TECHNICAL PAPER

Policy advocacy to improve diagnosis and management of severe febrile illness in children under-five

MAY 2015

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TABLE OF CONTENTS

LIST OF FIGURES

ACRONYMS

CSSM	Comprehensive supportive supervision and mentorship
GoT	Government of Tanzania
HCWs	Healthcare Workers
HFs	Health Facilities
HMIS	Health Management and Information System
IMCI	Integrated Management of Childhood Illnesses
IPD	Inpatient Department
ITNs	Insecticide-Treated Nets
MDGs	Millennium Development Goals
MoHSW	Ministry of Health and Social Welfare
mRDT	Malaria Rapid Diagnostic Test
MSD	Medical Stores Department
MSH	Management Sciences for Health
OPD	Outpatient Department
OVC	Orphans and Vulnerable Children
PQIT	Pediatric Quality Improvement Team
QI	Quality Improvement
R&R	Reporting & Request forms
R/CHMTs	Regional and Council Health Management Teams
SCM	Supply Chain Management
STGs	Standard Case Management Guidelines
TEHIP	Tanzania Essential Health Interventions Program
THP	Tibu Homa Program
TNQIF	Tanzania Quality Improvement Framework
URC	University Research Co., LLC
USAID	The United States Agency for International Development

A. INTRODUCTION

The Lake Zone of Tanzania continues to have higher than average morbidity and mortality of children under the age of five years. The 2010 Tanzania Demographic and Health Survey (DHS) showed a national under-five and infant mortality of 81 and 51 per 1,000 live births and 109 and 64 per 1,000 live births respectively for the Lake Zone[1]. The outpatient department (OPD) attendance in the Lake Zone remained relatively unchanged (e.g. 43% 2005 and 47% in 2007) despite high coverage for insecticide treated nets (ITNs) (73%).

This high under-five morbidity and mortality needs to be addressed in order for Tanzania to achieve and stay within the Millennium Development Goals (MDGs)[2]. Even though some progress has been made in the reduction of child mortality as a result of improved coverage of effective health interventions, (vitamin A supplementation, exclusive breast feeding, immunization coverage, Integrated Management of Childhood Illnesses and improved Malaria management) children continue to die especially neonates from preventable and treatable conditions[3].

In an effort to improve under five mortality in the Lake Zone, the United States Agency for International Development (USAID) and the Ministry of Health and Social Welfare (MoHSW) are supporting a Program on "Improving the Diagnosis and Management of Severe febrile illness in children under five years of age" in the Lake Zone of Tanzania. This Program is better known in Tanzania by its Swahili name "Tibu Homa" Program (THP), which means "treat fever". The Program works on interventions that best improve services for diagnosis and treatment of severe febrile illness in under-fives. The approach is to explore, implement and monitor outcomes of proven and promising innovative interventions that address challenges in (a), diagnosis and management of severe febrile illnesses and (b), reliable availability of and access to medicines and other health care products. Under the Program, interventions that change the way services are delivered have shown good results and improved efficiency in service delivery. This paper aims to advocate for inclusion of these changes in the national health policy to enable regional and council health management teams and health facilities to deliver services more effectively.

THP is managed by the University Research Co., LLC (URC) in partnership with Management Sciences for Health (MSH), AMREF Health Africa, and in collaboration with the MoHSW. The goal of the THP is to reduce morbidity and mortality of children less than five years of age due to severe febrile illness by:

a) Increasing availability of and accessibility to fundamental facility-based curative and preventive child health services
b) Ensuring sustainability of critical child health activities
c) Increasing linkages within the community to promote healthy behaviors thereby increasing knowledge and use of child health services.

B. CHALLENGES TO IMPROVING CASE MANGEMENT IN THE LAKE ZONE

The Lancet series published in 2003 provided clear evidence of interventions that reduce under five mortality. The authors selected an essential set of interventions judged to be feasible for high levels of implementation in low-income countries and concluded that "the interventions needed to achieve the millennium development goals of reducing child mortality by two thirds by 2015 are available but they are not being delivered to mothers and children who need them" [4]

[1] Tanzania Demographic and Health survey, National Bureau of Statistics, Dar es Salaam, Tanzania; ICF Macro, Calverton, Maryland USA, April 2011
[2] National Strategy for Growth and Reduction of Poverty
[3] National Strategy for Growth and Reduction of Poverty
[4] Lancet 2003; 362: 65-71

The MoHSW has over the years worked to implement these proven interventions through such Programs as the Tanzania Essential Health Interventions Program (TEHIP) and the introduction of the Integrated Management of Childhood Illnesses (IMCI). These interventions have set Tanzania on target to achieve the Millennium Development Goal (MDG) of reducing childhood mortality by two thirds by 2015. However challenges remain in regard to access and quality of services. The Ifakara Health institute describes the challenges as follows:

"Despite these successes, the health system remains fragile and there has been little progress in reducing newborn and maternal mortality rates—a risk to the achievement of MDG 4 and making achievement of MDG 5 by 2015 in doubt... Despite the fact that the majority of Tanzanians live within five kilometers of a health facility, access remains a problem and outreach to communities and households is limited. Quality and cost of primary healthcare further inhibit service utilization"[5]

In its work in the Lake Zone of Tanzania the THP is focused on improving availability, access and quality of services. During the period June 2011 and June 2015 the Program worked with 416 health facilities in collaboration with the Regional and Council Health Management teams (R/CHMTs) and identified gaps in service delivery. These gaps centered mostly on:

a. Lack of skills among health facility workers to identify problems, test solutions and adopt the solution to bring about improved results
b. Irregular and ineffective supervision of health facilities
c. A complete lack of clinical and supply chain mentorship at facility level
d. Poor collection of data
e. Failure to use facility data to improve or solve problems at facility level

During this period THP developed and applied a select number of approaches to improve service delivery and improve case management.The approaches focused on improving the skills of facility health workers to diagnose and manage severe febrile illness (including problem solving) and of health managers to train and provide effective supervision to the facility health care workers. The approaches were:

a. Creating and defining a Pediatric Quality Improvement Team (PQIT) at each Health facility
b. Establishing a regular comprehensive supportive supervision and mentorship program
c. Establishing a regular and effective Logistic Mentorship program
d. Training the PQITs in problem identification and problem solving
e. Collecting and using data to make decisions at facility level and introducing columns in the HMIS to:
    - Collect data on under-five children reporting with fever
    - Under-fives testing for malaria with Malaria Rapid Diagnostic Test (mRDT)/microscopy
    - Under-fives reporting to facility within 24 hrs of onset of fever
    - Under five OVCs seen at facility and referred

These approaches resulted in significant improvements evidenced by indicator data as reported in the THP annual progress reports and as shown in Figures 1 to 5 below. THP considers these approaches essential for improving case management and the handling of under-fives at facility level in general. The data presented in the figures below show clearly that the approaches that THP has applied in the Lake Zone have produced results in improving case management. These approaches are defined and

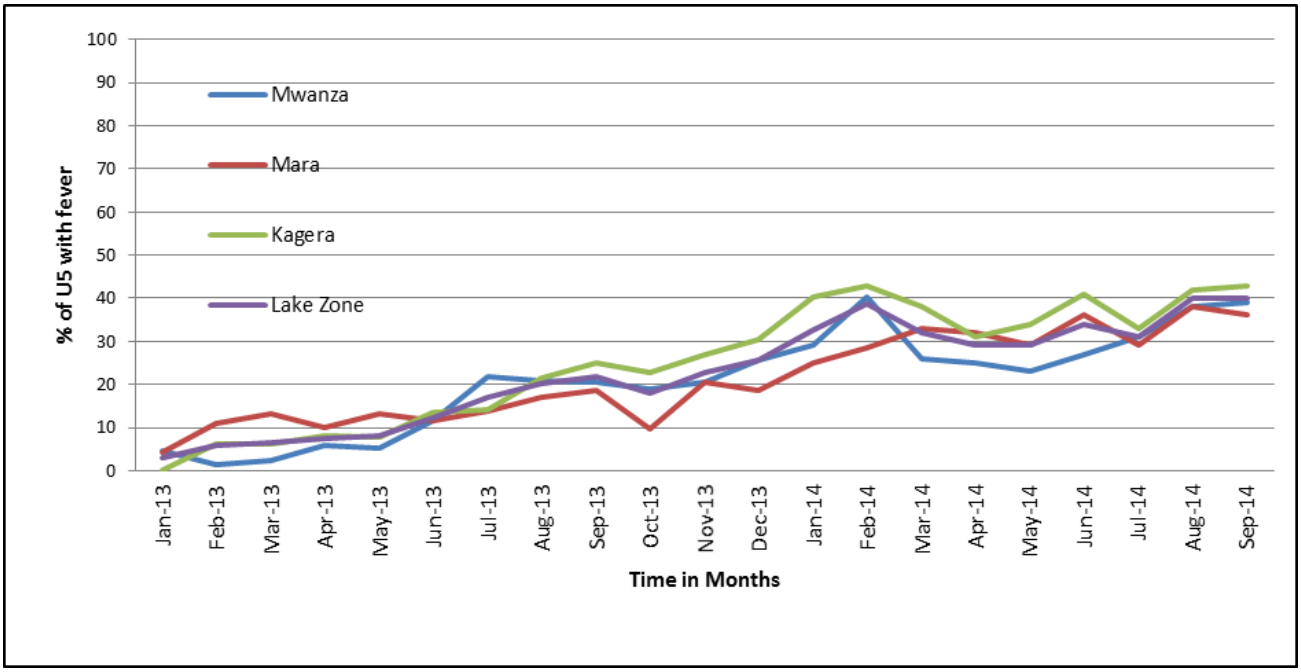
[5] Ifakara Health Institute, "Tanzania is on target to achieve the MDGs 4 and 5" posted 21 May 2015, 06:50 by IHI Webmaster, http://www.ihi.or.tz/announ/tanzaniaisontargettoachievethemdgs4and5

described in the “Recommendations for improving Diagnosis and Management of severe febrile illness in children under-five”[6].

C. RESULTS ACHIEVED DUE TO TESTING AND ADOPTING CHANGES THAT IMPROVE SKILLS IN CM, SCM AND REGULAR SUPPORTIVE SUPERVISION AND MENTORSHIP

A systematic collection and analysis of Program data initiated in 2012 at Tibu Homa supported health facilities began to show improvements in several intervention areas. Overall compliance i.e. treatment of under-fives according to IMCI guidelines began to improve as did the number of under-fives with fever testing for malaria with mRDT or microscopy. In addition the number of under-fives receiving the correct anti-malarial according to national policy increased and under-fives with fever being seen by a skilled provider within 24 hrs of onset of fever also increased. Lastly, the number of health facilities reporting “no stock out” began to decline. The results are shown in the figures below.

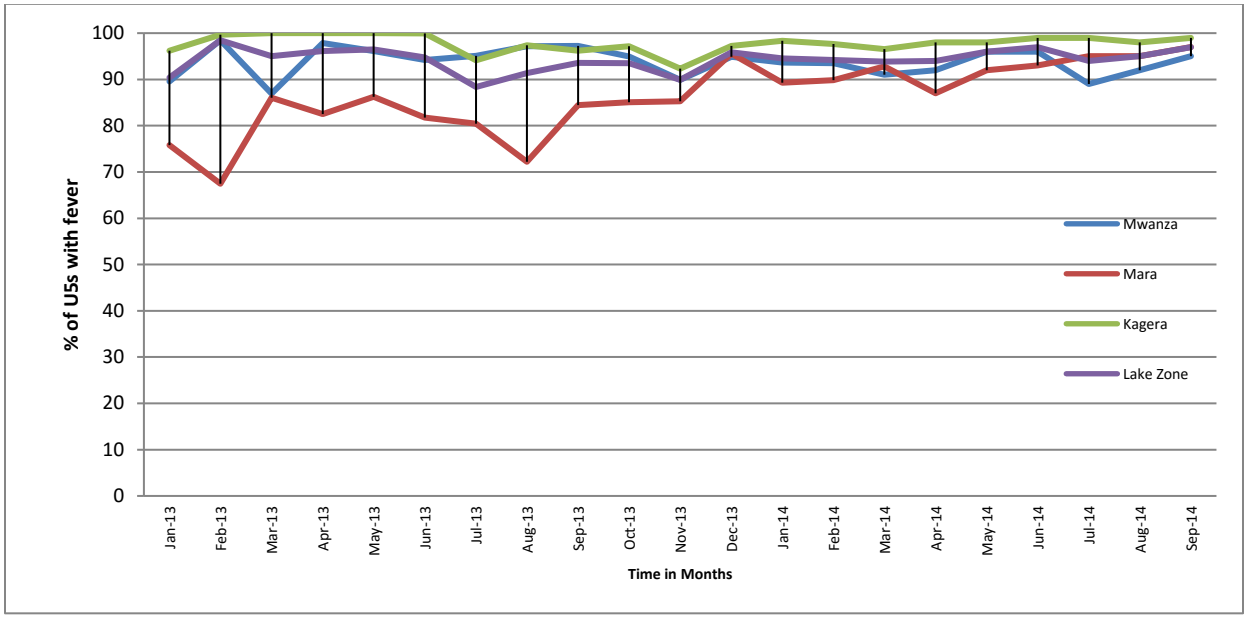
Figure 1: % of children U5 w/ fever correctly assessed and treated using IMCI algorithm in 174 sites in Mwanza, Mara and Kagera regions in Tanzania, Jan 2013 - Sept 2014



Source: Annual Report, USAID Cooperative Agreement Number, 621-A-00-0011-00, October 2013-September 2014, Dated: November, 2014

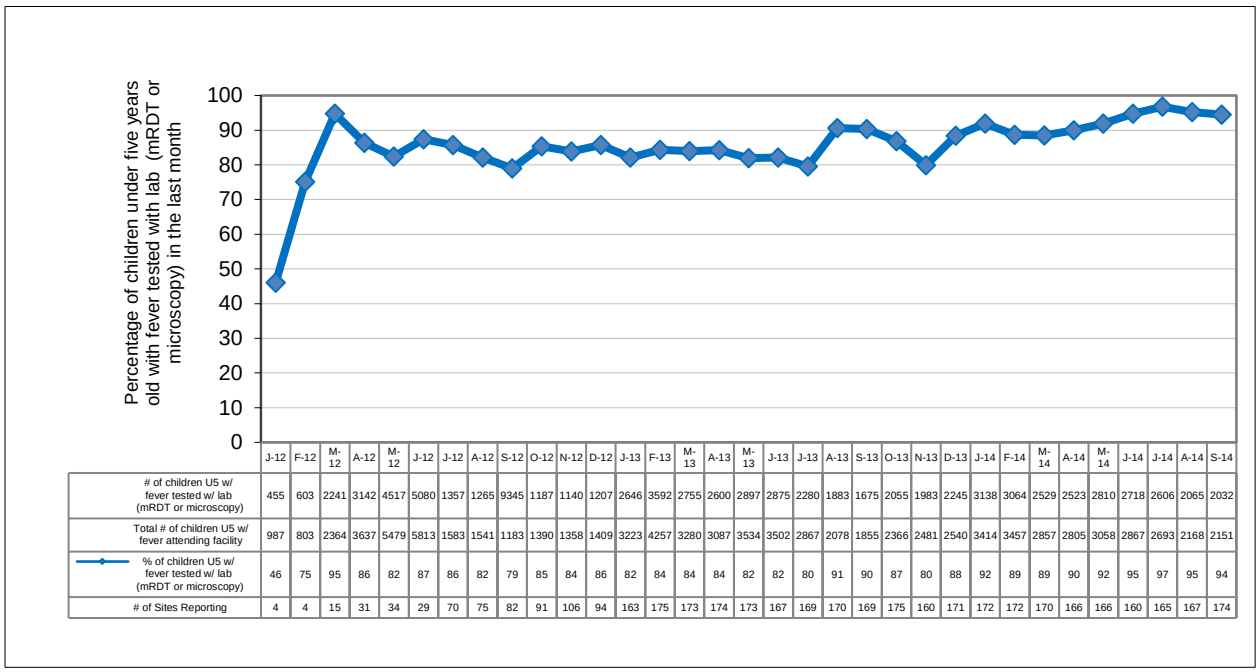
[6] Kalokola F, Lugangira K, Ikonje A, Msangi N. 2014. Recommendation for improving health facility diagnosis and treatment of children under five years of age with severe febrile illnesses in the Lake Zone of Tanzania. Technical Report. Published by the USAID Diagnosis and Management of Severe Febrile Illness Program (Tibu Homa). Bethesda, MD: University Research Co., LLC (URC)

Figure 2: % of children U5 with lab (mRDT/Microscopy) confirmed malaria who received treatment with anti-malarial according to National Policy in Mwanza, Mara and Kagera, Jan 2013 – Sept 2014



Source: Annual Report, USAID Cooperative Agreement Number, 621-A-00-0011-00, October 2013-September 2014, dated: November, 2014

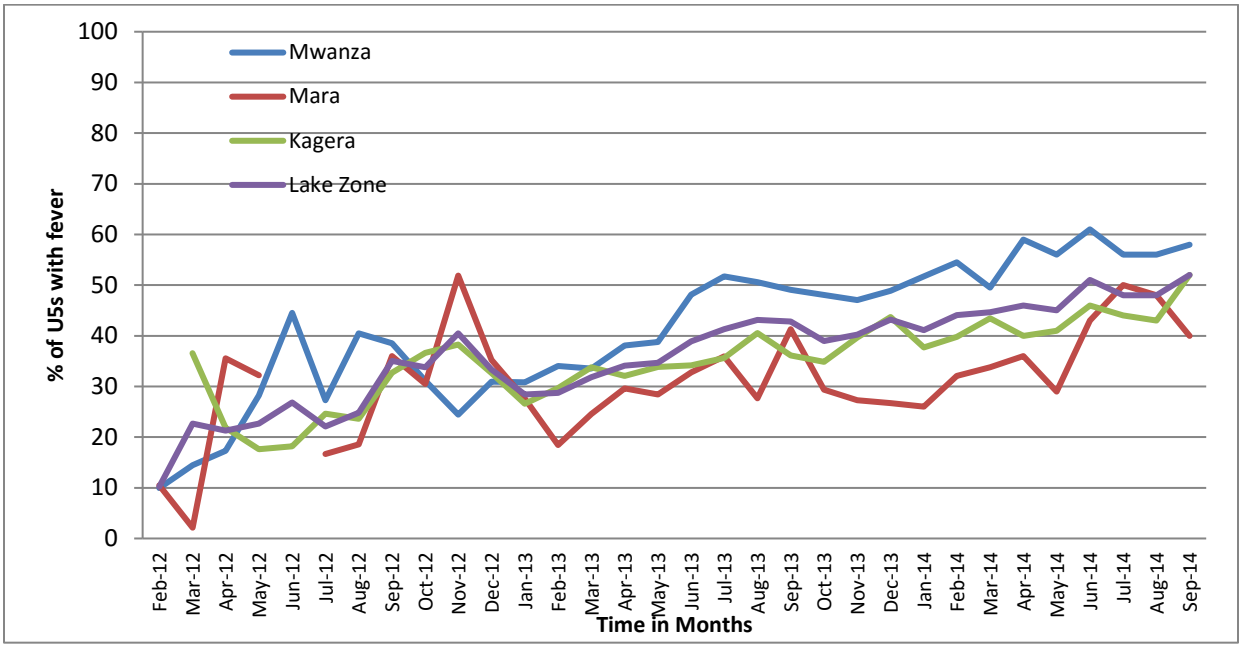
Figure 3: Percentage of children under five years old with fever tested with lab (lab (mRDT or microscopy) in the last month in 175 initial sites in sites in Mwanza, Mara and Kagera Regions in Tanzania, Jan 2012 – Sept 2014



	J-12	F-12	M-12	A-12	M-12	J-12	J-12	A-12	S-12	O-12	N-12	D-12	J-13	F-13	M-13	A-13	M-13	J-13	J-13	A-13	S-13	O-13	N-13	D-13	J-14	F-14	M-14	A-14	M-14	J-14	J-14	A-14	S-14
# of children U5 w/ fever tested w/ lab (mRDT or microscopy)	455	603	2241	3142	4517	5080	1357	1265	9345	1187	1140	1207	2646	3592	2755	2600	2897	2875	2280	1883	1675	2055	1983	2245	3138	3064	2529	2523	2810	2718	2606	2065	2032
Total # of children U5 w/ fever attending facility	987	803	2364	3637	5479	5813	1583	1541	1183	1390	1358	1409	3223	4257	3280	3087	3534	3502	2867	2078	1855	2366	2481	2540	3414	3457	2857	2805	3058	2867	2693	2168	2151
% of children U5 w/ fever tested w/ lab (mRDT or microscopy)	46	75	95	86	82	87	86	82	79	85	84	86	82	84	84	84	82	82	80	91	90	87	80	88	92	89	89	90	92	95	97	95	94
# of Sites Reporting	4	4	15	31	34	29	70	75	82	91	106	94	163	175	173	174	173	167	169	170	169	175	160	171	172	172	170	166	166	160	165	167	174

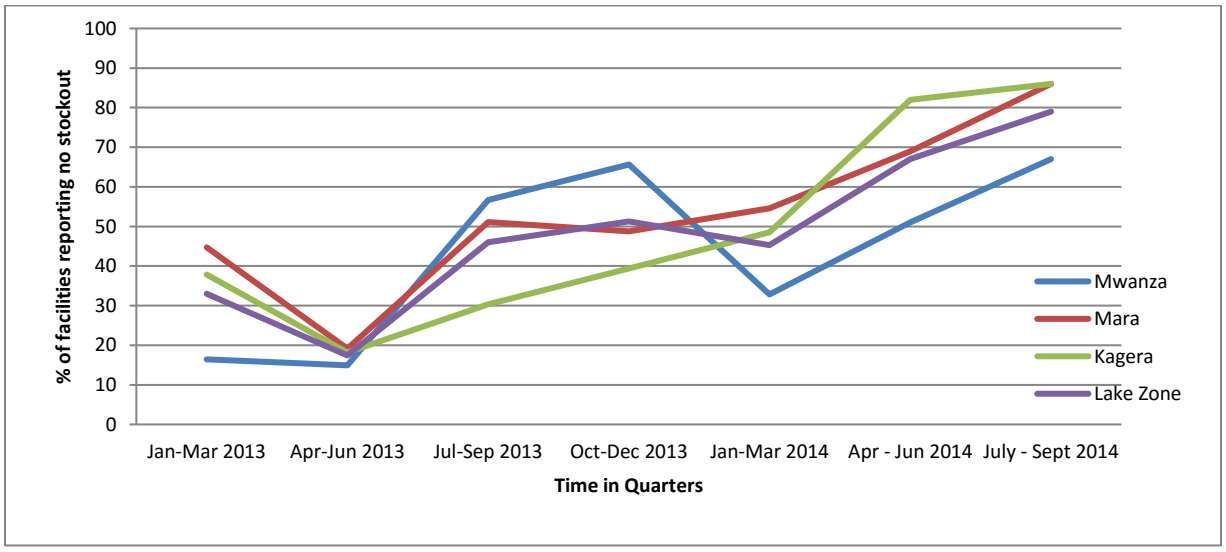
Source: Annual Report, USAID Cooperative Agreement Number, 621-A-00-0011-00, October 2013-September 2014, Dated: November, 2014

Figure 4: % of children U5 with fever attending facilities seen by skilled provider within 24 hours of onset of fever in Mwanza, Mara and Kagera, Feb 2012 - Sept 2014



Source: Annual Report, USAID Cooperative Agreement Number, 621-A-00-0011-00, October 2013-September 2014, dated: November, 2014

Figure 5: % of facilities reporting no stock out of key commodities (mRDTs and ACTs) in Mwanza, Mara and Kagera, Jan 2013 - Sept 2014



Source: Annual Report, USAID Cooperative Agreement Number, 621-A-00-0011-00, October 2013-September 2014, dated: November, 2014

The approaches introduced by the THP and which brought about these results need to be recognized and their implementation adopted by the MoHSW to improve case management at facility level. These approaches, if adopted by the MoHSW will promote effective implementation of existing policies that are not being implemented. For example, the national policy requires facilities to use patient records and

follow guidelines but in practice this does not happen due to lack of materials and supervision. The recommendations for improving case management at facility level include a built-in approach for tracking progress and ensuring that these policies are followed.

D. PROPOSED STRATEGIES AND APPROACHES

The data collected to date, based on the work that has been led by the THP and supported by its partners i.e. the regional and council health management teams in six regions of the Lake Zone, show clearly that the interventions have equipped HCWs and managers with clinical and management skills that have improved the diagnosis and management of severe febrile illness in children under five years of age. It also shows that community leaders and caregivers have received and are responding to the message about seeking care promptly for their under-fives with fever[7]. Based on this evidence this paper advocates for the national adoption of four key approaches to improve the delivery of health services for children under five years of age:

Create and define Pediatric Quality Improvement Teams at each Health facility

Recognizing the shortage of health resource manpower, especially at the lower level health facilities (HF), THP experience shows that training two to three facility health workers in case management (including facility level supply chain management) using a quality improvement approach, greatly improves service delivery to under-fives. This is achieved when the trained facility health workers form a multidisciplinary team at the health facility level and test and implement changes that bring about improvements. MoHSW can roll out PQIT implementation by applying the recommendations for improving case management at facility level.

Testing and implementing changes to patient flow charts, pediatric outpatient department (OPD) and support services, adjustments in inpatient department (IPD) services and attention to correctly filling out and submitting medical supply forms has reduced the time taken to see under-fives at facilities. This is evidenced by the indicators data shown in the figures above.

Comprehensive supportive supervision and mentorship

Comprehensive supportive supervision and mentorship (CSSM), supported by clinical and supply chain management mentorship to facility staff greatly improves performance. CSSM results when it ensures availability of guidelines to facility staff, routine case reviews/presentations, routine death audits and monitoring of compliance to standard guidelines. The skills improvement through training in supply chain management when supported with regular supportive supervision and clinical mentorship visits by R/CHMTs, is critical not only for improving compliance to standard case management guidelines but for maintaining of stocks of essential medicines at facility level.

During implementation, the Tibu Homa team learnt that facilities with consistent poor availability of medicines and supplies tend to be poor performers in a) documentation of consumption data, b) correct use of the consumption data, and c) timely submission of Reporting & Request (R&R) forms. To address these, Tibu Homa conducted a three month logistic mentorship[8] to health care workers at these facilities. The mentorship had a special focus on proper documentation of consumption data, use of such data in requesting supplies, the importance of timely submitting Reporting & Request forms, and proper storage of medicines and supplies. The proportion of facilities whose health care workers properly documented consumption data improved from 39% (first visit) to 94% (third visit), as a result of mentorship in proper filling of dispensing registers, stores ledgers, and patient registers. Likewise, the proportion of facilities correctly using consumption data (from dispensing registers, store

[7] Cooperative Agreement Number 621-A-00-0011-00, Annual Report , October 2013-September 2014, November, 2014

[8] Msangi, N., Mkumbo. & Bajile M. (2015) The Tibu Homa Intensive Logistic Mentorship Report

ledgers, and patient registers) and properly filling Reporting and Request forms (R&R) increased from 0% (first visit- baseline) to about 56% (third visit).

The Tibu Homa team monitored the progress in the availability of medicines and supplies in some of these facilities after the three months intense logistic mentorship. After the introduction of logistic mentorship at Runazi and Nyakitono dispensaries in April 2013, the number of tracer items on the day of the visit consistently increased from only seven (7) in March 2013 to sixteen (16) in March 2014 and from nine (9) in March 2013 to sixteen (16) in March 2014, respectively.

Collecting and using data at facility level

Facilities were considered to be using data to make decisions if they met the following criteria:

i. Planning worksheet with set-up objectives for improvement in place
ii. Indicators are defined for monitoring the improvement objective
iii. Targets are set for each defined improvement indicator
iv. Actions are taken to address problem issues and obtain a change

Improving data collection at the facility level and ensuring that such data is used by the facility for planning and improving its performance contributes significantly to improved service delivery. This is most effective when health facilities ensure and allow for innovation in the HMIS to collect other useful data. In the case of diagnosis and management of severe febrile illness this would include collecting data on fever.

Comprehensive Supportive Supervision and Mentorship visits encourage the PQITs to continue to optimize improved practices in data collection and use. THP supported health facilities (116) visited in the period October- Dec 2014 were found to have improved patient information documentation and performance monitoring and reporting:

- PQITs in Simiyu Region collecting and using data for decision making were 77%.
- Overall improvements on the standard HMIS improved the collection of data that was otherwise absent i.e. information on fever and fever duration, malaria testing and results.
- The use of this data for decision making improved from 46% Jan 2013 to 65% Sep 2014.

Resource Mobilization

Mobilizing resources at the regional, council and facility level to support improvements in health services is weak and this negatively impacts on improvement of services at facility level. There is no culture of practice among health managers at this level to seek funding outside the official GoT funding through the MoHSW. This leads to missed opportunities to garner support from organizations such as private sector companies with corporate social responsibility budgets. A policy that encourages mobilization of resources at this level can be improved beginning with encouraging councils and facilities to seek additional funding and by reforming the structure, functioning and management of the community health fund.

E. RECOMMENDATIONS

General:

With the exception of the “Resource Mobilization” approach described above, all other approaches implemented by Tibu Homa are included in the recommendations to improve case management that MoHSW should consider adopting as described below.

1. That the MOHSW adopt the “recommendation for improving diagnosis and management of severe febrile illness in children under-five years of age” and promote its use by health facilities nationwide

2. Based on experience the THP Program recommends that these be implemented as a combination of a) improvements in facility HCW skills in case management, b) supply chain management and c), in management and use of data
3. Although national policy already provides for it, the MoHSW should enforce the establishment of multi-displinary pediatric quality improvement teams at each health facility. At the lower level facilities, with limited staff, all staff can be members of an improvement team.
4. THP recommends that skills improvement be a combination of classroom training and comprehensive supportive supervision and mentorship at facility level.
5. R/CHMTs should adopt recommendations and take up the practice to train and mentor health facilities to implement them.
6. Approaches that produce results which encourage caretakers and communities to bring under-fives to health facilities within 24hrs of onset of fever should be developed into a framework that can guide Health Facilities and R/CHMTs to continue to pass the message.

Specific Recommendations:

MOHSW should aim to ensure the following specific changes in the national policy to improve services for under-fives:

A. Case Management

a. Continuous Medical Education and on the job training
    i. Routine case reviews/presentation
    ii. Routine death audit
    iii. Internal mentorship and Supportive supervision
    iv. Availability of Materials for continuous medical education (i, ii, iii above)

b. Ensuring Compliance Standard Case Management Guidelines (STGs)
    i. Availability of STGs
    ii. Making use of STGs
    iii. Monitoring Compliance to STGs

c. Infrastructural Support
    i. Organograms especially for referral hospitals
    ii. Appropriate building structures to support efficient patient flow
        1. Emergency care services (ETAT)
        2. Pediatric OPD and support services (lab, dispensing, records etc.)
        3. Pediatric IPD to handle General cases, Infectious diseases, Malnutrition, neonatal care etc.)

d. How and where should the Newborn/neonate be handled (Obstetrics/Pediatrics)

B. Supply Chain Management

a. Adoption and inclusion of logistic mentorship as an essential intervention of facility level strengthening of Supply Chain Management (SCM)
b. Country-wide capacity building of logistic mentors (District Pharmacists, District Laboratory Technologists, and District Reproductive and Child Health Coordinators) on how to properly mentor facility workers focusing on documentation of consumption data, use of this data in pulling stocks, and Inventory Management
c. Conduct a consistent & intensive logistic mentorship to poorly performing facilities to build their capacity in planning for ordering appropriate quantities and timing of stocks

C. Logistics Mentorship

a. Ensure presence/availability of at least three logistic mentors at the District level with duties coordinated by the Regional Pharmacist
b. Logistic mentorship be conducted during supportive supervision visits. Exercise intensified in case there are poorly performing facilities
c. Include logistic mentorship in a comprehensive supportive supervision and mentorship (CSSM) tool
d. Improving communication and reducing pilferage
e. Establish Regional Logistics Working groups to improve communication among supply management stakeholders (Facilities, Districts, Region and the Medical Stores Department (MSD)/suppliers)
f. Establish Medicines Audit Committees for better management of the available resources
g. Ensure functional Medicines and Therapeutic Committees

D. Health Management and Information System

a. Availability of Patient files
b. Including quality improvement (QI) indicators
c. Ensuring availability of Data quality and use at all levels
d. Allowing for incorporation of innovations such as additional columns for information on fever, duration of fever and orphans and vulnerable children (OVC) status in the next updates of the Health Management and Information System (HMIS) registers while still allowing health facilities to continue to use these innovations in the current HMIS registers in the meantime.

F. CONCLUSION

THP concludes that when a national policy is available to support R/CHMTs and facility managers to acquire skills in resource mobilization, maintain comprehensive supportive supervision and mentorship, we can expect a paradigm shift enabling more regional, council and health facilities teams to be more effective in delivery of services. THP has shown that health workers tend to improve in areas a) in areas where they are consistently mentored, b) when proper documentation provides reliable consumption data for forecasting & quantifying the needed medicines and supplies.

The paradigm shift process can be greatly enhanced by MoHSW speeding up the implementation of the Tanzania Quality Improvement Framework (TNQIF)[9]. The results of the THP show that Healthcare Workers (HCWs) including clinicians can change their practices in diagnosis and treatment when constantly mentored and when this is accompanied by clear evidence of improved changes[10].

[9] The Tanzania Quality Improvement Framework in Health Care; ISBN: 978-9987-737-00-0; 2011 – 2016, October 2011
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