

Study on 3- Delay and Cause of Maternal Death in Kutch
District Gujarat

By

Ankit Yadav

*Dissertation submitted for the partial fulfillment of the
MBA Hospital and Health Management*

Academic year, 2016-2018



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TO WHOM SO EVER MAY CONCERN

This is to certify that **Dr. ANKIT YADAV** student of MBA Hospital and Health Management from The IIHMR University, Jaipur has undergone internship training at **NATIONAL HEALTH MISSION, GUJARAT** from **1-Feb-2018 to 10-May-2018**.

The Candidate has successfully carried out the study designated to him during internship training and his approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his future endeavors.



Dr Ashok Kaushik
Dean, Academics and Student Affairs
The IIHMR University, Jaipur



Dr. Sameer Phadnis
Associate Professor
The IIHMR University, Jaipur



DISTRICT HEALTH SOCIETY

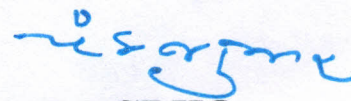
DISTRICT PROGRAMME MANAGEMENT UNIT
HEALTH BRANCH – DISTRICT PANCHAYAT KUTCH

Date-10/05/2018

CERTIFICATE

This is to Certify that **Dr.AnkitYadav** Studying in MBA_HM 21thBatch, Health Stream, In Recognition of Having Successfully Completed His Dissertation in the Department of National Health Mission, Gujarat Has Successfully Completed His Project **OnAnalysis of delay and cause of maternal death kutchDistrict, Gujarat**From :01/02/2018 to 10/05/2018 In Partial Fulfilment Of The Requirement for the Award of “MBA IN HOSPITAL & HEALTH MANAGEMENT”, is a Record of the candidate's Own Work Under My Guidance. He comes across as a committed, Sincere & diligent person who has a strong drive and zeal for learning.

We wish him all the best for future endeavours.


CDHO

District Panchayatkutch

Date-10/05/2018

Place-Bhuj(kutch)

THE IIHMR UNIVERSITY, JAIPUR

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **Study of 3- delays and cause of maternal death Kutch District, Gujarat** and submitted by **Dr. Ankit Yadav** Enrollment No. **0385** under the supervision of **Dr. Sameer Phadnis** for award of MBA in Hospital and Health Management of the University carried out during the period from **01/02/2018 to 10/05/2018** embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other institute or other similar institution of higher learning.



Signature

ACKNOWLEDGEMENT

Behind every success there is certainly an unseen power of Almighty **GOD**. But success is attained with association of professors, teachers, family members, friends & colleagues. It is my privilege to acknowledge people who have supported me throughout the summer internship period & helped me to reach this acme of investigation. The present line of accomplishment is not a formality but an honest word of appreciation that has exactly been felt during my training.

My deepest gratitude to **Dr. PANKAJKUMAR PANDE sir (CDHO)** for his kind permission to allow me for completing the summer internship.

I would like to express my deepest appreciation to my esteemed guide, **Dr. R.K BHARGAV(DQAMO)** and **Dr. R.K BHARGAV (RCHO)**, for his keen insight, thoughtful reflection and unfailing support and guidance during completion of my summer internship.

Sincere thanks to **Dr.SAMEER PHANDIS (Associate professor)** for his kind co-operation and guidance.

My sincere thanks to all the **Taluka, Health Officers, Medical Offices and Field staffs** for helping me in so many ways during my study.

Very special thanks to **Dr. Imran, RASIK VELJIBHAI CHHANGA (District Programme Assistant)** who selflessly revealed important information regarding the study and helped me in understanding the important aspects of summer internship.

I am also thankful to **Family members or relatives of the deceased mother** for helping me by giving their time and feedback along with my **family members** and **friends** for encouraging me to pursue this study and support me every step along the way.

Last but not the least; study was successfully completed because of the grace of **Almighty God**.

Dr. AnkitYadav

DECLARATION

I hereby declare that the study title **Study of 3- delays and cause of maternal death Kutch District, Gujarat** is a record of work done by me under the supervision and guidance of **Dr. R.K BHARGAV (RCHO)**, as a part of my Dissertation.

I confirm that this report truly represents my work and accomplishment undertaken as a part of work. This work is not a replication of work done previously by any other person. I also confirm that the contents of the report and the views contained therein have been discussed and deliberated with the Supervisor as well as the Mentor.

Dr.Ankityadav

MBA-HM 21TH BATCH (2016-2018)

ROLL NUMBER -- **0385**

IIHMR-Jaipur

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ABBREVIATIONS-

CHC-Community health centre

DH-District hospital

GOI- Government of India

ICPD-International Conference on Population Development

ICU- Intensive Care Units

JSY-Janani surakha yojana

MMR- Maternal Mortality Ratio

MDR- Maternal Death Review

MDG- Millennium Development Goal

NFHS-National family health survey

PHC- Primary health centre

SRS-Sample registration system

SC-Sub centres

WHO-World health organisation

EXECUTIVE SUMMARY

❖ BACKGROUND OF THE STUDY

When a woman undertakes her biological role of becoming pregnant & undergoing childbirth, the society has an obligation to fulfill her basic human rights to life, liberty, social security, maternity protection & non-discrimination.

Maternal mortality reflects the socio-economic status of any country. India has high maternal mortality ratio (MMR) when compared to other developed countries. Each year in India, roughly 28 million women experience pregnancy. Maternal Mortality Ratio in India has shown an appreciable decline from 398/100,000 live births in the year 1997-98 to 301/100,000 live births in the year 2001-03 to 212 in 2007-2009 to 178/100,000 live births in the period 2010-2012 to 174 in 2014-2015. [SRS, June 2011 Bulletin]. As far as the maternal health indicators are concerned, Gujarat has better indicators in comparison to national maternal health indicators. As per the Special Bulletin on maternal mortality in India in 2007-09, the maternal mortality rate for Gujarat is 148 per lakh live births to 112/100,000 live births in the year 2011-2013.

Reducing maternal mortality has been a constant struggle globally. Although developed regions have shown a steep decline in maternal deaths, the developing world continues to contribute inordinately to the total maternal deaths. The Millennium Development Goal (MDG) 'five' focused on reducing maternal mortality and achieving universal access to reproductive health care. In lieu of that, India has made extensive efforts to achieve the same, which are visible through the sharp increase in the rate of institutional births (NFHS 4), but the concurrent high incidences of maternal mortality present a contradictory picture of the nation's progress in improving maternal health. Despite of the boom in the medical and health sector that India has witnessed in the past decades, progress in reducing maternal mortality at the national level is disappointing. With new Sustainable Development Goal (SDG) to reduce maternal mortality ratio to 70 per 100,000 live births by the year 2030, India needs to move beyond the hospital-based approach in addressing the reproductive health issues. The determinants of maternal mortality need

to be studied through the lens of social phenomenon to understand its multidimensional nature. The present review, thus, briefly explores the available evidences to determine the causes of maternal mortality operating from proximate to distant level.

Maternal Death Review (MDR) as a strategy has been spelt out clearly in the RCH – II National Programme Implementation Plan document. It is an important strategy to improve the quality of obstetric care and reduce maternal mortality and morbidity. The importance of MDR lies in the fact that it provides detailed information on various factors at facility, district, community, regional and national level that are needed to be addressed to reduce maternal deaths. Analysis of these deaths can identify the delays that contribute to maternal deaths at various levels and the information used to adopt measures to fill the gaps in service.

The ‘3-Delays Model’ proposes that the pregnancy related mortality is awesomely due to delays in-

- (1) Deciding to seek appropriate medical help for an obstetric emergency
- (2) Reaching an appropriate obstetric facility
- (3) Receiving adequate care when a facility is reached.

The present study was a community based cross-sectional study with the objective of to review and analyze maternal mortality using ‘3-Delays’ as a framework along with socio-economic-demographic profile of the subject and obstetric history and recommendsome other possible interventions to reduce & prevent maternal deaths in Kutchdistrict of Gujarat. The 3-delays methodology and a structured questionnaire (verbal autopsy form)were applied to review and analyze the maternal deaths that occurred during the last one financial year (1st April 2017 to 31st March 2018).Both qualitative and quantitative data was collected and all the data was anonymized and analyzed by using Microsoft EXCEL software to draw the inferences,Results and conclusions.

MATERNAL HEALTH SCHEMES IN GUJARAT

1. JANANI SURAKSHA YOJANA (JSY) :

“Expectations of a mother from society”

Aim: To reduce the overall mortality ratio and infant mortality rate and to increase institutional deliveries. The JananiSurakshaYojana has identified ASHA, the Accredited Social Health Activist as an effective link between the Government health institutions and the poor pregnant women.

Introduction:

JananiSurakshaYojana (JSY) is a safe motherhood intervention under the National Rural Health Mission (NRHM) being implemented with the objective of reducing maternal and neo-natal mortality by promoting institutional delivery among the poor pregnant women. The JananiSurakshaYojana has identified ASHA, the Accredited Social Health Activist as an effective link between the Government health institutions and the poor pregnant women.

The Scheme has contributed immensely in increasing the Institutional deliveries among the BPL, ST and SC population. The progress of Scheme has been remarkable since inception and is expected to achieve good results in the years to come.

After Hon'ble Supreme Court's instructions, 500/- of JSY benefit is being paid 8 to 12 weeks before delivery without any age, parity and place restriction to BPL, SC & ST women and additional benefit (200/- for rural area and 100/- for urban area) are being paid to the beneficiaries before discharge from health facility. All JSY benefits are being made through bearer cheques only since Sept. 2010.

Benefits:

- Under this scheme, Rs.700 will be given to every mother at starting of 7th month for nutritious food (Rs.600 for Urban area).

Objectives:

- 1) To Promote Institutional Deliveries.
- 2) To reduce overall Maternal Mortality ratio and Infant Mortality Rate.

Target Beneficiaries:

- 1) Pregnant Woman of all sectors of the society.
- 2) Irrespective of Birth order.

.

Strategy:

- 1) Early Registration at AWC/SC (MCHN days)
- 2) Provision of 4 ANC And 4 PNC
- 3) Early Identification of complicated cases
- 4) Role of ASHA.

Factors affecting Implementation of Programme:

- Initially the benefit is up to 02 Births only, but now that has been removed.
- This scheme implementation is mainly depending on activities of ASHA But some of them have been found very inactive during field visit.
- In the Tribal Population, Women are not aware of Benefits and they don't have account in Bank.

Add a smile to the Janani in need.....

JSY is a safe motherhood intervention under the National Rural Health Mission . Its main aim is to reduce maternal and neo-natal mortality by promoting institutional delivery among the poor pregnant women. There is a notable increase in Institutional deliveries among the BPL, ST and SC population under this scheme. Benefits under the scheme are cash assistance with delivery and post-delivery care upto 2 live births.

Financial plan includes the following:

- a) Home delivery Rs 500/-
- b) Institutional Delivery in Rural Area Rs 700/
- c) Institutional delivery in Urban Area Rs 600/-
- d) For caesarean delivery Rs. 1500.

2. MAMTA GHAR

One of the major determinants in some areas of the State is the ability to bring the necessary technical skills – economic, geographical, and operational – to the women in need of help. Access to a continuum of care, including appropriate management of pregnancy, delivery, post partum care and access to life-saving obstetric care when complications arise are crucial to Safe Motherhood.

3. MAMTA SAKHI (BIRTH COMPANION SCHEME)

Under this scheme a female family member allow to be at the side of pregnant woman at the time of delivery in government institutions. The presence of birth companion during childbirth meant that a woman was never left alone during this intensely stressful and frightening time of her life

4. MAMTA DOLI

Reduction in delay due to transportation to the health facility for Institutional Delivery is of utmost importance for bringing down the MMR. In view of the above the State Govt. has decided to implement the MamtaDoli initiative in certain inaccessible areas of Gujarat. The purpose of the initiative is to bring the pregnant women to the nearest motorable point from where she can be picked up from ambulance receiving point for further transportation by EMRI 108 vehicle for Institutional Delivery or transportation of the pregnant women directly by the MamtaDoli service providers.”

5. MATERNAL DEATH REVIEW (MDR)

A maternal death review provides a rare opportunity for group of health staff and community members to learn from a tragic and often preventable event. Maternal death review should be conducted as learning exercise that does not include finger point or punishment. The purpose of maternal death review is to improve the quality of safe motherhood programming to prevent future maternal and neonatal morbidity and mortality.

6. MAMTA ABHIYAN

Outreach preventive and promotive services for ANC and PNC are designed under MAMTA Abhiyan. MAMTA Abhiyan has four components including MAMTA Divas (Health & Nutrition Day), MAMTA Mulakat (PNC Home visit), MAMTA Sandarbh (Referral services) and MAMTA Nondh.

- 7. MAMTA CARD (MOTHER & CHILD PROTECTION CARD)** In the Gujarat, Mother and Child Protection card is known as Mamta Card. The Mamta Card has been developed as a tool for families to learn, understand and follow positive practices for achieving good health of pregnant women, young mothers and children.

COMPREHENSIVE ABORTION CARE

After International Conference on Population Development (ICPD) in 1994 the need to improving reproductive health of women to enhance the overall human welfare and development has aroused. With its commitment to reproductive health, Government of India (GOI) has launched the Reproductive and Child Health Program since October 1997. Among the various components of reproductive health, abortion though legalized in India has remained neglected so far.

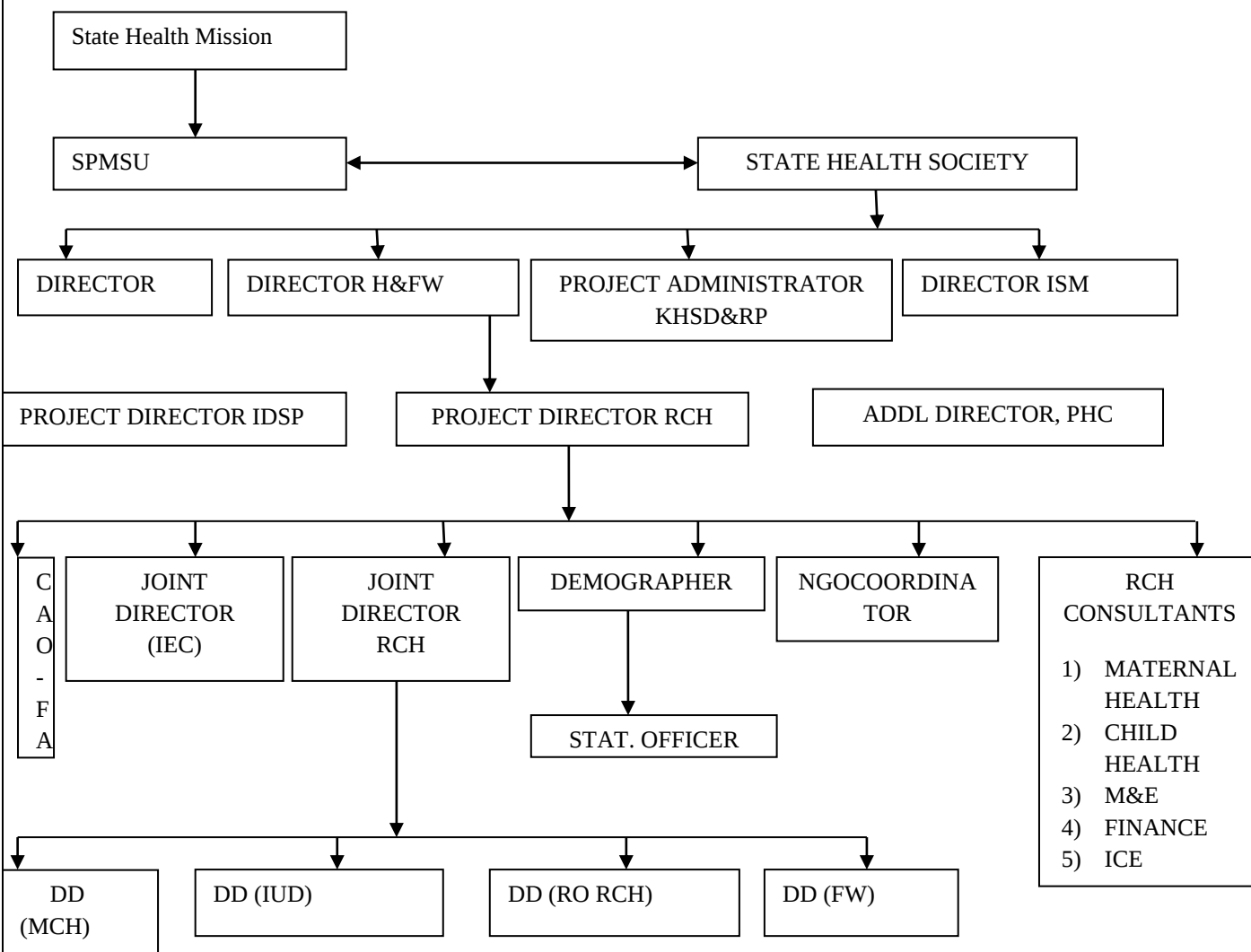
9. SKILLS LAB

Skills lab is an important intervention to improve Maternal and Child Health. Skills lab are designed with the aim of up gradation of the skills of healthcare providers to enhance their capacity to provide quality RMNCH+A services leading to improved health comes. At present, there are nine skills lab operationalized in Gujarat in year 2013-14.

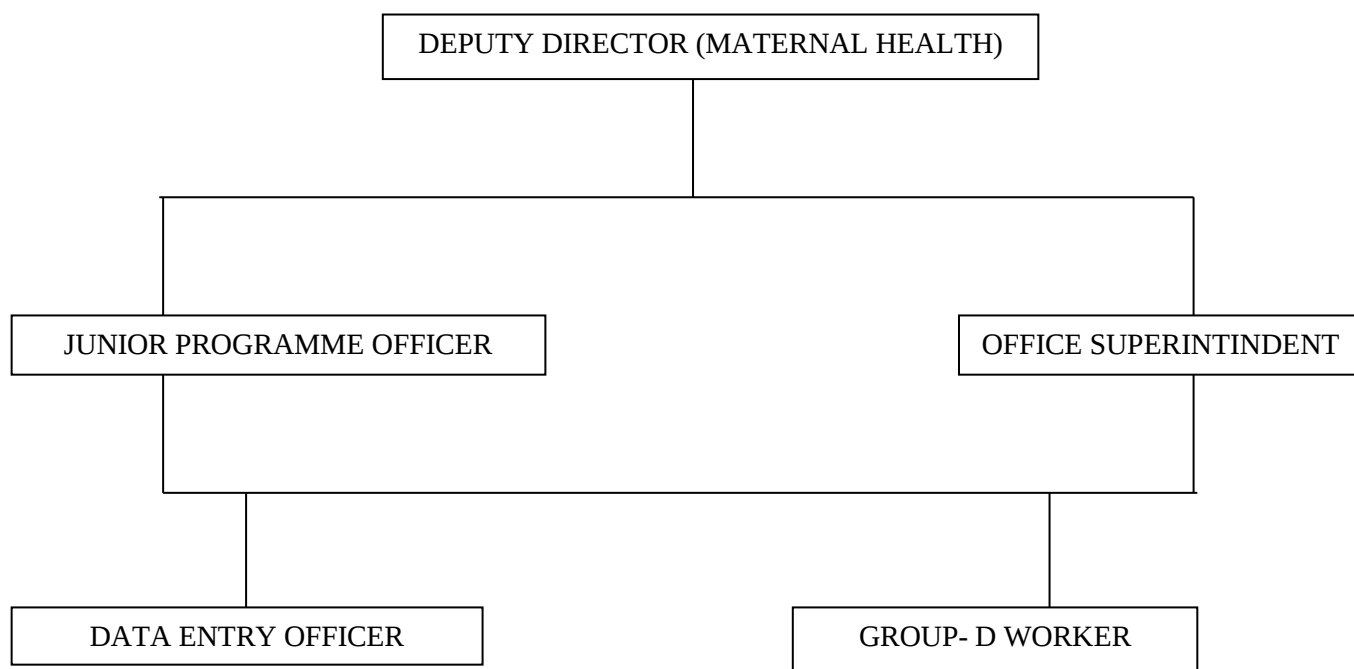
10. OBSTETRIC ICU

To establish Obstetric Intensive Care Units (Obstetric ICU) in Medical College Hospitals to ensure adequate obstetric and intensive care to pregnant mothers with life threatening complications, enhancing their survival opportunities. To develop standardize treatment protocols for improved outcomes in all Obstetric ICUs To develop Information Technology enabled monitoring system for real time monitoring of Obstetric ICU performance.⁽¹⁰⁾

ORGANOGRAM OF DEPARTMENT OF HEALTH AT STATE LEVEL(NHM)



ORGANOGRAM OF DEPARTMENT OF MATERNAL HEALTH AT STATE LEVEL



1. INTRODUCTION

REDUCING MATERNAL MORTALITY IS NOT JUST ISSUE OF DEVELOPMENT, BUT ALSO AN ISSUE OF HUMAN RIGHTS .

WHO defines maternal health as ‘to the health of women during pregnancy, childbirth and the postpartum period Although, motherhood is often a positive and fulfilling experience, for the same time for most of the women it is associated with suffering, ill-health and even death. Under MGD 5, countries determined to reduce maternal mortality by three quarters between 1990 to 2015. However, maternal deaths worldwide have dropped only by 45% (UN, 2015). Among the two countries in the world where one third of the total death are observed, India ranks first with 50,000 death followed by Nigeria with 40,000 in 2013 respectively (WHO, 2014). Besides, the country had also failed to achieve its commitment to reach 109 MMR by 2015 with the fall short of 31 points (Sample registration System, Registrar General of India, 2014). The major causes for maternal death in the country are due to hemorrhage, sepsis, hypertensive disorders, obstructed labour, and abortion and other condition includes anemia . Other factors such as low literacy, lack of birth spacing, early age at marriage & child bearing, high parity, cultural misconceptions, economic dependency of women, poverty, lack of information, distance and inadequate services also influences maternal mortality (Panda, R.M and Neogi, S, 2014, WHO, 2014). Thus, it is important to identify the region specific reasons for maternal death in order to prevent and reduce maternal death.

“Maternal Mortality Ratio (MMR) in India has shown an appreciable decline from 398/100,000 live births in the year 1997-98 to 301/100,000 live births in the year 2001-03 to 212 in 2007-2009 to 178/100,000 live births in the period 2010-2012 to 174 in 2014-2015. Gujarat is in better placed as far as the maternal health indicators are concerned in comparison to the national maternal health indicators. As per the SRS 2007-09, the maternal mortality rate for Gujarat is 148/100,000 live births to 112/100,000 live births in the year 2011-2013. The State government has initiated the ‘Janani Suraksha Yojana (JSY), Mamta Doli, Mamta Abhiyan, Mamta Card (Mother & Child

Protection Card)' scheme aimed at safe delivery, nutrition and diet and antenatal check-up and institutional delivery for women in BPL family. To achieve the MDG Goal of 109 per 100,000 live births, there is a need to give impetus to implementation of the strategies and interventions for maternal health.⁽³⁾

Maternal Death Review (MDR) as a strategy has been spelt out clearly in the RCH-II National Programme Implementation Plan document. It is an important strategy to improve the quality of obstetric care and reduce maternal mortality and morbidity. The importance of MDR lies in the fact that it provides detailed information on various factors at facility, district, community, regional and national level that are needed to be addressed to reduce maternal deaths. Analysis of these deaths can identify the delays that contribute to maternal deaths at various levels and the information used to adopt measures to fill the gaps in service⁽⁴⁾.

Maternal mortality refers to the “death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the site and duration of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not by accidental or incidental cause” (WHO 1994). It is used as a proxy indicator to assess the country's maternal and reproductive health status. Maternal mortality can have a serious health effects and psychological costs for the family members especially children. Recent studies have shown significant decline in the incidences of maternal deaths in the developed world, but the estimates from the developing countries are still highly disappointing. According to the WHO, UNICEF, UNFPA and the World Bank, of the total estimated maternal deaths that occurred globally, developing countries accounted for 99% of them (WHO, 2016). In the past decade, India has been able to reduce maternal mortality from 206 to 181 maternal deaths per 100,000 live births, but with 17 % (50,000 maternal deaths) of all maternal deaths occurring in India, it still is the highest contributor of maternal deaths in the world followed by Nigeria (14%, 40,000). In fact, India and Nigeria together account for two third of the global maternal deaths (WHO, 2014). Despite of witnessing an excellent economic growth and a boom in the health sector, India couldn't percolate down this progress to the reproductive health indicators. Post-partum haemorrhage, hypertensive disorders and sepsis are the most common causes of maternal deaths in India followed by complications of delivery and obstructed labour (Say, 2014; Montgomery, 2014), and it is being emphasised that 80 % of these deaths can be prevented or avoided through institutional deliveries or by providing quality health care to the women (CRR, 2008; WHO, 2010; Hogan, 2010). However, the current high rates of institutional deliveries (table 1) with concurrent high maternal mortality rates in the country indicate that the maternal mortality

cannot be addressed only through hospital-based approach and there is an urgent need to look beyond it. In this review, maternal health situation and maternal mortality issue has been looked as a social phenomenon.

1.1 RATIONALE

Approximately 529,000 women die from pregnancy-related causes annually and almost all (99%) of these maternal deaths occur in developing nations. One of the United Nations' Millennium Development Goals is to reduce the maternal mortality rate by 75% by 2015. Causes of maternal mortality include postpartum hemorrhage, eclampsia, obstructed labor, and sepsis etc. Many developing nations have lack adequate health care and family planning, and pregnant women have minimal access to skilled labor and emergency care. Basic emergency obstetric interventions, such as antibiotics, oxytocins, anticonvulsants, manual removal of placenta, and instrumented vaginal delivery, are vital to improve the chance of survival.

2.0 REVIEW OF LITERATURE

A retrospective analysis of maternal deaths was carried out from January 1986 to December 2005 at the Department of Obstetrics and Gynecology, R. G. Kar Medical College and Hospital, Kolkata, India. Records were divided into four 5-yearly periods: 1986-1990; 1991-1995; 1996-2000; and 2001-2005, for comparison of the trends. The initial interval from 1986 to 1990 was chosen as the reference period. (Bhattacharyya et al. 2008; Jain et al.) The study found that indirect causes were responsible for 18% (total number of maternal deaths in study = 1223) and 51% (total number of maternal deaths in study = 192) of deaths, respectively.

A nationwide sample survey in India observed that 23.4% deaths occurred during ante partum period, 21% deaths were due to indirect causes, and 59.1% deaths occurred in health facilities in 2003 (Indian council of Medical Research, 2003).

Secondary data analysis of the Chiranjeevi scheme in Gujarat by Mavalankar et al. (2009) revealed that more than 800 obstetricians have joined the scheme and more than 269000 poor women have delivered in private facilities in 2 years. It found that percentage of institutional deliveries among poor women increased from 27% to 48% between April 2007 and September 2008. In addition,

there are fewer reported maternal and newborn deaths among the beneficiaries compared with the number of deaths expected in the absence of the scheme.

Anwariet et.al studied obstetric patients admitted to ICU at Armed Forces Hospital, Riyadh, and Kingdom of Saudi Arabia from 1997 to 2002. The study found that the two most common indications for admitting obstetric patients to ICU were hemorrhage and Hypertension. They concluded that invasive hemodynamic monitoring and ventilator support were the two main interventions. Improving quality of care before and after admission to ICU may reduce maternal morbidity.

Cecatti et al. (2002-2007) studied 673 women admitted in ICU with severe maternal morbidity and could identify 194 cases of MNM and the 18 maternal deaths by WHO criteria. They concluded that with the WHO criteria for MNM they were able to identify almost all cases of death and organ failure. Between October 2002 and September 2007, 673 women with SMM were admitted, and among them 18 died. The identification of at least one of the WHO criteria in women who did not die defined the case as a near miss. Organ failure was evaluated through the maximum SOFA score above 2 for each one of the six components of the score, being considered the gold standard for the diagnosis of maternal near miss. The aggregated score (Total Maximum SOFA score) was calculated using the worst result of the maximum SOFA score.

Roost et al reported MMR as 187/100,000 LB and MNM as 50/1,000 LB, with a relatively low mortality index (MI) of 3.6 %". "Facility-based cross-sectional study in metropolitan La Paz, Bolivia. MMR was 187/100,000 live births and SMR was 50/1000 live births, with a relatively low mortality index of 3.6%. Severe hemorrhage and severe hypertensive disorders were the main causes of near-miss, with 26% of severe hemorrhages occurring in early pregnancy. Sepsis was the most common cause of death. The majority of near-miss cases (74%) was in critical condition at hospital admission and differed from those fulfilling the criteria after admission as to diagnostic categories and socio-demographic variables.

Filippi et al classified disease-specific criteria for identifying MNM cases, and they are based on five main categories of complications at term. Prospective or retrospective reviews of medical records were conducted in nine referral hospitals in three countries (Benin, Côte d'Ivoire, and Morocco). They calculated the incidence of near-miss obstetric events, near-miss cases, and maternal deaths related to hemorrhage, hypertensive diseases of pregnancy, dystocia, infections, and anemia and analyzed these according to hospital and timing relative to admission.

Sri et al. (2012) investigated 27 maternal deaths reported in the district from April to November 2010. They found absence of antenatal care despite high levels of anemia, absence of skilled birth attendants, failure to carry out emergency obstetric care in obvious cases of need, and referrals that never resulted in treatment. Besides they documented that lack of accountability, discrimination against and negligence of poor women, particularly tribal women, and a close link between poverty and maternal death were other contributing factors for maternal death in the study area.

A retrospective case control study in UK, at tertiary care centre found that hemorrhage due to placenta praevia especially in repeat C section was the main indication for emergency peripartum hysterectomy (47 %). The cases consisted of all women who had emergency peripartum hysterectomy between 1 January 1993 and 31 December 2003. Controls were women who delivered immediately before and after the indexed case. Differences between cases and controls were compared with chi2, Fisher exact and Student t tests. Multiple logistic regression analysis was performed to identify independent risk factors for emergency peripartum hysterectomy.

Kumar et al. (2010) found that increase in institutional deliveries with improved referral linkages is one of the important reasons thought to have resulted in reduction in MMR in India .

Fig 1: Common causes for maternal deaths in Gujarat

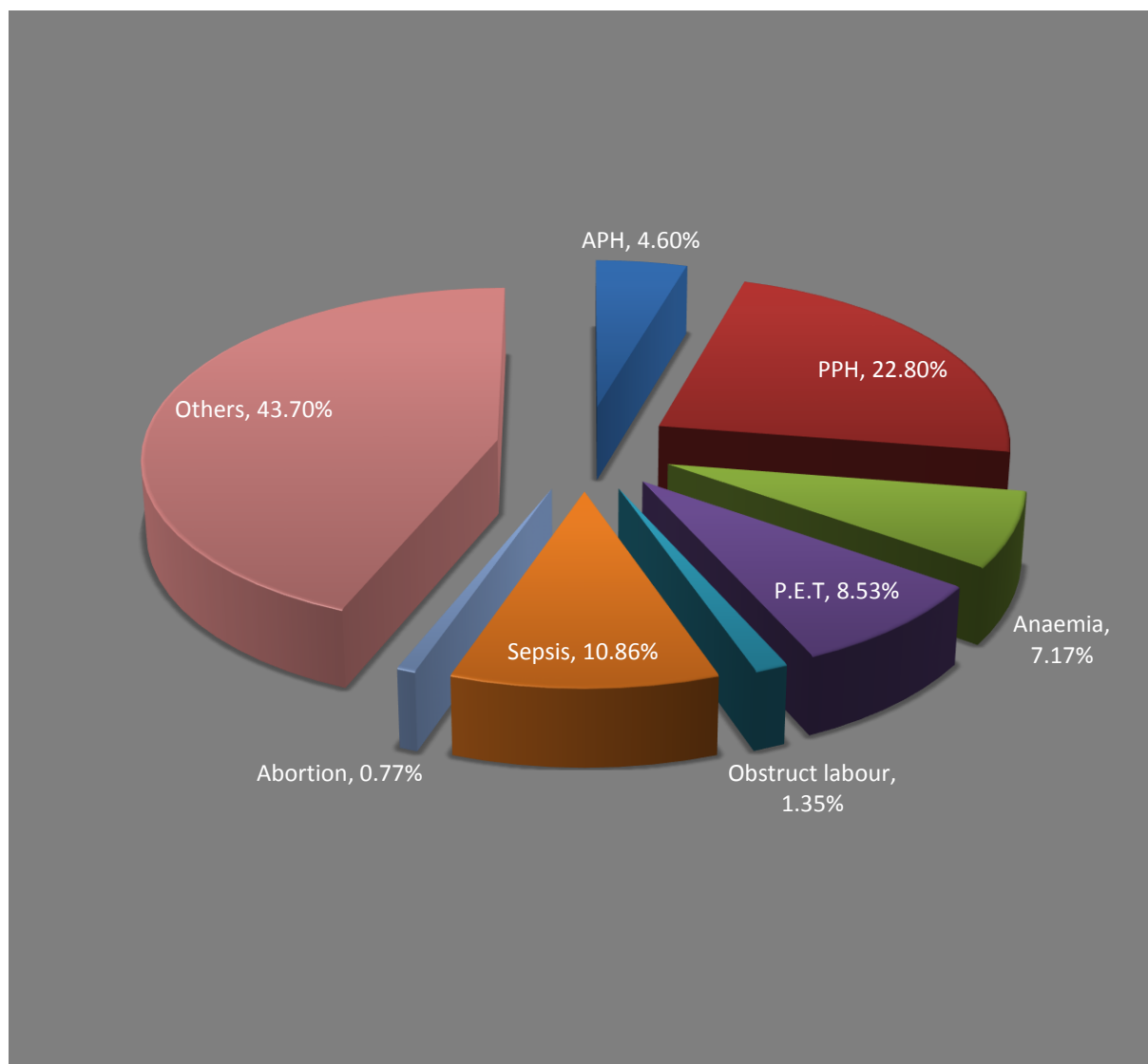


Fig. 1- (Source: PIP guidelines of NRHM 2011-12)

THE CONCEPTUAL FRAMEWORK -- THE THREE PHASES OF DELAY

The Three Delays Model and our Integrated Approach

Maternity Worldwide uses an integrated approach to address each of the issues women face when trying to access safe childbirth. This is based on the Three Delays Model* which identifies three groups of factors which may stop women and girls accessing the maternal health care they need:

1: Delay in decision to seek care due to:

- The low status of women
- Poor understanding of complications and risk factors in pregnancy and when to seek medical help
- Previous poor experience of health care
- Acceptance of maternal death
- implications



2: Delay in reaching care due to;

- Distance to health centres and hospitals
- Availability of and cost of transportation
- Poor roads and infrastructure
- Geography e.g. mountainous terrain, rivers

3: Delay in receiving adequate health care due to;

- Poor facilities and lack of medical supplies
- Inadequately trained and poorly motivated medical staff
- Inadequate referral systems

Use the Three Delays Model

When we begin work in a new area or country we carry out a detailed needs assessment to identify which of these delays are affecting women accessing safe maternal healthcare. Our programmes are tailored the specific needs of the area where we are working. In general we address the issues identified by the Three Delays Model by:

1: Delay in decision to seek care

Provide communities (men and women) with information on pregnancy, childbirth and newborn healthcare so they know when to seek medical help. Facilitate income generation schemes for women to enable them to become financially independent and empowered to make decisions about their own sexual and reproductive health and to become future leaders.

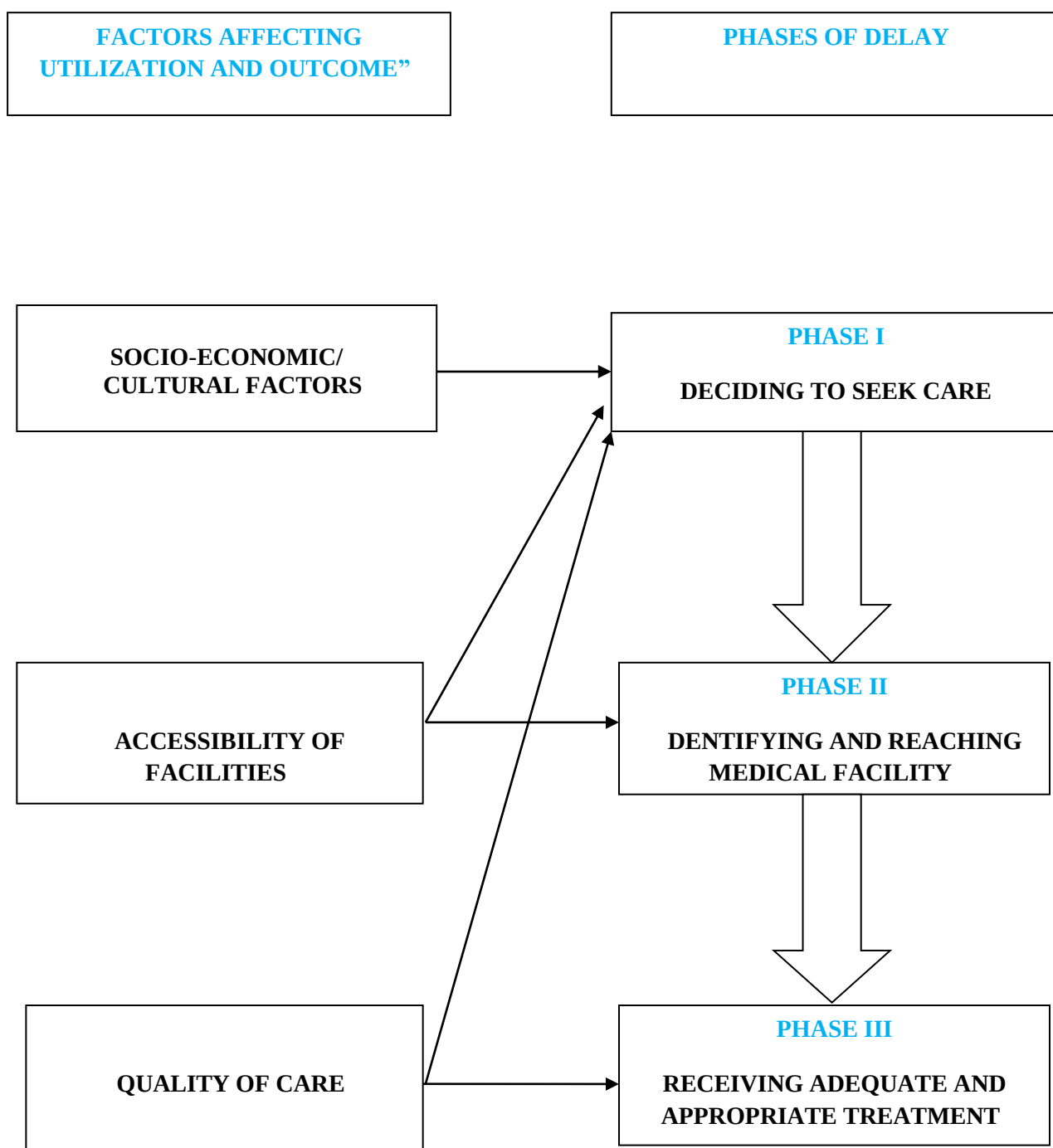
2: Delay in reaching care

Improving access to healthcare with the provision of health centres in rural and remote areas as well as outreach healthcare workers visiting villages to provide care. We build waiting houses next to health centres for expectant mothers to stay in before their due date so when they go into labour assistance is on site. Provision of motorbike ambulances for mountainous terrain to improve access to health centers.

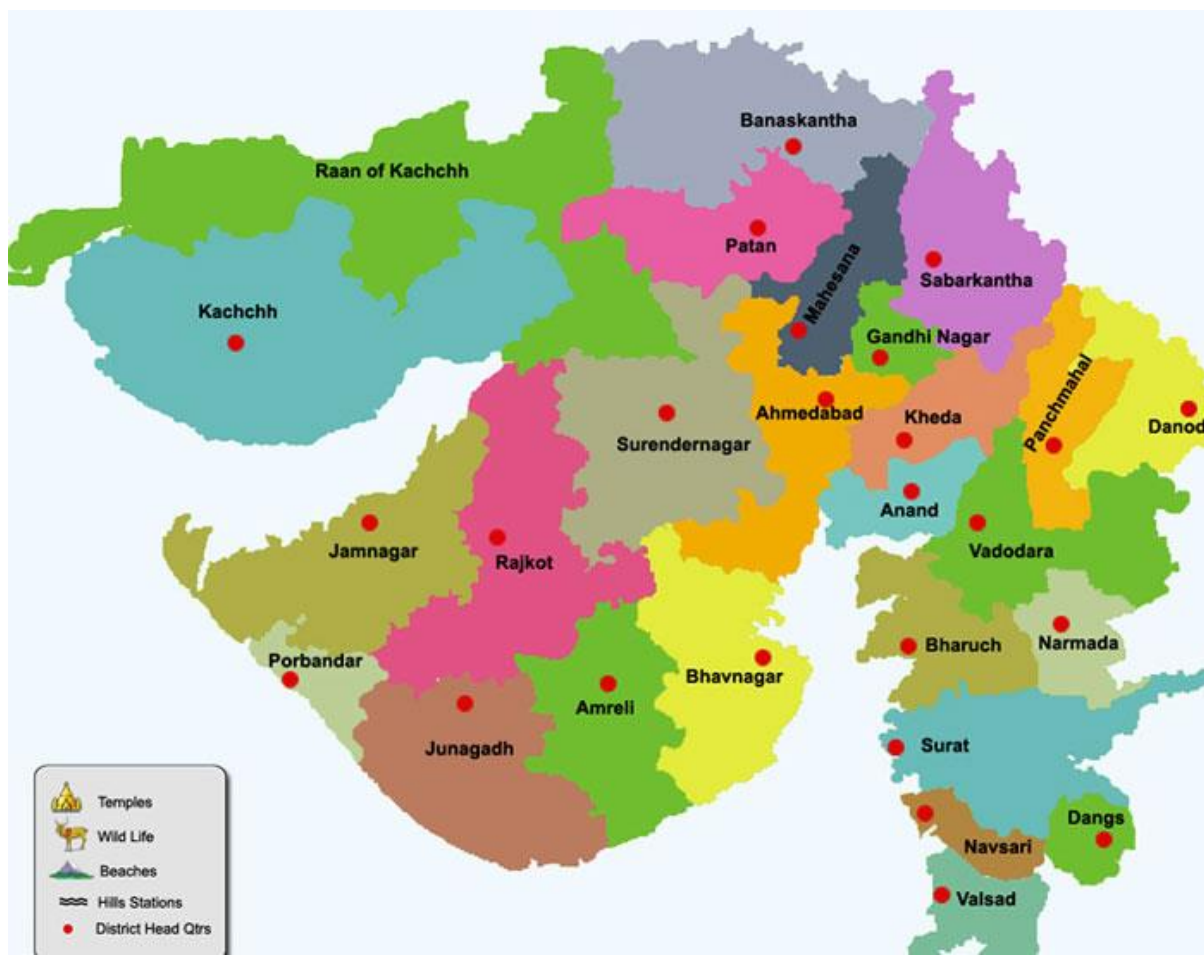
3: Delay in receiving adequate health care

Training local midwives who will remain in rural areas when qualified, training nurses, doctors and healthcare professionals to provide safe births now and for future generations. Ensuring health centres are suitably equipped to provide safe deliveries and improving referral systems between health centres and hospital (maternity worldwide).⁽⁵⁾ .

THE MAINE AND THADDEUS THREE DELAY MODEL



GUJARAT STATE PROFILE



Gujarat has a population of 6.03 crore (2011 Census), which is approximately 4.99% percent of the total population of the country. About 42.6% of the State's population resides in urban areas, compared to 37.4 in 2001. The population density of the state is 308 as compared to the national average of. About 2, 23,722 (Census 2011) of Gujarat's population is estimated to be BPL, while 4,074,447 percent and 89, 17,174 (15 percent, 2011) are classified as SC and ST respectively. Socio-economic indicators are better than the India average 79.31 percent and 70.73 percent of its total and female population respectively are literate, the corresponding figures for India being 74.04 percent and 65.46 percent respectively. The state of Gujarat is characterized by sea-coastal, tribal, desert and geographically hostile terrain having sparse and scattered population at the periphery. Communities living in the remote and disadvantaged areas especially BPL population, tribal and women, are generally unable to access reliable and cost effective health care services. Administratively, the state has been divided into 33 districts, subdivided into 225 Blocks, having 18618 villages and 242 towns .

The Department of Health and Family Welfare, Government of Gujarat is committed to promote the right of every woman, man and child to enjoy a life of health and equal opportunity and making all round efforts in this direction. The department has taken steps to bring about outcomes as envisioned in the Millennium Development goals with respect to child and maternal mortality, RCH II / NRHM programme, The National Health Policy 2015 Gujarat. It aims to address the infectious diseases with respect to prevention or assess to treatment and global burden diseases of non-communicable diseases and reduce catastrophic expenditure contributes to poverty.

The state has a large three-tier health infrastructure comprising 23 district hospitals, 17 Sub District Hospitals, 326 Community Health Centre (CHCs), 1342 Primary Health Centre (PHCs) and 9156 Sub-Centers (SCs). As Per RHS Bulletin, March 2012, M/O Health & F.W.,GOI, 778 doctors at PHC's, 76 specialists at CHCs, 758 male and 875 female health (LHV) assistants are positioned in these facilities in addition to 4874 male and 6431 female health workers at sub-centers.

As per census 2011, total population of the Gujarat state is 60439692. The district has the highest maternal mortality Rate (122) as compared to other districts of the state. According to SRS 2013, Crude birth rate is 20.8 and Crude death rate is 6.5.Sex ratio is 918, child sex ratio is 886 and Total literacy rate is 79.

Table 1Demographic Details of Gujarat State	
INDICATOR	TOTAL
Total population (In crore) (Census 2011)	60439692
Maternal Mortality Rate	112
Crude Birth Rate (SRS 2017)	20.1
Crude Death Rate (SRS 2017)	6.1
Sex Ratio (Census 2011)	918
Child Sex Ratio (Census 2011)	886
AVAILABLE HEATH FACILITY	
No of villages	18618
No of Sub centers	9156
No of PHCS	1208
No of CHCS	300
Sub District Hospital	30
District Hospital	24

Kutch District Profile

Map: showing rural, urban, tribal, in-accessible areas



KUTCH DISTRICT

Kutch district (also spelled as **Kachchh**) is a district of Gujarat state in western India. Covering an area of 45,674 km²,^[1] it is the largest district of India^[2]. The population of Kutch is about 2,092,000.^[3] It has 10 Talukas, 939 villages and 6 Municipalities.

Kutch literally means something which intermittently becomes wet and dry; a large part of this district is known as Rann of Kutch which is shallow wetland which submerges in water during the rainy season and becomes dry during other seasons. The same word is also used in Sanskrit origin for a tortoise. The Rann is famous for its marshy salt flats which become snow white after the shallow water dries up each season before the monsoon rains.”⁽¹¹⁾

Area in Km square: 45674

Number of Blocks : 10

Number of Villages : 924

Number of Urban units : 6

Number of outgrowth/slums : 12

DEMOGRAPHIC PROFILE OF KUTCH DISTRICT:

Description	2011	2001
Actual Population	2092371	1583225
Male	1096737	815152
Female	995634	768073
Population Growth	0.3216	0.254
Area Sq. Km	45674	45674
Density per km square	46	35
Proportion to Population of Gujarat	0.0346	0.0312
Sex Ratio Per 1000)	908	942
Child Sex Ratio (0-6 Age)	921	922
Average Literacy	70.59	59.79
Male Literacy	79.4	70.39
Female Literacy	60.87	48.59
Total Child Population (0-6 Age)	318412	254448
Male Population (0-6 Age)	165739	132411
Female Population (0-6 Age)	152673	122037
Literates in kutch	1252319	794483
Male Literates	739239	480555
Female Literates	513080	313928
Child Proportion (0-6 Age)	0.1522	0.1607
Boys Proportion (0-6 Age)	0.1511	0.1624
Girls Proportion (0-6 Age)	0.1533	15.89

GENERAL HEALTHCARE INFRASTRUCTURE:

Number of District hospitals: 1

Number of Sub-District hospitals :2

Number of Community healthcenters: 17

No. of Primary health centers: 67

Number.of Sub centers: 442

Number of tertiary referral centres : 3 Number of tertiary referral centres: NGO (Non Govt. Organisations) 0

Number of tertiary referral centres(Government) : 03

Number of Health Training Institutes : 02

3.0 RESEARCH QUESTION

What are major causes of the Maternal Mortality using 3- delays Model along with other factors as a framework in Kutch district.

4.0 OBJECTIVES

- To identify the cause of maternal mortality using maternal death review technique in Kutch district.
- To ascertain the delay leading to maternal mortality in Kutch district according to 3 delay model.

5.0 METHODOLOGY

Design and Location of Study: -A community based (Review of verbal autopsy/Maternal Death Forms) cross-sectional study was adopted. It was conducted in Kutch district under the Department of Maternal Health, NHM Gujarat from 1st Feb-10th May 2018.

Sample Size: - A total number of 48 cases were selected for the study (maternal deaths which occurred during the period of 1st April 2017 to 31st March 2018) out of which 07 cases were excluded at the time of reviewing and analyzing of the study. Family members or relatives of the

deceased mother who were not present at the time of interview and migrated from Kutch district were not included in the study. Also, cases with incomplete records were not taken in the study .

Tools and Techniques: -I have collected last 1 year Maternal Death Review Verbal Autopsy Forms of Kutch district. I have done simplified data entry of Maternal Death Review Forms in Microsoft Excel for Analyzing purpose; I rely more upon Pivot table function of Excel. It is based on the secondary data obtained by Gujarat health department through Verbal Autopsy Form. Review of Maternal Death Forms along with Family members or relatives of the deceased mother were interviewed and records were cross-checked. The Review included details of mothers' socio demographic (name, age, religion, caste, duration of married life, place of residence, economic status etc.) and complete medical, obstetric and family history. Information about the time and date of admission, time and date of delivery, time and date of death, cause of death, diagnosis at the time of admission , investigations during ANC period, duration of stay after delivery in health facility, reasons for not going health facilities etc. were also recorded. Information included the time taken to get from home to the institution after the onset of labor, distance of health facility from the home, whether the mother was referred from lower-level health facility (if available). Also include institutional delays, type of delivery and etc recorded.

6.0 ANALYSIS

All the data were analyzed by using Microsoft EXCEL software to draw the inferences.

7.0 STATISTICAL TREATMENT

- The returned questionnaire is checked for completeness and correctness and data is entered in Microsoft excel for further analytical treatment and graphical representations.

8.0 ETHICAL CONSIDERATIONS

- Confidentiality of subjects is taken care of.
- No names are mentioned in the study.

9.0 OBSERVATION AND RESULTS

Table 2: - Table showing Socio-demographic profile of the study subjects (n=50)

Particulars	Numbers	Percent
Age (in years) of women at the time of marriage • 18-25 • <18	37 04	90.0 10.0
Age (in years) of husband at the time of marriage • 16-20 • 21-25 • >25	09 26 05	21.0 64.0 15.0
Age (in years) of women at time of death • 20-24 • 25-34 • 35-44	15 19 07	36.0 42.0 22.0
Caste • SC/ST • OBC • Others	10 23 08	25.0 56.0 19.0
Religion • Hindu • Muslim	30 11	74.0 26.0
Total	41	100.0

Table 2 show that 21% of women were in the age category of 16-20 years at the time of marriage, while 64% of men were in the age category of 21-25 years at the time of marriage in the study area. Study also reveals that 42% of pregnant women were died in the age category of 25-34 years and it was more in SC caste (25%) than that of OBC (56%) and others (19%). Out of total maternal deaths 74% were Hindus and 26% were Muslims.

Table 3: Table showing Socio-economic status of the study subjects (n=41)

Particulars	Number	Percentage
Education Mother		
Illiterate	25	61.0
Primary Education	09	21.0
Upto 8th standard	05	12.0
Upto 10th standard	02	6.0
Graduate	0	0.0
Education Father		
Illiterate	10	25.0
Primary Education	20	49.0
Upto 8th standard	07	18.0
Upto 10th standard	03	6.0
Graduate	01	2.0
Occupation Mother		
House-wife	30	74.0
Non-agri/daily wages	05	12.0
Agriculture	06	14.0
Occupation Father		
Non-agri/daily wages	29	70.0
Agriculture	06	14.0
Govt. employee	02	6.0
Others	04	10.0

Socio-economic status of subjects is shown in Table 3. It shows that 61% of women were illiterate and only 21% of women were completed their primary education while only 49% of men were illiterate and 2% of men were completed their graduation. Table shows that majority of women were involved in house-hold works (74%)

N=41, PLACE OF MATERNAL DEATH

Place	Number	Percentage
PHC/CHC	2	5%
Home	3	7%
On the way	9	22%
Private hospital	9	22%
District hospital	18	44%

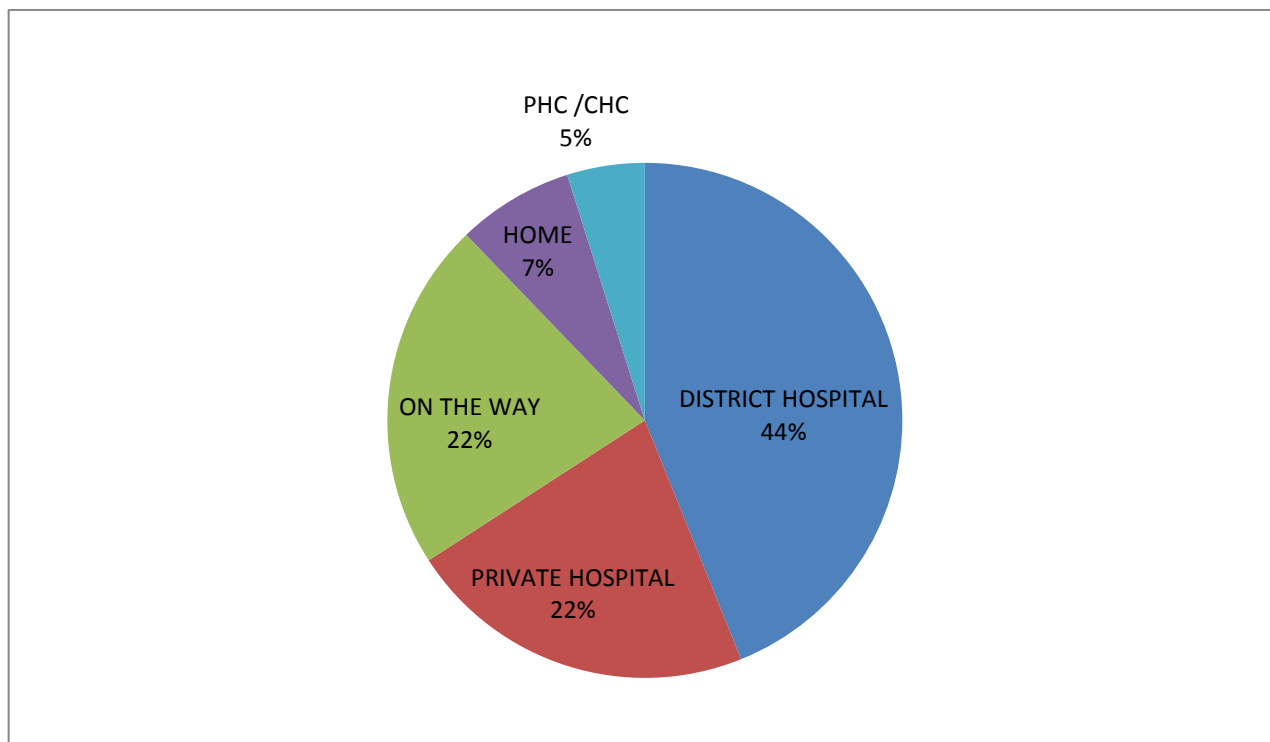


Figure 1 showing place of maternal death

Analysis is carried out to know about the place of maternal death at Kutch district, Gujarat. It is observed that more than two-fifth (44 percent) maternal deaths are occurred at district hospital whereas more than one-fifth (22 percent) mothers are died at private facility. .Nine case (twenty two percent) were died while they were on the way to next health facility or on the way to home.

Figure 2: - Figure showing type of Delivery

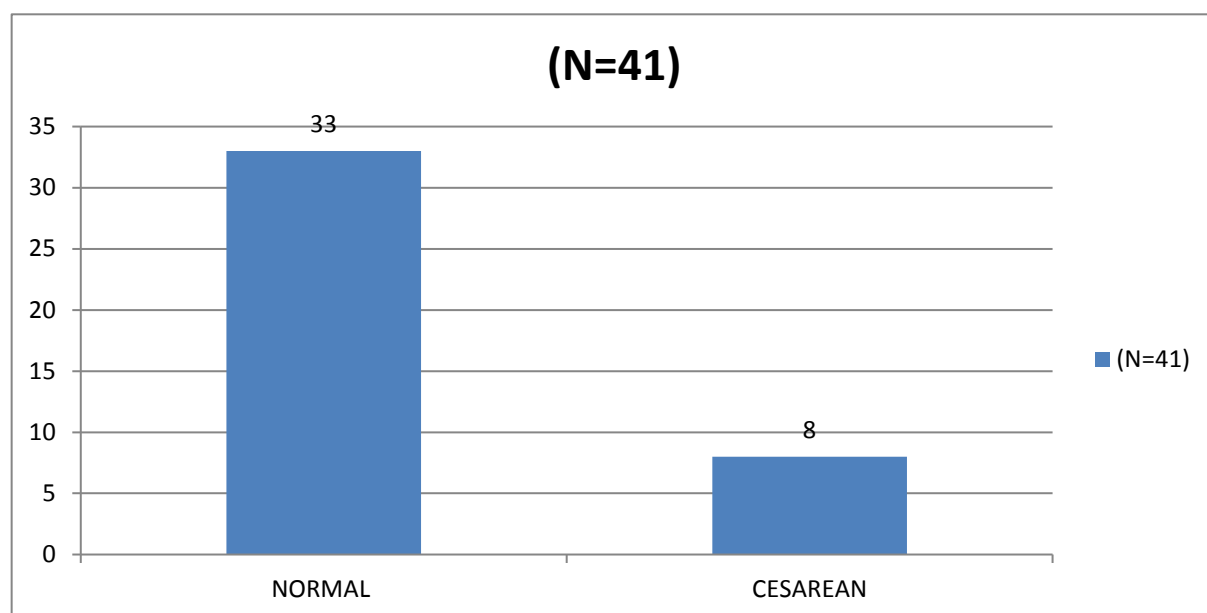


Figure 2 Analysis is carried out to know about the type of delivery of maternal death at Kutch district of 41 deliveries, 80 % were normal deliveries and 20% were caesarean deliveries

Cause of death (n=41) -

Cause	Number	percentage
A.P.H	1	2%
Anemia	3	7%
Eclampsia	4	10%
Jaundice	4	10%
P.P.H	9	22%
Medical condition	20	49%

Figure 3 – Figure showing cause of Death of subjects

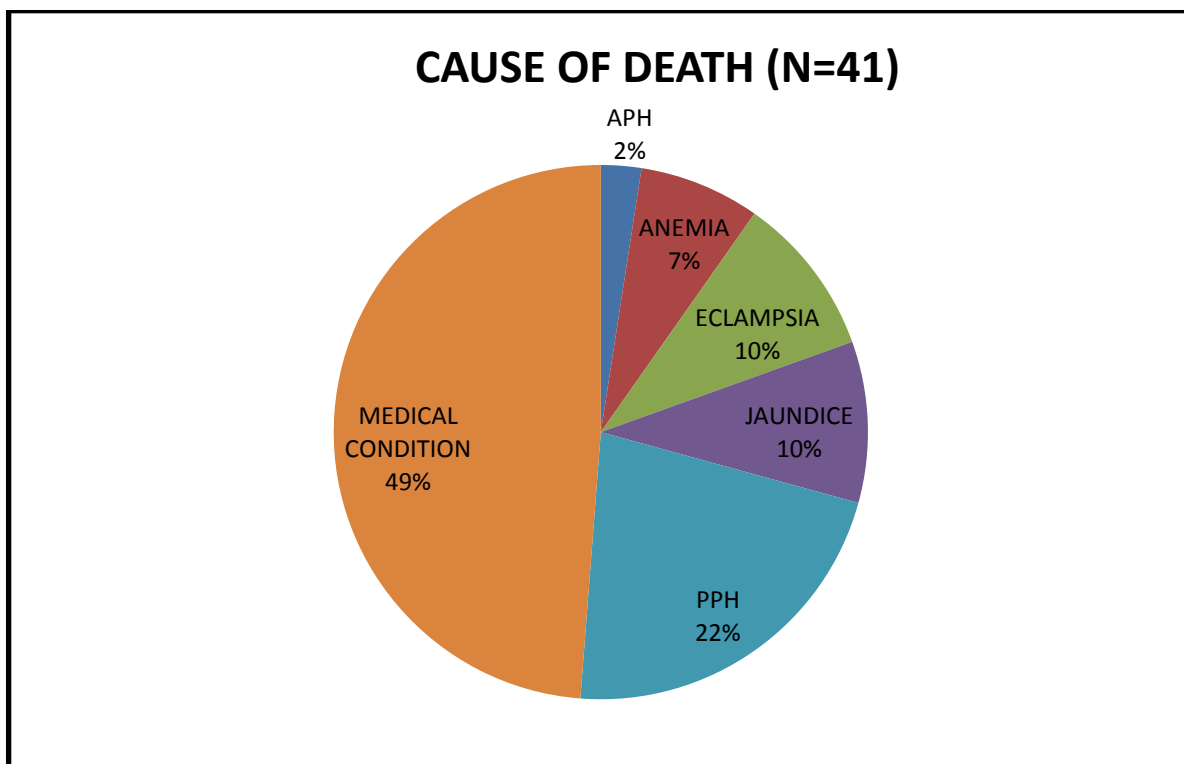


Figure 3 shows that the leading causes of maternal death in the study area .medical condition

Contributes the fourty nine percent which are the highest among all the causes,maternal death due to post partumhemmorahe are twenty two percent wherease death due to jaundice and eclampsia are ten percent, anemic maternal death are seven percent.

Table 4: -Table showing Received full Antenatal Care of pregnant women (4 ANC visit)

Antenatal check up of pregnant women	Numbers	Percent
Yes	22	54
No	19	46
Total	41	100.0

Table 4 shows that receiving antenatal care was only 52% in the study area.

Table 5: - Table showing person who conducted delivery

Person	Number	Percent
Doctor	10	25.0
ANM/Nurse/LHV	04	09.0
Dai	2	5.0
Relatives/friends	0	0.0
Not applicable for transit delivery	25	61.0
Total	41	100

Table 5 shows that twenty five percent of the deliveries were conducted by doctors while four deliveries nine percent were conducted by staff nurses in the study area but Dai conducted five percent of the Deliveries.

Table 6: - Table showing mode of Transportation used to reach Health facility

Mode of transportation	Numbers	Percent
Ambulance (108)	20	48.0
Private Ambulance	0	0.0
Jeep/Car	9	21.0
Motorcycle/scooter	0	0.0
Bus/train	0	0.0
Tempo/Auto/Tractor	13	31.0
Total	41	100.0

Table 6 shows that forty eight percent of the patients used Ambulance services as a mode of transportation at the time of emergency while major mode of transportation in the absence of ambulance services was Tempo/Auto thirty one percent and Jeep/Car was twenty one percent

Table 7: - Table showing Distance of Health facility from patient's house

Distance in Kms	Numbers	Percent
≤ 1	01	02
2-5	13	32.0
6-10	09	22.0
11-20	08	19.0
>20	10	25.0
Total	41	100.0

Table 7 shows that the average distances to the reach the nearest health facility for maternal services (/PHCs/CHCs/DH) were lies between 18km(730 km) from the house of patient. As much as approximately more than twenty five of the patients had to come at health facility by travellingmore than twenty km distance.

Table 8: -Table showing number Of Gravida

GRAVIDA 1	1	31%
GRAVIDA 2	5	12%
GRAVIDA 3	11	27%
GRAVIDA 4	6	15%
GRAVIDA 5	6	15%

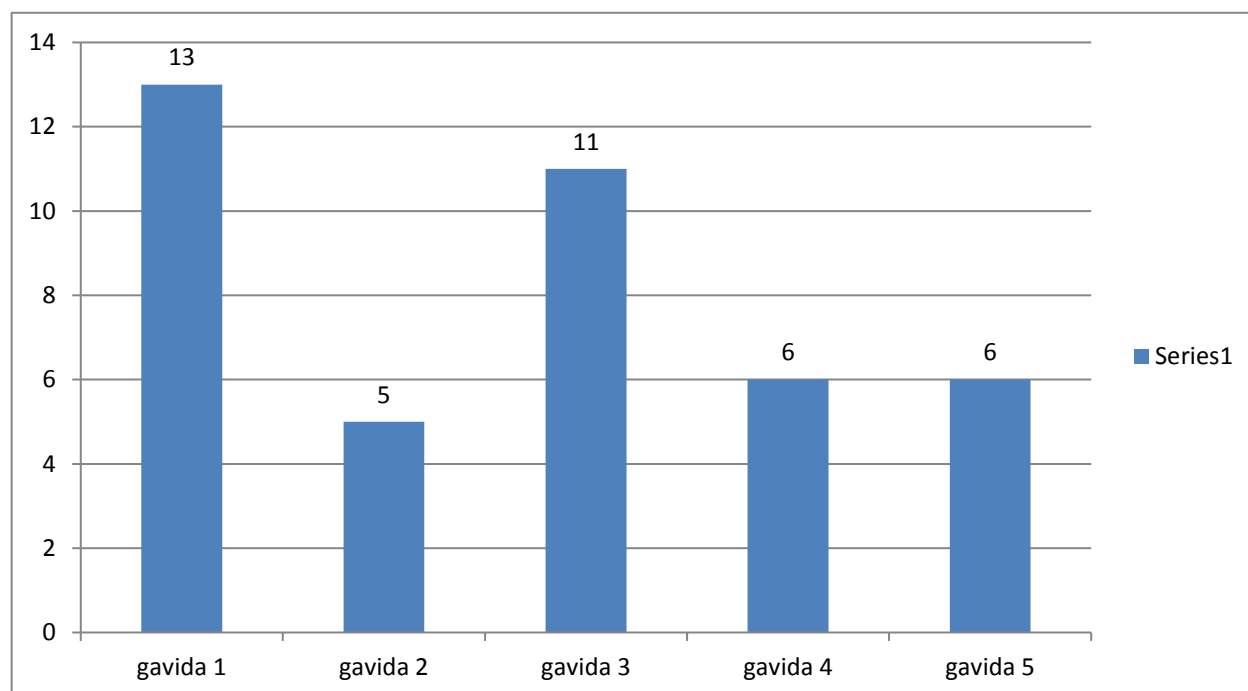


figure 4–Figure showing maximum maternal death reported in gravida 3 which was twenty seven percent, less reported was twelve percent in gravida 2

Table 9–Table showing number of para (PREVIOUS LIVE BIRTH)

PARA 0	12
PARA 1	7
PARA 2	12
PARA3	4
PRA4	07

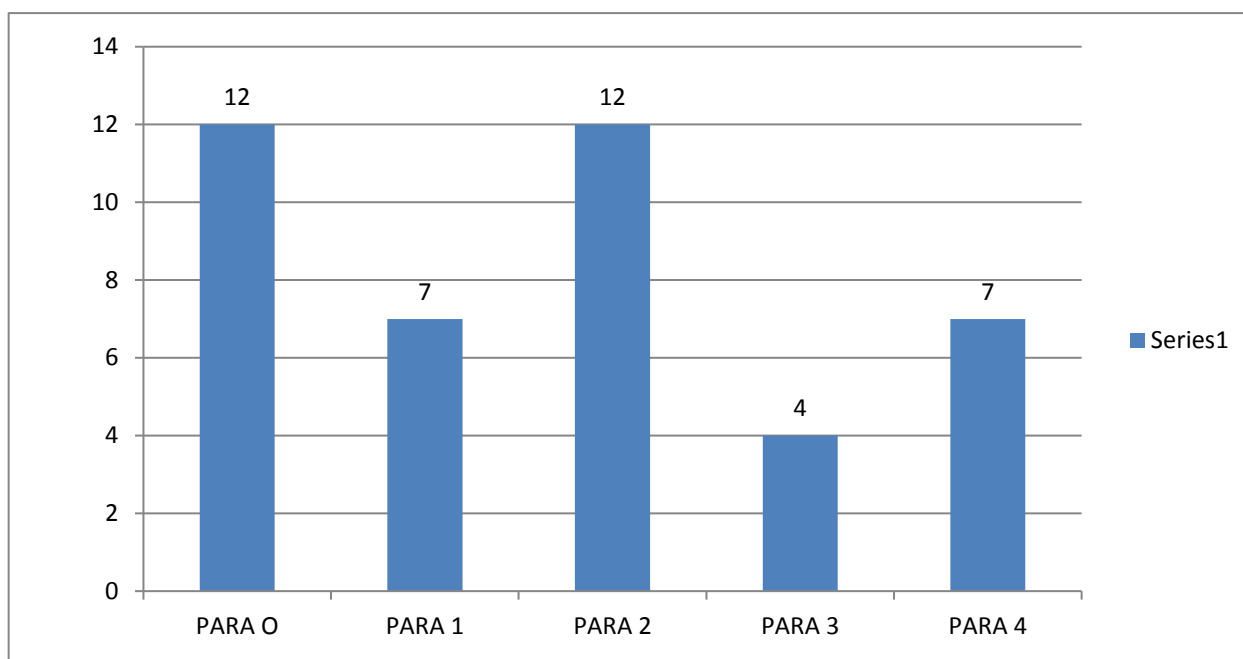


Figure 5-Figure showing maximum maternal death reported in para 2 and para 0 which was thirty percent, and less Death were in para 3, nine percent.

Table showing DELAY cause maternal death in KUTCH Gujarat

N=41

Delay	number	percentage
Decision making	22	54
Long distance	09	22
Facility(>2 visit)	10	24

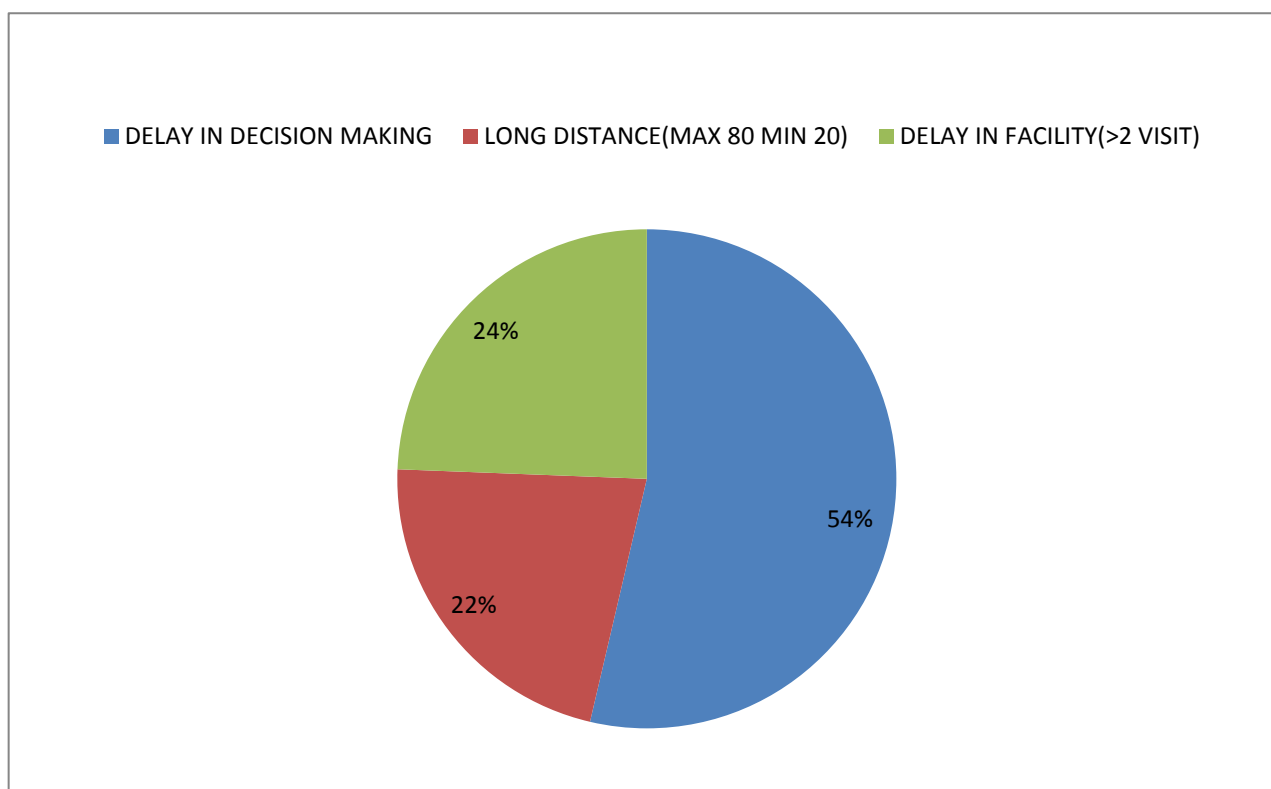
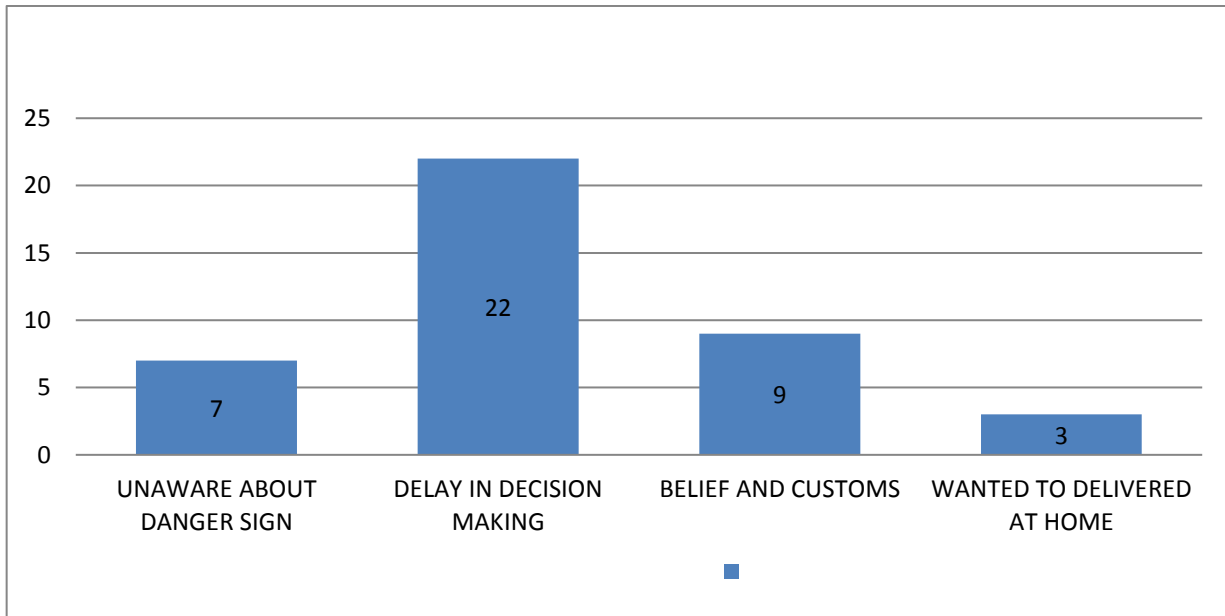


Figure 6. Three DELAY which leads to maternal death in kutchdistrict ,gujurat. Delay in decision making contributed fifty four percent in maternal death whereas delay in facility causes twenty four percent and delay in transportation causes twenty two percent in maternal death (N=41)

Figure 7- Figure showing Reasons for Delay in Seeking Care



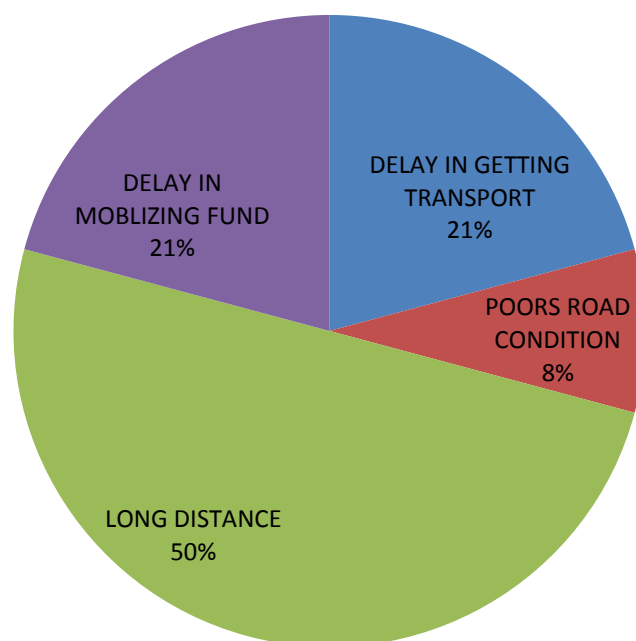
N=41

Figure 7 revealed that main cause for first delay was unawareness of danger signs related to pregnancy (eighteen percent) and in twenty two percent cases it happened due to Beliefs and Customs for seeking maternal services. Apart from that Delay in Decision Making (fifty three) at the time of pregnancy were other reasons for first delay.

Figure 8- Figure showing reasons for Delay in Reaching Health facility

Reason	Number	percentage
Poor road condition	3	8
Delay in mobilizing fund	9	21
Getting transport	9	21
Long distance	20	50

DELAY IN REACHING HEALTH FACILITY



N=34, KUTCHHAS TWENTY NINE 108 AMBULAANCE

Figure 8 shows that main causes for second delay were, delay in Getting Transport (twenty one percent) for treatment and delay in Mobilizing Funds was also main reason for second delay (twenty one percent).

Figure 9- Figure showing Reasons for Delay in Receiving Adequate Care in Health Facility

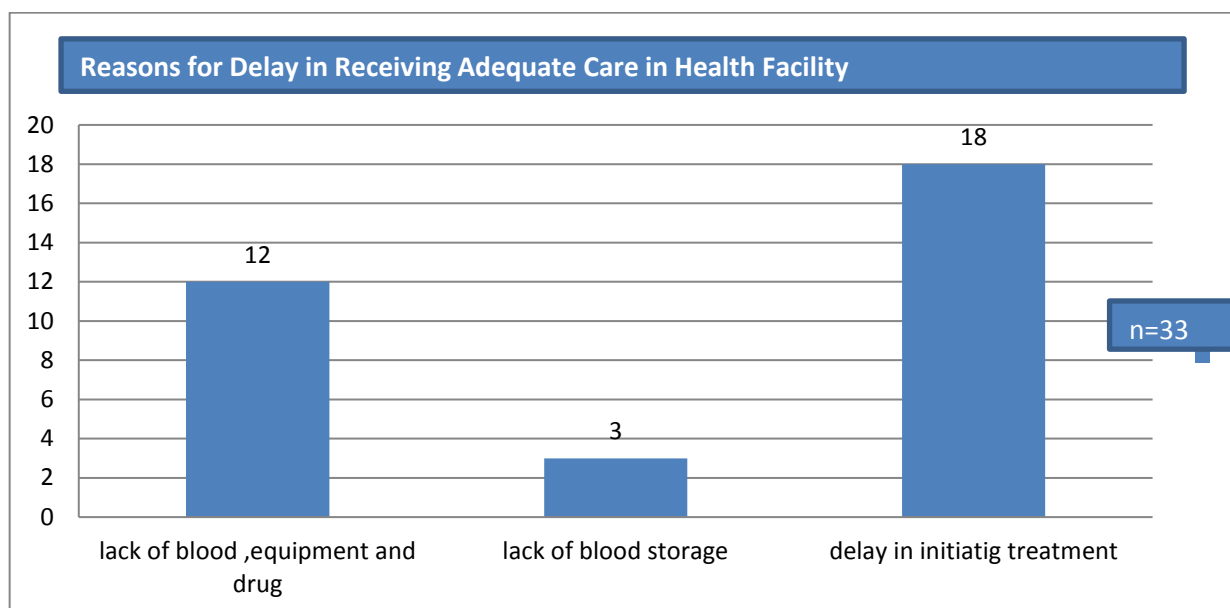
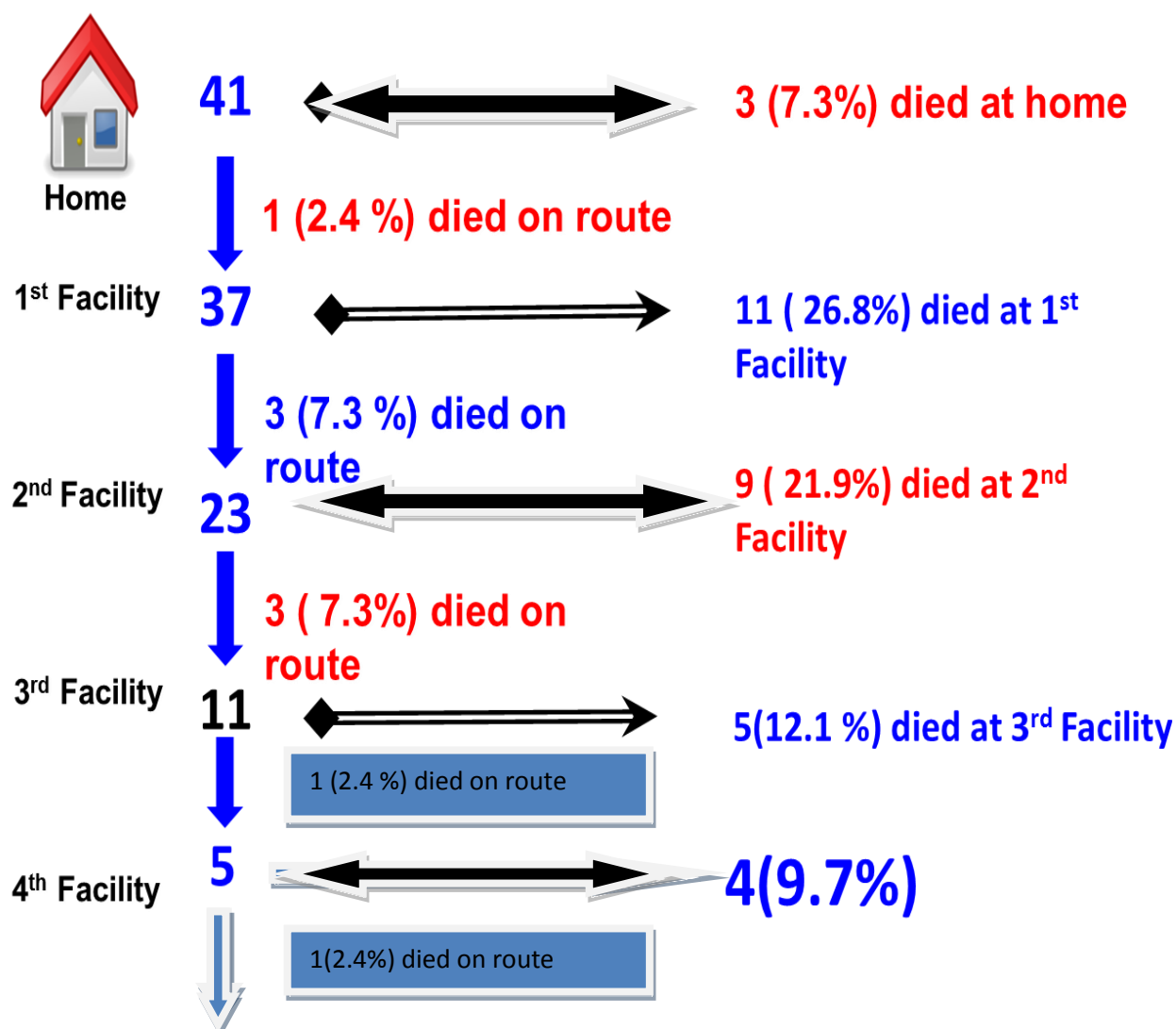


Figure 9 shows that main cause for third delay was lack of blood, equipments and drugs in the health facilities (thirty eight). Bar graph shows that nine percent of the health facilities did not have blood storage facilities and 8% of health facilities did not have blood transfusion facilities due to which third delay happened. Not getting treatment from health facilities due to Delay in initiating Treatment was also a reason for third delay in fifty four percent cases (eighteen case visited more than one facility).

KUTCH MATERNAL DEATH PATHWAY ANALYSIS (N=41)

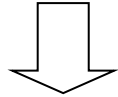


N=41

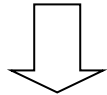
Figure shows the pathway analysis of maternal death. Three case (Sevenpercent) maternal death reported at home .twopercent death occurred on the way before reached to first facility .twenty six maternal death reported in first facility which were eleven cases ,seven percent maternal death occurred on the way before reached second facility. Seven percent maternal death occurred on the way before reached third facility and thirteen percent death reported in third facility, two percent maternal death reported before reached fifth facility

CASE STUDY

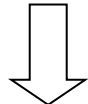
- A case of pregnant woman age 22 died on 17/04/2017 due to delay in decision ,transportation and facility
 - Distance of facility from residence =05km
 - Number of facility visited before death=04



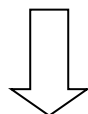
- Patient develop oedema leg ,high B.P and fever on 17/04/2017 (9.30p.m)

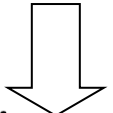


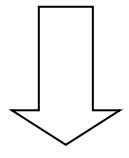
- Patient first goes to ST. Joseph hospital where gynecologist on call and self reason is not satisfactory treatment

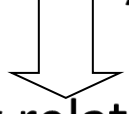


In second visit to Riddhi woman hospital where again not expert present not satisfactory treatment



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- In 3rd time she visit to MA hospital where gynecologist was not available due to Sunday, lastly 4th time goes to Hari Om hospital on 11.45 pm again no expert available.

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- Condition of patient was serious ,doctor refer to G.K general hospital by 108

- 
- Patient visited by relative vehicles due to late of ambulance (108),died on the way by pre-eclampsia

CONCLUSION

The '3-Dealys Model' proposes that the pregnancy related mortality is awesomely due to delays in deciding, reaching and receiving adequate care.

Despite a widespread educational programs and legal pressure, majority of women in the study area were found married before the age of 20 years. Early marriage may be the reason for more than half of maternal deaths had taken place in the age group of 20 to 24 year in that particular area. Illiteracy among female gender was still found a major concern as nearly 6 out of 10 died women were illiterate. About sixty six percent of the mothers were died while they were admitted to the health facility which points out our health care system. More than half of the mothers were died due to some other Medical Complications and Anemia, and also from the Post-Partum Hemorrhage (PPH) was found a major cause of maternal death. As far as the routine laboratory and clinical investigations are concerned their practice were found lacking in the district along with receiving antenatal care was also half of the practice in the kutch District.

Private/ personal and Ambulance (108) vehicles were major mode of transportation at the time of emergency. Average distances to the reach the nearest health facility (/PHCs/CHCs/DH) for maternal services were lies between 11-20kms from the house of patient. Less than half of the ANMs were visiting their correspondence village once in a week. Satisfaction levels for the cleanliness of ward, cleanliness of bathroom and the behavior of the staff and timely attention provided in the health facilities were very poor. This is supported by the finding that poor quality of maternal services at health facilities was found as the main reason for not going to health facility for delivery.

Main causes responsible for first delay were unawareness of danger signs related to pregnancy, time taken in decision making for seeking maternal services, beliefs and customs at the time of pregnancy. Delay in mobilizing funds for treatment and delay in getting transportation were found as the main causes responsible for second delay. Third delay was mainly due to lack of blood, equipment's and lack of blood storage facility.

RECOMMENDATIONS

1. To Solve all these problems and for the purpose of giving the health related information to Newly Married couple regarding Importance of anaemia like Iron Deficiency Anaemia and Sick cell Anaemia, To Promote early ANC Registration and ANC checkup, PNC checkup Give special training to ASHA and FHW to identify high risk mother and to get them admitted in Mamtaghar.
2. Migration is major issue of concern in this district, strengthening migration tracking program me by developing microplanning and liasoning with other district where population is migrated.
3. Strengthening Mamta session for ANC and PNC to reduce Pregnancy related Complications like Anaemia in ANC, Sepsis in PNC and PPH during and after 48 hours of delivery etc.
4. Education of young Girl :-

Finding shows that 61% of women died were illiterates. As education Status of women increase she will get aware of the importance various maternal services like ANC, Institutional delivery, PNC etc. Even access to Maternal Health Care increase with increase educational Status.
5. Strengthening of Emergency Obstetric Care services in District :-

As we have seen that mother delivered at govt and private Institution Both individually account 66% of maternal deaths. This indicates that All Govt and pvt.Healthcare institution needs to improve maternal health care service delivery standard Emoc service need to be improved by strengthening Emoc services.
6. Strengthen of all PHC and CHC'S :-

Especially 24*7 PHC'S& FRU'S in terms Emoc service delivery & Blood Transfusion Facility.
7. Improving the quality of Health Care services to improve the quality Of ANC care and PNC care.
8. Focus on family planning.
9. Increase the number of 108 ambulance
10. Recruitment of M.B.B.S medical officer in P.H.C

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