CHAPTER ONE

INTRODUCTION

1.0 INTRODUCTION

The World Health Organization defines, ‘health’ as a “state of complete physical, mental and social well-being”. Health is not just a matter of personal choice, nor it is only a biological issue; patterns of well-being and illness are rooted in the organization of society. Healthy mind can create healthy society. The term “health” is closely linked to social life. Health care remains one of the most important human endeavours to improve the quality of life. The main objective of any health care system is to facilitate the achievement of optimal level of health to the community through the delivery of services of appropriate quality and quantity. Even though society consists of women, men and children, when considering the preference of giving importance to the health care of women were very lethargic and they were not given much importance than their family members. Women are pivotal contributors to society in their roles as mothers, individuals, family members, and as citizens. When a woman’s health is poor, her contribution to society is decreased.

Generally, women have been targeted to carry out the entire burden and responsibilities of conception, contraception, child bearing and child rearing. This has increased the burden of women in manifold. In the Indian context, women’s accesses to health services are influenced by socio-economic environment and attitude of the family. The basic need for the advancement of women in all spheres of achievement depends only on their health status.
A woman’s health is critical to the well-being of her family and to the economy of her community and her country.

i) Women are the sole income earners for 25-33 percent of all households.

ii) Women’s income is more likely than men’s to go for food, education, medicine and other family needs.

iii) When a mother dies or is in ill health, children are more likely to be stunted and to receive less schooling and healthcare.

iv) A child whose mother has died is up to four times more likely to die than a child who has not lost its mother.

v) The total value of women’s unpaid house and farm work adds one-third to the world’s GNP (Family Care International, 2007).

Twenty percent of the global burden of women’s health is related to sexual and reproductive health problems (WHO, 2005).

The WHO (2005) reports revealed the facts that (Every minute of every day):

i) 380 women become pregnant,

ii) 190 women face an unplanned or unwanted pregnancy,

iii) 110 women experience pregnancy-related complications,

iv) 40 women have an unsafe abortion, and

v) 1 woman dies.

Annually, this means over half a million maternal deaths occurred in the world and the overwhelming majority is found in developing countries. Women around the world face an alarming number of gender-specific health challenges – challenges which are all the more worrying due to the lack of attention and funding they receive. Despite the existence of the fifth Millennium Development
Goal (MDG), aiming to reduce Maternal Mortality Rates (MMR), the global decline in MMR between 1990 and 2005 has been less than 1% annually and only about 0.1% annually in sub-Saharan Africa.

Increasing the availability, accessibility and awareness about the services and technological advances for the management of health problems, raising expectations of the people, and the ever-increasing cost of healthcare are some of the challenges that the healthcare systems have to cope-up with. Health care delivery systems will have to gear up to take up necessary preventive, curative, promotive and rehabilitative health care for the population.

Mothers and children are considered the most vulnerable groups in the community, as they are susceptible to certain health problems to which other sections of the community are not exposed. It is estimated that 10 lakhs deaths related to pregnancy and childbirth occurred annually in India and it accounts for 20% of the global maternal mortality (UNFPA, 2005).

1.1 MATERNAL AND CHILD HEALTH – AN OVERVIEW

MATERNAL HEALTH

Maternal health refers to the health of women during pregnancy, childbirth and the post-partum period. While motherhood is often a positive and fulfilling experience, for too many women it is associated with suffering, ill-health and even death. Most maternal deaths and pregnancy complications can be prevented by quality ante-natal care, care during delivery period and post natal care.
According to World Health Organization (WHO) maternal health refers to the health of women during pregnancy, childbirth and the post-partum period. It consists of:

a) Optimal Antenatal care,
b) Normal pattern of pregnancy,
c) Special care to pregnant women at risk, and
d) Follow-up on the survival of new born infants.

In short, maternal health service is a package of health care measures adopted during pregnancy, childbirth and after childbirth.

Maternal health forms a significant part of the general reproductive health of women in India. In general, developing countries have low reproductive health status and India is no exception from this. In India, out of about 30 million pregnant women, around 136,000 maternal deaths and one million newborn deaths take place each year (WHO, 2005). Apart from maternal deaths, there is also an incidence of maternal morbidity wherein, millions of women and newborns suffer from pregnancy and birth-related diseases. Given the socio-cultural and economic diversity of Indian women and the magnitude of women's reproductive health problems, it should be a matter of great concern for not only policy makers, but also for researchers and all sections of the population.

Maternal health appears as a pervasive concern within the framework of the Millennium Development Goals. It finds explicit expression in the Goals 4 and 5 pertaining to reproductive and child health, child survival and reducing child mortality, reducing maternal mortality rate and increasing the proportion of birth
attendants by skilled health personnel. Goals-5 calls for reducing the rate of maternal mortality by 75% by 2015 (Handoo, 2006).

The issues related to maternal health and mortality are:

i) There is a need for focusing on maternal health in the country, where nearly 1,30,000 women die annually from pregnancy and childbirth-related complications. Almost, all these deaths are preventable.

ii) Despite high budgets in the Reproductive Child Health Programme – II of the Health and Family Welfare Ministry, the Maternal Mortality Rate (MMR) continues to be unacceptable and high in India and has shown no sign of reduction in the past one decade.

iii) Every five minutes a woman dies of pregnancy-related causes.

iv) While there are a number of reasons for the high MMR including early marriage and childbirth, lack of adequate health care facilities, inadequate nutrition and absence of skilled personnel, the problem is also caused by posts of Doctor and health worker remaining vacant at the village and block levels.

v) The lack of emergency referral transport is a major impediment to reduction of maternal mortality.

vi) Under the National Health Mission, Accredited Social Health Activists (ASHAs) are being seen as a vital link to Government programmes on reducing maternal mortality. They will address the health needs of rural population particularly among the vulnerable sections and guide women to access the facilities for ante-natal care, institutional delivery, post-natal care and counseling on nutrition and family planning services, point out Health and Family Welfare Ministry officials (Archana Sinha, 2007).
CHILD HEALTH

Child health means the care and treatment of children. Child health is the purview of pediatrics, which became a medical specialty in the mid-nineteenth century. Before that the care and treatment of childhood diseases were included within such areas as general medicine, obstetrics, and midwifery. Child health refers to the growth and development monitoring of child. It consists of:

i) Breast feeding,
ii) Immunization,
iii) Screening of all new born,
iv) Health education, and
v) Early discovery of congenital abnormalities.

The three most commonly used measures of child health (Peter Svedberg, 2000) are height for age, weight for height and weight for age. Low values of these variables will result in stunting, wasting and underweight.

The two features of child health in India that deserve special attention are:

a) India has recorded one of the worst performances on undernourishment and child health, and
b) India’s failure to delink maternal health from that of her children results in the transmission of ill health from the mother to her children.

Maternal and Child health refers to the promotive, preventive, curative and rehabilitative health care for mothers and children, child health, family planning, school health, handicapped children, adolescence and health aspects of children
in special setting such as day care. In other words, the Mother and Child Health means ensuring that all women receive the care they need to be safe and healthy throughout pregnancy and childbirth, promoting antenatal care and child survival. Mother and child must be considered a single unit because:

i) During ante-natal period foetus is a part of mother and obtains all the building material and oxygen from mother’s blood;

ii) Child’s health is closely related to maternal health, a healthy mother brings forth a healthy baby;

iii) Certain conditions and diseases are likely to have their effect on foetus. For example, Diabetes Mellitus, infections etc.;

iv) After birth, child is dependent on mother;

v) In the care cycle of women there are few occasions where service to the child is simultaneously called, for example, Post-partum period care which is inseparable from neo-natal care; and

vi) Mother is the first teacher of a child.

1.1.1 MATERNAL AND CHILD HEALTH IN GLOBAL SCENARIO

Maternal mortality continues to be the major cause of death among women of reproductive age in many countries. A global report on maternal health (WHO, 2001) and (UNICEF, 2001) shows that every day at least 1,600 women die from the complications of pregnancy and child birth, that is, minimum 5,85,000 women are dying every year. The majority of these deaths almost 90% occur in Asia and Sub-Saharan Africa; approximately 10% in other developing regions; and less than 1% in the developed world. Between 25% and 33% of all deaths of women of reproductive age in many developing countries is the result of complications of pregnancy or childbirths.
In addition to death the burden of disease is huge. Forty percent or more of pregnant women may experience acute obstetric problems during pregnancy, child birth and the post-partum period; an estimated 15% of pregnant women have the problems of life threatening complications. The high number of maternal deaths in some areas of the world reflects inequities in access to health care services, and highlights the gap between rich and poor. Almost all maternal deaths (99%) occur in developing countries. More than half of these deaths occur in sub-Saharan Africa and almost one third occur in South Asia.

Women in developing countries have, on average, many more pregnancies than women in developed countries, and their lifetime risk of death due to pregnancy is higher. A woman’s lifetime risk of maternal death; the probability that a 15 year old woman will eventually die from a maternal cause is 1 in 4900 in developed countries, versus 1 in 180 in developing countries. In countries designated as fragile states, the risk is 1 in 54; showing the consequences from breakdowns in health systems (Conde-Agudelo, A et al (2004) and Patton GC et al (2009)).

The maternal mortality ratio in developing countries in 2015 is 239 per 100 000 live births versus 12 per 100 000 live births in developed countries. There are not only large disparities between countries, but also within countries, and between women with high and low income and those women living in rural versus urban areas. The risk of maternal mortality is highest for adolescent girls under 15 years old and complications in pregnancy and childbirth is a leading cause of death among adolescent girls in developing countries (WHO, 2015). The key facts related to maternal health is:
a) Every day, approximately nearly 830 women die from preventable causes related to pregnancy and childbirth.

b) 99% of all maternal deaths occur in developing countries.

c) Maternal mortality is higher in women living in rural areas and among poorer communities.

d) Young adolescents face a higher risk of complications and death as a result of pregnancy than other women.

e) Skilled care before, during and after childbirth can save the lives of women and newborn babies.

f) Between 1990 and 2015, maternal mortality worldwide dropped by about 44%.

g) Between 2016 and 2030, as part of the Sustainable Development Agenda, the target is to reduce the global maternal mortality ratio to less than 70 per 100,000 live births. (WHO, 2015)

Maternal mortality is unacceptably high. About 830 women die from pregnancy or childbirth related complications around the world every day. By the end of 2015, roughly 303,000 women were died during and following pregnancy and childbirth. Almost all of these deaths occurred in low-resource settings, and most could have been prevented. Improving maternal health was 1 of the 8 Millennium Development Goals (MDGs) adopted by the international community in 2000. Under MDG 5, countries have committed to reduce maternal mortality by 3 quarters between 1990 and 2015. Since 1990, the number of maternal deaths worldwide has dropped by 43% (WHO, 2015).

In sub-Saharan Africa, a number of countries halved their levels of maternal mortality since 1990. In other regions, including Asia and North Africa, even greater headway was made. Between 1990 and 2015, the global maternal
mortality ratio (that is, the number of maternal deaths per 100,000 live births) declined by only 2.3% per year between 1990 and 2015. However, increased rates of accelerated decline in maternal mortality were observed from 2000 onwards. In some countries, annual declines in maternal mortality between 2000 and 2010 were above 5.5%, the rate needed to achieve the MDGs (WHO, 2015).

Seeing that it is possible to accelerate the decline, countries have now united behind a new target to reduce maternal mortality even further. One target under Sustainable Development Goal 3 is to reduce the global maternal mortality ratio to less than 70 per 100,000 births, with no country having a maternal mortality rate of more than twice the global average (WHO, Maternal Mortality Fact Sheets, 2015).

Women die as a result of complications during and following pregnancy and childbirth. Most of these complications develop during pregnancy and most are preventable or treatable. Other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the woman’s care. The major complications that account for nearly 75% of all maternal deaths are:

a) Severe bleeding (mostly bleeding after childbirth);
b) Infections (usually after childbirth);
c) High blood pressure during pregnancy (pre-eclampsia and eclampsia);
d) Complications from delivery; and
e) Unsafe abortion.

The diseases such as malaria and AIDS during pregnancy may lead to complications and maternal death (Say L, 2014).
Improving maternal health is one of WHO key priorities. WHO works to contribute to the reduction of maternal mortality by increasing research evidence, providing evidence-based clinical and programmatic guidance, setting global standards, and providing technical support to member states. In addition, WHO advocates for more affordable and effective treatments, designs training materials and guidelines for health workers, and supports countries to implement policies and programmes and monitor progress.

During the United Nations General Assembly 2015, in New York, UN Secretary-General Ban Ki-moon launched the Global Strategy for Women's, Children's and Adolescents' Health, 2016-2030. The Strategy is a road map for the post-2015 agenda as described by the Sustainable Development Goals and seeks to end all preventable deaths of women, children and adolescents and create an environment in which these groups not only survive, but thrive, and see their environments, health and wellbeing transformed.

As part of the Global Strategy and goal of Ending Preventable Maternal Mortality, World Health Organization is working with partners towards:

i. Addressing inequalities in access to and quality of reproductive, maternal, and newborn health care services;

ii. Ensuring universal health coverage for comprehensive reproductive, maternal, and newborn health care;

iii. Addressing all causes of maternal mortality, reproductive and maternal morbidities, and related disabilities;

iv. Strengthening health systems to respond to the needs and priorities of women and girls; and

v. Ensuring accountability in order to improve quality of care and equity.
Most maternal deaths could be prevented if women had access to basic medical care during pregnancy, childbirth and the postpartum period. This implies strengthening health systems and linking communities, health centers and hospitals to provide care when and where women need it.

**Delivery care** - Each year, 60 million deliveries take place in which the woman is cared for only family member, an untrained traditional birth by a family member, an untrained traditional birth attendant or no one at all. Only 53% of deliveries in developing countries take place with the assistance of a skilled birth attendant (a Doctor or Mid-wife). Yet having a skilled health professional at delivery is essential for making motherhood safer.

**Postpartum care** - Only a small proportion of women in developing countries less than 30% receive post-partum care. Yet the early postpartum period is the time that most maternal deaths occur. Care during the postpartum period provides opportunities to check that mother and baby are doing well provides support to breast-feeding, and enables health workers to detect and manage any problems early.

**Antenatal Care** - Millions of women in developing countries lack access to adequate care during pregnancy. Such care can detect and manage existing diseases, recognize and treat complications early, provide information and counseling on signs and symptoms of problems, recommend where to seek treatment if complications arise, and help women and their families prepare for child birth.

WHO and UNICEF have expressed the magnitude maternal and child health problems (**WHO**, 2001 and **UNICEF**, 2001):
a) One in every ten births is to a teenage mother and in every minute 40 women has an unsafe abortion, 190 women face an unplanned or unwanted pregnancy and three women are beaten and coerced into sex or abused worldwide.
b) Every woman, rich or poor faces a 15.0 percent risk of complications around the time of delivery.
c) The situation of children is also terrible like women in developing countries. A UNICEF report shows that each year 4.0 million babies die before they reach the age of one month and four million more are stillborn (dying between 22 weeks of pregnancy and birth).
d) Among these newborn deaths, 90.0 percent take place in developing countries. A mother in western Africa, for example, is 30 times as likely as a mother in Western Europe or North America to lose her newborn in the first month of life.
e) Among the newborn deaths, infections, tetanus, sepsis, pneumonia and diarrhea account 32.0 percent, complications of prematurity explain a further 24.0 percent and birth asphyxia and injuries cause 29.0 percent.
f) An important secondary factor in 40.0 to 80.0 percent of neonatal deaths is low birth weight (a weight less than 2500 gm. at birth).
g) Large number of new born deaths occurs due to lack of immunization, Acute Respiratory Infection (ARI) and diarrhea.
TABLE 1.1
HIGHEST 10 COUNTRIES BY NEO-NATAL MORTALITY RATE
(DEATHS PER 1,000 LIVE BIRTHS)

<table>
<thead>
<tr>
<th>SL. NO.</th>
<th>2000</th>
<th>NO. OF DEATHS</th>
<th>2010</th>
<th>NO. OF DEATHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Sierra Leone</td>
<td>53</td>
<td>Somalia</td>
<td>52</td>
</tr>
<tr>
<td>2.</td>
<td>Mali</td>
<td>52</td>
<td>Mali</td>
<td>48</td>
</tr>
<tr>
<td>3.</td>
<td>Somalia</td>
<td>52</td>
<td>DR Congo</td>
<td>46</td>
</tr>
<tr>
<td>4.</td>
<td>DR Congo</td>
<td>48</td>
<td>Sierra Leone</td>
<td>46</td>
</tr>
<tr>
<td>5.</td>
<td>Angola</td>
<td>47</td>
<td>Afghanistan</td>
<td>45</td>
</tr>
<tr>
<td>6.</td>
<td>Nigeria</td>
<td>46</td>
<td>Central African Republic</td>
<td>43</td>
</tr>
<tr>
<td>7.</td>
<td>Burundi</td>
<td>46</td>
<td>Burundi</td>
<td>42</td>
</tr>
<tr>
<td>8.</td>
<td>Mozambique</td>
<td>45</td>
<td>Angola</td>
<td>41</td>
</tr>
<tr>
<td>9.</td>
<td>Liberia</td>
<td>45</td>
<td>Pakistan</td>
<td>41</td>
</tr>
<tr>
<td>10.</td>
<td>Pakistan</td>
<td>45</td>
<td>Chad</td>
<td>41</td>
</tr>
</tbody>
</table>


The table on 1.1 reveals that the African countries have highest neo-natal mortality. It is also found to be high in Pakistan.
### TABLE – 1.2

**HIGHEST 10 COUNTRIES BY NUMBER OF NEW BORN DEATHS**

<table>
<thead>
<tr>
<th></th>
<th>2000</th>
<th>2010</th>
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<tbody>
<tr>
<td>India</td>
<td>India</td>
<td>India</td>
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<tr>
<td>China</td>
<td>Nigeria</td>
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<td>Nigeria</td>
<td>Pakistan</td>
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<td>Pakistan</td>
<td>China</td>
<td>China</td>
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<tr>
<td>Bangladesh</td>
<td>DR Congo</td>
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<td>Ethiopia</td>
<td>Bangladesh</td>
<td>Bangladesh</td>
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<td>Indonesia</td>
<td>Indonesia</td>
<td>Indonesia</td>
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<tr>
<td>Brazil</td>
<td>Afghanistan</td>
<td>Afghanistan</td>
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<tr>
<td>Afghanistan</td>
<td>Sudan</td>
<td>Sudan</td>
</tr>
</tbody>
</table>


The above mentioned table shows that the new born death is comparatively higher in India than other countries in Asia and Africa. Nearly 3 million babies die every year in their first month of life and a similar number are stillborn. Within the first month, up to one half of all deaths occur within the first 24 hours of life, and 75% occur in the first week. The 48 hours immediately following birth is the most crucial period for newborn survival (WHO, Children: Reducing Mortality, Fact Sheets, 2014).

Key Facts for child mortality are:

a) 6.3 million children under the age of five died in 2013.
b) More than half of these early child deaths are due to conditions that could be prevented or treated with access to simple, affordable interventions.
c) Leading causes of death in under-five children are preterm birth complications, pneumonia, birth asphyxia, diarrhea and malaria. About 45% of all child deaths are linked to malnutrition.
d) Children in sub-Saharan Africa are more than 15 times more likely to die before the age of five than children in developed regions (WHO, 2014).

A child's risk of dying is highest in the neonatal period, the first 28 days of life. Safe childbirth and effective neonatal care are essential to prevent these deaths. 44% of child deaths under the age of five take place during the neonatal period.

Overall, substantial progress has been made towards achieving Millennium Development Goal - 4. Since 1990 the global under-five mortality rate has dropped from 90 deaths per 1000 live births in 1990 to 46 in 2013. But, the rate of this reduction in under-five mortality is still insufficient to reach the MDG target of a two-thirds reduction of 1990 mortality levels by the year 2015.

a) Under-five deaths are increasingly concentrated in sub-Saharan Africa and Southern Asia, while the proportion in the rest of the world dropped from 32% in 1990 to 18% in 2013.
b) Children in sub-Saharan Africa are more than 15 times more likely to die before the age of five than children in developed regions. About half of under-five deaths occur in only five countries: China, Democratic Republic of the Congo, India, Nigeria and Pakistan. India (21%) and Nigeria (13%) together account for more than a third of all under-five deaths.
c) Children are at greater risk of dying before age five if they are born in rural areas, poor households, or to a mother denied basic education.
d) More than half of under-five child deaths are due to diseases that are preventable and treatable through simple, affordable interventions. Strengthening health systems to provide such interventions to all children will save many young lives.

e) Malnourished children, particularly those with severe acute malnutrition, have a higher risk of death from common childhood illness such as diarrhea, pneumonia, and malaria. Nutrition related factors contribute to about 45% of deaths in children under-five years of age (WHO, 2014).

Prior to birth, the mother can increase her child's chance of survival and good health by attending antenatal care consultations, being immunized against tetanus, and avoiding smoking and use of alcohol. At the time of birth, a baby's chance of survival increases significantly with delivery in a health facility in the presence of a skilled birth attendant. After birth, essential care of a newborn should include:

a) Ensuring that the baby is breathing;
b) Starting the newborn on exclusive breastfeeding right away;
c) Keeping the baby warm; and
d) Washing hands before touching the baby.

Identifying and caring for illnesses in a newborn is very important, as a baby can become very ill and die quickly if an illness is not recognized and treated appropriately. Sick babies must be taken immediately to a trained health care provider.

The Millennium Development Goals adopted by the United Nations in 2000 aims to decrease child and maternal deaths worldwide by 2015. The fourth Millennium
Development Goal (MDG) is to reduce the 1990 mortality rate among under-five children by two thirds. Child mortality is also closely linked to MDG 5 to improve maternal health. Since 44% of all child deaths occur within the first month of life, providing skilled care to mothers during pregnancy, as well as during and after birth, greatly contributes to child survival. Member States have set targets and developed specific strategies to reduce child mortality and monitor progress.

1.1.2 MATERNAL AND CHILD HEALTH IN INDIA

Maternal death is defined as the death of women while pregnant or within 42 days of the termination of pregnancy from any cause related to or aggravated by pregnancy or its management. Maternal Mortality Rate in India is remarkably high accounting for almost 20 percent of global maternal deaths. It is only four in Australia and Germany, five in Switzerland but more than hundred times in India (450) as per World Health Statistics 2009. The principal risk factors for dying from pregnancy-related causes are:

a) No attendance at ante-natal care,
b) Too great a distance between the home and the nearest hospital facility,
c) Home delivery,
d) Belonging to specific ethnic/religious group, and
e) Delivery assistance from family members and traditional birth attendance (WHO, 1995).

MMR in India was very high in the year 1990 with 560 women dying during child birth per 100,000 live births, which meant approximately 150,000 women dying every year. The latest available estimate of MMR for the year 2010-2012 is 178 per 100, 000 live births (Registrar General of India, 2013). This translates into
47,000 maternal deaths in India each year. The states of Kerala, Maharashtra, and Tamil Nadu have achieved the MMR level of below 100. Assam continues to be the state with the highest MMR (328), followed by Uttar Pradesh/Uttarakhand (292) and Rajasthan (255) (WHO, 2014).

MDG 5: Improve Maternal Health - Reduce by three quarters between 1990 and 2015, the Maternal Morality Ratio: In 1990, the estimated MMR was 437 per 1,00,000 live births. In order to meet the MDG target, the MMR should be reduced to 109 per 1,00,000 live births by 2015. As per the latest estimates, the MMR status at all India level is at 167 in 2011-2013. As per the historical trend, MMR is likely to reach the level of 140 maternal deaths by 2015 however, assuming the recent sharper decline is sustain, India is likely to be slightly nearer to the MDG target.

The Coverage Evaluation Survey conducted by Government of India and UNICEF in 2009 shows that 76.2% percentage of births were attended by skilled health personnel in 2009. Although, considerable progress has been achieved over the years in improving the proportion of births attended by skilled personnel, India is likely to reach the level of 77.29% vis-a-vis the targeted universal coverage. The latest results of Sample Registration System (SRS) 2013 reveal that, the percentage of live births attended by skilled health personnel (Government hospitals, Private hospital, qualified professional) is 87.1% in 2013, which indicates a better status (Millennium Development Goals, India Country Report, 2015).

In India, an estimated 26 million of children are born every year. As per Census 2011, the share of children (0-6 years) accounts 13% of the total population in the country. An estimated 12.7 lakh children die every year before completing
five years of age. However, 81% of under-five child mortality takes place within one year of the birth which accounts neatly 10.5 lakh infant deaths whereas 57% of under-five deaths take place within the first one month of life accounts 7.3 lakh neo-natal deaths every year in the country (National Health Mission, 2013).

India set a target of bringing down under five mortality to 42/1000 live birth by 2015. Under 5 mortality rate has declined to 49/1000 live births in 2013 (SRS). 11 States have achieved MDG4 (<42 per 1000 live births) namely Andhra Pradesh, Delhi, Himachal Pradesh, Jammu & Kashmir, Karnataka, Kerala, Maharashtra, Punjab, Tamil Nadu, Telangana and West Bengal.

Infant Mortality Rate currently stands at 40/1000 live births (SRS 2013), against the MDG target of 29 /1000 live births by 2015. 15 States/UTs have already achieved MDG 4 (<29 per 1000 live births) namely Kerala, Tamil Nadu, Goa, Andman & Nicobar Islands, Chandigarh, Daman & Diu, Delhi, Lakshadweep, Puducherry, Manipur, Maharashtra, Nagaland, Tripura, Sikkim, Punjab. Further, 13 States/UTs are near to achieving MDG4 namely West Bengal, Gujarat, Karnataka, Jharkhand, Uttarakhand, Himachal Pradesh, Jammu & Kashmir, Dadar & Nagar Haveli, Arunachal Pradesh, Mizoram, Bihar, Haryana, Andhra Pradesh (National Health Mission, 2013).

Reducing child mortality (under-five mortality rate) in between 1990 and 2015 is the major aim of MDG - 4. Less than Five Mortality Ratio (U5MR) was estimated at 125 deaths per 1000 live births in 1990. In order to achieve the target, the U5MR is to be reduced to 42 deaths per 1000 live births by 2015. As per Sample Registration System 2013, the U5MR is at 49 deaths per 1000 live births and as per the historical trend, it is likely to reach 48 deaths per 1000 live births, missing the target narrowly. However, an overall reduction of nearly 60% happened
during 1990 to 2013, registering a faster decline in the recent past, and if this rate of reduction is sustained, the achievement by 2015 is likely to be very close to the target by 2015 (Millennium Development Goals, India Country Report, 2015).

In India, Infant Mortality Rate (IMR) was estimated at 80 per 1,000 live births in 1990. As per SRS 2013, the IMR is at 40 and as per the historical trend; it is likely to reach 39 by 2015, against the target of 27 infant deaths per 1000 live births by 2015. However, with the sharp decline in the recent years, the gap between the likely achievement and the target is expected to be narrowed.

The Coverage Evaluation Survey estimates the proportion of one year old children immunized against measles at 74% in 2009. Although, there is substantial improvement in the coverage which was 42% in 1992-93, yet at this rate of improvement, India is likely to achieve about 89% coverage by 2015 and thus India is likely to fall short of universal coverage (Millennium Development Goals, India Country Report, 2015).

National Policy for Empowerment of Women, 2001 repeats NHP’s demographic goal regarding IMR & MMR to be achieved by:

i) Ensuring equal access to comprehensive, affordable quality health care;

ii) Eliminating all forms of violence against women and girls;

iii) Safeguarding reproductive rights of women;

iv) Ensuring access to safe, effective and affordable family planning methods of their choice; and

v) Making special efforts to address the problem of nutrient deficiencies among women especially pregnant women provision of safe drinking
water, toilet facilities and sanitation within accessible reach of households (Manual on Health Statistics in India, 2015).

Health related Goals for 2010 reveals that:

a) Reduce IMR to below 30 per 1000 live births;
b) Reduce MMR below 100 per 100,000 live births;
c) Achieve universal immunization of children against all vaccine preventable diseases;
d) Achieve 80 per cent institutional deliveries and 100 per cent deliveries by trained personnel; and
e) Achieve universal access to information/counselling and services for fertility regulation and contraception with wide choice (Manual on Health Statistics in India, 2015).

Considering the large number of maternal and child deaths taking place in the country, it is important to understand why these deaths occur. Maternal mortality is a key indicator for maternal health and reveals inequalities between and also within states that cannot be attributed to biological differences alone. Maternal mortality results from multiple reasons, which can broadly be classified as medical, socio-economic and health system-related factors. These conditions are largely preventable and once detected, they are treatable. A significant proportion of maternal deaths are also attributed to ‘indirect causes’, the most common of which are anaemia and malaria. Among children who die before their fifth birthday, almost one third of them die of infectious causes, nearly all of which are preventable.
As per WHO - Child Health Expert Review Group 2012 estimates, the causes of child mortality in the age group 0–5 years in India are: Neonatal causes (52%), Pneumonia (15%), Diarrheal disease (11%), Measles (3%), Injuries (4%), and Others (15%). The major causes of neonatal deaths are prematurity (18%), that is, birth of a child before 37 weeks of gestation, infections (16%) such as pneumonia and septicemia and asphyxia (10%), that is, inability to establish breathing immediately after birth and congenital causes (5%). Social determinants for maternal and child mortality include marriage and childbirth at a very young age, less spacing between births and low literacy level among women, in particular those belonging to the urban poor and rural settings, and socially disadvantaged groups such as scheduled castes and tribes. Access to and use of contraceptives, particularly modern, non-permanent contraceptives, and access to safe abortion services are also factors that influence maternal health and child survival. A large number of maternal and child deaths are attributable to the ‘three delays’:

a) The delay in deciding to seek care,
b) The delay in reaching the appropriate health facility, and
c) The delay in receiving quality care once inside an institution.

The delay in deciding to seek care can occur due to inadequate resources, poor access to high quality health care and lack of awareness of the importance of maternal and newborn health care at the household level. The unavailability of basic reproductive health services, including contraceptives, pre-natal and post-natal care and emergency obstetric and neonatal care, as well as delays in seeking institutional care and the poor quality of care provided in the health facility can potentially contribute to maternal and child deaths.
National data show that 61 per cent of under-five deaths are linked to avoidable factors related to failures of the health system. Furthermore, improving the quality of health services at the primary care level, with timely referral of patients to higher levels of the health system when necessary, is a priority. In order to meet this critical need, the Department of Health has started to re-engineer the primary healthcare system, on the basis of a three-pronged model which includes outreach by ward-based teams of community health workers, strengthened school health services and district-based clinical specialist teams, all focused on improving maternal and child health. UNICEF is providing support to all three streams.

**TABLE 1.3**

<table>
<thead>
<tr>
<th>YEAR</th>
<th>MILESTONES</th>
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<tbody>
<tr>
<td>1952</td>
<td>Family Planning Programme adopted by Government of India</td>
</tr>
<tr>
<td>1961</td>
<td>Department of Family Planning created in Ministry of Health</td>
</tr>
<tr>
<td>1971</td>
<td>Medical Termination of Pregnancy (MTP) Act</td>
</tr>
<tr>
<td>1977</td>
<td>Renaming of Family Planning to Family Welfare</td>
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<tr>
<td>1978</td>
<td>Expanded Programme on Immunization (EPI)</td>
</tr>
<tr>
<td>1985</td>
<td>Universal Immunization Programme (UIP) + National Oral Rehydration Therapy (ORT) Programme</td>
</tr>
<tr>
<td>1992</td>
<td>Child Survival and Safe Motherhood (CSSM) Programme</td>
</tr>
<tr>
<td>1996</td>
<td>Target Free Approach</td>
</tr>
<tr>
<td>1997</td>
<td>Reproductive and Child Health Programme – 1 (RCH - 1)</td>
</tr>
<tr>
<td>2005</td>
<td>Reproductive and Child Health Programme – 2 (RCH - 2)</td>
</tr>
</tbody>
</table>

Source: WHO (2005), Improving Maternal, Newborn and Child Health in the South-East Asia Region, New Delhi.
As per Annual Health Report 2010, Ministry of Health and Family Welfare, Government of India, promotion of maternal and child health has been one of the most important objectives of the Family Welfare Programme in India. Under the National Rural Health Mission (2005-2012) and the Reproductive and Child Health Programme Phase-II (2005-2010), Government of India is actively pursuing the goals of reduction in maternal mortality by focusing on four major strategies of:

i) Essential obstetric and new born care for all,

ii) Skilled attendance at every birth,

iii) Emergency Obstetric Care (EmOC) for those having complications, and

iv) Referral services.

The National Population Policy, 2000 and National Health Policy, 2002 have set the goal of reducing MMR to less than 100 per 100,000 live births by the year 2010.

1.1.3 MATERNAL AND CHILD HEALTH IN TAMIL NADU

In the state of Tamil Nadu in India, maternal and neonatal mortality rates have been declining according to the World Bank. One of the reasons might be due to a component of new health care reforms focusing on educating women about healthy pregnancies. Maternal Mortality Ratio represents the most sensitive and key indicator of women’s health and their status in the society. The Government of Tamil Nadu desires to ensure that all women go through the pregnancy and its outcome with equity, respect, dignity and social justice through better access to quality maternity and child health services especially during pregnancy, child birth and post-partum period.
Tamil Nadu has one of the very low MMR among the major Indian States. In 2013-2014, Tamil Nadu reported 727 maternal deaths amounting to a MMR of 68 per 1,000 live births (Department of Social Welfare and Nutritious Meal Programme, Government of Tamil Nadu).

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NO. OF DEATHS (PER 1000)</th>
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<tbody>
<tr>
<td>2001-2002</td>
<td>145</td>
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<tr>
<td>2002-2003</td>
<td>123</td>
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<tr>
<td>2003-2004</td>
<td>114</td>
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<tr>
<td>2004-2005</td>
<td>109</td>
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<tr>
<td>2005-2006</td>
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<tr>
<td>2011-2012</td>
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<td>2012-2013</td>
<td>73</td>
</tr>
<tr>
<td>2013-2014</td>
<td>68</td>
</tr>
</tbody>
</table>

(Source: State HMIS, DPH and PM)

Infant Mortality Rate is the key sensitive indicator of child health in a country. Tamil Nadu is among the leading states in India when it comes to reducing the Infant Mortality Rate (IMR) - one of the basic yardsticks of healthcare. Over the years, the IMR has been brought down from 48 deaths per 1,000 live births in
1998-99 (National Family Health Survey-2) to 21 deaths per 1,000 live births in 2012 (Sample Registration System statistical report) or half of the national average of 42 deaths. The State ranks as the second lowest among the major States in the country.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF DEATH (PER 1000)</th>
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<tbody>
<tr>
<td></td>
<td>RURAL</td>
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<tr>
<td>1971</td>
<td>127</td>
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<td>2010</td>
<td>25</td>
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<tr>
<td>2011</td>
<td>24</td>
</tr>
<tr>
<td>2012</td>
<td>24</td>
</tr>
</tbody>
</table>

(Source: SRS, Registrar General, India)

Department of Maternal and Child Welfare Centre were established in 1917 under Corporation of Chennai. Field Staff under Family Welfare were posted in the year 1956. Reorganization of family planning programme in 10.02.1967. On 10.02.1988 Maternal Child Health services and Family Welfare Services were
integrated to cater to the needs of 48.7 lakh population in Chennai city under IPP-V project.

The Department of Family Welfare Bureau holds the responsibility to render Maternal and child health and family welfare services by health education and motivation of the people of Chennai City especially urban slum population. Department of Family Welfare Bureau has 93 Health posts and 10 Emergency Obstetric care Units. Health Posts function between 8.00 am and 3 pm except on Sundays and the Emergency obstetric Care function 24 hours on all days. In the last several decades Tamil Nadu has recorded impressive achievements in reducing maternal and infant mortality.

**Strategy Adopted to Improve Maternal and Child Survival in Tamil Nadu**

i) A reporting system was developed, whereby every maternal death occurring in the State would be reported to the Project Director, Reproductive and Child Health Project / Commissioner for Maternal, Child Health and Welfare within twenty-four hours.

ii) To develop 24 Hour Primary Health Centres (PHCs) around the concept of round the clock services.

iii) To monitor the performance of the 1,412 PHCs and develop a feedback mechanism, a Health Monitoring Information System (HMIS) was developed.

iv) This is a capacity building initiative to address the issue of lack of trained anesthetists and obstetricians in public health facilities which has developed into a partnership initiative of private anesthetists and obstetricians to work on an honorarium bases as per the requirement.
v) Improvement of PHCs and Health Sub Centres (HSCs) in conducting deliveries.

vi) Setting up of Central Emergency Obstetric and New Born Care (CEmONC) at least 3 in every district with trained staff nurses, anesthetists, gynecologists and general surgeons.

vii) Introducing a 'Birth Companion Programme' (BCP) to allow a female relative/known neighbor/friend inside the labor room to provide psychological support to the delivering mother.

Tamil Nadu’s effort to ensure safer pregnancy and newborn survival pursues a three-pronged strategy:

   a) Prevention and termination of unwanted pregnancies;
   b) Accessible, high-quality antenatal care and institutional delivery, with routine essential obstetric care and emergency obstetric first aid at the primary level; and
   c) Accessible, high-quality emergency obstetric care at the first referral level.

While Tamil Nadu’s performance over the years in maternal and newborn health is impressive, the state faces a variety of challenges:

   i) Sustaining and even accelerating the momentum gained in the past;
   ii) Overcoming the slow pace, or near stagnation, in the decline of the MMR and the infant mortality rate (IMR) in recent years;
   iii) Focusing attention on neonatal mortality and the high incidence of stillbirths;
   iv) Reducing regional disparities in maternal and neonatal health indicators;
   v) Addressing the high incidence of higher order births in some communities;
vi) Extending emergency obstetric care services to the entire state;
vii) Replicating the innovative initiatives throughout the state;
viii) Placing more emphasis on urban health issues; and
ix) Assuring continued budgetary support.

1.2 OBJECTIVES OF MCH SERVICES

The Maternal and Child Health (MCH) programme is primarily directed at women who are pregnant, in labour or postpartum, and at the newborn, infants, and children. These are part of the basic services that should be made available to women and children. They include the following:

I - Before and During Pregnancy

- Information and services for family planning;
- Antenatal care;
- Tetanus toxoid immunization;
- Advice regarding proper nutrition, breast-feeding, easing discomforts of pregnancy, and place of delivery;
- Early detection and management of problems such as eclampsia/pre-eclampsia, bleeding, miscarriage;
- Detection and treatment of existing diseases such as anaemia, malaria, sexually Transmitted diseases, hookworm infestation, cardio-vascular disease; and
- Sexually transmitted diseases and AIDS awareness.
II - During Delivery

➢ Clean and safe delivery; and
➢ Recognition, early detection and management of complications such as hemorrhage, eclampsia, prolonged/obstructed labour.

III - After Delivery, for the Mother

➢ Promotion, early initiation and support for breast-feeding;
➢ Advice regarding proper nutrition and hygiene;
➢ Management of breast problems;
➢ Recognition and management of postpartum complications such as hemorrhage, sepsis, eclampsia; and
➢ Information and services for family planning.

IV - After Delivery, for the New-Born

➢ Immediate new-born care including basic resuscitation and thermal regulation;
➢ Early and exclusive breast-feeding; and
➢ Prevention and management of infections including opthalmia neonatorum and cord infections.

Child care

➢ Immunization;
➢ Breast-feeding support;
➢ Advice regarding child care and nutrition;
Monitoring of growth and development; and
Management of acute respiratory infections, diarrheal diseases and other common diseases among children.

In short, the main objectives of Maternal and Child Health services are:

a) Reduction of maternal, peri-natal, infant, and childhood mortality and morbidity,

b) Promotion of reproductive health, and

c) Promotion of physical and psychological development of the adolescent within the family.

1.3 REPRODUCTIVE HEALTH AMONG WOMEN

The International Conference on Population and Development (ICPD) 1994, stressed on the importance of women's health especially on reproductive health for overall development. ICPD defined reproductive health as "A state of complete physical, mental and social well-being and not merely an absence in all matters relating to reproductive system and to its functions and processes". ICPD reiterated the need for population-based research on reproductive health.

Following the proposals of ICPD, the Ministry of Health and Family Welfare (MoHFW) of India took the initiative of launching the Reproductive and Child Health Programme in 1997, while addressing the issue of the increasing proportion of child and maternal mortality in India. The RCH programme aimed to provide need based, client centred, high value services with a view to improve the quality of reproductive health and to achieve a stable population growth.
The concept of reproductive health has been defined as “a state in which people have ability to reproduce and regulate their fertility; women are able to go through pregnancy and childbirth safely; the outcome of pregnancy is successful in terms of maternal and infant survival and well-being; and couples are able to have sexual relations free from fear of pregnancy and contracting diseases” (WHO, 1998).

Reproductive health has become a current health line grabber in context of global health development. Reproductive health has both medical and socio-cultural dimensions. Traditionally, reproductive health was considered as matter of medical issue involving top-down intervention frameworks and strategies not like-minded with and responsive to local cultures. It is a recognized fact that provision of medical services only could not alleviate the reproductive health status of women.

The term “Reproductive Health” is most often equated with one aspect of women’s lives; motherhood. Complications associated with various maternal issues are indeed major contributors to poor reproductive health among millions of women worldwide. Half of the world’s 2.6 billion women are now 15-49 years of age. Without proper health care services, this group is highly vulnerable to problems related to sexual intercourse, pregnancy, contraceptive side effects, etc. Death and illnesses from reproductive causes are the highest among poor women everywhere. In societies where women are disproportionately poor, illiterate, and politically powerless, high rates of reproductive illnesses and deaths are the norm. Ethiopia is not an exception in this case.

Women in developing countries and economically disadvantaged women in the cities of some industrial nations suffer the highest rates of complications from
pregnancy, sexually transmitted diseases, and reproductive cancers. Lack of access to comprehensive reproductive care is the main reason that so many women suffer and die. Most illnesses and deaths from reproductive causes could be prevented or treated with strategies and technologies well within the reach of even the poorest countries. Men also suffer from reproductive health problems, most notably from Sexually Transmitted Infections (STIs). But, the number and scope of risks is far greater for women for a number of reasons.

**Development of Reproductive Health Care in various Phases from 1978 to 2006**

a) Before 1978 Alma-Ata Conference - Basic health services in clinics and health centers.
b) Primary Health Care Declaration 1978 - MCH services started with more emphasis on child survival and Family planning was the main focus for mothers.
c) Safe Motherhood Initiative in 1987 - Emphasis on maternal health and Emphasis on reduction of maternal mortality.
d) Reproductive Health, ICPD in 1994 - Emphasis on quality of services, Emphasis on availability and accessibility, Emphasis on social injustice and Emphasis on individual's woman's needs and rights.
e) Millennium Development Goals and Reproductive Health in 2000 - MDGs are directly or indirectly related to health.
f) National Policy on Population, 2000 – It has assigned important role to community based organizations for implementation, monitoring and management of Reproductive and Child Health programme at grass-root level.
g) World Summit 2005 - Declared universal access to reproductive health.
h) The Lancet 2006 - “Sexual and reproductive health is fundamental to the social and economic development of communities and nations, and a key component of an equitable society.”

Components of Reproductive Health Care

i) Effective maternal care to ensure safe motherhood;
ii) Increased access to contraceptive care to prevent unwanted pregnancies;
iii) Legal abortion facilities for safe management of unwanted pregnancies;
iv) Effective nutritional services to vulnerable groups;
v) Prevention and treatment of Reproductive Tract Infection (RTI) and Sexually Transmitted Disease (STD);
vi) Reproductive health services for adolescents;
vii) Prevention and treatment of Gynecological problems including infertility, menstrual disorders and prolapsed uterus;
viii) Screening and treatment of cancers especially that of uterine cervix and breast; and
ix) Increased male participation.

Reproductive health of a couple refers to their ability and choice to reproduce, to control their fertility and to sustain and enjoy their sexual relationship. The component of reproductive health covers family planning and safe motherhood. Reproductive health of a woman has been significantly influenced by her rights, empowerment and gender relations in her community. It is very important to take a critical look at the reproductive health issue in terms of understanding the power structure and gender relations.
Reproductive and child health has been built in the earlier family welfare programme, which in turn was a part of old family planning programme. Under the reproductive and child health programme, the Government is committed to provide a package of reproductive services such as:

a) Safe delivery;
b) Pre and post-natal care;
c) Abortion,
d) Treatment of Reproductive Tract Infections (RTIs) and Sexually Transmitted Diseases (STDs);
e) Counseling on sexuality and responsible parenthood; and
f) Contraceptive services.

As India has undergone demographic transition in the recent past, therefore, strengthening of reproductive and child health services is needed to improve quality of services and increase client satisfaction. The concept of Reproductive and child health was to provide the beneficiaries need based, client centered, demand driven high quality and integrated health services handling the population stabilization. Reproductive and child health in India consist of:

i) Prevention and management of unwanted fertility;
ii) Management of pregnancy and child health;
iii) Prevention and management of Reproductive Tract Infection (RTI) and Sexually Transmitted Disease (STD); and
iv) Child survival through immunization, diarrhea and acute respiratory illness control and care to new born etc.
Women’s poor reproductive health in India is affected by a variety of socio-cultural and biological factors. Underlying poor reproductive health among Indian women is their poor overall status on one hand and an inadequate delivery system to cater to the needs of isolated, shy and devalued women on the other. Thus, efforts to improve women’s education, raise enrolment and attendance rates of girls in schools and reduce the drop-out rate on one hand and enhance women’s income and autonomy on the other are fundamental in the long run, for improvements in women’s and families health, no less important are improvements in equality and extent of services catering to reproductive health needs.

1.4 ANTE-NATAL CARE OR PRE-NATAL CARE

Care of woman during pregnancy is called antenatal care. The aim is to achieve healthy mother and a healthy baby at the end of pregnancy. In recent years there has been a mass reduction in maternal and perinatal morbidity and mortality. The objectives of ante-natal care are:

i) To promote, protect and maintain health of mother during pregnancy,
ii) To detect high risk cases,
iii) To foresee complications and prevent them,
iv) To remove anxiety and dread related to pregnancy and delivery,
v) To reduce MMR and IMR related to delivery,
vi) To teach mother the elements of childcare, nutrition, hygiene, environmental sanitation etc.,
vii) To sensitize mother about family planning, and
viii) To attend the needs of under five children accompanying the mother.
Ante-natal care refers to care provided to women during pregnancy by a medical practitioner or health worker at medical facility or at home. The number of antenatal visits and timing of antenatal checkup is important for the health of the mother and even to the foetus. For proper monitoring of the pregnancy, the first checkup is mandatory, immediately on confirmation or at least before twenty weeks of gestation; a minimum of three check-ups are essential. Ante-natal care can contribute significantly to the reduction of maternal morbidity and mortality because it also includes advice on the correct diet and the provision of iron and folic acid tablets to pregnant women, besides medical care.

Ante-natal care is the health service given to a pregnant mother from the time she recognizes the pregnancy until the onset of labour to keep her and her baby healthy. Ante-natal care is the cornerstone of obstetrics. Though the problems of labour are more dramatic and demand attention, many of them could be avoided by effective detection and management of antenatal variations from the normal. Ante-natal care is the "care before birth" to promote the well-being of mother and foetus, and is essential to reduce maternal morbidity and mortality, low-weight births and peri-natal mortality. However, the content and quality of ante-natal care and the availability of effective referral and essential obstetric care are important for antenatal care to be effective.

Ante-natal care is generally aimed at producing healthy mother and baby at the end of any pregnancy. It presents important opportunities for reaching pregnant women with a number of interventions that may be vital to their health and well-being and that of their infants. The ante-natal care period also provides a forum to supply information which may positively influence maternal and child outcomes. Thus, it has been suggested that the ante-natal care could play a role in reducing maternal mortality rate and that it could ensure that the pregnant
woman delivers with the assistance of a skilled attendant. Most maternal deaths and pregnancy complications can be prevented by quality ante-natal, natal and post-natal care.

The ante-natal period represents an important opportunity for providing pregnant women with interventions that may be vital to their health and well-being and that of their infants. WHO recommends at least four antenatal visits based on a review of the effectiveness of different models of ante-natal care. WHO guidelines are specific on the content of ante-natal care visits that should include at a minimum:

a) Blood pressure measurement.
b) Urine testing for bacteriuria and proteinuria.
c) Blood testing to detect syphilis and severe anaemia, and other conditions as necessary (e.g. human immunodeficiency virus-HIV).
d) Weight/height measurement (optional).

Ante-natal care comprises of a variety of preventive measures during pregnancy including regular check-ups, tetanus toxoid injections, iron and folic acid tablets and educating woman about nutrition, delivery care, and postpartum care. Antenatal care may enable women to have safe delivery even in cases of high-risk pregnancies. The month of pregnancy in which ante-natal care is attended is divided into three trimesters:

a) Those who attended ANC in the first three months of pregnancy is catalogued as under First Trimester,
b) Those who attended ANC in four to six months of pregnancy is included under the Second Trimester, and
c) Those who attended after six months are included under the Third Trimester.

The month of pregnancy in which ante-natal care sought indicates the expectant mother’s consciousness of the need for such care as well as the quantum of services consumed. Those who go early for antenatal care tend to have larger period of ante-natal care and the chance of any complications during delivery can be detected earlier. Important item of ANC services used were:

a) Measurement of weight and blood pressure, consumption of Iron and Folic Acid tablets (IFA),
b) Tetanus Toxoid Injections (TTI), and
c) Abdominal check-up.

Good ante-natal care is the best health insurance for both the unborn baby and the mother. Ante-natal care is important because it:

i) Promotes and maintains good physical and mental health of the pregnant woman. It also helps to ensure that the mother delivers a mature, live and healthy baby.

ii) Helps in the avoidance of hazards (smoking, alcoholism).

iii) Prepares the mother for labour, lactation and subsequent care of her baby.

iv) Helps in early detection and treatment of high risk medical and obstetrical conditions that would endanger the life or impair the health of mother or baby. These high risk conditions include pre-eclampsia, mal-presentation, intrauterine growth retardation, post-maturity, and diabetes.
1.5 NATAL CARE OR CARE DURING PREGNANCY

Natal care is referred to the care given to women during childbirth. Caring for woman in labour demand sensitivity and awareness depends on perceptions of labour and of her needs as they relate to her experience. The place of delivery and assistance during delivery is highly significant as far as the health of the mother and child is concerned. The selection of the delivery place is mostly determined by one's socio-economic status. Generally, community access variables like distance to the health centre, family welfare or health worker visit, access to mass media etc. had an important influence on the utilization of ante-natal, natal, post-natal care.

Complications during pregnancy can adversely affect woman's health or the outcome of pregnancy. Worldwide about 500,000 women die every year from pregnancy and childbirth related causes and most of these deaths occur in developing countries (WHO, 1999). Early identification of pregnancy complications and its timely treatment are the important components of safe motherhood programme. Women's were asked about the pregnancy complications and health problems they experienced during pregnancy and the type of treatment they sought. Incidence of pregnancy complications was assessed by the reported systems associated with the complications viz Anemia, eclampsia, antepartum bleeding etc. The common problems of pregnancy complications are: Swelling, Paleness, Weakness, Dizziness, and Bleeding.

Iron deficiency is the most prevalent nutrient deficiency during pregnancy. According to the literature, anemia, particularly severe anemia, is associated with increased risk of maternal mortality. It also puts mothers at risk of multiple perinatal complications. Numerous studies in the past have evaluated the impact
of supplementation with iron-folic acid and multi nutrient supplements and effectiveness of these interventions on maternal anemia and maternal mortality. The studies have shown that these supplements will help to reduce anemia status and have other benefits for maternal and child nutritional status and birth outcomes.

1.5.1 SCHEDULE OF PREGNANCY CARE

Pregnancy is a natural event in the life of women of reproductive age group. However, during pregnancy and childbirth some problems may arise which can threaten the life of the mother, baby or both. It is possible to identify women with some problems quite early if they have routine ante-natal check-up. This will enable them to access specialist care. Care during pregnancy is important to monitor progress and growth of the baby, detect complications at the earliest and treat them accordingly.

During the visit the woman and her family should be advised about proper nutrition, rest, exercise. They can make plans about where to deliver. This will help both the woman and baby to have a happy and healthy outcome. Minor ailments of pregnancy, that is, vomiting, heart burn, constipation, backache etc. are looked after during ANC. The schedule of pregnancy care is given below (Kathryn Leggitt, 2009):

**8-12 Weeks** – This is the initial prenatal visit. A health history is taken, and a physical exam, including a pelvic exam is done. Lab work is completed, including the blood type and hemoglobin, sexually transmitted infection screening, a urine test, and a PAP test. PAP test is a test of a sample of cells taken from a
woman's cervix or vagina. The pregnant woman may be able to hear the baby's heart beat at this visit.

**Optional Genetic Counseling Visit** - This is commonly offered to women over the age of 35, or women who have a family history of genetic problems, but it is increasingly being offered to every woman.

**First Two Trimesters** – Pre-natal visits continue every 4-6 weeks through the first two trimesters or until 28 weeks along. At each appointment, the care provider will weigh and take blood pressure, listen to the baby's heartbeat, and measure the growth of the uterus and baby. Some providers check the urine for protein and sugar at each visit.

**15 to 20 Weeks** – The pregnant woman will be offered the Quad Screen test, which screens for genetic and spinal cord abnormalities. They may also be offered an ultrasound between 18 and 20 weeks to view the baby's organs, and measure the growth of the baby and the placenta.

**27 or 28 Weeks** – The pregnant woman will be encouraged to take a glucose challenge test to screen for gestational diabetes. Hemoglobin may also be rechecked. Some providers do a pelvic exam. Expect to review warning signs of late pregnancy that would alert to preterm labour or high blood pressure.

**28 to 36 Weeks** - After 28 weeks, prenatal visits continue every 2-3 weeks until 36 weeks. The Doctor or Midwife will continue to record the growth of the baby, listen to the baby's heartbeat, and will check the position of the baby.
36 Weeks - At this visit, the Midwife or Doctor will do a pelvic exam, and encourages the pregnant woman to have a Group B Strep test. Screening tests for sexually transmitted infections may be repeated at this visit. The position and size of the baby are estimated. If the baby is not Head down, the provider may suggest exercises to encourage the baby to turn, or suggest a physical manipulation called external version. The risks and benefits of this procedure should be carefully explained.

36 to 40 Weeks - The usual monitoring of the weight and blood pressure, and the baby's size, position, and heart rate are done. The care provider may offer to check the cervix for dilation.

40+ Weeks - After the due date, the care provider may offer what is called "post-dates" testing, including non-stress tests, ultrasound, and biophysical profiles. Some providers start at 40 weeks, others not until 10 days past the due date.

1.5.2 CHECK-UP AND CARE DURING PREGNANCY

i) During the first check-up the complete history of this pregnancy and previous pregnancies, if any and whether the woman has had any medical/surgical problem in the past are taken.

ii) The ANM will weigh the woman to see whether the woman is gaining adequate weight during pregnancy, and also check blood pressure (using a balloon-like instrument), and see whether it is normal or not.

iii) Breast examination to check whether breasts and the nipples are normal will be carried.

iv) Abdominal examination will be done to know the growth/position of the baby.
v) A simple blood test will be done to see if the woman is anaemic (lacks blood) and if so, the severity. If the woman has anaemia, prompt treatment will help prevent complications.

vi) Urine examination.

vii) TT Injection.

viii) During repeated visits, details of any problem appearing since last visit will be taken care of. BP, weight, and abdominal examination will be repeated.

ix) Iron tablets will be given to all pregnant women and also treatment for anaemia depending upon the blood test results.

x) By carrying out a complete pregnancy check-up, the ANM would be able to detect problems and decide on referring the woman to a doctor.

The following items are what the pregnant should eat and what they should not

As it has been strictly prescribed by doctors that intake of Vitamin A must be controlled because it may cause damage to the embryo.

i) A balanced diet pattern should be followed rather than eating the same vegetable every day. Cabbage, Cauli-flower and all long green vegetables such as Tondali, Turai, Louki, Parwal, Spinach, and Govari should be used alternately.

ii) Vegetables like Brinjal, Suran/yam, Papaya, Celery, Onion, Chilli, Garlic, Ginger, etc. and spices like Pepper, Asfoetida, Mustard, Bajara, Carom Seeds, etc. and Jaggery should be reduced. Mothers who have a previous history of abortion should avoid these.
iii) Those who suffer from constipation, gas, bloating must avoid Peas and other cereals and Potatoes. They must take Green Gram as it is easy to digest and also gives protein. Black Grapes, Banana, ripe Mango, Dates, Cashew nuts, Apricot are very beneficial.

iv) Butter, clarified Butter, Milk, Honey, Fennel Seeds, and Sweets made from Jaggery rather than white sugar can be taken in small quantities.

v) Rice, Murmured, Pulao, Bhakari, Khichri, Chapati, Paratha, Gujarati thepla are the items made from wheat and rice, which are quite beneficial.

vi) Items such as Sandwich, Bakery Bread, Bun, Dhokla, Pizza, Handva, Pancake, Khaman, steamed Rice Cake, Curd, Tomato, Tamarind, Kadhi usually increase the swellings and acidity. Such items must be avoided. If the mother does not face the above mentioned problems, she can take the above mentioned food products in small quantities.

vii) Indian women try to carry out fasts during pregnancy which is not good for their health.

viii) Left over, frozen and deep-frozen food should not be taken.

ix) Cold drinks, Mutton, Cocoa, Chicken, Eggs, Alcohol, Smoking, Tobacco, Betel Nut, and Pan-Masala etc. should be avoided, but Tea, Coffee and Ice-Creams can be taken in small quantities.

x) It should be remembered that the baby inside depends on the mother for proper nutrition. So if healthy and balanced diet is taken, healthy children will be born.

xi) During pregnancy the mother must focus on supplemental nutrients to maintain a balanced and nutritious diet.

xii) She must get a list of healthy Indian foods and meal planning tips from the doctor to eat well during pregnancy (Indian Food Forever, 2016).
1.5.3 CONDITIONS NEED TO GO TO MEET DOCTOR DURING PREGNANCY

The pregnant women should meet the doctor frequently under the following conditions:

a) Repeated neo-natal deaths, stillbirths, premature births or repeated abortions.
b) Vaginal bleeding during present pregnancy.
c) High blood pressure or abnormal urine test.
d) If the woman’s previous delivery was through abdominal operation or she has had some other abdominal operation in the past.
e) The woman has heart disease, anaemia, high blood pressure, jaundice etc.
f) Very big size of abdomen.
g) Twins.
h) Baby is upside down or in abnormal position inside the uterus.

1.5.4 HOME CARE DURING PREGNANCY

The pregnant women must be given due care in the family. The home during pregnancy is:

a) The woman’s family and community have the key responsibility for making sure that the woman gets more food, takes rest and does not have to do heavy manual work during pregnancy.
b) The pregnant woman needs extra energy from food, for the sake of her own health, for the growing foetus and for effective breastfeeding later on.
c) During pregnancy a nutritious diet which is rich in iron, calcium and protein is required. For this, a pregnant woman should eat greener, leafy vegetables like palak and sarson, dals, milk, jaggery, eggs, fish, meat, etc. Taboos and restrictions on a pregnant woman’s diet, such as not allowing certain vegetables, fruits, milk and ghee might in fact harm her and the baby.

d) Pregnant women are entitled to get food from the anganwadi centre.

e) A pregnant woman should not fast. This deprives her and the growing baby inside the uterus.

f) Pregnant women should not carry out heavy manual labour, like working on construction sites, famine relief, brick kilns, etc. Other members of the family and community should help to reduce her work burden.

g) Pregnant, adolescent girls are likely to be under-nourished and are more likely to suffer problems during delivery. They need extra nutritious food and help for safe delivery at a health facility.

h) Sometimes there are overweight pregnant women who need to avoid eating fat-rich food like oil, ghee, sugar, etc. but they should continue to eat vegetables, fruits, nuts and milk which are rich in iron, calcium, vitamins and minerals. They should also take regular exercise and consult a Doctor.

1.5.5 ANAEMIA IN PREGNANCY

Lack of blood in the body is known as anaemia. It is very common in our country. The causes for anaemia in women are:

i) Low bio-availability of iron in food;

ii) Inadequate intake of iron rich foods;
iii) Excess consumption of coffee/tea;
iv) Chronic infections like malaria, TB;
v) Inadequate intake of foliate;
vi) Inadequate intake of Vitamin B12;
vii) Worm infestation; and
viii) Menstrual loss of blood.

Anaemia in pregnancy leads to complications in pregnant women and can even result in the death of mother and baby. Anemia in pregnant women is a major contributor to mothers’ deaths. Half of the pregnant women have anemia. Some of them are very pale. Anaemia can be prevented and treated completely if the woman follows the advice of ANM/Doctor:

a) Anaemia is treated with iron tablets, which have to be taken daily for many months during pregnancy or by giving injections. If the anaemia is severe, hospitalization and blood transfusion may be required.
b) To prevent anaemia, all pregnant women need to take one iron tablet daily, starting after three months of pregnancy. In this way, she must take 100 tablets.
c) While giving iron tablets, the woman should be advised that some side effects might occur. However, they can be managed in the following ways:
   - Nausea or occasional vomiting – this can be prevented/avoided by taking the tablet after meals.
   - Constipation – this can be managed if the woman drinks more water and eats fruits.
1.5.6 MALARIA IN PREGNANCY

Malaria is a serious illness, particularly for pregnant women. It can result in severe illness or death and affect both the mother and unborn baby. Malaria is spread by mosquito bites and is most common in tropical countries. Malaria during pregnancy might be fatal for the woman and may cause abortion, stillbirth, low birth weight babies or premature labour.

Malaria is more dangerous to women because the parasites cause a pregnant woman to become weak and anaemic. Malaria in pregnancy can cause a wide range of effects. It affects not only the pregnant mother during and after pregnancy but also the unborn and newborn baby. The following are some of the effects of Malaria:

**To unborn baby**

a) Abortion (miscarriage);
b) Still birth (baby born dead);
c) Preterm delivery (delivery before 37 weeks); and
d) Interference with the normal growth of the baby resulting in low birth weight, which is a risk factor for mental disability and newborn mortality (Wiki Educator, 2007).

**Severe malaria may result in**

a) Anaemia of varying degrees sometimes severe;
b) Coma;
c) Convulsions;
d) Renal failure; and  
e) Pulmonary oedema.  
All the above are a risk factor during delivery (Wiki Educator, 2007).

Management of Simple Malaria in Pregnancy

A pregnant mother can have Malaria parasites and not show any signs of the illness. However, simple Malaria in pregnancy present with fever which may be mild and may sometimes be accompanied by any of the following signs and symptoms (Wiki Educator, 2007):

a) Backache;  
b) Weak labour like pains;  
c) Nausea;  
d) Vomiting;  
e) Diarrhea;  
f) Headache; and  
g) Body weakness.  
All pregnant mothers should be given awareness on Malaria during their routine visits to the antenatal clinic. The pregnant mother must also be aware of the following information:

i) Malaria is caused by a parasite transmitted by Anopheles mosquito;  
ii) If a pregnant woman has Malaria, the parasites invade the blood, liver as well as the placenta;
iii) The unborn baby is affected by malaria because the Malaria parasites interfere with the normal functioning of the placenta. This can result in abortions, missed abortion and low birth weight babies;

iv) Malaria is even more dangerous for women when they are pregnant because it can develop complications such as anaemia, which put the life of the mother and baby at risk;

v) Pregnant mothers should come to the health facility immediately for treatment; and

vi) They should share correct information on Malaria with other pregnant women in the community and inform them to seek early medical attention.

1.6 POST-NATAL CARE

Post-natal care is the service given to the mother and the baby in the first six weeks after delivery. These six weeks constitute the postnatal period. During the post-natal period, the organs related with child bearing return to their pre-pregnancy state. Generally, post-natal care is provided for the following reasons:

a) To find out whether the mother’s reproductive organs have returned to their pre-pregnancy state;

b) To check the mother’s condition; and

c) To check the baby's condition.

Post-natal period is the period of six weeks immediately after delivery, which is important both for the mother and the newborn. Aims of Post-natal care:

i) To promote the physical well-being of the mother and baby,

ii) To ensure that the physiological changes are occurring normally,
iii) To help the mother to establish a satisfactory routine feeding and to develop a relationship with her baby, and
iv) To teach baby care and strengthen the woman's confidence in herself.

Post-natal care covers the health check-up of the mother and child and treatment of all post-delivery complications. The utilization of postnatal care varies according to the socio-economic status of the woman households. Most of the very low class women utilized postnatal care only if they get any postnatal delivery complications. At the same time, most of the upper class and upper middle class women had gone for health check-up even if the delivery is normal. It was observed that utilization of maternal health services is higher among the upper class sections of the community.

The majority of maternal and newborn deaths occur within a few hours after birth, mostly within the first 48 hours. Deaths in the newborn period (first 28 days) are a growing proportion of all child deaths. Postnatal care contacts, especially within the first few days following birth, are a critical opportunity for improving maternal and newborn health and survival and for provision of information about birth spacing.

**Care during post-natal period**

a) During post-natal period, a woman requires nutritious and balanced diet, which is rich in iron, calcium, vitamins and proteins. She should increase her intake of green leafy vegetables, pulses, jaggery, etc. and eat to her satisfaction. She should also take more milk during this period.

b) Under nourished women are given supplementary food from Anganwadi Centre by AWW. Ensure that they do come and receive it.
c) It is important to give information about different contraceptive methods, which a couple can use during the post-partum period. A woman can have sex after six weeks.

1.7 NEW BORN CARE OR NEO-NATAL CARE

Neo-natal means ‘new born’. Every newborn needs certain essential elements of care immediately after birth and within the first 28 days of life, irrespective of mode of delivery/weight of baby. It is important because for every 10 babies who die during the first year, five babies die in the first 28 days of their life. There are four levels of care:

**Intensive care** - Provided for babies who have serious problems, who are very pre-mature (those born more than three months early) and/or have an extremely low birth weight (birth weight less than 1500 grams).

**High dependency care** - Provided for babies with less serious problems but who still need a great deal of observation and support and for those who are recovering from critical illness.

**Low dependency** - Provided for babies who do not require continuous observation and/or who are stable and growing.

**Transitional care** - Provided for babies who need some medical treatment but who are well enough to be cared for at their mother’s bedside.
Four basic needs of all newborns:

i) To breath normally,
ii) To be protected,
iii) To be warm, and
iv) To be fed.

Essential Newborn Care Interventions:

i) Clean childbirth and cord care - Prevent newborn infection;
ii) Thermal protection - Prevent & manage newborn hypo/hyperthermia;
iii) Early and exclusive breastfeeding - Started within 1 hour after childbirth; and
iv) Initiation of breathing and resuscitation - Early asphyxia identification and management.

1.7.1 SKIN TO SKIN CONTACT

The instruction for skin to skin contact is provide privacy to the mother. Request the mother to sit or recline comfortably. Undress the baby gently, except for cap, nappy and socks. Place the baby prone on mother’s chest in an upright and extended posture, between her breasts, in skin-to-skin contact; turn baby’s head to one side to keep airways clear. Cover the baby with mother’s blouse, ‘pallu’ or gown; wrap the baby-mother together with an added blanket or shawl.

a) When the skin-to-skin contact is not possible clothe the baby in one or two layers (in summer), three-four layers (in winter) and cover the head & feet with cap and socks respectively. Let the baby and mother lie together on
soft, thick bedding and cover them with additional quilt, blanket or shawl in winter.

b) The baby should not be given bath immediately after birth.

c) Advise the family that baby should be referred immediately to First Referral Unit (FRU) if the baby has any of these signs:

- Poor sucking of breast,
- Becomes sicker,
- Develops fever,
- Fast breathing,
- Difficulty in breathing,
- Blood in stool,
- Pallor of palms/soles,
- Blue palms/soles,
- Abnormal movements (convulsions),
- Remains excessively drowsy or cries incessantly,
- Develops yellow staining of the palm and soles,
- Feels cold or hot to touch,
- Bleeding from any site,
- Abdominal distension,
- No meconium passed within 24 hours of birth, and
- No urine passed in 48 hours. (ASHA, Maternal and Child Health, 2006).

1.7.2 NEW BORN CARE DURING REFERRAL

a) Mother should accompany the baby;

b) Fastest mode of transport should be used;
c) Baby should be kept warm, keep with mother whenever possible during referral; and
d) Breast-feed whenever possible.

1.7.3 WEIGHING THE BABY

An average term newborn weighs 3.5 kg (range 2.5 kg - 4.6 kg). The birth weight must be plotted in the first box of the growth chart and recorded in the appropriate space on the growth chart. The birth month should be written in the first box of the growth chart. Within the first 3-4 days, a term newborn loses 5-10 % of the birth weight. This weight loss is usually regained in 2 weeks by term babies and longer by premature babies. An average term baby doubles the birth weight in 4-6 months, triples it by one year and quadruples it by two years of age (Wiki Educator, 2008).

<table>
<thead>
<tr>
<th>AGE (YEARS)</th>
<th>WEIGHT (Kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Birth</td>
<td>2.35 Kg</td>
</tr>
<tr>
<td>6 Months</td>
<td>7.0 Kg</td>
</tr>
<tr>
<td>1 Year</td>
<td>10.0 Kg</td>
</tr>
<tr>
<td>2 Years</td>
<td>12.0 Kg</td>
</tr>
<tr>
<td>3 Years</td>
<td>14.0 Kg</td>
</tr>
<tr>
<td>4 Years</td>
<td>16.0 Kg</td>
</tr>
<tr>
<td>5 Years</td>
<td>18.0 Kg</td>
</tr>
</tbody>
</table>

(Source: Wiki Educator, Growth and Development, Lesson 5, February, 2008)
Low birth weight can be due to:

i. Prematurity;
ii. Small size of the mother. If a mother is short (height < 150cm ) and weighs less than expected, she is likely to have a baby with low birth weight;
iii. Poor nutritional status of the mother leading to Protein-Energy Malnutrition;
iv. Anaemia;
v. Unregulated fertility (too many and too closely spaced births);
vi. Twins;
vii. Congenital malformations;
viii. Chromosomal abnormalities;
ix. Maternal Infections (malaria, tuberculosis, urinary tract infection);
x. Congenital infections (cytomegalic inclusion virus, rubella, syphilis);
xii. Maternal cigarette smoking and alcoholism; and
xiv. Pregnant mothers doing manual labour in the fields until very late in pregnancy (Wiki Educator, 2008).

Birth weight is an important risk factor for child survival as children with low birth weight (LBW) are more likely to have impaired growth, higher mortality and risk of chronic adult diseases. The LBW is also a strong predictor for size in later life as most of these babies have intrauterine growth retardation, and they seldom catch-up with normal size during childhood. In India, 22% babies born each year have LBW, which has been linked to maternal under-nutrition and anaemia among other causes. The mother’s condition before pregnancy is a key
determinant of its outcome; half of adolescents (boys and girls) have below normal Body Mass Index (BMI) and almost 56% of adolescent girls aged 15–19 years have anaemia (Ministry of Health and Family Welfare, Government of India, 2103).

A major outcome of inadequate maternal nutrition is low birth weight babies, infant weight below a viable 2.5 kilograms. The incidence of this problem continues to be extremely high in India. While an average estimate for the country as a whole is 'over one third'. Birth weight trends serve as important indicators of health status of a community. Birth weight is one of the aspects suggested by WHO as an index to monitor progress towards health for all. Per capita income of household is an important determinant in influencing the problem of underweight. The birth weight below 2.5kgm is treated as underweight children.

The problem of underweight is due to low calorie intake of the mother during pregnancy period and low intake of food due to poverty resulting from low per capita income of the family. The problem of malnutrition and poverty resulting from low per capita income is responsible for the underweight children in the urban and slum areas of the country. Such children require high level of health services in the childhood to survive and to protect from different illness due to ill health and low immunization power. Thus, per capita income is an important determinant of health services utilization on the part of children and other members of the family. The underweight problem is an important indicator to be taken into account for improving the health status of the children. This phenomenon is mainly due to lack of proper nutrient food on the part of mother during pregnancy, adolescent pregnancies (common in slums) and lack of full-fledged antenatal care services.
1.8 IMMUNIZATION

Immunization is one of the most well-known and cost effective methods of preventing diseases. Though most of the Vaccine Preventable Diseases (VPDs) are controlled by now, immunization has to be sustained, not only to prevent VPDs, but also:

i) To eliminate Tetanus,
ii) Reduce the incidence of Measles, and
iii) Eradicate Poliomyelitis.

The expanded programme on immunization was initiated by the Government of India in 1978 with the objective of reducing morbidity, mortality and disabilities from six preventable diseases namely tuberculosis, diphtheria, Pertussis, tetanus, poliomyelitis and measles, by making free vaccination services easily available to all eligible children. The Government of India introduced Universal Immunization Programme (UIP) in 1985-86 with the following objectives: to cover at least 85 per cent of all infant against the six vaccine preventable diseases by 1990 and to achieve self-sufficiency in vaccine production and the manufacture of cold-chain equipment (MHFW, 1991).

The Universal Immunization Programme has been introduced in every District of the country and the target now is to achieve 100 per cent immunization coverage. Pulse polio immunization campaigns began in December 1995 as part of a major national effect to eliminate Polio.
1.8.1 SIX VACCINES PREVENTABLE DISEASE

Immunization of children against the vaccine preventable diseases has been the important part of child healthcare programme in India. The main objective of the National Health Policy regarding immunization is to reduce morbidity, mortality and disabilities. The six vaccine preventable diseases are:

i) DPT Immunization
ii) Tetanus
iii) Poliomyelitis
iv) Diphtheria
v) Pertussis (whooping cough)
vii) Measles and Childhood tuberculosis

Many serious germ diseases in children can be prevented by immunization vaccines:

a) BCG prevents Lung TB.
b) OPV (Polio dose) prevents Polio.
c) DPT protects the child from Diphtheria, whooping cough and Tetanus.
d) Measles vaccine prevents measles.
e) Vitamin A doses protects children from night blindness and also boosts child's immunity against germs.

Immunization boosts body’s fighting power against diseases caused by germs. Vaccines need cold storage during transportation to retain their power. Child gets fever after DPT injections. This can be treated with ‘Paracetomol’ tablet or liquid.
1.8.2 NATIONAL IMMUNIZATION SCHEDULE FOR CHILDREN AND PREGNANT WOMEN

India has one of the largest immunization programmes in the world targeting 2.6 crore newborns for vaccination each year. Universal Immunization Programme includes vaccines to prevent seven vaccine preventable diseases (Tuberculosis, Polio, Diphtheria, Pertussis, Tetanus, Measles, and Hepatitis B). India has been declared ‘polio free’ since January 2011. However, a high level of vigilance has to be maintained in the light of a constant threat of the import of polio virus from neighbouring countries. This includes maintaining high vaccination coverage levels among children with at least three doses of Oral Polio Vaccine (OPV); administering supplementary doses of OPV to all children younger than 5 years during National Immunization Days; mopping up vaccination campaigns if a polio case occurs and maintaining a good surveillance system.

Diphtheria, tetanus, and pertussis are serious diseases. Although vaccine is preventable, these diseases cause a substantial global disease burden, particularly in low and middle-income countries and among children under five years of age. As recommended by WHO the immunization programmes is conducted to cover the following infectious diseases:

i) Diphtheria
ii) Pertussis
iii) Tetanus
iv) Hepatitis B
v) Polio
vi) Measles
vii) Tuberculosis
viii) German measles and mumps

Vaccines are provided from different sources such as Ministry of Health, UNICEF and WHO. Almost all these immunization is provided free of cost from the Government health centres, and if the mothers are alert then the chance of missing any dose of immunization is very rare. Immunization is a way of protecting the human body against infectious diseases through vaccination.

Immunization prepares our bodies to fight against diseases in case we come into contact with them in future. Babies are born with some natural immunity which they get from their mother and through breast-feeding. This gradually wears off as the baby's own immune system starts to develop. An immunized child gets extra protection against illnesses.

A child who is less than 70 per cent of the expected weight for height is classified as severely wasted. It is associated with acute under-nutrition, infections (tuberculosis, diarrhea) and nutrient loss. Its incidence peaks at about 10-12 months leading to an increased risk of mortality and morbidity. The following schedule recommends that the vaccinations should start when the baby is 45 days old. The vaccines must be given at the right age, right dose, right interval and the full course must be completed to ensure the best possible protection to the child against these diseases. The schedule that tells us when and how many doses of each vaccine are to be given is called immunization schedule.
TABLE 1.7
IMMUNIZATION SCHEDULE OF PREGNANT WOMAN

<table>
<thead>
<tr>
<th>NAME OF VACCINE</th>
<th>WHEN TO GIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>TT – 1 or Booster</td>
<td>Early in Pregnancy</td>
</tr>
<tr>
<td>TT – 2</td>
<td>4 Weeks after TT - 1</td>
</tr>
</tbody>
</table>

TABLE 1.8
IMMUNIZATION SCHEDULE OF INFANT

<table>
<thead>
<tr>
<th>NAME OF VACCINE</th>
<th>WHEN TO GIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCG</td>
<td>At Birth or Any Time up to One Year</td>
</tr>
<tr>
<td>Polio - 0</td>
<td>At Birth (if Delivery is in Institution)</td>
</tr>
<tr>
<td>Polio -1+DPT</td>
<td>6 Weeks</td>
</tr>
<tr>
<td>Polio - 2+DPT</td>
<td>10 Weeks</td>
</tr>
<tr>
<td>Polio - 3+DPT</td>
<td>14 Weeks</td>
</tr>
<tr>
<td>Measles + Vitamin A (1ml)</td>
<td>9 Months</td>
</tr>
<tr>
<td>1st Booster DPT &amp; Polio + Vitamin A 2ml</td>
<td>18 Months</td>
</tr>
<tr>
<td>Vitamin A 2ml</td>
<td>24 Months</td>
</tr>
<tr>
<td>Vitamin A 2ml</td>
<td>30 Months</td>
</tr>
<tr>
<td>Vitamin A 2ml</td>
<td>36 Months</td>
</tr>
</tbody>
</table>

Tamil Nadu started Immunization programme against these six Vaccine Preventable Diseases during 1978. In order to strengthen the Programme, Universal Immunization Programme (UIP) was launched during 1985 with the aim of achieving 100% coverage of Infants and Pregnant women. Annually, around
12.0 lakhs pregnant women and 11.0 lakhs infants are being targeted under Immunization programme. The State has reported more than 95% coverage over the years. Pulse Polio Immunization campaign was introduced in the year 1995-96. The State had so far conducted 19 series of Pulse Polio Immunization campaign covering 70 lakhs Children under the age of 5 years by administering 2 doses of Oral Polio Vaccine in each round.

1.9 MOTHER AND CHILD HEALTH INDICATORS

According to WHO, Indicators are variables that help to measure changes, directly or indirectly. In other words, indicators are variables that indicate or show a given situation, and thus can be used to measure change. As far as mother and child health is concerned, there are two main types of indicators:

a) Mortality and morbidity indicators; and
b) Coverage indicators.

**Mortality Indicators**

i) Under-five mortality rate;
ii) Infant mortality rate;
iii) Neonatal mortality rate;
iv) Maternal mortality ratio;
v) Maternal mortality rate; and
vi) Life-time risk of maternal death.
**Morbidity Indicators**

i) Proportion of children 0-5 years who suffered an episode of diarrhea in the last 2 weeks;

ii) Proportion of children 0-5 years who suffered an episode of cough or difficult breathing in the last 2 weeks; and

iii) Proportion of children 0-3 years with weight for age (underweight) less than – 2 Standard Deviation (SD).

**Coverage Indicators**

i) Children 12-23 months received primary doses of immunization against six vaccine preventable diseases;

ii) Children under five years of age with Acute Respiratory Infection (ARI) and fever taken to facility;

iii) Children under five years of age with diarrhea who received Oral Rehydration Therapy (ORT);

iv) Children under five years of age who received treatment with any antimalarial;

v) Children 6-59 months of age who received vitamin A supplementation; and

vi) Births by Caesarean section.

**World Health Organization Indicators**

By 2012, 11 indicators on reproductive, maternal and child health, disaggregated for gender and other equity considerations, are being used for the purpose of monitoring progress towards the goals of the Global Strategy. The 11 indicators of maternal, newborn and child health are given below:
a) Maternal mortality ratio;
b) Under-five child mortality, with the proportion of newborn deaths;
c) Children under five who are stunted;
d) Proportion of demand for family planning satisfied (met need for contraception);
e) Antenatal care coverage (at least four times during pregnancy);
f) Antiretroviral (ARV) prophylaxis among HIV positive pregnant women to prevent HIV transmission and antiretroviral therapy for [pregnant] women who are treatment-eligible;
g) Skilled attendant at birth;
h) Postnatal care for mothers and babies within two days of birth;
i) Exclusive breastfeeding for six months (0–5 months);
j) Three doses of combined Diphtheria-Tetanus Pertussis (DTP3) immunization coverage (12–23 months); and
k) Antibiotic treatment for suspected pneumonia.

1.10 MOTHER AND CHILD HEALTH FINANCIAL ASSISTANCE SCHEMES IN TAMIL NADU

Dr. Muthulakshmi Reddy Maternal Benefit Scheme - Muthu Lakshmi Reddy Maternity Benefit Scheme fund is enhanced to Rs.12, 000/- (Rupees Twelve Thousand).

Selection/Eligibility Criteria

➢ The pregnant mother should be of age 19 years and above.
➢ The pregnant woman should be in the Below Poverty Line (BPL) Group.
➢ This cash assistance will be given to every pregnant woman:
- Who avails all required Antenatal services during pregnancy in concerned PHC;
- Mother who delivers in the Government institutions (Primary Health Centre, Government Hospitals, Government Teaching Institutions); and
- Completion of immunization for the child up to 3rd dose of DPT / Pentavalent / Hepatitis-B / Polio.

**Conditions for Release of Funds**

*For the release of 1st Installment during 7th month of pregnancy*

- Beneficiary should have minimum 3 Anti-Natal visits at concerned PHC;
- Beneficiary should have availed:
  - TT immunization
  - Blood grouping and typing
  - Hb% level Measurement
  - Weight Measurement
  - Blood Pressure Recording
  - One Obstetrics Ultrasonogram done (Scan)
  - Testing for HIV at the time of early AN registration
- Every visit Weight, Blood Pressure, HB status should be checked.

*For the release of 2nd Installment*

- Delivery should be in Government Institutions (Primary Health Centre, Government Hospitals, and Government Medical College Hospitals in Tamil Nadu).
**For the release of 3rd Installment**

- Will be given to the mother on completion of third dose of DPT/ Hepatitis - B and Polio / Pentavalent vaccine for the child as per the time schedule.

**Janani Suraksha Yojana (JSY)**

Janani Suraksha Yojana (JSY) is a safe motherhood intervention under the National Rural Health Mission (NRHM). Janani Suraksha Yojana was launched in 2005. The scheme is under implementation in all States and Union Territories (UTs), with a special focus on Low Performing States (LPS). The scheme focuses on poor pregnant woman with a special dispensation for states that have low institutional delivery rates, namely, the states of Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Assam, Rajasthan, Odisha, and Jammu and Kashmir. While these States have been named Low Performing States under the scheme, the remaining States/UTs have been named High Performing States (HPS).

The main objective of the JSY is to reduce maternal and neo-natal mortality. It tries to achieve this by promoting institutional delivery, making available quality maternal care during pregnancy, delivery and in the immediate post-delivery period along with appropriate referral and transport assistance. The scheme is sponsored fully by the Central Government. The JSY is a conditional cash transfer scheme. The woman is paid money if she delivers her baby in a medical facility in Government health centres like Sub-Centers (SCs), Primary Health Centers (PHCs), Community Health Centers (CHCs) or General Wards of District or State hospitals, Government Medical Colleges or Accredited Private Institutions.
Sivagami Ammaiayar Memorial Girl Child Protection Scheme (Family Planning After Two Female Children)

Sivagami Ammaiayar Memorial Girl Child Protection Scheme is meant for financial assistance to the girl children in poor families. It is a State sponsored programme under the control of Department of Social Welfare and Nutritious Meal Programme. This scheme has validity up to 31st December, 2020.

Eligibility Criteria

- The family income should be below Rs.50,000/- per annum.
- Application should be made before the beneficiary girl child completes 3 years of age.
- Either of the parents should under gone sterilization within 35 years.
- Family should have only one or two female children and no male child.
- In future no male child should be adopted.

Funding Pattern

- **Scheme - I** Rs.22, 200/- Fixed Deposit Receipt is given in the name of girl child for the family which has only one girl child.

- **Scheme - II** Fixed Deposit Receipt for Rs.15, 200/- for each girl child where the family has two girl children only.

- An amount of Rs.150/- as monthly incentive shall be given to the girl child on completion of 5 years from the date of deposit and up to 20th year of deposit for her educational purpose.
Amma Baby Care Kit

Tamil Nadu has launched the Amma Baby Care Kit scheme on 7th September 2015 wherein the State Government will provide accessories for the newborn and its mother. These accessories include a towel, a mosquito net, an infant mattress, an infant dress, napkin, oil bottle (100ml), baby shampoo (60 ml), a soap with a box, a nail-cutter, Kilu Kiluppai (rattle toy), a doll, and a hand sanitizer (250ml).

The kit will also contain a locally made stimulant Sowbhagya Leghyam for the mother besides, a box to store essentials meant for the newborn. With 16 items inside it, the cost of the kit has been pegged at 1000 rupees. In the current year, a sum of 67 crore rupees has been earmarked for the scheme with a plan to provide it to mothers at the Government hospitals. The scheme was launched a year after it was announced by the State Government during the Assembly in August 2014.

1.11 THEORETICAL FRAMEWORK

A variety of frameworks and models are available that explain the dynamics of access to health care in general and maternal and child health in particular.

Anderson et al. Framework

It is one of the best known frameworks for studying access. It is a behavioural model that identifies three kinds of individual determinants of utilization: predisposing, enabling and need.
i) Predisposing factors include socio-demographic factors such as race, gender, educational attainment, occupation that measure biological and social structural traits of an individual. Individual health beliefs and attitudes are also part of these factors.

ii) Enabling characteristics facilitate an individual's use of health care services and include financial resources.

iii) Need factors refers to whether individuals perceive that they need care, whether they think this care is of value, and the degree to which a healthcare professional believes an individual needs care.

The model has expanded to include variables that describe the health care delivery system such as policies, resources, and organization supply; external environmental factors like economic climate, relative wealth, politics, and violence; and community-level enabling characteristics such as availability of physicians within the community.

Cleason et al. Pathways Framework

It shows that maternal health outcomes are affected by a variety of factors at different levels of health systems through direct and indirect pathways. The factors are grouped under three categories:

i) Household/community characteristics comprising of household behaviours and risk factors, household resources and community factors;

ii) Health system and other sectors characteristics comprising of health service supply, other parts of health system, and supply related factors;

iii) Government policies and programme factors comprising of health reforms and action in other sectors.
Health Belief Model

It has three set of factors that may potentially influence health seeking by an individual, that is, individual perceptions; modifying factors; and likelihood of action. Individual perceptions about his or her susceptibility towards the disease; and seriousness of the disease would decide care seeking. Modifying factors may include demographic, socio-economic and psychological characteristics acting as facilitators or barriers towards care seeking. They may also include cues generated by external stimuli like campaigns, advices, etc. Likelihood of action is the sum of the perceived benefits and barriers in care seeking. This model conceptualizes ‘health care seeking’ based on perceived susceptibilities, barriers and benefits. However, it doesn’t take into account the community and health system characteristics shaping the health care seeking of an individual.

Jacobs et al Demand and Supply Influences on Access

Jacobs et al. discuss various determinants that may influence access to health services. Demand-side determinants may influence the ability to use health services at individual, household or community level; while supply-side determinants are that of the health system that affect service uptake by individuals, households or the community. These determinants may be seen across four dimensions: geographic accessibility; availability; affordability and acceptability of health services.

Kroeger’s Framework

It proposed that determinants governing utilization of services can be grouped under three categories. First include predisposing factors like age, sex,
household composition and size, ethnic group affiliation and education. Second include illness characteristics, expected benefits from treatment and beliefs about disease causation. Third include healthcare system characteristics including cost and quality of care.

**Thaddeus and Maine’s Framework**

The three delays model was developed in 1994. It proposes the factors that may cause delays in accessing medical care at the onset of an obstetric complication. They suggest that socio-economic and cultural factors; accessibility of facilities; and quality or perceived quality of care provided by the facility affect utilization of services and resulting outcomes. These factors have an effect on the three phases when a delay might occur in seeking care: actual decision to seek care; identifying and reaching the facility; and receiving adequate and appropriate treatment at the health facility.

**World Health Organization’s Framework**

WHO developed a framework in 1991 for the use of maternal health care. This model talks about the pre-disposing factors towards care seeking. These include socio-economic status, cultural environment, demographic factors, and status of women. These factors acts through women’s knowledge and available information; her cognitive dispositions; perceptions of appropriate and inappropriate health care behaviours; and issues related to health services like access, quality, costs, availability of health worker, etc.

The healthcare industry is a huge social institution that people use throughout their lives. It is viewed differently in every culture and social group. It is especially
viewed differently by three major sociological theories—the functionalist, conflict, and inter-actionist theories. These sociological perspectives can be easily applied to the healthcare industry. Sociology is the scientific study of social behaviour and human groups (R. Schaefer, 2011, p. 5). It focuses on social relationships, how those relationships influence people’s behaviour, and the societies, the sum total of those relationships, develop and change (R. Schaefer, 2011, p. 5). This helps form many theories of the development of the functionalist, conflict, and inter-actionist views of healthcare.

A functionalist perspective is a sociological approach that emphasizes the way in which the parts of a society are structured to maintain its stability (R. Schaefer, 2011, p. 24). From a functionalist perspective, being sick must therefore be controlled so that not too many people are released from their societal responsibilities at any one time (R. Schaefer, 2011, p. 390). If this happens, then it will hurt our society and prevent it from being stable and functional.

Sociologist Talcott Parsons, well known for his contributions to functionalist theory, outlined the behaviour required of people who are considered sick (R. Schaefer, 2011, p. 390). This was also called the sick role. Usually when people are sick, they call out of work/school and either stay at home or seek professional care. When people have responsibilities out in the real world, they are obligated to get well and get back to a daily schedule. If a person refuses to try to get better or will not follow any professional advice from a doctor, then it can be perceived as if they are not really sick and that they do not follow under the sick role. According to Parsons’ theory, physicians function as gatekeepers for the sick role (R. Schaefer, 2011, p. 390). The doctor's role is to check to see if a person is sick or not. If they are, the doctor’s next step is to help them get better. It is really up
to the person if they want to accept the physician’s assistance and follow the instructions on how to get better.

A conflict perspective is a sociological approach that assumes that social behaviour is best understood in terms of tension between groups over power or the allocation of resources, including housing, money, access to services, and political representation (R. Schaefer, 2011, p. 24). Viewed from a conflict perspective, glaring inequities exist in health care delivery in the United States (R. Schaefer, 2011, p. 391). Viewed from a global perspective, the inequities exist throughout the world as well. Most likely people who are wealthy would get better healthcare treatment than those who are less fortunate. People from disadvantaged social backgrounds are more likely to become sick. When they get to that point of illness, the poor healthcare treatment that they receive makes it even harder for them to get any better faster. In some poorer countries, there is also no ready access of healthcare treatment provided for the people.

An inter-actionist perspective is a sociological approach that generalizes about everyday forms of social interaction in order to explain society as a whole (R. Schaefer, 2011, p. 24). From an inter-actionist point of view, patients are not passive, often actively seeking the services of a health care practitioner (R. Schaefer, 2011, p. 392). Inter-actionists are also interested in how doctors become who they are once in the healthcare profession. Doctors go through medical school, gain medical knowledge, and, after finishing school, they achieve the authority and title of “Doctor.” This allows them to gain a lot of respect from other staff members and patients. Because doctors have an authority patients are more prone to following their healthcare advice. Other times, some patients fail to do so. For example, some patients stop taking medications long before
they should, some take an incorrect dosage on purpose, and others never even fill their prescriptions (R. Schaefer, 2011, p. 393).

The three major sociological theories: the functionalist, conflict, and inter-actionist each have a different perspective on the topic of healthcare. The functionalist theory focuses on the functions and stability of the society, especially when it comes to people becoming sick. This takes them away from their societal responsibilities. The conflict theory concentrates on the conflicts the world or people face in society, even when it comes to inequities that exist in healthcare. Lastly, the inter-actionist theory emphasizes on the interaction between people in society, including a physician-patient relationship in medical world. Not only do these theories help elaborate the views of the healthcare social institution, but it also helps to further understand the outlook in other issues having to do with society.

1.12 CHAPTERIZATION

The research study report consists of five chapters with appendices:

Chapter one elaborates the background of the study along with the concepts related to the study. It contains a brief introduction to the concept of maternal and child health, antenatal care, natal care, postnatal care, new born care and immunization. The statement of the problem, significance of the study and chapterization also covers in this chapter.

A brief review of the literature on availability, accessibility and utilization of mother and child health are discussed in the second chapter.
The research methodology is discussed in the third chapter. The area of the study, the objectives of the study, the sampling procedures adopted in the study, the tools and techniques of data collection, limitation of the study and the concepts used in the study are also explained in this chapter.

The fourth chapter analyses the socio-economic factors, reproductive health, availability and accessibility of mother and child health care services, and utilization and non-utilization of mother and child health care services. This is followed by a detailed discussion of the results presented.

The fifth chapter gives out the major findings derived out of the study with suggestions and it concludes with direction for further research.