

## CASE STUDY

### Increasing facility efficiency by improving triage of antenatal care of pregnant women in FRU Charkhi Dadri, Bhiwani District, Haryana, India

#### Summary

Charkhi Dadri is a First Referral Unit (FRU) in Bhiwani District in Haryana State and one of four facilities in Bhiwani that is being supported by the USAID ASSIST Project. On an average, about 350 to 400 antenatal care (ANC) cases are seen in Charkhi Dadri per month. The facility's staff found that the waiting time for pregnant women to receive ANC services was extremely long due to inefficiencies in their triaging. The facility formed team which used quality improvement methods to streamline ANC services. This led to: 1) women spending less time in the clinic, 2) medical officers having more time to attend to women individually; 3) higher compliance with obstetric history taking, fundal height examination and counselling; and 4) increase in identification of women with high-risk conditions.

#### Background

Charkhi Dadri is a First Referral Unit (FRU) in Bhiwani District in Haryana State. It is one of the four facilities in which the USAID ASSIST Project is providing support through a district quality improvement (QI) coach to improve care under the Government of India's RMNCH+A strategy. Charkhi Dadri caters to approximately 125 deliveries a month or eight percent of all deliveries in public health care facilities in the district. On an average, about 350 to 400 antenatal care (ANC) cases are seen in the facility per month. There are two Medical Officers (MOs) and two Auxiliary Nurse Midwives (ANMs) available for providing ANC services six days a week.

#### Problem identification in ANC triage

Pregnant women have to interact with various staff at Charkhi Dadri to receive different elements of antenatal care. This includes the registration clerk, Medical Officer, staff nurse, ANMs, ultrasonography (USG), laboratory technician and pharmacist. It was long felt by the facility in-charge and staff that the ANC process was cumbersome, with both staff and pregnant women wasting much time which ultimately affected the quality of ANC services and decreased patient satisfaction. The team decided to use the quality improvement skills that they had learned from the USAID ASSIST project to address this problem.

The team found that a woman's waiting time was unnecessarily increased because of several superfluous and repetitive steps:

1. Inefficient registration- There was only one queue available for both general patients attending outpatient department and for pregnant women. The pregnant women had to register first at the general registration desk and then go to a separate room for ANC registration. This led to time lost in queuing for general registration.
2. Repetition: After general registration, women were required to go to the post-partum care (PPC) room for ANC registration. Following this, they were required to visit the MO's room to obtain handwritten orders for laboratory investigations on an outpatient department (OPD) slip. After the

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laboratory examination of hemoglobin and albumin, they were required to come back to the PPC room for height and weight measurement as well as blood pressure check, along with the update of their ANC records by an ANM. After this, they had to visit the MO's room for checking their lab records and for medical examination. Thus, there were numerous steps which made ANC very lengthy.

3. No time-saving methods: Lab instructions were written by hand, which was time-consuming.

### ANC flow process measurement

The team decided to improve this process. The aim was set as "Improvement in the ANC triage in order to reduce waiting time and improve quality of antenatal care in the facility." Although it was well known that ANC was lengthy, what was not known was how much time a pregnant woman spent at each step of the ANC process and how much time could be saved by improving the process. As a first step, the team decided to measure the time taken by pregnant women to complete the ANC cycle. This was expected to provide concrete results used to measure improvement and also to advocate for changes in the ANC triage. The QI team randomly chose three pregnant women on three separate days and monitored them for the total time they spent from entry to exit in addition to time measured at each step. In order to measure time for each ANC step, the staff used a stop watch and were instructed to write down the exit time on the OPD slips of the selected pregnant women, which were marked with a coloured pen for identification. By doing this, the team was able to obtain the individual time spent for different ANC services. Overall, a pregnant woman took between 115 and 153 minutes to receive ANC services at Chakri Dadri.

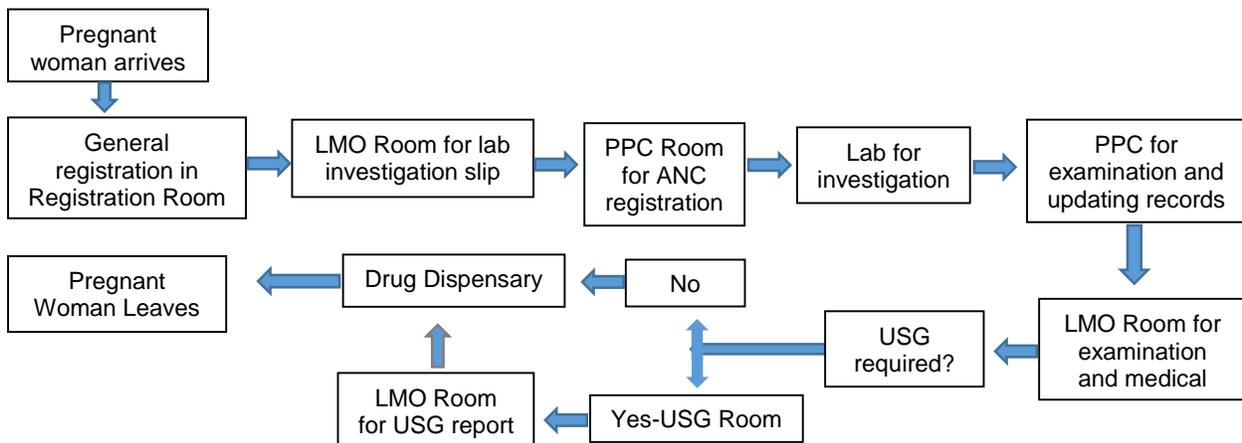
### Testing of change idea

On analysing the results from the time measurement, the team found that a pregnant woman's time receiving ANC services could be reduced and the process streamlined by introducing the following changes:

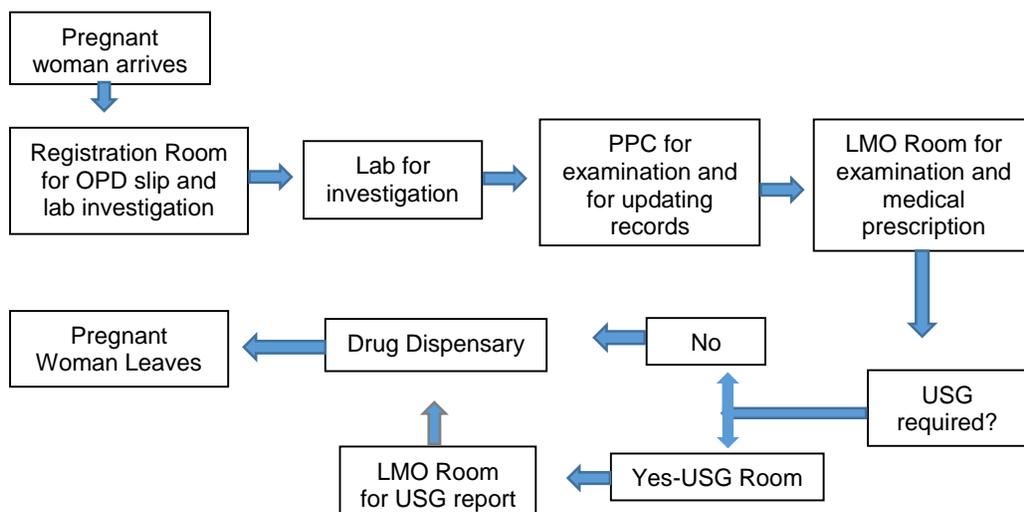
1. Remove general registration for pregnant women and have them register only for ANC.
2. During the first ANC visit, waiting time in the MO room and then in the PPC room were potential steps to remove. Pregnant women could be provided with OPD slips with lab requirements in the ANC registration room itself, so that they no longer would have to visit the PPC room and LMO room. They could go directly to the lab for investigation.
3. Lab investigation slips could be stamped rather than being hand-written as the latter is a more time-consuming process.

These changes reduced the steps of ANC triage as shown in the before and after flow charts below.

### ANC triage before intervention



## ANC triage after intervention



## After testing of change idea

These changes were incorporated and the time again measured for three chosen pregnant women at separate times. It was found that between 29 and 31 minutes were saved for every ANC visit with the new triage, and the time for different services was reduced as shown in Table 1.

**Table 1. Average time taken by pregnant women at each ANC service before and after change idea**

ANC steps	Time taken (before intervention)	Time taken (after intervention)
General registration	11-17 min	3-4 min
LMO room for lab investigation slip	12-15 min	0
PPC room for ANC registration	7-10 min	0
Lab investigation	22-28 min	20-25 min
PPC for examination & record updating	7-9 min	11-13 min
LMO room for examination	24-30 min	21-25 min
Ultrasonography	20-31 min	21-31 min
LMO room for USG report	5-4 min	4-5 min
Drug dispensary	7-9 min	6-10 min
Total time required	115-153	86-113 min

## What were the outcomes of these changes?

On subsequent days after implementing these changes, it was observed that the MO had more time to spend with pregnant women. Previously the MO had to see one pregnant woman twice, the first time unnecessarily when she had to write and hand out lab investigation slips that doubled the patient attending time. There was overcrowding, noise, and difficulty in patient management in the MO room. After the changes, the following outcomes were reported:

*Undue rush of beneficiaries is no more in the examination room. It has become easier and more comfortable to examine pregnant women when there is no unnecessary movement of patients in the room. Abdominal examination is an important part of examination, and we are doing it more efficiently.*

-Medical Officer, Charkhi Dadri FRU

1. Number of steps that required each pregnant woman to interact the MO with was reduced by half, leaving the MO more time to attend to women individually.

2. There was a reported increase in performance of other key tasks, such as obstetric history taking, fundal height examination and counselling regarding nutrition, consumption of medicine, and identification of danger signs of pregnancy.
3. There was increase in identification of high-risk cases after three to four months since implementation of the change idea (Table 2). Immediate changes in identification were not seen as it takes time for a new process to be established in an existing system and become a regular practice.

**Table 2. Number of high-risk pregnancy cases detected in ANC**

Cases	Aug-14	Sep-14	Oct-14	Nov-14	Dec-14	Jan-15
Total ANC	307	285	314	297	227	215
High-risk pregnancy	0	2	1	2	36	19

### How was the change institutionalized?

After successfully testing the change idea, the team met with the Senior Medical Officer (SMO) and informed him about the results. This change was appreciated by the SMO because it was not forcibly imposed on the facility but implemented with the support of internal facility staff. With consensus it was decided to incorporate these changes in the ANC triage in the facility. A meeting was organized in which all staff members were informed of the new process of ANC examination.

*It's a win-win situation for beneficiaries and facility workers. We are surprised to see how small changes can improve system efficiency.*

-Facility Gynaecologist, Chakri Dadri FRU

### Conclusion

Application of quality improvement principles in improving triage can increase efficiency without adding any extra human and material resources.

Replication of this intervention in other facilities can save time of pregnant women and make the health system more efficient. Improved patient flow, greater patient and provider satisfaction and reduced waiting times would allow for service delivery to more patients using the same staff following the implementation of triage.

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