

**An Assessment of C-section deliveries in Bhandara district of
Maharashtra**

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Table of Contents

Sr. No.	Contents	Page No.
1.	Executive Summary	5
2.	Chapter I Introduction	14
3.	Chapter II Background Characteristics and Living Conditions	18
4.	Chapter III: Antenatal Care, Obstetric Complications and Caesarean Delivery	30
5.	Chapter IV: Health Facilities providing Caesarean delivery	52
6.	Chapter VI: Quality analysis from field visit and Observations	65

List of Figures and Tables	Page No.
Figure1: Trends in cesarean section deliveries at public facilities in Bhandara	16
Table 2.1 Respondents by background characteristics Percentage of respondents by background characteristics in Bhandara, 2016	19
Table 2.2 Housing characteristics Percentage of respondents by housing characteristics and living conditions in rural Bhandara, 2016	21
Table 2.3 Percentage of respondents by marriage and reproduction in rural Bhandara, 2016	24
Table 2.4 Distribution of cesarean section cases by awareness and access to banking and government schemes in rural Bhandara, 2016	26
Table 3.1: ANC Care and Complications during Pregnancy	30
Table 3.2: Causes of caesarean deliveries and morbidity outcomes between deliveries, emergency and planned C-sections	34
Table 3.3 Percentage of respondents by place of delivery in rural Bhandara	37
Table 3.4 Reason for C Section (elective) in rural Bhandara	40
Table 3.5 Reason for C Section (emergency) in rural Bhandara	43
Table 3.6: Caesarean delivery and Postnatal complications and Care	48
Table 3.7 Post Natal Complication to Mother and babies in rural Bhandara	52
Table 4.1- Type of units available, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	53
Table 4.2 Type of Infrastructure available, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	54
Table 4.3: Availability of personnel at DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	55
Table 4.4 Services offered, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	56
Table 4.5 Type of mode of communication, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	56
Table 4.6 - Facilities from where patients are referred, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017	57
Table 4.7 Outcome of the referral beneficiaries, DH, Bhandara and SDH, Tumsar, January 2016	60

to February 2017

Table 6.1: Total number of deliveries and Maternal and infant deaths in villages covered under PHC Mohadura	66
Table 6.2: Cesarean section rates, difference of ideal to actual number of cesarean during 2016 for villages under PHC Mohadura, Bhandara taluka, Maharashtra	67
Table 6.3: Details of Literacy, Sex Ratio and Amenities of the visited villages, PHC Mohadura	69
Table 6.4: Cesarean section rates, difference of ideal to actual number of cesarean during January 2016 to February 2017 (ref period) for villages under PHC Dewhadi, Tumsar taluk, district Bhandara Maharashtra	76
Table 6.5: Details of Literacy, Sex Ratio and Amenities of the visited villages, PHC dehwadi	77
Figure 6.6 Map of PHC -Chulhad	78
Table 6.7: Total number of deliveries and Maternal and infant deaths in villages covered under PHC Chulhad	79
Table 6.8: Cesarean section rates, difference of ideal to actual number of cesarean during January to December 2016 for villages under PHC Chulhad, Tumsar taluk, Bhandara, Maharashtra	80
Table 6.9: Details of villages under the service area of PHC Mohadura	81
Table 6.10: Cesarean section rates, difference of ideal to actual number of cesarean during 2016 for villages under PHC Shahapur, Bhandara taluka, Maharashtra	82

Executive Summary

Caesarean sections are effective in saving maternal and infant lives, but only when they are required for medically indicated reasons and ideally only be undertaken when medically necessary. Quality of care, particularly in terms of safety, is an important consideration in the analysis of caesarean section rates and mortality. As with any surgery, caesarean sections are associated with short and long term risk which can extend many years beyond the current delivery and affect the health of the woman, her child, and future pregnancies. These risks are higher in women with limited access to comprehensive obstetric care. The risk of infection and complications from surgery are potentially dangerous, particularly in settings that lack the facilities and/or capacity to properly conduct safe surgery.

Based on our study, we arrive at the following conclusions

- The effects of caesarean section rates on other outcomes, such as maternal and perinatal morbidity, paediatric outcomes, and psychological or social well-being are still unclear. More research is needed to understand the health effects of caesarean section on immediate and future outcomes.
- Majority of the women are aware of government schemes such as JSY and JSSK. Strikingly only 20 percent of the respondents were aware of Indira Gandhi Matrutva Sahayog Yojana (IGMSY) scheme which on pilot basis was initiated in Bhandara district in 2013.
- Almost all the women had undertaken USG test during pregnancy in our study. Strikingly majority of women have undergone USG test thrice and twice. Substantial number of women reported to have taken USG atleast four times and alarmingly 6 women have reported to have taken USG test five times. There are also extreme cases of women undergoing USG test six and seven times.
- Interestingly, 82 percent of the women reported USG test report to be normal and only 16 percent of women reported USG test report as not normal.
- The complication reported by women was Breach Presentation, Less water around fetus, and Low weight of baby, Placenta perivia and position of baby as transverse.
- An investigation and research need to be done on whether these much number of USG test is required when women herself reported neither there was a major indication from health personnel of complicated pregnancy.

- It is bit intriguing when majority of women seek ANC care either in public facilities or both public and private facilities still substantial number of women incurred ANC expenditure in the range of Rs 1000 to Rs 5000 and in the range of Rs 5000 to Rs 10000.
- Overall the number of women outreferred is less in government hospital which implies the availability of basic infrastructure and human resources for conducting caesarean delivery.
- Majority of the women delivered either same day as day of admission or within 2 and 3 days of admission. Majority of the cases were emergency c section. Sex ratio at birth is tilted in favor of male child with 840 female per 1000 male.
- Reasons were diverse for respondents with elective caesarean section such as Don't want pain/unable to bear pain, precious baby after long gap, relatives suggested, good date and history of abortion/baby loss.
- The responses of women who underwent emergency caesarean section were diverse such as pass due date no pain, blood loss, high BP, less fluid around baby, baby suffocated, discharge, No further progress towards delivery (baby's head in upper position), narrow passage for normal delivery (baby's head in upper position), placenta around neck, and position of baby was transverse.
- Near about all the women respondents' regained consciousness within 2 hours of caesarian delivery and about three fourth of the women had breastfed their babies within 2 hours of caesarean deliveries.
- It is mandatory that after c section delivery women should stay for atleast 7 days in public health facilities and nearly half the number of respondents stayed for 7-10 days. Ninety percent of the respondents reported daily visit of doctor during their stay in hospital.
- Near about all the interviewed women reported receipt of medicine, diagnostics, bedding, and electricity in time during their stay in hospital. However, three fourth of the number of women reported that they received warm water from hospital.
- In general nearly half the number of women is of the view caesarean section should be avoided unless emergency as it causes health problems.
- Majority of the women reported no complication either to her or baby after caesarean delivery however, on further probing majority of the women felt caesarean delivery leads complication and normal delivery is good.

- Required infrastructure of the hospital is available at both, DH, Bhandara and SDH, Tumsar. DH building is under renovation currently so the condition is not so good at the moment, as reported by the research team when visited DH.
- Pertaining to human resource total of 585 positions of different discipline is sanctioned at District hospital Bhandara of which 386 positions are filled, whereas at SDH Tumsar 93 positions are sanctioned and 65 are filled.
- For actual day-to-day functioning of the facility, staff nurses and Class-IV workers are playing crucial role. In both the areas there is huge gap in sanctioned and filled positions, 45 and 13 nursing positions are vacant at DH and SDH respectively; same in connection with Class-IV positions 80 and 9 positions are vacant at DH and SDH respectively.
- DH receives the referred cases from all over the district from health facilities like PHC, CHC, SDH and private hospitals. However, in case of SDH referral cases are either from SC or from PHC.
- Reasons for referral for Caesarean section in DH is mainly due to nonavailability of infrastructure and manpower in Periphery facilities ; Good services under the umbrella of government hospital; Easy accessibility due to phones – for phone numbers 102 and 108; free of cost.
- Reasons for referral for Caesarean section in SDH is due to Non-availability of specialized Gynecologist and Anesthetist ;Non-availability of blood transfusion system; Non-availability of facilitated operation theatre.
- Patients from DH, Bhandara are usually referred to Medical college of Nagpur whereas patients from SDH, Tumsar are usually referred to Government hospital, Bhandara.
- Clinical reasons for referral for Caesarean section from DH, Bhandara is associated medical condition, Heart disease, Delayed coagulation profile, Baby outcome – those who require immediate surgery.
- Clinical reasons for referral for Caesarean section from SDH, Tumsar is High risk mothers- PIH is not managed at this level; Sometimes blood group (- ve) unavailability; Limited human resources - only one Gynaecologist and one Anesthetist; Unavailability of physician and sonography in the facility.
- Doctors from DH, Bhandara as well as SDH, Tumsar are not aware of Indira Gandhi Matritva Sahyog Yojana (IGMSY) started in 2013.

- As regards conducting Caesarean section deliveries in the facility, whether they are well-equipped in terms of human resources, infrastructure and drugs; it is seen that both DH, Bhandara and SDH, Tumsar lack required human resource.
- Requirement of DH, Bhandara is to fill up all the sanctioned posts. SDH, Tumsar requires filling up of specialty posts and staff at all levels, upgrading of existing infrastructure and supply of drugs on time.
- All the doctors work long hours, 72 hours a week with one day 24-hour emergency duty. Male Gynaecologist from Bhandara and a doctor from SDH, Tumsar also work in a private facility.
- All of them being Gynaecologist having lot of work experience for conducting Caesarian section delivery they don't require to discuss or ask for second opinion always.
- In DH, Bhandara, some provider conducts about 40 to 50 Caesarian section deliveries and some about 70 to 80 month; whereas a provider in SDH, Tumsar conducts 25. Most of these deliveries are seem to be emergency cases.
- Emergency Caesarean section delivery is something that is not thought of before. The doctor takes the decision on the spot depending on the condition of woman. As per doctors in Bhandara, non-reassuring fetal status is obviously the most frequently reported reason along with previous Caesarean section delivery, arrest of dilation , arrest of descent , mal-presentation and maternal and fetal indicators.
- Previous Caesarean section delivery seems to be the most common condition for current Caesarean section delivery along with multiple abortions and treatment for infertility). Almost all the doctors reported so. Other reason is birth weight of the previous child. If it is more than 4500 gms Caesarean section is preferred. Decision about Caesarean section largely depends on the reproductive history of the woman.
- Decision of Caesarean section during antenatal stage is well-thought of considering the condition of mother as well as of the child. Reasons include pre-eclampsia, antepartum

hemorrhage (APH), abnormal presentation, height of the mother less than 140 cms , obese, heart disease and gestational diabetes mellitus (GDM).

- One of the most important fetal indications for Caesarean section is intrauterine growth retardation (IUGR).

- Apart from the medical conditions also, Caesarean section deliveries are conducted as doctors reported that either patient or relatives of the patient request for Caesarean section because they want the child to be born on a particular auspicious day and time. Surprisingly doctors also mentioned that they have to conduct Caesarean section just for self-protection. Political pressure and self-protection needs to be explored further.

- Whether a particular woman requires Caesarean section delivery or not is always debatable. Doctor decide about it taking into account mainly the medical parameters and to some extent some non-medical conditions.

- Among the doctors participated in the study, some doctors feel that quarter of the emergency Caesarean section deliveries is unnecessary while one feels that extent of unnecessary emergency Caesarean section is 25 percent to 50 percent. All these numbers are posing a question mark for sure.

- To explore more about Caesarean section, it is necessary to understand how many elective Caesarean section deliveries are conducted. Doctor from SDH, Tumsar reports monthly 4 to 5 elective Caesarean section deliveries are conducted in the facility. As expected, in district hospital, extent of elective Caesarean section deliveries is large; though variation in reporting is substantial.

- Before conducting elective Caesarean section, the same protocol is followed as in emergency Caesarean section delivery. All respondents universally accepted the parameters to be checked are – prior permission, maternal health history, ANC records as well as availability of supportive staff, functional equipment and blood.

- Extent of Caesarean section deliveries in Bhandara is actually high. So an attempt is made to explore the perception of providers about it. Two of them (one from DH, Bhandara and One from SDH, Tumsar) feel that it is not high; whereas four feel that it is high. Two of them couldn't express their views about it.
- Probable reason for high extent of Caesarean section in Bhandara as per the doctors lies in referrals. The cases are referred to DH from all over the district. RH in Bhandara is not functional so patients have no other alternative but to reach to DH. Environment is reported by four of them including political environment. Two doctors also referred to higher rate of Caesarean section deliveries because of change in life-style of the society
- Doctors feel that Caesarean section deliveries are increasing also because of the changes in socio-economic condition. Doctors feel that when education is high Caesarean section is high. It is also high when patients' relatives are more conscious. When economic as well as educational level is low Caesarean section deliveries are less. Caesarean section is more among nuclear families. If economic status is high emergency Caesarean section s are more. Similarly Caesarean section deliveries are more when woman comes from orthodox family.
- Constraints from doctor's side to wait for long hours when the problem can be solved in just one hour by surgical delivery are fear of bad outcome, urgent matters at home and constraint on time, patient coming from private hospital and / or RH where they have already decided to go for Caesarean section delivery. Sometimes relatives cannot see the patient suffering from pain and force the doctors to conduct Caesarean section delivery. Doctor from SDH, Tumsar did not respond.
- Complications of Caesarean section are not very common. Still, among the possible complications, most common complication is post-partum hemorrhage (PPH), as reported by five of them. Anemia and convulsions are also considered as complications. Caesarean section delivery restricts the activities of women and they cannot go for large families, more than two children even if they wish to.

- In spite of no or less chances of injuries to the child, two of the doctors mentioned about probable injuries as respiratory problem, skeletal injuries, bacterial sepsis, convulsions and fracture.
- After Caesarean section delivery mothers are expected to take certain precautions. Doctors feel that precautions to be taken are about mobilization, lactation, hygiene, diet following doctor's advice on early ambulation, prevent heavy weight lifting , proper medication after discharge, use of contraceptives after delivery, new-born care and proper follow-up.
- For the child, required precautions according to doctors include, immunization, care of cord, care of eyes, education to patient's relatives, breastfeeding, maintain child's temperature (keeping it warm), child care as well as cord care.
- Caesarean section deliveries can be curbed if the referrals are timely and fetal condition is monitored. They can also be curbed by proper ANC check-up and treatment for disease detected during ANC.
- According to doctors in Bhandara, those women who go for elective Caesarean section deliveries should be counseled. They should be explained about maternal and fetal condition. Support should be extended to them for normal delivery because it is better for their health, their reproductive health.
- During the reference period the total number of deliveries conducted under PHC Mohadura in the periphery area is 567 and out of which 382 (67.37%) were C-section deliveries which is almost four times more than the recommended level of c section deliveries.
- Many of the deliveries happen at mother place and mothers are unwilling to take risk. Even private treatment is seeked for ANC period and private Doctors gives advice for sonography and at the time of delivery doctor recommends cesarean.
- Private doctors refers critical cases to government hospital. At the grass root level specialist doctors are unavailable for ANC period hence complicated pregnancies are mainly detected during delivery.

- Shortfall of obstetricians and anesthetists and they are not available round the clock in medical institutions.

Observations	Thoughts
<ul style="list-style-type: none"> ➤ Location 	<p>Mohdura PHC is located in a radius of 15 to 20 Kms from district headquarters of Bhandara. General hospital is not far hence no constrained of time.</p>
<ul style="list-style-type: none"> ➤ Standard of Living <p>Access and cost not a major hindrance in seeking treatment.</p>	<p>All the villages are having good connectivity to district headquarter. The villages we visited were well connected and most of them have pucca houses and almost all the houses are having their own toilet.</p>
<ul style="list-style-type: none"> ➤ Educated Women 	<p>Most of the women's have an aversion to delivery pains and feel C-section delivery is better than normal delivery.</p>
<ul style="list-style-type: none"> ➤ Concerned family 	<p>Relatives of pregnant women especially mother gets panic and are unable to see her daughters in pain during delivery.</p> <p>Many of the deliveries happen at mother place and mothers are unwilling to take risk. Even private treatment is sought for ANC period and private Doctors gives advice for sonography and at the time of delivery doctor recommends cesarean.</p>
<ul style="list-style-type: none"> ➤ Preference for DH 	<p>As district hospital is easily accessible to the people they prefer to go to the district hospital. They feel if we go to the PHC and if any complication arises PHC will refer us to the district hospital. Hence, instead of going via PHC they directly go to the district hospital.</p>
<ul style="list-style-type: none"> ➤ Political pressure 	<p>Few years ago there was one maternal death which happened during the delivery in public</p>

	<p>facility.</p> <p>The doctor of that particular facility was trying to make it normal delivery. But unfortunately mother died on the delivery table.</p> <p>Relatives retaliated in anger and they attacked the particular facility. It resulted in suspension of particular service provider and transfer. After this incident providers are also not willing to take the risk to wait for normal delivery.</p>
➤ Shortage of specialist and supporting staff	<p>It is observed in Labour ward of DH a single staff nurse is on duty as per shift and is handling on any day at least 25 pregnant women whose delivery dates are very near. In such cases it is difficult for her to maintained partograph of each woman. Whereas, it is expected to check development of a woman every after 4 hours by a doctor; which is not being followed as there is less manpower and heavy workload.</p> <p>Shortfall of obstetricians and anesthetists and they are not available round the clock in medical institutions.</p>
➤ Specialist working in both public and private institution	<p>It is shared by many of the people that almost all the doctors (Gynecologist) are having their private maternity homes in Bhandara.</p> <p>Private doctors refers critical cases to government hospital. At the grass root level specialist doctors are unavailable for ANC period hence complicated pregnancies are mainly detected during delivery.</p>
➤ Lack of interest in working of peripheral staff.	<p>Peripheral staffs need to motivate women to undergo normal delivery if there is no major risk.</p>

Chapter I Introduction

Cesarean section is a surgical procedure in which incisions are made through a woman's abdomen and uterus to deliver her baby to ensure safety of mother and child when vaginal delivery is not possible. Cesarean section (CS) was introduced in clinical practice as a life saving procedure both for the mother and the baby. As other procedures of some complexity, its use follows the health care inequity pattern of the world: underuse in low income settings, and adequate or even unnecessary use in middle and high income settings.

Bearing in mind that in 1985 the World Health Organization (WHO) stated: "There is no justification for any region to have CS rates higher than 10-15%",

Data from National Family Health Survey-4 (2015-16) shows private hospitals perform more than thrice the number of C-section deliveries as compared to government hospitals. Private hospitals carried out 40.9% caesarean sections (C-sections) as compared to 11.9% performed in government hospitals. The figures in the previous NFHS survey (2005-06) were 27.7% and 15.2% respectively. World Health Organization recommends the "ideal rate" for caesarean sections to be between 10% and 15%. The cesarean delivery rate in Maharashtra has increased since 2005-06 when the rate was 11.6% to 20.1% in 2015-16. In 2015-16 the rate in urban areas was the highest with 38% in private health facility. Gap between rural and urban areas among C section deliver is almost 10% in private health facilities and is 6 % in public health facility.

The common trend observed recently is the significant increase in c-section rates wherein medical, institutional, legal, psychological and socio-demographic factors play a contributing role. Risk of maternal complications increases as compared with cesarean delivery. Such complications include uterine rupture, which is uncommon but serious and may result in further complications and morbidity.

The prevalence of Cesarean section (C-section) among women in Maharashtra has risen well above the WHO recommended level of 10-15%; however, such surgery is often not medically necessary and might pose serious short and long term health risks to the mother and baby.

Furthermore, C-sections cost considerably more than vaginal deliveries (i.e., free to 5000 versus 50,000 to 100000 respectively, in 2015-16) in addition to postpartum medical care utilization and re-hospitalizations. Some of this trend is due to geographical, higher density of public and private health institutions.

There is considerable interest in determining the driving forces behind the rise in Caesarean section rates. Many purely obstetric factors might have affected caesarean section rates. Along with obstetric factors, numerous characteristics of individual women like history of previous c section, parity, height of the mother, maternal age, associated morbid conditions (diabetes, hypertension), demography, education and income are just a few of the factors that might have been associated with Caesarean section. If these factors can be clarified, it may indicate key areas that could be targeted to control caesarean section rates. C sections not only put both the mother and child at risk, but also pose huge economic burden compared to normal vaginal delivery.

With this background, this study was designed to identify the maternal medical and socio-demographic risk factors associated with c sections. A need was felt to examine the increase in c section deliveries and to find the causes of obstetric complications and c section deliveries in Maharashtra. Data from Health management information System (HMIS 2013-14, 2014-15 & 2014-15); shows that c section deliveries was highest in Vidarbha region of Maharashtra among women with any obstetric complications compared to women with no obstetric complications. Highest c section deliveries was observed in **Bhandara** district with more than half of the deliveries in private institution and near to quarter of deliveries in public institution to be c section deliveries (HMIS 2015-16) and NFHS4 (Public 16.7 %, Private 64.5%).

Even tough, Akola, Amravati and Nagpur districts reported high c section deliveries in both public and private institutions we assume, deliveries in public health institutions may be due to availability of WH in Amravati, Akola and Gondia districts which is reflected in more than 30 percent of c section deliveries. In addition with the awareness and availability of JSSK and JSY institutional delivery has increased. However, It is alarming to find Bhandara district in particular shows more than quarter deliveries in public institutions and in particular DH with more than half of the deliveries as c section deliveries.

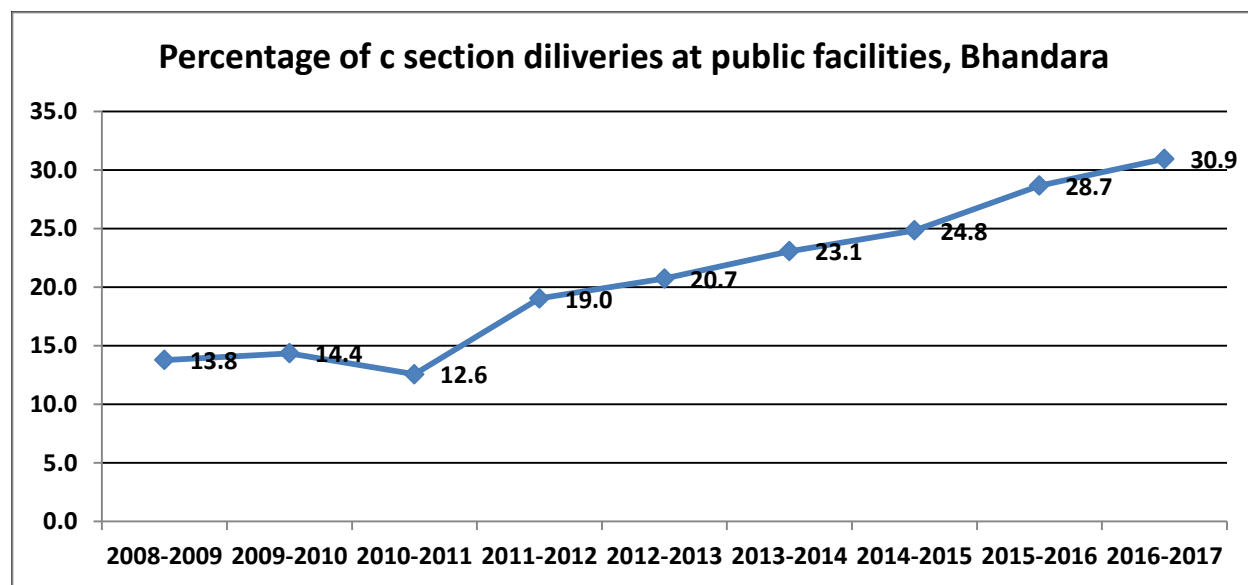
This study is an attempt to understand the factors contributing to high c section delivery in rural Bhandara district of Maharashtra by identifying preconception and pregnancy-related determinants of both elective and emergency Cesarean section (C-section).

Physical features Bhandara

Location and Size

Bhandara District lies entirely in the Wainganga basin in the extreme north-east of Maharashtra. The District is surrounded by Madhya Pradesh State to the north, Gondiya District to the east, Chandrapur and Gadchiroli districts to the south and Nagpur District to the west. The District has an area of 4,087.00 sq.kms., while the area of the District accounts for 1.33 percent of the total area of the State, the districts population constitutes 1.07 percent of the total population of the State. The density of population is 294 persons per sq. km. Among the 35 districts of the State, the District ranks 33rd in terms of area, 31st in terms of population and 16th in terms of density. According to Census 2011, the total population of Bhandara District is 12,00,334 having 6,05,520 males and 5,94,814 females. During the 2001-2011 decade, there has been an addition of 64,188 persons. Among the 7 Tahsils of the District, Bhandara Tahsil (2,80,030) is the most populous and Lakahandur (1,23,573) the least. Out of total 12,00,334 population of the District, 9,66,503 persons (80.52 percent) are residing in rural area and 2,33,831 (19.48 percent) are residing in urban area of the District. In Bhandara District, there are 982 females for every thousand males, which is higher than the 929 at State level. The child sex ratio for the District i.e., for 0–6 age group is 950. Literates in district as per Census 2011 constitute 83.76 percent of the total population. In 2011 Census, the District recorded 2,00,372 (16.69 percent) Scheduled Caste population and 88,886 (7.41 percent) Scheduled Tribe population.

Figure1: Trends in cesarean section deliveries at public facilities in Bhandara



Source: HMIS 2008-09 to 2016-17

Objectives:

1. To estimate the effect of background characteristics on obstetric outcomes and c section deliveries.
2. The study attempts to determine the prevalence, common indications, outcomes and complications of cesarean section delivery for mother and babies in rural areas of Bhandara district.
3. To assess if any factors responsible for compliance of cesarean section deliveries among women and doctors.

Sampling and Methods:

Data from HMIS (2015-16), reported live births in 2015-16 (live births=17285) and the rate of c section deliveries (c section delivery total = 6675: Bhandara 4473 public and Private 1695 (DH 4473, live births 11149); followed by tumsar 277 (SDH tumsar277, live births 1665); sakoli (SDH Sakoli 149, live births 484); Pauni (CHC Pauni 81; live births 522)) was found to be 38% which was well above the recommended level of WHO. C section delivery reported in HMIS consists of both public and private accredited c section delivery. Whereas, live births reported consists of number of births (both public and private). C section delivery seems to be underestimated if only data from private accredited is considered. Overall, data from HMIS indicates high c section delivery in Bhandara district.

The next step was to determine the estimated sample size. If we consider 95% confidence interval with 5% margin of error the approximate sample size is 352 women. Considering non response cases we interviewed 382 women who have undergone c section delivery during the reference period 01.01.2016 to 21.02.2017.

Discussion with ACS and HMIS data reveals high concentration of c section deliveries in Bhandara and tumsar blocks. Hence equal number of women from the estimated sample size was selected from Bhandara and Tumsar blocks. From each block two PHCs were selected with largest population and from each PHCs list of women who had given birth through caesarean during the reference period were collected. Starting from village with the largest population size women were interviewed till we reach our target sample size. Table below gives the list of PHCS and villages covered in Bhandara and Tumsar blocks.

Reference period: Births to women by caesarean section that have taken place in the selected sampling units during the reference period of one year prior to the survey, i.e., 01.01.2016to 21.02.2017 was covered for the study.

The study will be carried out through

- (a) women using the structured interview schedule,
- (b) health personnel by using a semi-structured interview schedule designed to collect information

The limitation of the study was that urban areas of Bhandara could not be covered owing to limited availability of data on exact address of women who have undergone c section during the reference period.

Chapter II Background Characteristics and Living Conditions

Age of women, marital duration, educational attainment, social background and living standard are important factors which influence caesarean deliveries. With this in view, the data were collected on demographic characteristics such as current age, age at marriage, live births and surviving children from respondents of selected representative households. Information regarding household background characteristics also covered religion and caste, type of house, source of drinking water and possession of consumer durables.

This chapter provides a comprehensive outline of distribution of respondents by present age, age at marriage, duration of marriage, completed years of schooling, children ever born and children surviving, along with social and economic characteristics of households the women represent.

2.1 Background Characteristics of Women

The percentage distribution of respondents by age groups, educational level, religion, caste, BPL status and place of residence is shown in Table 3.1. A sample of 382 respondents represents the district of rural Bhandara.

Fifty five percent of the women are in the age group 20-25 years of age, followed by 34 percent of women in the age group 25-30 years of age. Only nine percent of women are the age group 30 years and above.

About a quarter of women each are with educational level graduate and secondary and 37 percent of women are with educational level higher secondary and above. This indicates, substantial number of women is educated.

Nearly 86 percent of women belong to Hindu religion, followed by 10 percent of women belonging to Buddhist religion and the rest of 4 percent belongs to other religions.

Nearly three fourth of the women belong to caste OBC, followed by 14 percent of women belonging to caste SC. Six percent of women belonging to ST and 3 percent of women belonging to caste Others.

BPL status is determined by the availability of ration cards and in our sample only 34 percent of women are having BPL cards. Employment status of women also affects the health seeking behavior women who are employed have a time constraint and daily loss of wage. However, in our sample 84 percent of women are housewife, followed by 7 percent of women who are agricultural labourer. About a quarter of men are engaged as agricultural labourer, followed by 16 percent of men who are engaged in non agricultural labourer, 14 percent each are self employed and have own business and only 11 percent are in government service.

Table 2.1 Respondents by background characteristics		
Percentage of respondents by background characteristics in Bhandara, 2016		
Background characteristics	No. of Cases	Percentage
Age		
20 - 25	212	55.5
26 - 30	132	34.6
31 - 35	34	8.9
36 – 40	3	0.8
41 - 45	1	0.3
Total	382	100.0
Education		
Illiterate	1	.30
Primary (1 to 4)	6	1.6
Middle (5 to 7)	10	2.62
Secondary (8 to 10)	98	25.65
Higher secondary (11 & 12)	145	37.96
Graduate (13 to 15)	97	25.39
Post Graduate (16 & 17)	24	6.28
Total	381	99.8
Marital Status		
Currently Married	381	99.7
Widowed	1	.3
Total	382	100.0
Religion		
Hindu	330	86.4
Muslim	9	2.4
Christian	1	.3
Buddhist/Neo Buddhist	41	10.7
Jain	1	.3
Total	382	100.0
Caste		
SC	56	14.7
ST	26	6.8
OBC	285	74.6
Others	15	3.9
Total	382	100.0
BPL Status		
No	245	64.1
Yes	134	35.1
Can't say	3	.8
Total	382	100.0

Occupation of Respondent		
Cultivator (Large)	4	1.0
Cultivator (Small/Medium)	4	1.0
Agricultural Labourer	28	7.3
Non-agricultural Labourer	9	2.4
Government Service	8	2.1
Private Service	5	1.3
Business	2	.5
Self-employed	2	.5
Housewife	319	83.5
Home-based worker	1	.3
Total	382	100.0
Occupation of Head of the household		
Cultivator (Large)	22	5.8
Cultivator (Small/Medium)	24	6.3
Agricultural Labourer	95	24.9
Non-agricultural Labourer	64	16.8
Government Service	42	11.0
Private Service	56	14.7
Business	54	14.1
Self-employed	15	3.9
Housewife	2	.5
Home-based worker	6	1.6
Don't know	2	.5
Total	382	100.0

2.2 Housing Characteristics

This section describes the availability of basic amenities among the interviewed women. Table 2.2 presents the distribution of households by selected housing characteristics and by percentage. Based on building material, type of floor, walls and roof, households are categorised to have been living into *kachcha*, *semi-pucca* and *pucca* houses.

Result shows that about 18 per cent of the households live in *kachcha* houses, 21 per cent in *semi-pucca* houses and 59 per cent in *pucca* houses. Almost all the households (93 per cent) have electricity as the main source of lighting (99 per cent).

Majority of the respondents (64%) rely on piped into resident yard/Hand pump in yard plot/Well in res. yard plot for main source of drinking water and rest 35% depend on shared tap/hand pump for main source of water.

About 59 percent of respondents have own flush toilet and 35 percent use Shared Flush/Pub. Flush/Own Pit toilet. Overall majority of the respondents have access to drinking water and toilet facility and nearly all of them have electricity in their house.

The study has also collected data on the types of fuels used for cooking in the households. Eighty percent of the respondents use LPG for cooking and the rest use Wood/Crop residues/Dung cakes/Coal/Coke/Lignite for cooking.

About 65 percent of the respondents have 1-3 rooms whereas 31 percent has 4-6 rooms in their house. Almost all the respondents have separate room for cooking (96%) which is quite evident since majority of them have atleast 1-3 rooms and 91 percent of the respondents owns the house.

Only 30 percent of the respondents have livestock and 41 percent of the respondents own an agricultural land. Among those who own agricultural land 59 percent owns less than 3 acres; 30 percent owns 3-5 acres and 9 percent own greater than 5 acres of land. However, 93 percent of respondents reported that the agricultural land they own is not irrigated only 3 percent each reported 1-3 acres and 3-5 acres of agricultural land they own is irrigated.

Overall, the background characters of respondents reveal although not affluent the respondents come from a background with average standard of living.

Household and housing characteristics	No. of Cases	Percentage
Type of house*		
Kutchha	71	18.6
Semi Pucca	83	21.7
Pucca	227	59.4
Not specified	1	0.3
Total	381	100.0
Main source of lighting		
Kerosene/Gas/Oils	2	.5
Electricity	380	99.5
Total	382	100.0
Main source of drinking water		
Surface Water (Spring/river/pond/Dam/Rain Water/Tanker	1	.3
Public Tap/Pub. Hand Pump/Public Well	135	35.3
Piped into res. yard/Hand pump in yard plot/Well in res. yard plot	246	64.4
Total	382	100.0
Toilet facility		
No Facility/Bush/Field/Other	10	2.6
Shared Pit/Public Pit Toilet Latrine	8	2.1
Shared Flush/Pub. Flush/Own Pit toilet	136	35.6
Own Flush Toilet	228	59.7
Total	382	100.0
Cooking fuel		
Wood/Crop residues/Dung cakes/Coal/Coke/Lignite	66	17.3
Charcoal/Kerosene	10	2.6
LPG/Electricity	306	80.1

Total	382	100.0
No. of rooms		
1 - 3 rooms	250	65.4
4 - 6 rooms	121	31.7
7 - 10 rooms	8	2.1
Not specified	3	0.8
Total	382	100.0
Separate room for cooking		
Yes	368	96.3
No	14	3.7
Total	382	100.0
Ownership of house		
Yes	356	93.2
No	26	6.8
Total	382	100.0
livestock		
Yes	121	31.7
No	261	68.3
Total	382	100.0
Agricultural land		
Yes	160	41.9
No/Don't know	222	58.1
Total	382	100.0
Agricultural land in (acres)		
< 3 acre agricultural land	95	59.4
3-5 acre agricultural land	49	30.6
>= 5 acre agricultural land	15	9.4
Don't know	1	0.6
Total	160	100
Irrigated agricultural land (acres)		
No irrigated land	149	93.2
1-2 acre irrigated land	5	3.1
3-5 acre irrigated land	5	3.1
10 acre irrigated land	1	0.6
Total	160	100.1
* Houses made from mud, thatch, or other low-quality materials are called kuchha houses, houses that use partly low-quality and partly high-quality materials are called semi-pucca houses, and houses made with high quality materials throughout, including the floor, roof, and exterior walls, are called pucca houses.		

2.3 Marital Status of the Household Population

The study also collected information on the marital status and reproduction from women who had given birth recently during the reference period. Table shows the percentage distribution of respondents by marital status and reproduction.

Age at marriage of two of the respondents is less than 18 years, which is well below the legal minimum age of marriage. A little more than half the respondents were married in the age group 20-25 years; followed by 35 percent of women in the age group 18-20 years. This heaping of respondents in the age group 18-20 years highlights the awareness of minimum legal age of marriage among the respondents. Subsequently, 67 percent of the women reported first delivery in the age group 20-25 years; followed by 22 percent of women in the age group 25-30 years and 7 percent of women in the lower age group of 18-20 years of age. Hence, the age at marriage and age at first delivery is at its peak in the age group 20-25 years of age.

Nearly 61 percent of the women reported the present delivery has first delivery and only 38 percent of the women reported the present delivery is not a first delivery. To know the birth history of previous delivery questions were asked to women whose present delivery was not the first delivery. Date of previous delivery was asked to know the birth interval between the first and second delivery. Generally, birth interval is an important component for safe motherhood and child. Greater the interval is directly proportional to age of mother.

Generally it is found if the first birth is through cesarean and if birth interval is too short then it might lead to high risk second pregnancy. Moreover, if birth interval is too high it may lead caesarean delivery mainly due to age related morbidity issues of women such as hypertension, diabetes, obesity etc. Although, the year of previous deliveries as reported by respondents is from the year 2003 to year 2017 most of the respondents with previous birth history had given birth in the year 2014 (25%) and 2015 (20%).

Respondents were asked about the place of current and previous deliveries to understand the reason for choosing the type of facilities for the current delivery. Majority of the women had given birth in public facilities (62%) and (31%) in private facilities. Generally if previous delivery is c section it is highly likely that the following deliveries will be c section. As expected 70 percent of previous delivery was c section (emergency) and 10 percent was c section (elective) and only 15 percent of previous delivery was normal delivery.

Respondents were asked about the children ever born alive and the number of children surviving and child ever born to majority of the respondents is one.

Table 2.3 Percentage of respondents by marriage and reproduction in rural Bhandara, 2016		
Background characteristics	No. of Cases	Percentage
Age at marriage		
Less than 18 years	2	0.5
18-20	136	35.6
20-25	208	54.5
25-30	33	8.6
30-35	3	0.8
Total	382	100
Age at first delivery		
18-20	29	7.6
20-25	257	67.3
25-30	85	22.3
30-35*	11	2.9
Total	382	100
First Delivery		
Yes	233	61.0
No	146	38.2
Abortion	3	0.8
Total	382	100.0
Year of the last delivery, If it is not first delivery		
2003	1	0.7
2004	2	1.4
2005	1	0.7
2006	1	0.7
2008	1	0.7
2009	1	0.7
2010	3	2.1
2011	10	6.8
2012	19	13.0
2013	24	16.4
2014	37	25.3
2015	36	24.7
2016	9	6.2
Not specified	1	0.7
Total	146	100.0
Place of previous delivery, if not a first delivery @		
Home	1	.7
DH Bhandara	52	62.3
SDH Tumsar	39	35.6
Municipal Hosp.	1	26.7
CHC/ Rural Hosp.	7	4.8

Private Hosp.	46	31.5
Total	146	100.0
Type of previous delivery		
Normal	23	15.7
Home	1	0.7
C Section (elective)	14	9.6
C Section (emergency)	108	74.0
Total	146	100.0
Children Ever Born (TOTAL)#		
1	239	62.6
2	136	35.6
3	7	1.8
Total	382	100.0
Children Surviving (TOTAL)		
No child surviving	4	1.0
1 child	239	62.6
2 children \$	132	34.6
3 children	7	1.8
Total	382	100.0

*One case of age 37 at marriage is included in this age group# there are 3 cases having twins & this is their first delivery\$4 babies died@3 Cases of abortion are excluded

In view of various government schemes functioning with an objective to increase institutional delivery, reduce maternal and infant mortality we queried about various government schemes to know the awareness level, utilization and its impact.

Table 2.4 provides the distribution of respondents in terms of awareness of various government schemes and its utilization. Previously, schemes such as JSY (Janani Suraksha Yojna) wherein the beneficiaries were initially given cash/cheque in hand to incur treatment cost and other expenses is now shifted to banking system hence a need was felt to evaluate the awareness of respondents regarding banking and its utilization.

Nearly three fourth of the respondents (74%) have their own bank account and 19 percent own a joint bank account. Remarkably significant number of women (86%) operates their own bank account. In terms of government schemes only 19 percent of the respondents reported to have any amount credited under any government health schemes. Those who reported to have credited with amount under government schemes majority of them (63%) reported the amount credited to be in the range of Rs 100-1000,; followed by 17 percent of the respondents reporting the amount credited with Rs 6000. Only 4 percent of respondents have health insurance scheme of which 92 percent was the LIC scheme. Majority of the women are aware of government schemes such as JSY (71%) and JSSK (61%). Strikingly only 20 percent of the respondents were aware of Indira Gandhi Matrutva Sahayog Yojana (IGMSY) scheme which on pilot basis was initiated in Bhandara district in 2013.

Table 2.4 Distribution of cesarean section cases by awareness and assess to banking and government schemes in rural Bhandara, 2016		
Access and utilization of schemes through banking system	No. of Cases	Percentage
Availability of bank account		
Yes (mine)	283	74.1
Yes (Husband)	7	1.8
Both (Husband & Wife)	75	19.6
Yes (Husband, Wife & relative)	2	0.5
No/Can't say	15	3.9
Total	382	100.0
Operate bank account		
Self	246	86.93
Self & husband	35	12.37
Self & relative	2	0.71
Total	283	100.01
Amount credited under any government health scheme		
Yes	74	19.4
No	308	80.6
Total	382	100.0
Amount credited		
Rs. 100 - 1000	47	63.5
Rs. 1001 - 3000	5	6.8
Rs. 3001 - 5000	7	9.5
Rs. 6000	13	17.6
Above 6000	1	1.4
Amount not specified	1	1.4
Total	74	100.0
Availability of health insurance		
Yes	16	4.2
No	366	95.8
Total	382	100.0
Name of Health Insurance		
Gram Panchayat Jeevan Bima	1	7.1
LIC	13	92.9
Total		100.0
Awareness of health schemes*		
Government scheme JSY	273	71.5
Janani Shishu Suraksha Yojana (jssk)	234	61.3

Indira Gandhi Matrutva Sahayog Yojana (IGMSY)	77	20.2
Baby health	40	10.5
Mother health	11	2.9
All the above	12	3.1
None of the above	14	3.7
Total	382	

*Multiple answers

Chapter III: Antenatal Care, Obstetric Complications and Caesarean Delivery

3.1 Antenatal Check-ups

Components of Antenatal Check-ups

Essential care during pregnancy is important for the health of the mother and for the development of the unborn baby. ANC care provides a woman with the essential care and information and the importance of using a skilled attendant at birth.

In India, the Maternal Health Programme includes a minimum of at least four. Accordingly, the first antenatal check-up should take place at least during the first trimester of pregnancy. It includes the provision of at least three antenatal care visits, and various types of ANC care such as measurement of height-weight, blood test, BP test, abdominal examination, pelvic examination, information and guidance on nutrition, expected date of delivery and place of delivery. To assess whether the women had received all the care during pregnancy, information was collected from those women who had recently given birth through caesarean during the reference period regarding the number of antenatal visits, timing of the first visit and types of ANC care received.

Table 3.1 presents the data for women who had given birth during the reference period, includes information regarding the antenatal check-ups they had undergone, number of months of pregnancy, number of times ANC services were received, and ANC services received according to the place of residence. All measurements and tests are a part of essential obstetric care or are required for monitoring high-risk pregnancies.

As seen in the table almost 50 percent of the women were in the third month of pregnancy when they received first ANC care which is well acceptable as ANC care should be given within first trimester. About 38 percent of women received ANC care earlier that is during the second month of pregnancy.

Place of ANC check up indicates the preference of women for ANC care and consequently delivery. About 42 percent of the women received ANC care in public health facilities whereas a little more 47 percent of the women received ANC care from both public and private health facilities.

Generally, if any complication arises the service provider tell in advance to women or family members so as to take necessary precaution and preparedness of delivery. Only 15 percent of the women reported of health personal indication about complication during pregnancy. Hence, it is evident at least from women point of view that her pregnancy has no complications. Among the women who reported of complication during pregnancy as indicated by health personnel we further probed whether they were informed of the complication. About 22 women reported hypertension and 18 women reported anemic as the complication indicated by health personnel during pregnancy. However, it needs to be noted hypertension and Anemic are most common during pregnancy both of which can be bought in control through medication. Swollen legs (8), less fluid around baby (3) were also the complication reported by women.

Almost all the women 99 percent had undertaken USG test during pregnancy. Strikingly 54 percent of the women; followed by 34 percent of women have undergone USG test thrice and twice respectively. About 22 women reported to have taken USG atleast four times and alarmingly 6 women have reported

to have taken USG test five times. There are also extreme cases of women undergoing USG test six and seven times. One really needs to ponder whether these much number of USG test is required when women herself report as well as there was no major indication from health personnel of complicated pregnancy. Forty percent of women have undertaken USG test during all the trimester; followed by 27 percent of women reporting USG test undertaken during second and third trimester; 11 percent reporting USG test during third trimester and 9 percent reporting USG during first and second trimester. Interestingly 82 percent of the women reported USG test report to be normal and only 16 percent of women reported USG test report as not normal.

Among the women who reported complication during USG test we further probed the complication in the USG report. The complication reported by women was Breach Presentation (26%), Less water around fetus (22%), and Low weight of baby (14%). Eleven percent each of women reported complications of Placenta perivia and position of baby as transverse.

There was no major complication among majority of women which is ascertain by 75 percent of women reporting that they never face any morbidity issues. Only 17 percent of women reported hypertension and 7 percent of women reported anemia as morbidly issues during pregnancy.

Lifestyle such as intake of alcohol, smoking, chewing pan/tobacco may also cause complication or atleast acts as a catalyst for complicated pregnancy. Almost (99%) of women reported that they do not consume alcohol, or smoke or chew pan.

Table 3.1: ANC Care and Complications during Pregnancy		
Variable	No. of cases	Percentage
No. of months pregnant at the time of first ANC		
1	30	7.9
2	146	38.2
3	195	51.0
4	8	2.1
5	1	.3
7	2	.5
Total	382	100.0
Type of facility visited for antenatal check-up		
Public	163	42.7
Private	38	9.9
Both	181	47.4
Total	382	100.0
Any complication indicated by health personnel		
Yes	59	15.4
No	323	84.6
Total	382	100.0
Health Personnel told about the following signs of pregnancy complications		
Hypertension	22	39.3
Anemic	15	26.8
Swollen legs	8	14.3
Less water/fluid around baby	5	8.9
Heart related issues	3	5.4
Bleeding	2	3.6
Age related issues	2	3.6
RH Issues	2	3.6
placenta previa	2	3.6
Thyroid problem	2	3.6
Obesity	1	1.8
Epilepsy	1	1.8
Diabetes	1	1.8
Twin babies	1	1.8
Small pox/chicken pox	1	1.8
Position of baby was transverse	1	1.8
Under weight	1	1.8
Uterous is thin (weak?)	1	1.8
Total	56	100.0
Ultra Sound Sonography during ANC		
Yes	381	99.7
No	1	.3
Total	382	100.0
Number of times Ultrasound sonography done during pregnancy period		
1	24	6.3
2	132	34.6

3	195	51.0
4	22	5.8
5	6	1.6
6	1	.3
7	1	.3
Not specified	1	.3
Total	382	100.0
Trimester wise Ultrasound Sonography done		
First trimester	11	2.9
Second trimester	27	7.1
Third trimester	43	11.3
First & second trimester	35	9.2
First & third trimester	5	1.3
Second & third trimester	105	27.6
All trimesters	155	40.7
Total	381	100.0
Result of Ultrasound sonography (3.8)		
Complication	64	16.8
Normal	315	82.7
Don't know	2	0.5
Total	381	100.0
Description of complication found in ultrasound sonography (3.9)		
Breach Presentation	17	26.98
Less water around foetus	14	22.22
Low weight of baby	9	14.29
Placenta previa	7	11.11
Position of baby transverse	7	11.11
Kidney problem to baby (displaced) 319 weak kidney	2	3.17
Swelling on kidney	2	3.17
Twin babies	2	3.17
Uterous is thin (weak ?)	2	3.17
Eyes of baby were small than normal baby's eyes	1	1.59
Kidney stone	1	1.59
Narrow passage for normal delivery	1	1.59
Only 1 kidney & other kidney was weak	1	1.59
Swelling on uterous	1	1.59
Total	63	100.00
Having morbidity issue any time		
None	288	75.4
Hypertension	67	17.5
Anemia	29	7.6
Diabetes	16	4.2
History of trauma	15	3.9
Epilepsy	1	0.3
Heart disease	1	0.3
Swelling on feet	1	0.3
Swelling on stitches of previous caesarian operation	1	0.3
Total	382	

Having any of these habits		
None	380	99.5
Smoking	1	.3
Eating Gutka	1	.3
Total	382	100.0
Experienced/felt any of the following during pregnancy		
Quickening (5th month)	293	76.7
Body swelling	96	25.1
Convulsion (Other than due to fever)	43	11.3
Lightening	10	2.6
Excessive fatigue	7	1.8
All the above	3	0.8
Stress	3	0.8
Vaginal bleeding	1	0.3
None	55	14.4
Total	382	0.0
Hospitalized during pregnancy period		
Yes	53	13.9
No	329	86.1
Total	382	100.0
Type of treatment after hospitalization		
Saline	34	68.0
Iron Injection	17	34.0
IV antibiotic	7	14.0
Blood transfusion	4	8.0
Any injury	3	6.0
Dengue Fever	2	4.0
Antihypertensive/magsulph Injection	1	2.0
IV Oxytocics	1	2.0
Malaria	1	2.0
Stomach ache	1	2.0
Tablets for BP	1	2.0
Vomiting	1	2.0
Total	50	
Total cost for ANC - TOTAL (Rs.)		
ANC Cost not specified	82	21.5
No expenses during ANC period	36	9.4
100-1000	12	3.1
1000-5000	120	31.4
5000-10000	95	24.9
10000-15000	28	7.3
15000-20000	7	1.8
27000	1	0.3
100000	1	0.3
Total	382	100.0

In general women may not perceive that they face any morbidity issues hence some of the common indicator which may be an indication of complicated pregnancy was asked to women. Nearly three fourth of the women reported Quickening (5th month); followed by a quarter of women reporting body swelling; 11 percent of women reported convulsion (other than due to fever) as some of the morbidity issues experienced during pregnancy. Fourteen percent of the women reported that they did not experience any of the above mentioned morbidity anytime during their pregnancy.

Thirteen percent of women reported admission to hospital during pregnancy. When queried further about the type of treatment when admitted to hospital 68 percent of women were treated with saline; 34 percent of women were treated with iron injection/saline.

Women were also asked about the total cost of ANC care during pregnancy. Only 21 percent of women did not specified the ANC cost and 9 percent reported that they did not incurred any ANC cost and only 3 percent reported that they incurred ANC cost of Rs 100-1000. It is bit intriguing when 42 percent of women seek ANC care in public facilities and 47 percent of women seek ANC care in both public and private facilities then why 31 percent of women incurred ANC expenditure in the range of Rs 1000 to Rs 5000 and 24 percent of women incurred ANC cost in the range of Rs 5000 to Rs 10000.

3.2 Delivery Care

Place of Delivery

One of the important thrusts is to encourage deliveries under proper hygienic conditions under the supervision of trained health professionals. The provision of delivery services in the government health institutions is one of the components of the programme. For each live/still birth during the reference period preceding the survey, the women were asked about the place where their babies were born, who assisted during the deliveries in case of home deliveries, characteristics of delivery, and any problem that occurred during the delivery.

As depicted in table 3.2 further probing was done to know the cause of emergency c section delivery and the most common causes for emergency c section delivery as responded by women was less fluid around body, blood loss and baby suffocated.

In case of normal delivery all the women who had undergone normal delivery in previous delivery regained consciousness within one hour of delivery so also majority of women (88%) with previous c section delivery regained consciousness within one hour of delivery. Only 11 percent of cases regained consciousness within 2-5 hours of c section delivery. Subsequently babies were also breast fed within one hour of delivery. Hence, there was not a major impact on timing of breast feeding as the mother who regained consciousness whether in case of normal or c section delivery within one hour could breastfed their babies within one hour of delivery irrespective whether its normal or c section delivery. Majority of women (86%) and nearly all the women who had undergone c section and normal delivery could resume to their normal routine within 3 months of delivery. One case of women with normal delivery and nil cases of women with c section delivery reported to facing morbidity issues after their previous delivery.

Morbidity issues due to Kidney stone was reported by woman with normal delivery whereas six women reported frequent body and headache and one each of the cases reported stitching did not heal, high blood pressure, and piles respectively after c section delivery.

Literature shows high number of morbidity cases among babies who were born through c section as compared to normal delivered babies. Among the six cases of c section babies who had morbidity issues one expired the reason of which was unknown. Each of the five cases of morbidity among babies was facing morbidity issues such as respiratory issues, stunted growth, frequent illness and jaundice. Overall women who had undergone c section in previous delivery did not face any major morbidity issues neither the babies faced.

Table 3.2: Causes of caesarean deliveries and morbidity outcomes between deliveries, emergency and planned C-sections		
Deliveries and outcomes	No. of cases	Percentage
Reasons for C section (elective) *		
Doctors suggested (medical complication)	7	50.0
Doctors suggested (no specific reason)	1	7.1
Unable to bear pain	2	14.3
White Discharge	1	7.1
More days than expected date of delivery	1	7.1
Height of mother is less	2	14.3
Mother is too young	1	7.1
Total	14	
Reason for emergency C section*#		
Less fluid around baby	18	18.8
Blood loss	17	17.7
Baby suffocated	11	11.5
Don't know	8	8.3
High BP	6	6.3
Placenta previa	6	6.3
More days than dew date	5	5.2
Narrow passage for normal delivery	5	5.2
Position of baby became transverse	5	5.2
Baby's heart beats were low	3	3.1
Breach presentation	3	3.1
Premature	3	3.1
Baby's heartbeats became high	2	2.1
Chicken pox	1	1.0
Earlier deliveries were C Section	1	1.0
More water around baby	1	1.0
No movements (baby)	1	1.0
Sickle cell anemia	1	1.0
Umbilical cord around baby's neck	1	1.0
Total	96	
Time to regain consciousness (hours)		
Normal delivery		

Within 1 hr	12	50.0
Not specified	12	50.0
Total	24	100.0
C Section delivery		
Within 1 hr	108	88.5
2 to 5 hrs	14	11.5
Total	122	100.0
Time taken to breastfed the baby (hours)		
Normal delivery		
Within 1 hr	23	95.8
2 to 5 hrs	1	4.2
Total	24	100.0
C Section delivery		
Within 1 hr	101	87.1
2 to 5 hrs	15	12.9
Total	116	100.0
Resume normal routine work after the birth (in months) @		
Normal delivery		
Within 1.25 month	7	31.8
1.25 to 3 months	14	63.6
3 to 5 months	1	4.5
Total	22	100
C Section delivery		
Within 1.25 month	10	8.4
1.25 to 3 months	93	78.2
3 to 5 months	12	10.1
More than 5 months	2	1.7
Total	119	102.6
Any morbidity issue		
Normal delivery		
Yes	1	4.2
No	23	95.8
Total	24	100.0
C Section delivery		
Yes	9	7.4
No	113	92.6
Total	122	100.0
Morbidity Issues (Mother)		
Normal delivery		
Kidney stone	1	100.0
Total	1	100.0
C Section delivery		

Frequent head ache/body pain	6	66.7
Piles	1	11.1
Stitches didn't heal properly	1	11.1
BP was continuously increasing	1	11.1
Total	9	100.0
Morbidity Issues (Baby)		
Normal delivery		
Yes	2	8.3
No	22	91.7
Total	24	100.0
C Section delivery		
Yes	6	4.9
No	116	95.1
Total	122	100.0
Morbidity Issues-Baby)		
Normal delivery		
Respiratory issue	1	50.0
Low weight baby	1	50.0
Total	2	100.0
C Section delivery\$		
Respiratory issue	1	16.7
Frequent illness	1	16.7
Stunted growth	1	16.7
Jaundice	2	33.3
Total	6	100.0
Children Ever Born (TOTAL) (2.16)		
1 child	239	62.6
2 children	136	35.6
3 children	7	1.8
Total	382	100.0
Children Surviving (TOTAL) (2.16)		
No child surviving	4	1.0
1 child	239	62.6
2 children	132	34.6
3 children	7	1.8
Total	382	100.0

*Multiple answers#12 cases did not respond@ cases did not respond

3.3 Place of Delivery

We intend to find the pathway right from the labour pain to admission to health facilities and delivery and its complications if any arising due to present delivery. When we asked about the reason for present admission/delivery majority of the women (68%) reported as due date the reason for admission to

health facility. This also indicates they are well aware of due date due to ANC. Uneasiness/Pain was also reported by 14 percent of women which are the common causes for admission to facility.

A majority of women (74%) reported delivery as same as the place of first admission; 18 percent were referred to public health facilities from private hospital and a very small number of cases (23) were referred to private hospital. Among the women who reported same place of delivery as same place of admission, 62 % are in government health facilities and 32% are in private facilities.

From government hospital there only few cases were referred. Among the women who were first admitted to private hospital 15% were referred to another private hospital. Two of the women reported they went to private hospital on their own after first admission to government facilities. Interestingly, fourteen women were referred to PHCs. Overall the number of cases of outreferral is less in government hospital which implies the availability of basic infrastructure and human resources for conducting caesarean delivery

Ninety six women were referred to facilities other than the place of admission. We further probed these women to find out the reason for referral and the outcome of referral. Sixty percent of the women who were referred to other facilities other than place of admission were provided with referral letter. Among the referred cases, 50% were referred due to complication as reported by women, 28% do not know the reason for referral. However, nine cases were also referred due to unavailability of doctors/specialist. More than half the number of referred women (57%) reported that referral was very much required whereas 12 women reported it was unnecessary and 4 women reported hospital mismanaged. Twenty eight percent of referred women do not know whether referral was necessary or not.

Table 3.3 Percentage of respondents by place of delivery in rural Bhandara		
Delivery and Post natal care	No. of cases	Percentage
Reason for present delivery Admission		
Due date	262	68.6
Uneasiness/Pain	57	14.9
Bleeding	22	5.8
High BP	19	5.0
Less water/fluid around foetus	13	3.4
More days than expected date of delivery	9	2.4
Discharge	6	1.6
Previous delivery was caesarian	3	0.8
Breach presentation	2	0.5
Referred	2	0.5
Twin babies	2	0.5
Body swelling	1	0.3
Doctor advised to get admitted	1	0.3
Due to cough	1	0.3
Heartbeats of baby became low	1	0.3
Other	1	0.3
Pressure on previous stitches of C Section	1	0.3
Total	382	

Place of delivery		
Government Hospital	227	59.4
CHC/Rural Hospital	26	6.8
PHC	17	4.5
Private Hospital	112	29.3
Total	382	100.0
Place of delivery		
Same place of admission	286	74.9
Referred to public hospital	71	18.6
Referred to Private Hospital	23	6.0
Went to private hospital on her own	2	.5
Total	382	100.0
Referral letter provided		
Yes	58	60.4
No	31	32.3
Don't know	6	6.3
Not specified	1	1.0
Total	96	100.0
Reason for referral		
Complications	48	50.0
Don't know	27	28.1
Doctor/specialist unavailable	9	9.4
Other (Specify)	6	6.3
Blood not available	3	3.1
Doctor didn't pay attention	1	1.0
Not specified	2	2.1
Total	96	100.0
Opinion of respondent about referral		
Very much required	55	57.3
No opinion	21	21.9
Unnecessary	12	12.5
Hospital mismanaged	4	4.2
Went on her own	1	1.0
Not specified	3	3.1
Total	96	100.0
No. of days between date of admission and actual date of delivery		
Delivered on the Same day	137	35.9
1 day	107	28.0
2 days	63	16.5
3 days	38	9.9

4 days	11	2.9
5 days	9	2.4
6 days	6	1.6
7 days	2	.5
8 days	3	.8
9 days	1	.3
10 days	2	.5
14 days	1	.3
18 days	1	.3
19 days	1	.3
Total	382	100.0
Gender of baby		
Male	207	54.2
Female	174	45.5
Twin (1 Male,1 Female)	1	.3
Total	382	100.0
Type of delivery		
C Section (elective)	66	17.3
C Section (emergency)	295	77.2
Planned C Section	21	5.5
Total	382	100.0

Since majority of the women (68%) got admitted due to due date we calculate the difference between actual date of admission to actual date of delivery. This was done primarily to understand the occupancy of beds or demand for a particular hospital. It may be likely due to high admission and very few discharges the government health facilities may be facing space, infrastructure and human resource crunch. Moreover, as per guidelines it is mandatory for public facilities to follow proper guidelines in terms of discharge which means discharge only after 48 hours of delivery for normal delivery and 7 days for caesarean delivery.

As evident from the table above majority of the women i.e. 35% of women delivered within 1 day of admission, 28% and 16% of women delivered within 2 and 3 days respectively of admission. As the progress of labour and due date approaching it may happen that patients opt for caesarean section mainly to save time. Sex ratio at birth is tilted in favor of men with 840 women per 1000 male and one was a twin case of one each of male and female baby. Majority of the cases were emergency c section at 77%and 17% cases were elective caesarean c section.

Five percent of cases were planned c section. Planned c section here we mean the number of women who were detected with complications wherein health specialist recommended well in advance caeseran section to ensure safety of both mother and babies.

When the responses were seek from women who underwent caesarean section delivery both elective and emergency. The number of responses varies case by case. Table 3.4 summarizes the reasons by number of cases.

For c section elective, the major reason was doctor suggested (medical complication) and more than ten number of women gave this response. It is however to be noted, that when doctors suggest citing medical complication then it cannot be an elective cases. Another prominent reason was previous delivery was caesarean hence opted for caesarean section again this cannot be elective. Reason for elective c section with responses such as doctors suggested and previous delivery caesarean section was reported among six to ten women who opted for elective caesarean section. Reasons were diverse for respondents with elective caesarean section and less than five women gave response such as Don't want pain/unable to bear pain, precious baby after long gap, relatives suggested, good date and history of abortion/baby loss.

Reasons with only less than or equal to 5 cases	Reasons with 6 to 10 cases	Reasons with more than 10 cases
Breach presentation	Doctor suggested (no specific reason)	Doctor suggested (medical complication)Planned
Don't want pain/Unable to bear pain	Previous delivery was caesarian Planned	
Precious baby after long gap		
Less water/fluid around foetus (planned)		
Placenta around neck (planned?)		
Relative suggested		
Good date		
Heart problem to mother (planned)		
Position of baby was transverse (planned)		
Previous history of abortion/baby loss		

Reasons were also asked to women who underwent emergency caesarean section. The responses were diverse such as pass due date no pain, blood loss, high BP, less fluid around baby, baby suffocated, discharge, No further progress towards delivery (baby's head in upper position), narrow passage for normal delivery (baby's head in upper position), placenta around neck, position of baby was transverse was reported by more than ten numbers of women who delivered baby during reference period through emergency caesarean section. Eight women do not know the reason for emergency caesarean section. Responses such as heartbeat of baby were becoming low, premature, and epilepsy was reported by six to ten numbers of women who underwent emergency caesarean section. Less than five number of women who underwent emergency caesarean section reported breach presentation, uterus operated earlier, body swelling and BP, high heartbeat of baby, low BP, accident, more water around baby, no movements of baby, pain in stomach, and thyroid. Generalization of reasons sue to emergency was not possible due to diverse reason for emergency caesarean delivery.

Reasons with only less than or equal to 5 cases	Reasons with 6 to 10 cases	Reasons with more than 10 cases
Breach presentation	Heartbeats of baby became low	Pass the expected date of delivery
Uterus operated earlier	Premature	Blood loss
Body swelling and BP	Fits/Epilepsy	High BP
Heartbeats of baby became high	Don't know	Less fluid around baby
Low BP		Baby Suffocated
Accident		Discharge
More water around baby		No further progress towards delivery (baby's head in upper position)
No movement of baby		Narrow passage for normal delivery
Pain in stomach		Placenta around neck
Thyroid		Position of baby was transverse

The most common cause of planned caesarean section was due to breach presentation and was reported by more than ten number of women. Placenta around neck, less water/ fluid around baby, doctors suggested (medical complications), position of baby was transverse, previous delivery caesarean, and placenta around neck were also some of the common causes for planned caesarean section and was reported by than or equal to five numbers of women.

In almost all the cases (99%) approval was taken for conducting caesarean delivery. Women were asked whether she or baby or both experienced any complication due to caesarean section delivery. Majority of the women responded they or their baby did not experience any complication due to caesarean delivery.

However, 11% of women reported complication to babies due to caesarean livery. About 10 women reported complications such as pain in stitches, Fits, fever, breathing problem, headache, bleeding, swelling on stitches and stomach ache as complications to mother. Although these responses cannot be considered as a major complication however they may lead to morbidity in long run and hamper with day to day activity/ routine of mother. Ten cases each of women reported complications such as low weight of baby, and jaundice; each of three women reported respiratory, issues, suffocation to babies and fever; Each of two women reported swelling on baby's kidney, cough, baby didn't cry, and vomiting; one each of women reported complications such as blood clot in brain due to fever, rash on body, tumor on back, skin problem, pneumonia, and low sugar problem to baby. However, it is difficult to ascertain which of this complication is due to caesarean delivery.

To ascertain the nature of complexity we asked whether they were further admitted to treat the complications due to caesarean delivery. Out of the nine women who reported complication only three were admitted for further treatment and among 42 cases of complication to babies 37 were admitted for further treatment.

Breastfeeding within one hour of birth is important to babies as it improves the resistance power to babies. Hence, it was important to know the timing of breastfeeding to babies. Here we need to note that after caesarean section mother regain conscious bit late as compared to women who had given birth by normal delivery. Ninety seven percent of the women respondents' regained consciousness within 2 hours of caesarian delivery and about 76% of the women had breastfed their babies within 2 hours of caesarean deliveries. Fourteen percent of women took more than 2 hours but within 1 hour to breastfed baby whereas 7 percent of women took more than one day to breastfed whereas there were also five number of women who did not breast fed their babies.

When queried about the reason for delay in breastfeeding that is time taken for breastfeeding more than 2 hours 35 percent of women reported that there was no milk/ no lactation; 20 percent of women reported babies were admitted to SNCU hence couldn't breastfeed, and 11 percent reported mother was unconscious for more than 2 hours hence couldn't breastfed.

Almost 49 percent of the babies weighed 2.5 to 3kg; 27 percent of babies weighed 3 to 3.5 kg and 12 percent of the babies weighed 3.5 kg to 4kg. About 9 percent of the babies were low weight babies i.e. weight of the babies was less than 2.5 kg.

It is mandatory that after c section delivery women should stay for atleast 7 days in public health facilities and nearly 56 percent of the respondents stayed for 7-10 days whereas 40 percent of the respondents stayed for less than 7 days in public health facilities. Ninety percent of the respondents reported daily visit of doctor during their stay in hospital.

Table 3.6: Caesarean delivery and Postnatal complications and Care		
Approval taken from relative for C Section		
Yes	379	99.2
No	2	.5
Don't know	1	.3
Total	382	100.0
Any complication to mother/baby during/after C Section		
Yes, complication to mother	9	2.4
Yes, complication to baby	42	11.0
Yes, complication to both	5	1.3
No complication	326	85.3
Total	382	100.0
Type of complication to mother after C Section delivery		
Pain in stitches	2	16.7
Fits (Mother)	2	16.7
Fever	2	16.7
Breathing problem (Mother)	2	16.7
Head ache (mother)	1	8.3
Bleeding	1	8.3
Swelling on stitches	1	8.3

Stomach ache	1	8.3
Total	9	100.0
Type of complication to baby after C Section		
Low weight of baby	10	22.7
Jaundice to baby	10	22.7
Fever	3	6.8
Respiratory problem (baby)	3	6.8
Baby suffocated	3	6.8
Swelling on baby's kidney	2	4.5
Cough (Baby)	2	4.5
Vomiting (baby)	2	4.5
Baby didn't cry	2	4.5
Blood clot in brain due to fever	1	2.3
Rash on body (baby)	1	2.3
Tumor on back (baby)	1	2.3
Skin problem	1	2.3
Still birth	1	2.3
Pneumonia	1	2.3
Low sugar problem to baby	1	2.3
Total	44	100.0
Mother further admitted		
Mother admitted	3	21.4
Mother not admitted	9	64.3
Not specified	2	14.3
Total	14	100.0
Baby further admitted (4.16)		
Baby admitted	37	78.7
Baby not admitted	6	12.8
Not specified	4	8.5
Total	47	100.0
Time taken by mother to regain consciousness (in hours) after birth		
Less than or equal 2 hrs	373	97.6
More than 2 hrs	7	1.8
Not answered	2	0.5
Total	382	100.0
After birth time taken by mother to breastfed the baby		
Less than 2 hrs	288	76.6
2 hrs to 1 day	55	14.6
More than 1 day	28	7.4
No breast feeding	5	1.3
Total	376	

Reason for delay in breastfeeding		
No lactation / Lactation problem	25	35.7
Baby admitted to SNCU	14	20.0
Mother was unconscious for 2 hrs	8	11.4
Couldn't sis due to pains	7	10.0
Formula milk	7	10.0
Due to fever	3	4.3
Baby unable to suck	3	4.3
As per doctor's advice	2	2.9
Mother admitted to ICU	2	2.9
Twin babies	1	1.4
Vomiting & fits to mother	1	1.4
Total	70	
Weight of baby (kg.gm)		
Less than 2.5 kg	37	9.7
2.5 to 3.00 kg	188	49.2
3 kg. to 3.5 kg	103	27.0
3.5 kg to 4 kg	46	12.0
4 kg & above	9	2.4
	382	100.0
Duration of stay after delivery		
Less than 7 days	155	40.6
7 to 10 days	216	56.5
11 to 21 days	11	2.9
Number of times doctor visited Mother after delivery		
Daily till the date of discharge	361	94.5
Only once	15	3.9
No. of times	6	1.6
Total	382	100.0
Number of times doctor visited baby after birth		
Daily till the date of discharge	357	93.5
Only once	14	3.7
Never	2	.5
No. of times	6	1.6
Not specified	3	.8
Total	379	99.2
Discharged after		
Requested for discharge	2	.5
Doctor gave discharge	380	99.5

Total	382	100.0
Reason for seeking early discharge		
No one at home	1	50.0
Instruction to mother/baby/relatives at the time of discharge		
Regarding frequent/further check up	180	47.5
Regarding medicine	284	74.9
Regarding diet	237	62.5
Precaution to be taken	167	44.1
Bed rest for specific period	151	39.8
Family planning	25	6.6
To be visited for specific complication	15	4.0
None	9	2.4
Total	379	
Total cost for stay in hospital (TOTAL)		
Rs. < 1000	218	57.1
Rs. 1001 - 2000	14	3.7
RS. 2001 - 3000	6	1.6
Rs. 3001 - 4000	9	2.4
Rs. 4001 - 5000	5	1.3
Rs. 5001 - 10000	9	2.4
Rs. 10001- 20000	14	3.7
Rs. 20001 - 30000	69	18.1
Rs. 30001 - 40000	30	7.9
Rs. 40001 - 50000	5	1.3
Above Rs. 50000	3	0.8
Total	382	100.0
Satisfaction about stay in Hospital		
Yes	374	97.9
No	5	1.3
Somewhat	2	.5
Not specified	1	0.3
Total	382	100.0
Reason for dissatisfaction		
Hospital not clean	3	42.9
Too costly	1	14.3
C section not required	1	14.3
Doctors not available	1	14.3
Staff not cooperative	1	14.3
Total	7	100.0
Whether recommend present hospital to anyone (4.31)		

Yes	376	98.4
No	6	1.6
Total	382	100.0
Opinion about avoiding C Section unless it is an emergency (4.32)		
Caesarian causes health problems	144	53.9
Back ache and lower back ache due to caesarean	58	20.6
No health problems due to caesarean	32	11.4
Normal is good	8	2.8
Pain in stitches	6	2.1
Bleeding starts immediately	3	1.1
Weight gain due to caesarean	3	1.1
Relative has to suffer	2	0.7
Caesarean is expensive	1	0.4
Caesarean is good, no experience of normal delivery	1	0.4
More risk in normal delivery	1	0.4
Risk to mother in caesarean delivery	1	0.4
	382	100

Hospital catering to caesarian section delivery is expected to provide basic infrastructure. Near about 93 percent of women reported receipt of medicine, diagnostics, bedding, and electricity in time during their stay in hospital. Eighty percent of women reported they received diet on time and 74 percent of women reported that they received warm water from hospital. Ninety nine percent of women were discharged by doctors and the most common advice they received at the time of discharge was on timely medicine (74%), followed by diet (62%), for further check up (47%), precaution to be taken (44%) and bed rest for specific period (39%).

Nearly 57 percent of the respondent incurred a cost of Rs 1-1000 during their stay in hospital followed by 18 percent of women with the cost Rs 20,000to 30,000, and 7 percent of women with Rs 30000-40000. Ninety seven percent of women was satisfied with their stay in hospital and 98 percent would recommend the same hospital to others when queried about reason one woman responded that caesarian section was not required and hence was dissatisfied.

In general 53 percent of the women are of the view caesarean section should be avoided unless emergency as it causes health problems; followed by 20 percent of women reported it causes back ache and lower back pain,. However, one percent of women also reported that caesarean section creates no health problems.

3.7 Post Natal care

Generally it is observed that time taken to resume to normal routine is greater among women who have undergone caesarean delivery as compared to normal delivery women due to healing time required after surgery. Near about three forth of the women took an average 1.5 to 3 months to resume to normal routine. There were about 30 women who resume to normal routine within 8 to 30 days of

caesarean delivery. Also, there were 35 women who took almost 3.5 to 6 months to resume to normal routine.

A majority of the women (89%) did not face any morbidity issues. About 10 percent of women reported frequent head ache/body ache as morbidity issues. However only thirty three women sought treatment for morbidity issues out of which 15 women sought treatment in public facility and 18 women seek treatment in private facility. Almost all the women who were facing morbidity issues were treated with medicine and 19 women were advised bed rest. Expenditure was nil for 23 cases of women

Babies born through caesarean normally faces morbidity issues however, majority of the respondents (90%) reported no such morbidity issues among babies. Only 19 babies are facing respiratory issues. Some of the other morbidity issues which were reported was frequent illness (3 each), jaundice (3 each), swelling of kidney(3 each), vomiting(2 each), cough (2 each), and one each reported fever, tumor on baby, low birth weight babies (twins), swelling of esophagus, only one kidney, back fluid in head, reaction of milk and problem of limb. Except for one all were taken for treatment. Twenty seven babies were treated in private compared to 7 in public. Most of the babies (29) were treated with medicine whereas 5 babies required surgery.

The total cost of treatment was in the range of highest of 20,000-75,000 (4 babies) to no expenses (9 babies). Most of the babies treated (143) had incurred a cost of rupees 5000.

To know the general opinion mother were asked if any complication to her or baby arised due to caesarean although majority reported no complication on further probing majority of the women feel caesarean delivery leads complication (104) and normal delivery is good (55).

Although in general mother and babies did not face major morbidity issues we cannot completely neglect that caesarean delivery causes complications.

Table 3.7 Post Natal Complication to Mother and babies in rural Bhandara		
Post natal	No. of cases	Percentage
Time taken to resume to normal routine after delivery		
Not resumed (Just delivered)	14	3.7
8 days to 30 days	30	7.9
1.25 month	6.0	1.6
1.5 to 3 months	292	76.6
3.5 to 6 months	35	9.2
More than 6 months	4	1.0
	381	100.0
Mother faced any morbidity issue		
Yes	40	10.5
No	341	89.3
Not specified	1	0.3
Total	382	100.0
Morbidity issues faced by Mother		
Frequent head ache/body pain	28	73.7
Unable to move or work	4	10.5
Gynecological issues	3	7.9
Pus in stiches	2	5.3
Lumber pain	1	2.6
Convulsions	1	2.6
Copper T	1	2.6
Pain in stiches	1	2.6
	38	
Medical treatment sought for morbidity issue		
Yes	33	82.5
No	6	15.0
Not specified	1	2.5
Total	40	97.5
Place of treatment		
Public	15	45.5
Private	18	54.5
Total	33	100.0
Type of treatment		
Medicine	33	100.0
Total	33	100.0
Advice by doctor (To mother)		
Bed rest	19	63.3
Improve diet	9	30.0

None	2	6.7
Advice about hygiene	2	6.7
Regular checkups	1	3.3
Not to lift heavy things	1	3.3
Total responses	30	
Total cost of treatment		
No expenses	16	48.5
Rs. 400 - 1000	10	30.3
Rs. 1001 - 2000	5	15.2
Above Rs. 2000	2	6.1
Total	33	100.0
Any morbidity issues faced by baby		
Yes	36	9.5
No	345	90.5
Total	381	100.0
Morbidity issues faced by baby		
Respiratory issue	14	40.0
Frequent illness	3	8.6
Jaundice	3	8.6
Swelling on kidney	2	5.7
Vomiting	2	5.7
Cough	2	5.7
Fever	1	2.9
Tumor on baby's back	1	2.9
Low weight babies (Twins)	1	2.8
Only 1 kidney	1	2.9
Swelling on esophagus	1	2.9
Problem of limb	1	2.9
Reaction of milk	1	2.9
Excess fluid in baby's head	1	2.9
Low weight	1	2.9
Total	35	100.0
Medical treatment sought for morbidity issue (Baby)		
Yes	35	97.2
Not specified	1	2.8
Total	36	100.0
Place of treatment		
Public	7	19.4
Private	27	75.0
Both	1	2.8

Not specified	1	2.8
Total	35	100.0
Type of treatment		
Surgery	5	13.9
Medicine	29	80.6
Not specified	2	5.6
Total	34	94.4
Advice by doctor		
Baby will get well soon	6	54.5
Give medicine in time	6	54.5
Keep baby warm	4	36.4
Continue breast feeding	3	27.3
Keep cool because of summer	1	9.1
Keep in sunlight	1	9.1
Total responses	11	
Total cost of treatment		
No expanses	9	25.0
Up to Rs. 5000	13	36.1
Rs. 5001 to 10000	4	11.1
Rs. 10001 to 20000	6	16.7
Rs. 20001 to 75000	4	11.1
Total	36	100.0
Opinion about 'Complication arises to mother/baby is due to C Section'		
Yes	19	5.0
No	362	94.8
Not specified	1	0.3
Total	381	99.7
Suggestions for expectant mothers		
Caesarian causes health problems	104	39.5
Normal delivery is good than caesarean delivery	55	20.9
Caesarian is good/No problem due to caesarean	28	10.6
Lower back pain due to Caesarian	21	8.0
Go for caesarean delivery if needed	17	6.5
Due to caesarean, health problems remains forever	13	4.9
If you can't bear pains, Go for caesarean	9	3.4
Caesarean is expensive	5	1.9
Caesarian saved baby's life, it is good	5	1.9
Have to go by doctor's advice	4	1.5
Weight gain due to caesarean	3	1.1

Caesarean is not advisable as it affects mental health	1	0.4
Doctors don't wait for normal delivery, insist for caesarean delivery	1	0.4
Doctors should give advice to avoid caesarean	1	0.4
Due to caesarean one has to take precaution for long time	1	0.4
Energy loss due to caesarean	1	0.4
No lactation due to caesarean	1	0.4
Surgeon should be appointed in Public Hosp.	1	0.4
Total responses	263	

Chapter IV: Health Facilities providing Caesarean delivery

For this study information is collected from two health facilities; District Hospital, Bhandara and Sub-District Hospital, Tumsar.

Bhandara is a district headquarter town, which is about 60 kms away from the nearest health facility. In charge of the General Hospital Bhandara is Civil Surgeon which is 450 bedded hospital.

Sub-District Hospital selected for this study is in Taluka Headquarter, Tumsar, which is about 34 kms away from the nearest health facility. This is 100 bedded hospital.

In the study of Caesarean section deliveries, it is necessary to understand about the kind of infrastructure is available there, in the district. The data is collected from DH, Bhandara and SDH, Tumsar which is compiled below. Reference period of the study is from 1 January 2016 till the survey, i.e. February 2017.

Table 4.1- Type of units available, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Type of units available	DH	SDH
1	NBCC	-	-
2	NBSU	Yes	Yes
3	SNCU	-	-
4	NICU	-	-
5	NRC	Yes	Yes
6	BB	Yes	Yes
7	Labour room	Yes	Yes
8	Operation Theatre	Yes	Yes

Different units required for efficient functioning of the facility are, NBCC, NBSU, SNCU, NICU, NRC, BB, labour room and operation theatre. Out of that at both the places, NBSU, NRC, BB, labour room and operation theatre are available.

Table 4.2 Type of Infrastructure available, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Type of infrastructure available	DH	SDH
1	Health facility easily accessible from nearest road head	Yes	Yes
2	Building in good condition	No*	Yes
3	Separate Female ward	Yes	Yes
4	Separate children's ward	Yes	Yes
5	Electricity with power back up	Yes	Yes
6	Running 24*7 water supply	Yes	Yes
7	Labour room	Yes	Yes
8	Operation Theatre	Yes	Yes

* Under renovation

Required infrastructure of the hospital is available at both, DH, Bhandara and SDH, Tumsar. Availability of infrastructure is an utmost requirement for the efficient utilization of the facility and health services. Available infrastructure includes easily accessible health facility, vicinity of the facility to connecting road, good building in working condition, separate female ward – especially to be utilized for the delivery care, separate ward for the children, availability of electricity with power back-up, day and night running water, labour room and operation theatre. DH building is under renovation currently so the condition is not so good at the moment, as reported by the research team when visited DH.

Table 4.3: Availability of personnel at DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Health personnel	DH		SDH	
		Sanctioned	Filled	Sanctioned	Filled
1	Civil Surgeon	1	1		
2	Addl. Civil Surgeon	1	1		
3	ROM Out reach	1	0		
4	Medical Officer Surgery	2	1		
5	MO, Pharmacy	2	1		
6	MO, ENT	1	0		
7	Orthopedician	1	1		
8	Radiologist	1	0		
9	Anesthetic	2	0		
10	शरीर विकृती तज्ञ	1	0		
11	Psychiatrist	2	0		
12	Dermatologist	1	0		
13	MO, TB	1	0		
14	Ophthalmologist	1	0		
15	MO, HTT	1	0		
16	MO, Gynecologist	1	0		
17	Pediatrician	1	0		
18	Medical Superintendent CI-I			1	1
19	Administrative officer	1	0		
20	Administrative officer, CI-II	1	0		
21	MO, CI-II	36	34	13	13
22	Matron, CI-II	1	0		
23	Asst. Matron	1	1	1	1
24	Sister In charge	32	10	5	2
25	Staff Nurse	165	120	27	17
26	Class-III Staff	101	69	23	17
27	Class-IV Staff	227	147	23	14

Pertaining to human resource total 585 positions of different discipline is sanctioned at District hospital Bhandara of which 386 positions are filled, whereas at SDH Tumsar 93 positions are sanctioned and 65 are filled.

Class - I medical officers of various specializations (including gynecologist) 21 positions are sanctioned, of which 5 are filled and considering Class-II medical officer 36 positions are sanctioned and 34 are filled at district hospital Bhandara. Whereas at SDH Tumsar one position of Class-I medical superintendent post is sanctioned and filled as well 13 positions of Class-II MO's are sanctioned and filled.

In connection with the nursing staff at DH 199 positions are sanctioned and 131 are filled; at SDH Tumsar 33 positions are sanctioned and 20 are filled.

At DH 101 positions of CI-III staff is sanctioned and 69 are filled; at SDH Tumsar 23 positions are sanctioned and 17 are filled.

Looking at Class-IV positions total 227 positions are sanctioned at DH of which 147 are filled and at SDH Tumsar 93 positions are sanctioned and 65 are filled.

Short fall in the sanctioned positions and filled positions is huge for all positions at DH and at SDH Tumsar 199 and 28 respectively.

To run the hospital all positions are equally important but to run actual day-to-day activities of the facility, staff nurses and Class-IV workers are playing crucial role. In both the areas there is huge gap in sanctioned and filled positions, 45 and 13 nursing positions are vacant at DH and SDH respectively; same in connection with Class-IV positions 80 and 9 positions are vacant at DH and SDH respectively.

Table 4.4 Services offered, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Services offered	DH	SDH
No. of cases	-	-
Pregnant women ANC	-	1215
Deliveries (normal)	-	1293
Deliveries (C sec.)	-	466
Live Births male	-	869
Live Births female	-	901
No. of women given PNC	-	1293
Treated for complication after delivery	-	19
Treated for complication in NB	-	49

Type of services offered in the facility is another important piece of information which is missing for DH, Bhandara. SDH, Tumsar, provides the data on antenatal care (ANC) through postnatal care (PNC). Although ANC has been provided to 1213 women, number of deliveries conducted in SDH is 1759 (1293+466). Out of that 1293 deliveries were normal deliveries and 466 were Caesarean section deliveries. Caesarean section deliveries amount to 26.5 percent of the total deliveries. It also highlights the fact that still 31 percent women have not received ANC. PNC, has been provided to 73.5 percent of the delivered women. In case of complication after delivery, 19 women were treated in the facility whereas 49 cases were treated after the complications in NB.

Female births were more than that of male births, in case of births recorded in SDH, Tumsar.

Both the health facilities included in the study have a means of communication. They are easily accessible by road.

Table 4.5 Type of mode of communication, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Mode of communication	DH		SDH	
		Availability	Connectivity	Availability	Connectivity
1.	Phone	Yes	Yes	Yes	Yes
2.	Mobile	Yes	Yes	Yes	Yes
3.	Internet	Yes	Yes	Yes	Yes

Both the facilities have the connectivity through landline phones, mobile phones as well as internet. Internet has revolutionized the communication, which if used effectively can generate best outcomes. Both the facilities are well connected.

Table 4.6 - Facilities from where patients are referred, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Facilities	DH	SDH
1	SC	No	Yes
2	PHC	Yes	Yes
3	UHP	No	No
4	CHC	Yes	No
5	SDH	Yes	No
6	WH	No	No
7	DH	No	No
8	Private hospital	Yes	No

DH receives the referred cases from all over the district from health facilities like PHC, CHC, SDH and private hospitals. However, in case of SDH referral cases are either from SC or from PHC.

Table 4.7 Outcome of the referral beneficiaries, DH, Bhandara and SDH, Tumsar, January 2016 to February 2017

Sr. No.	Outcome	DH		SDH	
		No. of Mothers	No. of Infants	No. of Mothers	No. of Infants
1.	Deliveries	-	-	202	-
2.	C Section Deliveries	-	-	54	-
2.	Fever	-	-	-	-
3.	Cured	-	-	-	4
4.	Referred	-	-	50	-
5.	Death	-	-	-	-
6.	Others	-	-	-	-
7.	Registers not maintained	-	-	-	-

Though necessary, it is difficult to compile the information from different sources and provide in the prescribed format. Once again information is not made available by DH, Bhandara; however, SDH, Tumsar could provide some figures, about the deliveries. In SDH, Tumsar out of 202 deliveries conducted, 54 (26.7 percent) were Caesarean section deliveries. SDH received 50 referrals from SC and PHC level health facilities.

Patients are referred to both the facilities, DH, Bhandara and SDH, Tumsar for Caesarean section deliveries. Reasons for referral to the facility for Caesarean section include;

Reasons for referral for Caesarean section in DH

- Periphery facilities do not have infrastructure and manpower
- Good services under the umbrella of government hospital
- Easy accessibility due to phones – for phone numbers 102 and 108
- It is free of cost
- Food is free

Reasons for referral for Caesarean section in SDH

- Non-availability of specialized Gynaecologist and Anesthetist whereas for SDH, Tumsar they are from ANM to Medical Officer to, Gynaecologist Gynaecologist and Pediatrician
- Non-availability of blood transfusion system
- Non-availability of facilitated operation theatre
- HBSY

Patients form DH, Bhandara are usually referred to Medical college of Nagpur whereas patients from SDH, Tumsar are usually referred to Government hospital, Bhandara.

From SDH, Tumsar in all 820 mothers and 36 infants were referred during the reference period on January 2016 to February 2017. Information for DH, Bhandara about such referrals is not available.

Clinical reasons for referring mothers to other facility for Caesarean section are summarized below.

Clinical reasons for referral for Caesarean section from DH, Bhandara

- Associated medical condition
- Heart disease
- Delayed coagulation profile
- Baby outcome – those who require immediate surgery

Clinical reasons for referral for Caesarean section from SDH, Tumsar

- High risk mothers- PIH is not managed at this level
- Sometimes blood group (- ve) unavailability
- Limited human resources - only one Gynaecologist and one Anesthetist
- Unavailability of physician and sonography in the facility

Concerned persons responsible for referrals from DH, Bhandara are mainly and Pediatrician.

Doctors from DH, Bhandara as well as SDH, Tumsar are not aware of Indira Gandhi Matritva Sahyog Yojana (IGMSY) started in 2013.

As regards conducting Caesarean section deliveries in the facility, whether they are well-equipped in terms of human resources, infrastructure and drugs; it is seen that both DH, Bhandara and SDH, Tumsar lack required human resource. They are fine with availability of required infrastructure and drugs.

Requirement of DH, Bhandara is to fill up all the sanctioned posts. SDH, Tumsar requires filling up of specialty posts and staff at all levels, upgrading of existing infrastructure and supply of drugs on time.

4.8 Health service Providers

Information is collected from the service providers in Bhandara district; from District Hospital (DH), Bhandara and Sub-District Hospital (SDH), Tumsar. Three of the doctors are from government hospital, Bhandara and 4 are from DH. One female doctor is from SDH, Tumsar. Among the eight providers, only one is male remaining seven are females. Age range of these providers is from 30 years to 60 years, with five of them below 40 years of age. Among the eight, six are MBBS, DGO, one is MS General Surgery and one is MS OBGY. Of these eight, seven hold the post of Gynaecologist and the one who is a general surgeon holds the post of additional civil surgeon. Work experience in the same facility varies from four months to eight years, though many of them have been government service for a long time. All the

doctors work long hours, 72 hours a week with one day 24-hour emergency duty. Male Gynaecologist from Bhandara and a doctor from SDH, Tumsar also work in a private facility. As regards the workload, six of them replied positively for heavy workload whereas two feel that workload is heavy only 'sometimes'.

All the doctors are experienced and they are conducting Caesarian section deliveries for the period ranging from 18 months (one from SDH, Tumsar) to 40 years (Gynaecologist in DH, Bhandara); with median duration as eight and a half years. All of them being Gynaecologist having lot of work experience for conducting Caesarian section delivery they don't require to discuss or ask for second opinion always; one of them feel the need of second opinion 'occasionally' and four feel it 'rarely'; whereas two of them feel it only in case of serious condition of the patient, while one never feels the need to discuss.

Two of the providers reported that decisions about the Caesarian section are never taken in consultation with senior doctors, while one each reports the consultation 'rarely' and 'occasionally'. Three of them consult senior doctors if the 'case is serious' while one always consults seniors in case of elective and 'rarely' for emergency Caesarian section.

In DH, Bhandara, some provider conducts about 40 to 50 Caesarian section deliveries and some about 70 to 80 month; whereas a provider in SDH, Tumsar conducts 25. Most of these deliveries are seem to be emergency cases. Only one person, a surgeon, who also is a additional civil surgeon in Bhandara doesn't report the number and says the Caesarian section deliveries are not fixed and conducted as and when required. Similarly she could not report the emergencies among them.

Emergency Caesarean section delivery is something that is not thought of before. The doctor takes the decision on the spot depending on the condition of woman. As per doctors in Bhandara, non-reassuring fetal status is obviously the most frequently reported reason (7) along with previous Caesarean section delivery (5), arrest of dilation (4), arrest of descent (5), mal-presentation (3) and maternal and fetal indicators (4). Other reasons include placenta previa (2), prolapse (1), obstructed labour (1), pre-eclampsia (1) and cord prolapse (1).

Previous Caesarean section delivery seems to be the most common condition for current Caesarean section delivery along with multiple abortions (6) and treatment for infertility (6). Almost all the doctors

reported so. Other reason is birth weight of the previous child. If it is more than 4500 gms Caesarean section is preferred (5). Decision about Caesarean section largely depends on the reproductive history of the woman.

Decision of Caesarean section during antenatal stage is well-thought of considering the condition of mother as well as of the child. Reasons include pre-eclampsia (3), antepartum hemorrhage (APH) (6), abnormal presentation (4), height of the mother less than 140 cms (4), obese (2), heart disease (1) and gestational diabetes mellitus (GDM) (1). Other reported reasons are previous Caesarean section delivery and weight of the baby.

One of the most important fetal indications for Caesarean section is intrauterine growth retardation (IUGR) (6). Other indications are fetal distress (3), fetal anomalies (1) and utero-placental insufficiencies (2).

Apart from the medical conditions also, Caesarean section deliveries are conducted. Two doctors reported that either patient or relatives of the patient request for Caesarean section because they want the child to be born on a particular auspicious day and time. Surprisingly, five doctors reported that Caesarean section delivery is conducted because of political pressure. Does that mean that doctors need to go for Caesarean section just because they get pressurized like this rather than medical reasoning to do so? Two doctors also mentioned that they have to conduct Caesarean section just for self-protection. Political pressure and self-protection needs to be explored further.

Even if Caesarean section is conducted as an emergency situation, certain protocol has to be followed. This is a surgery and precaution is the utmost requirement. All the doctors reported that they follow the protocol which includes prior permission along with the detail study of maternal health history and ANC record of the mother before delivery. Other aspects to be monitored are availability of supporting staff, availability of equipment and whether they are functional, as well as availability of blood of the required blood group.

Caesarean section is well set procedure for all the doctors included in this study. According to them, emergency Caesarean section delivery is conducted between 20 minutes and 45 minutes. Most common response though is 30 minutes.

Whether a particular woman requires Caesarean section delivery or not is always debatable. Doctor decide about it taking into account mainly the medical parameters and to some extent some non-medical conditions. Whether all Caesarean section deliveries are necessary or some are certainly unnecessary? Among the doctors participated in the study, two reported that all emergency Caesarean section deliveries are necessary. One doctor (additional civil surgeon) could not report its extent saying that audit of the Caesarean section deliveries has not been done. One doctor reports that Caesarean section delivery becomes unnecessary if ultrasound report is wrong. **However, three of them feel that quarter of the emergency Caesarean section deliveries is unnecessary while one feels that extent of unnecessary emergency Caesarean section is 25 percent to 50 percent. All these numbers are posing a question mark for sure.**

To explore more about Caesarean section, it is necessary to understand how many elective Caesarean section deliveries are conducted. Additional civil surgeon did not respond to this query. Responses of all other doctors vary. Doctor from SDH, Tumsar reports monthly 4 to 5 elective Caesarean section deliveries are conducted in the facility. As expected, in district hospital, extent of elective Caesarean section deliveries is large; though variation in reporting is substantial.

As mentioned earlier, elective Caesarean section is actually thought about in advance. Therefore the question doesn't really arise as whether they are necessary or unnecessary. Three of the doctors feel that none of the elective Caesarean section s are unnecessary. Doctor from SDH, Tumsar feels it can be unnecessary only if report of ultrasound is not right. **One feels that 50 percent of the elective Caesarean section is unnecessary; whereas remaining three feel that 20 to 25 percent are unnecessary. This number is substantial, which partly explains high prevalence of Caesarean section here in Bhandara.**

Time required to conduct elective Caesarean section is same as that required for emergency Caesarean section; somewhere between 20 minutes and 45 minutes. Only one doctor doesn't provide the exact time and reports as 'depends'; maybe depends on maternal and child health condition, other logistics and availability of necessary resources required to go ahead with Caesarean section .

Before conducting elective Caesarean section, the same protocol is followed as in emergency Caesarean section delivery. All respondents universally accepted the parameters to be checked are – prior

permission, maternal health history, ANC records as well as availability of supportive staff, functional equipment and blood. One doctor from DH also reported about additional parameters like availability of surgeon as well as availability of ICU.

Extent of Caesarean section deliveries in Bhandara is actually high. So an attempt is made to explore the perception of providers about it. Two of them (one from DH, Bhandara and One from SDH, Tumsar) feel that it is not high; whereas four feel that it is high. Two of them couldn't express their views about it.

Probable reason for high extent of Caesarean section in Bhandara as per the doctors lies in referrals (5). The cases are referred to DH from all over the district. RH in Bhandara is not functional so patients have no other alternative but to reach to DH. Environment is reported by four of them including political environment. Two doctors also referred to higher rate of Caesarean section deliveries because of change in life-style of the society. Doctor from SDH, Tumsar could not add anything here.

According to four of them concentration of Caesarean section deliveries is because of improved economic conditions whereas two do not agree to this. One doctor did not respond.

Doctors feel that Caesarean section deliveries are increasing also because of the changes in socio-economic condition. Doctors feel that when education is high Caesarean section is high. It is also high when patients' relatives are more conscious. When economic as well as educational level is low Caesarean section deliveries are less. Caesarean section is more among nuclear families. If economic status is high emergency Caesarean section s are more. Similarly Caesarean section deliveries are more when woman comes from orthodox family. Four doctors did not respond to this.

One of the doctors reports that Caesarean section is conducted, which is matter of one hour, because it is impractical to wait for long hours; whereas Additional Civil Surgeon reports that though Caesarean section is quick, the norms are followed, partograph is followed and then only the decisions are taken. All others don't agree to the fact of impracticality of normal delivery.

As regards the constraints from doctor's side to wait for long hours when the problem can be solved in just one hour by surgical delivery, two did not respond. Remaining six do not feel that they have constraints like unavailability of alternative doctor, unavailability of health staff and constraints on time. Additional Civil Surgeon reports that doctors monitor the mother personally.

Constraints from doctor's side to wait for long hours when the problem can be solved in just one hour by surgical delivery are fear of bad outcome (1), urgent matters at home (2) and constraint on time (1), patient coming from private hospital and / or RH where they have already decided to go for Caesarean section delivery (1). Sometimes relatives cannot see the patient suffering from pain and force the doctors to conduct Caesarean section delivery. Doctor from SDH, Tumsar did not respond.

Doctors' perceptions about complications after Caesarean section are varied. One of them feels that they are 'very rare' whereas one feels 'sometimes'. Four of them feel that in minority of the cases, both mother and child get affected whereas Additional Civil Surgeon feels that in majority of the cases, it is mother who gets affected. One doctor did not respond.

Complications of Caesarean section are not very common. Still, among the possible complications, most common complication is post-partum hemorrhage (PPH), as reported by five of them. Anemia and convulsions are also considered as complications. Caesarean section delivery restricts the activities of women and they cannot go for large families, more than two children even if they wish to.

Children are rarely affected as a complication of Caesarean section delivery. Therefore three of them did not respond and three categorically mentioned as 'no complications for children'. One mentioned about fetal distress whereas one points out to the fact that it is actually a pediatrician who could explain this better.

Though two of the doctors did not respond about risk of injuries caused to the child because of Caesarean section, remaining all responded negatively for it.

In spite of no or less chances of injuries to the child, two of the doctors mentioned about probable injuries as respiratory problem (2), skeletal injuries (1), bacterial sepsis (1), convulsions (1) and fracture (1).

Possibilities of injuries to mother as a result of Caesarean section are almost non-existent. Only one doctor, Additional Civil Surgeon, mentioned about some injury to mother.

Kind of injuries mother might face because of Caesarean section delivery, though rare, includes infections (4), pulmonary embolism (4) and problems due to general anesthesia (2).

After Caesarean section delivery mothers are expected to take certain precautions. Doctors feel that precautions to be taken are about mobilization, lactation, hygiene, diet following doctor's advice on early ambulation, prevent heavy weight lifting , proper medication after discharge, use of contraceptives after delivery, new-born care and proper follow-up.

For the child, required precautions according to doctors include, immunization, care of cord, care of eyes, education to patient's relatives, breastfeeding, maintain child's temperature (keeping it warm), child care as well as cord care.

When, whether there is any difference in the immune system of children born normally and after Caesarean section delivery is explored, one doctor reported positively to difference whereas two doctors feel that there is no difference; it is just the same for both. Five doctors did not give any opinion on possibility of such difference.

The doctors could not shed light on the reasons for difference in immune system of children who are born normally and who are born after Caesarean section delivery.

Caesarean section deliveries can be curbed if the referrals are timely and fetal condition is monitored. They can also be curbed by proper ANC check-up and treatment for disease detected during ANC. Four of the doctors did not respond to the issue of curbing Caesarean section deliveries.

According to doctors in Bhandara, those women who go for elective Caesarean section deliveries should be counseled. They should be explained about maternal and fetal condition. Support should be extended to them for normal delivery because it is better for their health, their reproductive health.

Doctors universally responded positively to referral paper provided to all the women as well as maintenance of referral register. These are important documents. Proper and complete records one of the key determinants of bringing about the positive changes in health delivery.

Chapter VI: Quality analysis from field visit and Observations

This chapter provides a brief discussion of field observation and thoughts presented in order to gain a better understanding for the high number of caesarean section. The field visit for the study on C Section Delivery and linkages with obstetric complications in rural Bhandara, Maharashtra was carried out during the period 6 - 20 February, 2017. Bhandara and Tumsar blocks were selected on the basis of report on high number of caesarian deliveries. From each of these blocks PHCs were selected starting from the highest population till we exhaust our target population i.e. 100 women who have undergone caesarean deliveries during the reference period. In Bhandara block Mohadura, Shahapur, Dharangaon, Pahela and Khamari PHCs were selected and in Tumsar block Chulhad, Dewhadi, Lendezari, Naka Dongari and Gobarwahi PHCs were selected.

Under Mohadura PHCs five villages were covered i.e. Mohadura, Ganeshpur, Bela, Sirsi and Kothurna. Almost all the villages are located in the vicinity of radius of 15 to 20 Kms from district headquarters i.e. Bhandara. In particular, Ganeshpur village which is having a total population of 9266 and with highest C-section deliveries of 105 during the reference period is located approximately 1 to 2 Kms from Bhandara. In all the villages selected under PHC Mohadura have an easy access to health services in DH Bhandara or any other private facilities in Bhandara.

PHC Mohadura is catering to 49953 populations covering 29 villages. During the reference period the total number of deliveries conducted in the periphery area is 567 and out of which 382 (67.37%) were C-section deliveries which is almost four times more than the recommended level of c section deliveries. Under Mohadura PHC there are five sub centers viz: Mohadura, Ganeshpur, Kothurna, Shirsi and Bela. All the SCs are functioning in a government building and delivery rooms are available at all the centers. Only Sub center Bela and Kothurna are functioning to the total capacity of two ANMs whereas other SCs are functioning with only one ANM.

During the reference period the total number of deliveries conducted at sub centers are 19 (Bela 12; Mohdura 5; Shirsi 1 and Kothurna 1) which is 3.35 percentages of total deliveries in PHC Mohadura. This implies, 96.64 % deliveries are conducted either at private facility or at general hospital. However, there are 11 neonatal death and 11 still birth which is quite high.

Table 6.1: Total number of deliveries and Maternal and infant deaths in villages covered under PHC Mohadura

Sr. No	Villages	Deliveries				Deaths			
		Population	Total	Caesarean	Home	Maternal	Infant	Neonates	Still Birth
1	Shirsi**	1650	17	10	--	--	--	--	--
2	Dabha**	1793	21	15	--	--	--	1	1
3	Pandarbodj**	1809	26	16	--	--	--	--	--
4	Mohadura**	1811	17	8	--	--	--	--	1
5	Bhojapur**	2993	37	20	--	--	--	1	2
6	Khokurala**	4700	76	48	--	--	--	--	3
7	Ganeshpur**	9266	105	87	--	1	--	1	1
8	Navegaon	264	0	0	--	--	--	--	--
9	Jamni	385	8	5	--	--	--	--	--
10	Fulmogra	462	1	--	--	--	--	--	--
11	Umri	466	4	1	--	--	--	--	--
12	Takali	470	9	2	--	--	--	--	--
13	Khurshipar	625	5	2	--	--	--	--	--
14	Khamata	650	10	6	--	--	--	--	--
15	Gunjepar	667	9	5	--	--	--	--	--
16	Jara	690	3	2	--	--	--	--	--
17	Ashoknagar	863	7	5	--	--	--	--	--
18	Laweshwar	863	7	5	--	--	--	--	--
19	Pindkepar	896	18	9	--	--	--	2	--
20	Sonuli	912	6	4	--	--	--	--	--
21	Kairi	1057	15	4	--	--	--	--	--
22	Indurkha	1059	14	9	--	--	--	--	--
23	Hattidoi	1117	12	5	--	--	--	1	--
24	Tavepar	1372	12	7	--	--	--	1	2
25	Korambi	1375	21	12	--	--	--	1	--
26	Mujabi	1698	*	15	--	--	--	1	--
27	Keshalwada	1729	23	20	--	--	--	1	1
28	Kothurna	1813	23	11	--	--	--	--	--
29	Bela	6498	61	49	--	--	--	1	--
	Total	49953	567	382	0	1	0	11	11

Source PHC Mohadura,*= No data, ** = villages covered, -- = Nil

Table gives the summary of total number of deliveries, caesarean deliveries, caesarean section rate, the ideal caesarean section rate as per WHO, the difference between the actual and ideal caesarean rates. Alarmingly all the villages under this PHCs reported caesarean section rates well above the recommended level of WHO. The difference between the actual and the recommended level is at the lowest of 20 percent implicitly the difference between the actual and recommended caesarean section rates are higher than 20 percent. Subsequently, the overall caesarean deliveries is 67 percent.

Table 6.2: Cesarean section rates, difference of ideal to actual number of cesarean during 2016 for villages under PHC Mohadura, Bhandara taluka, Maharashtra

Sr. No	Villages	No of deliveries	No of Caesarean deliveries	Cesarean section rate (%)	Cesarean section rate (as per WHO 15%)	Difference of actual to expected cesarean deliveries
1	Shirsi**	17	10	58.82	2.55	7
2	Dabha**	21	15	71.43	3.15	12
3	Pandarbodi**	26	16	61.54	3.9	12
4	Mohadura**	17	8	47.06	2.55	5
5	Bhojapur**	37	20	54.05	5.55	14
6	Khokurala**	76	48	63.16	11.4	37
7	Ganeshpur**	105	87	82.86	15.75	71
8	Navegaon	0	0	Nil	0	0
9	Jamni	8	5	62.50	1.2	4
10	Fulmogra	1	--	Nil	0.15	--
11	Umri	4	1	25.00	0.6	0
12	Takali	9	2	22.22	1.35	1
13	Khurshipar	5	2	40.00	0.75	1
14	Khamata	10	6	60.00	1.5	5
15	Gunjepar	9	5	55.56	1.35	4
16	Jara	3	2	66.67	0.45	2
17	Ashoknagar	7	5	71.43	1.05	4
18	Laweshwar	7	5	71.43	1.05	4
19	Pindkepar	18	9	50.00	2.7	6
20	Sonuli	6	4	66.67	0.9	3
21	Kairi	15	4	26.67	2.25	2

22	Indurkha	14	9	64.29	2.1	7
23	Hattidoi	12	5	41.67	1.8	3
24	Tavepar	12	7	58.33	1.8	5
25	Korambi	21	12	57.14	3.15	9
26	Mujabi	*	15	*	*	--
27	Keshalwada	23	20	86.96	3.45	17
28	Kothurna	23	11	47.83	3.45	8
29	Bela	61	49	80.33	9.15	40
	Total	567	382	67.37	85	

Source PHC Mohdura January 2017 to January 2017, *= No data, ** = villages covered, -- = Nil

Population, Literacy rate, sex ratio of adult in the state and district

As per Census 2011 **State of Maharashtra** has a population of 11.24 Crores, of which males and female are 58,243,056 and 54,131,277 respectively. Sex ratio of the state as per census 2011 is 929 women per 1000 males. Pertaining to child sex ratio i.e. 0-6 years is 894 girl children for 1000 male child.

Total literacy of the state is 82.34 percent with 88.38 percent for males and 75.87 percent for females with a gap of almost 12.57 percent between males and females

Bhandara has a [population](#) of 1,200,334 (males 605,520 and females 594,814) of which 19.48% are urban. The district is having 1.1 percent population to state population. The district has a population density of 294 inhabitants per square kilometre.

Total literacy of the district is slightly higher than the state average of 83.76 percent and is 90.35 per cent for males and 77.08 per cent for females with a gap of almost 13.27 per cent between males and females. Sex Ratio at birth is 982 females and child sex ratio is 950 which is well above the state average.

Table 6.3: Details of Literacy, Sex Ratio and Amenities of the visited villages, PHC Mohadura

Sr. No	Village	Population	Literacy Rate	Male (%)	Female (%)	Sex Ratio	Sex Ratio 0-6	PHC	Sub Center
1	Shirsi	1640	87.54	92.44	82.37	943	909	5-10 KMs	Yes
2	Dabha	1792	85.55	91.56	79.29	961	948	5-10 KMs	5-10 KMs
3	Pandarbodi	1755	87.25	92.15	82	903	673	5-10 KMs	5-10 KMs
4	Mohadura	1734	83.67	88.93	78.37	979	869	Yes	Yes
5	Bhojapur	3316	86.64	90.52	82.72	989	961	5-10 KMs	> 5 KMs
6	Khokurala	5044	91.50	94.09	88.71	936	1018	> 5 KMs	5-10 KMs
7	Ganeshpur	9192	92.61	95.22	89.90	961	959	5-10 KMs	Yes

Source Census 2011

All the visited villages have schooling upto class VIII

Literacy

Among the visited places Ganeshpur is having largest population of 9192 and lowest population is of Shirsi village. literacy rate in all the visited villages is higher than the state average of 82.34, with highest in Ganeshpur of 92.61 percent.

Sex Ratio

Related to sex ratio all the villages are above the state average 929. Only Pandarabodi is below the state average with sex ratio of 903. Pertaining to sex ratio of 0-6 children, Khokurala stands first with sex ratio of 1018 and Ganeshpur stood second with 961. Pandarabodi is having sex ratio 673 which is less by 256 of state average. Pandarabodi is below the state average at both adult and children. This is alarming for the entire district health system as well for the state also.

Schooling

All the above villages are having school facility upto middle level i.e. Std. VII within the village, Mohadura and Ganeshpur are having schooling upto secondary school i.e. Std. X.

Health

Mohadura village is having Primary Health Center and Sub Center within the village. Shirsi and Ganeshpur are having Sub Center within the village. Remaining four villages does not have any of these and they have to travel 5-10 KMs to get access of PHC and SC.

Drinking Water

All the visited villages are having tap water as a main source of drinking water.

Main Occupation

Agriculture is the main occupation of the people of this District. As per Census 2011, out of total workers 18.94 percent are engaged as cultivators and 63.86 as agricultural laborers in the District. Together constitute 82.80 percent of the total workers of the District.

1. Shirsi

Shirsi is a medium size village located in Bhandara block of Bhandara district. Total households of the village are 368. Population of the village is 1640, consisting of 844 males and 796 females as per population census 2011.

Population of 0-6 children is 147 which is 8.96 percent of village population. Sex ratio of village is 943 which higher than Maharashtra state average of 929 and child sex ratio is 909 is also higher than the state average 894.

Comparing with state Shirsi has higher literacy rate. In 2011 literacy rate of Shirsi village was 87.54 compared to 82.34 percent of Maharashtra. Male literacy rate was 92.44 percent and female was 82.37 percent.

Shirsi is having preprimary, primary and middle school in the village, whereas for secondary and further education children have to go out of the village. In connection with the health facilities there is Health Sub Center in the village and Primary Health Center is 5 to 10 KMs from the village. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

2. Dabha

Dabha is a medium size village located in Bhandara block of Bhandara district. Total households of the village are 401. Population of the village is 1792, consisting of 914 males and 878 females as per population census 2011.

Population of 0-6 children is 187 which is 10.44 percent of village population. Sex ratio of village is 943 which higher than Maharashtra state average of 929 and child sex ratio is 948 is also higher than the state average 894.

Comparing with state Dabha has higher literacy rate. In 2011 literacy rate of Dabha village was 85.55 compared to 82.34 percent of Maharashtra. Male literacy rate was 91.56 percent and female was 79.29 percent.

Dabha is having preprimary, primary and middle school in the village, whereas for secondary and further education children have to go out of the village. There are no health facilities available within the village. Villagers have to go 5 to 10 KMs for sub center and Primary health center. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

3. Pandarabodi

Pandarabodi is a medium size village located in Bhandara block of Bhandara district. Total households of the village are 402. Population of the village is 1755, consisting of 922 males and 833 females as per population census 2011.

Population of 0-6 children is 179 which is 10.20 percent of village population. Sex ratio of village is 903 is lower than Maharashtra state average of 929 and child sex ratio is 673 is much lower than than the state average 894. Child sex ratio is alarming for the village.

Comparing with state Pandarabodi has higher literacy rate. In 2011 literacy rate of Pandarabodi village was 87.25 compared to 82.34 percent of Maharashtra. Male literacy rate was 92.15 percent and female was 82 percent.

Pandarabodi is having preprimary, primary and middle school in the village, whereas for secondary and further education children have to go out of the village. There are no health facilities available within the village. Villagers have to go 5 to 10 KMs for sub center and Primary health center. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

4. Mohdura

Mohadura is a medium size village located in Bhandara block of Bhandara district. Total households of the village are 378. Population of the village is 1734, consisting of 876 males and 858 females as per population census 2011.

Population of 0-6 children is 185 which is 10.67 percent of village population. Sex ratio of village is 979 which higher than Maharashtra state average of 929 and child sex ratio is 869 is also higher than the state average 894.

Comparing with state Mohadura has higher literacy rate. In 2011 literacy rate of Mohadura village was 83.67 compared to 82.34 percent of Maharashtra. Male literacy rate was 88.93 percent and female was 78.37 percent.

Mohadura is having preprimary, primary, middle and secondary schools are in the village, whereas for further education children have to go out of the village. In connection with the health facilities Primary Health Center and Health Sub Center is available within the village. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

5. Bhojapur

Bhojapur is a medium size village located in Bhandara block of Bhandara district. Total households of the village are 755. Population of the village is 3316, consisting of 1667 males and 1649 females as per population census 2011.

Population of 0-6 children is 353 which is 10.65 percent of village population. Sex ratio of village is 989 is higher than Maharashtra state average of 929 and child sex ratio is 961 is also higher than the state average 894.

Comparing with state Bhojapur has higher literacy rate. In 2011 literacy rate of Bhojapur village was 86.64 compared to 82.34 percent of Maharashtra. Male literacy rate was 90.52 percent and female was 82.72 percent.

Bhojapur is having preprimary, primary and middle school in the village, whereas for secondary and further education children have to go out of the village. There are no health facilities available within the village. Villagers have to go 5 to 10 KMs for sub center and Primary health center. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

6. Khokurala

Khokurala is a large village located in Bhandara block of Bhandara district. Total households of the village are 1143. Population of the village is 5044, consisting of 2605 males and 2439 females as per population census 2011.

Population of 0-6 children is 446 which is 8.84 percent of village population. Sex ratio of village is 936 is higher than Maharashtra state average of 929 and child sex ratio is 1018 is also higher than the state average 894. It is more than 124 of the state.

Comparing with state Khokurala has higher literacy rate. In 2011 literacy rate of Khokurala village was 91.50 compared to 82.34 percent of Maharashtra. Male literacy rate was 94.09 percent and female was 88.71 percent.

Khokurala is having preprimary, primary and middle school in the village, whereas for secondary and further education children have to go out of the village. There are no health facilities available within the village. Villagers have to go 5 to 10 KMs for sub center and Primary health center. Village has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Most of the households are having their own toilets. Main occupation of the village is agriculture.

7. Ganeshpur

Ganeshpur is a census town city as per census 2011, located in Bhandara block of Bhandara district. Population of the town is 9192, consisting of 4688 males and 4504 females as per population census 2011.

Population of 0-6 children is 950 which is 10.34 percent of village population. Sex ratio of village is 961 is higher than Maharashtra state average of 929 and child sex ratio is 959 is also higher than the state average 894.

Comparing with state Ganeshpur has higher literacy rate. In 2011 literacy rate of Ganeshpur village was 92.61 compared to 82.34 percent of Maharashtra. Male literacy rate was 95.22 percent and female was 89.90 percent.

As Ganeshpur is census town and 1 KMs from Bhandara city all education facilities are available within the radius of 1 to 5 KMs. It has Primary Health Sub Center within the town. It has good road connectivity and transport means. All communication means are available. Tap water is the main source of drinking water. Almost all households are having their own toilets. Main occupation of the town is service industry and government or private sector.

Medical reasons for going for C-section delivery

- Intra uterine death
- C-section delivery done under medical advice Cephalo Pelvic Disproportionate
- Prime with breach
- Placenta praevia
- Anti-partum haemorrhage
- Abnormal presentation
- Multiple pregnancies
- Associated gynecological condition
- Risky obstetric history
- Medical disease
- Cord prolapses

Reasons for more deliveries at GH Bhandara

- Free of cost
- GH services are good compare to private facilities
- Good team work
- All services under one umbrella
- Complication rate is too less
- Neonatal care is available, SNCU is the best in the district
- Pediatric care is available
- Good laboratory is available
- Good nursing care is available
- Under JSSK pic and drop back facility is available
- Free diet is available
- It is shared by many of the people that almost all the doctors (Gynecologist) are having their private maternity homes in Bhandara.

Medical reasons for going for C-section delivery

- Intra uterine death
- C-section delivery done under medical advice is comes under elective
- Cephalo Pelvic Disproportionate
- Prime with breach
- Placenta praevia
- Anti-partum haemorrhage
- Abnormal presentation
- Multiple pregnancies
- Associated gynecological condition
- Bad obstetric history
- Medical disease
- Cord prolapses

Reasons for more deliveries at GH Bhandara

- Free of cost
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PHC Dewhadi

Dewhadi village is in Tumsar Block in bhandara district It is located 30 KM towards North from District headquarters Bhandara. 15 KM from Tumsar. Nearby villages are Madagi (3 KM) , Chargaon (2 KM) , Tamaswadi (4 KM) , Bori (5 KM) , Dhorwada (5 KM) are the nearby Villages to Dewhadi. Tumsar , Tirora , Bhandara , Gondiya are the nearby Cities to Dewhadi Tumsar are the nearby by towns to Dewhadi having road connectivity to Dewhadi PHC covered 39459 population and Eight Sub Centers and 24 Villages. Every sub center is functioning in government building. PHC conducted total deliveries 673 institutional deliveries and home deliveries are zero reported and total C-section deliveries conducted in a PHC are 208. There is no maternal death reported in the reference period. In PHC reported Infant death 9 and Neonatal death 12 are reported during January 2016 to February 2017 reference period.

SDH TUMSAR

It is located in Tumsar Block. SDH is away 35 Km from district head quarter. Health facility is easily accessible from nearest road and functioning in a government building. The building condition is good. SDH has electricity with power back up running 24*7 water , Clean toilets separately for males and females functional and clean labour room is available with clean toilet attached to it. Wards are clean and are separately available for males and females; NRC is available and functioning operation theatre is available in the facility. This facility is managed High risk pregnancy.

Type of Units is available in SDH.

1. NBSU units are available in this facility.
2. NRC is available
3. Blood Bank is available
4. Labour room is available
5. Operation Theatre is available.

1 Dewhadi-is a large village located in Tumsar block of Maharashtra. There are 1367 families residing in the village the village total population of 5970 of which 2989 is males and 2981 are females as per population census 2011. In dewhadi village population of children with age 0-6 is 569 which makes up 9.53% of the total population of the village. Average Sex ratio of Dewhadi village are 997 which is higher than Maharashtra state average of 929 Child sex ratio of this village as per census is 942 higher than Maharashtra average of 894. This village has higher literacy rate compared to Maharashtra in 2011, Literacy rate of Dewhadi village was 89.26% compared to 82.34% of Maharashtra, In the village Male literacy rate stands 92.88%and Female Literacy rate are 85.66%

2. Khapa

Khapa is large village located in Tumasar Block in Bhandara district.673 families are residing in the khapa village. The population of this village is 3019. Which are 1573 Males and 1446 is females as per population census 2011.

In Khapa village population of children with age 0-6 is 354 which makes up 11.73%of total population of the village. Average Sex ratio of Khapa village is 919 which is lower than Maharashtra State, average of 929, and child sex ratio of this village is 761lower than Maharashtra average 894 as per census 2011. Khapa village has lower literacy rate compared to Maharashtra. In 2011, literacy rate of Khapa village was 82.21 % compared to 82.34 % of Maharashtra. In Khapa Male literacy stands at 86.37 % while female literacy rate was 77.80 %.

3 Kharabi

Kharabi is a medium size village located in Tumsar of Bhandara district, Maharashtra with total 452 families residing. The Kharabi village has population of 1919 of which 988 are males while 931 are females as per Population Census 2011. In Kharabi village population of children with age 0-6 is 203 which make up 10.58 % of total population of village. Average Sex Ratio of Kharabi village is 942 which is higher than Maharashtra state average of 929.

4 Mandhal

Mandhal is a large size of the village. There are 494 families residing in the village. Populations of the village are 2372, consists of 1260 males and 1112 are females in the village. Average sex ratio of the village are 883it is lower than Maharashtra state. Mandhal village has higher literacy rate compared to Maharashtra. In 2011, literacy rate of Mandhal village was 84.59 % compared to 82.34 % of Maharashtra. In Mandhal Male literacy stands at 88.88 % while female literacy rate was 79.76 %.

5 Paraswada

This is a medium size village there are 284 families residing in the village The Paraswada village has population of 1389 of which 691 are males while 698 are females as per Population Census 2011.

In Paraswada village population of children with age 0-6 is 146 which make up 10.51 % of total population of village. Average Sex Ratio of Paraswada village is 1010 which is higher than Maharashtra state average of 929.

6 Madagi

This is large village. There are 587 families residing in the village. Population of this village is 2678 of which 1376 are males while 1302 are females as per Population Census 2011. In Madagi village population of children with age 0-6 is 251 which make up 9.37 % of total population of village. Average Sex Ratio of Madagi village is 946 which is higher than Maharashtra state average of 929. Child Sex Ratio for the Madagi as per census is 916, higher than Maharashtra average of 894. Madagi village has lower literacy rate compared to Maharashtra.

Table 6.4: Cesarean section rates, difference of ideal to actual number of cesarean during January 2016 to February 2017 (ref period) for villages under PHC Dewhadi, Tumsar taluk, district Bhandara Maharashtra

SR.No	Village	Total population (N)	Total Deliveries (N)	Total cesarean deliveries (N)	Cesarean section rate (%)	Ideal no. of Cesarean (as per WHO 15%)	Difference of actual to ideal cesarean deliveries (N)
1 *	Dewhadi	6264	91	29	31.87	13.65	15.35
2 *	Khapa	3070	53	18	33.96	7.95	10.5
3 *	Magali	1406	32	15	46.88	4.8	10.2
4 *	Kharbhi	2033	29	14	48.28	4.35	9.65
5	Panjara	698	10	02	20.00	1.5	0.5
6 *	Mandhal	2353	53	21	39.62	7.95	13.05
7 *	Sukali	2361	37	14	37.84	5.55	8.45
8 *	Paraswada	1416	29	14	48.28	4.35	9.65
9 *	Tudaka	1021	23	08	34.78	3.45	4.55
10 *	Toli station	1264	28	08	28.57	4.2	3.8
11	Tamaswadi-D	639	08	02	25.00	1.2	0.8
12	Shivani	552	15	06	40.00	0.9	5.1
13 *	Madagi	2476	50	19	38.00	7.5	11.5
14	Chargaon	1029	21	03	14.29	3.15	-0.15
15	Dorwada	1097	15	04	26.67	2.25	1.75
16	Tamaswadi	1494	20	04	20.00	3	1
17	Seetepar	662	13	03	23.08	1.95	1.05
18	Khirlangi	760	16	04	25.00	2.4	1.6
19	Dongarla	1952	34	12	35.29	5.1	6.9
20	Bharmani	1542	18	03	16.67	2.7	0.3
21	Bori	1750	23	02	8.70	3.45	-1.45

22	Kosti	732	13	01	7.69	1.95	-0.95
23	Umarwada	2004	32	02	6.25	4.8	-2.8
24	Navrgaon	876	10	00	00	1.5	-1.5
	Total	39459	673	208	30.90	100.95	108.4

*Visited Villages

Table 6.5: Details of Literacy, Sex Ratio and Amenities of the visited villages, PHC dehwadi

Sr. No	Village	Population	Literacy Rate	Male (%)	Female (%)	Sex Ratio	Sex Ratio 0-6	PHC	Sub Center
1	Dewhadi	6264	89.26	92.88	85.66	997	912	Yes	yes
2	Khapa	3070	82.21	86.37	77.80	929	761	No	Yes
3	kharabi	1919	83.86	90.68	76.67	942	880	No	Yes
4	Mandhal	2372	84.59	88.88	79.76	883	838	No	Yes
5	Paswada	1389	86.81	92.85	80.89	1010	921	No	Yes
6	Madagi	2678	81.99	88.19	75.47	946	916	No	Yes
7	Mangli	1406	81.38	87.20	75.43	989	1076	No	NO
8	Sukali	2361	77.85	85.01	70.24	964	1197	No	No
9	Tudaka	1021	78.01	85.65	71.87	1211	982	No	No
10	Toli station	1264	90.21	93.73	86.84	1022	875	No	No

Source Census 2011

Tumsar Block

PHC- Chulhad

Chulhad is a large village located in Tumsar of Bhandara district, Maharashtra with 862 families. Chulhad village has a population of 3841 of which 1933 are males and 1908 are females as per Population Census 2011. Children in age group 0-6 are 435 which constitutes 11.33 % of total population of village. Sex Ratio of Chulhad village is 987 which is higher than Maharashtra state average of 929. Child Sex Ratio for the Chulhad as per census 2011 is 891, lower than Maharashtra average of 894. Chulhad village has slightly lower literacy rate compared to Maharashtra. In 2011, literacy rate of Chulhad village was 82.21 % compared to 82.34 % of Maharashtra. In Chulhad Male literacy stands at 89.43 % while female literacy

rate was 74.99 %. As per constitution of India and Panchyati Raaj Act, Chulhad village is administrated by Sarpanch (Head of Village) who is elected representative of village.

Figure 6.6 Map of PHC -Chulhad



There are 8 sub-centers under the PHC chulhad. The total population PHC is 41256 and total villages are 29 out of this Sihora village is located at the CHC. Out of the 29 villages we visited 18 villages for our study on of C-section deliveries. This PHC is located at the boundary of Maharashtra and Madhya Pradesh.

Table 6.7: Total number of deliveries and Maternal and infant deaths in villages covered under PHC Chulhad

Sr. No	Villages	Population size	Deliveries			Deaths			
			Total	Home	C section	Maternal	Infant	Neonatal	% c-section
1	Wahari	1268	24	0	6	0	0	0	25
2	Mandvi	963	21	0	4	0	0	0	19.0
3	Wangi	162	1	0	0	0	0	0	0.0
4	Pipre	954	7	0	0	0	0	0	0.0
5	Chulhad	4010	60	0	14	0	0	0	23.3
6	Deorider	943	14	0	2	0	0	0	14.3
7	Bapera	2477	33	0	8	0	0	3	24.2
8	Sukadi	1299	21	0	5	0	0	1	23.8
9	Gonditola	1035	18	0	5	0	0	1	27.8
10	Sihora	5701	66	0	21	0	1	0	31.8
11	Hardoli	1650	38	0	15	0	0	0	39.5
12	Korkapur	1213	20	0	2	0	0	0	10.0
13	Machera	991	14	0	4	0	0	1	28.6
14	Rupara	975	9	0	0	0	0	0	0.0
15	Ranera	726	17	0	1	0	0	0	5.9
16	Dhanegaon	976	10	0	2	0	0	0	20.0
17	Temari	1567	18	0	5	0	0	0	27.8
18	Chandpur	1574	17	0	3	0	0	0	17.6
19	Murli	900	15	0	3	0	0	0	20.0
20	Sonegaon	1482	15	0	4	0	0	2	26.7
21	Borgaon	804	14	0	3	0	0	0	21.4
22	Mangali	823	12	0	3	0	0	1	25.0
23	Mohadi	1542	21	0	3	0	0	1	14.3
24	Sindopuri	2051	20	0	4	0	0	1	20.0
25	Gondekhari	1201	18	0	3	0	0	0	16.7
26	Parawada	1135	18	0	8	0	0	1	44.4
27	Shilegaon	1908	23	0	5	0	0	1	21.7
28	Rengepur	948	20	0	5	0	0	1	25.0
29	Panjra	376	3	0	1	0	0	0	33.3
	Total	41256	587	0	139	0	1	14	23.7

Table6.8: Cesarean section rates, difference of ideal to actual number of cesarean during January to December 2016 for villages under PHC Chulhad, Tumsar taluk, Bhandara, Maharashtra

Sr. No	Villages	Population size	No. of deliveries	No. of C section deliveries	% c-section/total deliveries	Ideal no. of Cesarean (as per WHO 15%)	Difference of actual to ideal cesarean deliveries (N)
1	Wahari	1268	24	6	25.0	3.6	2.4
2	Mandvi	963	21	4	19.0	3.15	0.85
3	Wangi	162	1	0	0.0	0.15	-0.15
4	Pipre	954	7	0	0.0	1.05	-1.05
5	Chulhad	4010	60	14	23.3	9.0	5.0
6	Deorider	943	14	2	14.3	2.1	-0.1
7	Bapera	2477	33	8	24.2	4.95	3.05
8	Sukadi	1299	21	5	23.8	3.15	1.85
9	Gonditola	1035	18	5	27.8	2.7	2.3
10	Sihora	5701	66	21	31.8	9.9	11.1
11	Hardoli	1650	38	15	39.5	5.7	9.3
12	Korkapur	1213	20	2	10.0	3.0	-1
13	Machera	991	14	4	28.6	2.1	1.9
14	Rupara	975	9	0	0.0	1.35	-1.35
15	Ranera	726	17	1	5.9	2.55	-1.55
16	Dhanegaon	976	10	2	20.0	1.5	0.5
17	Temari	1567	18	5	27.8	2.7	2.3
18	Chandpur	1574	17	3	17.6	2.55	0.45
19	Murli	900	15	3	20.0	2.25	0.75
20	Sonegaon	1482	15	4	26.7	2.25	1.75
21	Borgaon	804	14	3	21.4	2.1	0.9
22	Mangali	823	12	3	25.0	1.8	1.2
23	Mohadi	1542	21	3	14.3	3.15	-0.15
24	Sindopuri	2051	20	4	20.0	3.0	1.0
25	Gondekhari	1201	18	3	16.7	2.7	0.3
26	Parawada	1135	18	8	44.4	2.7	5.3
27	Shilegaon	1908	23	5	21.7	3.45	1.55
28	Rengepur	948	20	5	25.0	3.0	2.0
29	Panjra	376	3	1	33.3	0.45	0.55
	Total	41256	587	139	23.7	15	8.7

Reason for more C-section delivery in Bhandara district

- Many of deliveries is fist delivery and in the Maharashtra culture the first deliveries at the mother place so mother unwilling to take risk.
- Many time mothers go to private treatment for ANC period and private Doctors gives advice for sonography and at the time of delivery doctor recommends cesarean.
- Private doctors refers critical cases to government hospital.
- At the grass root level specialist doctors are unavailable for ANC period hence complicated pregnancies are mainly detected during delivery.
- Shortfall of obstetricians and anesthetists and they are not available round the clock in medical institutions
- Doctor's reputation is a main reason.

Table 6.9: Details of villages under the service area of PHC Mohadura

Sr. No	Village	Population	No of deliveries	No of C-section deliveries	Home Deliveries	Mater nal Death	Infant Death	Neo natal Death
1	shahapur	4694	61	33	1	0		1
2	gopiwada	3236	38	18	0	0		1
3	nandora	1654	15	7	0	0		1
4	maragaon	352	6	3	0	0		
5	parsodi	3563	67	28	0	0	1	1
6	thana	7990	100	65	0	0	1	1
7	kharbi	2758	40	16	0	0		
8	kharadi	736	7	3	0	0		1
9	R dahegaon	1651	26	12	0	0		
10	chikhali	1155	23	7	0	0		
11	kondhi	2586	27	14	0	0		
12	sawari	2927	31	23	0	0		
13	lohara	512	12	2	0	0		
14	Sale bardi	926	14	7	0	0		
15	khairl	892	13	3	0	0		
16	kawadshi	1420	18	8	0	0		
17	dawadijaar	1421	23	8	0	0		
18	sangam	446	11	6	0	0		1
19	peepari	1692	37	14	0	0		1
20	sahuli	1276	20	7		0		
21	chicholi	160	2	0	0	0		
22	pevatha	219	4	2	1	0		
	Total	42257	585	286	1	0	2	8

Source PHC Shahapur, * = No data, ** = villages covered, -- = Nil

Table 6.10: Cesarean section rates, difference of ideal to actual number of cesarean during 2016 for villages under PHC Shahapur, Bhandara taluka, Maharashtra

Sr. No	Village	Population	No of deliveries	No of C-section deliveries	Cesarean section rate (%)	Cesarean section rate (as per WHO 15%)	Difference of actual to expected cesarean deliveries (N)
1	shshapur	4684	61	33	54	9	24
2	gopiwada	3236	38	18	47	6	12
3	nandora	1654	15	7	47	2	5
4	maragaon	0352	6	3	50	1	2
5	parsodi	3536	67	28	42	10	18
6	thana	7990	100	65	65	15	50
7	kharbi	2758	40	16	40	6	10
8	kharadi	0736	7	3	43	1	2
9	R dahegaon	1651	26	12	46	4	8
10	chikhali	1155	23	7	30	3	4
11	kondhi	2586	27	14	52	4	10
12	sawari	2927	31	23	74	5	18
13	lohara	512	12	2	17	2	0
14	Sale bardi	926	14	7	50	2	5
15	khairl	892	13	3	23	2	1
16	kawadshi	1420	18	8	44	3	5
17	dawadijaar	1421	23	8	35	3	5
18	sangam	0446	1	6	600	0	6
19	peepari	1692	37	14	38	6	8
20	sahuli	1276	20	7	35	3	4

21	chicholi	0160	2	0	0	0	0
22	pevatha	0219	4	2	50	1	1
23	Total	42257	585	286	49	88	198

Source PHC SHAHAPUR January 2016 to January 2017, *= No data, ** = villages covered, -- = Nil

Some of the observations from the field which affecting to go for C-section delivery

- As it is stated above peripheral area of Sahapur PHC is in a radius of 15 to 20 KMs from district headquarters of Bhandara.
- Relatives of pregnant women especially mother is get panic and don't want to see her daughters pains during delivery.
- Qualification level is good of all interviewed women's. Most of the women's does not want delivery pains. They feel that C-section delivery is better than normal delivery.
- Overall awareness is also good.
- Financial condition appears ok.
- All the villages are having good connectivity to district headquarter.
- Al most all the housed are pucca houses.
- Almost all the houses are having their own toilet.
- All the visited villages are having good sanitation facility.
- Lack of interest in working of peripheral staff.
- As district hospital is easily accessible to the people they prefer to go to the district hospital. As their mind set is if we go to the PHC and if there will be any complication PHC will refer us to the district hospital. Instead going via PHC they direct go to the district hospital.
- Political pressure. Few years ago there was one maternal death occur during the delivery in public facility. As the doctor of the particular facility was trying to make it normal delivery. But unfortunately mother died on the delivery table. It retaliates in anger of relatives and they have attacked on particular facility. It results suspension of particular service provider and transfer in other district. Because of this incidence providers are also not willing to take risk in waiting for normal delivery. As they have to face the music if something goes wrong. Also political interference is too much.
- It is observed at DH in Labour ward single staff nurse is on duty in her shift and at least 25 pregnant women are in the ward. All of them are nearing to delivery. In such cases it is difficult her to maintained partograph of each women. And it is expected to check development of a woman every after 4 hours by a doctor; which is not being done as there is less manpower and heavy workload.
- It is shared by many of the people that almost all the doctors (Gynecologist) are having their private maternity homes in Bhandara.

Medical reasons for going for C-section delivery

- Intra uterine death
- C-section delivery done under medical advice is comes under elective

- Cephalo Pelvic Disproportionate
- Prime with breach
- Placenta praevia
- Anti-partum haemorrhage
- Abnormal presentation
- Multiple pregnancies
- Associated gynecological condition
- Bad obstetric history
- Medical disease
- Cord prolapses

Reasons for more deliveries at GH Bhandara

- Free of cost
- GH services are good compare to private facilities
- Good team work
- All services under one umbrella
- Complication rate is too less
- Neo natal care is available, SNCU is the best in the district
- Pediatric care is available
- Good laboratory is available
- Good nursing care is available
- Under JSSK pic and drop back facility is available
- Free diet is available

