PUBLIC HEALTH FOUNDATION OF INDIA
Ramalingaswami Centre on Equity and Social Determinants of Health

ASHA KIRANA: A Tool for Safer Pregnancy

A Status Report

2017

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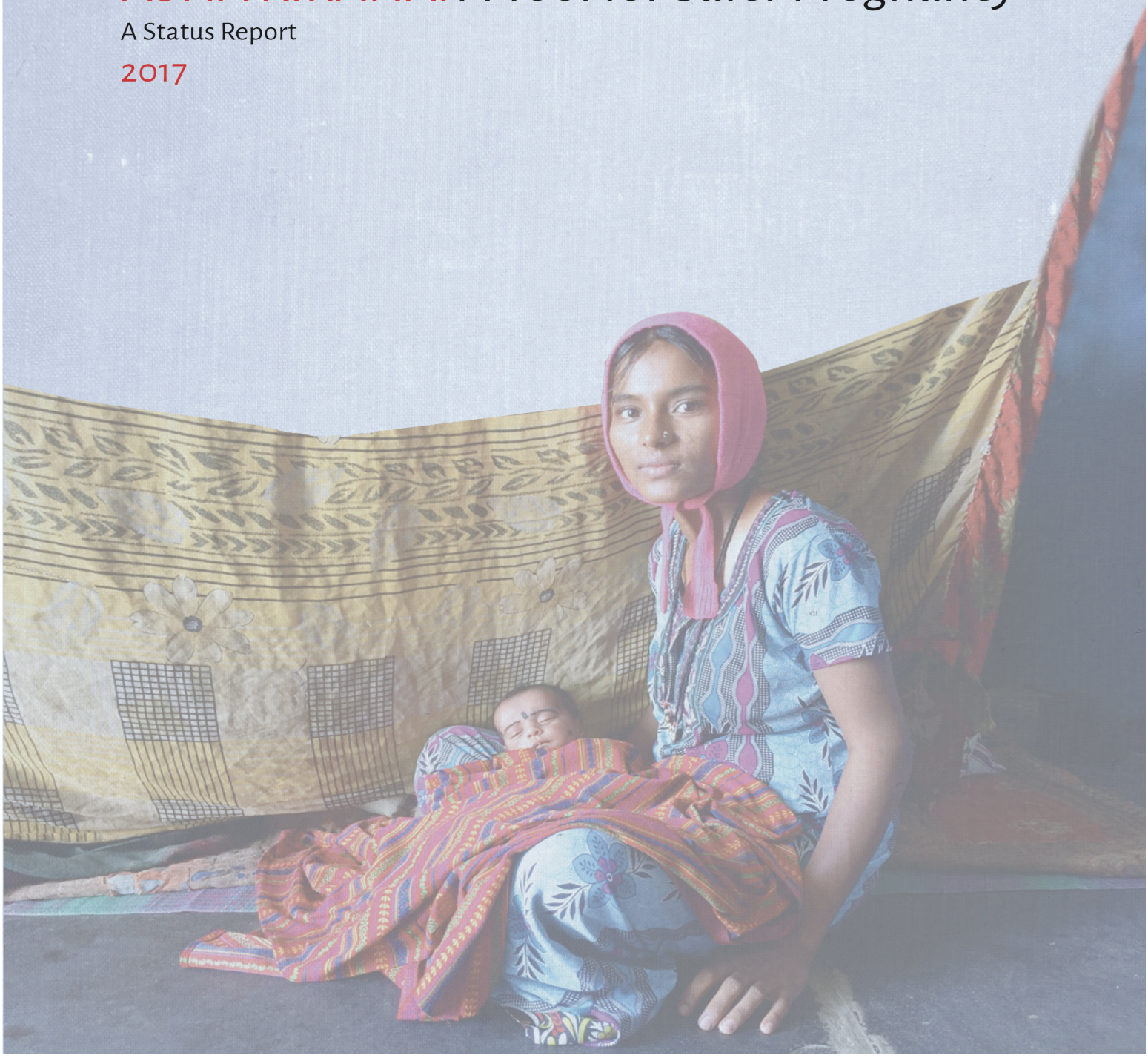

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Foreword

This report presents work done by the Research and Implementation Team at the Ramalingaswami Centre on Equity and Social Determinants of Health on improving maternal health in poor rural areas.

The team has been working in Koppal district, northern Karnataka, for the last 17 years with communities and the public health system to facilitate improved services, access and equity.

This report is based on an ongoing project that builds the capacities of ASHAs to support better clinical assessment of pregnant and postpartum women. It combines the work of ASHAs with a computerised algorithm to generate case sheets for the Medical Officers in PHCs as well as reports for ongoing Monitoring and Evaluation.

We have benefitted from the support of the National Health Mission, Karnataka and the National Health Systems Resource Centre, New Delhi.

Gita Sen
Director
Ramalingaswami Centre on Equity
& Social Determinants of Health
Public Health Foundation of India

The Maternal Clinical Assessment Tool:
Proof of Concept Report

Executive Summary

The Maternal Clinical Assessment Tool (M-CAT) was field tested during September 2016 – January 2017, in Koppal district, Karnataka, by the Ramalingaswami Centre on Equity and Social Determinants of Health (Public Health Foundation of India). This work was supported by the National Health Mission (Karnataka) and the National Health Systems Resource Centre (New Delhi).

The M-CAT aims to strengthen clinical assessments during antepartum and the postpartum periods for poor rural women. It is a simple IT- enabled system designed to help Medical Officers (MOs) and frontline health workers (ANMs, ASHAs) identify and manage pregnancy and postpartum risks systematically and quickly. The tool comprises four elements:

- ***A set of forms to be filled by the ASHAs****:* pregnancy registration and visit forms, delivery registration and postpartum visit forms. ASHAS are trained to fill in these forms, which are designed to systematically collect information on symptoms, signs and tests results of pregnancy and postpartum risks, through a set of medically robust and comprehensive (yet parsimonious) questions.

- ***A multi-lingual software application incorporating diagnostic algorithms*** that generates the conditions to be ruled out, based on the data inputted from the forms. The algorithms, which consider clusters of symptoms, signs and test results, was developed by a team of doctors including senior Obstetricians/Gynaecologists.

- ***Computer-generated reports*** including (a) summary risk lists for the ASHAs, ANMs and the MO, (b) medical case sheets for every woman during each PHC visit with initial diagnoses of risk for use by the MO, and (c) data worksheets for researchers.

- ***A systematic process of identifying and managing risks***, including a feedback loop intended to prompt the ASHA/ANM and MO to take timely actions.

A Proof of Concept (PoC) study was conducted at Sanganhal PHC (Koppal district) to assess the *feasibility* of implementing the M-CAT in the public health system in rural areas. Fourteen ASHAs, two ANMs and an MBBS-trained MO participated in the study, along with a project-appointed Data Entry Operator and Link Worker.

A total of 349 pregnant and postpartum women were covered over four successive 30-day cycles between 21 September 2016 and 20 January 2017. A team of researchers continuously monitored and evaluated implementation of the PoC study.

Study findings indicate that the M-CAT strengthened clinical assessments of pregnant and postpartum women in ways that (1) built awareness of risk and of needed action among women and their families, (2) added considerable value to the ASHAs' visits to the homes of pregnant and postpartum women, (3) supported the PHC MO's clinical assessments in ANC clinics which were often crowded, (4) blended into the PHC's structure and schedule of activities, and (5) were acceptable to all stakeholders in the PHC. However, the feedback loop could not be formally closed for two reasons: (1) the ASHAs proactively took women to the PHC or advised them to seek higher levels of care without waiting for the SMS/phone call from the ANM, and (2) women visited facilities other than Sanganhal for diagnostic services or treatment.

Implementation of the M-CAT in Sanganhal PHC revealed the need for corrective actions in (1) the ASHAs' adherence to their schedule of postnatal visits, (2) the ANMs' responsibilities for maternal risk management, 3) the use of tests to identify a wider range of risk conditions, 4) the availability of test kits (urine albumin and RBS), (5) the referral system to make it more systematic and effective.

Before the implementation of the M-CAT, the ASHAs' interactions with women during their regular home visits were unstructured[1]. Even though the NHSRC's ASHA training modules cover much of the content in the M-CAT forms, this information was not used very systematically by the ASHAs. The M-CAT, enhanced and operationalised the ASHAs' training on risk.

[1] The ASHAs tended to provide nutritional and immunisation advice during pregnancy, and to inquire about the baby and breastfeeding in the postpartum period.

A. Introduction

1 Inequality in access to basic antenatal and postnatal care is a serious problem in India. Middle class women, especially in urban areas, receive regular (often monthly) antenatal check-ups and clinical care that keep them healthy through pregnancy. In contrast, poor rural women do not receive anything like the same level of care, even though their needs are usually greater. Data pertaining to rural Karnataka from the National Family Health Survey-4 indicates that in 2015-16, 48.7% of all pregnant women were anaemic (IIPS undated), but just 31.5% of all mothers (whether anaemic or not) received what the survey termed "full antenatal care (ANC)"[2]. The situation is far worse in the poorer belt of northern Karnataka. In Raichur district, for example, as many as 76.9% of all pregnant women had haemoglobin levels below 11 g/dl% (IIPS undated). In neighbouring Koppal district, barely 11.7% received full ANC (IIPS undated).

2 ANC provided at Primary Health Centres (PHCs) often tends to be sub-optimal. The focus is generally on screening for some predisposing factors captured by four out of five "toos" [3], and for a few clinical conditions through diagnostic tests (e.g., measurement of height, weight and BP, plus blood and urine tests). With test kits often unavailable, and test results being haphazardly recorded on "Thayi Cards", clinical assessments during pregnancy tend to be weak and unsystematic. In the postnatal period, programmatic attention shifts to the child, while clinical assessments of the woman fall by the wayside.

3 With the full-scale roll-out of incentives for institutional deliveries by the National Rural Health Mission (NRHM) during the past decade, the numbers of pregnant and post-partum women accessing the rural public health system has grown dramatically. But this has also increased the time and human resource pressures on the system, often leaving the MOs with little time for providing adequate care. This is compounded by the

[2] The NFHS-4 defines full antenatal care as four or more antenatal visits, tetanus toxoid injection(s) and iron folic acid tablets/syrup for at least 100 days.
[3] The four include "too young", "too old", "too short", "too many". Poor spacing ("too soon"), which characterized 45.5% of the pregnancies included in our study, is excluded.

fact that many PHCs have vacancies that are filled by AYUSH doctors with less capacity for handling maternal care.

4 In this context, the Maternal Clinical Assessment Tool (M-CAT) aims to strengthen antepartum and postpartum clinical assessments for the poorer rural sub-groups of childbearing women. It is an individualised response system to the health needs of poor rural women.

5 Specifically, the M-CAT is designed to:

- Strengthen the capacities of the ASHAs (Accredited Social Health Activists) and ANMs (Auxiliary Nurse Midwives) and support the Medical Officers (MOs) of PHCs to assess the clinical needs of pregnant and postpartum women in poor rural communities;
- Expand the current focus on pre-disposing factors to include poor spacing, and include more information about a woman's obstetric and medical history, as well as commonly occurring co-morbidities;
- Enhance the responsiveness of ASHAs, ANMs and MOs to all identified needs.

In doing this, the M-CAT aims to shift the focus from late stage treatment to earlier handling and prevention of complications.

6 This report presents the findings from a Proof of Concept (PoC) study. The objective of the PoC was to assess the feasibility of implementing the M-CAT in the public health system in rural areas. The PoC study needs to be followed by studies of feasibility and acceptability on a larger scale, and of effectiveness of the tool.

B. What is the M-CAT?

- M-CAT is a simple, easy-to-use, semi-automated tool for identifying and managing pregnancy and postpartum risks.
- It comprises a set of forms to record symptoms; a multi-lingual software application incorporating diagnostic algorithms; computer-generated risk reports; and a systematic process for identifying and managing risks, including a feedback loop.

7 The M-CAT is an IT-enabled system that is simple, objective, easy-to-use, symptom-based and semi-automated. It has four major components:

- ***A set of forms to be filled by the ASHAs****:* registration and pregnancy visit forms; delivery registration and postpartum visit forms. The forms are designed to collect information on symptoms, signs and test results of pregnancy and postpartum risks through a set of medically robust and comprehensive (yet, parsimonious) questions.

- ***A multi-lingual software application incorporating diagnostic algorithms*** that generates conditions to be ruled out, based on the data inputted from the forms. The algorithms consider clusters of symptoms, signs and test results instead of single or non-specific indications. These were developed by a team of doctors, which included senior Obstetricians/Gynaecologists.

- ***Computer-generated reports*** including (a) summary risk lists for the ASHAs, ANMs and the MO, (b) medical case sheets for every woman during each PHC visit with initial diagnoses of risk for use by the MO, and (c) data worksheets for researchers.

- ***A systematic process of identifying and managing risks***, including a feedback loop intended to prompt the ASHA/ANM and MO to take timely actions.

B.1 Forms and processes[4] of the M-CAT

8 The forms were developed with the following inclusion and exclusion criteria:

- Inclusions: All common clinical conditions requiring early treatment that can be deduced from symptoms and/or simple tests. Drawing from a handbook for health practitioners who work in C category districts,[5] as well as discussions with expert obstetricians, three sets of conditions were identified:
  - *Obstetric conditions:* Abortion, ectopic pregnancy, anaemia, pregnancy induced hypertension, antepartum haemorrhage, intrauterine death, premature rupture of membranes, postpartum haemorrhage, sepsis, mastitis and breast abscess;
  - *Co-morbidities:* Pulmonary tuberculosis, malaria, urinary and reproductive tract infections;
  - *Medical history:* diabetes, chronic hypertension, heart disease, thyroid dysfunction

- Exclusions:
  - Conditions that can be detected only after detailed probing (e.g., domestic violence, postpartum depression, postpartum psychosis);
  - Diseases that can be diagnosed only through sophisticated tests (e.g., cortical venous thrombosis);
  - Diseases for which patient confidentiality is paramount (e.g., HIV, Hepatitis B);
  - Diseases that do not have serious consequences for the mother (e.g., TORCH infections - Toxoplasmosis, Other, Rubella, Cytomegalovirus, Herpes simplex virus)

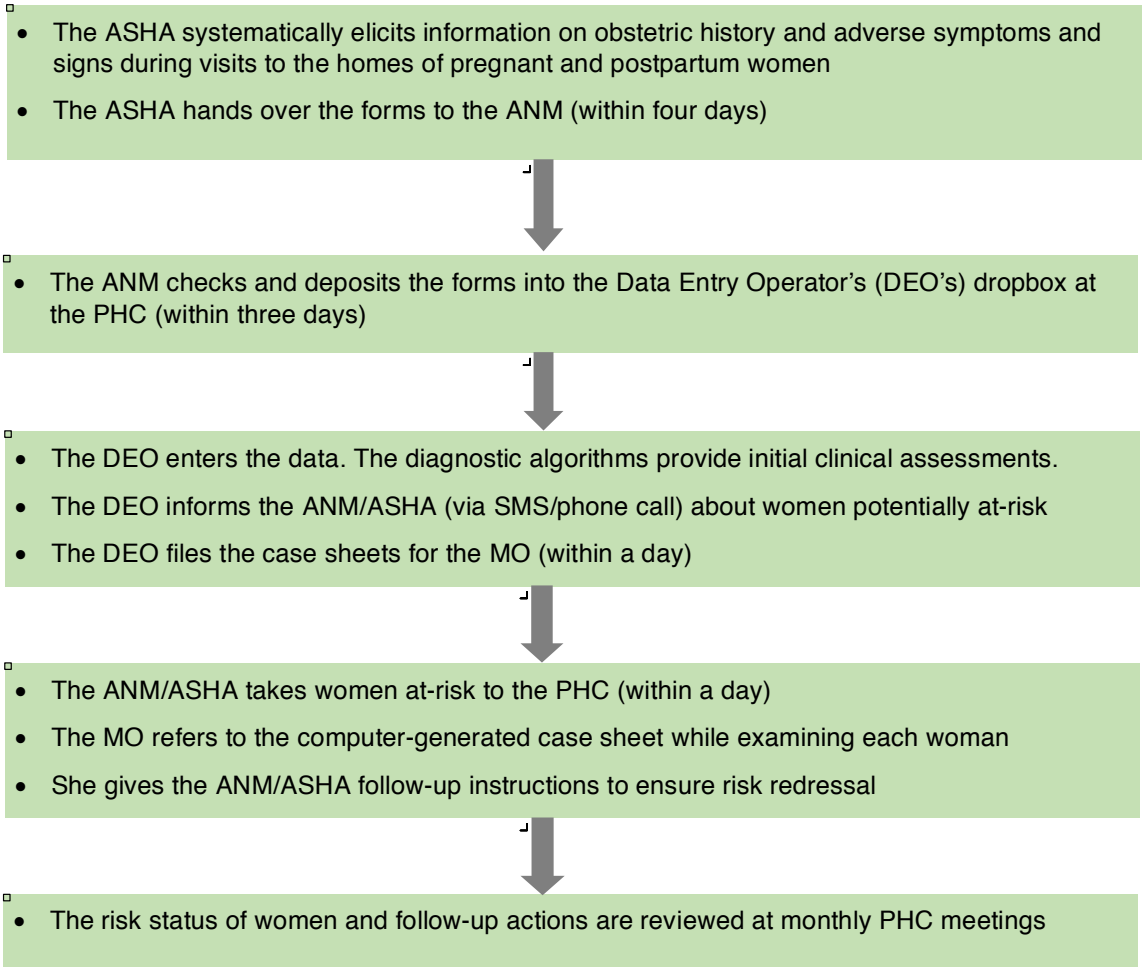
[4] The M-CAT forms and processes were refined in collaboration with Dr. Rajani Ved, Division Head and Advisor, Community Processes and Primary Health Care, National Health Systems Resource Centre, Delhi, and Dr. Shalini Singh, State Programme Manager for UHC Pilots in Karnataka. They were also reviewed by Dr. Rajkumar, DD (RO RCH), Department of Health and Family Welfare, Karnataka.

[5] The medical team for the M-CAT developed this handbook (Gender and Health Equity Project 2015). The handbook demonstrates the use of a cluster approach to diagnose maternal risks in contexts characterized by co-morbidities and social inequity. It is informed by insights gained from a long-standing project on maternal safety and rights in Koppal district, Karnataka.

9 The language used to elicit clinical information is simple, based on the ASHAs' feedback at different stages of the PoC (trial run, training and hands-on training). The medical team carefully vetted the accuracy of language.

10 The offline software application is written in Java and runs on a Tomcat server with a MySQL database.

11 The processes envisaged for the M-CAT are depicted below.



C. Proof of Concept

12 The PoC study was conducted at Sanganhal PHC in Yelburga taluka of Koppal district (Karnataka). The PHC's ASHAs, ANMs and the MO participated in the study.

13 The PoC had two phases:

- *Preparatory phase* during which the forms, processes and training modules were developed, the necessary permissions obtained, and the field site selected;
- *Implementation phase* (21 September 2016 to 20 January 2017) involving M-CAT roll-out with a single-blind assessment of the diagnostic algorithms by a senior Obstetrician-Gynaecologist and on-going monitoring by a Monitoring and Evaluation (M&E) team.

C.1 Field site for the PoC

- The new system of a monthly ANC day made the PHC MO's case load unmanageable and limited the time available for systematic clinical assessments.
- A shortage of urine albumin and random blood sugar testing kits in Sanganhal PHC limited testing for pregnancy induced hypertension and diabetes.
- Prior to M-CAT, the ASHA's visits to the homes of pregnant and postpartum women were unstructured and limited to nutrition-linked IEC.
- Since the ANMs' incentives for risk redressal have not been operationalised, it is unclear who is ultimately responsible for risk follow-up. Maternal risk follow-up was inhibited by a lack of role clarity between ANMs and ASHAs.
- Pregnant women received much more attention from the public health system than did postpartum women.

14 Sanganhal PHC, which serves 14,000 residents of 10 villages through two sub centres, was selected for the study. Our criteria for selection of a functioning PHC included:

- Continued presence of a full-time MBBS doctor for the duration of the study
- No vacancies in ANM positions
- Few (if any) vacancies in ASHA positions
- Regular provision of ANC and obstetric services

15 Prior to the M-CAT implementation, the PHC had a designated weekly ANC day (every Thursday). The MO typically saw 8-10 pregnant women on these days. The national ANC day (9th of every month) displaced the weekly ANC day after it was introduced in August 2016. This resulted in the MO's case load rising to unmanageable numbers on that day, which limited the time available for systematic clinical assessments.

16 Diagnostic services for maternal health care included testing for anaemia (using the HemoCue) and blood group. Chronic shortage of urine albumin and random blood sugar (RBS) test kits (for six months prior to and during the intervention) limited the possibility of testing for hypertension and diabetes. Blood and sputum smears to confirm malaria and pulmonary tuberculosis respectively were not tested at the PHC. It was reported that the PHC was expected to buy these kits from JSSK (*Janani Shishu Suraksha Karyakaram*) funds. Since JSSK funding is pegged on the number of institutional deliveries in a facility, the amount available to the MO was limited by the Sanganahal PHC's modest record of one to two deliveries per month[6], even if antenatal clinics were better attended. For the most part, iron sucrose was available for the treatment of severe anaemia.

17 Prior to the M-CAT, the ASHAs' unstructured visits to the homes of pregnant women focused mainly on nutrition-linked IEC. The maternal risk list focused on four out of five too's and anaemia. Although the ANMs were formally responsible for following up "risk cases" identified by the MO, the ASHAs were the ones who ended up shouldering this responsibility. What the ANMs did was to sporadically oversee the ASHAs' follow-up of women with risks.

18 Pregnant women received more attention from the system than did postpartum women. If postpartum women visited the PHC on the ANC days at all, they went for child immunisation, not postnatal care (PNC). Figure 1 depicts the provision of ANC and PNC Services in Sanganahal PHC.

[6] The number was so low because the MO had been away on maternity leave and lived away from the PHC.

19 The key participants in the M-CAT were 14 ASHAs, two ANMs and the MO.

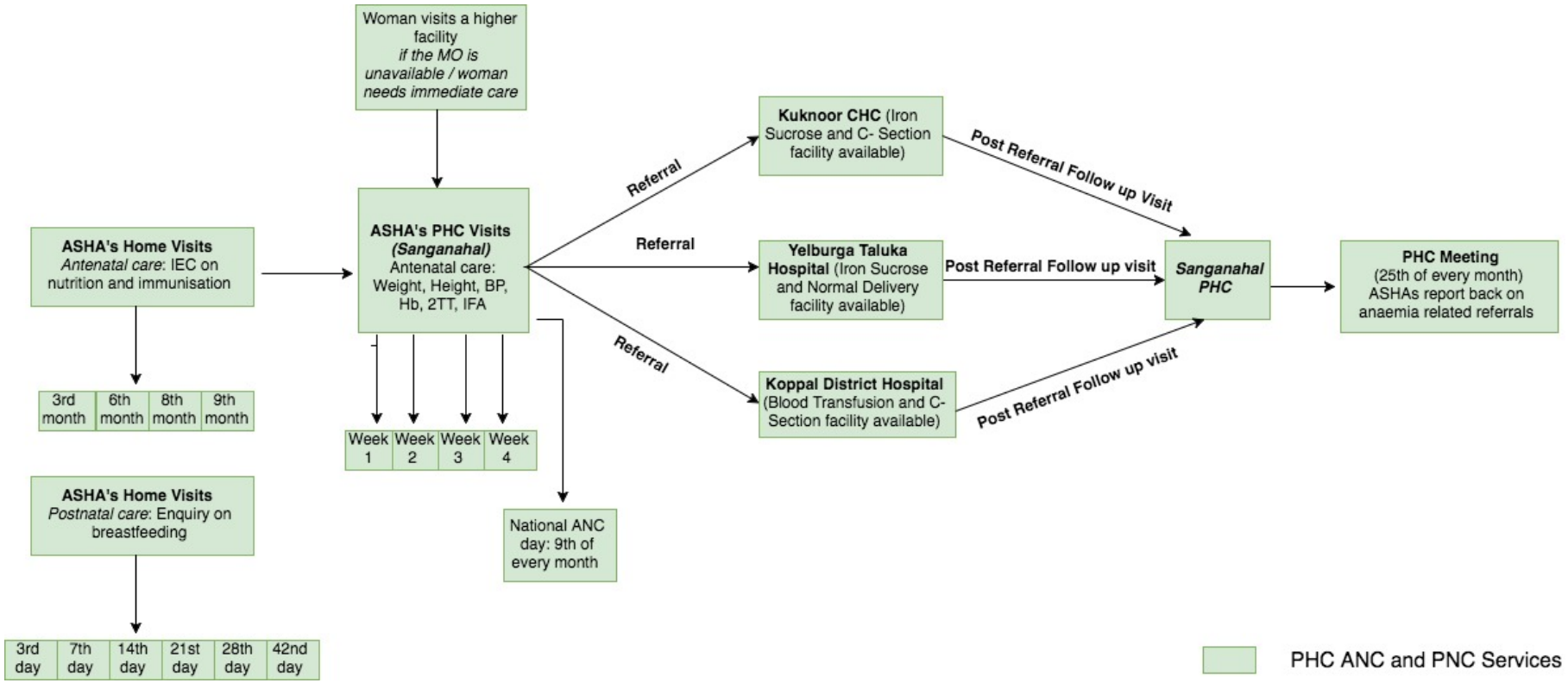
- On average, the ASHAs were aged 36 years with 7 years of work experience. Each ASHA was responsible for approximately 10 pregnant and postpartum women at any point of time.
- The ANMs (aged 62 and 40 years), who managed the Gedigera and Sanganahal sub-centres, had 33 and 9 years of work experience respectively. They were expected to be present at the PHC on ANC days and to provide outreach services (e.g., immunisation of children) in their villages for the rest of the time. Since the ANMs' incentives for risk redressal have not been operationalised, it is unclear who is ultimately responsible for risk follow-up.
- The MBBS-trained MO oversaw two PHCs other than Sanganhal. She also had to put in time at Yelburga's Taluka Hospital and provide outreach services. This meant that her time at Sanganahal PHC was limited.

20 Our baseline assessment revealed that the M-CAT has the potential to strengthen the quality of maternal risk identification and management by:

- providing the ASHAs with a protocol for their home visits (through the forms).
- supporting the MO (with the case sheet) with her extensive case load, when there is little time for taking detailed case history.
- drawing attention to potential risks in the postnatal period (through the postpartum visit form), as this is currently neglected.
- reducing the current ambivalence for maternal risk follow-up by laying out specific steps for the same.

Pregnant women waiting to be examined by the Medical officer on the National ANC Day

Figure 1: ANC and PNC services in Sanganhal PHC



C.2 Implementation of the M-CAT

- A total of 349 women were covered over four successive cycles of 30 days each.
- Pregnant women visit their natal homes for delivery. Hence, there were premature exits from and late entrants into the M-CAT system. This inhibited continuous risk identification and redressal for these women.
- The single blind validation of the diagnostic algorithms in the software established the need for: a) test results to improve the accuracy of risk identification; b) additional questions in the form, and (c) a few modifications of the algorithm and case sheet to make these more comprehensive.

21 Implementation of the M-CAT began with an initial three-day training for 14 ASHAs and two ANMs. Employing interactive methodologies (as detailed in the Training Manual), the training aimed to enthuse and orient each functionary to the forms, processes and their roles in the M-CAT. Half a day was also spent on orienting the MO and project staff (Link Worker and DEO) to their roles in the M-CAT.

22 Following this initial training, the ASHAs, Link Worker and DEO also received practical training. The research team and Link Worker accompanied the ASHAs over two days for hands-on training in form filling. This activity provided a baseline picture of the ASHAs' capabilities and indicated the type of support they needed. It also initiated the Link Worker into her role. The DEO then entered the data from these forms into the software under close supervision.

23 The project paid the ASHAs an incentive of Rs.50 per form. The Link Worker was appointed to provide the less capable and literate ASHAs with continued hands-on support. If the M-CAT is scaled up, this role could possibly be performed by the ANM. Monthly debrief meetings with the ASHAs and ANMs were held for reviewing the process of implementation. This could be done during monthly PHC meetings, if the M-CAT is upscaled.

24 A total of 349 women were covered across four cycles. In this area, pregnant women go to their natal homes for delivery. Thus, approximately 18-20 women (in each cycle) either entered the M-CAT system late in their pregnancies, or left just before delivery. Continuous monitoring of these women at critical points in their pregnancies was, therefore, not possible. This makes a case for upscaling M-CAT across PHCs.

25 To assess the sensitivity and specificity of the diagnostic algorithms, a senior Obstetrician/Gynaecologist examined 33 women without the M-CAT medical case sheet provided to the MO. Her diagnoses were then compared with the software-generated clinical assessment.

- Whereas the algorithms captured pre-disposing factors and pregnancy weight more systematically, the Obstetrician-Gynaecologist recorded obstetric history more comprehensively.
- For 97% of the women, there was a good match in the clinical diagnoses between the case sheets and the Obstetrician/Gynaecologist's case notes. The Obstetrician-Gynaecologist identified one woman with possible pregnancy induced hypertension, which the algorithm failed to do, because of (1) the unavailability of urine albumin test results, and (2) the time-lag between the Obstetrician-Gynaecologist and ASHA's elicitation of symptoms, and in the timing of other test results (viz., BP).

- Following this validation exercise, the form, the algorithm and the case sheet were revised by expanding the section on obstetric history. Based on other inputs by the ASHAs (during the M&E process described in Section D), two new questions were also added on infected episiotomy wound and C-Section incision.

D. Monitoring and evaluation of the M-CAT

26 The M&E was designed to assess the feasibility and acceptability of the M-CAT in the context of a single PHC pilot. It sought to answer two operational questions:

- Can the intervention be integrated into the primary health system's prevailing structure and schedule?
- Is the intervention acceptable to its various stakeholders, i.e. ASHAs, ANMs, the MO, the DEO, the end users (pregnant and postpartum women) and their families.

27 The M&E plan included primary data collection and analysis of routine programme data. As appropriate, pre- and post-review and 'trend over time' exercises were undertaken.

- Formative research included (1) mapping the infrastructure and maternal health services available at Sanganahal PHC, and (2) assessing the utilisation patterns across other facilities in the vicinity; i.e., Kuknoor Community Health Centre and Yelburga Taluk Hospital.
- The evaluation draws on the following data points, which are detailed in Annexure 1:
  - Structured observations of ASHAs administering the forms
  - Observation of ANC consultations at the PHC
  - Observation of M-CAT debrief meetings with ASHAs
  - Qualitative case reviews of women identified to be at risk by ASHAs
  - Semi-structured interviews with randomly selected women who had completed 42 days post-delivery.
  - Feedback from ASHAs, the DEO and the MO about the feasibility of the intervention

28 Three parts to the M-CAT process were assessed: (i) The ASHAs' pregnancy and postpartum visits for form filling, (ii) delivery of forms to the DEO and the process of

data entry and generation of risk reports, and (iii) identification and follow-up of risk cases.

D.1 The ASHAs' pregnancy and postpartum visits

- There were variations in the time taken by the ASHAs to administer M-CAT forms for the first 3 cycles. By the 4th cycle, the average time had reduced to 10 minutes for the registration and postpartum forms and eight minutes for the pregnancy form, which were optimal.
- Form filling was an acceptable activity for the ASHAs, as they did not find it time-intensive or burdensome.
- The less literate ASHAs initially made more mistakes and found the forms challenging. By the 4th cycle, all ASHAs achieved a high level of ease and accuracy.
- M-CAT visits increased the contact between ASHAs and pregnant/postpartum women and structured their interactions in a meaningful way.
- Pregnant and postpartum women easily understood the questions in the forms. They and their families also felt 'more cared for' due to the ASHAs' frequent visits and detailed health inquiries.
- Though the ASHAs made more than 90% of home visits to pregnant women on time by the 4th cycle, they tended to miss almost a third of the postpartum home visits. Among these visits, the greatest lapse was observed in the 3rd day mainly because (1) the ASHAs being with the woman during childbirth led them to feel that the 3rd day was too close, (2) women had not returned from the facility after childbirth before the 3rd day visit, (3) women were too tired to talk, (4) the 3rd and 7th day visits were placed too close and therefore they tended to make one visit or the other.

29 Time taken to administer forms

- In the 1st cycle, there were wide variations in the time taken by different ASHAs to administer the forms (from under 5-25 minutes for the registration form; 9-34 minutes for the pregnancy form; 10-20 minutes for the postpartum form). Variability in time reduced but remained till the 3rd cycle. By the 4th cycle, the average (median) time became an optimal 10 minutes each for the registration and postpartum forms; and eight minutes for the pregnancy form.
- Prior to M-CAT implementation, the ASHAs tended to spend one to three hours a day meeting with pregnant and postpartum women. However, after implementation, they spent between 30 minutes to two hours a day with the women in a more systematic manner where they incorporated form filling into their visits to better understand if the women were experiencing any problems. The ASHAs reported that they did not find form filling either time-intensive or burdensome.

30 Data accuracy

- From the outset, the more literate ASHAs (those who had some high school education vs those who had only primary school education) administered forms easily, quickly and correctly. The less literate ASHAs initially found the forms challenging. Some others initially tended to rush through questions resulting in quick but incorrect form filling. In the 1st cycle, the following errors were observed (across 8-10 of the 14 ASHAs[7])
  - Difficulty finding and retrieving test information from the *Thayi* card (10 ASHAs)
  - Marking the wrong response (nine ASHAs)
  - Changing language or wording (nine ASHAs)
  - Skipping questions (eight ASHAs)
- A high level of ease and accuracy were evident in form filling by the 4th cycle across all ASHAs. This was due to sheer practice and continued hands-on support by the Link Worker largely in the first two cycles.

31 Timeliness of visits

- The ASHAs were supposed to make follow-up visits to all pregnant women within 25 to 30 days of the previous visit. A marked improvement was evident between the 2nd and 4th cycles: timely visits increased from 74% to 93%.
- Postpartum visits were scheduled for the 3rd, 7th, 21st and 42nd day after delivery. These were deliberately dovetailed with the health system mandated ASHA visits. Yet, all these proved to be challenging (a third of the visits did not take place). The greatest lapse was observed in the 3rd day (more than half of the visits were not made). This could be attributed to the following reasons, i) the ASHA being present at the facility with the woman during childbirth, thus placing the 3rd day visit too close to the event, ii) women not having returned from the facility after childbirth in time for the 3rd day visit, iii) women being too tired to talk, iv) the 3rd and 7th day visits being placed too close and therefore tended to make one visit or the other.

[7] As no baseline and mid-line observations could be conducted for one ASHA, data from this ASHA was excluded for analysis.

32 Quality of ASHA-women interactions

- The visits that the ASHAs were expected to make to the homes of pregnant women were less frequent (four times) than the M-CAT monthly visits. The ASHAs' interactions during their regular visits were unstructured[8]. The National Health Systems Resource Centre's (NHSRC's) ASHA training modules cover much of the content in the M-CAT forms. Yet, this information was not used systematically by the ASHAs prior to the M-CAT. The M-CAT, therefore, enhanced and operationalised the ASHAs' training on risk.
- In terms of acceptability, the questions were easily understood by a cross-section of women of varying literacy levels. Regarding utility, the forms also became IEC (Information Education and Communication) material on the signs and symptoms of pregnancy and postpartum risk. Both ASHAs, women and their families found this information relevant. Moreover, women indicated that the frequency of visits and the structured interaction made them feel cared for by the ASHAs, and by extension, the government health system. Overall, therefore, the M-CAT made the ASHAs' home visits more meaningful.

[8] The ASHAs tended to provide nutritional and immunisation advice during pregnancy, and to inquire about the baby and breastfeeding in the postpartum period.

D.2 Delivery of forms, data entry and generation of risk reports

- By the 3rd and 4th cycles, it took the ANMs two days (on average) to check the ASHAs' forms. It took another two days (on average) for checked forms to reach the PHC.
- The time taken by the DEO reduced from 10 to five minutes per form, with an average case load of 20 forms per day.
- Time taken by the DEO for data entry, printing and filing case sheets was less than three hours per day.

33 The ANMs were expected to check the forms filled by the ASHAs for completeness and errors before handing them over to the DEO. As one ANM did not have the requisite capability, this task had to be re-assigned to the ASHA facilitator. This modification could be considered if the M-CAT is upscaled. In Cycles 1 and 2, errors were noted even after the forms had been checked. By the 3rd and 4th cycles, these became minor and could be resolved by the DEO over the phone.

34 At the outset, there were considerable time-lags between the ASHAs' home visits and the time when the forms reached the PHC. This was partly due to ASHAs waiting for the ANM to check the forms at the village, or finding a mutually convenient day to meet the ANM at the PHC. However, by the 3rd and 4th cycles, the ANM/ASHA facilitator checked the forms within an average of two days from form filling. After that, it took an average of two days for the checked forms to reach the PHC. This improvement was partly due to the monthly debrief meetings during which time-lags and the reasons for them were discussed. The debrief meetings also provided a platform to boost the ASHAs' commitment to reduce delays.

35 The DEO's speed in data entry improved from 10 minutes per form in the beginning to approximately five minutes at the end of the implementation. Given an average of 20 forms reaching the PHC every day, the DEO spent less than two hours a day on data entry.

36 By the 3rd and 4th cycles, the DEO generated the case sheet within two days of receipt of the forms. He spent two to three hours per day on data entry, printing and filing case sheets in village-wise folders. All of the above can be integrated into the schedule of an existing PHC DEO.

D.3 Identification of risk and follow-up

- Risk redressal processes linked to the M-CAT could not be systematically evaluated because women went to facilities (other than Sanganhal) for diagnostic services and treatment.
- The MO found the case sheet useful for aiding diagnosis during ANC consultations.
- Follow-up actions could not be reviewed as the PHC meetings were not held as per schedule.
- Role clarification between ASHAs and ANMs for risk follow-up is required.

37 Tracking women from risk identification through to redressal proved to be a challenge for the M&E team. After form filling, if the ASHA felt the woman was at risk, she proactively took her to the PHC or advised her to seek care at a higher facility. She did not wait for the SMS/phone call from the ANM. Therefore, risk redressal occurred even before the ASHAs were formally intimated through the computerisation part of the M-CAT process. Moreover, women living in villages under the Gedigera sub centre visited facilities other than Sanganhal for treatment or diagnostic services. Given this, risk redressal processes linked to the M-Cat could not be systematically evaluated.

38 The MO consulted the computer-generated case sheets while examining the women who sought ANC at Sanganhal. Due to a heavy case load, however, she did not have the time to record details required for the PoC study. If follow-up treatment or referral was needed, she gave the ASHA verbal instructions, which were not necessarily written down. Follow-up steps could not be documented for all women at risk. Therefore, it was not possible to generate the follow-up list. Moreover, all risk cases were not reviewed at the monthly PHC meetings because: a) on some occasions, the meeting was not held; and b) the MO was not available. Therefore, risk redressal could not be systematically evaluated.

39 The ANMs were not present when at-risk women came to the PHC. There needs to be role clarity as to which cadre (ASHAs or ANMs) is responsible for maternal risk management and follow-up.

E. Feasibility of Upscaling the M-CAT

- M-CAT strengthens maternal clinical assessment in settings with high morbidities and inadequate resources
- The process adds considerable value to the ASHAs' visits to the homes of pregnant and postpartum women
- Pregnant women and their families become more aware of risks and the actions needed to address these
- Case sheets are useful to MOs in diagnosing risks and recommending follow-up actions
- The process can be integrated into a PHC's structure and schedule of activities
- It is acceptable to the key stakeholders.

40 The M-CAT strengthens maternal clinical assessment in settings with high morbidities and inadequate resources.

- It increased the frequency of the ASHAs' home visits, and elevated their ad hoc health inquiries into systematic discussions of medical/obstetric history, and of the signs and symptoms of potential risk.
- By repeatedly using the form, the ASHAs and the women they met became more aware of maternal risks. The women also regarded the ASHAs' detailed inquiries as a move to improve and protect their health. They and their families indicated that the ASHAs had become a valuable resource for enabling maternal safety. Some ASHAs felt this gave them a sense of agency.
- The MO found the case-sheet useful during crowded ANC clinics, as it provided summary information and pointers for specific probes. The MO suggested that if each woman had her case sheet, she could carry it to other facilities as well. This could support other MOs to make robust clinical diagnoses and identify follow-up actions.
- Although the feedback loop of risk redressal was not closed formally, the ASHAs were clearly following-up cases and supporting at-risk women. The MO recommended that ANMs should be in charge and coordinate with ASHAs on following-up cases at risk.

41 The ASHAs proved that they could play the role envisaged for them within M-CAT. Their antenatal home visits were timely, their administration of the forms was efficient; and their data were accurate. Their forms were transferred to the PHC and case sheets

were generated within a tight time frame. Moreover, a relatively inexperienced DEO could execute his role with minimal support after an initial period of training and supervision (of roughly one month).

42 Given the extensive mobility of pregnant women, it will be useful to upscale M-CAT across the district and the state to ensure uninterrupted risk identification and seamless redressal.

43 In sum, the M&E findings indicate that the M-CAT: a) changed the perceptions of ASHAs, women and their families around maternal risks; b) is acceptable to all key stakeholders; c) blends into the PHC's structure and schedule of activities, including the ASHAs' schedule of home visits.

44 Implementation of the M-CAT revealed the need for corrective actions in the public health system, which are outlined in Sections F and G.

F. Needed Practical Steps

45 To ensure a high level of ease and accuracy during form filling by the ASHAs, it is essential to have the support of a Link Worker/ANM, especially in the first two cycles of implementation.

46 In some cases where ANMs do not have the requisite capability to check filled forms, the ASHA Facilitators can assume this role. They can also be the point of contact for the DEO who might have questions about the form at the point of data entry. This modification of the ASHA Facilitator taking on the role of the ANM could be considered if the M-CAT is upscaled.

47 The debrief meetings could be used as a platform to boost the ASHAs' commitment to administering forms on time and hence reducing delays.

48 The timely completion of all of the above processes can be integrated into the schedule of an existing PHC DEO, thus ensuring timely identification of risk and follow up.

G. Recommendations

49 *Improving the ASHAs' adherence to their schedule of postpartum visits:* Postpartum risks can be identified early through the M-CAT if the ASHAs adhere to their schedule of postpartum visits to which the M-CAT visits are dovetailed. Not all postpartum visits on the schedule are made at present.

50 *Role clarification to improve maternal risk management:* Clarity is required as to which cadre (ASHAs or ANMs) is responsible for maternal risk management and follow-up. Being better qualified than the ASHAs, the ANMs are more suited to this role, but their involvement at present is poor. The ANMs' sense of responsibility for risk management may improve if the risk redressal incentives contemplated by Karnataka's Department of Health and Family Planning are operationalised.

51 *Improved testing for detection of a wider range of risk conditions*: The current focus is primarily on maternal risks associated with pre-disposing factors (five toos), bad obstetric history and, more recently, with anaemia. However, a wider range of risks (e.g., pregnancy induced hypertension, intrauterine death, gestational diabetes, malaria, TB) can be identified through the M-CAT, if the ASHAs' data on signs and symptoms are adequately backed up by diagnostic tests and clinical examinations by the PHC MO.

52 *Better indenting and financing systems to improve the availability of test kits at the PHC:* Systematic and periodic tests are essential if risks are to be identified accurately. The diagnostic algorithms in the M-CAT also depend on test results to complete the clusters of signs and symptoms of risks. Given this, the financing and indenting systems at the PHC need urgent attention in order to address the problem of chronic shortages of test kits (e.g., urine albumin, RBS).

53 *Systematisation of referrals*: A system is needed for sharing the risk list and case sheets across PHCs to make referrals more systematic and effective. This can be made possible by pinning the case sheet to the Thayi card. The women should also retain a copy of the case sheet, as they approached multiple health care facilities. As expressed by the MO, all providers would find the case sheet useful.

54 Figure 2 presents a practicable model for M-CAT implementation within the PHC system. It maps out deviations that occurred during the PoC and identifies the required actions (which are also outlined in paragraphs 49-53) if the M-CAT is to be scaled up smoothly.

H. References

Gender and Health Equity Project (2015c) *Identifying and assessing maternal risks: A handbook for healthcare providers*, Bangalore, GHE Project, Indian Institute of Management Bangalore https://www.phfi.org/images/pdf/identifying_and_assessing_maternal_risks.pdf

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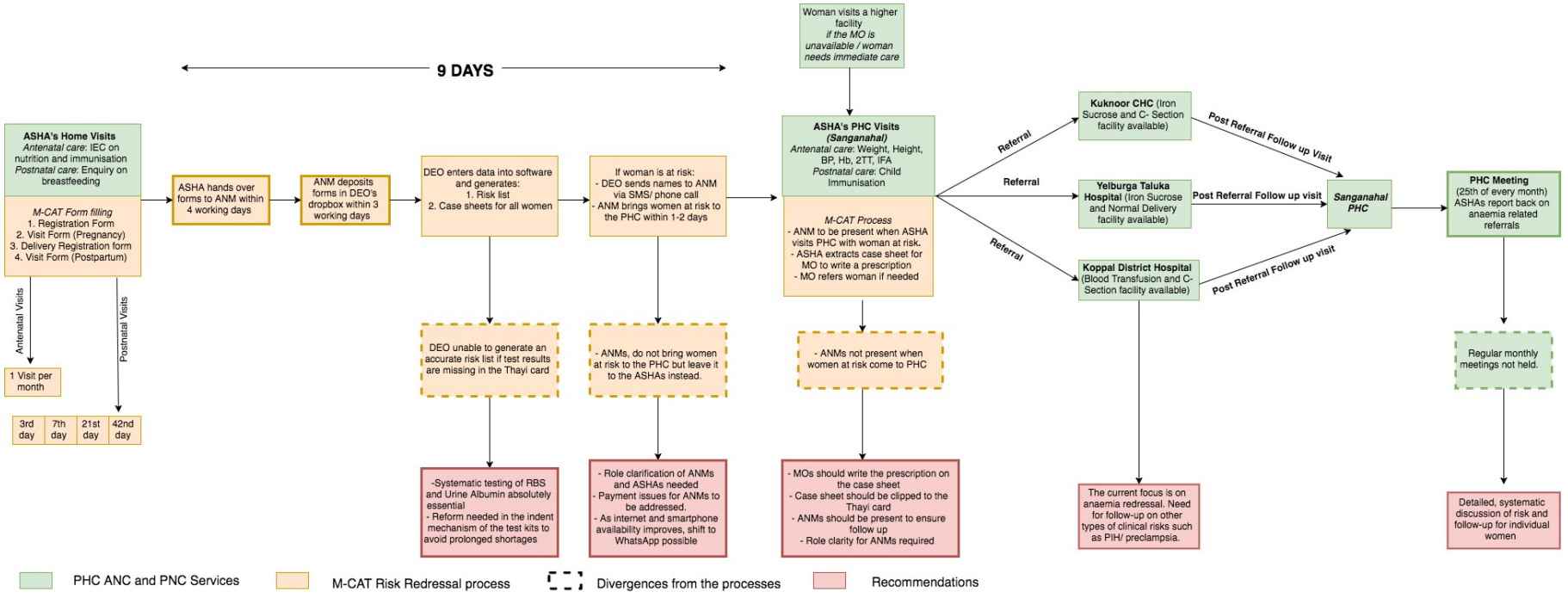
IIPS (undated), National Family Health Survey-4 (2015-16), District Fact Sheet (Raichur, Karnataka), Ministry of Health and Family Welfare, Government of India.

IIPS (undated), National Family Health Survey-4 (2015-16), District Fact Sheet (Koppal, Karnataka), Ministry of Health and Family Welfare, Government of India.

Figure 2: M-CAT Implementation Plan - Model for Upscaling



Annexure 1: Details of M&E tools and data

Tool	Periodicity of Data Collection	Data collected
Structured observations of ASHAs administering forms	Baseline, mid-line and end-line	137 registration, pregnancy and postpartum visit forms from 106 visits
Observation of antenatal clinic consultations at the PHC	Monthly ANC days in October, November, December and January	~200 clinic consultations
Observation of M-CAT debrief meetings with ASHAs	Monthly	Qualitative meeting notes from four debrief meetings
Qualitative information on management of cases of women identified as risk by ASHAs	Midline and end-line	88 case narratives of women both identified and not identified as at risk by M-CAT
Semi-structured interviews with randomly selected beneficiaries who have completed 42 days post delivery	At the end of M-CAT implementation	12 qualitative interviews
Feedback from ASHAs, DEO and PHC MO about the feasibility of various aspects of the intervention	At the end of M-CAT implementation	2 group interviews with 7 ASHAs Interview with PHC MO Interview with DEO

M-CAT
Training Manual

M-CAT Training Manual

Training the ASHAs and ANMs for the M-CAT

Goal

To collaboratively train the ASHAs and ANMs to use the M-CAT for identifying and responding to the clinical conditions that compromise a woman's health. We term these clinical conditions as "maternal risks" in this manual.

Training Objectives

- To highlight the importance of maternal risk mitigation
- To demonstrate how the ASHAs and ANMs are uniquely placed to respond to maternal risk
- To introduce the ASHAs and ANMs to the M-CAT
  - To familiarise the ASHAs and ANMs with the forms and processes of the M-CAT
  - To refine M-CAT processes collaboratively with the ASHAs and ANMs in keeping with their current roles and work schedules
  - To clarify the roles of all key stakeholders in the M-CAT
  - To give the ASHAs and ANMs an opportunity to articulate the challenges they expect to encounter in order to jointly develop strategies to address them
- To help the ASHAs and ANMs to feel inspired about being part of this intervention

Methodology

This training programme builds on the principles of Appreciative Inquiry, a model that is directed at opportunity-centric change. In opportunity-centric approaches, the emphasis is on identifying and using locally available opportunities to address problems. The attempt is to reframe and shift community norms.

Appreciative Inquiry has four phases: Discover, Dream, Design, and Destiny. The first three phases will be explored through different pedagogies in this training programme. The last phase is expected to occur in the course of implementation.

Duration

Three days

Participants

ASHAs, ASHA facilitators, ANMs, Data Entry Operator (DEO)

Training Plan

DAY 1: DISCOVER AND DREAM

SESSION 1 (11:00 AM - 1:30 PM)

- Session 1 a: Introduction
- Session 1 b: Setting the Context – The Importance of Maternity (Discover)

SESSION 2 (2:30 - 3:45 PM)

Understanding “Maternal Risks” (Discover)

SESSION 3 (4:00 - 5:00 PM)

Addressing “Maternal Risks” (Dream)

DAY 2: DESIGN

SESSION 1 (11:00 AM - 12:30 PM)

The M-CAT Process (Design)

SESSION 2 (12:30 - 5:00 PM)

The M-CAT Forms (Design)

- Session 2 a: Role Plays
- Session 2 b: Round robin on form filling

DAY 3: DESIGN LEADING TO DESTINY

SESSION 1 (11:00 AM - 12:15 PM)

Reviewing What the Participants Have Understood (Design)

SESSION 2 (12:15 - 1:30 PM)

Response and Challenges to the M-CAT (Design)

SESSION 3 (2:30 - 3:15 PM)

Roles of Stakeholders (Design)

SESSION 4 (3:30 - 5:00 PM)

Ending on an Inspirational Note (Destiny)

DAY 1: DISCOVER AND DREAM

SESSION 1 (11:00 AM - 1:30 PM)

Session 1a (11:00 - 11:45 am): Introduction

Objectives

- To provide the participants with an overview of the M-CAT and the proposed training programme
- To enable the participants to introduce themselves in an interesting and possibly humorous manner

Session Plans

- Verbal introduction to the M-CAT and the proposed training programme by the trainers.
- Introductory icebreaker

Instructions to the trainer

Ask each participant to introduce herself to the group by giving her name, her village name and an animal with which she identifies. The participant must also explain why she identifies with the chosen animal.

Note to the trainer:
The ASHAs, ANMs and DEO will already know each other, as they are from the same PHC. The purpose of these introductions is to help the trainers and participants to get acquainted with each other and to have some fun.

Expected outcome

The participants should feel interested, animated and eager to understand the M-CAT.

Session 1b (11:45 am - 1:30 pm): Setting the context - The importance of maternity

Objectives

- To establish the importance of maternity
- To provide basic biomedical information about changes occurring during pregnancy
- To discuss how the challenges of pregnancy get accentuated by women's vulnerable status, and vice versa
- To raise the issue of differentiated maternal health needs across socioeconomic groups, and the responsiveness and responsibility required to assure maternal safety, especially for those most vulnerable
- To unravel what “being proactive” means in the context of maternal safety

Session Plans

- Visualisation exercise on the importance of the mother
- Power walk

Session Plan: Visualisation exercise on the importance of the mother

Instructions to the trainer

- Ask the participants to close their eyes for five minutes and remember their mothers. They should reflect upon the importance of the mother in their lives.
- When the participants open their eyes, ask them to express their feelings. Conduct a discussion by raising the following points:
  - How important is the mother?
  - Do mothers need care? Why?
  - Do they get the care they need? Why? Why not?
- Draw the participants' attention to posters put up on different stages of pregnancy.
  - Provide them with basic biomedical details on physiological changes that occur, and how these can become particularly challenging if women have pre-existing vulnerabilities.

Note to the trainer

The ASHAs and ANMs are already trained in the domain of maternal health, but are likely to have different levels of knowledge. Ascertain their levels of knowledge before proceeding with the session. Rather than lecture them, try to elicit their differentiated understandings of the subject. Encourage them to learn from each other. If there are some misconceptions, address these. Only briefly allude to women's pre-existing vulnerable status. Do not address it in depth as the next activity in this session will focus on this.

Materials needed

- ✓ Posters on different stages of pregnancy until delivery.
- ✓ Adhesives, scotch tape, pins, string, etc.

Session Plan: Power walk to explore the issue of equity

Instructions to the trainer

- Request six participants to volunteer. Inform the volunteers that they are now going to participate in a race. This is a different sort of race: participants are not free to run at will; they will be able to move either forward or backwards, depending on the instructions they receive.
- Assign each volunteer one of the following identities:
  - Educated and well-off upper caste woman with poor access to public healthcare facilities
  - Uneducated middle class, middle caste woman with adequate access to public healthcare facilities
  - Poor, uneducated upper caste woman with adequate access to public healthcare facilities
  - Poor, uneducated *dalit* woman who is an active member of a *Sangha* with adequate access to public healthcare facilities
  - Uneducated *dalit* woman living in a remote hamlet with poor access to public health care facilities
  - Unmarried middle class, upper caste woman with adequate access to public healthcare facilities
- Pin an identity card on to each volunteer so that it clear to everyone who she is.

- In order to make the volunteers identify strongly with their assigned identity, give them the option of fleshing out their identities in the course of the race. This will enable them to follow the instructions more meaningfully.
- Tell the audience that they are supposed to observe and guide the volunteers in their movements. If they feel that the volunteers' movements are not true to their identities, they are free to question them.

Statements for the walk

- If you are able to register your pregnancy as soon as you discover you are pregnant, take two steps forward. If not, take two steps back.
- If you are able to get three complete ANC check-ups done, take two steps forward. If you have not had any check-ups, take two steps back. If you had one or two check-ups, stay where you are.
- If you are able to get adequate nutrition throughout the pregnancy, take two steps forward. If not, take two steps back.
- If you are able to rest adequately, take two steps forward. If not, take two steps back.
- If you are able to take the complete IFA course, take two steps forward. If not, take two steps back.
- If you think you may have some symptoms of risk and are in a position to seek care, take two steps forward. If not, take two steps back.
- If you are able to get one scan done, take two steps forward. If not, take two steps back.
- If you are able organise blood (during an emergency), take two steps forward. If not, take two steps back.
- If you have been able to set aside funds for transportation and emergency during delivery, take two steps forward. If not, take two steps back.
- If you are aware of your maternity entitlements from the government (*Prasuti Arike, Madilu Kit, JSY*), take two steps forward. If not, take two steps back.
- If you have received any kind of postpartum follow up care from the public healthcare system within 48 hours, take two steps forward. If not, take two steps back.
- You have delivered a girl child. If you think you and your family will be happy, take two steps forward. If not, take two steps back.

Note to the trainer

As the power walk proceeds, enable the participants to understand the implications of their multiple social identities: how different sources of social advantage and/or disadvantage interact with each other, and how these can end up compromising the health of a woman during pregnancy or postpartum. The exercise will allow them to appreciate how maternal health can get severely compromised by an absence of social justice and fairness. Do not delve into the specifics of maternal risk. This will be tackled in the next session.

Materials needed

- ✓ Identity cards
- ✓ List of identities
- ✓ Statements for the walk
- ✓ String to tie on the identity cards

Expected outcomes

The participants should acquire:

- a basic biomedical understanding of changes occurring in a woman's body during pregnancy.
- an appreciation for the social factors that influence a woman's health during pregnancy and postpartum.

Lunch break: 1:30 - 2:30 pm

SESSION 2 (2:30 - 3:45 PM): UNDERSTANDING "MATERNAL RISK"

Objectives

- To gain an understanding of the participants' notions of "maternal risk" (i.e., the clinical conditions that compromise a woman's health)
  - To identify the points of congruence and divergence between their notions and biomedical notions of maternal risk

- To explore different dimensions of the notion of “maternal risk”
  - To identify why and how maternal risks arise
  - To reflect on the manifestations of maternal risk
  - To understand how and why risks escalate
  - To reflect on how maternal risks can culminate in severe morbidity or death
- To indicate that society at different levels (family, community and the healthcare system) are responsible for ensuring maternal safety, but could be failing to care for pregnant and postpartum women effectively.

Session Plan: Group exercise on the participants’ notions of maternal risk

Instructions to the trainer

- Divide the participants into groups of 6-8 members each. Give each group a chart paper and some pens.
  - Ask the groups to discuss their understandings of maternal risk, i.e., which symptoms are of concern (15 minutes). Ask them to record this on the chart paper.
  - Tell the participants to explain what they perceive to be maternal risk symptoms. They should not merely state what has been taught to them or give politically correct answers.
  - Ask each group to make a presentation of their discussion. (Each presentation should be no more than five minutes.)
- After the presentations, synthesise the group’s understanding of maternal risk, identifying points of convergence and divergence, and then contrast this understanding with the biomedical understanding of maternal risk. Whether or how divergent world views are to be reconciled should be explored further through a facilitated discussion.
  - Specifically focus on the risk conditions that will be captured by the M-CAT algorithm.
  - Address the issue of ‘normalisation’, wherein symptoms and signs of maternal risk are brushed aside as problems to be expected during pregnancy.
  - Highlight the importance of early identification and action when the symptoms and signs of risk first occur.
- Explain the relationship between maternal risks and complications.
  - Draw an analogy with road accidents. The argument is that there may be multiple reasons for road accidents, which result in adverse outcomes. These accidents may occur even if the driver is careful. This does not mean that safety is pointless.
  - Ensure that the participants gain a balanced picture of risk mitigation: All women at risk do not automatically have obstetric emergencies. Conversely, some healthy / “risk-free”

women may end up having emergencies. The path and progression of risks may vary from woman to woman.

- Emphasise the need for prompt action when a woman exhibits any of the symptoms or signs of risk.

- Conclude by pointing to the fact that severe maternal morbidities and even death tend to be higher in poorer regions. This is not the case in more developed areas where pre-emptive measures are in place. Risk mitigation is an important pre-emptive measure, which the M-CAT seeks to support.

Notes to the trainer

- Consider existing levels of knowledge while providing biomedical inputs. Biomedical inputs should be conveyed simply and with as many analogies as required to keep up the interest in the group.
- Draw from previous sessions to sharpen the participants' understanding of maternal risk symptoms and their implications.
- While touching upon the notion of 'normalisation', please refer to the potential of shifting 'norms' (opportunity centric approach) surrounding maternal risk through new training inputs and the M-CAT.

Materials needed

- ✓ Chart paper
- ✓ Pens
- ✓ Adhesives

Expected outcomes

The participants should**:**

- develop a nuanced understanding of maternal risk.
- be of the view that everyone should get an opportunity to access healthcare to address maternal risk.
- realize that it is only fair that woman who are at risk receive special attention, even if all women at risk may not develop emergencies.

Tea break: 3:45 - 4:00 pm

SESSION 3 (4:00 - 5:00 PM): ADDRESSING "MATERNAL RISK"

Objectives

- To enable the participants to visualise an altered reality where maternal risk issues are routinely addressed
- To introduce the M-CAT as a means of responding to maternal risk (The M-CAT can be a 'Design' to help realize this 'Dream'.)
- To provide the participants with an overview of the goals of M-CAT
- To highlight the unique and special location of the ASHA and ANM in the M-CAT

Session Plan: Envisioning a better state of maternal health

Instructions to the trainer

- Give each participant a chart paper. Ask them to draw out their vision for maternal health in the next one year. The drawing can be symbolic.
  - Give them 10 minutes or so for their drawings. After they finish drawing, request each participant to share her vision/dream.
  - Give each participant two minutes for sharing.
- Next, conduct a discussion around these Dreams, and point to the M-CAT as one possible Design to realise these Dreams.
- Then, in keeping with the training programme's opportunity-centric approach, refer to the capacities and location of the ASHAs and ANMs within the community, which make them the most appropriate agents of positive change.

Note to the trainer

The M-CAT will be fleshed out in detail in the next session. Therefore, this section should only introduce the M-CAT and its unique features very briefly. The primary focus should be on linking Dreams to Design. The details of the Design will be discussed the next day.

Materials needed

- ✓ Chart paper
- ✓ Pens/Pencils/ Colour pencils
- ✓ Erasers
- ✓ Markers

Expected outcomes

The participants should:

- view the big picture to be able to work towards it in a meaningful manner.
- understand that change in the context of maternal health is possible if there is a commitment for it.
- realize that they are the right people who can play an important role in ensuring maternal safety.

End of Day 1

DAY 2: DESIGN

SESSION 1 (11:00 AM - 12:30 PM): THE M-CAT PROCESS

Objectives

- To help participants obtain a clear understanding of the processes envisaged for the M-CAT
- To inform the participants of their role within the M-CAT

Session Plan: Graphic representations of the M-CAT process

Instructions to the trainer:

- Draw the participants' attention to nine drawings capturing different steps of the process envisioned for the M-CAT.
  - Explain each step of the process in detail. While explaining each step, refer to the background note prepared on the process steps.
  - Allow for questions and engage in a joint planning exercise, building on the ASHAs' and ANMs' existing roles, responsibilities and work schedules.
  - Encourage participants to think of ways of minimising extra work/visits. Draw attention to the fact that the Design is being jointly developed to enable a sense of ownership.
- Once the participants are clear about the process, remove the drawings.
  - Ask for as many volunteers as the number of drawings.
  - Hand one of the drawings to each volunteer in no particular order. Ask the volunteers to collaboratively recreate the process in the correct order.
  - As each volunteer puts her drawing up in the correct order, she must describe the processes involved in detail. The audience will be encouraged to contribute to this process.
- Once there is complete clarity, inform the participants that there will be hands-on training for form filling in the first month.
  - Set up the schedule for hands-on training.
  - Mention that there will be monthly debrief meetings over the next three to four months. The debrief meetings are opportunities to (1) share experiences, (2) jointly develop strategies to deal with challenges, (3) provide refresher training inputs (if necessary), and (4) disburse new forms.

Notes to the trainer

- Give participants a broad overview of the goals of the M-CAT.
- Indicate that the focus is not only on pre-existing risks (five toos and bad obstetric history). The M-CAT will also help the Medical Officer make systematic clinical assessments to identify existing problems that can escalate into major complications if left untreated.
- While the discussion in underway, emphasise that the M-CAT is a simple and straightforward approach to risk mitigation. The participants should feel that it will help them do their work better and earn incentives more efficiently (in keeping with the opportunity-centric approach).
- Emphasise that each step is critical. There can be no short cuts, as these will have bigger implications in terms of health of pregnant and postpartum women.
- Do not focus unduly on challenges associated with the process at this stage. A separate session has been assigned to this on Day 3.

Material needed

- ✓ Graphics depicting the different steps
- ✓ Background notes on process steps

Expected outcomes

The participants should:

- develop a sense of ownership for the M-CAT.
- see how the M-CAT can help identify and address risks discussed on the previous day.
- contribute to refining the processes envisaged for the M-CAT, if required.
- realise that the M-CAT will help them execute existing tasks efficiently.
- Help develop a time schedule for the initial hands-on training.

SESSION 2 (12:30 - 5:00 PM): THE M-CAT FORMS

Objectives

- To introduce the ASHAs to different M-CAT forms.
- To explain the rationale behind each form.
- To train them on how to fill each form.

Session 2 a (12:30 - 1:30 pm)

Session Plan: Role plays

Instructions to the trainer

- Distribute a set of forms to each participant. Explain the purpose of each form.
- Inform the participants that they are now going to see some model role plays on how the forms should be ideally filled in the field.
- Conduct role plays for filling all four forms.

Notes to the trainer

- Reiterate the following communication tips:
  - The importance of maintaining eye contact
  - Ensuring that interactions are meaningful, not just transactional
- The role plays should just be the teaser. There is no need for a detailed discussion at this stage, as this is will be undertaken in the next session. Merely respond to participant queries if any.

Material needed

✓ A set of forms for each participant

Expected outcomes

The participants should:

- get a sense of how data collection will proceed.
- realise the importance of engaging meaningfully with women to get authentic data and to provide needed support.

Lunch break: 1:30 - 2:30 pm

Session 2 b (2:30 - 3.45, 4.00 – 5:00 pm)

Session Plan: Round robin on form filling

Instructions to the trainer

- Ask the participants to refer to the forms.
- Conduct a round robin where each participant reads out one question from the form until all the questions in all the forms are covered.
  - While each question is being read out, guide the participants on how to ask each question and what kind of responses can be expected.
- Discuss possible issues that may be associated with each question by referring to the note on likely issues with the forms.

Notes to the trainer

- Refer to the training input background document, which discusses likely issues associated with the different forms and questions.
- Establish the importance of each question, as each question has a medical implication.
- Ensure that the participants realise that it is important to avoid paraphrasing, skipping questions, changing the order. Emphasise that instructions in the forms must be followed at all times, including questions to be followed through and those to be skipped.
- Emphasise the importance of follow-up if a women is diagnosed to be at risk.

Material needed

✓ Sets of forms

Expected outcomes

The participants should:

- understand the importance of each question in the forms and of asking each question correctly.
- understand the sequence in which questions are to be asked.
- learn to be active agents rather than passive data collectors.

End of Day 2

DAY 3: DESIGN LEADING TO DESTINY

SESSION 1 (11:00 AM - 12:15 PM): REVIEWING WHAT THE PARTICIPANTS HAVE UNDERSTOOD

Objectives

- To review the M-CAT process steps and form filling

Session Plan: Role play on the forms and process

Instructions to the trainer

- Divide the ASHAs into three groups. (Preferably each group should be in a separate space)
  - Each group should have a trainer who will observe the role plays and respond.
  - Request the members of each group to get into pairs and role play the form filling process.
  - As far as possible ensure that all ASHAs role play the filling of at least two forms.
- After the role plays are over, bring the participants together to discuss the role plays.
- After there is clarity on form filling, get the participants to do a single role play of the process.
  - ASHAs, ANMs and the DEO can play their own roles.
  - The trainers can play the role of the pregnant and postpartum women and the MO.
- Encourage them to see the process right up to the monthly PHC meeting where risk is discussed and the ANMs get their follow up lists.

Notes to the trainer

- Ensure that the technicalities and the modalities of form filling are covered in the discussions.
- Refer to the model role plays while emphasising the importance of effective communication and rapport building.
- Inform the ANMs that they will need to check the ASHAs' forms when they submit these. Hence, they need to be aware of how the forms should be filled.
- Make the role play on process as realistic as possible with a description of how many days the entire cycle is likely to last.

Material needed

✓ Sets of forms

Expected outcomes

The participants should:

- acquire complete clarity on M-CAT forms and processes.
- become aware of challenges that could potentially arise.

SESSION 2 (12:15 - 1:30 PM): RESPONSES AND CHALLENGES TO THE M-CAT

Objectives

- To elicit a spontaneous response to the M-CAT
- To identify anticipated challenges
- To jointly address these challenges

Session Plan: Group exercise on challenges

Instructions to the trainer

- Ask each participant to come up with three words that best describe how they are feeling at this moment.
  - Record these words on a chart paper. Do not start a discussion on these feelings.
- Divide the participants into two groups.
  - Give each group a chart paper with pens.
  - Keeping in mind the role plays, ask Group 1 to identify potential challenges associated with the process of M-CAT with special reference to the feedback loop.
  - Ask Group 2 to identify challenges associated with form filling.
  - Give each group 15 minutes to complete this task. Request them to present their findings in the larger group.
- Conduct a discussion on how to jointly address the challenges identified by both groups.

Notes to the trainer

- Link some of the feelings to the challenges.
- Seek solutions from the participants so that that addressing challenges becomes a collaborative activity.
- Use the process cards and forms while discussing associated challenges.
- Draw their attention to the fact that this session is critical in strengthening the Design.

Materials needed

- ✓ Chart paper
- ✓ Pens
- ✓ Adhesives
- ✓ Forms
- ✓ Process cards

Expected outcomes

The participants should:

- identify real and practical challenges.
- should not feel overwhelmed by these challenges.
- be encouraged to find practical solutions to these challenges.

Lunch break: 1:30 - 2:30 pm

SESSION 3 (2:30 - 3:15 PM): ROLES OF STAKEHOLDERS

Objectives

- To ensure that all stakeholders are clear about the roles assigned to each of them, and to all others involved.
- To provide clarity on ANM-MO-DEO interface.

Session Plan: Group exercise on the roles of key stakeholders

Instructions to the trainer

- Ensure that the MO is present for this session.
- Divide the participants into groups.
  - Give each group a chart paper and markers. Ask them to discuss among themselves what the roles of the ASHAs, ANMs, ASHA facilitators, MO and DEO will be.
  - Request them to present this to the group.
- Refer to the background note on different roles and responsibilities to add to the existing understanding.

Notes to the trainer

- In the session on M-CAT process, there may have been some preliminary discussion on roles. Refer to this session to allow participants to link their roles with the overall process.
- The participants should feel that they are adequately supported by the end of this session.
- Let the participants know that human resources support is an important design component.

Material needed

- ✓ Chart paper
- ✓ Pens
- ✓ Adhesives
- ✓ Roles and responsibilities outline

Expected outcomes

The participants should:

- be on the same page on their expected role and on the roles of all others involved.
- contribute to the process of role clarification by relating these roles to their existing responsibilities.

Tea break: 3:15 - 3:30 pm

SESSION 4 (3:30 - 5:00 PM): ENDING ON AN INSPIRATIONAL NOTE

Objectives

- To recapitulate key elements of the training programme
- To conclude the training programme on an inspirational note

Session Plan

- Recapitulation: Structured around the 4 Ds
- Selecting a name for this intervention

Instructions to the trainer

- Conduct a brief recap session on the entire training programme.
  - Involve the participants in the recapitulation process.
  - Unravel the 4 Ds: the fourth D (Destiny) will emerge when the ASHAs, ANMs enter the field.
  - Inspire the participants to go forth as active agents who seek to change/influence Destinies through this intervention.
- Bring the training programme to a close by requesting the participants to conceive of a name for this intervention. Naming something creates a sense of ownership.

Material needed

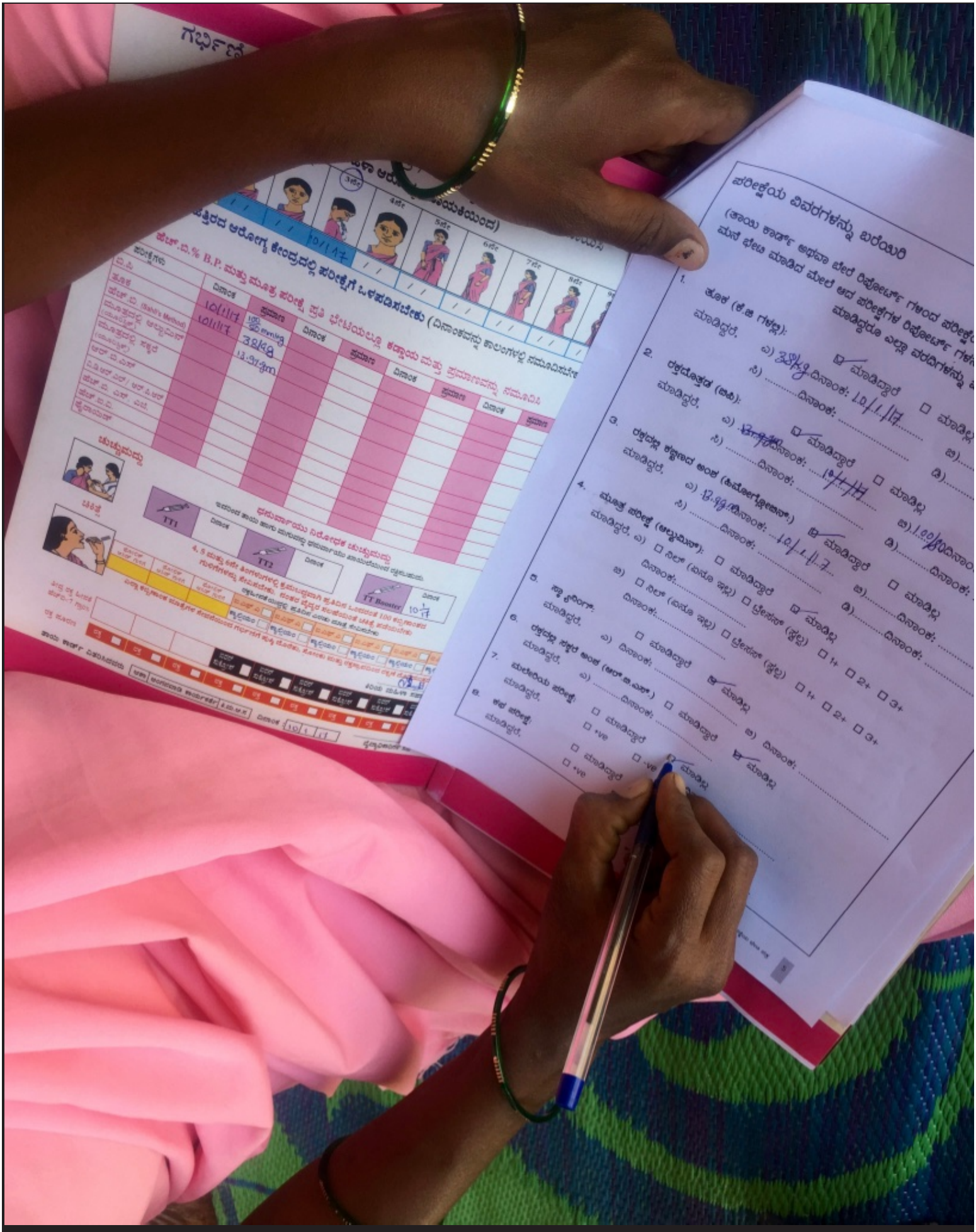
- ✓ Chart paper
- ✓ Pens

Expected outcome

The participants should:

- leave the training programme feeling energised and animated.
- feel that they can play a critical role in addressing maternal risks.
- develop a sense of ownership for the M-CAT.

End of Day 3



M-CAT Forms

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Maternal Clinical Assessment Tool

Strengthening the Quality of Reproductive Health Services in India Project

REGISTRATION FORM

(Fill up this form only if you meet the woman. All the information must be obtained directly from her.)

Preliminary Details

1. Full name of the woman: …… …… ……
   (First name) (Husband's name) (Surname)
2. Full name of the husband:…… …… ……
   (First name) (Father's name) (Surname)
3. Maternity Stage: ☐ Pregnant ☐ Postpartum
4. Registration Date: ……

Contact Details

Address of the marital home:

Street:…….…… Landmark :……

Village: ……..Taluk: ……

District: ……..Phone:: ……

Address of the natal home:

Street:…….…… Landmark :……

Village: ……..Taluk: ……

District: ……..Phone:: ……

Where is she currently living? ☐ Marital home ☐ Natal home ☐ Any other

If any other, please specify:…….

Personal Details

(Collect this information from the woman, not from the Thayi card)

1. Age (in completed years) ……..

2. Education: ☐ Illiterate ☐ Literate

   2A. If literate, then upto which standard have you passed? ……..

3. Religion: ☐ Hindu ☐ Muslim ☐ Christian

4. Caste: ……

Past History

(Please ask each question one by one)

1. Did your doctor tell you that you had **diabetes** before this pregnancy? ☐ Yes ☐ No
2. Did your doctor tell you that you had high **B.P** before this pregnancy? ☐ Yes ☐ No
3. Did your doctor tell you that you had **heart disease** before this pregnancy? ☐ Yes ☐ No
4. Did your doctor tell you that you had **anaemia** before this pregnancy? ☐ Yes ☐ No
5. Did your doctor tell you that you had **thyroid problem** before this pregnancy? ☐ Yes ☐ No
6. Did your doctor tell you that you had **any other problem** before this pregnancy? ☐ Yes ☐ No

   If yes, please specify: ……..……..……..……..

Obstetric History

Please fill in the table below by asking the woman about her previous pregnancies, including the current one.

Gravida	Duration of pregnancy ….months	Type of delivery: -Normal -C- Section	If C-Section, reason? - Breech - Meconium - No progress - CPD - Any other - Don't know	Outcome -Live Birth -Dead	Current status of the child - Alive - Dead	Age of child	Age at death

1. Date of the last delivery: …….
2. Did you have **breathlessness** in your previous pregnancy? ☐ Yes ☐ No
3. Did you have **severe pallor** in your previous pregnancy? ☐ Yes ☐ No
4. Did you **bleed excessively** after your previous delivery? ☐ Yes ☐ No
5. Did you have any other problems? ☐ Yes ☐ No

   If yes, please specify: ……..……..……..……..

Other Information

(Collect the following information from the woman, not from the Thayi card)

1. Last Menstrual Period: ……

   (Collect the following information from the Thayi card)
2. Height (in c.m.): ……

(Collect the following information from the woman or the Thayi card)

3. Blood group: □ A+ □ A- □ B+ □ B- □ O+ □ O- □ AB+ □ AB-

Project Details

Woman's ID: ……

1. Name of the Village: ……
2. Name of the PHC: ……
3. Name of the ASHA: ……
4. Name of the ANM: ……
5. Name of the ASHA facilitator: ……

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VISIT FORM: PREGNANCY

(Fill up this form only if you meet the woman. All the information must be obtained directly from her.)

Visit Date:……WID:……

Name of the woman:……..

Ask the woman about this pregnancy:

1. Do you have fever? ☐ Yes ☐ No
   - If no, proceed to question 2.
   - If yes, ask questions 1 A and 1 B, and then proceed to question 2.

   1A. Is it associated with chills and shivering? ☐ Yes ☐ No

   1B. Does the fever come and go? ☐ Yes ☐ No

2. Do you feel tired when you do housework? ☐ Yes ☐ No

3. Have you had fits? ☐ Yes ☐ No

4. Have you lost consciousness? ☐ Yes ☐ No

5. Have you felt giddy and blacked out? ☐ Yes ☐ No

6. Do you have severe headaches? ☐ Yes ☐ No

7. Do you have blurred vision, during the day time? ☐ Yes ☐ No

8. Do you feel breathless? ☐ Yes ☐ No
   - If no, proceed to question 9.
   - If yes, ask question 8 A, and then proceed to question 9.
   - 8A. When do you feel breathless? (Tick one or more options)

     ☐ Sitting or lying down ☐ Cooking or cleaning ☐ Carrying loads

9. Do you have a cough? ☐ Yes ☐ No

- If no, proceed to question 10.
- If yes, ask question 9A and then proceed to question 10.
- 9A. For how long have you had a cough?

  ☐ More than 3 weeks ☐ Less than 3 weeks

10. Do you have any abdominal pain? ☐ Yes ☐ No

- If no, proceed to question 11.
- If yes, ask question 10A and then proceed to question 11.
- 10A. Where does it pain?

  ☐ Upper abdomen ☐ Lower abdomen ☐ All over

11. Have you felt the baby move in the past 12 hours? ☐ Yes ☐ No

12. Do you have any white vaginal discharge that smells unpleasant?
☐ Yes ☐ No

13. Do you have any bleeding? ☐ Yes ☐ No

- If no, proceed to question 14.
- If yes, ask questions 13A, and then proceed to question 14.
- 13A. What kind of bleeding is it?

  ☐ Spotting ☐ Period-like ☐ Tap-like

14. Have the waters broken? ☐ Yes ☐ No

15. Do you have any burning or pain while urinating? ☐ Yes ☐ No

16. Have your toe-rings become tighter? ☐ Yes ☐ No

17. Has it become difficult to wear your bangles? ☐ Yes ☐ No

18. Do you have **any other problems**? ☐ Yes ☐ No

If yes, please specify: ……..……..……..……..

Examine the woman:

(At this point, get permission from the woman to proceed with the interview, as you will need to examine her physically. Ask the following: "May I proceed? I need to conduct some simple examinations by touching your eyes and feet.")

1. **Look at her eyes:**
   - **A**. Raise her upper eyelid and ask her to look down. What colour do you see? ☐ White ☐ Yellow
   - **B.** Pull down her lower eyelid and look inside her lower eyelid. What is the colour? ☐ Pink ☐ Pale

2. **Look at her feet.** Do you find a depression upon pressing the front bone near the ankle? ☐ Yes ☐ No

Observe the woman:

1. Does she look out of breath? ☐ Yes ☐ No
2. Look at her face. Do you see any puffiness of face or swelling around the eyes? ☐ Yes ☐ No

Copy test results:

(Copy the results from the woman's Thayi card. Reports of the tests done only after the last visit by the ASHA should be recorded. If each test was done more than once, copy all of the available results.)

1. Weight (in kg.) ☐ Done ☐ Not Done
   If done, a) ……..date: ……. b)…….date: ……..
   c) ……..date: ……. d)…….date: ……..

2. BP (mm Hg): ☐ Done ☐ Not Done
   If done, a) ……..date: ……. b)…….date: ……..
   c) ……..date: ……. d)…….date: ……..

3. Iron content in the blood (Haemoglobin) : ☐ Done ☐ Not Done
   If done, a) ……..date: ……. b)…….date: …….
   c) ……..date: ……. d)…….date: ……..

4. Urine test (albumin) : ☐ Done ☐ Not Done
   If done, a) ☐ Nil ☐ Traces ☐ 1+ ☐ 2+ ☐ 3+
   Date:.....
   b) ☐ Nil ☐ Traces ☐ 1+ ☐ 2+ ☐ 3+
   Date:…….

5. Sugar in blood (RBS): ☐ Done ☐ Not Done
   If done, a) ……..date: ……

6. Test for Malaria: ☐ Done ☐ Not Done
   If done, a) ☐ +ve ☐- ve date: ……

7. Sputum Test: ☐ Done ☐ Not Done
   If done, a) ☐ +ve ☐ -ve date: ……

ALERT NOTE TO THE ASHA:

- **Alert 1**

Assess the woman to see if she has suffered from any of these symptoms in the last one week.

1. Loss of consciousness ☐ Yes ☐ No
2. Fits ☐ Yes ☐ No
3. Giddiness and blacking out ☐ Yes ☐ No
4. Severe bleeding ☐ Yes ☐ No
5. Severe fever ☐ Yes ☐ No
6. Breathlessness at rest ☐ Yes ☐ No
7. Talking irrelevantly, behaving violently or abnormally, being out of touch with reality ☐ Yes ☐ No

The presence of any of these symptoms indicate a possibility of an **emergency**. If any are present:

- Contact the ANM and/ or doctor immediately and t**ake her to a nearby hospital**, as advised.
- Ensure that the hospital referred to has specialist doctors and emergency facilities available.

- **Alert 2**

If any of the symptoms mentioned below **currently** exist then take the woman to a **health facility** immediately.

1. Leaking PV ☐ Yes ☐ No
2. Loss of foetal movements for the last 12 hours after 7 months of pregnancy ☐ Yes ☐ No

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DELIVERY REGISTRATION FORM

(This information is to be collected at the first visit after delivery)

Visit Date:……..WID:……

Name of the woman:……

1.Date of this delivery: ……

2.For how many months did the pregnancy last? ……

3.Did you give birth to a live baby? ☐ Yes ☐ No

4.Place of delivery: ☐ Home ☐ Govt. health facility
☐ Private health facility ☐ On the way

Name of the place: ……

5.Who conducted the delivery? Indicate all persons:

☐ Govt. doctor ☐ Govt. nurse ☐ Private doctor ☐ Private nurse
☐ ANM ☐ LHV ☐ RMP ☐ Any other

If any other, please specify: ……..

6.Type of delivery? ☐ Normal ☐ C-Section

7.Birth weight of the baby (in kg) : ……

8.Was there any excessive bleeding after delivery? ☐ Yes ☐ No

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VISIT FORM: POSTPARTUM

(Fill up this form only if you meet the woman. All the information must be obtained directly from her.)

Visit Date:……WID:……

Name of the woman:……..

Ask the woman about this postpartum phase:

1. Do you have fever? ☐ Yes ☐ No
   - If no, proceed to question 2.
   - If yes, ask questions 1A and 1B, and then proceed to question 2.

   1A. Is it associated with chills and shivering? ☐ Yes ☐ No

   1B. Does the fever come and go? ☐ Yes ☐ No
2. Have you had fits? ☐ Yes ☐ No
3. Have you lost consciousness? ☐ Yes ☐ No
4. Do you have severe headaches? ☐ Yes ☐ No
5. Do you have blurred vision, during the day time? ☐ Yes ☐ No
6. Do you have difficulty in feeding the baby? ☐ Yes ☐ No
   - If no, proceed to question 7.
   - If yes, ask question 6A & 6B and then proceed to question 7.

   6A. Do you have pain and redness in your breasts? ☐ Yes ☐ No

   6B. Is there any painful lump in your breasts? ☐ Yes ☐ No
7. Do you feel breathless? ☐ Yes ☐ No
   - If no, proceed to question 8.
   - If yes, ask question 7A, and then proceed to question 8.

   7A. When do you feel breathless? (Tick one or more options)

   ☐ Sitting or lying down ☐ Cooking or cleaning ☐ Carrying loads

8. Do you have a cough? ☐ Yes ☐ No

- If no, proceed to question 9.
- If yes, ask question 8A and then proceed to question 9.

8A. For how long have you had a cough?

☐ More than 3 weeks ☐ Less than 3 weeks

9. Do you have any abdominal pain? ☐ Yes ☐ No

- If no, proceed to question 10.
- If yes, ask question 9A and then proceed to question 10.

9A. Where does it pain?

☐ Upper abdomen ☐ Lower abdomen ☐ All over

10. Do you have any vaginal discharge that smells unpleasant? ☐ Yes ☐ No

11. Do you have any bleeding? ☐ Yes ☐ No

- If no, proceed to question 12.
- If yes, ask questions A to D, and then proceed to question 12.

A. For how many days have you been bleeding after delivery? .....

B. Do you pass clots while bleeding? ☐ Yes ☐ No

C. How many cloths do you change in a day? .....

D. Has the bleeding increased? ☐ Yes ☐ No

12. Do you have any pus/ swelling/ pain either at the episiotomy wound or the C-Section wound? ☐ Yes ☐ No

13. Do you have any burning or pain while urinating? ☐ Yes ☐ No

14. Do you have **any other problems**? ☐ Yes ☐ No

If yes, please specify: ……..……..……..……..

Examine the woman:

(At this point, get permission from the woman to proceed with the interview, as you will need to examine her physically. Ask the following: "May I proceed? I need to conduct some simple examinations by touching your eyes and feet.")

1. **Look at her eyes:**
   - **A**. Raise her upper eyelid and ask her to look down. What colour do you see? ☐ White ☐ Yellow
   - **B.** Pull down her lower eyelid and look inside her lower eyelid. What is the colour? ☐ Pink ☐ Pale

2. **Look at her feet.** Do you find a depression upon pressing the front bone near the ankle? ☐ Yes ☐ No

Observe the woman

1. Does she look out of breath? ☐ Yes ☐ No

2. Look at her face. Do you see any puffiness of face or swelling around the eyes? ☐ Yes ☐ No

Copy test results:

(Copy the results from the woman's Thayi card. Reports of the tests done only after the last visit by the ASHA should be recorded. If each test was done more than once, copy all of the available results.)

1. BP (mm Hg): ☐ Done ☐ Not Done
   If done, a) ……..date: ……. b)…….date: ……..
   c) ……..date: ……. d)…….date: ……..

2. Iron content in the blood (Haemoglobin) : ☐ Done ☐ Not Done
   If done, a) ……..date: ……. b)…….date: ……
   c) ……..date: ……. d)…….date: ……..

3. Urine test (albumin) : ☐ Done ☐ Not Done
   If done, a) ☐ Nil ☐ Traces ☐ 1+ ☐ 2+ ☐ 3+
   Date:.....
   b) ☐ Nil ☐ Traces ☐ 1+ ☐ 2+ ☐ 3+
   Date:…….

4. Test for Malaria: ☐ Done ☐ Not Done
   If done, a) ☐ +ve ☐- ve date: …….

5. Sputum Test: ☐ Done ☐ Not Done
   If done, a) ☐ +ve ☐ -ve date: …….

ALERT NOTE TO THE ASHA:

- **Alert 1**

Observe the woman and ask her or her family members whether she has suffered from any of these symptoms in the last one week.

1. Loss of consciousness ☐ Yes ☐ No
2. Fits ☐ Yes ☐ No
3. Severe bleeding ☐ Yes ☐ No
4. Severe fever ☐ Yes ☐ No
5. Breathlessness at rest ☐ Yes ☐ No
6. Talking irrelevantly, behaving violently or abnormally, being out of touch with reality ☐ Yes ☐ No

The presence of any of these symptoms indicate a possibility of an **emergency**. If any of these are present:

- Contact the ANM and/ or doctor immediately and t**ake her to a nearby hospital**, as advised.
- Ensure that the hospital referred to has specialist doctors and emergency facilities available.

Sample Case Sheet

Case-sheet generated on 15-04-17 by computerised algorithm based on data collected by ASHA during a home visit on 05-04-17		
Name: ABCD	**WID**: 1028	
Current Address: Hosuru, Yelburga Taluk, Koppal District		
Alternate Address: Madluru, Yelburga Taluk, Koppal District		
LMP: 13-08-16	**Age**: 23	**EDD** : 20-05-2017
HIGH RISK	**Third Trimester: G3P1A1L1**	
Clinical Risk:		
(1) Look for BP, pedal edema, urine albumin, epigastric pain, giddiness and headache to rule out **Imminent Eclampsia**.		
(2) Look for Hb reading to rule out **Anemia**		
Predisposing Factors: Multigravida, Short stature, Short birth spacing.		
Past History: H/o excessive bleeding in previous delivery		
Details of the delivery: NOT APPLICABLE		
Current History: Tiredness, tightening of toe rings, fits		
General Examination: Pitting pedal edema +; Pallor +;		
Vitals:		
Weight: 52 kg (02-04-17); 48 kg (10-09-17)		
BP: 130/90 (02-04-17); 130/80 (10-09-17		
Lab Tests: Hb : 9 gm (02-04-17)		

The 15 ASHAs of Sanganhal PHC, Koppal district who participated in the M-CAT project.