3.1 Maternal Health

Maternal health is the health of women during pregnancy, childbirth, and the postpartum period. It encompasses the health care dimensions of family planning, preconception, prenatal, and postnatal care in order to reduce maternal morbidity and mortality.¹

The United Nations Population Fund (UNFPA) estimated that 289,000 women died of pregnancy or childbirth related causes in 2013.² These causes range from severe bleeding to obstructed labour, all of which have highly effective interventions. As women have gained access to family planning and skilled birth attendance with backup emergency obstetric care, the global maternal mortality ratio has fallen from 380 maternal deaths per 100,000 live births in 1990 to 210 deals per 100,000 live births in 2013.² This has resulted in many countries halving their maternal death rates.

While there has been a decline in world-wide mortality rates much more has to be done. High rates still exist particularly in impoverished communities with over 85% living in Africa and Southern Asia.² The effect of a mother’s death results in vulnerable families, and their infants, if they survive childbirth, are more likely to die before reaching their second birthday.

Four elements are essential to maternal death prevention.² First, prenatal care. It is recommended that expectant mothers receive at least four antenatal visits to check and monitor the health of mother and foetus. Second, skilled birth attendance with emergency backup such as doctors, nurses and midwives who have the skills to manage normal deliveries and recognize the onset of complications. Third, emergency obstetric care to address the major causes of maternal death which are haemorrhage, sepsis, unsafe abortion, hypertensive disorders and obstructed labour. Lastly, postnatal care which is the six weeks following delivery. During this time bleeding, sepsis and hypertensive disorders can occur and newborns are extremely vulnerable in the immediate aftermath of birth. Therefore, follow-up visits by a health worker is assess the health of both mother and child in the postnatal period is strongly recommended.
3.2 Determinants of Maternal Health

According to a UNFPA report, “A woman’s chance of dying or becoming disabled during pregnancy and childbirth is closely connected to her social and economic status, the norms and values of her culture, and the geographic remoteness of her home. Generally speaking, the poorer and more marginalized a woman is, the greater her risk of death. In fact, maternal mortality rates reflect disparities between wealthy and poor countries more than any other measure of health. A woman’s lifetime risk of dying as a result of pregnancy or childbirth is 1 in 39 in Sub-Saharan Africa, as compared to 1 in 4,700 in industrialized countries.”

3.2.1 Access to Maternal Healthcare

The risk for maternal death (during pregnancy or childbirth) in sub-Saharan Africa is 175 times higher than in developed countries, and risk for pregnancy-related illnesses and negative consequences after birth is even higher. Poverty, maternal health, and outcomes for the child are all interconnected. Neonatal deaths in developing countries account for 98% of worldwide yearly neonatal deaths. That being said, poverty is detrimental to the health of both mother and child.

Women living in poverty-stricken areas are more likely to be obese and engage in unhealthy behaviors such as cigarette smoking and drug use, are less likely to engage in or even have access to legitimate prenatal care, and are at a significantly higher risk for adverse outcomes for both the mother and child. A study conducted in Kenya observed that common maternal health problems in poverty-stricken areas include hemorrhaging, anemia, hypertension, malaria, placenta retention, premature labor, prolonged/complicated labor, and pre-eclampsia.

Generally, adequate prenatal care encompasses medical care and educational, social, and nutritional services during pregnancy. Although there are a variety of reasons women choose not to engage in proper prenatal care, 71% of low-income women in a US national study had difficulties getting access to prenatal care when they sought it out. Additionally, immigrants and Hispanic women are at higher risk than white or black women for receiving little to no
prenatal care, where level of education is also an indicator (since education and race are correlated). Adolescents are least likely to receive any prenatal care at all. Throughout several studies, women and adolescents ranked inadequate finances and lack of transportation as the most common barriers to receiving proper prenatal care.\textsuperscript{8}

Income is strongly correlated with quality of prenatal care.\textsuperscript{8} Sometimes, proximity to healthcare facilities and access to transportation have significant effects on whether or not women have access to prenatal care. An analysis conducted on maternal healthcare services in Mali found that women who lived in rural areas, far away from healthcare facilities were less likely to receive prenatal care than those who lived in urban areas. Furthermore, researchers found an even stronger relationship between lack of transportation and prenatal and delivery care.\textsuperscript{9} In addition to proximity being a predictor of prenatal care access, Materia and colleagues found similar results for proximity and antenatal care in rural Ethiopia.\textsuperscript{10}

Maternal HIV rates vary around the world, ranging from 1\% to 40\%, with African and Asian countries having the highest rates.\textsuperscript{11} HIV/AIDS can be transmitted to the offspring during the prenatal period, childbirth, or breastfeeding. If a mother is infected with the HIV/AIDS virus, there is a 25\% chance that she will pass on the virus to her offspring if she does not receive proper treatment during pregnancy; on the other hand, if a mother is treated during her pregnancy, there is a 98\% chance that her baby will not become infected.\textsuperscript{12}

According to UNICEF, the last decade has seen a large increase in death among young children due to HIV/AIDS contracted from their parents,\textsuperscript{13} especially in countries where poverty is high and education levels are low.\textsuperscript{14} Although several preventative measures do exist, cost and infrastructure are two central problems that international organizations and health agencies find when trying to implement solutions to the problem of mother-to-child HIV transmission in developing countries.\textsuperscript{15} Having HIV/AIDS while pregnant can also cause heightened health risks for the mother. A large concern for HIV-positive pregnant women is the risk of contracting tuberculosis (TB) and/or malaria, in developing countries.\textsuperscript{11}

\subsection*{3.2.2 Maternal weight}

Gestational weight gain should typically fall between 11-20 pounds in order to improve outcomes for both mother and child.\textsuperscript{16} Increased rates of hypertension, diabetes, respiratory
complications, and infections are prevalent in cases of maternal obesity and can have detrimental effects on pregnancy outcomes. Obesity is an extremely strong risk factor for gestational diabetes. Research has found that obese mothers who lose weight (at least 10 pounds) in-between pregnancies reduce the risk of gestational diabetes during their next pregnancy, whereas mothers who gain weight actually increase their risk.

Maternal oral health has been shown to affect the well-being of both the expectant mother and her unborn fetus. The 2000 Surgeon’s General Report stressed the interdependence of oral health on the overall health and well-being of an individual. Oral health is especially essential during perinatal period and the future development of the child. Proper management of oral health has benefits to both mother and child. Furthermore, lack of understanding or maintenance of good oral health for pregnant women may have adverse effects on them and their children. Hence, it is imperative to educate mothers regarding the significance of oral health. Moreover, collaboration and support among physicians across various fields, especially among family practitioners and obstetricians, is essential in addressing the concerns for maternal oral health. In 2007, the Maternal Oral Health Project was developed to provide routine oral care to low-income pregnant women in Nassau County, NY. Since its inception, the program has treated more than 2,000 pregnant women, many of whom had significant gum and/or tooth problems.

Oral health has numerous implications on overall general health and the quality of life of an individual. The Surgeon General’s Report lists various systemic diseases and conditions that have oral manifestations. The oral cavity serves as both a site of and a gateway entry of disease for microbial infections, which can affect general health status. In addition, some studies have demonstrated a relationship between periodontal diseases and diabetes, cardiovascular disease, stroke, and adverse pregnancy outcomes. Furthermore, the report establishes a relationship between oral health and quality of life, including functional, psychosocial, and economic indicators. Poor oral health can affect diet, nutrition, sleep, psychological status, social interaction, school, and work.

3.2.3 Benefits and effects

According to the UNFPA, maternal deaths would be reduced by about two-thirds, from 287,000 to 105,000, if needs for modern family planning and maternal and newborn health
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care were met. Therefore, investing in family planning and improved maternal health care brings many benefits including reduced risks of complications and improvement in health for mothers and their children. Education is also critical with research showing “that women with no education were nearly three times more likely to die during pregnancy and childbirth than women who had finished secondary school.” Evidence shows that women who are better educated tend to have healthier children. Education would also improve employment opportunities for women which results in improving their status, contributing to family savings, reducing poverty and contributing to economic growth. All of these invests bring significant benefits and effects not only for women and girls but also their children, families, communities and their country.

Protection and control of oral health and diseases safeguards a woman’s health and quality of life before and during pregnancy. Also, it has the potential to decrease the transmission of pathogenic bacteria that occurs from mother to child. Along with pregnancy, come physiological changes for a woman. The changes, including fluctuating hormones, increase the woman’s susceptibility to oral infections such as periodontal disease. This disease impairs the body’s ability to repair and maintain soft tissues. It also causes indirect damage through bacterial induction of both inflammatory and immune responses of the host. During pregnancy, mild inflammation of the gums, “pregnancy gingivitis”, is quite common and if left untreated can lead to periodontal disease. There have been an increased number of studies establishing associations between, periodontal disease and negative health outcomes, which include tooth loss, cardiovascular disease, stroke, poor diabetes control, and adverse birth outcomes. For example, one such study found that moderate or severe periodontal disease early in pregnancy was associated with delivery of small-for-gestational-age infant. Other studies have also found an association between periodontal disease and development of pre-eclampsia and pre-term births.

Another notable oral disease pertinent to maternal child health is dental caries. Dental caries is the process of tooth decay, and the development of what is commonly known as cavities. Dental caries are transmitted from mother to child vertically; colonization of cariogenic bacteria primarily occurs from mother to child through saliva-sharing activities. Maternal oral flora can ultimately foretell oral flora in offspring. In addition, other maternal factors such as social, behavioral, and biological factors can predispose a child’s experience with tooth-decay. Some of these factors include the lack of knowledge a mother possesses concerning
oral health, which can influence the development of caries among her children. Compared to children whose mothers have good oral health, children whose mothers have bad oral health are five times as likely to have poor oral health. Poor maintenance of oral health has profound implications on the development of children. As mentioned in the Surgeon’s General Report, oral health affects the quality of life, especially children, with respect to functional, psychological, economic, and overall emotional well-being of an individual. To demonstrate the adverse effects of poor oral health, take for example the consequences a simple cavity can have on a child. First, it is painful. This might cause a child to miss school or have poor concentration, eventually compromising school performance. In addition, due to the pain, it might result in poor weight gain or growth. Also, children may exhibit reduced self-esteem because of cosmetic issues. Furthermore, it can affect language and impair speech. Impaired speech development can also result in low self-esteem. Finally, cavities although easily preventable, can pose a financial burden of a family. Public dental services are scarce and costly to individuals who lack dental insurance. It may also result in unwarranted visits to emergency department. Poor oral health permeates into other aspects of life, posing threats to overall well-being, if not handled timely and effectively.

3.2.4 Education

The significance of oral health is apparent, however, many women do not receive dental services before, during, and after pregnancy, even with obvious signs of oral disease. There are several factors at play regarding pregnant women not seeking dental care, including the role of the health care system and disposition of the woman herself. There is a common misconception that it is not safe to obtain dental services while pregnant. Many prenatal and oral health providers have limited knowledge about the impact and safety of delivering dental services; hence they might delay or withhold treatment during pregnancy. Moreover, some prenatal providers are not aware of the importance of oral health on overall general health, thus failing to refer their patients to dental providers. First and foremost, the misconception regarding the impact of dental services while a woman is pregnant needs to be purged. There is a consensus that prevention, diagnosis, and treatment of oral diseases are highly beneficial and can be performed on pregnant women having no added fetal or maternal risk when compared to the risk of providing no oral care. Equally important is establishing collaboration among clinicians, especially maternal health providers, with other dental
providers. There should be coordination among general health and oral health providers, especially because of the interdependence of the two fields. Thus, it is imperative to educate and train health providers of the significance of oral health, designing methods to incorporate in their respective practices. Providers must provide education to pregnant women addressing the importance of oral health, because these women ultimately control the fate of themselves and their offspring. For example, providers can illustrate to mothers how to reduce cavities by wiping down the gums of their children with a soft cloth after breastfeeding or bottle-feeding. Bestowing knowledge and practical applications of good oral health maintenance measures to mothers can help improve overall health of the mother and child. There are still other factors in play when analyzing the low use of dental services by pregnant women, particularly prevalent among ethnic and racial minorities. A major factor is the lack of insurance and or access to dental services. For this reason, more data needs to be collected and analyzed so that programs are set up to effectively to reach all segments of the population.

3.3 Effects on child health and development

3.3.1 Prenatal health

Prenatal care is an important part of basic maternal health care. It is recommended expectant mothers receive at least four antenatal visits, in which a health worker can check for signs of ill health – such as underweight, anaemia or infection – and monitor the health of the foetus. During these visits, women are counseled on nutrition and hygiene to improve their health prior to, and following, delivery. They can also develop a birth plan laying out how to reach care and what to do in case of an emergency.

Poverty, malnutrition, and substance abuse may contribute to impaired cognitive, motor, and behavioral problems across childhood. In other words, if a mother is not in optimal health during the prenatal period (the time while she is pregnant) and/or the fetus is exposed to teratogen(s), the child is more likely to experience health or developmental difficulties, or death. The environment in which the mother provides for the embryo/fetus is critical to its wellbeing well after gestation and birth.
A teratogen is "any agent that can potentially cause a birth defect or negatively alter cognitive and behavioral outcomes." Dose, genetic susceptibility, and time of exposure are all factors for the extent of the effect of a teratogen on an embryo or fetus.29

Prescription drugs taken during pregnancy such as streptomycin, tetracycline, some antidepressants, progestin, synthetic estrogen, and Accutane,3031 as well as over-the-counter drugs such as diet pills, can result in teratogenic outcomes for the developing embryo/fetus. Additionally, high dosages of aspirin are known to lead to maternal and fetal bleeding, although low-dose aspirin is usually not harmful.3233

Newborns whose mothers use heroin during the gestational period often exhibit withdrawal symptoms at birth and are more likely to have attention problems and health issues as they grow up.34 Use of stimulants like methamphetamine and cocaine during pregnancy are linked to a number of problems for the child such as low birth weight and small head circumference and motor and cognitive developmental delays, as well as behavioral problems across childhood.5363738 The American Academy of Child and Adolescent Psychiatry found that 6 year-olds whose mothers had smoked during pregnancy scored lower on an intelligence test than children whose mothers had not.39

Cigarette smoking during pregnancy can have a multitude of detrimental effects on the health and development of the offspring. Common results of smoking during pregnancy include pre-term births, low birth weights, fetal and neonatal deaths, respiratory problems, and sudden infant death syndrome (SIDS),29 as well as increased risk for cognitive impairment, attention deficit hyperactivity disorder (ADHD) and other behavioral problems.40 Also, in a study published in the International Journal of Cancer, children whose mothers smoked during pregnancy experienced a 22% risk increase for non-Hodgkin lymphoma.41

Although alcohol use in careful moderation (one to two servings a few days a week) during pregnancy are not generally known to cause fetal alcohol spectrum disorder (FASD), the US Surgeon General advises against the consumption of alcohol at all during pregnancy.42 Excessive alcohol use during pregnancy can cause FASD, which commonly consist of physical and cognitive abnormalities in the child such as facial deformities, defective limbs, face, and heart, learning problems, below average intelligence, and intellectual disability (ID).4344
Although HIV/AIDS can be transmitted to offspring at different times, the most common time that mothers pass on the virus is during pregnancy.\textsuperscript{12} During the perinatal period, the embryo/fetus can contract the virus through the placenta.\textsuperscript{29}

Gestational diabetes is directly linked with obesity in offspring through adolescence.\textsuperscript{45} Additionally, children whose mothers had diabetes are more likely to develop Type II diabetes.\textsuperscript{46} Mothers who have gestational diabetes have a high chance of giving birth to very large infants (10 pounds or more).\textsuperscript{29}

Because the embryo or fetus's nutrition is based on maternal protein, vitamin, mineral, and total caloric intake, infants born to malnourished mothers are more likely to exhibit malformations. Additionally, maternal stress can affect the fetus both directly and indirectly. When a mother is under stress, physiological changes occur in the body that could harm the developing fetus. Additionally, the mother is more likely to engage in behaviors that could negatively affect the fetus, such as tobacco smoking, drug use, and alcohol abuse.\textsuperscript{29}

### 3.3.2 Childbirth

Genital herpes is passed to the offspring through the birth canal during delivery.\textsuperscript{47,48} In pregnancies where the mother is infected with the virus, 25\% of babies delivered through an infected birth canal become brain damaged, and 1/3 die.\textsuperscript{29} HIV/AIDS can also be transmitted during childbirth through contact with the mother's body fluids.\textsuperscript{29} Mothers in developed countries may often elect to undergo a caesarean section to reduce the risk of transmitting the virus through the birth canal, but this option is not always available in developing countries.\textsuperscript{15}

### 3.3.3 Postpartum period

Globally, more than eight million of the 136 million women giving birth each year suffer from excessive bleeding after childbirth.\textsuperscript{49} This condition—medically referred to as postpartum hemorrhage (PPH)—causes one out of every four maternal deaths that occur annually and accounts for more maternal deaths than any other individual cause.\textsuperscript{49} Deaths due to postpartum hemorrhage disproportionately affect women in developing countries.
For every woman who dies from causes related to pregnancy, an estimated 20 to 30 encounter serious complications. At least 15 per cent of all births are complicated by a potentially fatal condition. Women who survive such complications often require lengthy recovery times and may face lasting physical, psychological, social and economic consequences. Although many of these complications are unpredictable, almost all are treatable.

During the postpartum period, many mothers breastfeed their infants. Transmission of HIV/AIDS through breastfeeding is a huge issue in developing countries, namely in African countries. The majority of infants who contract HIV through breast milk do so within the first six weeks of life. However, in healthy mothers, there are many benefits for infants who are breastfed. The World Health Organization recommends that mothers breastfeed their children for the first two years of life, whereas the American Academy of Pediatrics and the American Academy of Family Physicians recommend that mothers do so for at least the first six months, and continue as long as is mutually desired. Infants who are breastfed by healthy mothers (not infected with HIV/AIDS) are less prone to infections such as Haemophilus influenza, Streptococcus pneumoniae, Vibrio cholerae, Escherichia coli, Giardia lamblia, group B streptococci, Staphylococcus epidermidis, rotavirus, respiratory syncytial virus and herpes simplex virus-1, as well as gastrointestinal and lower respiratory tract infections and otitis media. Lower rates of infant mortality are observed in breastfed babies in addition to lower rates of sudden infant death syndrome (SIDS). Decreases in obesity and diseases such as childhood metabolic disease, asthma, atopic dermatitis, Type I diabetes, and childhood cancers are also seen in children who are breastfed.

3.3.4 Long-term effects for the mother

In many developing countries, complications of pregnancy and childbirth are the leading causes of death among women of reproductive age. A woman dies from complications from childbirth approximately every minute. According to the World Health Organization, in its World Health Report 2005, poor maternal conditions account for the fourth leading cause of death for women worldwide, after HIV/AIDS, malaria, and tuberculosis. Most maternal deaths and injuries are caused by biological processes, not from disease, which can be prevented and have been largely eradicated in the developed world — such as postpartum
hemorrhaging, which causes 34% of maternal deaths in the developing world but only 13% of maternal deaths in developed countries.54

Although high-quality, accessible health care has made maternal death a rare event in developed countries, where only 1% of maternal deaths occur, these complications can often be fatal in the developing world because single most important intervention for safe motherhood is to make sure that a trained provider with midwifery skills is present at every birth, that transport is available to referral services, and that quality emergency obstetric care is available.52 In 2008 342,900 women died while pregnant or from childbirth worldwide.55 Although a high number, this was a significant drop from 1980, when 526,300 women died from the same causes. This improvement was caused by lower pregnancy rates in some countries; higher income, which improves nutrition and access to health care; more education for women; and the increasing availability of “skilled birth attendants” — people with training in basic and emergency obstetric care — to help women give birth. The situation was especially led by improvements in large countries like India and China, which helped to drive down the overall death rates. In India, the government started paying for prenatal and delivery care to ensure access, and saw successes in reducing maternal mortality, so much so that India is cited as the major reason for the decreasing global rates of maternal mortality.56

Maternal health problems also include complications from childbirth that do not result in death. For every woman that dies during childbirth, approximately 20 suffer from infection, injury, or disability57

Almost 50% of the births in developing countries still take place without a medically skilled attendant to aid the mother, and the ratio is even higher in South Asia.52 Women in Sub-Saharan Africa mainly rely on traditional birth attendants (TBAs), who have little or no formal health care training. In recognition of their role, some countries and non-governmental organizations are making efforts to train TBAs in maternal health topics, in order to improve the chances for better health outcomes among mothers and babies.58

Breastfeeding provides women with several long-term benefits. Women who breastfeed experience better glucose levels, lipid metabolism, and blood pressure, and lose pregnancy weight faster than those who do not. Additionally, women who breastfeed experience lower rates of breast cancer, ovarian cancer, and type 2 diabetes.51 However, it is important to keep in mind that breastfeeding provides substantial benefits to women who are not infected with
HIV. In countries where HIV/AIDS rates are high, such as South Africa and Kenya, the virus is a leading cause of maternal mortality, especially in mothers who breastfeed. A complication is that many HIV-infected mothers cannot afford formula, and thus have no way of preventing transmission to the child through breast milk or avoiding health risks for themselves. In cases like this, mothers have no choice but to breastfeed their infants regardless of their knowledge of the harmful effects.

Fig 1: Maternal Mortality Rate worldwide, as defined by the number of maternal deaths per 100,000 live births from any cause related to or aggravated by pregnancy or its management, excluding accidental or incidental causes.

3.4 Global situation of Maternal Health

The U.S. Joint Commission on Accreditation of Healthcare Organizations calls maternal mortality a "sentinel event", and uses it to assess the quality of a health care system.

Maternal mortality data is an important indicator of overall health system quality because pregnant women survive in sanitary, safe, well-staffed and stocked facilities. If new mothers are thriving, it indicates that the health care system is doing its job. If not, vice versa.

According to Garret, increasing maternal survival, along with life expectancy, is an important goal for the world health community, as they show that other health issues are also
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improving. If these areas improve, disease-specific improvements are also better able to positively impact populations. Worldwide, the Maternal Mortality Ratio (MMR) has decreased, with South-East Asia seeing the most dramatic decrease of 59% and Africa seeing a decline of 27%. There are no regions that are on track to meet the Millennium Development Goal of decreasing maternal mortality by 75% by the year 2015.\textsuperscript{60}
3.5 Maternal and Child Health Care in India

The WHO estimates show that out of the 536,000 maternal deaths globally each year, 117,000 (22%) occur in India. In addition to these, millions suffer pregnancy related morbidity. According to Global Burden of Disease estimates for 2004, India contributes 21% of the disability adjusted life years (DALYs) lost due to maternal conditions. Public health initiatives over the last two to three decades have helped India to improve health indicators such as life expectancy and total fertility rate to a great extent, but some crucial indicators like Maternal Mortality Ratio (MMR) and Infant Mortality Rate (IMR) have stagnated at around 400 per 100,000 live births and 60 per 1000 live births, respectively, in the 1990s.

Despite a series of national level safe motherhood policies and programmatic initiatives over the past two decades there is little evidence that maternity has become significantly safer in India. The National Rural Health Mission (NRHM) was launched with much fanfare in April 2005 “to provide accessible, affordable and quality health care to the rural sections especially the vulnerable populations”.

An integral component of NRHM is the safe motherhood intervention in the form of Janani Suraksha Yojana (JSY) for reducing maternal and neo-natal mortality. JSY is a 100% centrally sponsored scheme under the umbrella of NRHM which integrates cash assistance with antenatal care during the pregnancy period, institutional care during delivery and immediate post-partum period in a health centre by establishing a system of coordinated care by field level health worker.

Though the scheme has been successful in pushing up the institutional delivery rate in some high focus states, the ambitious goals of reducing the MMR from existing ratio of 301 to 100 per 100,000 live births, by 2012 will not be possible if ‘quality’ aspects are ignored while addressing issues related to equity and access to health care for the Indian population. Addressing the issues of quality in maternal health service delivery is important not just to decrease the MMR and reduce maternal morbidity but also to instil confidence in the public health system amongst end users and thereby increase the demand for institutional deliveries. This alone will ensure that the gains made in the JSY scheme in the last 4 years will lead to the final expected outcome of the NRHM of decreasing maternal mortality and morbidity.
3.6 Quality of Maternal Care

The concept of quality of care is complex and multidimensional. The definition of quality of care is highly varied—ranging from excellence to expectations or goals which have been met to “degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge.” At a population level, quality of care can be defined as “ability to access effective care on an efficient and equitable basis for the optimisation of health benefit/well-being for the whole population.” All dimensions of quality of care reduce to two questions. First, can an individual get the care they need when they need it (ie, is the care accessible)? Second, when they get care, is it effective both in terms of clinical effectiveness and interpersonal relationships? This definition of quality of care is appropriate when applied at an individual level. This paper will largely restrict to analysing the quality of care in maternal health at the individual level through an equity lens.

Though India’s Health and Family Welfare Programme has been in existence for almost five decades, it is characterised by modest achievement and unfulfilled promise. Information on the services at the provider-client level remains limited, much of the evidence having become available only in the last decade with a good deal being unpublished and inaccessible to those interested in this issue.

3.7 Access to care

Access to care is a vital but complex element of quality of care since it determines whether a client even gets to the service provider. The available community based evidence suggests that there is considerable variation in the level of outreach visits by the Auxiliary Nurse Midwife (ANM), largely by geographical location, with significantly higher visits in the southern and western than in the north Indian states. In a four state study conducted over a decade ago, 89% and 93% women surveyed in Tamil Nadu and Karnataka reported having been visited by a female paramedical worker in the last three months, compared with 53% and 61% women from Bihar and West Bengal, respectively. There were also differentials in access to care between urban and rural areas, if utilization of care is taken as a proxy for access to care. The National Family Health Survey-3 (NFHS-3) conducted during 2005-06 reports that only 62.4% of ever married women respondents living in urban areas reported
having received the WHO recommended four antenatal visits compared to 27.7% rural women\cite{72}. The District Level Household Survey-3 (DLHS-3) conducted during 2007–2008\cite{73} indicates an overall improvement in access to maternal care (if three or more antenatal check ups are taken as proxy) in the post NRHM period, perhaps more for the high focus states (with poor health indicators) than the non high focus states (which hitherto had better health indicators) (Figure 2).

Figure 2: Comparative proportion of mothers who had three or more antenatal check ups during their last pregnancy. (DLHS-3 against DLHS-2). DLHS: District level health survey. High focus states under NRHM were 18 states identified for special attention based on ...

Data over the last three decades reveal that significant differences in frequency of outreach visit exist even within the same geographic region. One study from rural Maharashtra found that respondents residing in villages more remote from those, to which the ANM was assigned, were significantly less likely to have reported a recent visit by a health worker, to have been visited for meaningful lengths of time and to have received other maternal and
child health services\textsuperscript{74}. An earlier study also found a much greater tendency for workers to visit communities and households accessible to main roads\textsuperscript{75}. NRHM does not appear to have made much of a difference in this regard. In Orissa, JSY beneficiaries had to travel, on average, 15.8 km to reach the ultimate place of delivery\textsuperscript{76}. Without an efficient referral system, women with complications are referred from facility to facility before they finally reach their place of delivery. This results in loss of precious time and contributes to one of the major delays responsible for maternal mortality. A study conducted in Andhra Pradesh showed that among the 98 women who used hospital facilities nearly sixty percent went to two or more hospitals. One woman had visited as many as nine hospitals and finally died at home\textsuperscript{77}.

Figure 3: Comparative proportion of mothers who had safe delivery (ie, institutional delivery or home delivery attended by a skilled health personnel like doctor, nurse, LHV, ANM, midwife etc.) during last pregnancy. (DLHS-3 against DLHS-2). DLHS: District level.
According to NFHS-3, more than half the births in India take place at the woman’s own home and 9% at parent’s home. Overall, only 47% of all deliveries are attended by a skilled birth attendant (SBA); 73.4% in urban areas compared to 37.4% in rural areas. The DLHS-3 data reveal that the rural-urban gap for safe deliveries remains wide as ever in the northern Indian states (Figure 3).

Investigators in a study conducted at the beginning of the millennium and involving rural and urban women in Maharashtra have listed safety and good quality of care as one of the motivating factors for choosing to give birth at home. “In government hospital delivery room is not there. Toilet and water facilities are not there in public health centre properly. So I felt safe to give birth in house,” remarked one of the respondents from Pune.

The Government of India constituted Common Review Missions (CRMs) under the NRHM to review the implementation of NRHM. The teams constitute of central and state government officials, public health professionals from the academia, public health activists from civil society organizations and representatives from development partners. The teams constituted for the Second Common Review Mission (CRM) (November – December 2008) reported that although there is some improvement in the levels of cleanliness and provision of waiting space for patients in the post 2005 period, cleanliness of toilets was still lacking. Assessments carried out on health facilities across India indicate a suboptimal degree of purchases, maintenance and utilization of general medical equipment and a lack of support facilities like 24-hour water and electricity supply. This is reinforced by the observations of one of the visiting State teams of the CRM.

“The infrastructure is old and requires repairs. OPD patient load is very high, institutional delivery load is also very high, however the PHC has only 4 beds which require to be augmented, there is no referral transport service available and laboratory services are inadequate.”

The findings of the Third Common Review Mission teams to Bihar, Chattisgarh and West Bengal in November 2009 indicate that very little has changed in the one year since the second CRM. The team visiting Bihar observed that the “basic utilities (toilet and running water) in the observed facilities were very poor and are not conducive for the women to stay for long after delivery.” Thus, insufficient public health care infrastructure, unclear
accountability, and the lack of empathy towards the poor have severely limited the optimal reach of even available maternal health services in the public health system in India.

Postnatal care is one of the most neglected components of maternal care. Data from NFHS-3 reveal that only 42% of women surveyed received postnatal care after their most recent delivery. Births to urban mothers are twice as likely to be followed by a postnatal check-up (66%) compared to their rural counterparts (34%) \(^82\). The findings of DLHS-3 are no different – the rural-urban differential remains as wide as ever in the high-focus states \(^83\) (Figure 3). It is thus evident that rural India where about 70% of Indian population resides has less accessibility to good quality care. Even in urban areas, lack of knowledge and awareness about health facilities among the poor, weak linkages between service providers and communities, and the limited role of community negotiating capacities severely impede the demand for health care services in these areas \(^83\). Recent evaluation of the JSY in Orissa revealed that that only half of the JSY beneficiaries were given referral slips by Accredited Social Health Activist (ASHA) or other health personnel to help them access delivery services.

Figure 4: Proportion of mothers who received postnatal care within 2 weeks of delivery during their last pregnancy. Data are overall for the state based on DLHS-3 (2007-2008). DLHS, District level health survey. High focus states under NRHM were 18 states identified...
The same report also notes: “With manifold increase in the institutional deliveries, quality of care has become an issue, for instance, women were discharged on average, 16 hours after normal delivery and there were instances of being discharged even within 3–4 hours after delivery. This is risky to the life of both mother and the newborn and would not serve the purpose of reducing maternal and neonatal mortality”.

Even the third CRM report indicates that mothers tend to be in institutions less than a day in most cases and that quality of care needs to improve in a large proportion of the health facilities.

Khan and colleagues in a study from Bihar reported that 41% of the respondents felt that the time the health worker spent with them was very short and only 31% were fully satisfied with the visits they received. In another study from Maharashtra, almost two-thirds of the respondents reported that the ANM had spent less than five minutes in her most recent household visit. This lack of time spent by the ANM reflected on the lack of clinical effectiveness for those who manage to gain access to the care provided by the public health system. NFHS-3 data indicate that overall, only 15% women receive all recommended types of antenatal care, there being wide disparities between the states (4% in Uttar Pradesh compared to 64% in Kerala). Though the DLHS-3 data indicate an overall improvement in clinical effectiveness of maternal health care (if full ante-natal check up which includes at least three ante-natal visits, one tetanus toxoid injection, 100 tablets of iron-folic acid supplement or its equivalent in syrup is taken as proxy), they appear to suggest that the improvement has been more in the non-high focus states which hitherto had better health indicators. In fact, some high focus states (e.g. Uttar Pradesh, Bihar and Jharkhand) appear to have deteriorated in the post-NRHM period (Figure 5).

Rani and colleagues have highlighted the north-south differential in a recent study involving secondary analysis of NFHS-2 data from four south Indian states (Andhra Pradesh, Karnataka, Kerala and Tamil Nadu) and four north Indian states (Bihar, Madhya Pradesh, Rajasthan, Uttar Pradesh). The study shows that only 40.3% of the women receiving antenatal care in the north reported having their blood pressure measured during antenatal visit compared to 87.4% in the south. Though the DLHS-3 data indicate that these differentials persist, they present a greater cause for concern. In the post NRHM period,
the northern Indian states of Bihar, Jharkhand, Madhya Pradesh, Rajasthan and Uttar Pradesh have slipped further on this index of quality of care. (Figure 5). NFHS-3 reports that while 80–82% of the urban women had their blood pressure measured and weight taken, only 55% of the rural respondents reported having received these basic prerequisites of quality antenatal care. DLHS-3 data seem to indicate that the rural-urban differential has only grown wider in the post-NRHM period.

Figure 5: Proportion of mothers who had full antenatal care (at least 3 visits for ANC, one injection of tetanus toxoid and 100 tablets or equivalent thereof of iron and folic acid supplement) during their last pregnancy. Data are overall for the state based on..

It is important to note that while southern states have made significant progress to address accessibility to good quality of care for antenatal care (ANC), they too fall woefully short of the standards in quality required to bring down maternal mortality. NFHS-3 indicates that 65% of the pregnant women received IFA during ANC which is a seven percentage point increase from NFHS-2. However, the survey also shows that that 59% of the pregnant women were found to be anaemic which is suggestive of poor quality of ANC resulting in poor compliance.
Figure 6: Comparative proportion of mothers who had their blood pressure measured at least once as part of antenatal care during their last pregnancy (DLHS-3 against DLHS-2). DLHS, District level health survey. High focus states under NRHM were 18 states identified ...

3.8 Client – provider inter-personal relationships

Inter-personal relationship between the provider and the client is the key to improved client satisfaction, continued and sustained use of services and thereby better health outcomes. Government health clinics have long been accused of being apathetic and ignorant to client perspectives. It is thus no wonder that clients perceive private sector health services to be superior to that offered by the government program \(^{74}\). The study on north-south differential cited earlier found that women in both the north and south India reported better quality of interpersonal care in the private sector \(^{86}\). Births in a private facility are more likely to have a postnatal check-up at 6 weeks (85%) as well as a check-up within four hours of delivery (62%) than births in a public facility (76% and 53%, respectively) \(^{72}\). Ravindran points out that the clients have a negative impression of government health facilities citing staffs’ and
nurses’ verbal abuse of clients and demands for informal payments even for the most basic health services \(^87\). A focus group study in Uttar Pradesh which documented perceptions among female respondents revealed that staff and medical officers in government institutions are often rude and discourteous to clients \(^88\). Rao narrates the plight of an urban slum dweller in Bangalore who was slapped repeatedly by the nurses in a government hospital because she was too weak to bear down \(^89\). “My mother’s house where I had my firstborn was better,” says the respondent. To add insult to the injury the hospital staff refused to hand over her baby until she made informal payments. Once she paid up, she was sent home within 24 hours of delivery without any medicines or postnatal check up.

Quality issues notwithstanding, government clinics continue to be used in large numbers because the costs to the clients are minimal. However, some studies are already revealing new evidences that the poor have also preferred to use the much costlier services provided by the largely unregulated private sector even when they have access to subsidized or free public health care \(^90\). This is inherently regressive and has put a disproportionate burden for health care on poor households. It is not just the poor who face the double burden of poverty and ill-health, the financial burden of ill health can even push the non-poor into poverty.

The teams constituted under the second CRM in their final report re-iterated the need for attention to procedures for registration, patient flow and information through appropriate signage, waste disposal and other aspects crucial for a patient friendly facility \(^79\). The shortage of human resources and thereby of the expected services was also noted as an issue of quality. The report of the Third CRM (unpublished) indicates that a positive outcome of the thrust of the changes that the NRHM has brought about in the last 3 years has been on infrastructure strengthening, facility improvement and enabling adequate numbers of human resources- and these measures seemed to have brought about a huge increase in institutional deliveries. It also concludes that even though “The quality of care in the private sector is not necessarily much better than that reported for the public facilities, but because of the push of the system case loads seems to have migrated from the public system to the private system.” For example the team constituted under the Third CRM for the state of Gujarat observed that the quality of Chiranjeevi providers (a Public Private Partnership health provider scheme promoted by the State Government) is not necessarily better; however they are supported by a better demand generation involving the government workers at the village level and by a mindset that deems private sector provision better than government provision .
submitted by the team recommends that increased patient load and overcrowding now at public health facilities can be resolved by planned efforts to rationalize patient load (deliveries) by upgrading the primary level services at Primary Health Centres and Subcentres. In general the report of the third CRM observes that lack of respect shown to the patients by the service providers is still a pervasive phenomenon that discourages use of public facilities.
3.9 Maternal and child health in Tribal population

Among women in general, a high literacy rate is associated with lower infant mortality rates, reduced fertility rates, and enhanced status of women in both the domestic and public spheres.\textsuperscript{91-97} Cross-country comparisons using large data sets, such as the World Fertility Survey and the Demographic and Health Surveys, have shown that various maternal characteristics, such as education and work status, exert a strong influence on reducing child morbidity and mortality.\textsuperscript{92, 98-103} Studies have also shown that the utilization of prenatal care is dependent on various factors, such as household standard of living, availability of health facilities, maternal education, work status, birth order, etc..\textsuperscript{104-107} Several studies have been carried out to explain how maternal background characteristics may influence child health, mostly within the conceptual framework put forward by Mosley and Chen (1984),\textsuperscript{108} who argue that mortality is the outcome of a combination of social, cultural, biological, and environmental factors.

The abovementioned studies have shown that there is no universal explanation, and that the determinants of utilization of maternal healthcare services are not the same across socioeconomic and cultural factors. In India, there are large inter- and intra-regional variations, especially in education, employment, and health utilization, which are further complicated by variations between the rural and urban population within the same states. The rural population lags far behind the urban one, not only in education but also in utilization of healthcare facilities. The government of India has introduced specific health plans, such as the National Rural Health Mission, for decentralized areas based on the needs assessment in the 10th Five-Year Plan for improving the conditions of rural and tribal populations. Although numerous studies have been conducted on tribal women regarding their health, cultural practices, work status, and participation in management, etc.\textsuperscript{109-111}, variation in patterns of maternal health service utilization by women in different tribal areas has not been thoroughly examined. This study addresses this important issue, because the characteristics and problems of tribal women differ from one specific area to another, depending on the geographical location, historical background and the process of social change. In India, the striking interregional diversity is an important confounding factor.
As such, in this study, India’s tribal population is divided into three groups: central, northeastern, and remaining states. The states, with tribal populations reported, within each group are as follows: the northeastern group consists of Mizoram (95.4 per cent), Meghalaya (80.5 per cent), Nagaland (72.8 per cent), Arunachal Pradesh (62.4 per cent), Manipur (25.6 per cent), and Tripura (17.1 per cent); the central group includes the states of Chhattisgarh (29.8 per cent), Jharkhand (27.9 per cent), Orissa (23.2 per cent), Madhya Pradesh (21 per cent), and Bihar (0.4 per cent); and the remaining group encompasses Rajasthan (14.3 per cent), Gujarat (10.6 per cent), Maharashtra (10.6 per cent), Andhra Pradesh (6.5 per cent), Karnataka (6.2 per cent), and Goa (4.8 per cent); any other states have a very small proportion of the tribal population.\(^\text{112}\) The northeastern and central groups of states are distinctly different socioeconomically and culturally, and are fairly representative of the two tribal groups of India. Northeastern women typically enjoy greater freedom, and as an outcome have higher literacy and employment rates. In contrast, tribal women of the central part of India tend to get married at an early age, are predominantly illiterate or poorly educated, and are less likely to work outside the home.

Marriage before attaining the legal age of 18 years varies from 64 per cent in central states to 14 per cent in northeastern India (IIPS 2006)\(^\text{112}\). Further, literacy rates among tribal women are significantly higher (73 to 94 per cent) in the northeastern states, such as Mizoram, Manipur, and Nagaland, where tribal groups constitute a large percentage of the general population. On the other hand, tribal literacy rates are much lower (37 to 52 per cent) in the states of Bihar, Orissa, and Madhya Pradesh. In these states the tribal population constitutes a small per cent of the total population, although it represents a large proportion of the total tribal population. Thus, the general statistics that portray the dismal state of education and literacy among tribal groups ignore important demographic, social, cultural, and economic differences among the various tribal groups. The study analyzed tribal women who gave birth to a child in the last one year preceding the survey. The difference between northeastern and central states of India was found not only in education, but also in other socio-demographic characteristics (Table 1).

For instance, while 73 per cent of women ages 15–49 years in the state of Arunachal Pradesh were working, only 34 per cent reported working outside the home in Bihar. Further, the northeastern states were more urbanized, with most households having electricity, whereas 75 per cent of the central states were rural and 50 per cent of the population lives without proper
electrical facilities. Improvement over the 7-year period from the NFHS-2 to the NFHS-3 was more in northeastern states like Meghalaya and Nagaland, while the central states were lagging far behind in basic amenities. The northeastern states also fare better than their central counterparts on infant and child mortality. Although infant and child mortality rates have decreased in the last seven years, estimates are still very high in comparison to the world average. Both infant and under-five mortality rates were higher in the central states than India’s national average of 57 and 74 deaths per 1,000 live births, respectively. Estimates for all the northeastern states were in the range of 30 to 61 infant deaths and 42 to 88 child deaths per thousand live births. Maternal and child healthcare (MCH) during pregnancy is an important component of primary healthcare in India. Women can access antenatal care services at health centres, where such services are available, or from health workers during their home visits. One of the most important components of antenatal care services is to provide information and advice about pregnancy-related complications, and recommend possible strategies for the early detection and management of problems. Investigating the health centres provides data on the voluntary utilization of services by women, while examination of home visits gives us information on the quality of available services.
3.10 Migration and its impact on Maternal and Child health

Urbanization is defined as the process of development where rural to urban migration is responsible for urbanization. People are migrating from rural areas to urban area due to unequal infrastructure between rural and urban areas, searching job opportunity, pursuing education, treatment or others purpose. However rural- urban migrants are increasing their income through job opportunity. The implications of rural-urban migration for socio-economic development are of longstanding interest to social scientists. There is a little work has looked at the effect of migration on child health of the most vulnerable members of the migrants’ family.

Apart from socio-economic development, rural-urban migrants have positive and negative impacts on biological and demographical characteristics of human beings such as fertility, mortality, morbidity, immunization, malnutrition, diseases, health, demographic and genetic structure etc. Though, health care is of a higher standard in urban place compare to rural place.

The recent population projections by United Nations indicate that by 2030 each major region in the developing world will house more urban than rural dwellers. Furthermore, by 2050 nearly two-third of population in developing countries will live in urban areas. The total urban population in developing world was estimated around 1.97 billion in 2000, which is likely to increase up to 3.90 billion in 2030 and finally reach a figure of 5.26 billion by 2050 as per United Nations population projection.

Under the process of rapid urbanization and modernization, one of the key challenges of recent times relates to the provision of basic infrastructural facilities to urban dwellers and improving their well-being and quality of life. It was for the first time in the history of human population that more than 50 percent of population now lives in cities. According to the recent United Nations estimates, the world urban population is growing annually at the rate of 1.8 percent and is likely to outpace the overall world population growth rate of 1 percent.

However, the matter of concern relates to the fact that more than one third of current 3 billion urban dwellers live in slums or places characterized by poor structural housing conditions,
deficient access to safe drinking water and sanitation, and severe overcrowding. More importantly, all these myriad factors have direct bearing upon the physical and psychological well-being of the urban population. Very often, owing to sub-standard living conditions in urban slums and shanty towns, the urban dwellers are subject to morbidities and mortality from various communicable and non-communicable health hazards and diseases. Due to inadequate provision of water and sanitation facilities, more than half of population in developing countries suffers from diarrheal and warm infections. Owing to higher level of overcrowding in urban areas, poor urban dwellers become more vulnerable to contracting various communicable diseases such as tuberculosis, acute respiratory infections and meningitis. The risk of contracting such communicable disease among urban slum dwellers is further perpetuated due to poor nutritional status and inappropriate intake of food.

Furthermore, inadequate provision of drainage and sanitation facilities leads to the risk of several vector borne diseases like malaria, dengue and yellow fever etc. The theoretical explanation of the urban advantage has been substantiated by a number of Studies attesting that rural children stand greater risk of being malnourished or sick, or of dying, than their counterparts in urban settings. In fact, following maternal education, the type of place of residence (rural versus urban) is one of the socioeconomic covariates most frequently used in studies of child nutrition and survival in the developing world. However, the urban advantage particularly in child health has supposedly faded in recent decades, since the urban population explosion in most developing countries has not been matched by an adequate expansion of sanitation, health services and livelihood opportunities. Traditional theories tend to highlight contextual and compositional explanations of differences in health by location of residence. In the former, variations in health outcomes or status arise from differences in urban or rural settings per se, and the very characteristics of cities as compared to rural areas are seen as major determinants of health experiences of individuals living in these areas. In the compositional perspective, explanations are sought in terms of differences in cultural and socio-demographic characteristics between urban and rural dwellers. Indeed, urban and rural populations differ in respect to level of literacy, educational status, income per head, and in other respects that have an important bearing upon health. Though previous studies in the context of developing countries have examined the health status and health seeking behavior among urban population in general. However, there is a dearth of study that specifically examine the impact of migration and living condition on child health i.e. availability of basic housing amenities like quality of housing, safe drinking water and
sanitation on the health and nutritional status of children living in urban areas in developing countries in general and Indian context in particular. Therefore, the main objective of the present study is to examine the relationship between migration and the availability of housing amenities and health and nutritional status of Indian children in urban India using nationally representative cross-sectional data set.
3.11 Contextualization of the Study

There have been researches conducted in maternal and child health of migrant population across the world. Most of the research stated adversity for maternal and child health care for migrant population. Significant gaps observed in the reproductive health needs of mobile populations like irregular migrants\(^3\). This gap specifically includes access to family planning, prenatal, delivery, and early childhood health care. This leads to such issues as maternal mortality and chronic measles outbreaks in urban slums due to lack of coverage by vaccination campaigns.

Substantial differences were found in access to maternal and child health services between migrant and native communities across the globe. Most notable were the differences in antenatal care, labour and delivery, contraception and breastfeeding. Despite a general consensus on the importance of accessing maternal-child health care, there have been numerous barriers, including cost, language barriers and religious beliefs, and a lack of trust in available services due to health care worker attitudes and quality of services within the facilities. Utilization of Basic Child health care service like immunization is adversely affected by migration.

Among many, low service utilization is one of the proven factors for this adverse difference. Women who delivered in urban areas after rural-urban migration were less likely to use the services than urban residents. In lower utilization of health care services, adaptation to unfamiliar society may play a role and unfavorably affect the service uptake. Lower economic status also plays a role in lower immunization coverage in migrant children.

This difference in health care utilization and immunization remain in spite of same level of health care services among migrants and native population.

All these research studies suggest adverse health condition of migrants particularly mothers and children. We expect even worst status of tribal migrant who circulate frequently. The issues and challenges in service uptake and service provision needs to be explored in local scenario.