

MMR & IMR SURVEY  
REPORT  
Assam  
2009

Conducted by

**Regional Resource Centre for Northeastern States**  
**Ministry of Health & Family Welfare,**  
**Government of India**  
**Guwahati, Assam – 781022**

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**Dr. A. C. Baishya**  
Director, RRC-NE

# Chapter I

## **Introduction**

Promotion of maternal and child health has been a major objective of the Family Welfare Programme in India. In India about 23% of the populations are mothers in the reproductive age group and children below 5 years constitute about 13% of the population. Although health status of mothers and children have been improved considerably, it is yet to be satisfactory. Even today a large number of mothers die during pregnancy and child birth. Similarly mortality of children below five years, particularly during infancy is still a major concern. Again it has been a fact that neonatal mortality that is death within 28 days of life contributed a major proportion of infant deaths. These facts receive due consideration of the government & the Govt is making context efforts to reduce morbidity & mortality of mother and child by launching appropriate intervention strategies.

## **Infant Mortality:**

Infant mortality had shown secular decline until 1996 and thereafter it becomes more or less stagnant. The decline in infant mortality that had been achieved in the past was on account of the decline in post-neonatal mortality. If infant mortality is to be reduced substantially, the neo-natal mortality, that is, death within 28 days of life, has to be reduced. But it has been found that there has been no reduction of neonatal mortality rate figure in the country since 2003. From the 2002 figures when 37.1 babies per thousand live birth die within first 28 days of their life the figure remained static at 36 from 2003 to 2006.

Again it has to be noted that given India's population size, the number of infants dying each year is staggering. Out of 27 million live births, 1.5 million infants die every year in India. The present IMR estimated to be 53/1000 live birth as per SRS Bulletin October' 2009 by Registrar General of India is considered high if India's IMR is compared with other countries like China where it is 27/1000 live birth.

Again it is observed that Infant Mortality Rate in Assam remains static at 68, 67, 66 and 64 as per SRS Bulletin October' 2006, 2007, 2008 and 2009 respectively.

The need for reduction of infant mortality is strongly stressed by the National Population Policy 2000. It envisages reduction of infant mortality to less than 30/1000 live birth and neonatal mortality rate to below 20/1000 live birth by 2010.

### **Maternal Mortality in India:**

Death of women in the reproductive age group mostly related to pregnancy and child birth. After the end of reproductive age, number of death of women reduces significantly. Hence reduction of mortality of women during reproductive period has been a major area of concern everywhere and efforts have been made by every government throughout the world to reduce maternal mortality through time bound programmes. In India, as per estimate of WHO more than 25% of the total maternal deaths of the globe occur and this is the highest burden for any single country in the world.

In India, life expectancy of women at birth has shown remarkable improvement from 46.6 years in 1960 to about 64 years in 2001(life expectancy at birth is defined as average number of years a new born, can expect to survive if current mortality rate continues). But till now about 1,20,000 to 1,40,000 women in India die every year due to pregnancy and related causes. As per estimate of the Sample Registration System (SRS) conducted by the Registrar General of India in 1998, maternal mortality in India was 407/100000 live birth.

The need for bringing down maternal mortality rate significantly and improving maternal health in general has been strongly stressed in the

National Population Policy 2000. It envisages a reduction of maternal mortality rate to less than 100/100000 live birth by 2010. The Govt. of India have accepted this goal and launched interventional strategies to meet the challenge of rapid reduction in maternal mortality. The current Reproductive and Child Health (RCH) Programme launched in 1997 and National Rural Health Mission launched in 2005 are such efforts to ensure reduction of maternal mortality through appropriate reproductive health care throughout the length and breadth of the country.

Although maternal mortality is a cause for great concern, reliable data on maternal mortality are lacking. The National Family Health Survey 1992-93 was the first to provide national level estimate of MMR at 424/100000 live birth for the period preceding the survey. Sample Registration System (SRS) conducted by the Registrar General of India, has also been providing estimates of MMR for all India and its states. As per the SRS estimate, nearly two thirds of the maternal death in the country occur in 9 states. These states are Bihar, Jharkhand, Uttar Pradesh, Uttaranchal, Madhya Pradesh, Chattisgarh, Orissa, Rajasthan and Assam. Again as per the report of the SRS, maternal death per 100000 live births of India has declined significantly from 327 to 254 during 2001-2006. Whereas, maternal death in Assam has increased from 398 to 480 during the same period. But may doubt about the continuous decline of maternal mortality and also because this estimate have large standard error and for some states the estimates are not good enough because of inadequate sample size.

Hence it is desired to have the estimates of MMR and causes of such mortality and also estimate of IMR to monitor the progress of the RCH programme in respect of maternal and infant care including newborn care. It is needless to mention that availability of such information would be of great help for planning of appropriate and effective strategies to reduce maternal and infant deaths in the country in general and Assam in particular.

In this backdrop, the present study on maternal mortality and infant mortality is conducted to throw light on maternal mortality & infant mortality

and to make necessary estimates of MMR and also IMR along with standard Error (SE) and its Confidence Interval (CI).

### **Objective of the Study:-**

The present study has two major objectives-

- (i) To collect data on number of maternal deaths.
- (ii) To collect data on Infant mortality so as to estimate IMR in the state.

### **Study Area:**

The present study was an attempt to estimate MMR and IMR in the state as reliable data on this front is scanty. Therefore, the study intended to cover all the districts of the state. However, in spite of earnest desire, the study was to be limited to twenty five districts out of twenty seven districts of Assam. The remaining two districts, namely N.C. Hills and Karbi Anglong could not be covered because of unavoidable circumstances.

### **Period of Study:**

The study was conducted by the Regional Resource Centre for North Eastern States, Ministry of Health & Family Welfare, Govt. of India, Guwahati -22. Necessary technical guidance in respect of selection of indicators, preparation of schedules and field work were provided by the Regional Office of Directorate of Census Operation, Ministry of Home Affairs, Govt. of India, Guwahati -5.

The Preliminary work of the study like survey planning, determination of samples, number of villages, selection of villages, briefing of supervisors, training of investigators etc. started on June'2009 and the field work completed on October'2009.

### **Study population:**

The study population consisted of the following:

- (i) Mothers who died due to pregnancy and related causes during the period July 2006 to July 2009
- (ii) Number of live births occurred during the same period for calculation of maternal mortality rate (MMR).
- (iii) Number of live births occurred during July 2008 to June 2009 to be used as determination of IMR.
- (iv) Infants who died during the period July 2008 to June 2009 to calculate infant Mortality Rate (IMR).

### **Survey Design and Sample Size:**

To conduct the study, sample survey was considered fit for collection of data on maternal and infant deaths. For this purpose, the total sample size was allocated to different districts giving due weightage to population size of the districts.

In the next step, numbers of villages / wards to be selected were determined depending again on the population size of a district. Thus number of villages / wards differed from district to districts according to the size of population of a district.

In the next step, the required numbers of villages/wards in a district were selected by using systematic sampling technique. In using systematic sampling technique, the idea was to get equal spread of the samples in a district. In selecting villages, however, small villages with population less than 500 were excluded from the study as otherwise it could increase cost of the study. The selected villages were then subjected to house to house visits to get the required informations. Adjoining villages/areas were also visited in the event of required number of samples were not obtained in the selected villages.



### **Sample Size:**

Maternal mortality is a rare event. Therefore, sample size required to estimate the level of MMR would be quite large and it would practically impossible to conduct such a large study with limited resources in terms money, labour and time, to get the required sample size. On the other hand estimates based on small sample size would be subjected to fluctuations from one year to another. Hence it has been decided to collect three years data on maternal mortality and live births preceding the study, that is maternal mortality and live births occurred during July 2006 to June 2009. It would not only give reliable estimate of maternal mortality with reasonable margin of error but also provide reasonably stable estimate of MMR for the three years preceding the study.

In the present study, following are the approaches considered for determination of the sample size.

1. On the assumption that MMR of Assam is 500/100000 live births (as per SRS, 2003-2006 report, MMR of Assam was 490) and with a relative margin of error of 15% with 95% confidence limit approximately 34,000 live births were to be covered.

This is based on the formula-

$$\text{Sample size } n = \frac{Z_{\alpha}^2 P Q}{D^2}$$

When Z : value of standard normal deviate corresponding to  $\alpha$  (alfa) level of significance

P = Proportion of MMR

Q = 1 - P

D = permissible margin of error.

2. Now assuming that live birth of Assam to be 25/1000 population, total population to be covered would be 13.6 lakh.
3. Again on the assumption that house hold size in Assam to be 5.5 (as per 2001 census mean household size in Assam was 5.4), the total

number of households to be studied would be 2.47 lakh (approx) if the study is restricted to a single year data.

4. Now live birth and maternal deaths of three years preceding the study would be covered and hence the number of house holds to be covered would be 82,500 approximately and population to be covered would be 4.53 lakhs approximately.
5. The samples were then allocated to 660 villages / wards giving due weightage to size and composition of the population of the districts. All the live births and maternal deaths of the selected villages were then studied even if the number of live births exceeded the sample size allocated to the selected villages.

#### **Sample size for the determination of Infant Mortality Rate:**

The Sample size fixed for the study of MMR would also satisfy the sample size required to determine IMR assuming that IMR is 60/1000 population in Assam. The number of death of infants collected alongwith maternal death would give quite a big sample size as a result of which margin of error would be very low and estimate would be more reliable.

#### **Survey Instruments & Data Collection:**

In the present study, house to house visits were made by the investigators in the selected villages and necessary data were collected in pre tested schedules. In collecting data on maternal death, a few indicators like caste, religious status, Age, party, ANC, place of delivery, place of occurrence of death etc. were collected.

# Chapter II

## Findings of the Study-

### Maternal Mortality

#### 1. Distribution of mothers by religion

Table I shows distribution of mothers having infants during three years preceding the survey by religious status. The table shows that 65.7% of the mothers were hindus followed by muslims (32.0) while remaining mothers belonged to other religions. The table further reveals that hindu mothers were found more than 90% in a number of districts and these districts were Baska, Dhemaji, Dibrugarh, Golaghat, Jorhat, Lakhimpur, Sivasagar and Tinsukia. On the other hand, more than 50% muslim mothers were recorded in Barpeta, Bongaigaon, Dhubri, Karimganj and in Nalbari Districts.

#### 2. Distribution of mothers by caste

Table 2 shows caste distribution of mothers having infants during the three years preceding the survey. It shows that general caste contributed 44.6% of the total mothers, followed by other caste (28.1%), ST (14.1%) and SC (12.1%). Other castes include OBCs, MOBCs like tea tribes etc.

District wise analysis of data shows that mothers belonging to general castes found 65% to about 90% in a number of districts. These districts were Barpeta, Bonaigaon, Darrang, Dhubri, Nalbari and Karimganj, highest concentration of mothers of general caste was recorded in Nalbari district (87.9%). The table further shows that mothers belonging to S.C. were found more than 20% in Cachar (27.2%), Hailakandi (21.7%), Kamrup ® (26.9%) where as S.T. mothers were found more in Baska, Chirang, Dhemaji and Kokrajhar. Among these districts, highest and lowest proportions of S.T. mothers were observed in Dhemaji and Kokrajhar respectively. On the other hand, concentration of other castes mothers was found to be more than 40% in Dibrugarh, Golaghat, Jorhat, Sivasagar, Sonitpur, Tinsukia and Udalguri. Maximum number of mothers belonging to other castes were recorded in Tinsukia (72.2%) followed by Sivasagar (66.5%) and Dibrugarh (57.8%).

### **3. Distribution of mothers by Literary Status**

Table 3 shows distribution of mothers by literary status. The table shows that 23.9% of the mothers surveyed were illiterate where as 28.1% had primary level education. On the other hand more than 22% mothers had education level above 10<sup>th</sup> Standard. District wise distribution shown that maximum illiterate mothers were recorded in Sonitpur (48.4%), followed by Dibrugarh (36.2%) and Tinsukia (35.7%) where as minimum illiterate mothers were recorded in Baska (3.7%) and Nalbari (4.0%). Similarly 10<sup>th</sup> Standard pass mothers were also found more in Baska (33.3%) followed by Nalbari (31.3%) and Jorhat (25.0%). Again proportion of graduate mothers were found more in Dibrugarh (5.3%), Jorhat (12.1%) and Kamrup (U) (7.9%).

### **4. Distribution of Mothers by Numbers of Living Children**

Table 4 shows distribution of mothers by number of living children at the time of investigation. The table shows that 67% of the mothers had either one or two living children at the time of the investigation. On the other hand more than 14% of the mother had 4 or more living children at the time of investigation.

District wise analysis of data shows that proportion of mothers having one living children was found to be more than 40% in Darrang, Jorhat and Kamrup (U) where as proportion of mothers having two living children were found more than 40% in Baska, Dhemaji, Sivasagar and Tinsukia.

On the other hand proportion of mothers having 4 or more living children were found to be more in Karimganj & Hailakandi.

### **5. Distribution of Mothers by Number of Live Births**

Table 5 shows the distribution of mothers by number of live births during three years preceeding the survey. The table shows out of 34622 total mothers surveyed, 30854 had one live births (89.1%) during the last three years preceeding the survey. The table further shows that 10.7% mother had two live births during the last three years preceeding the survey.

District wise analysis of data shows that proportions of mother having two live births during last three years were more than 20% in Dhemaji, Dhubri, Dibrugarh and Kokrajhar.

## **6. Distribution of Live Births & Maternal Death**

Table 6 shows district wise distribution of live births and maternal death during last three years preceding the survey. The table shows that 38452 live births occurred to 36322 mothers (shown in previous table) during the last three years. The table again shows that 128 maternal deaths were recorded in the same area during the period under study. On the basis of the present survey findings, Maternal Mortality Ratio (MMR) for Assam is calculated as 333/100000 live birth with 95% confidence interval of  $333 \pm 58$  that is 275 – 391. Distribution MMR shows wide fluctuations from one district to another because of small sample size in districts. Besides, because of small size, the margin of error would also be quite high. However, MMRs were calculated & found to be high in Dhubri (590/100000) followed by Morigaon (579/100000) and Sonitpur (484/100000). It must, however, be noted that district MMR is subjected to large fluctuations and low MMR in a district would not throw much light about the maternal mortality situation in that district.

## **7 : District wise distribution of maternal deaths by causes of death**

The table 7 shows distribution of mother mortality by cause of death. The table shows that 78.1% of the maternal death occurred due to direct obstetric causes like hemorrhage, obstructive labour, abortion etc where as 21.9% occurred due to indirect causes like malaria, anaemia, Tuberculosis which enhances the risk of dying during pregnancy.

## **8 : District wise distribution of maternal deaths by place of death**

The table 8 shows distribution of maternal death by place of death. The table shows that 36.7% of the maternal occurred at home where as 56.3% occurred in Hospital. On the other hand 7.0 % died on the way to hospital.

#### **9 : District wise distribution of maternal deaths by age of mothers**

Table 9 shows distribution of maternal death by age of mother. The table shows that out of 128 maternal deaths, 12 (7%) deaths occurred to aged mother that is, mothers above 34 year age. But most of the deaths that is 86 (67.19%) death occurred to mother in the age group of 20-29 years.

#### **10 : District wise distribution of maternal deaths by order of pregnancy**

Table 10 shows district wise distribution of maternal deaths by order of pregnancy. The table shows that 43.8% of maternal deaths occurred to mothers with first order of pregnancy and 24.2% maternal deaths occurred second order of pregnancy. The study reveals that proportion of maternal death decreases with increase in order of pregnancy.

#### **11: District wise distribution of maternal deaths by period**

Table 11 shows distribution of maternal mortality period of death. It shows that majority of maternal death ( 53.3%) occurred during delivery where as 28% died within 42 days of delivery. On the other hand, maternal deaths during pregnancy contributed 18% of the total maternal deaths. Number of maternal death during delivery was found more in Dhubri (10) followed by Morigaon and Nagaon ( 6 in each district).

#### **12 : District wise distribution of maternal deaths by ANC received**

Table 12 shows distribution of mothers died by receipt of ANC. The table shows that 11.7% death occurred to mothers who did not receive ANC during their pregnancy preceeding the death. On the other hand more than 45% maternal deaths occurred to mothers who received only one or two ANC during their last pregnancy preceeding the death.

### **13 : District wise distribution of maternal deaths by place of delivery**

Table 13 shows distribution of maternal death by place of delivery. The study shows that out of total 128 maternal death, 105 maternal death occurred during intra natal and post natal period. Out of this 105 maternal death 55% died in hospital, both government and private. On the other hand 41% died in home.

## **Infant Mortality**

### **14 : District wise distribution of Infants, Infant Deaths & IMR**

Table 14 shows number of live births, infant deaths and Infant Mortality Rate during the period July 2008 to June 2009..

The study of infant mortality in the twenty five district of Assam for the period July 2008 to June 2009 reveals the fact that out of 13671 live births that occurred during the period under study, 634 died during infancy. Therefore IMR of Assam is calculated as 46/1000 live birth for the period under study, that is, during the year proceeding the study. The table further shows that Infant Mortality Rate is found to be less than 30/1000 live birth in a number of districts. These districts were Dhemaji, Dibrugah, Golaghat, Nalbari, Sivasagar and Tinsukia, lowest being in Golaghat district. (20.5/1000 live births)

On the other hand, IMR was found to be more than 60/1000 live birth in a few districts. These districts are Barpeta, Dhubri, Goalpara, Hailakandi, Karimganj, Morigaon and Udalguri, highest IMR being observed in Karimganj (86.8) followed by Morigaon (83.5/1000) and Hailakandi (71.4/1000 live birth).

### **15 (A): District wise distribution of Infant mortality by age at death**

Table 15(A) shows distribution of infant mortality by age at death. The table shows that out of 634 infant deaths, 247 infants (39%) died within 7 days of life where as 207 ( 32.6%) died between 7 days to 28 days of life. On the other hand, 180 ( 28.4%) infant deaths occurred during post neonatal period.

Again district analysis of data shows that early neonatal mortality was recorded 50% or more in a number of districts like Barpeta, Kamrup (Metro), Kokrajhar, Nalbari & Sivsagar district. On the other hand, more than 40% late neonatal death was recorded in Barpeta, Dhubri and Nagaon. In these districts more than 75% infant deaths occurred during the neonatal period that is within 28 days of life of the infant.

### **Conclusion:**

The study on infant mortality and maternal mortality was carried out with the objective of estimating infant mortality and maternal mortality rates in the state. As already pointed out, current and reliable data on mortality of these groups were lacking particularly in respect of maternal mortality. Moreover, estimate of maternal mortality ratio was found to base on small sample size and therefore found subjected to errors. The present study with more than 38,000 live births has full filled the need for such data to some extent. The infant mortality rate which was estimated as 64 for Assam in SRS October'2009 bulletin shows decline as revealed by the present study. Similarly the maternal mortality ratio which was estimated as 480 for Assam by the Registrar General of India ( 2004-06) shows considerable reduction as the present study estimates maternal mortality as 333/100000 live birth.



**Table 1 : District wise distribution of mothers according to religion**

District :	Religion										Total
	Hindu		Muslim		Christian		Others		No response		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta	833	40.1	1246	59.9		0.0		0.0		0.0	2079
Baska	716	90.3	77	9.7		0.0		0.0		0.0	793
Bongaigaon	386	43.0	508	56.6	3	0.3		0.0		0.0	897
Cachar	1019	64.0	542	34.1	30	1.9		0.0		0.0	1591
Chirang	304	64.5	167	35.5		0.0		0.0		0.0	471
Darang	534	50.1	531	49.9		0.0		0.0		0.0	1065
Dhemaji	781	100.0		0.0		0.0		0.0		0.0	781
Dhubri	599	33.0	1196	65.9	4	0.2		0.0	17	0.9	1816
Dibrugarh	1230	94.0	18	1.4	58	4.4		0.0	2	0.2	1308
Goalpara	600	51.4	499	42.8	68	5.8		0.0		0.0	1167
Golaghat	962	98.3	8	0.8	9	0.9		0.0		0.0	979
Hailakandi	527	51.8	466	45.8	11	1.1	10	1.0	4	0.4	1018
Jorhat	1329	94.8	46	3.3	27	1.9		0.0		0.0	1402
kamrup (metro)	1330	74.7	442	24.8	6	0.3		0.0	2	0.1	1780
Kamrup ®	798	56.3	582	41.1		0.0		0.0	37	2.6	1417
Karimganj	436	29.9	1012	69.4	7	0.5		0.0	3	0.2	1458
Kokrajhar	945	75.5	298	23.8	8	0.6		0.0	1	0.1	1252
Lakhimpur	782	92.8	39	4.6	22	2.6		0.0		0.0	843
Morigaon	660	56.2	514	43.8		0.0		0.0		0.0	1174
Nagaon	1644	54.2	1345	44.4	36	1.2		0.0	6	0.2	3031
Nalbari	651	44.9	800	55.1		0.0		0.0		0.0	1451
Sivasagar	1758	92.7	117	6.2	21	1.1		0.0	1	0.1	1897
Sonitpur	1893	72.8	487	18.7	84	3.2		0.0	136	5.2	2600
Tinsukia	1125	90.1	2	0.2	121	9.7		0.0		0.0	1248
Udalguri	915	82.9	151	13.7	38	3.4		0.0		0.0	1104
<b>Assam</b>	<b>22757</b>	<b>65.7</b>	<b>11093</b>	<b>32.0</b>	<b>553</b>	<b>1.6</b>	<b>10</b>	<b>0.0</b>	<b>209</b>	<b>0.6</b>	<b>34622</b>

**Table 2 : District wise distribution of mothers according to caste**

District :	Caste										Total
	General		SC		ST		Others		No response		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta	1640	78.9	138	6.6	183	8.8	118	5.7		0.0	2079
Baska	283	35.7	30	3.8	403	50.8	77	9.7		0.0	793
Bongaigaon	587	65.4	94	10.5	43	4.8	173	19.3		0.0	897
Cachar	517	32.5	433	27.2	61	3.8	580	36.5		0.0	1591
Chirang	176	37.4	24	5.1	238	50.5	33	7.0		0.0	471
Darang	721	67.7	64	6.0	12	1.1	268	25.2		0.0	1065
Dhemaji	55	7.0	46	5.9	413	52.9	247	31.6	20	2.6	781
Dhubri	1353	74.5	134	7.4	158	8.7	165	9.1	6	0.3	1816
Dibrugarh	165	12.6	79	6.0	222	17.0	756	57.8	86	6.6	1308
Goalpara	561	48.1	154	13.2	319	27.3	133	11.4		0.0	1167
Golaghat	244	24.9	58	5.9	189	19.3	486	49.6	2	0.2	979
Hailakandi	555	54.5	221	21.7	103	10.1	135	13.3	4	0.4	1018
Jorhat	460	32.8	180	12.8	73	5.2	689	49.1		0.0	1402
kamrup (metro)	635	35.7	250	14.0	193	10.8	696	39.1	6	0.3	1780
Kamrup @	625	44.1	381	26.9	170	12.0	194	13.7	47	3.3	1417
Karimganj	1142	78.3	248	17.0	8	0.5	57	3.9	3	0.2	1458
Kokrajhar	613	49.0	75	6.0	450	35.9	113	9.0	1	0.1	1252
Lakhimpur	232	27.5	43	5.1	245	29.1	323	38.3		0.0	843
Morigaon	601	51.2	159	13.5	240	20.4	174	14.8		0.0	1174
Nagaon	1596	52.7	587	19.4	245	8.1	594	19.6	9	0.3	3031
Nalbari	1275	87.9	110	7.6	40	2.8	26	1.8		0.0	1451
Sivasagar	332	17.5	253	13.3	49	2.6	1261	66.5	2	0.1	1897
Sonitpur	816	31.4	203	7.8	347	13.3	1050	40.4	184	7.1	2600
Tinsukia	110	8.8	77	6.2	147	11.8	901	72.2	13	1.0	1248
Udalguri	163	14.8	153	13.9	324	29.3	464	42.0		0.0	1104
<b>Assam</b>	<b>15457</b>	<b>44.6</b>	<b>4194</b>	<b>12.1</b>	<b>4875</b>	<b>14.1</b>	<b>9713</b>	<b>28.1</b>	<b>383</b>	<b>1.1</b>	<b>34622</b>

**Table 3 : District wise distribution of mothers according to literacy status**

District :	Literacy Status														Total
	Illiterate		Primary		High School		Secondary/10th/ X pass		Hr. Sec./ XII pass		Graduate & above		No response		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta	281	13.5	556	26.7	682	32.8	415	20.0	104	5.0	27	1.3	14	0.7	2079
Baska	29	3.7	135	17.0	231	29.1	264	33.3	118	14.9	16	2.0		0.0	793
Bongaigaon	237	26.4	247	27.5	226	25.2	128	14.3	38	4.2	20	2.2	1	0.1	897
Cachar	359	22.6	542	34.1	470	29.5	167	10.5	36	2.3	17	1.1		0.0	1591
Chirang	64	13.6	139	29.5	143	30.4	113	24.0	12	2.5		0.0		0.0	471
Darang	346	32.5	187	17.6	213	20.0	177	16.6	103	9.7	39	3.7		0.0	1065
Dhemaji	186	23.8	260	33.3	182	23.3	103	13.2	40	5.1	8	1.0	2	0.3	781
Dhubri	134	7.4	499	27.5	801	44.1	292	16.1	56	3.1	7	0.4	27	1.5	1816
Dibrugarh	474	36.2	281	21.5	243	18.6	150	11.5	86	6.6	69	5.3	5	0.4	1308
Goalpara	254	21.8	420	36.0	300	25.7	163	14.0	25	2.1	4	0.3	1	0.1	1167
Golaghat	190	19.4	191	19.5	176	18.0	235	24.0	138	14.1	48	4.9	1	0.1	979
Hailakandi	106	10.4	379	37.2	371	36.4	119	11.7	25	2.5	13	1.3	5	0.5	1018
Jorhat	114	8.1	193	13.8	228	16.3	350	25.0	348	24.8	169	12.1		0.0	1402
kamrup (metro)	428	24.0	309	17.4	386	21.7	356	20.0	160	9.0	141	7.9		0.0	1780
Kamrup ®	487	34.4	254	17.9	271	19.1	256	18.1	78	5.5	34	2.4	37	2.6	1417
Karimganj	433	29.7	666	45.7	260	17.8	79	5.4	10	0.7	6	0.4	4	0.3	1458
Kokrajhar	85	6.8	408	32.6	478	38.2	236	18.8	21	1.7	14	1.1	10	0.8	1252
Lakhimpur	288	34.2	235	27.9	170	20.2	90	10.7	39	4.6	21	2.5		0.0	843
Morigaon	289	24.6	419	35.7	311	26.5	112	9.5	31	2.6	11	0.9	1	0.1	1174
Nagaon	973	32.1	936	30.9	790	26.1	252	8.3	65	2.1	8	0.3	7	0.2	3031
Nalbari	58	4.0	230	15.9	466	32.1	454	31.3	206	14.2	17	1.2	20	1.4	1451
Sivasagar	409	21.6	708	37.3	487	25.7	204	10.8	70	3.7	19	1.0		0.0	1897
Sonitpur	1258	48.4	784	30.2	301	11.6	80	3.1	27	1.0	13	0.5	137	5.3	2600
Tinsukia	445	35.7	412	33.0	223	17.9	100	8.0	25	2.0	43	3.4		0.0	1248
Udalguri	363	32.9	343	31.1	200	18.1	141	12.8	49	4.4	8	0.7		0.0	1104
<b>Assam</b>	<b>8290</b>	<b>23.9</b>	<b>9733</b>	<b>28.1</b>	<b>8609</b>	<b>24.9</b>	<b>5036</b>	<b>14.5</b>	<b>1910</b>	<b>5.5</b>	<b>772</b>	<b>2.2</b>	<b>272</b>	<b>0.8</b>	<b>34622</b>

**Table 4 : District wise distribution of mothers by number of living children**

District :	Assam number of Live Births												Total
	1		2		3		4		5		6 & above		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta	710	34.2	658	31.6	338	16.3	201	9.7	83	4.0	89	4.3	2079
Baska	253	31.9	325	41.0	132	16.6	57	7.2	20	2.5	6	0.8	793
Bongaigaon	307	34.2	271	30.2	163	18.2	86	9.6	37	4.1	33	3.7	897
Cachar	430	27.0	550	34.6	351	22.1	166	10.4	61	3.8	33	2.1	1591
Chirang	170	36.1	156	33.1	74	15.7	35	7.4	16	3.4	20	4.2	471
Darang	447	42.0	324	30.4	179	16.8	64	6.0	22	2.1	29	2.7	1065
Dhemaji	215	27.5	316	40.5	161	20.6	72	9.2	14	1.8	3	0.4	781
Dhubri	424	23.3	618	34.0	408	22.5	192	10.6	99	5.5	75	4.1	1816
Dibrugarh	385	29.4	457	34.9	240	18.3	165	12.6	41	3.1	20	1.5	1308
Goalpara	416	35.6	330	28.3	207	17.7	128	11.0	46	3.9	40	3.4	1167
Golaghat	335	34.2	339	34.6	188	19.2	78	8.0	24	2.5	15	1.5	979
Hailakandi	221	21.7	299	29.4	252	24.8	168	16.5	54	5.3	24	2.4	1018
Jorhat	651	46.4	479	34.2	221	15.8	45	3.2	5	0.4	1	0.1	1402
kamrup (metro)	790	44.4	602	33.8	256	14.4	84	4.7	29	1.6	19	1.1	1780
Kamrup ®	529	37.3	444	31.3	228	16.1	78	5.5	39	2.8	99	7.0	1417
Karimganj	372	25.5	335	23.0	267	18.3	206	14.1	140	9.6	138	9.5	1458
Kokrajhar	337	26.9	420	33.5	276	22.0	123	9.8	63	5.0	33	2.6	1252
Lakhimpur	264	31.3	310	36.8	191	22.7	54	6.4	13	1.5	11	1.3	843
Morigaon	437	37.2	354	30.2	204	17.4	103	8.8	51	4.3	25	2.1	1174
Nagaon	1197	39.5	918	30.3	506	16.7	212	7.0	112	3.7	86	2.8	3031
Nalbari	472	32.5	516	35.6	271	18.7	115	7.9	50	3.4	27	1.9	1451
Sivasagar	647	34.1	849	44.8	314	16.6	47	2.5	8	0.4	32	1.7	1897
Sonitpur	888	34.2	816	31.4	418	16.1	168	6.5	99	3.8	211	8.1	2600
Tinsukia	322	25.8	506	40.5	294	23.6	96	7.7	17	1.4	13	1.0	1248
Udalguri	459	41.6	352	31.9	176	15.9	75	6.8	25	2.3	17	1.5	1104
<b>Assam</b>	<b>11678</b>	<b>33.7</b>	<b>11544</b>	<b>33.3</b>	<b>6315</b>	<b>18.2</b>	<b>2818</b>	<b>8.1</b>	<b>1168</b>	<b>3.4</b>	<b>1099</b>	<b>3.2</b>	<b>34622</b>

**Table 5 : District wise distribution of mothers by number of live births in last three years**

District	Number of births in last three years						Total
	1		2		3		
	No.	PC	No.	PC	No.	PC	
Barpeta	1799	86.5	275	13.2	5	0.2	2079
Baska	623	78.6	170	21.4		0.0	793
Bongaigaon	742	82.7	152	16.9	3	0.3	897
Cachar	1375	86.4	213	13.4	3	0.2	1591
Chirang	397	84.3	74	15.7		0.0	471
Darang	1019	95.7	46	4.3		0.0	1065
Dhemaji	601	77.0	179	22.9	1	0.1	781
Dhubri	1431	78.8	382	21.0	3	0.2	1816
Dibrugarh	1037	79.3	264	20.2	7	0.5	1308
Goalpara	1079	92.5	88	7.5		0.0	1167
Golaghat	792	80.9	184	18.8	3	0.3	979
Hailakandi	971	95.4	45	4.4	2	0.2	1018
Jorhat	1292	92.2	108	7.7	2	0.1	1402
kamrup (metro)	1699	95.4	80	4.5	1	0.1	1780
Kamrup ®	1377	97.2	40	2.8		0.0	1417
Karimganj	1242	85.2	203	13.9	13	0.9	1458
Kokrajhar	984	78.6	267	21.3	1	0.1	1252
Lakhimpur	722	85.6	121	14.4		0.0	843
Morigaon	1140	97.1	34	2.9		0.0	1174
Nagaon	2880	95.0	151	5.0		0.0	3031
Nalbari	1218	83.9	233	16.1		0.0	1451
Sivasagar	1831	96.5	66	3.5		0.0	1897
Sonitpur	2518	96.8	79	3.0	3	0.1	2600
Tinsukia	1050	84.1	183	14.7	15	1.2	1248
Udalguri	1035	93.8	69	6.3		0.0	1104
<b>Assam</b>	<b>30854</b>	<b>89.1</b>	<b>3706</b>	<b>10.7</b>	<b>62</b>	<b>0.2</b>	<b>34622</b>

**Table 6 : District wise distribution of live births & maternal deaths during three preceding the study**

District :	Maternal death in last three years				
	No. of live births	No. of Maternal Deaths	MMR	95% CI	
Barpeta	2364	6	254		
Baska	963	2	208		
Bongaigaon	1055	1	95		
Cachar	1810	4	221		
Chirang	545	1	183		
Darang	1111	3	270		
Dhemaji	962	4	416		
Dhubri	2204	13	590		
Dibrugarh	1586	4	252		
Goalpara	1255	5	398		
Golaghat	1169	4	342		
Hailakandi	1067	4	375		
Jorhat	1514	4	264		
kamrup (metro)	1862	5	269		
Kamrup ®	1457	2	137		
Karimganj	1687	8	474		
Kokrajhar	1521	4	263		
Lakhimpur	964	1	104		
Morigaon	1208	7	579		
Nagaon	3182	14	440		
Nalbari	1684	3	178		
Sivasagar	1963	6	306		
Sonitpur	2685	13	484		
Tinsukia	1461	3	205		
Udalguri	1173	7	597		
<b>Assam</b>	<b>38452</b>	<b>128</b>	<b>333</b>		<b>(275 – 391)</b>

**Table 7 : District wise distribution of maternal deaths by causes of death**

District :	Cause of Maternal Death				
	Direct		Indirect		Total
	No.	PC	No.	PC	
Barpeta	6	100.0		0.0	6
Baska	1	50.0	1	50.0	2
Bongaigaon		0.0	1	100.0	1
Cachar	1	25.0	3	75.0	4
Chirang	1	100.0		0.0	1
Darang	2	66.7	1	33.3	3
Dhemaji	4	100.0		0.0	4
Dhubri	12	92.3	1	7.7	13
Dibrugarh	4	100.0		0.0	4
Goalpara	3	60.0	2	40.0	5
Golaghat	3	75.0	1	25.0	4
Hailakandi	3	75.0	1	25.0	4
Jorhat	3	75.0	1	25.0	4
kamrup (metro)	1	20.0	4	80.0	5
Kamrup ®	2	100.0		0.0	2
Karimganj	7	87.5	1	12.5	8
Kokrajhar	3	75.0	1	25.0	4
Lakhimpur	1	100.0		0.0	1
Morigaon	7	100.0		0.0	7
Nagaon	13	92.9	1	7.1	14
Nalbari	3	100.0		0.0	3
Sivasagar	3	50.0	3	50.0	6
Sonitpur	9	69.2	4	30.8	13
Tinsukia	3	100.0		0.0	3
Udalguri	5	71.4	2	28.6	7
<b>Assam</b>	<b>100</b>	<b>78.1</b>	<b>28</b>	<b>21.9</b>	<b>128</b>

**Table 8 : District wise distribution of maternal deaths by place of death**

District :	Place of Death						
	Home		Hospital		On the way to Hospital		Total
	No.	PC	No.	PC	No.	PC	
Barpeta	2	33.3	4	66.7		0.0	6
Baska		0.0	2	100.0		0.0	2
Bongaigaon		0.0	1	100.0		0.0	1
Cachar	1	25.0	2	50.0	1	25.0	4
Chirang		0.0	1	100.0		0.0	1
Darang	2	66.7	1	33.3		0.0	3
Dhemaji	3	75.0	1	25.0		0.0	4
Dhubri	5	38.5	8	61.5		0.0	13
Dibrugarh	2	50.0	2	50.0		0.0	4
Goalpara	3	60.0	1	20.0	1	20.0	5
Golaghat	2	50.0	2	50.0		0.0	4
Hailakandi	1	25.0	3	75.0		0.0	4
Jorhat	1	25.0	3	75.0		0.0	4
kamrup (metro)	2	40.0	3	60.0		0.0	5
Kamrup ®	1	50.0	1	50.0		0.0	2
Karimganj	3	37.5	4	50.0	1	12.5	8
Kokrajhar		0.0	3	75.0	1	25.0	4
Lakhimpur	1	100.0		0.0		0.0	1
Morigaon		0.0	5	71.4	2	28.6	7
Nagaon	3	21.4	9	64.3	2	14.3	14
Nalbari		0.0	3	100.0		0.0	3
Sivasagar	3	50.0	3	50.0		0.0	6
Sonitpur	6	46.2	6	46.2	1	7.7	13
Tinsukia	1	33.3	2	66.7		0.0	3
Udalguri	5	71.4	2	28.6		0.0	7
<b>Assam</b>	<b>47</b>	<b>36.7</b>	<b>72</b>	<b>56.3</b>	<b>9</b>	<b>7.0</b>	<b>128</b>



**Table 9 : District wise distribution of maternal deaths by age of mothers**

District :	Age group of the mother												Total
	15 - 19		20 - 24		25 - 29		30 -34		35 - 39		45 -49		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta		0.0	1	16.7	3	50.0	1	16.7	1	16.7		0.0	6
Baska		0.0	2	100.0		0.0		0.0		0.0		0.0	2
Bongaigaon		0.0	1	100.0		0.0		0.0		0.0		0.0	1
Cachar		0.0	1	25.0	2	50.0		0.0	1	25.0		0.0	4
Chirang		0.0		0.0	1	100.0		0.0		0.0		0.0	1
Darang		0.0	1	33.3	2	66.7		0.0		0.0		0.0	3
Dhemaji		0.0	2	50.0	2	50.0		0.0		0.0		0.0	4
Dhubri	1	7.7	5	38.5	2	15.4	5	38.5		0.0		0.0	13
Dibrugarh		0.0	1	25.0	3	75.0		0.0		0.0		0.0	4
Goalpara		0.0	2	40.0	1	20.0	2	40.0		0.0		0.0	5
Golaghat		0.0	1	25.0	1	25.0	1	25.0	1	25.0		0.0	4
Hailakandi	1	25.0		0.0	1	25.0	1	25.0	1	25.0		0.0	4
Jorhat		0.0		0.0	2	50.0	2	50.0		0.0		0.0	4
kamrup (metro)	1	20.0	1	20.0	1	20.0	2	40.0		0.0		0.0	5
Kamrup ®		0.0	2	100.0		0.0		0.0		0.0		0.0	2
Karimganj		0.0	2	25.0	2	25.0	1	12.5		0.0	3	37.5	8
Kokrajhar		0.0	1	25.0	2	50.0		0.0	1	25.0		0.0	4
Lakhimpur		0.0	1	100.0		0.0		0.0		0.0		0.0	1
Morigaon	1	14.3	1	14.3	4	57.1	1	14.3		0.0		0.0	7
Nagaon		0.0	5	35.7	8	57.1	1	7.1		0.0		0.0	14
Nalbari		0.0		0.0	2	66.7		0.0	1	33.3		0.0	3
Sivasagar		0.0	1	16.7	2	33.3	2	33.3	1	16.7		0.0	6
Sonitpur	3	23.1	5	38.5	3	23.1	1	7.7	1	7.7		0.0	13
Tinsukia	2	66.7		0.0		0.0	1	33.3		0.0		0.0	3
Udalguri		0.0	5	71.4	1	14.3		0.0	1	14.3		0.0	7
<b>Assam</b>	<b>9</b>	<b>7.0</b>	<b>41</b>	<b>32.0</b>	<b>45</b>	<b>35.2</b>	<b>21</b>	<b>16.4</b>	<b>9</b>	<b>7.0</b>	<b>3</b>	<b>2.3</b>	<b>128</b>

**Table 10 : District wise distribution of maternal deaths by order of pregnancy**

District :	Order										Total
	1		2		3		4		4+		
	No.	PC	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta	1	16.7	2	33.3	1	16.7	1	16.7	1	16.7	6
Baska	1	50.0	1	50.0		0.0		0.0		0.0	2
Bongaigaon	1	100.0		0.0		0.0		0.0		0.0	1
Cachar	1	25.0	1	25.0	2	50.0		0.0		0.0	4
Chirang		0.0	1	100.0		0.0		0.0		0.0	1
Darang	2	66.7	1	33.3		0.0		0.0		0.0	3
Dhemaji	2	50.0	1	25.0		0.0	1	25.0		0.0	4
Dhubri	6	46.2	1	7.7	3	23.1	1	7.7	2	15.4	13
Dibrugarh	2	50.0	1	25.0		0.0	1	25.0		0.0	4
Goalpara	2	40.0	3	60.0		0.0		0.0		0.0	5
Golaghat	1	25.0	1	25.0		0.0	1	25.0	1	25.0	4
Hailakandi	1	25.0	1	25.0		0.0	2	50.0		0.0	4
Jorhat	3	75.0		0.0	1	25.0		0.0		0.0	4
kamrup (metro)	2	40.0	1	20.0		0.0	2	40.0		0.0	5
Kamrup ®	2	100.0		0.0		0.0		0.0		0.0	2
Karimganj	2	25.0		0.0	2	25.0	1	12.5	3	37.5	8
Kokrajhar	2	50.0	1	25.0		0.0		0.0	1	25.0	4
Lakhimpur	1	100.0		0.0		0.0		0.0		0.0	1
Morigaon	3	42.9	2	28.6	1	14.3		0.0	1	14.3	7
Nagaon	7	50.0	3	21.4	1	7.1	2	14.3	1	7.1	14
Nalbari	1	33.3		0.0	1	33.3	1	33.3		0.0	3
Sivasagar	3	50.0	2	33.3	1	16.7		0.0		0.0	6
Sonitpur	7	53.8	4	30.8	2	15.4		0.0		0.0	13
Tinsukia	1	33.3	1	33.3		0.0		0.0	1	33.3	3
Udalguri	2	28.6	3	42.9	1	14.3		0.0	1	14.3	7
<b>Assam</b>	<b>56</b>	<b>43.8</b>	<b>31</b>	<b>24.2</b>	<b>16</b>	<b>12.5</b>	<b>13</b>	<b>10.2</b>	<b>12</b>	<b>9.4</b>	<b>128</b>

**Table 11 : District wise distribution of maternal deaths by period**

District :	Period of occurrence of the event						
	During Pregnancy		Delivery		Within 42 days after Delivery		Total
	No.	PC	No.	PC	No.	PC	
Barpeta		0.0	5	83.3	1	16.7	6
Baska	1	50.0	1	50.0		0.0	2
Bongaigaon	1	100.0		0.0		0.0	1
Cachar		0.0	2	50.0	2	50.0	4
Chirang		0.0		0.0	1	100.0	1
Darang	1	33.3	1	33.3	1	33.3	3
Dhemaji	1	25.0	2	50.0	1	25.0	4
Dhubri	1	7.7	10	76.9	2	15.4	13
Dibrugarh	1	25.0	2	50.0	1	25.0	4
Goalpara		0.0	3	60.0	2	40.0	5
Golaghat		0.0	2	50.0	2	50.0	4
Hailakandi	1	25.0	3	75.0		0.0	4
Jorhat	1	25.0	3	75.0		0.0	4
kamrup (metro)	1	20.0	1	20.0	3	60.0	5
Kamrup ®		0.0	1	50.0	1	50.0	2
Karimganj	2	25.0	3	37.5	3	37.5	8
Kokrajhar		0.0	3	75.0	1	25.0	4
Lakhimpur	1	100.0		0.0		0.0	1
Morigaon	1	14.3	6	85.7		0.0	7
Nagaon	2	14.3	6	42.9	6	42.9	14
Nalbari		0.0	3	100.0		0.0	3
Sivasagar		0.0	3	50.0	3	50.0	6
Sonitpur	5	38.5	4	30.8	4	30.8	13
Tinsukia		0.0	2	66.7	1	33.3	3
Udalguri	3	42.9	3	42.9	1	14.3	7
<b>Assam</b>	<b>23</b>	<b>18.0</b>	<b>69</b>	<b>53.9</b>	<b>36</b>	<b>28.1</b>	<b>128</b>

**Table 12 : District wise distribution of maternal deaths by ANC received**

District :	Number of ANC received								Total
	1		2		3		Not received		
	No.	PC	No.	PC	No.	PC	No.	PC	
Barpeta		0.0	2	33.3	4	66.7		0.0	6
Baska		0.0		0.0	2	100.0		0.0	2
Bongaigaon		0.0		0.0	1	100.0		0.0	1
Cachar		0.0	2	50.0	1	25.0	1	25.0	4
Chirang		0.0	1	100.0		0.0		0.0	1
Darang	1	33.3		0.0	2	66.7		0.0	3
Dhemaji		0.0	1	25.0	2	50.0	1	25.0	4
Dhubri		0.0	4	30.8	6	46.2	3	23.1	13
Dibrugarh		0.0		0.0	3	75.0	1	25.0	4
Goalpara		0.0	1	20.0	4	80.0		0.0	5
Golaghat		0.0		0.0	3	75.0	1	25.0	4
Hailakandi		0.0	4	100.0		0.0		0.0	4
Jorhat		0.0	2	50.0	2	50.0		0.0	4
kamrup (metro)		0.0		0.0	1	20.0	4	80.0	5
Kamrup ®		0.0	1	50.0	1	50.0		0.0	2
Karimganj	1	12.5	4	50.0	1	12.5	2	25.0	8
Kokrajhar	1	25.0		0.0	2	50.0	1	25.0	4
Lakhimpur		0.0		0.0	1	100.0		0.0	1
Morigaon	1	14.3	4	57.1	1	14.3	1	14.3	7
Nagaon	2	14.3	8	57.1	4	28.6		0.0	14
Nalbari		0.0		0.0	3	100.0		0.0	3
Sivasagar	1	16.7	2	33.3	3	50.0		0.0	6
Sonitpur	3	23.1	3	23.1	7	53.8		0.0	13
Tinsukia	1	33.3	1	33.3	1	33.3		0.0	3
Udalguri	4	57.1	3	42.9		0.0		0.0	7
<b>Assam</b>	<b>15</b>	<b>11.7</b>	<b>43</b>	<b>33.6</b>	<b>55</b>	<b>43.0</b>	<b>15</b>	<b>11.7</b>	<b>128</b>

**Table 13 : District wise distribution of maternal deaths by place of delivery**

Districts	Place of Delivery						Death During Delivery & After Delivery (Within 42 Days)	Total
	Home		Govt. Hospital		Pvt Hospital			
	No.	PC	No.	PC	No.	PC		
Barpeta	3	50.0	3	50.0		0.0	6	6
Baska	1	100.0		0.0		0.0	1	2
Bongaigaon							0	1
Cachar	2	50.0	1	25.0	1	25.0	4	4
Chirang	1	100.0		0.0		0.0	1	1
Darang	1	50.0	1	50.0		0.0	2	3
Dhemaji	1	33.3	2	66.7		0.0	3	4
Dhubri	7	58.3	5	41.7		0.0	12	13
Dibrugarh		0.0	2	66.7	1	33.3	3	4
Goalpara	1	20.0	4	80.0		0.0	5	5
Golaghat	2	50.0	2	50.0		0.0	4	4
Hailakandi	2	66.7	1	33.3		0.0	3	4
Jorhat	1	33.3	1	33.3	1	33.3	3	4
kamrup (metro)	1	25.0	2	50.0	1	25.0	4	5
Kamrup ®	1	50.0	1	50.0		0.0	2	2
Karimganj	2	33.3	3	50.0	1	16.7	6	8
Kokrajhar		0.0	4	100.0		0.0	4	4
Lakhimpur							0	1
Morigaon	3	50.0	3	50.0		0.0	6	7
Nagaon	7	58.3	4	33.3	1	8.3	12	14
Nalbari		0.0	3	100.0		0.0	3	3
Sivasagar	1	16.7	5	83.3		0.0	6	6
Sonitpur	1	12.5	7	87.5		0.0	8	13
Tinsukia	2	66.7	1	33.3		0.0	3	3
Udalguri	3	75.0	1	25.0		0.0	4	7
<b>Assam</b>	<b>43</b>	<b>41.0</b>	<b>56</b>	<b>53.3</b>	<b>6</b>	<b>5.7</b>	<b>105</b>	<b>128</b>

**Table 14 : District wise distribution of Infants, Infant Deaths & IMR**

<b>District</b>	<b>Number live births</b>	<b>No. of infant deaths</b>	<b>IMR</b>	<b>95 % CI</b>	
Barpeta	693	42	61		
Baska	350	17	49		
Bongaigaon	429	13	30		
Cachar	530	27	51		
Chirang	209	7	33		
Darang	498	25	50		
Dhemaji	394	11	28		
Dhubri	860	56	65		
Dibrugarh	576	15	26		
Goalpara	448	28	63		
Golaghat	439	9	21		
Hailakandi	350	25	71		
Jorhat	497	23	46		
kamrup (metro)	577	22	38		
Kamrup ®	638	34	53		
Karimganj	461	40	87		
Kokrajhar	479	16	33		
Lakhimpur	325	11	34		
Morigaon	455	38	84		
Nagaon	1369	66	48		
Nalbari	558	16	29		
Sivasagar	552	13	24		
Sonitpur	993	39	39		
Tinsukia	623	18	29		
Udalguri	368	23	63		
<b>Assam</b>	<b>13671</b>	<b>634</b>	<b>46</b>		<b>( 44 - 48 )</b>

**Table 15 (A): District wise distribution of Infant mortality by age at death**

District :	Period of Death						No. of Infant Death
	Within 7 Days		7 days to less than 29 days		29 days to less than 1 Year		
Barpeta	21	50.0	17	40.5	4	9.5	42
Baska	5	29.4	8	47.1	4	23.5	17
Bongaigaon	5	38.5	3	23.1	5	38.5	13
Cachar	5	18.5	4	14.8	18	66.7	27
Chirang	1	14.3	6	85.7		0.0	7
Darang	7	28.0	7	28.0	11	44.0	25
Dhemaji	5	45.5	3	27.3	3	27.3	11
Dhubri	21	37.5	23	41.1	12	21.4	56
Dibrugarh	7	46.7	3	20.0	5	33.3	15
Goalpara	9	32.1	9	32.1	10	35.7	28
Golaghat	3	33.3	2	22.2	4	44.4	9
Hailakandi	9	36.0	12	48.0	4	16.0	25
Jorhat	10	43.5	11	47.8	2	8.7	23
kamrup (metro)	12	54.5	4	18.2	6	27.3	22
Kamrup ®	12	35.3	9	26.5	13	38.2	34
Karimganj	18	45.0	10	25.0	12	30.0	40
Kokrajhar	8	50.0	1	6.3	7	43.8	16
Lakhimpur	3	27.3	4	36.4	4	36.4	11
Morigaon	16	42.1	13	34.2	9	23.7	38
Nagaon	23	34.8	31	47.0	12	18.2	66
Nalbari	10	62.5	3	18.8	3	18.8	16
Sivasagar	7	53.8	2	15.4	4	30.8	13
Sonitpur	14	35.9	11	28.2	14	35.9	39
Tinsukia	7	38.9	5	27.8	6	33.3	18
Udalguri	9	39.1	6	26.1	8	34.8	23
Assam	247	39.0	207	32.6	180	28.4	634

**Table 15 (B): District wise distribution of number of live births enumerated and infant deaths during neo-natal & post neo-natal periods**

District :	Period of Death				
	Number live births	No. of Neo-natal Deaths	Neo-natal Mortality Rate	No. of Post Neo-natal Deaths	Post Neo-natal Mortality Rate
Barpeta	693	38	54.8	4	5.8
Baska	350	13	37.1	4	11.4
Bongaigaon	429	8	18.6	5	11.7
Cachar	530	9	17.0	18	34.0
Chirang	209	7	33.5		0.0
Darang	498	14	28.1	11	22.1
Dhemaji	394	8	20.3	3	7.6
Dhubri	860	44	51.2	12	14.0
Dibrugarh	576	10	17.4	5	8.7
Goalpara	448	18	40.2	10	22.3
Golaghat	439	5	11.4	4	9.1
Hailakandi	350	21	60.0	4	11.4
Jorhat	497	21	42.3	2	4.0
kamrup (metro)	577	16	27.7	6	10.4
Kamrup ®	638	21	32.9	13	20.4
Karimganj	461	28	60.7	12	26.0
Kokrajhar	479	9	18.8	7	14.6
Lakhimpur	325	7	21.5	4	12.3
Morigaon	455	29	63.7	9	19.8
Nagaon	1369	54	39.4	12	8.8
Nalbari	558	13	23.3	3	5.4
Sivasagar	552	9	16.3	4	7.2
Sonitpur	993	25	25.2	14	14.1
Tinsukia	623	12	19.3	6	9.6
Udalguri	368	15	40.8	8	21.7
Assam	13671	454	33.2	180	13.2



**Table 16 : District wise distribution of Infant Deaths by order of live births**

District :	Order of the infant died										No. of Infant Death
	1		2		3		4		4+		
Barpeta	18	42.9	14	33.3	7	16.7	1	2.4	2	4.8	42
Baska	6	35.3	9	52.9	1	5.9		0.0	1	5.9	17
Bongaigaon	2	15.4	10	76.9		0.0	1	7.7		0.0	13
Cachar	3	11.1	11	40.7	6	22.2	6	22.2	1	3.7	27
Chirang	2	28.6	5	71.4		0.0		0.0		0.0	7
Darang	9	36.0	7	28.0	5	20.0	2	8.0	2	8.0	25
Dhemaji	3	27.3	3	27.3	4	36.4	1	9.1		0.0	11
Dhubri	25	44.6	5	8.9	17	30.4	6	10.7	3	5.4	56
Dibrugarh	5	33.3	4	26.7	4	26.7	2	13.3		0.0	15
Goalpara	8	28.6	11	39.3	3	10.7	2	7.1	4	14.3	28
Golaghat	2	22.2	4	44.4	1	11.1	1	11.1	1	11.1	9
Hailakandi	9	36.0	7	28.0	5	20.0	4	16.0		0.0	25
Jorhat	15	65.2	3	13.0	5	21.7		0.0		0.0	23
kamrup (metro)	11	50.0	4	18.2	4	18.2	2	9.1	1	4.5	22
Kamrup ®	15	44.1	7	20.6	4	11.8	3	8.8	5	14.7	34
Karimganj	12	30.0	10	25.0	8	20.0	5	12.5	5	12.5	40
Kokrajhar	6	37.5	3	18.8	3	18.8	2	12.5	2	12.5	16
Lakhimpur	3	27.3	6	54.5	2	18.2		0.0		0.0	11
Morigaon	21	55.3	9	23.7	2	5.3	2	5.3	4	10.5	38
Nagaon	34	51.5	16	24.2	12	18.2	3	4.5	1	1.5	66
Nalbari	6	37.5	4	25.0	3	18.8	3	18.8		0.0	16
Sivasagar	3	23.1	1	7.7	7	53.8		0.0	2	15.4	13
Sonitpur	21	53.8	14	35.9	2	5.1	2	5.1		0.0	39
Tinsukia	7	38.9	10	55.6	1	5.6		0.0		0.0	18
Udalguri	7	30.4	7	30.4	2	8.7	2	8.7	5	21.7	23
Assam	253	39.9	184	29.0	108	17.0	50	7.9	39	6.2	634