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Applying Science to Strengthen and Improve Systems

CASE STUDY

Improving assessment and monitoring of women in labour at District Women's Hospital, Pauri, Uttarakhand, India

Summary

The District Women's Hospital in Pauri Garhwal district in Uttarakhand State is a 33-bed facility and provides delivery care to 40 women a month, approximately six percent of all institutional deliveries in the district. The hospital has faced challenges in managing complications associated with deliveries. They do not have the ability to conduct Caesarian sections (C-sections), so often refer women to a nearby medical college. Unfortunately, many women are referred late and end up delivering in the ambulance. To address this, the improvement team set up a system to ensure that women are referred appropriately. This involved improving the initial assessment when women came into the facility in labour and using partograms to improve assessment of women in labour to pick up delayed progression of labour early, while it was still safe to transport women. After implementation, women are no longer delivering in ambulances, management of labour has improved, and referrals have decreased from 36 to 21 percent.

Introduction

Pauri Garhwal is one of the high priority districts in Uttrakhand under the Government of India's RMNCH+A initiative. The district has separate male and women hospitals. The District Women's Hospital (DWH) is a 33-bed hospital. The staff responsible for labour and delivery care consists of two gynaecologists, three sisters in charge, five staff nurses, two auxiliary nurse midwives, and two ward attendants. This hospital, along with its male counterpart, provides health services to a population of 687,271. DWH attends about 40 deliveries per month (about six percent of all the institutional deliveries in the district) and provides antenatal care services to about 65 pregnant women per month. There is no provision for C-section deliveries.

Table 1: Members of the DWH Pauri Quality Improvement Team

Name	Designation
Kanak Banautha	Lady Medical Officer
P.B. Bisht	Assistant Nursing Superintendent
Roshni Gosain	Staff Nurse
Anuradha	Staff Nurse
Kalpana Kandari	Staff Nurse
Sharon Mathews	Staff Nurse
Menka Negi	Staff Nurse
Vijaylaxmi Panwar	Staff Nurse

Challenges to the health system in Pauri

The major challenge faced in ensuring health services in Pauri is accessibility. Pauri is located on the northern Himalayas and includes 15 blocks which are hard to reach—some are located at an altitude of 2600 metres or more. The roads within Pauri are narrow enough to be compared to snake trails, and most of them get washed away each year with heavy monsoon rains. There are still many areas where villages are not connected by roads and thus, no ambulance can reach these areas in case of emergency. In June 2014, a mother lost her life in Thalisain block of Pauri. The maternal death review

DECEMBER 2014

This case study was authored by Anisha Singh, Mahtab Singh, and Nigel Livesley of University Research Co., LLC (URC) for the United States Agency for International Development (USAID) Applying Science to Strengthen and Improve Systems (ASSIST) Project, made possible by the generous support of the American people through USAID's Bureau for Global Health, Office of Health Systems. The USAID ASSIST Project is managed by URC under the terms of Cooperative Agreement Number AID-OAA-A-12-00101. URC's global partners for USAID ASSIST include: EnCompass LLC; FHI 360; Harvard University School of Public Health; HEALTHQUAL International; Initiatives Inc.; Institute for Healthcare Improvement; Johns Hopkins Center for Communication Programs; and WI-HER LLC. For more information on the work of the USAID ASSIST Project, please visit www.usaidassist.org or write assist-info@urc-chs.com.

showed the cause of death as post-partum haemorrhage (PPH) but there were other factors related to her death. The village where the maternal death happened is not connected by any road, and the nearest point to which an ambulance can reach is 14 kilometres away. The woman delivered at home and had PPH. She then had to walk 14 kilometres through the forest to get any medical assistance. Unfortunately, she succumbed to blood loss while on her way. This is an example where PPH was the proximal cause of maternal death but inaccessibility to skilled birth attendants was the root cause of death. While this maternal death was not related to the quality of care at DWH, the issue of delays in accessing delivery care underscores the importance of timely management of complications such as a bleeding upon the woman's arrival at the facility.

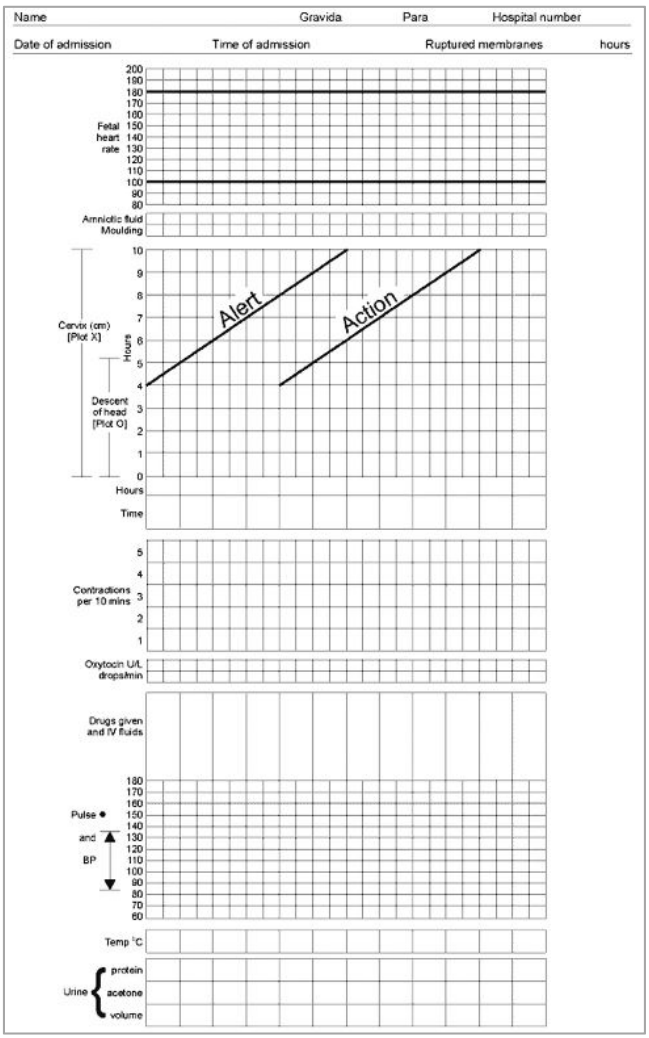
Changes to maternal assessment and partogram use to manage deliveries

In the first week of July, the improvement team at DWH started work to ensure that women with complications were identified early and managed correctly. The goals was to 1) only refer women who were safe to be referred and who were unlikely to deliver in the ambulance, 2) to identify complications early and to either refer them to higher facilities or to manage them early at their facility.

Previously, women were being referred to higher facilities if they came into the facility in labour and the nurses were concerned about them. Complete assessments were not done and women were referred without an assessment of whether they were safe to be referred. To address this, the gynaecologist trained the nurses to check cervical dilatation and measure contraction strength, frequency and duration and only refer women with less than four cm dilatation and weak contractions.

In addition, the gynaecologist trained the staff nurses on the benefits of partograms, how to use them to monitor progress of labour, and how to react to abnormal findings. The improvement team also started working on improving partogram use. The team found that they were using an old version of the partogram that was complicated to fill out. The USAID ASSIST Project staff provided the team with the World Health Organisation (WHO) simplified format to make its use simpler. Staff nurses also introduced a register to record the time when each partogram was completed. After trying this for a week, the QI team members discarded the register since it was time-consuming and instead attached the partogram to the patient's record. In addition to the initial training and development of the recording system, the team used the following changes to support partogram use:

- Staff nurses maintained a stock of multiple copies of the partogram form in the labour room and attached a blank partogram to each clinical record when a woman was admitted.



WHO-modified partogram.
Source: World Health Organisation

- At the time of shifting of duties, staff nurses ensured proper handover of partogram charts along with other clinical records to the new shift.
- Staff nurses did a weekly review of completed partograms to ensure appropriate completion of the partogram and clarified any discrepancies with the gynaecologist.

Results

From July through September 2014, 184 women were admitted in labour at DWH; 35 women (19 percent) were immediately referred to a higher facility at the time of presentation for various reasons: history of C-section (six cases), post-term pregnancy (seven cases), per vaginal bleeding (eight cases), severe anaemia (three cases), cord prolapse (four cases), intra-uterine growth retardation (two cases), intra-uterine death (one case), pregnancy-induced hypertension (one case), obstructed labour (one case) and no foetal movement (two cases). All of these women had been assessed prior to referral and were less than four centimetres dilated. Thus, women admitted in labour are now assessed appropriately and not referred just based on the history alone as was done prior to partogram use.

The other 149 were all managed using partograms, and 24 of these women (16 percent) had a change in management based on the partogram (see Table 2). Problems identified by partogram use included: maternal hypertension (six cases), meconium stained liquor (five cases), abnormal foetal heart (four cases), delayed progress of labour rate with no signs of foetal distress (four cases), delayed progress of labour rate with signs of foetal distress (four cases) and maternal hypotension (one case).

Table 2: Management practices for maternal complications as identified by partogram

Condition	Management
Maternal hypertension	Methyldopa
Abnormal foetal heart rate	Intravenous infusion of the following: • Five percent dextrose • Sodium bicarbonate • Ceftriaxone
Meconium stained liquor	Suctioning of oropharynx and nasopharynx and i.m antibiotic combination of sulbactam and ceftriaxone.
Delayed progress of labour with no sign of fetal distress	Misoprostol tablets 250mg per vaginally – four to five doses at four hour interval In case of primigravida when cervical dilatation is three to four cm then further augmented by five IU of oxytocin through intravenous infusion.
Delayed progress of labour with signs of fetal distress	Women referred to Srinagar Medical College
Maternal hypotension	Intravenous infusion of polygeline polypeptide (haemaccel)

Early interventions conducted at DWH

The partogram record of six women showed that high blood pressure was reported during the progress of labour. In these cases, methyldopa was administered, and blood pressure was recorded frequently. Blood pressure was reported to be within the normal range during further progress of labour. The partogram records had five reported cases of meconium stained amniotic fluid just before full dilatation. This helped alert the staff about the condition of the new-born. These five babies were closely monitored for vital signs and successfully managed following the protocol of meconium aspiration.

Furthermore, there were four reported cases where foetal heart rate (FHR) was found to be either higher than 160 beats/min or lower than 120 beats/min. In all four cases, drug interventions were done to manage FHR within normal range and for which it was recorded very frequently for the subsequent 10 minutes. Close monitoring and timely intervention helped in prompt management of foetal heart rate abnormality and normal delivery was conducted for 100% of these mothers at DWH. One case of low blood pressure was also identified by using the partogram during the progress of labour. The mother was treated with polygeline polypeptide infusions. All of these mothers delivered healthy babies at DWH and were discharged after 48 hours of

stay at the hospital. Since starting to assess women in labour correctly and to use partograms regularly, the proportion requiring referral to another facility has decreased from 36 percent in the three months before the improvement project started to 21 percent in the subsequent three months.

Conclusion

DWH Pauri applied improvement methods to ensure that women are assessed and monitored in labour and that partograms are used for all deliveries. Referrals have decreased, deliveries in the ambulance have been prevented and sixteen percent of women had a change in management based on partogram since its implementation in July 2014. The efforts of the labour room staff have been successful in establishing a system to monitor progress of labour and provide need-based delivery care.

The staff aspires to further improve the quality of delivery care and step towards other spheres of continuum of care under RMNCH+A.

This case study was made possible by the support of the American people through USAID. The contents of this case study are the sole responsibility of URC and do not necessarily reflect the views of USAID or United States Government.