CHAPTER: II

Health Status and Health Care in Rural Assam

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2.1 Introduction

> **"The challenge of development is to improve the quality of life. Especially in the world's poor countries, a better quality of life generally calls for higher incomes--but it involves much more. It encompasses as ends in themselves better education, higher standard of health and nutrition, less poverty.....etc."**
>
> ***World Development Report, 1991***

Development is a multidimensional route where income and wealth are not the ends in themselves. Rather, income and wealth are the instrument for providing better education, higher standard of health and nutrition, less poverty etc.

Many people in developing countries are fighting a constant battle against malnutrition, disease and ill health. In general, the poorer a population is, the sicker they are and the shorter they live. Life expectancy[ii] at birth and infant Mortality Rates[iii] are the most commonly used indicators of health of a nation. Life expectancy at birth in least developed countries is 51 years, as compared to 78 years in high income countries (Dolan et al 2002). Infant Mortality Rates on average about 96 in the least developed countries whereas in developed countries, it is 8. High Maternal Mortality Ratio[iv] is another major health related problem in developing countries. Besides, under five mortality rate[v], low birth weight etc. are common in these countries. Kloos(1994) has identified the top seven causes of death in children under

five reported by developing countries in 1985 were acute respiratory diseases (causing an estimated 5 million deaths), diarrhoeal disease(4 million deaths), perinatal causes including low birth weight (3.2million), malaria,(7,50,000), tuberculosis(3,00,000), other infections and parasistic diseases (450,000) and other and unknown causes (7, 00,000) are some major health problems in these countries. Again, there is wide intra-country variation in health and health care.

Under those circumstances, the new and holistic approach of measuring human development by United Nations Development Programme (UNDP) in its Human Development Reports which is quite relevant (Tadaro et al 2003). In this approach, health has been given much emphasis while measuring development.

Outline of the present chapter is as follows: Section 2.2 refers to the data base used for the chapter. Section 2.3 discusses about various health policies adopted in India to improve the health status of the people. Section 2.4 looks at the relative health status of India in comparison to some other countries across the world as well as inters state variation in the health status. Various types of disease burden prevalent in India are discussed here. Besides, inter regional variation (rural-urban difference) in the health status and health care of the people is also discussed in this segment. Section 2.5 examines the relative health status and health care of the people of rural Assam. Inter district variation regarding health status and health care utilization are discussed in section 2.6 and Section 2.7 is concluding one.

2.2 Data Base

Secondary data, relevant to present chapter, have been used to have a comparative study about the relative health status of the people of rural Assam in terms of percentage, ratios and simple averages based on different reports like National Family Health Survey (NFHS) 1,2and 3, Sample Registration System data, 11^{th} five year plan

document, different reports of National Rural Health Mission (NRHM), Annual Health Report of Assam 2010.

2.3 Various Health Policies and Measures Adopted in India

Health is a fundamental human right, and it is the responsibility of the governments to provide health care to all people in equal manner. Ever since India's independence in 1947, various policies have been adopted specially in regard of primary health care of India in order to improve the health status of the people especially who reside in rural areas. Before that, importance of primary health care was recognized by Joseph Bhore in 1946. Bhore committee report recommended for equalizing the opportunity to get health care irrespective of their purchasing power. During the second five year plan, Mudaliar Committee was appointed by the Government of India to review the progress of the health sector. The major recommendation of this committee was to limit the population to be served by each Primary Health Centre to 40,000 along with their quality improvement. Jungawalla Committee in 1967 gave importance to integration of health services. After that Karter Singh Committee introduced the concept of a Sub Center. According to him, each Primary Health Centre should be divided in 16 Sub Centers for a population of 3000 to 5000. Srivastav Committee argued for the development of a "referral service complex by establishing linkages between PHC and higher level referral and service center".

The Alma Ata declaration of 1978 introduced the concept of health for all by year 2000 (WHO, 1978). As per the declaration, it is the responsibility of the state to provide comprehensive primary health care to its people so as to achieve the goal of health for all by 2000. India, being the member of that group and following the target set by the declaration formulated National Health Policy in 1983. This was India's first national health policy. The major goal of the policy was to provide the universal, comprehensive primary health services. After many years of introducing this policy, another population policy was announced in 2000 in the name of National Population Policy. The immediate objective of this policy was to address the unmet needs of

contraception, health care infrastructure and health personnel and to provide integrated delivery for basic reproductive and child care services. In 2002 that is after twenty years of introducing first health policy, the second National Health Policy was launched in India in 2002. The major goals of this health policy are shown in table 2.1.

Table2.1. Goals of National Health Policy, 2002

Goals	Year
1.Eradicate polio and yaw	2005
2.Eliminate leprosy	2005
3.Eliminate Kala azar	2010
4.Eliminate lymphatic filaraisis	2015
5.Achieve zero level growth of HIV/AIDs	2007
6. Reduce mortality by 50% on account of TB, malaria, vector born diseases and other water born diseases.	2010
7 Reduce prevalence of blindness by 0.5%	2010
8. Reduce IMR to 30/1000 and MMR to 100/100,000.	2010
9. Increase utilization the public health care from <20% to >50%	2010
10.Establish an integrated system of surveillance, national health account and health statistics	2005
11. Increase the govt. spending as a % of GDP from 0.9% to 2%.	2010
12. Increase the central grants to constitute at least 25% of total health spending.	2010
13. Increase the state sector health expenditure from 5.5% to 7% of the budget.	2005
Further increase to 8%.	2010

Source: Ministry of Health and Family Welfare, Govt. of India.

Thereafter, government of India realized the importance of access to an improved and decentralized public health system for the improvement of health outcomes and hence introduced National Rural Health Mission in 2005. It has been targeted to eliminate the interstate and inter regional differences in regard of health status of their people and in regard of available health care infrastructure. So, based on the poor health indicators, 18 states[vi] including Assam were selected from the country with special focus to improve the health outcomes especially in rural areas through improved access to a decentralized public health system under the National Rural Health Mission (NRHM) programme in 2005.

The various goals set by NRHM were actually in co-ordination with the goals set by National Health Policy 2002. Aim of the mission is to provide universal access to equitable, affordable and quality health care that is accountable and at the same time responsive to the needs of the people, especially for those residing in rural areas, the poor women and children.

Eleventh five year plan has been introduced by government of India with the objective of achieving *faster and inclusive growth in* India. Inclusive growth demands that all social groups should have equal access to the services provided by the state and equal opportunity for upward economic and social mobility. So, importance was given to reducing disparities in health status also across regions and communities by ensuring access to affordable health care.

Table2.2. Expected goals of National Rural Health Mission

1. IMR—reduced to 30/1000 live births.
2. Maternal Mortality—reduced to 100/100000 live births by 2012.
3. TFR—reduced to 2.1 by 2012.
4. Malaria Mortality Reduction—50% up to 2010, additional 10% by 2012.
5. Kala-azar Mortality Reduction—100% by 2010 and sustaining elimination until 2012.
6. Filaria/Microfilaria Reduction—70% by 2010, 80% by 2012, and elimination by 2015.
7. Dengue Mortality Reduction—50% by 2010 and sustaining at that level until 2012.
8. Cataract operations—increasing to 46 lakh until 2012.
9. Leprosy Prevalence Rate—reduces from 1.8 per 10000 in 2005 to less that 1 per 10000 thereafter.
10. Tuberculosis DOTS—maintain 85% cure rate through entire Mission Period and also sustain planned case detection rate.
11. Upgrading all health establishments in the district to IPHS.
12. Increase utilization of First Referral Units (FRUs) from bed occupancy by referred cases of less than 20% to over 75%.

Source: 11th five year plan of India (2007-12), Govt. of India.

In fact, Sen (2000) argues that a large section of people in Asian countries are excluded from public health service which is a matter of *social exclusion.* More

recently, in twelfth plan also health has been considered as important instrument to attain faster, sustainable and more inclusive growth in India.

2.4 Health Scenario of India

2.4.1. Health Scenario of India at Global Perspective

India has widely heralded as a success story of globalization over the past two decades. But, the position of the country in UNDP's Human Development Index (HDI) is not much satisfactory. The comparative picture with regard to health indicators such as life expectancy at birth, Total Fertility Rate (TFR), Infant Mortality Rate (IMR), and Maternal Mortality Ratio (MMR) show that India has been placed in quite poor situation than the countries like Sri Lanka, China etc. Table 2.3 will make the condition of India in regard of various health outcomes clear.

Table: 2.3: Health Indicators among Selected Countries

Country	IMR(per 1000 live births	Life Expectancy (in years)		MMR(per 100000 live births)
		Male	Female	
India	**58**	**63.9***	**66.9***	**301**
China	32	70.6	74.2	56
Japan	3	78.9	86.1	10
Korea	3	74.2	81.5	20
Indonesia	36	66.2	69.9	230
Malaysia	9	71.6	76.2	41
Vietnam	27	69.5	73.5	130
Bangladesh	52	63.3	65.1	380
Nepal	58	62.4	63.4	740
Pakistan	73	64.0	64.3	500
Sri Lanka	15	72.2	77.5	92

* projected for 2001-06

Source: 11th five year plan (social Sector), vol. 2, Govt. of India

Countries like China, Japan, Korea, Vietnam, Indonesia, Malaysia, Bangladesh, Sri Lanka etc. are experiencing lesser amount of IMR in comparison to India. Regarding MMR also, China, Japan, Korea, Vietnam, Indonesia, Malaysia, Sri Lanka even

Bangladesh are in better position than India. One important point to be noted here is that in all the countries mentioned above, life expectancy at birth of the women is higher than the man.

2.4.2. Types of disease burden in India

India is in the midst of an epidemiological and demographic transition with increasing burden of chronic diseases, decline in mortality and fertility rates and aging of populations (11th five year plan, vol. 2). Now-a-days, the country is suffering from dual burden of communicable and non-communicable diseases (Misra, 2005). Table 2.4 has shown the cases per lakh population in India suffered from various diseases.

Table 2.4: Disease Burden Estimation in India

Disease/Health Condition	Estimate of cases/lakh
a)Communicable Diseases	
i) Tuberculosis	85 (in 2000)
ii)HIV/AIDS	51 (in 2004)
iii)Diarrheal Disease Episodes per Year	760 (in 2005)
iv) Malaria and other Vector Born Diseases	20.37 (in 2004)
v) Leprosy	3.67 (in 2004)
b) Non-Communicable Diseases	
i) Cancers	8.07 (in 2004)
ii)Diabetes	310 (in 2005)
iii) Mental Health	650 (in 2005)
iv) Blindness	141.07(in 2005)
v) COPD and Asthma	405.20 (in 2001)
vi) Cardio Vascular Disease	290 (in 2000)
c) Other non-communicable problem	
i) Injuries- deaths	9.8 (in 2005)

Source: 11th five year plan, vol.2, GOI

The main communicable diseases in India are HIV/ AIDs, Tuberculosis, Leprosy, diarrhea, malaria and other vector born disease like kala-azar, filariasis, Japanese

encephalitis, dengue etc. Among the communicable diseases, AIDS is mostly prevalent in the five states as Andhra Pradesh, Maharastra, Karnataka, Manipur and Nagaland. As on 31 December, 2006, a total of 162257 cases of AIDS are reported. These HIV/AIDS patients are again more vulnerable to Tuberculosis. Tuberculosis, earlier known as the 'white plague' is infectious and spread through droplets that can travel through air when a person with infection coughs talks or sneezes. This remains as a major public health problem in India, accounting for one fifth of the world incidence. Every year, 1.8 million people in India develop Tuberculosis. Diarrheal disease episodes are 760 per lakh in 2005. Malaria and other vector born diseases occurred in 2004 as 20.34 per lakh population. Again, in case of non communicable diseases in India is cardio vascular disease, cancer, blindness, mental illnesses etc. are mostly prominent. Besides, injury related death is another non-communicable problem which occurred as 9.8 per lakh population in 2005.

2.4.3. Comparative Health Status among States within the Country

India has shown some amount of fall in the IMR, but there is greater interstate variation in regard of the rate of decline in IMR (Puskar, 2011). Actually, not only in case of IMR, but in case of MMR, perinatal mortality[vii], percentage of women getting institutional delivery, percentage of children getting vaccination also, there are large interstate variations. Table 2.5 will give some idea about the interstate variations regarding those indicators. All India average IMR is 57. But, the inter regional and interstate differences are quite high in regard of IMR. In the southern states like Kerala, Goa are performing quite well with just 15 children who die before their first birth day out of every 1000 live births. But, in northern states like Bihar, Uttar Pradesh, Rajasthan as well as Assam are performing quite poorly. In case of underfive mortality also, Kerala, Goa are performings well whereas performance of states like Bihar, Uttar Pradesh, Rajasthan as well as Assam are quite dissatisfactory as in those states under five mortality is at least 85.

Table.2.5: Differences among States in India Regarding Health Status and Care

Indicators	India	Keral a	Goa	Bihar	Rajast han	UP	Assam
Infant Mortality Rate (IMR)	57.0	15	15.3	61.7	65.3	73	66.1
Under Five Mortality Rate(per 1000 live births)	74.3	16.3	20.3	84.4	85.4	96.4	85.0
Perinatal Mortality Rate	48.5	10.8	12.4	58.7	49.4	59.5	63.3
Maternal Mortality Ratio **	212	81	NA	261	318	359	390
Institutional Delivery (%)	39	99	92	20	30	21	22
Children Receiving all Vaccines (%)*	44	75	79	33	27	23	31

*It includes two BCG, measles, and three doses each of DPT and polio vaccine excluding polio vaccine given at birth ** for the year 2007-09.
Source: National Family Health Survey (NFHS-3), India (2005-06) and Sample Registration System (2011) of India.

There is a greater diversity among the states regarding perinatal mortality rate also. At all India level, it is 48.5. Although, states like Bihar, Uttar Pradesh, Rajasthan, Assam etc are the worse performer with the perinatal mortality rate more than 55, among those worse performer, Assam is the worst with the perinatal mortality rate 63.3. Karala, Goa etc are the best performer states with only 10.8 and 12.4 respectively. Most of these child health indicators depend on immunization coverage, institutional deliveries etc. Some of Indian southern cities may be the center of technology boom; but one in every eleven Indian children dies in the five years of life for lack of technology and low cost interventions. In case of Kerela and Goa, percentages of children getting immunization are 75% and 79% respectively. Whereas in case of the states where IMR, under five mortality are very high like Bihar, Uttar Pradesh, Rajasthan northern part and in case of Assam also, percentage of children getting immunization lies between just 23 to 33 %.

In states like Kerala, 99% deliveries are institutionalized like the developed countries. But, in case of the states of northern part in states like Bihar, Uttar Pradesh, Assam,

nearly 20% deliveries are institutionalized. As a consequence, there are interstate variations on the reduction in maternal mortality ratio. In case of Kerala, MMR is just 82 whereas in other states like Bihar, Rajasthan, Uttar Pradesh, Assam, MMR is quite high. Assam has been experiencing the highest MMR i.e., 390.

2.4.4 Rural-urban Disparity in the Health Status in India

In India, there is high disparity between rural and urban areas regarding the health status of the people. Urban people are enjoying quite better health status than the rural people. IMR in the country is 64 in rural areas against 40 in urban areas (Sample Registration System, 2005).There are sharp variations between rural-urban regarding Crude Birth Rate[viii] (CBR), Crude Death Rate[ix] (CDR) etc as observed from table 2.6.

Table 2.6: Urban / Rural Divide in Regard of Health Indicators

Area	Crude Birth Rate (per 1000)	Crude Death Rate (per 1000)	IMR (per 1000 live births)	Anaemia among children (6-35) months	Anaemia among pregnant women
Urban	19.1	6.0	40	72.7	54.6
Rural	25.6	8.1	64	81.2	59.0
Over all	23.8	7.6	58	79.2	57.9

Source: Ministry of Health and Family Welfare (MoHFW), Govt. of India (2006) and National Family Health Survey (NFHS)-3(2005-06).

Crude birth rate in the rural areas is 25.6 whereas 19.1 in case of urban areas in India. Regarding prevalence of anemia among children (6-35) months and among pregnant women also, there is high disparity between rural and urban areas. Anemia is characterized by a low level of hemoglobin in blood. Anemia among younger children is a serious concern because it can result in impaired cognitive performance, behavioral and motor development, coordination, language development and scholastic achievement as well as increased morbidity from infectious disease. While discussing about the rural urban differential about the child health, it is important to consider about the level, trend and differentials in neonatal[x], post neonatal[xi], infant,

child mortality[xii] and under- five mortality rate etc. Table 2.7 has presented various measures of infant and child mortality for three five year periods preceding the NFHS-3 to show the difference between the rural and urban areas of India in regard of early childhood mortality. From table 2.7, it has been clear that all the five types of child mortality that is neonatal, post neonatal, infant, child and under- five mortality rate have been declining during the three five year periods preceding the NFHS-3 survey both in case of urban as well as rural areas.

The rate of neonatal, post neonatal, infant, child and under- five mortality rates are quite high for both urban and rural areas in India. From table 2.7 it has been observed that all kinds of child mortality are quite larger in rural areas than in urban areas not only 10-14 years before NFHS-3 but also 0-4years before it.

Table.2.7: Early Childhood Mortality Rates

Yrs Preceding the survey	Neonatal mortality rate	Post neonatal mortality rate	Infant mortality rate	Child mortality rate	under- five mortality rate
URBAN AREAS					
0-4	28.5	13.0	41.5	10.6	51.7
10-14	34.6	18.4	52.7	17.7	69.5
RURAL AREAS					
0-4	42.5	19.7	62.2	21.0	82.0
10-14	57.5	28.1	85.5	38.4	120.6

Source: National Family Health Survey (NFHS)-3(2005-06).

This gap between the rural and urban areas is prominent all over the country; not only in backward states but also in developed states as found in NFHS-3 data. The rural areas of the backward states (i.e., in regard of health indicators, provision of health care and in regard of utilization of health care) are double back ward in that sense. Hence, their health indicators are weaker than the urban and even rural forward states.

Among the rural population, there are wide differential in regard of child health indicators in India based on the background characteristics. Mother's education has

strong positive relation with the child health in the sense that with the increase in the years of schooling of the mother, all the kinds of child mortality that is in terms of neonatal, post neonatal, infant, child and under- five mortality rates decrease. The IMR is 71.1 whose mothers have no education in rural areas, compared with 50.1 whose mother's have 5-7 years of schooling and 29.6 for those whose mother's have 12 or more than years of schooling. In case of under-five mortality in rural areas is 97 for those children whose mothers have no education; but for those children whose mothers have completed 12 years or more years of schooling, it is only 31. Again, social stratification in terms of caste/tribe has also an influence in rural areas on the child health. According to the NFHS-3 survey, children from schedule tribe and schedule caste are more vulnerable than the children from other back ward caste or others which shows a more or less similar trend with the urban areas. Again, if we consider about the wealth quintile distribution, it will be clear that like the all India average as well as urban rate, in rural India also, with the increase in the wealth, neonatal, post neonatal, infant, child and under- five mortality rates decrease. It means child health improves with the increase in economic status of the people.

If we consider the demographic characteristics of the rural population and its impact on the health status of the children, it will be clear that maternal age at birth bears a U- shaped relation with infant and child mortality rates. It is similar with all India average and urban areas. IMR is lowest for mother's age 20-29 years (54.0) where as it is substantially higher for mothers whose age is less than 20 years (84.6) and at 30-39 years of mother's age (61.0) and finally at 40-49 years of mother's age it is as high as for the mother's whose age is less than 20 years. Birth order has the similar effect in rural areas as like as the maternal age. In the first birth order, all the types of mortality among children is higher than the second and third birth order except the child mortality that is the probability of dying between the age one and five. But, in case of neonatal, post neonatal, infant and under five mortality rates, mortality rate decreases considerably with the increase in the birth order to second or third one. Thereafter, all types of child mortality increases again with the increase in the birth

order to four, five, six .....etc. so, in rural areas in India also, birth order shows a U-shaped relation. If we consider about the gender dimension in regard of child health in rural areas, there is difference regarding the child mortality between a girl child and a boy child as like as the all India average and the urban rate. Except the neonatal mortality, all the other types of child mortality are higher for a girl child in rural India. There is another important factor which has a stronger impact on the child mortality not only in rural India, but also in India overall. It is the birth interval between previous and the current birth. It shows a strong negative effect on infant and child mortality rates. When the birth interval is less than two years it does not simply increase the rate of neonatal, post neonatal, infant and under five mortality rates but also endangered the life of the mother. Low birth weight babies are more vulnerable more vulnerable in rural areas. NFHS-3 has taken the reported size of the baby as the proxy for birth weight of the children and has found a strong negative correlation between the infant and child mortality rates and the birth weight.

Regarding maternal health also, there is huge difference between the urban and rural areas. During the pregnancy period, women suffer various problems like difficulty in vision during daylight, night blindness, convulsion not from fever, swelling of legs, body or face, excessive fatigue etc according to NFHS-3 mostly in rural India. Again, in rural areas more than half of women are anaemic except the women from highest wealth quintile and those who have 10 or more years of education. It is even high among pregnant women and breast feeding women.

2.5. Comparative Health Scenario of Assam

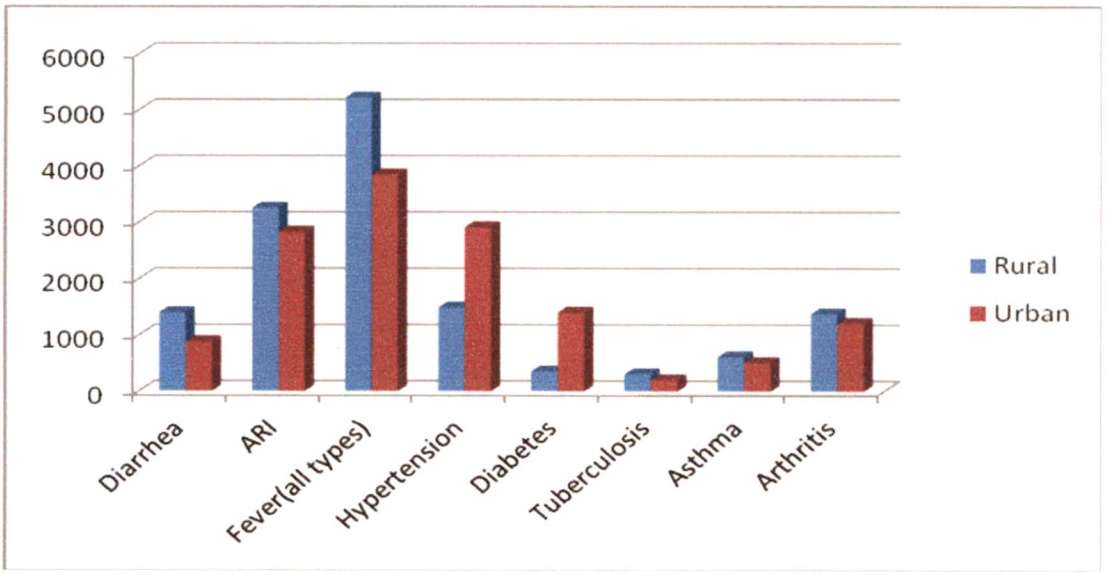
People's health and well being are considered as one of the major indicators of development. In Assam, if this indicator is used, then its level of development leaves much to be desired. Regarding most of the health and health care indicator, Assam's condition is serious as discussed earlier in comparison of other states of India. Life expectancy in Assam is below that of the country as a whole, and is one of the lowest

amongst major Indian States (Human Development Report, Assam, 2003). Above all, like all India level, in Assam also, there is persistence of extreme inequality and disparity between rural and urban areas in terms of health outcomes and health care. Life expectancy of the rural people is lower than the urban people in Assam (Human Development Report, Assam, 2003).

2.5.1. Types of Disease Burden in Rural Assam

Assam, at the moment, is suffering from dual burden of acute and chronic disease burden. But, there is differences regarding the nature of the disease between rural areas and urban areas. Acute illness like diarrhea, acute respiratory infection (ARI), all types of fever are more prevalent in rural Assam than the urban counter parts.

Figure 2.1: Persons Suffering from Different Diseases in Assam (per lakh population)



Source: Annual Health Survey 2010-11 Fact Sheet (Assam).

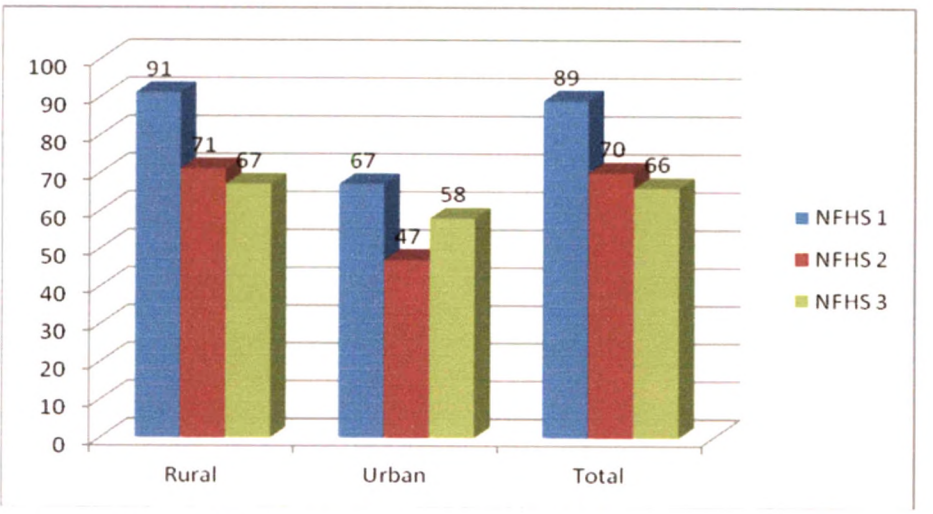
Again, in case some chronic disease like diabetes, hypertensions which are actually lifestyle born diseases mostly prevalent in urban Assam whereas some other chronic diseases like tuberculosis, asthma, arthritis are found more in rural areas than the urban areas as shown in figure 2.1.

2.5.2. Child Health and Health Care in Rural Assam

Infant Mortality Rate (IMR) in Assam is fifth highest in the country and is highest among all the North Eastern states. Here, inter regional disparity is also quite higher. Annual Health Survey Bulletin (2011-12) of Registrar General of India have identified that in the nine states of India including namely Rajasthan, Uttar Pradesh, Uttarakhand, Bihar, Jharkhand, Orissa, Madhya Pradesh, Chhattisgarh and Assam, children from rural areas are more vulnerable to infant mortality.

In Assam, underdeveloped infrastructure is another reason for high IMRs. This refers not just to facilities for established medical care, but also the inadequacy of good, all weather transportation and communications. The inability to move basic medicines easily, especially at certain times of the year, and the frequent occurrence of natural calamities such as floods, are impediments to better health service provisioning (Human Development Report, Assam, 2003).

Figure.2.2: Trends in Infant Mortality (Deaths per 1,000 live births)



Source: National Family Health Survey (Assam) 3 (2005-06).

So, it is clear that in Assam too, IMR among the rural population is larger than the urban one. Although, it has shown a declining trend from the estimated level of

NFHS-1 to NFHS-3, still, it is quite high as shown in figure 2.2. In NFHS-1, IMR in rural areas was 91 against which in urban areas it was 67. Then, in the NFHS-2, the rural IMR come down to 71 as against urban IMR 47. Actually, this high magnitude of rural IMR has pushed the total IMR not only in Assam but also in almost all the states of the country upward in spite of a lower level of IMR in urban areas during that period. Not only in case of IMR but in all the types of child mortality namely neonatal, post neonatal, infant, child mortality and under five mortality rate, there is much variation between the urban and rural areas of Assam which can be easily understood from the table 2.8.

Disparity exists regarding rate of neonatal, post neonatal, infant and under- five mortality rates between urban and rural areas in Assam. Neonatal mortality rate, post neonatal rate and infant mortality rate in rural Assam is little bit less than double of urban Assam. In case of under five mortality rates in rural Assam it is exactly double that of the urban Assam.

Table: 2.8: Childhood Mortality Rates in Assam

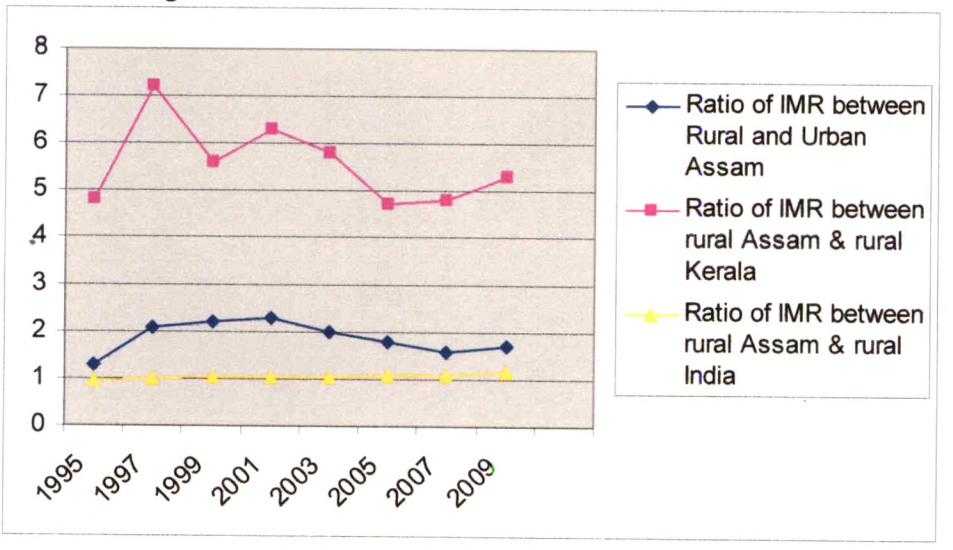
Types / Residence	Neonatal mortality Rate	Post neonatal mortality Rate	Infant mortality Rate	Underfive mortality Rate
Urban	22	12	35	42
Rural	42	22	64	84

Source: Annual Health Survey 2010-11 Fact Sheet (Assam).

Again, the gap between rural Assam and rural India or between rural Assam and rural Kerala or even between rural and urban Assam in regard of IMR will give some idea about the relative health status of children in rural Assam. So, the rate of change in IMR of rural Assam in comparison to rural national average, rural Kerala and

urban Assam have been shown with the help of the trend in the ratio of IMR in figure 2.3.

Figure.2.3: Trends in the ratio of IMR



Source: Sample Registration System

The gap between rural Assam and rural Kerala is quite high in regard of IMR. Even, IMR of urban Assam is three-four times higher than rural Kerala. From the figure 2.3, it clear that until 2005, IMR of Assam was five to seven times larger than rural Kerala. In later period, it became slightly lower. Finally, in 2009, again the trend in the ratio of rural Assam and Rural Kerala of IMR took upward movement. Most of the cases of IMR occurred in rural Assam are actually preventable through simple and low cost techniques like vaccination against six major childhood illnesses: tuberculosis, diphtheria, pertussis, tetanus, polio and measles.

Table2.9. Vaccination among the children in Assam (%)

Area	BCG*	3 doses of Polio Vaccine*	3 doses of DPT Vaccine*	Measles Vaccine*	Fully Immunized Children*
Urban	95.5	79.4	76.0	80.3	63.7
Rural	93.0	74.8	71.5	76.8	58.2

* Children aged 12-23 months
Source: Annual Health Survey 2010-11 Fact Sheet (Assam).

But, it is a matter of serious concern that in rural Assam only 58.2% of children of age 12-23 months are fully immunized in contrast to 63.7% fully immunized in case of urban Assam as observed from table 2.9.

In case of percentage of children aged 12-23 months who received BCG is 93% in rural areas whereas in case of urban Assam it is 95.5%. In case of percentage of children aged 12-23 months who received three doses of polio vaccine and DPT, condition of both rural and urban Assam are not satisfactory; but condition of rural Assam is more severe. Regarding percentage of children aged 12-23 months who received measles vaccine, situation is little bit better. Still, in case of rural Assam, percentage of children aged 12-23 months who received measles vaccine is lesser by almost 4 points than in case of urban Assam. The survey conducted by OKDISCD(2006) on immunization status of children in Assam found that the prime factor responsible for poor coverage of the immunization programme were unawareness of family members on the need for immunizations, wrong ideas, fear of side effects and non-availability of time to get their child immunized. As non availability of time is one of the major factors which prevent people to immunize their children fully, there should be better access to health care which should be available for 24×7 so that people are availed with those services at any time.The major health problems which lead to mortality among the child of Assam are acute respiratory infection (ARI), diarrhea, fever etc. But, those problems are more prominent in rural Assam. In case of rural Assam, 19.2% children were suffered from ARI whereas in case of urban Assam, it is 15.8%. But, in rural Assam, during Annual

Health Survey 2010-11, 85.3% of the infected children are taken to a health facility or provider as against 88.7% in urban areas. So, more children from rural areas have been affected by ARI but less number of children gets treatment than the urban counter parts. Diarrhea is one of the single most common causes of death among children under age five worldwide, following acute respiratory infection. Like most of the childhood diseases, diarrhea is also more prevalent in rural Assam (8.5%) than in urban Assam (7.2%). Because, deaths from diarrhea are a significant proportion of all child deaths, the Government of India has launched the Oral Rehydration Therapy Programme as one of its priority activities for child survival. In rural Assam, only 88.3% of the affected children get such treatment. In this regard, condition of rural Assam is better than the urban Assam.

On the other hand, fever is a major manifestation of malaria and other acute infections in children. Malaria has been a serious problem in Assam, mainly due to topography such as hilly terrains and vast forest areas and climatic conditions being congenial for its transmission (Dutta et al 2007). Fever contributes to high levels of malnutrition and mortality. Since malaria is a major contributor cause of death in infancy and childhood in many developing countries; the so-called presumptive treatment of fever with anti-malarial medication is advocated in many countries where malaria is endemic. In case of fever, in rural areas 32.9% children suffered from fever whereas in case of urban Assam 26.5% children were affected from any kind of fever. Unfortunately, lesser number of children sought treatment in comparison urban Assam. As per Annual Health Survey 2010-11, only 83.2% affected children have under gone treatment in rural Assam whereas 84.3% affected children have under gone treatment in urban Assam. Like all other developing countries, children are vulnerable to malnutrition because of low dietary intakes, infectious diseases, lack of appropriate care, and inequitable distribution of food within the household in Assam also . Under nutrition is substantially higher in rural areas than in urban areas of Assam which may even lead to morbidity and mortality. Besides those, prevalence of anemia among children is higher in rural areas (70%) as

against urban areas (60%) (NFHS-3). Anemia, among children, not only impairs cognitive performance, motor development and scholastic performances, severe anemia endanger their lives also.

2.5.3 Maternal Health in Rural Assam

Maternal death is an important indicator of the reach of effective clinical health services to the poor, and is regarded as one of the composite measure to assess the country's progress. But, in that regard, condition of Assam is not so enthusiastic; rather it is a matter of serious concern. Unfortunately, MMR in Assam was the highest all over India followed by states like Bihar, Uttar Pradesh etc (Sample Registration System 2007). In contrast to that states like Karala, Maharastra, Tamilnadu have achieved the target of the Millennium Development Goal (MDG). States like Andhra Pradesh, West Bengal, Gujarat and Haryana are in closer proximity to the MDG target.

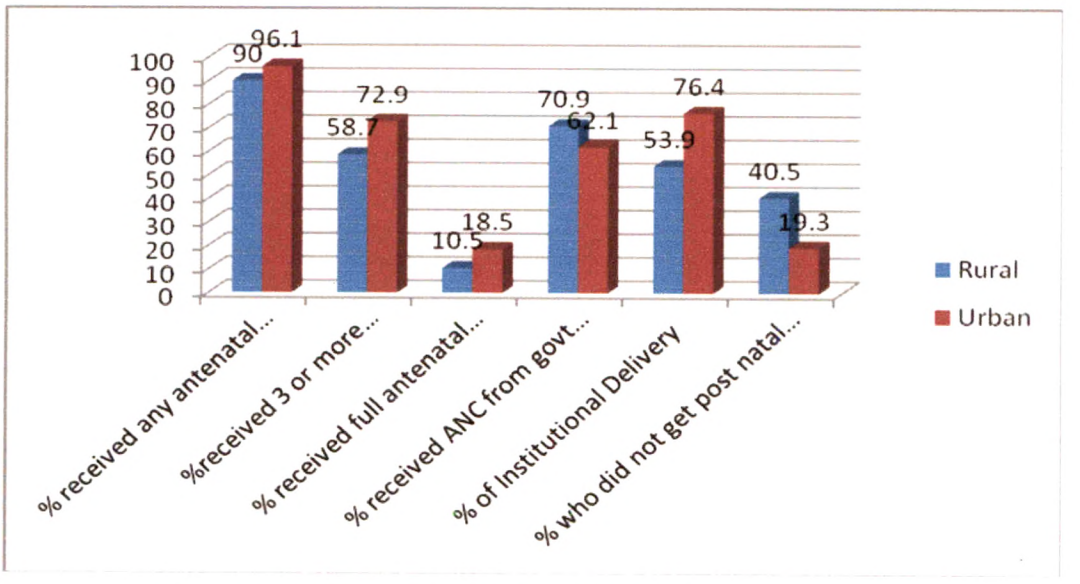
States having higher percentage of institutional deliveries by skilled personnel generally have lower maternal mortality and vice versa as because, a substantial percentage of maternal deaths arise from maternal hemorrhage and other obstetrical causes (such as abortion) (Sample Registration System, 2003). Bulletin of Sample Registration System on maternal mortality in India (1997-2003) have strongly recommend for institutional delivery because the pattern of maternal mortality in India especially in rural areas and especially in EAG states[xiii] and Assam reinforces rapid expansion of institutional and skilled birth attendance. If we consider about the maternal care indicators of Assam also, the difference between rural and urban will be distinctly visible in figure 2.4.

If we consider about the percentage of women who receives any ante natal care in rural areas 90% people and in urban areas 96% people receives such kind of care. But, in case of percentage of women who received three or more ante natal care, the percentage come down in rural areas by almost 32 points where as in case of urban areas in comes down by 23 points. So, there is a gap between rural areas and urban

areas by 14.2 points. But, if we compare with the southern states like Kerala, Goa and Tamil Nadu where 95% of women had at least three antenatal checkups five years preceding the NFHS-3.

Regarding women received full antenatal care, the percentage comes down to 10.5% in rural areas whereas in case of urban areas, it is 18.5%. Rural urban disparity is there; but it is a matter to be worried that both in rural as well as in urban areas in Assam, 80-90% mothers do not get the full ante natal care.

Figure 2.4: Rural urban Disparity in Maternal Care Indicators in Assam



Source: Annual Health Survey 2010-11 Fact Sheet (Assam).

Again, 70.9% mothers in rural areas received ante natal care (ANC) from government institutions where as in urban areas, it is 62.1%. So, rural mothers are more dependent on government health care facilities. Regarding intuitional delivery also there is vast rural urban disparity as only 53.9% deliveries happen to intuitional framework against 76.4% deliveries in case of urban areas.

The health of a mother and her new born child depend not only on the health care she receives during her pregnancy and delivery, but also on the care she and the infant receive during the first few weeks after delivery. Post natal checkups soon after the delivery are particularly important for births that take place in non-institutional settings. Recognizing the importance of post natal check- ups, the Reproductive and Child Health Programme recommends three postnatal visits of which the first check up should be within two days of delivery as a large portion of maternal mortality happens during 48 hours after delivery (MoHFW, 1997). But, in rural Assam 40.5% of mothers did not get any kind of post natal checkup which is more than double of urban Assam.

2.5.4 Adult Health and Health care in Rural Assam

The various adult health problems which are more prominent in rural Assam are tuberculosis, Jaundice, asthma, goitre, anemia, malaria etc. Besides the communicable diseases, some non-communicable diseases are also prevalent here like diabetes, blindness, mental disorder etc. According to NFHS-3, in rural Assam among the people of the age group 15-59, number of person per lakh population those are infected by tuberculosis is 849 as against which 784 are medically treated tuberculosis cases. With the increase in the age, number of persons affected by tuberculosis also increases both in rural and urban areas; but the rate of increase is higher in rural areas. There is a close relation between the type of housing and cooking fuel and the number of affected cases. In case of rural Assam, solid fuels like coal, lignite, wood, Straw, grass, dung cakes, agricultural solids etc are mostly used. So, the definitely number of persons infected by tuberculosis is more here. Again, goitre is more prevalent in rural areas whereas diabetes is more a disease of the urban and richer group. Again, asthma is more prevalent in rural areas (3394 per lakh population) than in urban areas (1931 per lakh population) and considerably high among the male than the female (NFHS-2). According to NFHS-2, number of persons reported to be suffered from jaundice is quite higher in Assam than all India average.

But, there are no rural-urban differences in Assam regarding the number of sufferers. But, in case of malaria, rural residents of Assam are more likely to suffer than the urban one.

2.6. Inter District Disparity Regarding Rural Health

Another problem confronting the rural health sector is the inter district disparity. Some districts are performing well whereas some others performed poorly. Poor performances in certain regions eventually obstruct the overall performance of the state.

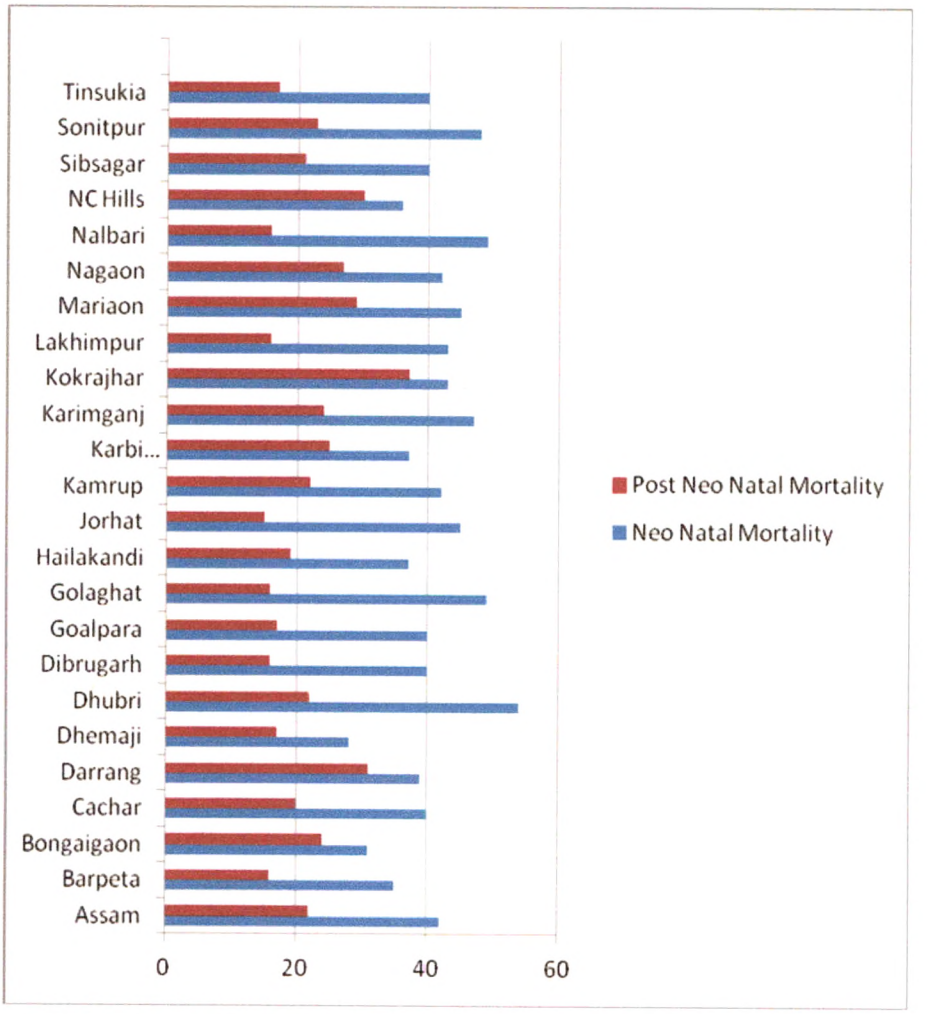
2.6. a. Inter District Disparity Regarding Child Health

There is greater diversity between the districts of Assam regarding the IMR, Neo-natal Mortality Rate, Post Neo-natal Mortality Rate. Regarding Neo-natal Mortality, rural areas of districts like Sonitpur, Nalbari, Morigaon, Karimganj, Jorhat, Golaghat, Dhubri are facing serious problem with the Neo-natal Mortality Rate more than the state average in case of rural areas (42). But, in case of urban Assam, it is 22. In case rural areas of districts NC Hills, Karbi Anglong, Hailakandi, Dhemaji, Darrang, Bongaigaon, Barpeta situation is better than rural Assam average in case of Neo-natal Mortality as observed from figure 2.5.

In case of Post Neo-natal Mortality Rate, all Assam average is 22 in case of rural areas whereas in case of urban Assam, it is 12. Rural areas of districts like NC Hills, Nagaon, Morigaon, Kokrajhar, Darrang, Post Neo-natal Mortality Rate is higher than state average. In rural areas of districts like Tinskia, Nalbari, Lakhimpur, Jorhat, Goalpara, Golaghat, Dibrugarh, Dhemaji, Barpeta situation is quite better than state average regarding Post Neo-natal Mortality as per Annual Health Survey 2010-11.

Under Five Mortality Rate in rural Assam is exactly double of urban Assam.

Fig: 2.5: Inter district Disparity regarding IMR in Rural Assam with its Components



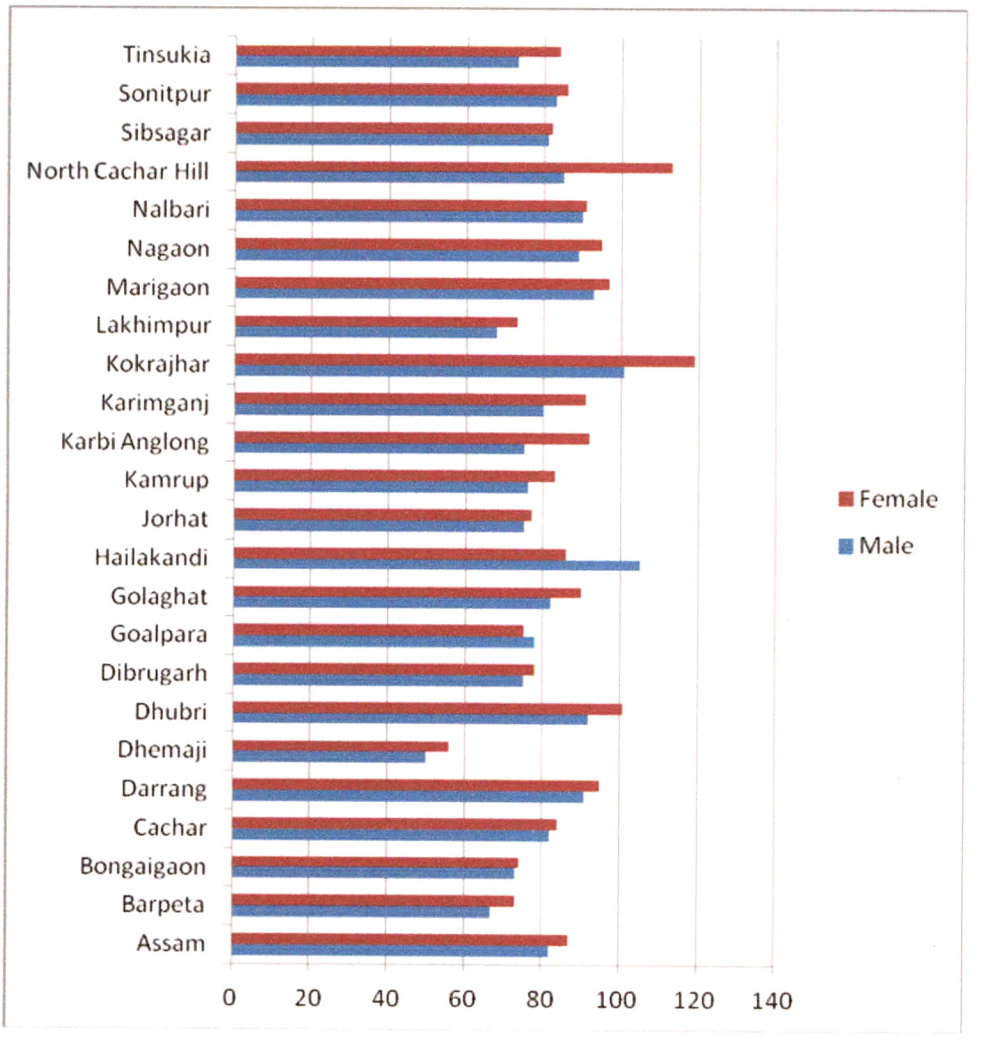
Source: Annual Health Survey 2010-11.

Again, there is some gender disparity in case of rural Under Five Mortality Rate. Except rural Goalpara and Hailakandi, in the rural areas all the districts of Assam Under Five Mortality in case of girl child is higher than male child as observed from figure 2.6.

As per figure 2.6, Under Five Mortality is quite higher is among the girl child of rural areas of many districts like NC Hiils, Kokrajhar, Nalbari, Nagaon, Morigaon, Karimganj, Karbi Anglong, Golaghat, Dhubri, Darrang etc. In case of male child,

highest Under Five Mortality has been observed in case of Rural Hailakandi. Next to that rural areas of Kokrajhar, Morigaon, Dhubri, Darrang are also facing higher rate of Under Five Mortality than all Assam average for male babies; still, it lesser than in case of girl child.

Figure.2.6: Gender Disparity Regarding Under Five Mortality in Rural Assam



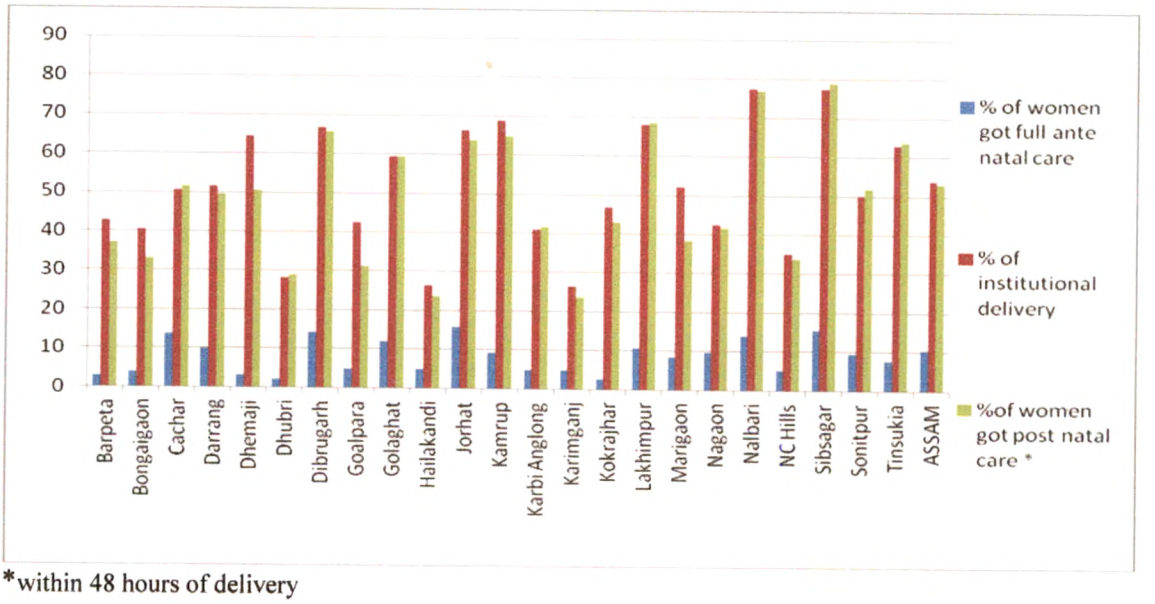
Source: Annual Health Survey 2010-11.

2.6. b. Inter District Disparity Regarding Maternal Health:

Regarding maternal health and health care also much diversity observed among the districts of Assam. There is no secondary data regarding MMR regarding the rural areas of the districts. So, some other indicators like percentage of intuitional delivery, percentage of who received ante natal and post natal care etc. can be used in order to have some idea about the maternal health.

From figure 2.7, it has been clear that in regard of percentage of institutional delivery in rural areas, all most all districts of upper like Dhemaji, Dibrugarh, Golaghat, Jorhat, Sibsagar, Tinsukia are performing quite well than rural Assam average. Again in lower Assam, only Kamrup and Nalbari are performing above all Assam average in that matter. But, in Barak valley, districts are not doing well in that matter. In rural areas of all most all districts, percentage of women received post natal care is almost same with the percentage of institutional delivery. This is because who one goes for intuitional delivery will definitely get the post natal care also.

Figure 2.7: Inter district Disparity in Maternal Health in Rural Assam



*within 48 hours of delivery

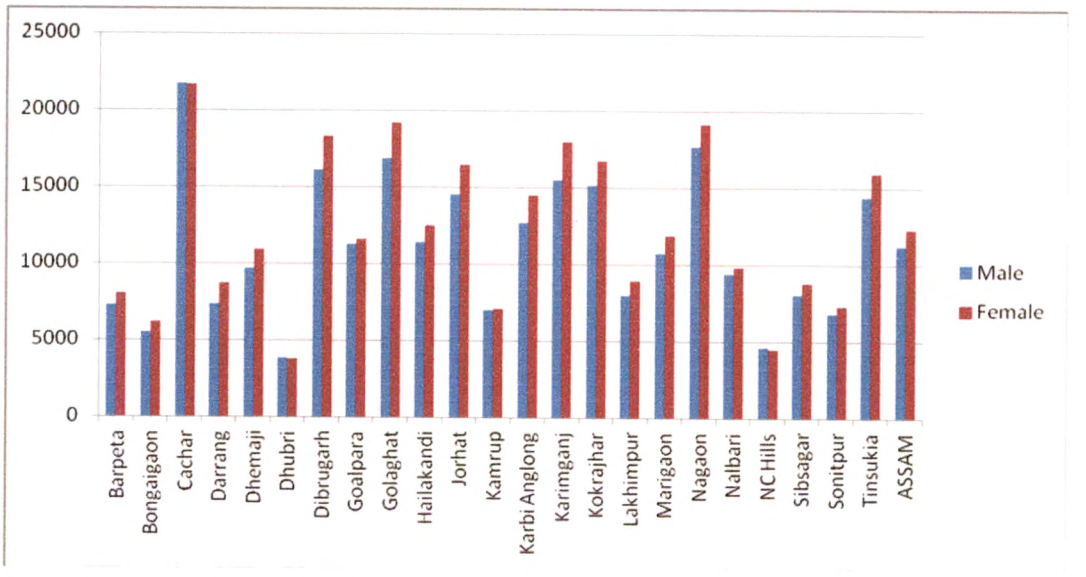
Source: Annual Health Survey 2010-11.

One important point to be mentioned from figure 2.7 is that all though percentage of women who have under gone institutionalized delivery and who received post natal care also is not so dissatisfactory; but regarding the percentage of women received full ante natal care is quite lesser in rural areas of all districts of Assam. This high disparity between percentages of women has under gone institutionalized delivery and received post natal care and percentage of women received full ante natal care is the outcome of the monetary benefit the women receive for institutionalized delivery.

2.6. c. Inter District Disparity Regarding Types of Disease

Acute diseases are more prevalent in rural Assam as already discussed. But, there is inter district disparity regarding the number of patients suffered from different types of acute diseases in rural Assam as observed from figure 2.8.

Figure: 2.8: Gender Disparity in Acute Disease in the districts of Rural Assam



Source: Annual Health Survey 2010-11

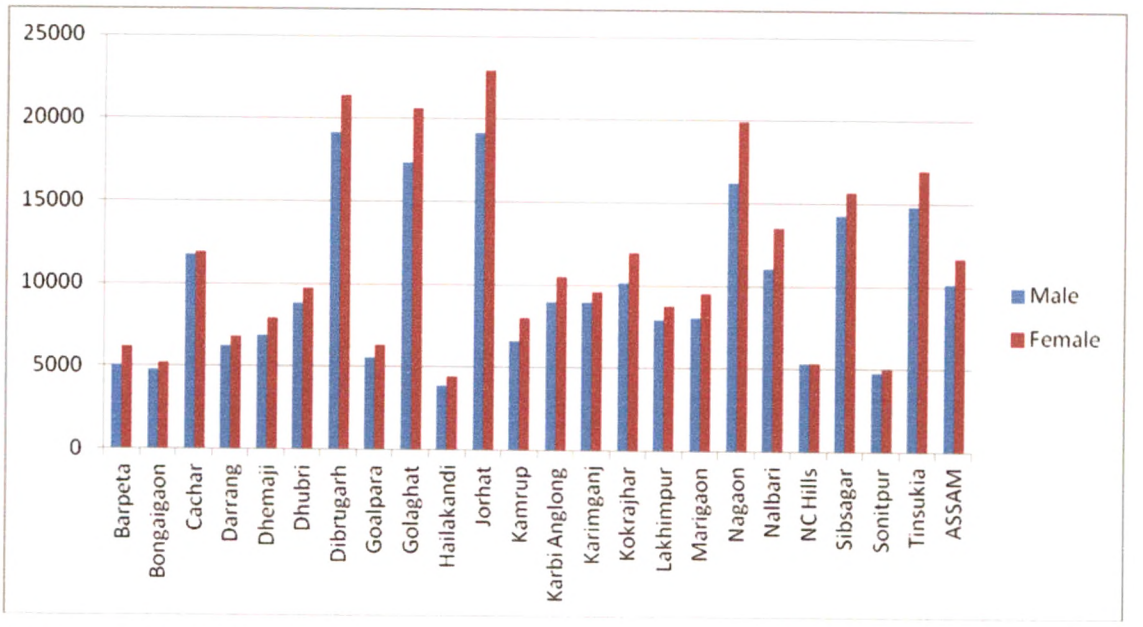
In rural areas of districts like Cachar, Dibrugarh, Golaghat, Jorhat, Karimganj, Kokrajhar, Nagaon, Tinsukia, number of persons suffering from acute illness are

quite higher where as in the rural areas of Barpeta, Bongaigaon, Dhubri, Kamrup, Lakhimpur, NC Hills and Lakhimpur, it is lower than all Assam average.

Another important dimension is there in terms of gender disparity regarding the number persons suffering from acute illness in rural Assam. This disparity reflects the fact that female they and their family members are less conscious about their health. Except a few districts Cachar, Dhubri, Kamrup, NC Hills in all other districts number female suffered acute illness per lakh population is more than the number male.

In case of chronic illness also same trend has been observed except NC Hills as shown in figure 2.9.

Figure 2.9: Patients suffering from any kind of symptoms of chronic illness in the districts of Rural Assam



Source: Annual Health Survey 2010-11

In rural Jorhat, number of persons suffered from any kind of symptom of chronic illness is highest among the rural areas of the districts of Assam. Again, along with rural Nagaon in rural Jorhat also gender disparity in this regard is highest. In all most

all the districts of upper Assam, percentage of people suffering from any kind of symptom of chronic illness is quite higher than other parts of the state. In lower Assam, condition of rural Nalbari is worse than all Assam Average both for male and female as shown from figure. 2.9. Kokrajhar is all most same situation as all Assam average. Among Barak valley districts, in rural areas of Cachar district, more people per lakh are suffering from any kind of symptoms of chronic illness. But, other districts in this valley are in better situation than all Assam average in that context.

2.7. Conclusion

Though, various health policies and programmes were introduced in India including National Health Policy 2002 and National Rural Health Mission to restructure and revise the previous health policies in the light of *United Nations' Millennium Development Goals*; our health status is quite away from the MDGs till today particularly in case of rural Assam. Regarding adult health also, lots of communicable diseases like malaria, tuberculosis, jaundice etc are more prevalent in rural Assam. Besides, asthma and goitre are some other types of diseases prevalent in rural areas. Again, gender disparity regarding health status is another dimension. Above all, considerable inter district disparity has been observed regarding people's health status and health care utilization in rural Assam. Even the various targets set by National Rural Health Mission with special focus to rural Assam have not fulfilled yet today. This wide disparity between the policy targets and the reality implies that for vulnerable sections of society, access to public health services may be nominal and poor in quality. According to Doss (2008), availability and accessibility of quality health care are the essential condition for achieving an acceptable health standard. One important point to be noted here is that for improving the health status of the people in a country, availability and accessibility of quality health care are the essential condition but not the sufficient condition. There should be corresponding demand for health care which will ultimately lead to the utilization of health care. NFHS data and Annual Health Survey data have given the some idea about the health

care utilization behavior of the people with special focus on reproductive and child health. From those data, it can be concluded that there is a positive relation between reproductive and child health status and the health care utilization behavior of the people.

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Notes:

ii Life Expectancy at birth is the number of years a new born infant would live if prevailing pattern of age specific mortality rates at the time of birth were to stay the same throughout the child's life.

iiiInfant mortality rate is the number of children who die before their first birth day out of every 1000 live births.

ivMaternal mortality ration is the annual number of deaths of women from pregnancy related causes per 100,000 live births.

VUnder five mortality means probability of dying before the fifth birthday.

vi Arunachal Pradesh, Assam, Bihar, Chattisgarh, Himachal Pradesh, Jharkhand, Jammu and Kasmir, Manipur, Mizoram, Meghalaya, Madhya Pradesh, Nagaland, Orissa, Rajasthan, Sikkim, Tripura, Uttaranchal and Uttar Pradesh

vii Perinatal mortality rate is the sum of the number of stillbirths and early neonatal deaths divided by the number of pregnancies of seven or more month's duration

viii The crude birth rate is the number of births per 1,000 people per year.

ixThe crude death rate is the total number of deaths per year per 1,000 people.

x Neonatal mortality is the probability of dying in the first month of life.

xi Post neonatal mortality is the probability of dying after the first month of life but before the first birthday.

xii Child mortality is the probability of dying between the first and fifth birthdays.

xiiiEAG states mean the Empowered Action Group states namely Bihar and Jharkand, Orissa, Madhya Pradesh, Chhattisgarh, Rajasthan, Uttar Pradesh and Uttaranchal.