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Quality Improvement for Maternal and Newborn Health at District-Scale Mtwara Region, Tanzania (QUADS)

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National Level MOHCDGEC/ PORALG Dissemination

Dodoma

August 19, 2020

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The challenge

- In Tanzania, 98% of women attend ANC (at least once) BUT, a few receive the basic services for maternal care
- Hb test, BP checks, Syphilis tests (coverage data has limitations)

- Newborn life saving kits – less available in primary facilities, few in district hospitals

- Community utilization of services is limited
- Less adherence to referral, limited emergency transport
- Low early booking for ANC for pregnant women

The intervention for maternal and newborn health

- We implemented a multi-level quality improvement initiative that synergizes QI activities at the district, facility and community level

- Conceptualization: Software part of the health system "to make hardware functional"
- **Hardware**: - Interventions to tackle access barriers
  - Human resource, financing, governance, service delivery, information system and technology & procurement
- **Software**-values-driven & dedicated health professionals
  - Personalities, interactions,

IMPLEMENTATION SITES

- Start date and project duration:
- October 2015; 5 years

- Mtwara region

- Four districts:
- Newala Town Council
- Tandahimba District
- Masasi District Council
- Masasi Town Council

Quads Objectives

Get quality services to clients and improve data collection and timely use

Through implementation of systems-wide quality improvement (QI) at community, health facility and district led by regional health managers, integrated into pre-existing government structures

Specific Objectives – to improve SUPPLY & DEMAND SIDES

- To build the capacity of 3 levels to understanding & use Quality Improvement skills to improve the quality of Maternal and newborn health services
- To improve the demand and utilization of MNCH services in the community

Implementation of QUADS

1) Trainings on Quality Improvement included mentoring and coaching techniques at district, health facility and community levels
   - Regional managers were oriented and engaged to support district-level QI
   - Council Health Management Teams (CHMT) oriented to support facility-level QI
   - District Community Development Officers (DCDO) were oriented to support community-level QI.
   - Health facility staff oriented and trained to implement QI processes in their daily tasks and to support community QI
   - Community leaders to apply QI and to support volunteers

2) Root cause analysis was used to prioritize topics to improve in MNCH

- Utilized local data during learning sessions, regional and district level determined topics the quality standards to improve
- Change idea was introduced at each level simultaneously to address both demand & supply

3) QI teams tested and implemented change strategies

Then performed monitoring and evaluation

Support systems for QUADS Implementation

- Learning sessions conducted quarterly
  - Served as a platform for feedback from QI teams
  - Brainstorming and introducing/altering QI methodologies
- QI packages were created and scaled-up at district level
- District health management teams supervised the implementation at facilities
- At the village level, members of health facility QI teams are invited to attend community-level learning sessions.
  - Village executive officers (village leaders who are in an elected role and hired by the government) supervise community volunteers, and local health facility staff provide technical support to their QI work

ANC: Illustrative Change Topic

Change Topic	Suggested Causes	Suggested QI/Change Idea
Antenatal care (ANC) : Improving low coverage of 4+ANC visits	• Missing key ANC services (e.g. Urine tests, pregnancy test etc.) • Lack of Hb machines in labs • Poor record keeping and poor completeness of data entry in health facilities. • Low community knowledge of importance of regular and timely ANC. • Low male partner cooperation for ANC visits mainly due to expectation of HIV testing	**At district level:** • Regular ordering of essential tests and machines by districts pharmacists. • Tracking of stock levels status for distribution of testing materials among facilities by the region • Strict supervision and follow-up on data completeness by CHMT and HIS teams. • More education to facility health workers on importance of complete record keeping and data auditing • Follow-up and supervision of health facility lessons and village meetings **At facility level:** • Tallying forms for ANC visits completed by registers to monitor number of ANC visits for each woman. • Regular education in the facility and during village meetings (or any other health promotion sessions) on the importance of ANC • Daily monitored meetings for all staff to check on data completeness. **At community level:** • Outreach to mothers in HHs or during village meetings to deliver health

Other Change Topics

- ANC referral obedience
- Improving quantity and quality of PNC
- Active management of third stage of labour (AMTSL)
- Newborn resuscitation
- Infection prevention and control (IPC)
- Immediate breastfeeding
- Management pre-eclampsia and eclampsia

ANC SERVICES RECEIVED

Variable	Before intervention (N=285)	After intervention (N=400)	p-value
Information provision			
Received counselled on danger signs/eclampsia/pre- eclampsia	203 (71.2)	299 (74.8)	0.304
Drugs distribution			
Provision of essential supplements- deworms, FEFO, SP	271 (95.1)	383 (95.8)	0.681
Clinical examination			
Checked BP	173 (60.7)	350 (87.5)	< 0.001
Checked temperature	70 (24.6)	129 (32.3)	0.029
Checked weight	270 (94.7)	391 (97.8)	0.035
Laboratory services			
Checked blood for syphilis	225 (79.0)	361 (90.3)	<0.001
Checked urine protein	69 (24.2)	238 (59.5)	<0.001
Checked HB	93 (32.6)	297 (74.3)	<0.001

PNC SERVICES RECEIVED

Variable	Before intervention (N=284)	After intervention (N=363)	p-value
Information provision			
Counseled on exclusive breast feeding	136 (47.9)	243 (66.9)	<0.001
Counseled where to go for PNC	215 (75.7)	310 (85.4)	0.002
Counselled on neonatal danger signs	117 (41.2)	205 (56.5)	<0.001
Drugs distribution			
Received vitamin A after delivery	150 (52.8)	163 (44.9)	0.046
Received FEFO after delivery	86 (30.3)	137 (37.7)	0.048
Clinical examination			
Checked for breast condition	132 (46.5)	180 (49.6)	0.432
Checked if the uterus is well contracted	119 (41.9)	216 (59.5)	<0.001
Checked vaginal bleeding / lochia	129 (45.4)	239 (65.8)	<0.001

Community effectiveness-Routine data

To understand the effectiveness of the scaled-up QI on MNH interventions

- *A difference-in-difference analysis of routine data, using linear regression using Stata 15*

- QI does have impact on maternal and newborn health outcomes
  - In facilities where scaled-up QI was implemented, pregnant women attended their first ANC visit earlier and a greater number attended four or more visits;
  - and fewer women suffered eclampsia at any point during pregnancy/delivery or Premature Rupture of Membrane
  - However, fewer newborns were resuscitated using stimulation or bag-and-mask

Quality improvement skill is empowering

QI is empowering leaders at district level, in facilities and community "champions"

– there is appreciation

"… formerly I didn't know my responsibility. But through this QUADS, I have recognize my responsibility as a member of community and as a government representative. … I have recognize the importance of health, it means they have opened me. There is a place which I was not aware, but they have very well made me to understand. .. in meetings in groups or village meetings, I talk confidently. I real feel good after the trainings taught by QUADS to me". ***(VEO, #02, NTC)***

Synergy study 2 – data on quality of care

- Progress in maternal and newborn health outcomes in low-income countries has been slow.
  - Primary reason might be poor quality of facility care
  - Quality of data does not show reality
- Significant progress has been made in the **availability of information on coverage of essential services** in low and middle-income countries.
- However, there is inconsistent data available on the quality of care; maternal and newborn care included

Challenge in quality data

- We are often aware of the **quantity** of care provided, but not the **quality** of this care particularly around labour and delivery care
- This missing data prevents the creation of effective, context-specific strategies to support improvements in maternal and newborn care.
- Further, there is lack of the capacity to fully use this data

Research focus

- In QUADS2, we worked to improve the quality of health management information system (HMIS) data, through:-
  - ***Emphasis on collection of data on quality of care***
  - ***Establishing a culture around data collection and use***

Through

- Developing a measure of the quality maternal and newborn care
- Active engagement of health managers in understanding and routine use of data to improve maternal and newborn quality of care.

QOC indicators

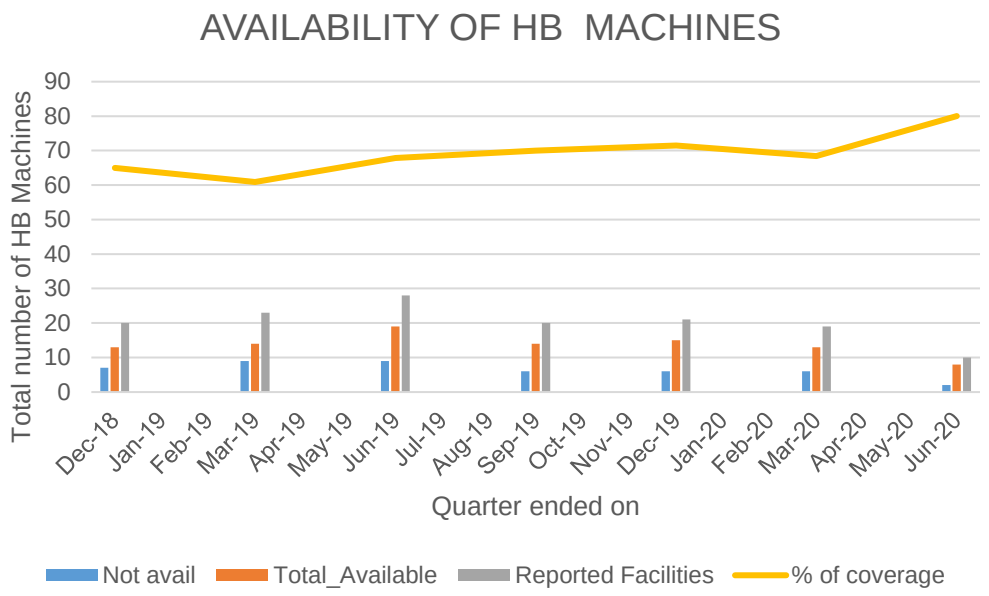
- Based on WHO indicators of QOC for MNH framework
- ANC Labor and Delivery, PNC, IPC

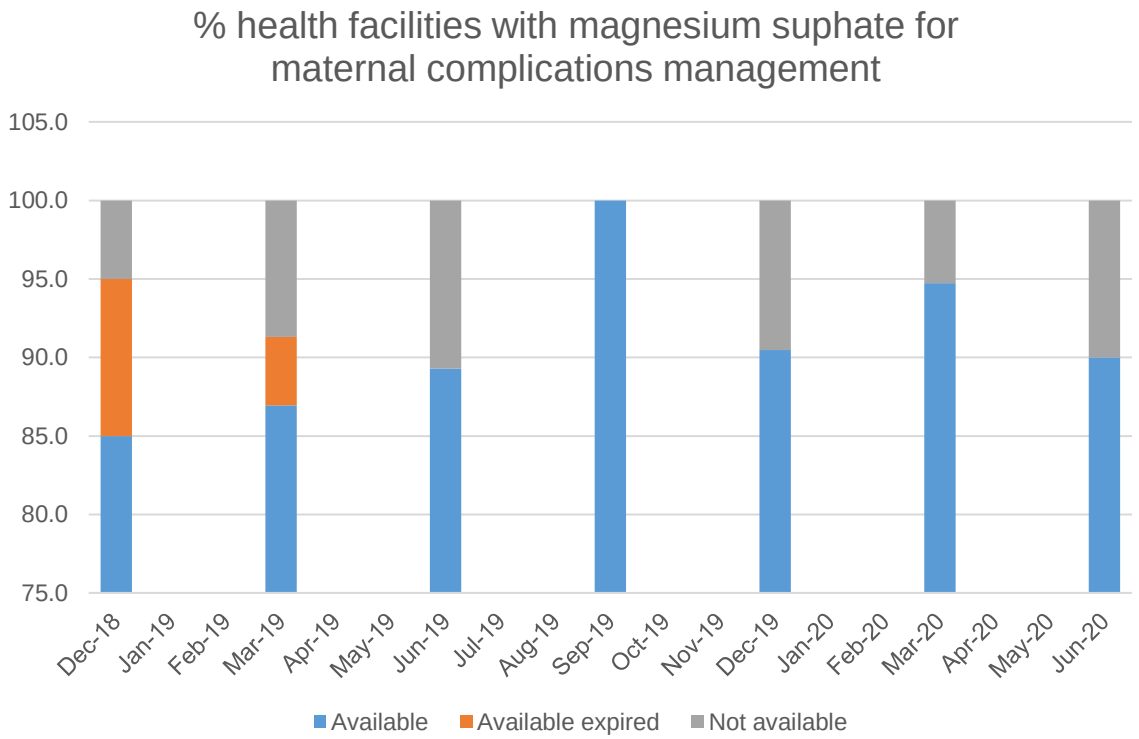
Areal	Data content	Collection duration
ANC, PNC, Labor, IPC	Availability of essential Drugs, equipment, supplies, Trainings, Supervision	Baseline, Quarterly
ANC, PNC, Labor	All clients attended	Monthly

Synergy - Findings

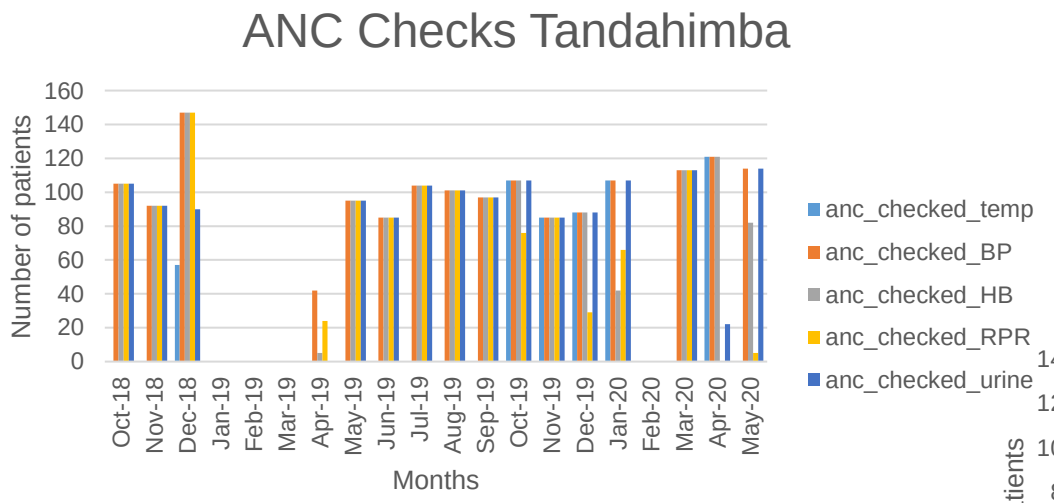
- Health workers are using electronic tool to collect high-quality data that are then used to inform planning & implementation
- The teams are applying quality of care reports on dashboard to improve provision of quality care for maternal and newborn
- Decisions are made based on these analyses leading to actions –a culture of data collection and use at all levels.

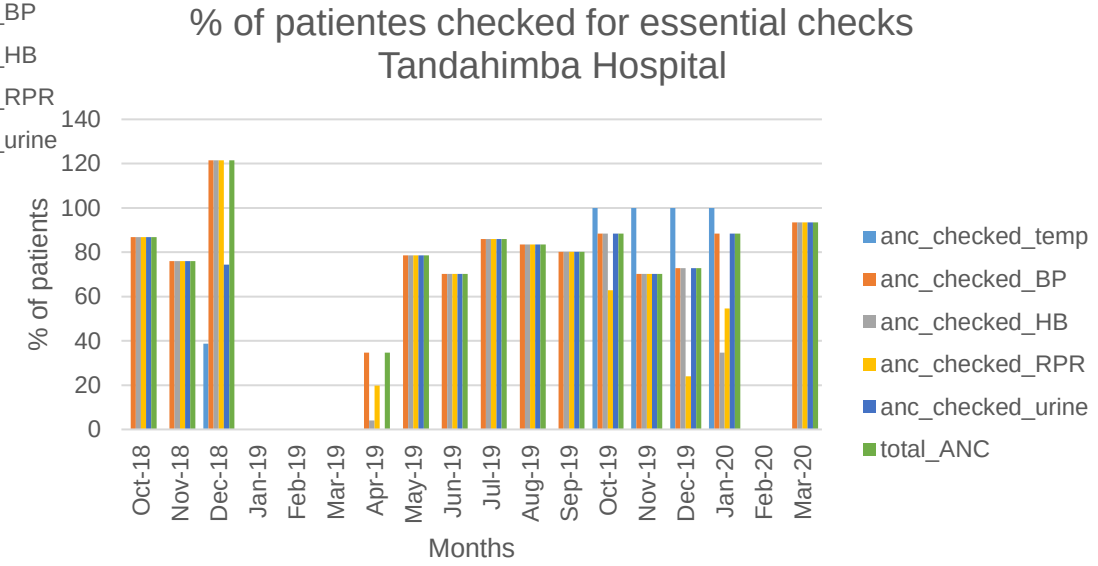
Results


AVAILABILITY OF HB MACHINES
Total number of HB Machines
90
80
70
60
50
40
30
20
10
0
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Jun-20
Quarter ended on
Not avail
Total_Available
Reported Facilities
% of coverage


% health facilities with magnesium suphate for maternal complications management
105.0
100.0
95.0
90.0
85.0
80.0
75.0
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Jun-20
Available
Available expired
Not available

Results


ANC Checks Tandahimba
Number of patients
160
140
120
100
80
60
40
20
0
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Apr-20
May-20
Months
anc_checked_temp
anc_checked_BP
anc_checked_HB
anc_checked_RPR
anc_checked_urine


% of patientes checked for essential checks Tandahimba Hospital
% of patients
140
120
100
80
60
40
20
0
Oct-18
Nov-18
Dec-18
Jan-19
Feb-19
Mar-19
Apr-19
May-19
Jun-19
Jul-19
Aug-19
Sep-19
Oct-19
Nov-19
Dec-19
Jan-20
Feb-20
Mar-20
Months
anc_checked_temp
anc_checked_BP
anc_checked_HB
anc_checked_RPR
anc_checked_urine
total_ANC

Lesson learned…1

- QI does have impact on maternal and newborn health outcomes
  - In implementation areas, pregnant women attended their first ANC visit earlier and a greater number attended 4 or more visits
  - Provision of quality services significantly improved at ANC & PNC and fewer women suffered eclampsia
  - But, fewer newborns were resuscitated using stimulation or bag-and-mask
- QI was empowering - for leaders at district level, health workers in facilities and community "champions"
  - Appreciations were documented
- Stakeholder ownership of change ideas and innovative ways to scale-up
  - Not told what to do but guided to find a way out

Lessons learned…2

- Health workers are capable of using electronic tool
- Good access to the electronic dashboard despite their remoteness
  - Internet is recently not an issue
- Using dashboard, facilities are able to quickly understand their data
  - Completeness, can assess trends and identify areas that require actions to improve the quality of care provision

Lesson learned…3

- Quality of services is the heart of better health outcomes
- Quality improvement skills sharpens managers analytical capabilities and data-led decision making
  - To effectively identify gaps & implementation barriers, develop strategies to address
- QI enhances accountability in service delivery to improve quality care provision & in community systems to improve care utilization
- QI skills help health facility leadership review and reflect on performance using local data and take timely actions to address operational barriers
  - Could be used in MPDSR, in tackling stock-outs of essential drugs, improves availability of equipment, getting quality services to clients for high utilization
- Through QI emphasis, maternal health became permanent agenda in village meeting

Application of the Innovations

- Incorporate quality improvement skills at all health care provision levels -in-service training, be part of job description, a specific unit
  - To sharpen analytical capabilities to identify implementation gaps towards data-led decision making
- Encourage application QI skills – to help review and reflection on performance using local data and take timely actions to address implementation and operational barriers
  - Could be used in MPDSR, in tackling stock-outs of essential drugs and services, improving availability of equipment
- Key indicators of quality to be incorporated in DHIS2 to increase thirst on quality not only only coverage "quantity"
- QI taken as permanent agenda for improved MNCH in Tanzania

Acknowledgement

This work was done with the aid of a grant from the Innovating for Maternal and Child health in Africa Initiative - A partnership of Global Affairs Canada (GAC), The Canadian Institutes of Health Research (CIHR) and Canada's International Development Research Center (IDRC).