided by key informants on this matter was inconsistent and knowledge of the original target was low, particular at district level. Generally, the low literacy level of women made it challenging to identify women with sufficient reading and writing skills. The findings also showed that male RComs are more likely to migrate for work (especially when financial incentives stop) as they are expected to provide the income for their families as heads of households. The quality of care and reports of male RComs, on the other hand, is often better according to supervisors due to the higher literacy level of men. In line with that, key informants observed that most female RComs required more extensive training and supervision. Once adequately trained, however, women tended to be more stable and motivated, irrespective of financial incentives. Parents did not report any treatment preference for male or female RComs, but one key informant mentioned that female RComs are in a better position for carrying out follow up home visits as male RComs are only allowed to enter the house in the presence of the head of household.

Gender sensitivity of RCom training and reporting material	There is no module on gender in the training manual. The graphics included in the training manual and reporting sheets are either gender neutral or use images of female caregivers involved in child care. [20,21]
Gender equality in care seeking	Survey data showed that the number of parents taking a joint decision to seek care significantly increased at the time of the end-line survey (from 80 to 90%). More specifically, the percentage of mothers who made the decision jointly with their mother in law decreased from 18 to eight percent, and the decision of mothers who took decisions jointly with the head of household increased from four to 17 percent. These results indicate that fathers' involvement in seeking care for sick children increased as well as joint decisions among spouses. Focus group discussions with parents and RComs also indicated a slight increase of fathers' involvement in caretaking as a result a targeted awareness raising activities among men after prayers at the mosque.
Gender equality in the community	The survey results did not demonstrate any significant changes as regards to decision making for major household purchases which remained mainly in the hands of male heads of the household. Some caution is warranted in interpreting these results as the amount of missing data was substantial for this module during the end-line survey.[10] There was also no evidence that the programme impacted positively or negatively on the status of women in the communities.

SOCIAL EQUITY AND VULNERABLE POPULATIONS

32. Information provided on the criteria for the selection of regions was not consistent across data sources. Several sources indicated that the two selected regions were targeted due to their high child mortality. This applies to Dosso which is the region with the highest child mortality in the country (190 child death out of 1000 children under five), but to a lesser extent to Tahoua which ranks lower on the child mortality indicator (140/1000) than Maradi (166/1000), Tillabery (168/1000) and Zinder (160/1000), yet it is still relatively high compared to the remaining regions.[4] According to one key informant, Tahoua was selected because of its strong history of community participation and the high performance of its health districts. A wealth quintile analysis was conducted during the final programme evaluation and showed that only 10 percent of population covered by the RAcE programme belongs to the poorest quintile. In total, 61 percent of the population were within the three poorest quintiles, 37 in the second richest, and two percent in the richest quintile.[9] This indicates that the RAcE programme gave priority to reaching communities which were highly affected by child mortality rather than targeting particularly poor communities.

33. The selection of communities was based on iCCM eligibility criteria, namely villages that are located at least five kilometres from a CSI or located within reach of a health facility that could not provide adequate care because of limited staff, equipment and supplies. According to key informants, the RAcE programme did not aim at reaching particularly remote or inaccessible locations but gave preference to large communities with the aim of reaching as many children as possible.

SUSTAINABILITY PLANNING

34. Sustainability planning for the RAcE programme in Niger started in July 2016 and involved a large range of stakeholders from different levels in a participatory manner. The efforts resulted in the development of a sustainability roadmap (for the next 10 years) and a strategic plan for the scale up of iCCM with the objective of reaching 80 percent iCCM coverage by 2021.[16] Both documents are still in

draft form and have not yet been validated by the MSP. The majority of key informants had been involved or were aware of the roadmap but made no firm commitments for its implementation.

35. The sustainability roadmap contains an action plan with over 50 tasks for which responsibilities have been allocated to the MSP, the DSME, the DS, the DOS, the DEP, the health districts and the DRSPs. A couple of tasks have also been assigned to WHO and World Vision. These tasks have already been delivered or are currently being implemented. Most tasks, however, require financing that is substantially above the resources available to the assigned institutions. Despite progress on policy and strategic planning level for iCCM, there is not yet a budget line for iCCM in the national health budget. The implementation of the roadmap is at high risk of failure unless additional financial resources for the support of iCCM are mobilised.

36. The late timing of the roadmap and strategy for iCCM scale up has also impacted negatively on the sustainability of the programme. Options for follow-up actions to sustain and expand the results of scaling-up iCCM could have been considered at inception and refined from the first year of implementation from village to national level. Sustainability planning in the RAcE programme only started in late 2016.[15]

37. At the time of the evaluation, achieving sustainability of the programme was highlighted as its biggest challenge. There are three critical requirements for the continuation of activities at community level: the payment of incentives to the RComs, their work inputs (medicines and devices) and supervision. The findings of this evaluation indicate that the probability that any of these three requirements will be consistently delivered after the end of the programme is low. The implementation capacity at decentralised level is low, there are endemic problems in the supply of medicines and there is not yet a budget line to cover 50 percent of the cost of RCom incentives to which the government is committed.[13] Community contributions to RCom incentives are irregular and unreliable. Many village authorities are reluctant to contribute. They have grown accustomed to the free care provision and do not see why they should contribute to a service that was introduced to them as free of charge.

UNPLANNED COLLATERAL OUTCOMES

38. Most RComs stressed their high workload as a burden, in particular during the rainy season with the seasonal increase in malaria incidence. Their workload varies between a couple of hours a week to a full-time work. In some cases, RComs serve different projects at the same time which adds up to significant time commitments. Parents also reported that people from communities in proximity of CSIs started consulting the RComs that are nearest to their community instead of going to the CSI. This is due to low availability and quality of services at CSIs and the popular perception that RComs are more available and deliver more effective treatments. This also led to an unplanned increase of the workload of some RComs. Evidently, the higher the workload, the lesser the time available to RComs for income generating activities and the higher their dependence on non-financial and financial incentives provided by the community and the programme. As a consequence, the RAcE programme has exposed certain RComs and their families to increased vulnerability as the testimony below demonstrates: *"I get up almost every night over weeks during the rainy season to receive children with Malaria. During the day, the work continues. Even people from surrounding villages come to see me. But at the end of the month, I am left with literally nothing. When my own children, my wife or I get sick, I have no means to pay for the transport [to the CSI] and cannot afford to pay the medicines. At one point, what choice will I have but to migrate for work?"* (male RCom, Dogondoutchi region). While the finding cannot be generalised, the economic impact of task shifting to RComs in terms of their own household economy must be

considered, and the issue of inappropriate shifts in care-seeking from CSIs and CSs to RComs should be analysed and addressed.

CONCLUSIONS

39. The RAcE programme in Niger was a pilot for iCCM implementation at scale by providing preventive and curative services through community health workers. It achieved impressive results with over 722,000 children under five treated by RComs for malaria, pneumonia and diarrhoea since the start of the programme in a context of strong community adhesion and satisfaction with the provided services. It also contributed to important iCCM related policy changes and the integration of community health service data into the SNIS. Furthermore, there is robust evidence that the RAcE programme played an important role in supporting the coordination of community health interventions and scaling up of iCCM in the country.

40. Overall, the effectiveness and efficiency of the programme can be rated as high. Given that only 48 percent of the population in Niger has access to the minimum package of CSI services, [23] iCCM is a suitable programmatic approach for increasing equitable access to quality health care for children under five in rural areas with high child mortality rates. The consistent achievement of the intended changes of the RAcE programme impacted positively on the morbidity and mortality of children under five in the targeted districts. The extent of the impact, however, cannot be confirmed with available data. The relevance of the programme was equally high. The RAcE programme was initiated after the validation of the national community health strategy [8] which was favourable timing for supporting iCCM priorities of the MSP. Through the technical committee, the MSP took on the leadership in the implementation of the RAcE programme and participated in activities at all levels. The RAcE programme was also complementary to other child health programmes carried out in the districts and effective oversight of different programmes was provided by the DRSPs.

41. The most significant challenges of the programme are related to sustainability. There is no doubt that the applied sub-grantee delivery model was appropriate and effective for delivering quality iCCM programming, but it can only be sustainable if either the government fully appropriates all services provided under the RAcE programme or if external partners continue to support the inputs. While the decentralised health structures have gained technical skills in planning and coordination, they still have neither the resources nor the capacity to ensure regular supervision and commodity supplies to the RComs. The weak capacity of the CSI and district level is a major impediment to the sustainability of the programme. It is, however, rooted in complex health system issues that are mostly out of scope for an iCCM programme, including the management and financing of the free health care policy, health sector HR policies and strategies, and the functioning of the procurement and supply management chain in the public sector.

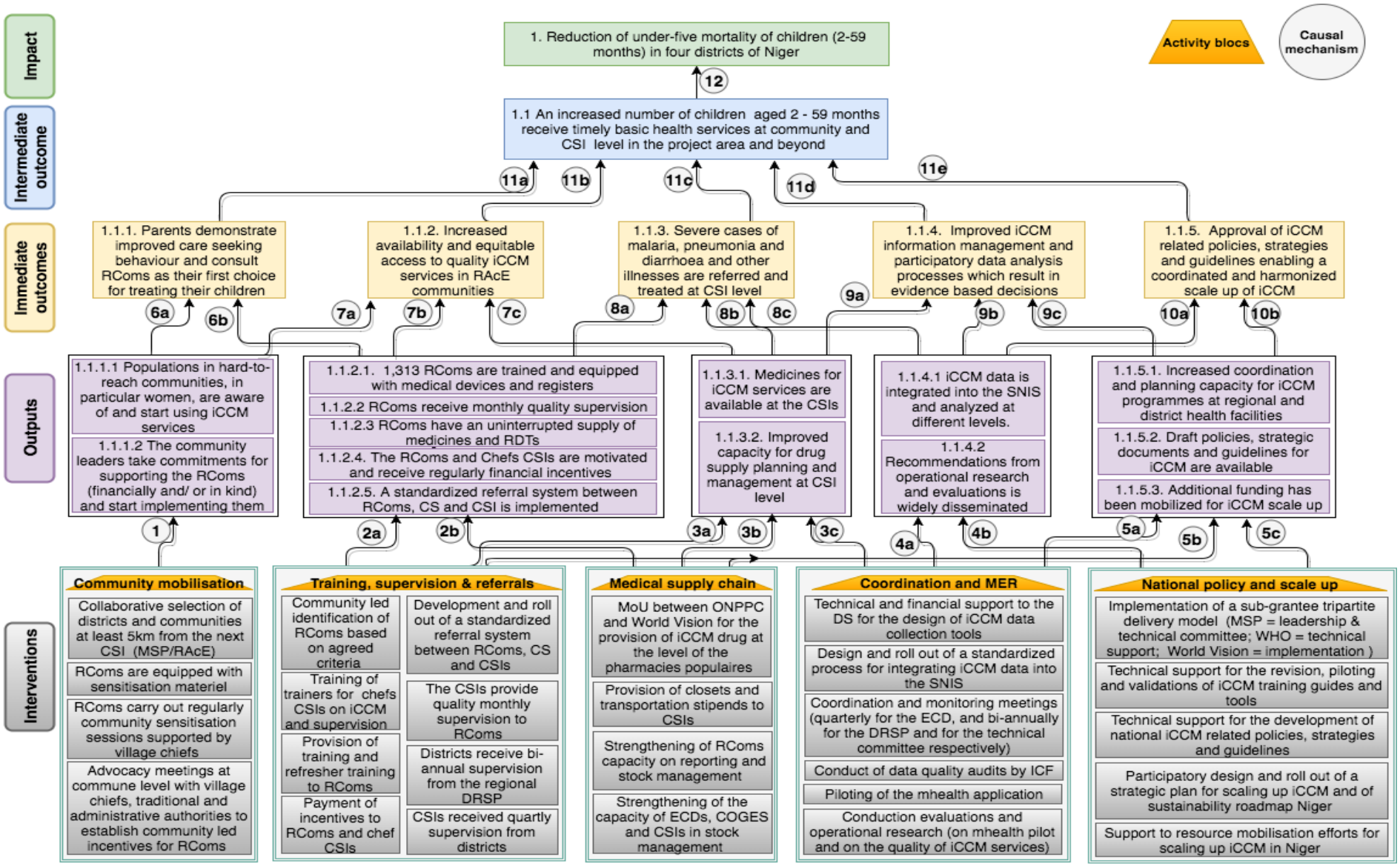
42. Gender mainstreaming was not a priority for the implementing partners and most of the planned activities on promoting gender equality in care seeking, health care provision and policy documents have not been implemented.

43. The qualitative evaluation methodology of contribution analysis and process tracing established conclusive evidence that the developed ToC framework assembles a package of causal mechanisms that represent the best possible explanation for the achieved changes. It also showcased that iCCM in the context of Niger requires a quite wide-spread range of interventions to ensure engagement at all levels and quality results at scale. This capacity is not yet built in the public sector, and continued support from external partners will be required for sustaining the achievements and for scaling up.

44. The ToC framework can be easily generalised to extract generic programmatic components that should be included in all iCCM programmes in the current context of Niger. There are five building common blocks for all iCCM programmes: (a) community mobilisation; (b) training, supervision and

referrals, (c) medical supply, (d) coordination, monitoring, evaluation and research and (e) support to national policy/ guideline development and harmonised iCCM scale up. To sustain iCCM activities in the RAcE programme communities, resources for three components are priority requirements: supervision and training of RComs, their financial incentives, and the iCCM commodity inputs.

THEORY OF CHANGE



Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the output level					
1	1.1.1.1 Communities, and in particular women, are aware of and start using iCCM services	• Community mobilisation activities have been delivered as planned **(World Vision annual reports)**	• The end-line household surveys reported that 99.8% of the population were aware of the RCom in their community and 99% viewed RComs as trusted health providers **(end-line survey)** • Community groups, community leaders consistently express their appreciation of iCCM services **(KIIs & FGDs)**		• none
	1.1.1.2 The community leaders make commitments for supporting the RComs (financially and / or in-kind) and start implementing them	• All village chiefs have participated advocacy meetings signed written statement on agreed commitments for supporting RComs **(KIIs, World Vision reports)**	• Some village chiefs have started to honour their commitments, but many do not or only partially which threatens the sustainability of the project (**FGDs, KIIs)** • Some parents were not aware about the commitments and the need to support the RCom – some village chiefs did not share the outcomes of the meetings with their communities **(FGDs)** • Some key informants reported that some chiefs and parents were reluctant to contribute to support the RCom as the services had been announced as being free of charge **(KIIs)**		• The last harvest season was dire and rural populations and impacted negatively on household incomes and makes it very challenging for some families to make even small contributions **(FGDs, KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
2a & 2b	1.1.2.1. 1,313 RComs are trained and equipped with medical devices and registers	• 1,313 RComs were trained and equipped after being identified by communities **(World Vision Reports, KIIs)** • MoU with ONPPC signed and implemented **(World Vision reports, KIIs)** • CSI and district health staff received training on stock planning and management **(World Vision reports, KIIs)**	• All RComs participated in one training and one refresher training. Participants who did not pass the test at the end of the training were excluded from the programme. **(World Vision reports, FGD with RComs)** • All RComs received necessary medical devices, registers and a trunk for storage **(KIIs, FGD with RComs, direct observation)**		• none
	1.1.2.2 The RComs receive monthly quality supervision	• Monthly supervision was provided by proximity supervisors hired by World Vision until March 2017. Since March 2017, supervision has been provided by the CSI teams. **(World Vision reports, KII interviews)**	• RComs and supervisors confirm that supervision has been helpful for correcting treatment errors and for preparing quality iCCM reports **(FGDs with RComs, KIIs)** • RComs and key informants rank supervision as one of the five most conditions for quality iCCM **(FGD with RComs, KIIs)** • Some RComs and supervisors report that supervision is no longer provided on a monthly, but on a quarterly basis by the CSIs. **(FGD with RComs, KIIs)**		• In Dosso region, salary payments for 85% of health staff is often delayed for several months. This impacts on their motivation. **(KIIs)** • Some CSI lack logistic and human resources to carry out supervision on a regular basis **(KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
2a & 2b (cont)	1.1.2.3 The RComs have an uninterrupted supply of medicines and RDTs	• MoU with ONPPC signed and implemented (World Vision reports, KIIs) • CSI and district health staff received training on stock planning and management (World Vision reports, KIIs)	• Only 4% of RComs reported stock-outs for at least 7 days in the past month **(final evaluation report, 2016)** • In visited communities, RComs have fully equipped trunks including medicines and RDTs **(direct observation)** • Starting Oct 2017, some RComs experienced stocks outs of ORS/Zinc and Amoxicillin. Medicines were still available at district level, but supply chain issues between districts, CSIs and RComs **(FGD with RComs and communities, KIIs)** • Communities, RComs and supervisors report consistently 24h availability of the RComs which translates their strong commitment (**FGD, KIIs**) • There is a relatively low turnover among RComs (**World Vision reports, KIIs, FGD**)		• Some districts and CSIs have Insufficient capacity to manage medicine distribution to RComs **(KIIs)** • Stock outs at CSI level **(KIIs)**
	1.1.2.4. The RComs and chefs CSIs are motivated and receive regularly financial incentives	• The programme budget includes a budget line with sufficient provisions for paying the monthly incentives to RComs paid on a bi-annual basis **(World Vision reports)**	• RComs and key informants confirm reception of financial incentives by RComs since they started their work **(FGD with RComs, KIIs)** • Most RComs complained that the financial incentive is barely sufficient and rank the insufficient support (financially or in kind) as their most important difficulty. They also confirm, however, that this has never impacted negatively on their work (**FGD with RComs**)		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
	1.1.2.5. A standardised referral system between RComs, CS and CSI is implemented	The referral system has been put in place **(World Vision reports, KIIs)**	• Availability of reference and counter reference sheets with RComs and CSIs **(KIIs, FGDs, direct observation)** • RComs and CSI staff implement the reference system as per design, but counter reference sheets are often not returned by mothers to RComs. To improve the process, the CSIs keep the counter reference sheet and give them to the RComs during supervision visits, but a systematic document flow is not yet achieved. **(FGD, KIIs)**		• none
3a, b, c	1.1.3.1 Medicines for iCCM services are available at the CSIs	• Implementation of MoU signed with ONPPC for making medications available at district level **(World Vision reports, KIIs)** • World Vision ensured transport to CSIs until March 2017. Since then, the distribution of drugs to CSIs have been managed by districts **(World Vision reports, KIIs)**	• CSIs reported consistently that they had no stock outs until the last quarter of 2017. In the last three months several CSIs reported stock outs for ORS/zinc and Amoxicillin.		• The District Health Management Teams (Équipes Cadre de District – ECD) have varying capacity in drug stocking and distribution. Since the distribution of drugs has been handed over to districts, stock outs have started to occur. **(KIIs)**
	1.1.3.2. Improved capacity for drug supply planning and management at CSI level	• Training and capacity building activities have been delivered **(World Vision reports, KIIs)**	• The capacity building efforts have not been sustained in all sites. Several key informants at CSI level started in their positions recently and had never been part of any type of capacity building **(KIIs)** • There was little evidence that CSI staff without training had lower capacity for drug supply planning and management than their trained counterparts. Attribution of an increased capacity to the RAcE programme cannot not be universally confirmed **(KIIs)**		• There is a high staff turn-over at CSI level which has weakened the impact of capacity building efforts.

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
4a, b	1.1.4.1 iCCM data are integrated into the SNIS and analysed at different levels	• iCCM data collection tools were designed, validated at national level and rolled out in all RAcE communities **(World Vision reports, KIIs)** • Two data quality audits were been carried out (DQA reports)	• CSI compile data collected by RComs and ingrate it in their monthly reports to districts. Districts compile data from CSIs to regions which compile them for the national level where they are entered in the SNIS **(World Vision reports, KIIs)** • Data from each district (including iCCM data) are analysed during coordination and monitoring meetings at district and regional level and by the technical committee **(KIIs)**		• none
4a, b (cont.)	1.1.4.2 Recommendations from operational research and evaluations is widely disseminated	• Two operational research projects were conducted (mhealth and quality of iCCM services) **(research ToR and reports)** • Two evaluation surveys were carried out (baseline and end-line survey) **(evaluation reports)**	• The reports have been shared with selected stakeholders, but there has not yet been a dissemination at national or sub-national level (**KIIs, World Vision reports)**		• none
5a, b, c	1.1.5.1. Increased coordination and planning capacity for iCCM programmes at regional and district level	• The CSI chiefs received training on iCCM and monitoring **(KIIs, World Vision reports)** • The DRSP and the districts a ensured planning and coordination of the RAcE programme with technical support from World Vision, WHO and members of the technical committee **(KIIs, World Vision reports)**	• Key informants at regional and district level consistently reported increased planning and coordination capacity for implementing iCCM as a result of their involvement in the RAcE projects **(KIIs)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
	1.1.5.2. Draft policies, strategic documents and guidelines for iCCM are available	• Key national policy and strategy documents were drafted and/or adopted **(policy and reference documents)**	• The majority of key informants recognised the contribution of the RAcE programme and acknowledged that without the contribution of RAcE progress would have been slower. **(KIIs)** • WHO is acknowledged in one of the document as a contributor, and the RAcE programme is mentioned in several of them **(policy and reference documents)**		• Political will and commitment at MSP **(KIIs)**
5a, b, c (cont.)	1.1.5.3. Additional funding has been mobilised for iCCM scale up	• A new large scale iCCM project has been recently initiated through joint funding of UNICEF and TGF. **(KIIs)**	• Some key informants recognised that RAcE contributed to the coordination of resource mobilisation efforts. **(KIIs)**		• Commitment and influence of UNICEF in Niger to the scale up of iCCM programming **(KIIs)**
Changes at the immediate outcome level					
6a, b	1.1.1. Parents demonstrate improved care seeking behaviour and consult RComs as their first choice for treating their children	• Parents find it more convenient and effective to consult RComs in comparison to traditional healers and CS/CSIs **(FGDs)** • Parents report that the RComs are always available **(FGDs)** • Parents consistently report high satisfaction with services provided by RCom **(FGDs)** • 98% of caregivers report that RComs provide quality services. **(end-line survey)**	• The majority of parents name RComs as their first source of care for their children **(FGDs, end-line survey)** • Parents consistently report that they consult RComs at the first signs of illness while before the project they used to wait before consulting the CS or CSIs **(FGDs)**		• Parents also benefit from awareness raising activities on malaria prevention provided by CSI facilitators under the TGF-funded programme **(KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
7, a,b, c	1.1.2. Increased availability and equitable access to quality iCCM services in RAcE communities	• All trained RComs are active and equipped with drugs and medical devices to provide iCCM services **(World Vision reports)** • Turnover among RComs has remained low throughout the project **(World Vision reports, KIIs)** • Parents almost universally report that RComs are available at all hours, give detailed treatment instructions **(FGDs, end-line survey).** • Communities confirm that all parents without exception consult the RCom once their children are ill (often even from surrounding villages) **(FGDs)**	• Key informants and operational research report that RComs implement consultations and treatments in full compliance with iCCM protocols **(FGDs, KIIs)** • Parents experience treatments provided by RComs as more effective as those provided by CS/ CSIs **(FGDs)** • More than 68% of children received follow up visits from RComs **(end-line survey)** • According to caregivers, 75% of children with fever were administered an RDT by the RCom (21% at baseline) and 64% of children who were coughing had their respiratory rate counted. It is to be noted, however, that caregivers often don't recall malaria testing correctly. **(baseline/ end-line survey)** • 64% of children with diarrhoea were treated with ORS/ Zinc at the end-line survey (21% at baseline) **(baseline/ end-line survey)** • The number of confirmed malaria cases among children ages 2–59 months who were treated with ACT by an RCom steadily increased over the course of the project. 37,484 malaria cases were treated in Year 2, whereas 94,150 malaria cases were treated in Year 3. (**end-line survey)** •		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
8a, b, c	1.1.3. Severe cases of malaria, pneumonia and diarrhoea and other illnesses are referred and treated at CSI level	• Reference system for referrals in place (KIIs, World Vision reports) • RCom registers document number of referred cases in their registers **(direct observation)**	• Operational research confirmed that RComs fully comply with the iCCM protocol for referrals **(KIIs)** • CSI supervisors confirm to receive referrals from RComs (KIIs) • The end-line survey indicates that 32% of cases managed by RComs are referred to CSIs **(end-line survey)** • Parents report that RComs always refer to the CSI if the child's status does not improve after three days **(FGDs)** • Parents and RComs report that parents do not always adhere to referral advice due to lack of time or resources. According to the end-line survey, the self-reported adherence to referrals was 91%, but findings from FGDs and KIIs indicate that it is likely to be significantly lower. **(FGDs)**		• CSIs experience regular stock-outs of medicines and parents have to pay for medicines at the nearest pharmacy. This discourages families, in particular from poorer households, from adhering to referral advice.
9a, b, c	1.1.4. Improved iCCM information management and participatory data analysis processes which result in evidence-based decisions	• iCCM data integrated into SNIS **(KIIs, World Vision reports)** • Coordination meetings take place as planned • Operational research has not yet been disseminated **(KIIs)**	• Some key informants described how joint data analysis has been very useful to them for further improving iCCM work **(KIIs)** • Two key informants provided examples on how data analysis has supported decision making processes **(KIIs)**		• none
10a, b	1.1.5. Approval of iCCM related policies, strategies and guidelines enabling a coordinated and harmonised scale up of iCCM	• Four policy documents were approved during the project period **(policy documents)**	• The majority of interviewed key informants acknowledged the contribution of the RAcE programme in the design and approval process of the four policy documents **(KIIs)** • A ministerial decree for setting up national coordination committee for community health was released **(decree document)**		• Commitment and influence of UNICEF in Niger to the scale up of iCCM programming **(KIIs)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the intermediate outcome level					
11 a - d	1.1 An increased number of children aged 2 - 59 months receive timely basic health services at community and CSI level in the project area and beyond	• All short-term outcomes were fully achieved or achieved with some reservations **(World Vision reports)**	• RComs consulted over 992,300 children and provided over 722,190 of them with treatment for malaria, diarrhoea and pneumonia. **(World Vision reports)**. • An increased number of children is treated by RComs, but key informants and parents raised issues related to inaccessibility, stock outs and inconsistent levels of treatment availability at CSIs **(FGD and KIIs)** • iCCM has been scaled up by UNICEF/TGF to other areas and iCCM services are now available beyond the RAcE communities **(KIIs)**		• Endemic issues related to understaffing and stock outs at CSI level have hampered their contribution to child health services **(KIIs)**
Changes at the final outcome level					
35	1. Reduction of under-five mortality of children (2-59 months) in four districts of Niger	• RComs consulted over 992,300 children and provided over 722,190 of them with treatment for malaria, diarrhoea and pneumonia which are the three major causes of childhood mortality, responsible for 80% of deaths for children under five in the country. **(World Vision reports)**.	• The LiST model indicated a decline in child mortality of 14% and estimates that the programme saved 958 lives **(final evaluation report)** • There are no comparable and sufficiently specific SNIS data available to validate the modelled mortality reduction estimates of IFC International **(annuaires statistiques Niger)** • The RAcE household surveys did not measure mortality, and so could not directly measure impact. **(final evaluation report)** • Community members and primary level health staff unanimously confirm that child morbidity and mortality has decreased since the start of RAcE. **(KIIs and FGDs)**		• DHIS2 still in piloting phase in Niger at the time of data collection • For the time being, the data in the SNIS are not disaggregated by different levels (community, CSI, district) • Other child health programmes were implemented in the four districts.

ANNEX: COUNTRY BRIEF NIGER

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PEOPLE MET

ABOUBACAR, Fatima	Programme manager RAcE, OMS
KODIO, Albert	National Director, World Vision
DIENE, Mariame Sylla Diene	Health Specialist, UNICEF
RANAOU, Abaché	Secretary general, MSP
OUSMANE, Naroua	Programme director Global Fund, CRS
SOULEY, Ibrahim Souley	Director, DGSR
GADO, Elhadj Maty Gado	Deputy director, DRSP Tahoua
MAHAMANE, Ezekiel	M&E coordinator RAcE, World Vision
NGANGA, Grace	RAcE field project manager, World Vision
OMAR, Marcel Lucien Omar	Director, DSME
KONATE, Aminata	Focal point RAcE, DSME
CHAIBOU, Elh Abache	Admin/Finance, DSME
OUSMANE, Ibrahim	Chief of Division for Statistics, Direction des Statistiques
GABRIEL, Moise Moussa	Chief of Division for Surveys, Direction des Statistiques
ANGO, Idi Dan	ONPPC
SOURGIA, (Mme)	Director, DOS
SALIKA, Alzouma	Focal point RAcE, DOS
ATTA, Hamidou Atta	Chief for the division of community health, , DOS
JACKOU, Hadiza	National Coordinator, PLNP
SIDIBE, Salissou Rachidatou	Health/nutrition facilitator, RAcE Project, World Vision
FAROUQ, OUSMANE	Chief Medical Officer, Boboye
LAWALI, Mahamane	Focal Point WHO, Dosso
ZAKARIA, Amadou	Health/nutrition facilitator, RAcE Project, World Vision
OUMAROU, Aboubacar	Chief Medical Officer, Doutchi
ABASS, Maman Nassirou Issoufou	Supervisor/ CSI Mayor
DJIBO, Aissatou	RCom
SEYDOU, Boubacar	RCom
NAMATA, Amadou	Supervisor/ CSI Mayor
ADAMOU, Boubacar	Director, CPADS
NASSER, Anaa Abdoul Nasser	Director, DRSP Dosso
PANA, Assimavè	National Director, WHO Niger
AMADOU, Mamadougou	Supervisor/ CSI Mayor, Kiota
NASSER, Karima	Supervisor, nurse, Kieche
NB : The names of 36 RComs who participated in four focus group discussions are not included	

SAMPLING STRATEGY FOR FIELD WORK IN NIGER

We did not apply a sampling approach for the identification of key informants at national level. Key informants were purposively selected in consultation with WHO and World Vision to ensure that a diverse group of knowledgeable informants was included. An initial list of key informants was shared with the World Vision and WHO country office prior to the on-site mission and expanded during the mission.

To select the communities to be included in the data collection, we used a combined sampling strategy which included three sub-strategies:

- Critical case sampling: we started by identifying two districts that were likely to yield the most information. The RAcE programme in Niger was implemented in four districts (Boboye, Doutchi and Dosso in Dosso region, and Keita in Tahoua region. The latter was excluded due to the volatile security situation which required the presence of a military escort. Among the three departments in Dosso, we selected Boboye and Doutchi to have the three main ethic groups in the region represented (Djerma, Haussa and Fula). Boboye is mainly inhabited by Djerma and Fula whereas people of the Haussa ethnic group are the majority in Doutchi.
- Random selection: in the selected districts, we chose two health zones (CSI) at random: Birni Lokoyo and Kieche in Doutchi, and Kofo and Kiota in Boboye. Due to time constraints, we excluded all health zones that were more than a 45-minute drive from the district capital prior to the sampling. We also excluded one of the health zones (Kore Mairoua) which is the hometown of one of the consultants (Karki Mahamane). His family is well known and influential in the area which might have led to biased responses.
- Criterion sampling: to select eight communities in the selected health zones, we applied one criterion: the sex of the RCom. Among the communities matching the criterion, a random selection was carried out. We identified at first all communities with female RComs and randomly select two of them by health zone. In a second step, we did the same for all communities with male RComs. As a result, an equal number of communities with male and female RComs was included in the data collection. The selected communities were Gaouna, Tagari, Birey, Dagna for the district of Doutchi and Toudou Djarma, Tombo Baley Peul, Goum Day and Kalla Beri for Boboye. During the data collection, Tombo Baley Peul was replaced by Gounoube due to the unavailability of caregivers for FGD. Dagna and Kalla Beri were not visited as saturation was reached after six communities.
- The selection of participants for the focus group discussions: due to time constraints, we were not able to implement a random sampling of men and women at the household level. Female and male participants in the group discussions were identified with the support of the RComs or the community leaders. We conducted two FGDs (with parents of children younger than 5 years disaggregated by sex) in each of selected communities

Nigeria

CONTEXT

1. With approximately 184 million inhabitants, Nigeria accounts for 47 percent of West Africa's population. Nigeria is a federation of 36 autonomous states and a multi-ethnic and culturally diverse society. It is Africa's biggest oil exporter, and also has the largest natural gas reserves on the continent. Economic development in Nigeria has been closely linked to the global oil price fluctuations, with a growth of GDP at eight percent in 2006 and falling to -1.5 percent in 2016. After contracting for five consecutive quarters, the economy returned to growth in the second quarter of 2017. [35]

2. The 2016 UNDP Human Development Report ranks Nigeria in position 152 out of 188 in terms of the Human Development Index. [36] Over the past ten years, the index value has increased by about 10 percent, but the country continues to face major developmental challenges which include reducing the dependency on oil and diversifying the economy, addressing insufficient infrastructure, and building strong and effective institutions, as well as governance issues, public financial management systems, human development indicators, and the living conditions of the population.

3. Inequality in terms of income and opportunities has been growing rapidly and has adversely affected poverty reduction. The North-South divide has widened in recent years due to the Boko Haram insurgency and a lack of economic development in the northern part of the country. The lack of job opportunities is at the core of the high poverty levels, of regional inequality, and of social and political unrest in the country. [35]

4. Among the countries selected for the implementation of the RAcE initiative, Nigeria was an unusual choice because it did not have an iCCM policy or programme that could qualify to being scaled up. There was, nevertheless, a strong interest in adopting an iCCM strategy by the Federal Ministry of Health (FMOH) to address the high national child mortality rate which, according to the 2013 Demographic and Health Survey (DHS) was estimated at 128 per 1,000 live births for the period of 2009-2013.[28] While the focus in the RAcE programmes of the other five countries was on scale-up and improvement of quality, the programmes in Nigeria could best be characterised as 'pilots at scale'.

5. Health policy is the remit of the FMOH with the support of the National Council on Health, the highest health policy advisory body in Nigeria. State governments, however, have full autonomy in financing and governing health service delivery, including in negotiations with international development partners. The social, economic, epidemiologic and health service profiles among the 36 States and the Federal Capital Region of Abuja vary greatly. The selection of the two states for the implementation of the RAcE initiative was therefore a complex process. It was led by the FMOH with participation of development partners. The selection was made on the basis of seven criteria, including the burden of disease as reported in the 2008 DHS, the status of the health system, and the commitment of the State Government.[7] The political imperative to balance investments in southern and northern states of the federation was not explicit, but according to key informants was also an important consideration. Abia State in the south-east zone of the country and Niger State in the north-central zone were selected after a multi-stage process. In Abia State, the Society for Family Health (SFH) was contracted to implement the programme in collaboration with the Abia State Primary Health Care Development Agency (SPHCDA); in Niger State the contracted agency was the Malaria Consortium (MC) collaborating with the State Ministry of Health (SMOH).

6. Niger State is large and sparsely populated, located in the savanna region with an area of 76,363 km^2 and a population density of 61 per km^2, while Abia State is in the tropical forest zone and

considerably smaller, covering an area of 6,320 km^2 that is densely populated with approximately 515 persons per km^2. [37] There are considerable differences in the social profile and child health statistics for each state published in recent survey reports. The 2013 DHS aggregates most state data in geographic zones comprising six states and the Federal Capital Territory in the north-central zone (including Niger State), and five states (including Abia State) in the south-east zone. While this aggregation stabilises the data because of larger sample sizes, it also obscures large differences among the states in each zone. State-level estimates are published by the Multiple Indicator Cluster Surveys (MICS) [25,26] and the National Nutrition and Health Survey (NNHS),[24] but they are based on much smaller sample sizes and therefore less stable.

Selected social and health service indicators for the two RAcE programme states in Nigeria

	Abia State	Niger State	National
Population in lowest two national wealth quintiles (%)	5	41	**--**
Literacy rate young women (15-24) (%)	98	38	**59**
U5MR (per 1,000 live births)	83	149	**120**
Care seeking for diarrhoea for U5 children *	28	42	**29**
ORS / Zn treatment for U5 children with diarrhoea (%)**	(29 / 20)	23 / 2	**21 / 6**
Care seeking for U5 children with fever (%)	63	73	**63**
ACT treatment for U5 children with fever (%)	17	6	**8**
Care seeking for U5 children with respiratory infection (%) *	29	30	**35**

*Sources: MICS 2016/17; *DHS 2013 (North Central & South East Zones); ** NNHS 2015; data in parenthesis are based on small samples*

7. The Nigerian national health strategy is outlined in the National Strategic Health Development Plan (NHSDP) 2010-2015. [6] A new plan is in the draft stage but was not available at the time of the mission. In 1992, Nigeria established the National Primary Health Care Development Agency (NPHCDA) as a parastatal agency of the FMOH to guide the development of health services at the community and primary care level in the country. [38] In 2012, the NPHCDA adopted revised guidelines for the development of primary health care in Nigeria. [39] At state level, the SPHCDAs are parastatal agencies of the state ministries of health (SMOH) with their own Boards. They have developed at differential speed. The SPHCDA in Abia State is highly operational and delivers public health programmes, for instance routine immunisation. It was also the main partner in the implementation of the RAcE initiative. In Niger State, the SPHCDA does not have a prominent operational role, but since appointing a new Board of Governors in 2017 it expects to become more operational in the near future. The levels of governance, administration and service delivery for health are summarised in the table.

Level	Management and Administration	Service Delivery Points
Federal	Federal Ministry of Health (FMOH) National Primary Health Care Development Agency (NPHCDA)	Teaching Hospitals Specialist Hospitals Federal Medical Centres
State	State Ministry of Health (SMOH) State Primary Health Care Development Agency (SPHCDA)	General Hospitals State Hospitals
Local Government Area (LGA)	LGA PHC Management Committee Medical Officer	Comprehensive Health Centre
Ward / Village	Ward Development Committee (WDC) Village Development Committee (VDC) Community Health Officer (CHO)	Primary Health Centre Primary Health Clinic Health Post Community Health Officer (CHO) Community Health Extension Worker (CHEW) Community Resource Person (CORP)

Source: Adapted from Community Health Systems Catalogue [4]

8. CHEWs and CHOs are salaried providers at the lowest level of service delivery in the PHC system. CHOs receive the highest level of training. Both CHOs or CHEWs may be appointed officers in charge (OIC) of a primary health centre. CHEWs are supposed to spend 40 percent of their time working in the community and 60 percent at the health facility. CORPs are volunteer health workers supervised by CHEWs. Under a current initiative, the NPHCDA is working on the concept of creating a cadre of paid and registered professional Village Health Workers (VHWs).[13]

THE RACE PROGRAMMES IN NIGERIA

Abia State	
Main objective	Increased appropriate case management of malaria, diarrhoea, and pneumonia among children ages 2-59 months as an integral part of government health services in Abia State
Contract agency	Society for Family Health (SFH)
Government partner	Federal level: FMOH Family Health Department, Child Health Division State level: State Primary Health Care Development Agency (SPHCDA)
Contract Period	1/11/2013 – 31/3/2018
Budget	3 tranches totalling US$ 4,529,618
Geographical coverage	15/17 Local Government Areas of Abia State
Population coverage	3.7 million (612,531children below 5)
iCCM target	1.6 million (202,998 children below 5)

9. The RAcE programme in Abia State was implemented by SFH with a programme office that was fully embedded in the Abia SPHCDA. Additional partners included Population Services International which operates a global network of social marketing platforms in which SFH is a member, the Grassroots Community Development Initiative (GRACODEV) for support in community mobilisation, and the Institute of Tropical Diseases Research and Prevention Services at the University of Calabar for research support.

10. The SFH initially proposed to work in six LGAs but at inception found that there were no communities outside a five-kilometre radius of a health facility. All 17 LGAs were therefore mapped, together with a facility assessment of all public health facilities. The programme redefined iCCM-eligible areas as being outside a five-kilometre radius of a functional Ward Health Centre (WHC) based on the

criteria of road accessibility, 24-hour service, human resources and medicine supplies. Among 220 WHCs mapped, 22 in 15 LGAs were classified as functional, and in agreement with the Abia SMOH, the RAcE implementation area was redefined as covering the 15 LGAs with the 22 WHCs serving as referral facilities.

11. During the implementation period, SFH conducted a research project with assistance of the University of Calabar on peer supervision models for CORPs. The results were presented at the RAcE dissemination meeting in October 2017 and a publication is forthcoming.

Niger State	
Main objective	Catalyse the scale-up of iCCM, building on community case management of malaria in Niger State
Contract agency	Malaria Consortium (MC)
Government partner	Federal level: FMOH Family Health Department, Child Health Division State level: State Ministry of Health (SMOH)
Contract Period	1/11/2013 – 31/3/2018
Budget	3 tranches totalling US$ 4,891,806
Geographical coverage	6/25 Local Government Areas in Niger State
Population coverage	1.38 million (275,479 children below 5)
iCCM target	814,845 (161,513 children below 5)

12. The Malaria Consortium and the Niger State MOH implemented the RAcE programme in partnership using a structure of paired appointments of MC and SMOH staff for key programme functions such as programme management, M&E, logistics and supply management. The Niger SPHCDA was identified as a partner, but it did not have a strong presence in the state primary health care system during the time of the RAcE programme implementation, and it had little involvement in the programme. For the community mobilisation component, the programme partnered with the Federation of Muslim Women's Associations (FoMWAN).

13. According to interviews with MC management staff, two operational research projects were implemented during the programme period; one on peer-to-peer supervision of CORPs and one on community treatment of severe pneumonia. The studies had been completed but data were still being analysed and reports were not yet available. The research team only received the study protocol for the pneumonia study.

THE COUNTRY EVALUATION MISSION

14. The brief for the Nigeria RAcE programme was prepared within the framework of the overall summative evaluation of the RAcE initiative. The approach and methodology for each of the country missions was standardised and is described in Volume 1 of the synthesis report. The evaluation questions were adapted to fit the context of the two RAcE programmes in Nigeria. The programmes in Niger State and in Abia State were evaluated in a single mission, however against distinct Theory of Change (ToC) frameworks. The evaluation mission was conducted from 8th to 22nd January 2018.

15. Key informant interviews at the central level were organised with the assistance of the WHO Country Office. They included a group meeting with principal recipients and main sub-recipients of the Global Fund malaria grant to Nigeria, as well as KIIs with the Federal Ministry of Health (Director Child Health and iCCM Focal Point), the WHO iCCM Focal Points, UNICEF and the Canadian High Commission. A scheduled meeting with the former director of the (closed) CHAI project for local market shaping for ORS/Zn scale up was, however, cancelled due to scheduling problems.

16. In the two programme states, the draft post hoc ToC frameworks were reviewed and revised in working sessions with MC and SMOH technical staff in Niger State and with SFH and the SPHCDA in Abia

State. A data collection plan had been developed by the evaluation team prior to the mission and communicated to the implementing agencies. In each state, two Local Government Areas (LGAs) were selected in a purposive selection that took into consideration the diversity of contexts and populations, while being conscious of logistic constraints of accessibility and timing. The LGAs selected in Abia State were Bende and Obingwa, in Niger State they were Paikoro and Lapai.

17. The evaluation team assembled a group of approximately ten CORPs from communities within each LGA, as well as two CHEW supervisors at the local government headquarters for interviews and focus group discussions. Participation was based on availability of time and transport. It did not involve any formal sampling. In addition, the evaluation team visited two communities in each LGA for focus group discussions with caregivers of children, KIIs with CORPs, and in Abia State also for meetings with village chiefs and traditional leaders. The communities were selected through purposive selection by the evaluation team with advice by MC and SFH regarding the profile of the community and the accessibility within the available time. One community visit in Niger State had to be cancelled because of time constraints. In total, data collection at state-level in Nigeria included seven community FGDs and four FGDs with CORPs, six KIIs with CORPs including the observation of supplies and materials, four KIIs with pairs of CHEW supervisors, four KIIs with iCCM Focal Points and M&E officers at LG level, and nine KIIs of partners at state level (MC, SFH, SPHCDA, SMOH). The MC project director in Niger State had retired just prior to the start of the evaluation mission and was not available for an interview. The evaluation team visited the state medical stores in Abia State and the local government medical stores in Lapai LGA, Niger State.

18. Overall, the selection of LGAs, communities and CORPs was dominated by convenience and purposive sampling which is a potential source of bias, particularly as the most distant and inaccessible communities were not included in field data collection. Data collection for the ToC-based contribution analysis aimed for data saturation rather than for numerical representativeness. In focus group discussions, for instance, the facilitators encouraged the groups to negotiate consensual views rather than recording the frequencies of individual responses. Saturation of data to answer the evaluation questions was reached in conjunction with survey data and other documented information, however the potential exclusion of the ‘very hard to reach’ communities from data collection is an acknowledged limitation. The evaluation findings were presented and discussed in validation meetings with programme partners at State level: the SPHCDA and SFH in Abia State as well as the State Commissioner of Health in a separate meeting, and the State Ministry of Health and MC in Niger State.

MAIN FINDINGS

CONTRIBUTION ANALYSIS OF THE PROGRAMMES AT FEDERAL LEVEL

19. The RAcE Initiative introduced iCCM to Nigeria and served as a pilot experience that, under leadership of the FMOH, rapidly gained traction. This was acknowledged in all key informant interviews. With the technical support of WHO, and with continuous input from the experiences and lessons of the RAcE programme partners SFH and MC, the FMOH developed policies, guidelines and tools, including the National Guidelines for the Implementation of Integrated Community Case Management of Childhood Illness in 2013,[8] and the National Integrated Community Case Management Implementation Framework in 2015.[12] In 2016, the 58th National Council on Health adopted a resolution urging *'States' Ministry of Health to invest in and scale up the implementation of the National Guideline on Integrated Community Case Management (iCCM) of Childhood illness for the reduction of under-5 mortality'*. [10] In 2014, iCCM was included in the National Malaria Strategy 2014-2020 with explicit reference to the RAcE programmes in Niger and Abia States.[9] Since the introduction of the RAcE programmes in Nigeria, iCCM initiatives have expanded rapidly in many states with international support from WHO, UNICEF, the Global Fund, the European Union and USAID.[e.g. 5] On the policy level, the initiative in Nigeria has surpassed all expectations due to the combined effort of all programme partners, the leadership of the FMOH, and the advocacy and technical support of WHO.

20. The selection of states for the RAcE programme implementation require some further discussion. The process was led by the FMOH and it was highly transparent, using a mix of clearly defined criteria that combined epidemiological, health service, and health policy parameters. [7] The decision to divide the eight candidate states into 'northern' and 'southern' in order to select one from each group is understandable in the political context of Nigeria. The final decision to select Abia State was, according to key informants, made because of the strong state government commitment. This can also be defended, especially for an initiative that aimed to create programmatic precedents for the country. The choice, however, raises some questions. The criteria for iCCM-eligible communities in this densely populated state had to be redefined because ward health centres and other primary health care facilities were generally within reach. Only by excluding about 90 percent of these facilities because of their low level of functionality could the predefined RAcE programme target population be reached. The question that will be further discussed in the contribution analysis of the Abia State programme is the extent to which the programme has created access to care for children who had no prior access, and to what extent it has 'only' contributed to make this care more acceptable and less costly for families, and of better quality, whereby the value of these three outcomes should not be underestimated.

21. The outcomes of the RAcE programme at federal policy level, together with the largely successful outcomes in terms of service delivery and capacity-building at state level (discussed below) are evidence for the effectiveness of the sub-contracting model of the Canadian RAcE grant to WHO. Key informants at the level of the FMOH were not uniformly positive about this approach. Their argument was, that since WHO was a direct partner of government, the state government agencies, either the SMOH or the SPHCDA should have been contracted directly for implementation. This view was, however, not shared at state level where the capacity and efficiency of the contracted NGO partners was acknowledged as contributing greatly to successful implementation. Without counterfactual evidence it is difficult to assess the validity of either argument. However, as a public-sector structure for the delivery of iCCM services did not exist at the start of the RAcE programme, the delivery through entities that could be directly held to account by WHO was the lower risk option. Both SFH and MC made all efforts to transfer capacity and responsibility to public-sector state partners. This

was largely successful except for issues that were beyond their scope, such as financing and information management.

22. Two issues therefore remain that are primarily in the domain of the FMOH:

- **Information management**: Both RAcE programmes have succeeded in implementing robust reporting systems for iCCM from the level of the CORPs via the CHEW supervisors to the local government level. The logistics are still supported by the M&E staff of the implementing NGOs, but the systems are potentially sustainable with some support of the established supervision chains by the state and local governments. In both programmes the information is also channelled to the SMOH (and the SPHCDA in Abia State), but the maintenance and analysis of the databases are still largely NGO functions. At the same time, the FMOH and NPHCDA, in collaboration with technical partners, have developed a tool for the collection of community-level health information to be integrated in the national DHIS2 health information system. [11] The draft monthly summary form includes essential information for monitoring iCCM activities, but it is much more comprehensive, including about 190 data entry points, many of them further divided by age and sex. The implementation bottleneck for such an information tool is at the local government level. In the four LG administrations visited by the evaluation team, one M&E officer was in charge of monitoring all services, including the entry of health facility data in the DHIS2 database. Already stretched to the limit of capacity and possibly beyond, managing a complex monthly community reporting form is clearly beyond reach. It would require substantive strengthening of human resources for M&E and data management at local government levels.
- **The status of CORPs**: The national iCCM guidelines are silent about the status of CORPs, but implicitly categorise them as volunteers. The issue of stipends and financial incentives for CORPs was raised in all interviews and focus group discussions. While it was not always the first priority of CORPs (uninterrupted supply of medicines was seen as a greater priority), the evaluation team noted considerable dissatisfaction with the low level and irregularity of travel allowances and other types of stipends. Changes in procedures or levels of stipends as implemented in Niger State have particularly contributed to demotivation of CORPs. While some success was achieved in mobilising communities to support their CORP, especially in Niger State, the situation of payments to CORPs is not clear, neither to the CORPs nor to the communities. It is an issue that is largely left to the decisions by NGOs and development partners. At the same time, the NPHCDA is working on the concept for a nationwide cadre of paid and registered professional VHWs, and in Niger State the SPHCDA is negotiating a grant with the Bill and Melinda Gates Foundation (BMGF) that includes the state-wide mobilisation of CORPs with a fixed financial incentive. Developing a clear policy about the status of CORPs (whether volunteers or paid health workers), about the levels and modalities of stipends or expense reimbursements, as well as an analysis of costs and financing sources is within the mandate of the FMOH and should not be left to changing short-term arrangements with international project partners.

23. At the state level, the experience and performance of the two programmes are similar but also sufficiently different, to a large extent related to the different working environments. They require distinct analyses.

COMPLEMENTARITY OF RACE WITH LARGE HEALTH PROGRAMMES

24. At national level, WHO worked closely with international partners. UNICEF joined the national iCCM taskforce and acknowledged that the RAcE programme was *'instrumental in developing an enabling environment for iCCM in Nigeria'*. UNICEF started iCCM programming in 2015 with EU funding

in Kebbi, Bauchi and Adamawa States. In Niger State, where the Global Fund started to support iCCM programming, the task force assured that there was no overlap of LGA coverage. Since Global Fund malaria grant recipients were not able to procure medicines for malaria and diarrhoea, the RAcE programme procured these medicines for the Global Fund iCCM sites. A review of stock sheets by the evaluation team in the Lapai LGA medical stores showed that in situations of shortage, there was active lending and borrowing between Global Fund and RAcE programme stock.

25. Concurrent programmes for maternal health funded by the World Bank 'Saving one Million Lives' initiative, bed-net distribution and HIV programmes funded by the Global Fund and national immunisation and polio eradication programmes were active in the states, providing complementary health services that sometimes mobilised the services of CORPs that were trained by the RAcE programme. But there was no formal collaboration. A programme to promote and market the use of ORS and Zinc by public and private health providers implemented by CHAI was active in Niger State with Canadian funding. According to informants, the programme collaborated with RAcE primarily for the procurement of medicines. These programmes, however, did not focus on hard-to-reach communities, and according to informants in both states there was not much overlap at the service delivery level

CONTRIBUTION ANALYSIS OF THE PROGRAMME IN ABIA STATE

26. The contribution analysis of the post hoc ToC for the programme in Abia State documents that the programme has achieved all planned outputs in terms of training and mobilisation of CORPs, community mobilisation and information, supervision and quality of care, supply of commodities and operations research. The supervision system in the programme was particularly tight and of good quality, with frequent directly observed treatment of children by supervisors as reported by both the CORPs and the CHEWs who were interviewed. Motivation of CORPs is high despite the fact that all of them mentioned that stipends were inadequate to meet travel costs for meetings and follow-up of patients.

27. Although disruptions in the supply of medicines were minor and affected only about two percent of children requiring treatment, the effect of such minor disruptions on community expectations and CORP motivation should not be underestimated. As the analysis presented in Annex shows, two episodes of minor shortages of medicines concurred with relatively large decreases in demand for services. Although this is not conclusive evidence for a causal association, CORPs confirmed in interviews that communities were quickly discouraged from accessing iCCM services when they had experienced stock-outs. This may be an effect that is particular to Abia State, where alternative treatment options through private medicine sellers are widely available. The absence of Artesunate suppositories for the pre-transfer treatment of children with severe malaria was unfortunate. This medicine is included in the FMOH guidelines and training package for CORPs, but it was never supplied.

28. Referral of sick children was an issue in the Abia State programme. Only about half of the parents adhered to the referral advice. Cost of transport and user charges at the health facility may have been among the reasons, but more often the lack of trust in the facility and shortage of medicines were mentioned. In 2017, the programme started training of health facility staff in IMCI, but this effort was clearly too late to improve services in order to encourage parents to take their child to a health centre. The availability and quality of care in public primary health care centres in Abia State is an issue that was well known. In the initial mapping exercise only 22 out of 220 Ward Health Centres were found to be suitable in terms of staff and equipment to serve as referral facilities.

29. This raises the issue of the appropriateness of rolling out iCCM in Abia State. The baseline and end-line surveys of the programme reported a small but statistically significant increase in overall care-seeking from an appropriate provider from 69 percent to 77 percent, an equally small increase in care-

seeking for diarrhoea from 74 to 82 percent, a small but statistically not significant decrease in care-seeking for fever from 86 to 84 percent, and a large increase in care-seeking for respiratory infections from 41 to 64 percent. Overall, this documents a shift in care-seeking behaviour, primarily from private proprietary medicine sellers and private health facilities[1] to iCCM services, associated with a documented improvement in the quality of diagnostic services (malaria tests and respiratory rate counting) and treatment. ACT treatment for malaria within 24 hours increased from 25 to 67 percent and treatment of diarrhoea with both ORS and Zinc from six percent to 35 percent. The appreciation of iCCM services expressed by caregivers in community FGDs was very high, but the data suggest that in Abia State, iCCM is not the only option to increase access to care. It may be the best and most efficient option, but that can only be determined by a counterfactual analysis. In an interview with the SMOH, the key informant mentioned that the State was in the process of finalising an agreement for a large World Bank grant to strengthen primary health care services. No agreement had been reached on the balance of funds to be invested in upgrading facility services and in community case management.

30. The output of assuring a seamless transition of the programme to government was only partially achieved. Part of the gap is the issue of data management mentioned above. Another weakness was the relatively little attention paid to the local government level. The iCCM focal points in the two LGAs visited were not part of core local government staff, but rather clinical nurses working at health facilities some miles away. They visited the LG headquarters only for monthly meetings with CHEWs or to retrieve medicines from the LGA stores. Local government administrations are critical operational links in the supervision and supply chain for CORP services, and this requires that the iCCM function is firmly embedded in the administrative structure. The Director of PHC in one LG interviewed by the evaluation team was evasive about LG funding of iCCM and referred only to general community health programming.

31. Expected immediate and intermediate outcomes were largely achieved. Alternate causes for the achievements were limited to programmes of CHAI and USAID for the promotion and socially marketing of diarrhoea treatment with ORS+Zn through private proprietary medicine vendors.

32. The expressed commitment to iCCM, which was one of the criteria that led to the selection of Abia State, continues to be strong, both at the SMOH and the SPHCDA. According to key informants, a budget line for iCCM has been created in the State budget, however as yet without appropriated funds. An existing budget line of the SPHCDA for IMCI [1] may allow some expenditures for iCCM. During the debriefings with SMOH and SPHCDA officials it became evident that the State Government is counting on international funds from World Bank and Global Fund programmes to allow continued operations of iCCM at current scale.

33. The modelled estimates of under-five mortality reduction in Abia State by ICF are based on 2013 DHS survey data that estimated the U5MR over a ten-year period at 131/1,000. State-specific estimates as published in the 2011 and 2016/17 MICS are considerably lower at 116/1,000 and at 83/1,000 respectively. Using the LIsT model estimates of treatment effectiveness and the CORPs treatment data from the baseline and end-line survey, 956 lives were saved over a three-year programme period. It should, however, be taken into consideration that a large proportion of CORP treatments were replacement treatments for children who would otherwise have received care from other sources. To what extent the quality of care from these sources during the programme period improved is not known. The modelled estimates of a mortality rate reduction of 7/1,000 is plausible but cannot be confirmed with available data. It is consistent with the decrease in U5MR in Abia State reported by the successive MICS reports, and it concurs with the perception of fewer deaths in the communities

[1] The MICS 2016/17 reports that 47% of caregivers of children with fever sought care in the private sector compared to 29% nationally

expressed in focus group discussions and interviews. Women in one focus group told the facilitator that the RAcE programme allowed them to *'maintain our nice figure because we no longer have to keep getting pregnant to replace the children who have died'*, a somewhat surprising statement to which, nevertheless, all women in the group agreed.

CONTRIBUTION ANALYSIS OF THE PROGRAMME IN NIGER STATE

34. The planned number of CORPs were trained but there were some questions about how many of them were still active. Eight resignations that were reported to the evaluation team by the iCCM focal persons in two LGAs had not been removed from the number reported by MC, and the number of monthly reports received over the last five months was about 25 percent lower than expected. The regularity and frequency of monthly supervisions by CHEWs had decreased to between 60 and 80 percent of expectations which is likely the main reason for the reduced number of reports, but it meant that the number of active CORPs reported by the programme could not be confirmed by the evaluation team.

35. CORPs in Niger State experienced a general stock-out of anti-malaria medicines of between two to five months in the second half of 2017. One of the CORPs visited by the evaluation team had a completely empty box of supplies. New supplies had arrived at State level and a distribution to all CORPs was planned at the time of the evaluation mission. CORPs would thus have supplies to last for two to three months after the end of the programme implementation period, but at the cost of a prolonged prior stock-out situation.

36. A decrease in the frequency and regularity of supervision was noted in 2017. Instructions for supervision procedures had changed twice during the three years of the programme, from initial monthly on-site supervision to quarterly supervision with monthly cluster meetings and back again to monthly supervision, but the CORPs and CHEWs interviewed by the evaluation team still referred to cluster meetings. The programme conducted a quality of care study on a sample of directly observed treatments in 2017 which documented good CORP performance in patient assessment but also some weaknesses in providing correct treatment.

37. Adherence of parents to referral advice was low, and probably in the area of 50 percent, although 93 percent of respondents in the end-line survey stated that they always followed the advice. The difference is most likely due to biased responses in the survey. Distance and cost were the reasons cited by community groups for not adhering to the referral advice.

38. According to key informants, an operational research study on peer-to-peer supervision had been carried out in parallel to the study in Abia State, but analysis of the data had not yet been completed and no documentation was made available to the evaluation team. The second study on community treatment of severe pneumonia was still on-going and only the application for approval by the ethics committee was shared with the evaluation team. This was not sufficient evidence to confirm the output.

39. The programme had invested a lot of effort in mobilising communities to support the services of their CORP and in documenting this support. The results were presented at the conference in Abuja. They are quite impressive with a total value of the community support to 1,107 CORPs estimated at US$ 121,000. There is no reason to doubt the validity of this report. However, among the two CORPs interviewed individually by the evaluation team, one reported no support from the community and the other some community labour on his farm. The CORPs who participated in two focus groups expressed general dissatisfaction with the level of community support they received. The evidence for a successful initiative to partially shift the financial support of CORPs from the programme to the community was therefore not conclusive.

40. There was good evidence for achievements in capacity building of the SMOH by the pairing of MC staff with SMOH officers in mirrored positions. The main achievement gap was in the area of information management due to the issue of the community health information system discussed in the contribution analysis at federal level (see above). Contrary to the situation in Abia State, the SPHCDA in Niger State had been inactive during most of the time of programme implementation. Under new leadership in 2017 it had started to become active in iCCM and was at the time of the evaluation mission conducting negotiations with the BMGF about a primary health care grant that could possibly provide continued support to the iCCM structures established with RAcE support, but the SPHCDA was not an active RAcE programme partner in Niger State.

41. Despite some achievement gaps or weak evidence for achievements at the output level, the intermediate outcomes of the programme were achieved to a large extent. Appropriate care-seeking for sick children increased significantly. Community group discussions confirmed that there was a high level of satisfaction with CORP services, and that there were few, if any, accepted alternatives to mothers. '*If the CORP services stop, our children will start to die again*' was a comment heard by the evaluation team several times in differing formulations.

42. There are questions about the exact number of active CORPs and there was evidence of a prolonged shortage of medicines in the last quarter of 2017, but the programme managed to maintain iCCM services in most targeted communities and to overcome initial weaknesses in the quality of care and the quality of reporting. The SMOH staff at all levels, from CHEWs to directors at State Government headquarters confirmed their engagement and support of iCCM, as did interviewed community members. The evidence for improved and increased access to health care through iCCM in Niger State is strong.

43. There are no alternate sources of data to validate or reject the modelled estimate of a 12-point reduction in under-five mortality in the targeted programme area. The MICS surveys of 2011 and 2016/17 report an increase in the state U5MR of 26/1,000 (from 123 to 149/1,000). If the 2013 DHS estimate of 100 deaths per 1,000 is used as the baseline, the mortality increase is nearly 50 percent which is not very credible and likely related to the fact that the sampling frame of the 'north central region' used by the DHS is not representative of Niger State. The RAcE programme covered only six of the 25 LGAs of Niger State, and any reduction in the child mortality rate due to the programme would be considerably diluted in state-level estimates. In community focus group discussions and interviews at the community level, participants expressed strong convictions that the programme has been instrumental in reducing the frequent deaths of children in their villages. This is largely anecdotal evidence, but it is the only evidence available.

COMMUNITY ENGAGEMENT

44. Both programmes in Nigeria used the traditional community leaders as entry points. The village chiefs and elders met by the evaluation team, primarily in Abia State and to a lesser extent in Niger State, expressed strong support for iCCM. In both programmes the CORPs were nominated by chiefs rather than elected by communities. This may have contributed to the low proportion of female CORPs in Niger State, but it was also likely the most culturally appropriate approach. Community mobilisation in Abia State was initially quite low, contributing to an initial slow uptake of iCCM services. Both programmes engaged community-based organisations, GRACODEV in Abia and FoMWAN in Niger, to assist with mobilising communities through community dialogues, community drama and other sensitisation activities that were largely effective.

45. Community support of CORPs was an issue that was particularly stressed by the programme in Niger State with some impressive results already mentioned above. These results were also presented in

the dissemination meeting in Abuja. In Abia State, the interviewed CORPs mentioned that they received recognition, exemption from community levies and tasks, and occasional assistance in farm labour from the community, but this support was not as consistently documented as in the Niger State programme. However, in focus group discussions, the CORPs in Abia State were generally more satisfied with the type of support received than those in Niger State, which may have been more a function of different expectations than an indication of the actual level of support.

GENDER EQUALITY

46. Neither of the two RAcE programmes conducted a gender analysis, which was not included in the terms of reference of the implementing partners. Although the FMOH guidelines for CORPs are gender neutral, both programmes included the preference of women in their calls for CORP nominations by community leaders. In Abia State, this was highly successful, and a large majority of CORPs are female. In Niger State, this had little impact, presumably because of the low literacy rate among women in rural Niger State. Opinions about the suitability of either sex for the work as a CORP in Abia State unanimously were in favour of females, while in Niger State they were often divided. Respondents stated that they had no experience with female CORPs. The fact that a male CORP in a very traditional Muslim society could not enter a house were women are present in order to follow up on a sick child was mentioned as a constraint for appointing men. On the other hand, some respondents stated that women could not always move freely without male company to visit sick children in the village. Cultural issues and the status of women in different societies are clearly dominant and probably more important than the issue of literacy which could be mitigated by adapting the CORP guides and reporting tools to a lower level of literacy requirement.

47. Interviewed programme staff and CORPs in Abia State mentioned that the appointment of female CORPs has contributed to raising the status of women in their communities. Some CORPs have been awarded titles by their chiefs or traditional leaders, their contribution to the community is honoured at village functions, and they are consulted by Elders on health issues in the villages. The requirement of CORPs to open bank accounts in their own name in order to receive their stipends has, in some cases resulted in women having access to financial services independent of their male partners. To what extent this effect was only experienced by female CORPs or had more widespread impact on women's participation in decision-making in the community is not clear as no baseline gender analyses were done.

48. CORP reports in both programmes disaggregate the number of consultations by sex, but not the number of treatments. Several service delivery indicators in the performance management frameworks of both programmes specify that data should be presented 'disaggregated by gender', but none of them are. It is surprising that this was never commented on by WHO during monitoring of the implementation contracts.

49. The final evaluations of the programmes conducted by ICF international examined gender factors and differentials in iCCM treatment, primarily on the basis of baseline and end-line survey results and of lot quality assessment surveys of CORP registers. The assessment in Abia State reported that a significantly larger number of sick boys than girls were seen by an appropriate provider at baseline (71.7% versus 65.7%) but that this difference had disappeared at end-line. The assessment in Niger State found significant but inconsistent differences, with more boys than girls being assessed by CORPs, more boys than girls receiving ACTs for malaria, but more girls than boys with diarrhoea receiving ORS and zinc. These findings are not further analysed or commented. A review by the evaluation team of the CORP databases maintained by MC and SFH from November 2014 to November 2017 shows that in Abia State, five percent more girls than boys were seen by CORPs (481,024 girls and 458,589 boys) while in

Niger State, the number of boys was 12 percent larger than the number of girls (224,412 boys and 199,541 girls). In a sub-analysis of data over the past five months in one Niger State LGA (Lapai), the difference was even larger with 22 percent more boys than girls attending the CORP services (6,568 boys and 5,371 girls). Communities, CORPs and key informants advanced multiple hypotheses to explain this difference, but the fact is that these findings are highly surprising and that they had until now not been noticed nor analysed. Collecting sex disaggregated data is only useful if something is done with these data.

Summary of findings on gender equality

Gender analysis	No gender analysis was conducted by either programme in Nigeria
Gender equality in access to treatment	There was a notable and unexplained excess of boys accessing iCCM treatment in Niger State (12%) and a smaller excess of girls in Abia State (5%). These routine reporting data are at variance with the results of the household surveys conducted by RAcE.
Gender equality among care providers	The FMOH iCCM guidelines do not mention the gender of CORPs, however both state programmes included a preference for women in their calls for CORP nominations. This was largely successful in Abia State where most CORPs are women, but not in Niger State where the majority are men. Sex-disaggregated numbers of CORPs are not available.
Gender sensitivity of CORP tools	All tools were developed at federal level. They have only a limited pictorial material which is gender balanced, showing both male and female CORPs.
Gender equality for care-seeking and in the community	The evaluation team did not find any evidence for an effect of the RAcE programme in Niger State on gender equality for care-seeking or in the community. In Abia State, on the other hand, there was lots of anecdotal evidence of increased recognition and respect for women, primarily related to women's role as CORPs.

SUSTAINABILITY PLANNING

50. Workshops for transition and sustainability planning were held with ICF support in late 2016 and distinct 'roadmaps for sustainable iCCM services' were produced in February 2017 for each of the two programmes in Nigeria. The roadmap for Niger State was endorsed in a foreword by the State Commissioner of Health. In both States, systems are in place to continue delivering iCCM services if funds are allocated to supply CORPs with medicines, assure their continued supervision and training, and maintain their engagement and motivation through stipends and incentives.

51. Both states are counting on continued international support to meet these conditions, in Niger State from the BMGF, in Abia State from the World Bank. While this support may indeed be forthcoming, it will not avoid a lengthy gap in iCCM financing in 2018. Niger State has a costed operational plan for iCCM services in 2018 with a total cost of N 701 million (about US$ 1.9 million). BMGF is listed as the main financing source, although this grant is still under negotiation. The evaluation team was provided with a two-page excerpt from the SMOH annual operational plan without information whether it was actually integrated into the final planning document. The Commissioner of Health in Abia State reported that a budget line for iCCM was created in the state budget, but no funds have as yet been appropriated under this line.

52. Many respondents interviewed in both states had participated in some form in the sustainability planning exercise, although several stated that they had not seen the resulting roadmap document. In

any case, none of the government respondents at state or LGA level stated that they used the roadmap as a planning and management instrument.

CONCLUSIONS

53. The Nigeria programme of RAcE was potentially the most risky as this was the only country in the initiative that did not have an iCCM policy or programme that could be scaled up. The experience showed that taking this risk was worthwhile, because national policy development, high level commitment to iCCM at federal and state level, and a surge of interest by international partners to support iCCM in Nigeria followed from the start of RAcE programming and continued throughout. The RAcE programme has clearly been the catalyst for a national initiative that will have a major impact on the delivery of primary health care in Nigeria for years to come.

54. The engagement of the WHO Country Office team, and the close partnership between WHO and the FMOH were key in achieving these results. Although the FMOH had some reservations about the sub-contracting approach used for the implementation of the programme in Abia and Niger States, the sub-contracted partners, SFH in Abia State and MC in Niger State, developed close working relationships with the Abia State PHCDA and the Niger State MOH respectively and assured the joint building of systems and capacities.

55. The two programmes worked in environments that differed in all respects: culture, geography, social development, health sector infrastructure and epidemiology. The programme in Niger State addressed the needs of communities in a sparsely populated area that had difficulties in accessing any kind of health services. Children were dying because there was no care. In Abia State, the population is more concentrated and affluent. The predominant source of health care is in the private sector, and the quality of this care in peripheral and remote communities is not assured. The programme resulted in a major shift of care-seeking for children from private providers to CORPs with an associated increase in the quality of care.

56. In both states, the programmes mobilised communities to claim their right to health, and in both States, there is qualitative evidence that children's lives were saved, although insufficient data to quantify this outcome. This points to one of the as yet unfinished items in the effort to establish iCCM in Nigeria. Although robust systems for data collection and collation up to the level of the local government were established, the establishment of a community health information system that aggregates these data at state and national level and offers a platform for analysis and monitoring has not yet been achieved.

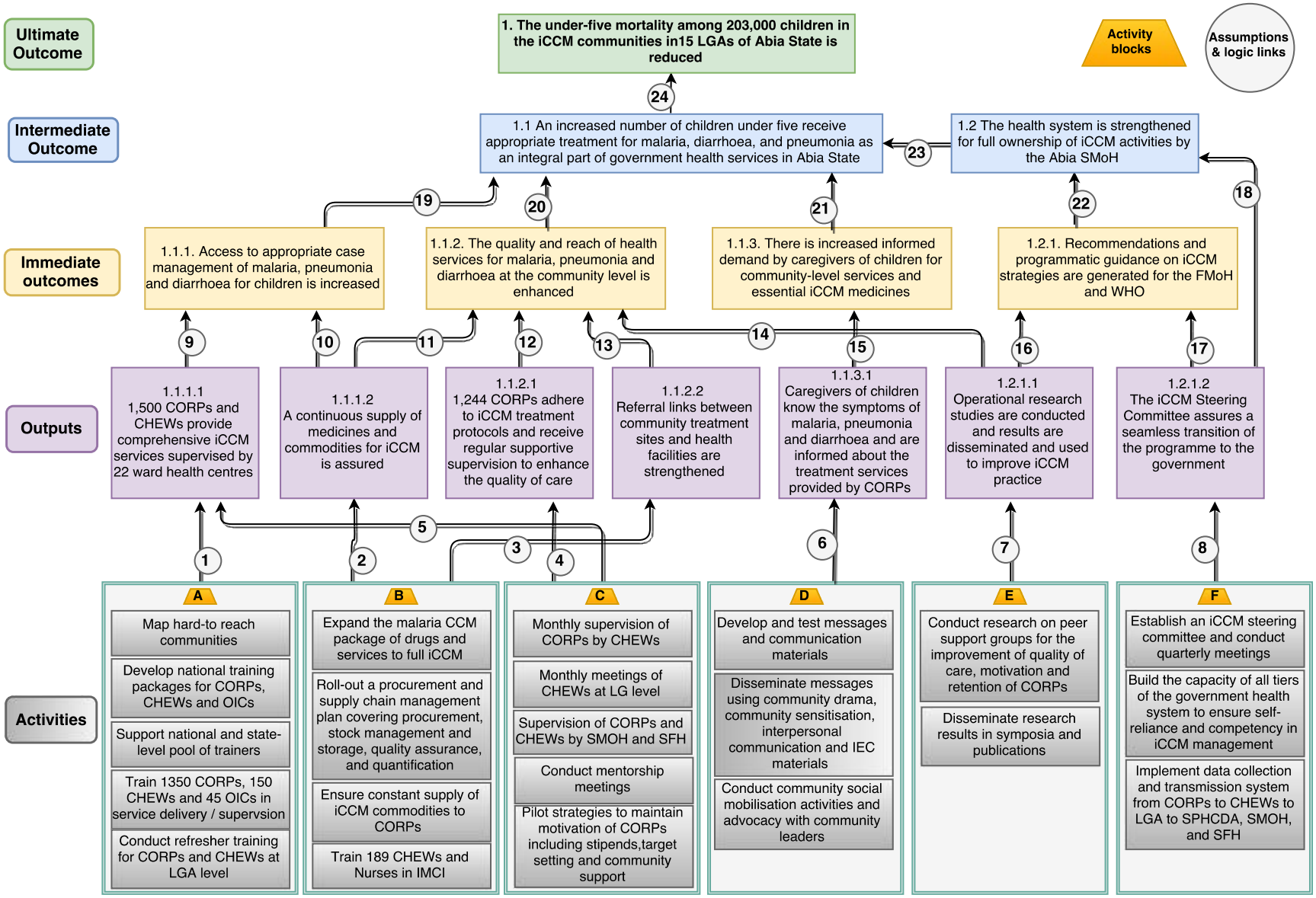
57. The other systems and policy gap is the lack of a clear definition of the position of CORPs in the human resources for health pyramid. The evaluation team registered several models and opinions ranging from volunteers working entirely with community support to paid professional health workers. The choice of the model, and the type and amount of financial support for CORP services depends at present on the preferences of international project partners. Clear national guidance on this issue would strengthen the predictability of planning iCCM programmes and create clarity for those who strive to engage themselves in providing the service.

58. Referral of children with severe illnesses that cannot be treated by CORPs has only had limited success. While the issue is often the distance and the cost of care in primary health care facilities, especially in Niger State, many community respondents also mentioned their lack of trust and the poor quality of service in these facilities. While CORPs may be able to treat 90 percent of the child illnesses in their communities, the other 10 percent should not be forgotten.

59. The experience of the two programmes documents that there are multiple gender equality issues in establishing and operating iCCM, both at the demand side and at the supply side of services. The programmes have been gender-blind, although gender-transformative effects were noted, particularly in Abia State. As there was no analysis, these remain anecdotal findings.

60. Much effort was invested in establishing sustainable structures for the implementation of iCCM with considerable success. The weakest link at present is sustained financing of medicines, supervision and training. A financing gap at the end of the RAcE programme raises the risk that achievements in the programme areas on the demand and supply side of iCCM will be reversed. State partners are actively pursuing efforts to raise funds from international sources, but there is not yet much evidence for the allocation of domestic revenue funds. While international financial and technical assistance may still be required for some time, at least the gap funding between international grants could be considered from domestic resources. The gaps could possibly have been avoided if transition and sustainability planning had been initiated at the start of the programmes rather than during the last year.

THEORY OF CHANGE (ABIA STATE)



CONTRIBUTION ANALYSIS AND PROCESS TRACING (ABIA STATE)

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the output level					
1,5	1.1.1.1: 1,500 CORPs and CHEWs provide comprehensive iCCM services supervised by 22 ward health centres	• 1,351 CORPs, 151 CHEWs, 24 nurses / OICs, and 15 nurses / LGA Focal Points were trained in iCCM in the first two years of the programme **(document review)**	• 1,251 CORPs (93%) were reported active in July 2017 **(document review)** • 147 CHEWS (97%) provided monthly activity reports in Nov 2017 **(document review)** • Interviewed CHEWS (4) and LG Focal Points (2) reported no attrition of CORPs since the start of the programme **(KIIs)** • Interviewed CORPs (4) confirmed monthly supervisions (supported by supervision registers) with directly observed treatments of children whenever possible **(KIIs)** • LG iCCM focal points in 2 LGAs confirmed monthly meetings with CHEWs and at least quarterly on-site supervision together with SFH and SPHCDA team **(KIIs)** • CORPs and CHEWs received monthly transportation allowances of N 4,000 (≈USD 11) by bank transfer but stated that payments were not timely, and amount was insufficient to cover expenses (**KIIs, FGDs)**		• Cumulative inflation over five years (2014-2017) in Nigeria was more than 50% with associated deterioration of the value of the monthly allowances for CORPs and CHEWs **(document review)**
2	1.1.1.2: A continuous supply of medicines and commodities for iCCM is assured	• Procurement and supply chain management system was established with services of Crown Agents Ltd., and fully transferred to national public-sector management in year 2 of the programme. **(document review)**	• Shortages of medicines were recorded between May and Aug 2016 and Sep to Nov 2017, primarily for ACTs. Although they were mentioned as an issue in all KIIs and FGDs, they affected less than two percent of children seen by CORPs between 2014 and 2017 **(document review, KIIs)**		• CHAI supported the distribution of ORS and zinc to the private and public sectors in the project area (**document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
4	1.1.2.1: 1,244 CORPs adhere to iCCM treatment protocols and receive regular supportive supervision to enhance the quality of care	• SFH contracted three additional M&E staff to support field supervision in 2015 **(KIIs)** • 151 CHEWs, 24 nurse OICs, and 15 nurse LGA Focal Points were trained in supportive supervision; supervision tools were developed, and supervision schedules were established **(SFH reports)**	• According to CHEW reports, in year 3 (2016/17) >80% of CORPs had at least one monthly supervision in each quarter during which registers were reviewed, and 46%-87% had a supervision that included a case observation. Verification of these data by calling back a sample of CORPs in Q4 indicates that these proportions were lower (for register reviews and case observation at about 49%) **(SFH PMF Year 3)** • No formal mentorship meetings were conducted, but one-on-one mentorship was organised for CORPs among whom weaknesses were identified (for instance in reading RDTs or counting breaths) **(KIIs, SFH Annual Reports)** • 4 CORPs interviewed by the evaluation team were supervised monthly (confirmed by register) and stated that supervision always included register review and most of the time case observation **(KIIs, FGDs)** • A QoC assessment carried out as part of the operational research found that at the end of the study in 2017, in a sample of 615 case observations, 300 children (49%) were correctly treated or referred for all illness classifications **(OR Report)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
3	1.1.2.2: Referral links between community treatment sites and health facilities are strengthened	• 220 Ward Health Centres in Abia State were assessed, and 22 were found to meet the conditions for providing referral services for 646 hard-to-reach communities **(SFH reports)** • 187 Clinical health staff (nurses and CHEWs) were trained in IMCI in 2017 to strengthen child health services in referral facilities **(SFH reports)**	• Performance data of care at referral facility level are not available **(KIIs)** • According to the end-line survey, 9% children were referred by CORPs, and 57% of parents adhered to the referral advice **(end-line survey)** • The SFH database only shows 1% referrals and 49% adherence to referrals **(SFH database)** • Interviewees confirmed that referral advice is often not adhered to because population has more confidence in CORPs than in services at primary healthcare centre. Referred parents stay home, go to chemist shop or to private hospital. Cases of 'reverse referral' were mentioned as common, with parents who live close to a HF travelling out to consult a CORP in a hard-to-reach area **(KIIs and FGDs)**		• According to the DHS 2013, treatment and advice for children with fever in Nigeria were to 57% sought in the private sector **(DHS)** • Some investments in improving health facility services for maternal and child health were made under the World Bank's 'Saving one million lives' initiative **(KIIs)**
6	1.1.3.1: Caregivers of children know the symptoms of malaria, pneumonia and diarrhoea and are informed about the treatment services provided by CORPs	• Sensitisation meetings were conducted with ward development committees **(SFH reports)** • Establishment /re-activation of ward and village development committees was supported **(SFH reports)** • Social mobilisation officers conducted behaviour change communication (BCC) activities starting in the first quarter of Year 2 **(SFH reports)**	• Between baseline and end-line survey, knowledge about malaria treatment and about diarrhoea treatment increased significantly (30% to 54% and 1% to 25% respectively), but no significant change in knowledge about causes and symptoms **(end-line survey)** • In the end-line survey, 59% of community members knew where to find a CORP in the community **(end-line survey)** • In all 4 community FGDs, CORPs were ranked by the group as the first and as the most important source for health care for their children **(FGDs)**		• Social marketing and public information activities about ORS&Zn treatment for diarrhoea were carried out during the programme period by CHAI and USAID under two separate programmes **(document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
7	1.2.1.1: Operational research studies are conducted, and results are disseminated and used to improve iCCM practice	• Research on the effectiveness of peer-to-peer supervision of CORPs was conducted and results were presented **(Abuja conference)**	• The study 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. **(KIIs)**		• none
8	1.2.1.2 The iCCM Steering Committee assures a seamless transition of the programme to the government	• A State steering committee for iCCM was formed and met biannually **(Committee minutes)** • The development of a sustainability plan was first announced in a meeting of the committee in July 2015 **(Committee minutes)**	• The planned integration of community data into the DHIS2 HMIS system was not achieved. Data flow (in hard copy) from CORPs to LG Focal Point is following national processes. At the LG level, data are not entered into HMIS but rather submitted in hard copy by the LG Focal Point to the SPHCDA and the SMOH. The electronic database is managed by SFH **(KIIs and observation)** • Government participation and leadership in the iCCM steering committee is strong, however no management structure has been built at LG level which is the most critical level for supervision and data management **(KIIs)** • Two LG iCCM FPs interviewed do not work in the LG structure but as nurses in nearby hospitals. Commitment and knowledge about iCCM in the two LGs visited by the evaluation team was low **(KIIs)** • All informants interviewed knew about the transition plan and the sustainability roadmap and most had participated in the workshop in Oct 2016, but few knew any details and nobody at State level used the roadmap as a planning tool for transition **(KIIs, sustainability roadmap)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the immediate outcome level					
9,10	1.1.1. Access to appropriate case management of malaria, pneumonia and diarrhoea for children is increased	• A network of CORPs with appropriate supervision structure was established and iCCM commodities were available to the CORPs with only minor disruptions of stock **(SFH reports, KIIs)**	• Significant increase in appropriate care-seeking was only observed for diarrhoea and respiratory tract infections. For malaria, care-seeking from an appropriate provider did not change, and proportion of parents who did not seek any care remained constant **(surveys)** • However, care-seeking shifted towards CORPs. For instance, care-seeking for fever remained constant (86% and 84%), but at end-line about half of these children were seen by a CORP (who were not present at baseline) **(surveys)** • Proportion of children with fever who had a blood test increased significantly as well as proportion who received ACTs after a positive blood test (but only among those treated by a CORP) **(surveys)** • Community focus groups cited facility of access, cost, and familiarity/friendliness as the main reason for shifting to COPRs for child health care **(FGDs)**		• According to MICS 2016, care for 37% of children with fever in the South East Zone was provided in the private sector (sample for Abia too small for a reliable estimate) **(MICS 2016)**

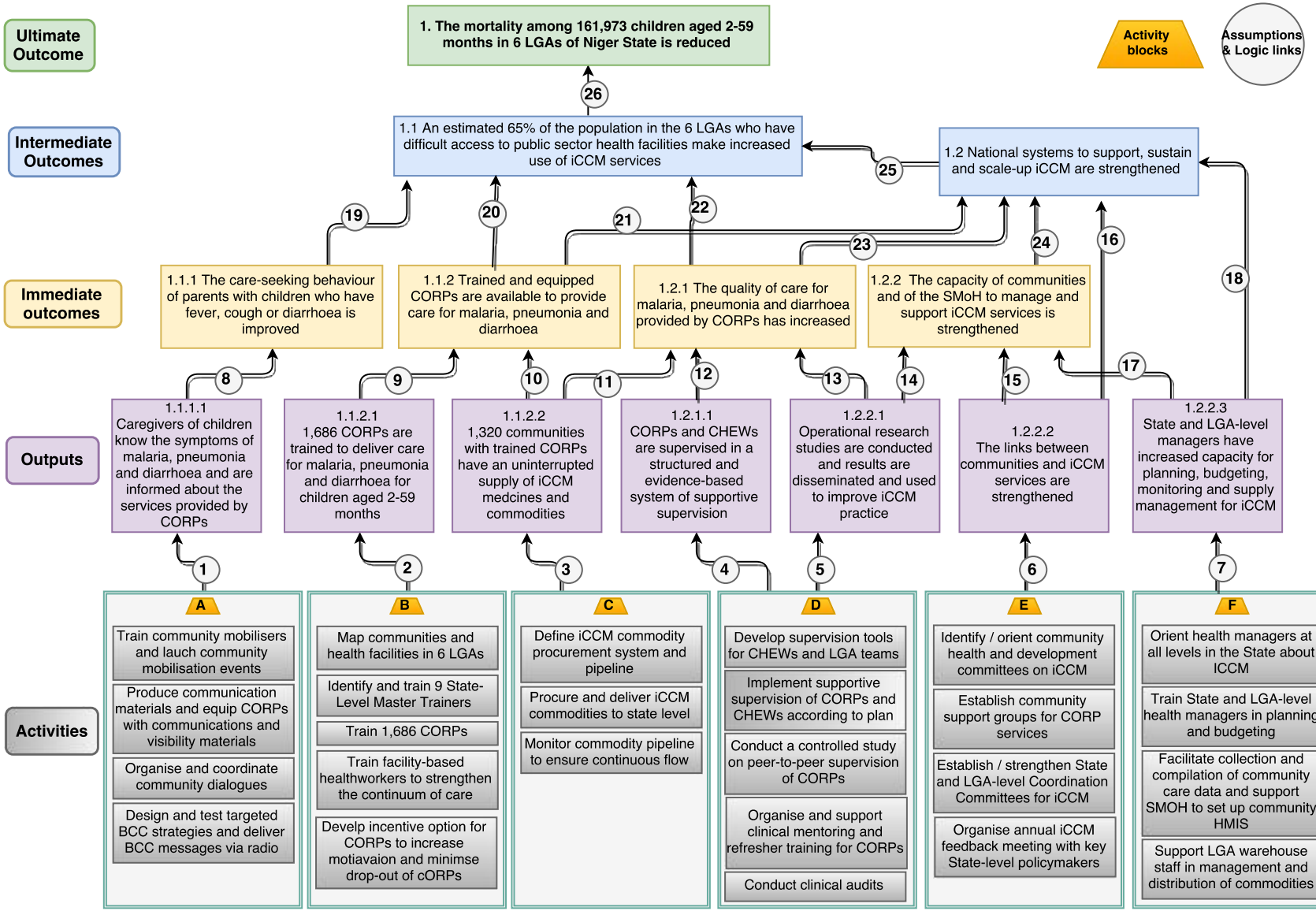
Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
11,12, 13,14	1.1.2. The quality and reach of health services for malaria, pneumonia and diarrhoea at the community level is enhanced	• The outputs of the programme of a network of trained and supervised CORPs with access to medicines and commodities have largely been achieved	• Communities highly regard the quality and effectiveness of CORP services and consistently rank CORPs as the first source of care for child illnesses **(FGDs)** • Between baseline (2014) and end-line (2017) survey, proportion of children with diarrhoea who were treated with ORS increased from 31% to 55% and with Zinc from 7% to 42%; with pneumonia treated with antibiotics from 9% to 36%; with malaria treated with ACT the same or next day from 15% to 38% **(surveys)** • OR on peer supervision found that % of children correctly treated for all illnesses (intervention and control group) increased from 42% to 49% over one year (2015-2016) **(research report)** • Between MICS 2011 and MICS 2016 the proportion of children with malaria treated with ACTs increased from 2% to 17% (among the States with the highest reported use of ACT in the country) **(MICS)** • Rectal Artesunate for pre-transfer treatment of severe malaria is included in the Nigerian iCCM guidelines but was not included in the RAcE programme **(KIIs, document review)**		• Prior to June 2017 there was no WHO prequalified supplier of rectal Artesunate

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
15	1.1.3. There is increased informed demand by caregivers of children for community-level services and essential iCCM medicines	• Community mobilisation, BCC, and public education activities to increase knowledge and improve care-seeking behaviour have been carried out **(KIIs, SFH reports)**	• Between baseline and end-line, the overall care-seeking from an appropriate provider increased only moderately from 69% to 77%. Care-seeking, however has shifted to CORPs as the first contact, with four times more children with fever receiving a blood test, and twice as many receiving ACTs after a positive test. **(surveys, FGDs)** • Community FGDs and chiefs/traditional leaders met during the evaluation unanimously demand the continuation and expansion of iCCM services **(KIIs, FGDs)**		• none
16,17	1.2.1. Recommendations and programmatic guidance on iCCM strategies are generated for the FMOH and WHO	• SFH participated in the national technical groups for iCCM. **(For outcomes at the national level see contribution analysis for Niger State)**	• Results of the operational research on peer supervision in Abia State resulted in programmatic changes in both Nigeria RAcE programmes		• none
Changes at the intermediate outcome level					
19,20, 21,23	1.1. An increased number of children under five receive appropriate treatment for malaria, diarrhoea, and pneumonia as an integral part of government health services in Abia State	• Between Nov 2014 and Nov 2017 (37 months), 665,000 children with fever were tested for malaria, 481,000 were treated for malaria with ACTs, 183,000 for pneumonia with amoxicillin, and 181,000 for diarrhoea with ORS&Zn **(SFH database)**	• Between baseline and end-line surveys, the number of children receiving any treatment did not change (proportion for whom no care was sought remained unchanged around 14%), but there was a major shift to care by CORPs (from 0 to 44%) most likely from chemists and medicine sellers. With this shift, the appropriateness of treatment increased significantly (confirmatory tests for malaria, ACTs, amoxicillin, ORS&Zn) **(surveys)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
18,22	1.2 The health system is strengthened for full ownership of iCCM activities by the Abia SMOH	• The RAcE programme in Abia State was, from its start, embedded in the structures of the Abia State PHCDA **(KIIs)** • A transition plan and sustainability roadmap has been developed **(transition plan)**	• SMOH and SPHCDA officials confirmed their commitment to implement iCCM and scale it up to cover the two remaining LGAs. However, they also pointed out that the necessary resources to continue supporting and supplying CORPs cannot be raised without international support **(KIIs)** • Procurement, supply management, health data management and field supervision are areas where the capacity of the SPHCDA and the SMOH has been strengthened, but that still require financial and technical support for full implementation **(KIIs)** • Local governments, which are key for mobilisation, management, and financing of CORP services, and for the management of community health data, are only weakly involved in RAcE. LG iCCM Focal Points are not part of the LG administration but rather clinical nurses working in health facilities **(KIIs)** • The transition plan (Oct 2016 – Dec 2017) has expired, but most activities in this plan have not been realised, and none of the key informants stated that they have used this plan as a working tool (**KIIs, Transition Plan**) • The Abia State multi-year budget estimates (2016-2018) include an expenditure line for IMCI of N 100 million (≈USD 280K) for each year in the allocation for the SPHCDA. Whether a portion of these funds can be used for iCCM is questionable. Key informants mentioned that the annual budget had a line for iCCM, however without appropriation of funds **(KIIs, document review)**		• Abia State is currently negotiating new funding under a World Bank project that targets primary health care using performance-based financing, most likely at the health facility level, but may be expandable to include community care

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achievement and evidence	Other influencing factors (Source)
Changes at the final outcome level					
24	1. The under-five mortality among 203,000 children in the iCCM communities in15 LGAs of Abia State is reduced	• The programme has provided more timely and better quality treatment for children targeted communities	• MICS 2011 and 2016/17 document a decrease in U5MR from 116 to 83/1,000 in Abia State. **(MICS)** • According to the LiST model, 956 lives were saved from 2014-2016 because of treatment by CORPs which would account for about a 7-point reduction in the U5MR among the target population over 3 years. (**ICF Report**) • There are no data to validate the results of the LiST modelling but a documented decrease in U5MR in Abia State strengthens the evidence of a contribution by RAcE • Communities, CORPs and CHEWs all stated that there are fewer child deaths in the villages since CORP services started **(KIIs and FGDs)**		• none

THEORY OF CHANGE (NIGER STATE)



CONTRIBUTION ANALYSIS AND PROCESS TRACING (NIGER STATE)

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
Changes at the output level					
1	1.1.1.1: Caregivers of children know the symptoms of malaria, pneumonia and diarrhoea and are informed about the services provided by CORPs	• Social mobilisation, and public education activities were realised throughout the programme period. **(document review)**	• At end-line, 68% of caregivers of sick children knew signs of illness requiring immediate treatment and 78% knew the role of the CORP in their community **(document review)** • In all 3 FGDs, caregivers ranked CORPs as first contact for care of sick children **(Community FGDs)**		• Between 2014 and 2017, CHAI conducted public education and community mobilisation activities on diarrhoea treatment in the project area under the 'Shaping Local Markets' programme funded by GAC **(document review)**
2,3	1.1.2.1: 1,686 CORPs are trained to deliver care for malaria, pneumonia and diarrhoea for children aged 2-59 months 1.1.2.2: 1,320 communities with trained CORPs have an uninterrupted supply of iCCM medicines and commodities	• Initial training was provided to 1,698 CORPs, and refresher training to 1,320 CORPs **(document review)** • System of MC procurement and joint MC/SMOH supply chain management was established **(KIIs)** • Between Oct 2014 and Nov 2017 (38 months) CORPs dispensed ca. 292,000 treatments of ACT, 153,000 of ORS/Zn, and 65,000 of Amoxicillin **(document review)**	• Between July and November 2017 (5 months), an average of only 971 CORPs submitted monthly reports **(document review)** • Two LG Focal Points (Paikoro and Lapai) confirmed 8 fewer active CORPs than reported by MC **(KIIs)** • In 2017, monthly data submission by CORPs was not regular because of CORP dissatisfaction with stipends for attending monthly cluster meetings **(KIIs)** • ACTs were out of stock for 2-5 month in 2017 among CORPs interviewed. One CORP visited was out of stack of all medicines and supplies at the time of the evaluation **(KIIs and FGDs)**		• Global Fund iCCM programme was implemented in 16 LGAs (no overlap with the six RAcE LGAs). RAcE supplied non-malarial medicines to TGF programme. Some exchange of medicines took place between programmes. **(KIIs, document review)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
4	1.2.1.1: CORPs and CHEWs are supervised in a structured and evidence-based system of supportive supervision	• A pyramidal supervision structure from SMOH/MC level to CORP was established **(document review, KIIs)** • A ToT cascade from national level to LGA level was implemented and 154 CHEWS were trained for supervision of CORPs **(document review, KIIs)** • Three clinical audits for assessing quality of care were conducted **(document review)**	• CHEWs have supervision tools and check lists; CORPs have supervision registers **(KIIs, observations)** • Monthly on-site supervision by CHEWs was changed in 2015 to quarterly on-site visit plus monthly cluster meeting of CORPs (154 clusters). According to the MC Oct 2017 progress report, cluster meetings were changed back to monthly on-site supervision in March 2017. However, during interviews CHEWs and CORPs stated that they still submitted monthly data during cluster meetings, and MC stated that CORP stipends are linked to cluster meeting attendance. **(document review and KII)** • In the first quarter of 2017, between 60 and 80 percent of monthly supervision visits by CHEWs were carried out according to MC reports. (see 1.1.2.2: about 75% of expected monthly CORP reports were received, which is an indication of the monthly supervision performance) **(document review)** • Incentives for supervision paid to CHEWs by the programme did not match expectations according to CHEWs and MC staff **(KIIs)**		• MOH staff at LG and health facility level stated that government salaries are not received regularly, and that they are therefore dependent on stipends and bonuses paid by internationally funded programmes **(KIIs)**
5	1.2.2.1: Operational research studies are conducted, and results are disseminated and used to improve iCCM practice	• Two operational research studies were conducted, a study on community management of severe pneumonia, and participation in a multi-country a study on peer to peer supervision of CORPs. Data are currently being analysed **(KIIs)**	• Preliminary result of peer-peer supervision study showed no advantage over current supervision model. Results are being written up. No documentation available **(KIIs)** • Result of pneumonia study currently being analysed. Only the study proposal was available. **(KIIs)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
6	1.2.2.2: The links between communities and iCCM services are strengthened	• Radio jingles and promotional materials were produced **(KIIs, observation)** • 126 volunteer community mobilisers were trained **(document review)** • Ward development committees and village health committees were supported **(document review)** • Annual feedback meetings with State policy makers were organised **(document review, KIIs)**	• In mid-2015, MC RAcE team started to engage in community mobilisation with a structured approach, including work with ward development committees **(KII)** • Strong endorsement of iCCM by religious and traditional leaders, especially Emir of Lapai **(document reviews, KIIs)** • MC documented and presented community support of CORPs; estimate that 1,107 CORPs received support at a total value of US$ 121,000. Information could not be verified. (**document review)** • In interviews and FGDs CORPs generally expressed dissatisfaction with the low level of support from communities. (**KIIs, FGDs**)		• none
7	1.2.2.3: State and LGA-level managers have increased capacity for planning, budgeting, monitoring and supply management for iCCM	• There were regular meetings of the State iCCM Technical Working Group **(document review)** • SMOH has created a staff structure for iCCM that mirrors MC RAcE project management and there is close collaboration between the two **(KIIs)**	• SMOH has a costed operational plan for iCCM for 2018 **(document review)** • Supply chain for iCCM commodities from State CMS to CORPs level is managed by SMOH staff **(KIIs)** • Community health data generated by CORPs are consolidated in a dead-end at LGA level (nothing happens with the data at that level). Meanwhile the State M&E Officer receives data generated from CORP reports that are consolidated by the MC project office in an MS Access database. Efforts to establish a community health information system have stalled. **(KIIs)**		• The transfer delivery of primary level health services from SMOH to the SPHCDA is in an early phase in Niger State. The Niger State PHCDA only became active in mid-2017, and the E.D. was appointed chair of the State iCCM Task Force. It is currently working on a State-wide VHW scheme with anticipated funding from BMGF. This would imply a transfer of responsibilities for community care from SMOH to SPHCDA **(KII)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
Changes at the immediate outcome level					
8	1.1.1 The care-seeking behaviour of parents with children who have fever, cough or diarrhoea has improved	• Caretakers of children are satisfied with the services provided by CORPs **(FGDs, surveys)**	• Proportion of sick children taken to an appropriate provider increased from 76% to 91% **(document review)** • Ease of accessing care and readily available effective treatment were changes due to RAcE mentioned by caretakers of children in all community FGDs **(FGDs)**		• none
9,10	1.1.2 Trained and equipped CORPs are available to provide care for malaria, pneumonia and diarrhoea	• CORPs provided regular reports; data quality was assessed annually; bi-annual LQAS survey identified CORPs requiring additional support **(document review)**	• Between July and November 2017 an average of 971 monthly CORP reports were received (74% of expected 1,320). The main reason may be gaps in supervision and data transmission, but visits to two LGAs also indicate that there are fewer active CORPs than reported by MC **(document review, KIIs)** • Stock-outs of malaria medicines started in September 2017. In the last quarter of 2017, a majority of CORPs were out of stock for ACTs, and many also for other medicines **(KIIs)** • Major quality issues of monthly CORP reports were identified at first DQA in 2015 but there was considerable improvement by 2017 **(document review)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
11,12, 13	1.1.3 The quality of care for malaria, pneumonia and diarrhoea provided by CORPs has increased	• CHEWs provided supportive supervision of quality of care quarterly (whenever possible through direct observation). Comprehensive clinical audit was conducted in 2017 **(KIIs, document review)**	• Communities highly regard the quality and effectiveness of CORP services **(FGDs)** • Rectal Artesunate for pre-transfer treatment of severe malaria is included in the Nigerian iCCM guidelines but was not included in the RAcE programme **(document review)** • Although the end-line survey reports that 93 percent of caregivers adhered to the referral advice of CORPs, the MC database only reports adherence in 35% of cases and interviewed CORPs and CHEWs estimated about 50% **(document review, KIIs)** • Clinical audit of a sample of 1,175 directly observed treatments by 547 CORPs in June/July 2017 reported good performance on assessment (94% malaria RDTs; 84% respiratory rate count, 86% malnutrition assessment) but only 63% correct treatment for confirmed malaria and only 28% correct treatment for pneumonia **(document review)**		• Promotion and social marketing of ORS+zn in the private sector was implemented concurrently by CHAI in Niger State • Prior to June 2017 there was no WHO prequalified supplier of rectal Artesunate
14,15, 17	1.2.1 The capacity of communities and of the SMOH to manage and support iCCM services is strengthened	• Ward development committees and village health committees have been mobilised for the support of CORPs **(document review)** • The SMOH has an iCCM team (coordinator, M&E, logistics) that is fully engaged in co-managing RAcE **(KII)**	• KIIs and FGDs with community members, CORPs and supervisors confirmed the engagement and support of community leaders and committees, although most CORPs considered this support to be insufficient **(KIIs, FGDs)** • SMOH respondents at all levels confirmed their understanding and capacity of managing iCCM, but also noted that they did not have the resources to procure the necessary commodities, to assure supervision of CORPs at established levels, and to provide financial or material incentives to CORPs. **(KIIs)**		• Transfer of responsibility for primary health service delivery to the Niger State PHCDA is foreseen. It is not evident how iCCM management capacity built at SMOH level will transfer to the SPHCDA

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
Changes at the intermediate outcome level					
19,20, 22,25	1.1 An estimated 65% of the population in the 6 LGAs who have difficult access to public sector health facilities make increased use of iCCM services.	• Trained, supervised and equipped CORPs are present in communities, and community mobilisation and education activities are on-going **(document review)**	• The average monthly number of children seen by CORPs was about 5,000 in 2015 and since then has increased to 15,000 with a peak at 21,000 in July 2016. **(document review)** • 3/3 community focus groups (26 women) ranked CORPs as the **first contact** when the child is ill, although only 1/3 considered the CORP as the most important care provider, the other two groups ranked the PHC unit or the hospital first. **(FGDs)** • At end-line survey, **91%** of caretakers with sick children sought care from an appropriate provider (75% CORP) compared to **76%** at baseline (2% CORP) **(document review)**		• none

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
16,21, 23,24	1.2 National systems to support, sustain and scale-up iCCM are strengthened (**This is a joint outcome of the Niger State and the Abia State RAcE Programme)**	• WHO, together with MC and SFH, has worked intensively in partnership with the FMOH to promote national policies and systems for iCCM **(KIIs)**	• The FMOH adopted national guidelines for iCCM in 2013 which were developed with support of the RAcE partners **(document review, KII)** • A multi-partner iCCM steering committee and sub-committees have been active under the leadership of the FMOH since 2014 and have initiated a number of activities including joint monitoring and a high-level training workshop funded with FMOH budget **(document review, KII)** • The national malaria strategy 2014-2020 includes iCCM as part of its interventions **(document review, KII)** • iCCM programmes modelled after the RAcE initiative have started to be implemented in several States funded by several international **partners (document review, KIIs)** • The 58th National Council on Health in 2016 instructed States to invest in and scale up the implementation of the national iCCM guideline **(document review, KIIs)** • FMOH and development partners have agreed on the indicators for a community module for the DHIS2 HMIS data platform that includes, but it has not yet been implemented **(document review, KIIs)**		• The 'community monthly summary form' agreed and drafted for the DHIS2 community module includes nearly 200 data points of different programmes (HIV, maternal health, iCCM, etc.) and is unlikely to be manageable at the point of data entry (i.e. the LG level) **(KII)**

Link	Intended change	'Hoop' evidence (Source)	'Smoking gun' evidence (Source)	Achieved / evidence	Other influencing factors (Source)
Changes at the final outcome level					
26	1. The mortality among 161,973 children aged 2-59 months in 6 LGAs of Niger State is reduced	• According to the MC database, CORPs provided medicines for either malaria, pneumonia or diarrhoea to 511,000 children. According to the baseline and end-line surveys, this was more than twice as many children as would have received any treatment in the absence of the programme. **(document review)**	• All key informants at community and primary health care level assert that the number of deaths of children in the communities has fallen sharply since the start of the programme **(KIIs, FGDs)** • DHIS2 data from health facilities are available since 2013, but they do not provide data that can be used to make inferences on child mortality in the 6 RAcE LGAs **(document review)** • The modelled mortality reduction by ICF in the project area was 12/1000. While the documented increase in access to treatment and the perceptions of all informants interviewed at all levels support the conclusion of a reduction in child mortality, there are no alternate data sources to validate this estimate. **(document review)** • The increase in the U5MR estimates in the MICS 2011 and 2016/17 reports appear to contradict the finding of a mortality reduction. The programme, however, covered only about 15 percent of children in Niger State and their mortality rate may well have decreased without effect on the state-level statistic.		• Niger State has 25 LGAs of which the sub-population of communities with difficult access to health facilities in only 6 LGAs was covered by the RAcE programme. (Ca 15% of children in the State in this age group) Surveys that report child mortality results (such as DHS or MICS) do not have the necessary sampling size to measure changes in mortality at that level that can be attributed to RAcE. **(document review)**

ANNEX: COUNTRY BRIEF NIGERIA

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PEOPLE MET

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NNADIMELE, Rosaline	CORP, Bende LGA, Abia State
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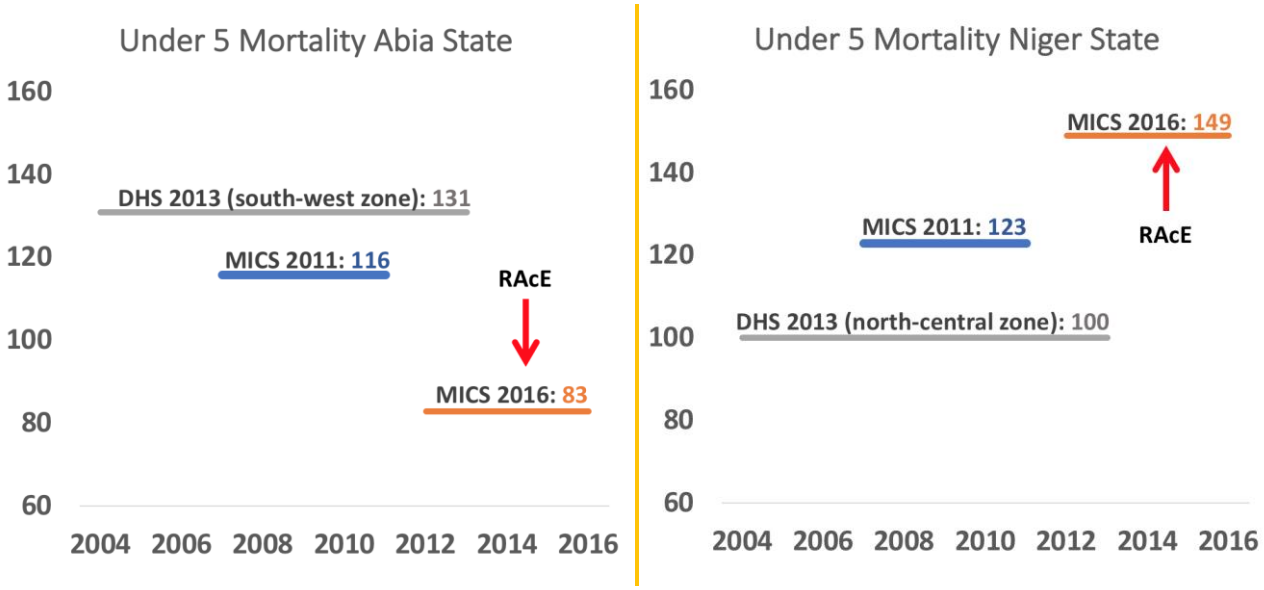
MORTALITY RATE OF CHILDREN UNDER 5 IN POPULATION SURVEYS

Since 2011, three population surveys that included child mortality estimates were published in Nigeria:

- The Multiple Indicator Cluster Surveys (MICS) of 2011 and of 2016/17 estimated the under-5 mortality rate per 1,000 children for each State. Each survey covered a 5-year period of 2007-2011 and of 2012-2016 respectively. The start of iCCM implementation thus fell approximately at mid-point of the estimation period of the second survey.
- The Nigeria Demographic and Health Survey (NDHS) of 2013 estimated the under-5 mortality rate per 1,000 children by geographic zone over the ten-year period from 2004-2013. Niger State is located in the North-Central Zone which includes six States and the Federal Capital Territory. Abia State is located in the South East Zone which includes four States. A new NDHS is planned for 2018.

Because of the much larger sampling unit and the longer time-period of the NDHS, the confidence margins are narrower than those of the two MICS. On the other hand, the zonal divisions combine States with different mortality profiles and potentially different trends.

The following two graphics present the Under 5 Mortality estimates of the three surveys, spread over the years of the estimation period for each survey. The start of the RAcE programme is indicated by the red arrow.



The published data of the surveys are not conclusive. They suggest that during the time of RAcE programme implementation, the under-5 mortality rate in Abia State decreased significantly, while it increased in Niger State. The data hardly allow any inferences on RAcE programme effects. The mortality reduction estimated in the MICS is of similar magnitude in all four south-western States, while in the north-central zone, all States except Niger State recorded major mortality reductions. For this reason, the new zonal estimates that will be generated by the 2018 NDHS will also not likely generate robust evidence for estimating the RAcE programme contribution to mortality reduction.

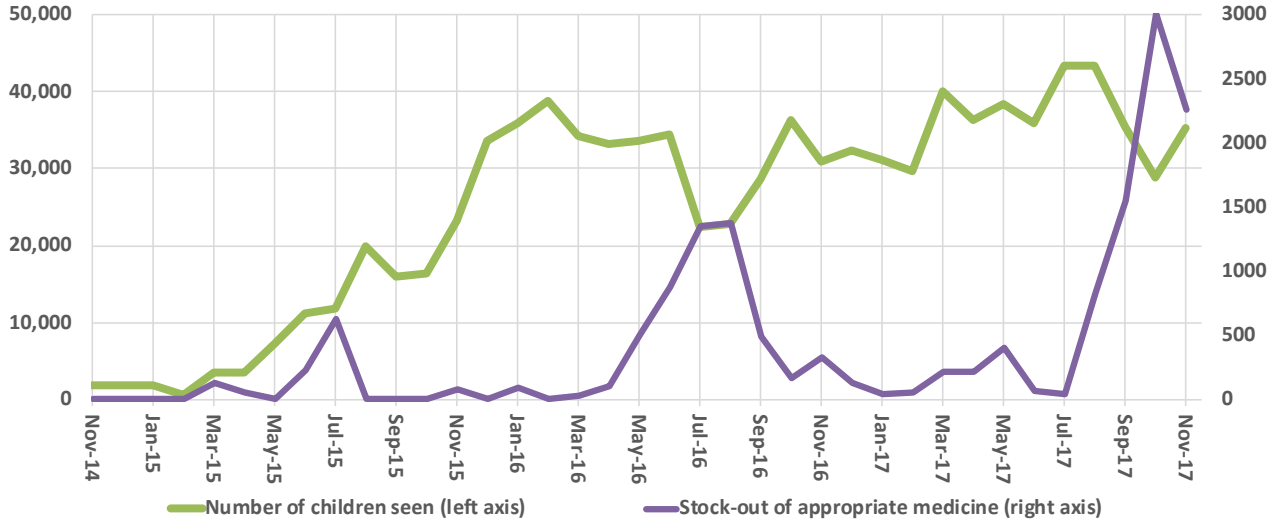
COMMODITY SUPPLY AND ICCM SERVICE DEMAND IN ABIA STATE

In Abia State, as well as in other RAcE project sites, the key role of an uninterrupted supply of medicines and commodities was underlined in all community and CORP focus group discussions and interviews. It was listed as the first priority for maintaining iCCM services by all key informants. This was justified not only by the obvious necessity of having the right medicine available when children with malaria, pneumonia or diarrhoea are presented by their caretakers to CORPs, but it was also mentioned as a key factor for keeping communities engaged and supportive of the service, and for maintaining the motivation of the CORPs. Several of them ranked the availability of medicines higher than the financial or material support they expected to receive from the community and the programme.

The database of the Abia State RAcE programme illustrates this well. In the SFH database, a stock-out of medicine is defined as the non-availability of the right medication to treat a child who has been assessed by the CORP as requiring the treatment.

Between November 2014 and November 2017 (37 months), 940,000 children were seen by CORPs. The necessary medicine was not available in 15,000 cases. Stock-out of commodities was therefore not a major problem as it affected only two percent of sick children.

However, when the attendance of CORP services is plotted against stock-outs, the following pattern is observed:



The figure illustrates the sensitivity of communities to the medicines that the CORP has available. Even minor stock-outs can result in major loss of confidence and support for the CORP by the community that will quickly move to seek care elsewhere and may be hesitant to come back. When about 1,500 children had to be referred because of unavailable medicines between May and July 2016, attendance rates for CORP services dropped by more than 10,000 in June and July. The same was observed between September and November 2017.

The data confirm recorded statements by CORPs such as in one community: ‘When I don’t have the medicine, people get angry and shout on me and some stop coming. When I get the medicine, I have to go around and tell everybody, so they will come back with their children.’