ANNUAL HEALTH SURVEY BULLETIN 2011-12

ASSAM

Foreword

Availability of district-level vital rates has always been an impediment in health planning at the micro level. The Annual Health Survey was conceived to fill this gap by providing estimates at the District level. State-wise bulletins of the baseline were released last year. The present datasets relate to the first updation round of the Annual Health Survey (AHS). A comparative picture on nine vital parameters - Crude Birth Rate, Crude Death Rate, Infant Mortality Rate etc for each of the nine states at the district level would enable data users to effectively plan and implement health care interventions based on empirical data.

Implementing the Annual Health Survey, which is the largest sample survey in the world covering more than 40 lakh households and 20 million persons residing in 20,000 sampling units spread across 284 districts in 9 States of the country has indeed been a challenging task. That this exercise has been completed successfully and in time is commendable.

The Annual Health Survey is a collaborative effort cutting across the Ministries of the Central and State Governments on the one hand, and the public and private sector on the other. This pioneering approach opens up vast possibilities for similar ventures in the future. Congratulations are due to all the officers and agencies involved in this task.

I would like to place on record my appreciation to Dr. R.C. Sethi, and Dr. Vijay P. Goel, the former and present Project Directors who led the team. Similarly, the efforts of Shri. Bhaskar Mishra and Shri. Rohit Bhardwaj, the former and present Deputy Registrar Generals in charge of the AHS need special mention. Without their personal effort, it would not have been possible to accomplish this task.

I am sure this publication would be of tremendous value to all data users.

Dr. C. Chandramouli
Registrar General and
Census Commissioner, India

Preface

Annual Health Survey has been envisaged as a panel survey to provide benchmarks for health and vital indicators at district level of 9 States namely Bihar, Jharkhand, Odisha, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh, Uttarakhand & Assam which have high fertility and mortality rates. AHS is to happen in three rounds starting with baseline survey and followed by two updation rounds. The data in AHS is to be disseminated in two stages. In the first stage, the state-wise bulletin covering nine parameters gets released followed by state-wise fact sheets with host of other indicators.

The data collection for 2nd round of AHS has been undertaken through interview of 4.28 million households spread in 284 districts of nine States where AHS has been operational. The vastness of these states along with different social/geographical conditions made the work difficult for enumerator and officers. Despite the above constraints, field work was completed successfully as per schedule. A lot of effort has gone in data entering and cleaning of 20 million records before the bulletin stage arrived.

The present bulletin is the second in the series of three bulletins to be released. The bulletin has information on each of the districts for important vital rates like crude birth rate, crude death rate, IMR etc. The booklet also contains 95% confidence interval for each of these important estimates along with district-wise sample population and sampling units. Lot of pictorial representation in terms of charts and graphs has been provided to give a better understanding of data to the user. In order to present instant comparative picture, the base line data of the corresponding estimate has also been provided side by side. The format of the bulletin has been changed to a booklet in order to make it user friendly.

I put on record my appreciation for all concerned involved in AHS from Office of the Registrar General, India, and specially to Shri Rohit Bhardwaj, DRG in-charge who despite being new to the job gave his personal attention to this survey. As a result, this highly informative bulletin has come out. I also thank the Registrar General, India, for continuous guidance provided to me and my team without which this task would not have been completed. I hope all the users will find the bulletin informative and useful for their purpose.

Dr. Vijay P. Goel
Deputy Director General &
Project Director

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Introduction

1.   Decentralized district-based health planning is essential in India because of the large inter-district variations. In the absence of vital data at the district level, the State level estimates are being used for formulating district level plans as well as setting the milestones thereof. In the process, the hotspots (districts requiring special attention) very often get masked by the State average. This statistical fallacy compounds the problems of the districts acutely, more so in the health sector. At present, none of the Surveys provides estimates of core vital indicators on fertility and mortality at district level. The District Level Household Survey (DLHS) conducted with periodicity of five years mainly focuses on indicators pertaining to maternal health and child welfare programmes. There has, therefore, been a surge in demand from various quarters, in recent years, to generate timely and reliable statistics at the district level for informed decision making in the health sector.

Genesis

2.   The Annual Health Survey (AHS) was conceived during a meeting of the National Commission of Population held in 2005 under the Chairmanship of the Prime Minister wherein it was decided that "there should be an Annual Health Survey of all districts which could be published / monitored and compared against benchmarks". The objective was to monitor the performance and outcome of various health interventions of the Government including those under National Rural Health Mission (NRHM) at closer intervals through these benchmark indicators. The AHS has been made an integral part of the NRHM, Ministry of Health & Family Welfare. The responsibility of the project has been entrusted to the Office of the Registrar General, India on behalf of the Ministry of Health & Family Welfare keeping in view its expertise in handling the Sample Registration System, one of the largest demographic surveys in the world.

Objective

3.   Realizing the need for preparing a comprehensive district health profile on key parameters based on a community set up, the AHS has been designed to yield benchmarks of core vital and health indicators at the district level on fertility and mortality; prevalence of disabilities, injuries, acute and chronic illness and access to health care for these morbidities; and access to maternal, child health and family planning services. By virtue of being a panel survey, it has the unique ability to map the rate of change in these indicators on a yearly basis. AHS would, thus, enable better capturing of the health seeking behaviour of the public as compared to other periodic cross-sectional surveys and also help needed corrections in the strategies.

Coverage

4.   The sample size at the district level has been derived taking Infant Mortality Rate as the decisive indicator and host of other practical issues related to execution of the survey. Keeping in view the mammoth size of the sample, it was a conscious decision of the Government to initially confine the survey to the 284 districts (as per 2001 Census) of the 8 Empowered Action Group States (Bihar, Jharkhand, Uttar Pradesh, Uttarakhand, Madhya Pradesh, Chhattisgarh, Odisha and Rajasthan) and Assam for a three year period starting from 2010-11. These 9 high focus States with relatively high fertility and mortality account for about 48 percent of the total population in the country. A representative sample of 20,694 statistically selected Primary Sample Units (PSUs - Census Enumeration Blocks in case of urban areas and villages or a segment thereof in case of larger villages in rural areas) based on 2001 Census has been drawn from these AHS States which would cover about 18 million population and 3.6 million households each year. However, during the Base-line Survey, a total of 20.1 million population and 4.14 million households have actually been covered. Subsequently during the first updation survey a total of 20.61 million population and 4.28 million households have been covered. Despite being restricted to 9 States, the AHS is the largest demographic survey in the world and covers two and a half times that of the Sample Registration System (SRS).

Fieldwork Strategy

5.   The project is being implemented as a hybrid model wherein the actual field work has been outsourced to seven selected Survey Agencies. For smooth and effective execution of the survey, the AHS States have been divided into 18 mutually exclusive and exhaustive zones, each having a group of contiguous districts. The co-ordination, supervision and monitoring of the fieldwork in the States are being carried out by dedicated staff posted at various levels in the respective Directorate of Census Operations (DCOs). The responsibility for overall co-ordination, supervision and monitoring across the nine AHS States rests with the concerned division of ORGI.

Technical Consultation

6.   The outline of the survey such as approach, periodicity, coverage, sampling strategy, sample size, permissible levels of relative standard errors, and levels of aggregation, was finalized after a series of deliberations with the representatives from Ministry of Health & Family Welfare ,National Sample Survey Office (NSSO), Central Statistics Office (CSO), Ministry of Woman & Child Development, Indian Council of Medical Research, Planning Commission, International Institute for Population Sciences and other subject experts. Based on these recommendations, various technical details including preparation of sample design, derivation of sample size etc. were worked out and vetted by the Technical Advisory Group (TAG) constituted for the purpose.

Sample Design

7.   The Sample design adopted for Annual Health Survey is a uni-stage stratified simple random sample without replacement except in case of larger villages in rural areas (population more than or equal to 2000 as per 2001 Census), wherein a two stage stratified sampling has been applied. The sample units are Census Enumeration Blocks (CEBs) in urban areas and villages in rural areas. In rural areas, the villages have been divided into two strata. Stratum I comprises villages with population less than 2000 and Stratum II contains villages with population 2000 or more. Smaller villages with population less than 200 were excluded from the sampling frame in such a manner that the total population of villages so excluded did not exceed 2 per cent of the total population of the district. In case of Stratum I, the entire village is the sample unit. In case of Stratum II, the village has been divided into mutually exclusive (non-overlapping) and geographically contiguous units comprising group of EBs called segments of more or less equal size and population not exceeding 2000 in any case. One segment from the frame of segments thus prepared was selected in a random manner to represent the selected village at the second stage of sampling.

8.   The number of sample villages in each district was allocated between the two strata proportionally to their size (population). The villages within each size stratum were further ordered by the female literacy rate based on the Census 2001 data, and three disjoint and equal size substrata were established. The sample villages within each substratum were selected by simple random sampling without replacement. Similarly, in urban areas, the Census Enumeration Blocks within a district were ordered by the female literacy rate based on the Census 2001 data, and three disjoint and equal size substrata were established. The sample Census Enumeration Blocks within each substratum were selected by simple random sampling without replacement. Thus, female literacy which has a direct bearing on the fertility behaviour was used for implicit stratification. Further, the process of selection ensured equal representation across three substrata both in rural as well as in urban areas of a district besides rendering the sample design as self-weighting.

Sample Size

9.   Generating robust estimates of Infant Mortality Rate at the district level has become an utmost necessity as reduction in Infant Mortality constitutes one of the key targets in the Reproductive & Child Health Programme (RCH) under the umbrella of NRHM. This would also facilitate effective tracking of the Millennium Development Goal 4 on Child Mortality. The Infant Mortality Rate has therefore been taken as the decisive

indicator for estimation of sample size at the district level. The permissible level of error has been taken as 10 percentage relative standard error (prse) at the district level. The sample size so worked out would yield relatively better estimates of Crude Birth Rate / Crude Death Rate and may also enable generation of rarer indicators like MMR (for a group of districts) with good precision. In the absence of district level estimates from any other reliable source, the district level derived estimates of IMR based on SRS pooled data have been used for estimation of sample size for each district.

Sample Identification Work

10.   One of the essential prerequisites for the commencement of the survey was to uniquely identify the sample units on ground. This was done in all the sample units across the nine AHS States by the regular staff of ORGI. The work involved firming up of the boundary of the selected villages / Enumeration Blocks; resorting to segmentation in case of villages exceeding the population 2000, random selection of segment thereof and drawing of appropriate notional maps of the sample units to serve as the base map for the survey work.

Survey Tools

11.   The baseline Survey and the first updation survey in all the nine AHS States was carried out during July 2010 to March 2011 and October 2011 to April 2012 respectively and four Schedules, in all, were administered. These are: (i) House-listing Schedule, (ii) Household Schedule, (iii) Woman Schedule and (iv) Mortality Schedule. In the House-listing Schedule, besides the mapping and listing of all the houses and households in a sample unit, some key particulars relating to the housing characteristics (type and ownership), basic amenities available to the household and assets possessed by them were collected during the baseline survey. In the first updation survey, these mapping and listing details were updated for the existing houses and households and recorded afresh for the new houses and households.

12.   In the Household Schedule, during the baseline survey, all the Usual Residents as on 01.01.2010 were listed and for each listed member, information on background characteristics like Name, Sex, Relationship to Head, Date of Birth, Age, Religion, Social Group, Marital Status, Date at first Marriage, Education and Occupation/Activity Status was captured. Besides, information in respect of Disability, Morbidity (Injuries, Acute Illness, and Chronic Illness) and Personal Habits (like Chewing, Smoking and Consumption of Alcohol) was also collected (wherever applicable) in the baseline survey. During the first updation survey, all the Usual Residents as on 01.01.2011 were listed in the Household Schedule wherein the information on a few back ground characteristics viz. Name, Sex, Identification Code, Date of Birth and Date at first Marriage were copied from the baseline Household Schedule for the Usual Residents of baseline survey . For the new Usual Residents, these details along with all the other information were recorded afresh except the personal habits, the details of which were not to be captured in the subsequent rounds. The information on access to health insurance/scheme is collected in the Household Schedule in the first updation survey.

13.   Woman Schedule comprised two sections. Section-I was administered to all Ever Married Women (EMW) aged 15-49 years and information relating to the outcome of pregnancy(s) (live birth/still birth/abortion); birth history; type of medical attention at delivery; details of maternal health care(ante-natal/natal/post-natal); immunization of children; breast feeding practices including supplements; occurrence of child diseases (Pneumonia, Diarrhoea and fever); registration of births, etc. taken place during the reference period (i.e. 01.01.2007 to 31.12.2009 for baseline and 01.01.2010 to 31.12.2010 for first updation survey) was collected. Section-II focused on information on pregnancy; use, sources and practices of family planning methods; details relating to future use of contraceptives and unmet need; awareness about RTI/STI, HIV/AIDS, administration of HAF/ORT/ORS during diarrhoea and danger signs of ARI/Pneumonia; and these details were collected from all Currently Married Women aged 15-49 years. During the first updation round, a few new information relating the Ever Married Women (EMW) was collected. These include the conception details, usage of NPT kit, registration of pregnancy, health problems and subsequent treatments during ante-natal/natal/post-natal period, cost incurred by the woman during delivery etc.

14.	Through the Mortality Schedule, details relating to death occurred to usual residents of sample household during the reference period (i.e. 01.01.2007 to 31.12.2009 for baseline and 01.01.2010 to 31.12.2010 for first updation survey) were captured and it included information on name & sex of deceased, date of death, age at death, registration of death and source of medical attention received before death. For infant deaths, a question on symptoms preceding death was also probed. In case of deaths associated with pregnancy, information on a variety of questions on factors leading/contributing to death, symptoms preceding death, time between onset of complications and death, etc. were asked to yield data on various determinants of maternal mortality.

Supervision and Third Party Audit

15. In addition to the multilayer supervision mechanism adopted by the Survey Agencies, regular inspections were carried out by the officers/officials of respective DCOs and those from ORGI headquarters to ensure the data quality. The inspections were a judicious mix of concurrent as well as post survey audit. Over and above, a component of Third Party Audit (TPA) was included to verify and authenticate the surveyed data through an independent mechanism. In the first updation survey, the coverage of TPA has been extended to all the households in the 20 randomly selected AHS units in each of the districts in order to make effective comparison with the Survey Agency data and thereby ensuring the quality of data at the highest level.

Dissemination of Results

16. In view of the large volume of data collected under AHS and significant time required for validation and processing, dissemination of AHS results is done in two phases. The first set of data in the form of State level bulletins contains the district level data on crude birth rate, crude death rate, natural growth rate, infant mortality rate, neo-natal and post neonatal mortality rates, under 5 mortality rate, sex ratio at birth, sex ratio (0-4 years) and overall sex ratio. In the second phase, the State level fact sheets containing the district level data on all parameters covered under AHS like Acute and Chronic illnesses, Family planning practices Ante-natal/natal/post-natal care for Ever married women, fertility, Janani Suraksha Yojana, Immunization particulars of children, Childhood diseases etc. are released.

17.	The baseline bulletins were released in August 2011 followed by the baseline fact sheets in July 2012. Though the sample size has been calculated for the district as a whole, the rural and urban estimates at the district level has been published as a by-product. Users are advised to keep the above fact into consideration while using the rural/urban estimates of a district. In addition, the Maternal Mortality Ratio (MMR), Maternal Mortality Rate and life time risk were released for a group of districts. In order to facilitate direct intervention, the maternal mortality indicators were combined and released for a group of districts on the basis of existing administrative divisions in the respective AHS States.

18.	This Bulletin of the first updation survey pertains to the State of Assam. The field work for the AHS has been carried out by M/s. Nielsen (India) Pvt. Ltd., New Delhi and M/s. GfK-MODE Pvt. Ltd., New Delhi in the allotted zones. The third party audit work in the State has been done by M/s. Research and Development Initiative Pvt. Ltd., New Delhi. The district level fact sheets of the first updation survey with data on all the parameters would be released in the next phase.

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TABLES

Table-1 : Number of Sample Units & Sample Population

District		Number of Sample Units			Population (in '000')		
		Total	Rural	Urban	Total	Rural	Urban
ASSAM		1784	1412	372	1781 (1741)	1494 (1461)	287 (280)
01	Kokrajhar	25	22	3	19 (19)	17 (17)	2 (2)
02	Dhubri	42	35	7	50 (50)	45 (45)	5 (5)
03	Goalpara	64	56	8	75 (74)	69 (68)	6 (6)
04	Bongaigaon	89	73	16	83 (80)	73 (70)	10 (10)
05	Barpeta	53	47	6	66 (67)	62 (62)	4 (5)
06	Kamrup	151	80	71	161 (149)	95 (91)	66 (58)
07	Nalbari	22	20	2	23 (23)	21 (21)	2 (2)
08	Darrang	26	24	2	29 (29)	28 (28)	1 (1)
09	Marigaon	115	106	9	134 (133)	129 (128)	5 (5)
10	Nagaon	71	58	13	87 (84)	76 (74)	11 (10)
11	Sonitpur	138	117	21	141 (138)	128 (124)	13 (14)
12	Lakhimpur	32	28	4	28 (27)	24 (23)	4 (4)
13	Dhemaji	121	108	13	76 (75)	67 (66)	9 (9)
14	Tinsukia	144	105	39	138 (135)	114 (111)	24 (24)
15	Dibrugarh	91	66	25	96 (95)	75 (74)	21 (21)
16	Sibsagar	50	43	7	57 (57)	53 (53)	4 (4)
17	Jorhat	163	123	40	170 (167)	134 (131)	36 (36)
18	Golaghat	70	61	9	70 (70)	63 (63)	7 (7)
19	Karbi Anglong	89	74	15	65 (64)	51 (50)	14 (14)
20	North Cachar Hills	84	49	35	44 (42)	19 (18)	25 (24)
21	Cachar	105	84	21	123 (120)	109 (105)	14 (15)
22	Karimganj	29	25	4	32 (30)	30 (28)	2 (2)
23	Hailakandi	10	8	2	14 (13)	12 (11)	2 (2)

NUMBER OF SAMPLE UNITS

RURAL
URBAN
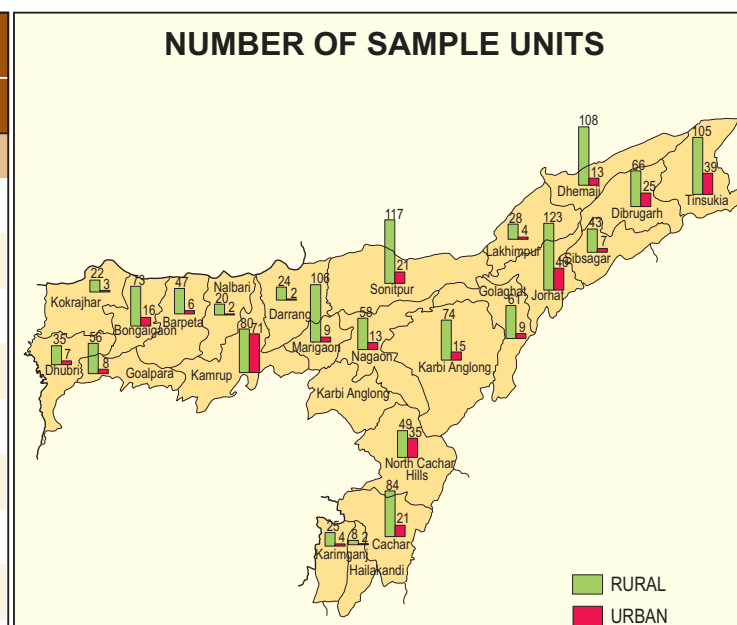
Figure above the bar indicates number of units

Distribution of Sample Units

79 % Rural
21% Urban
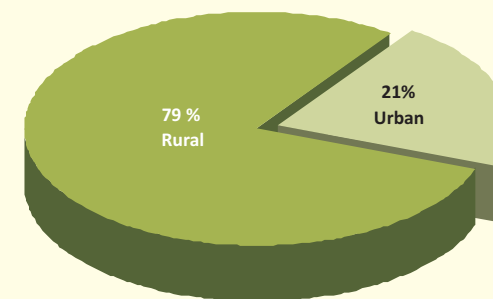
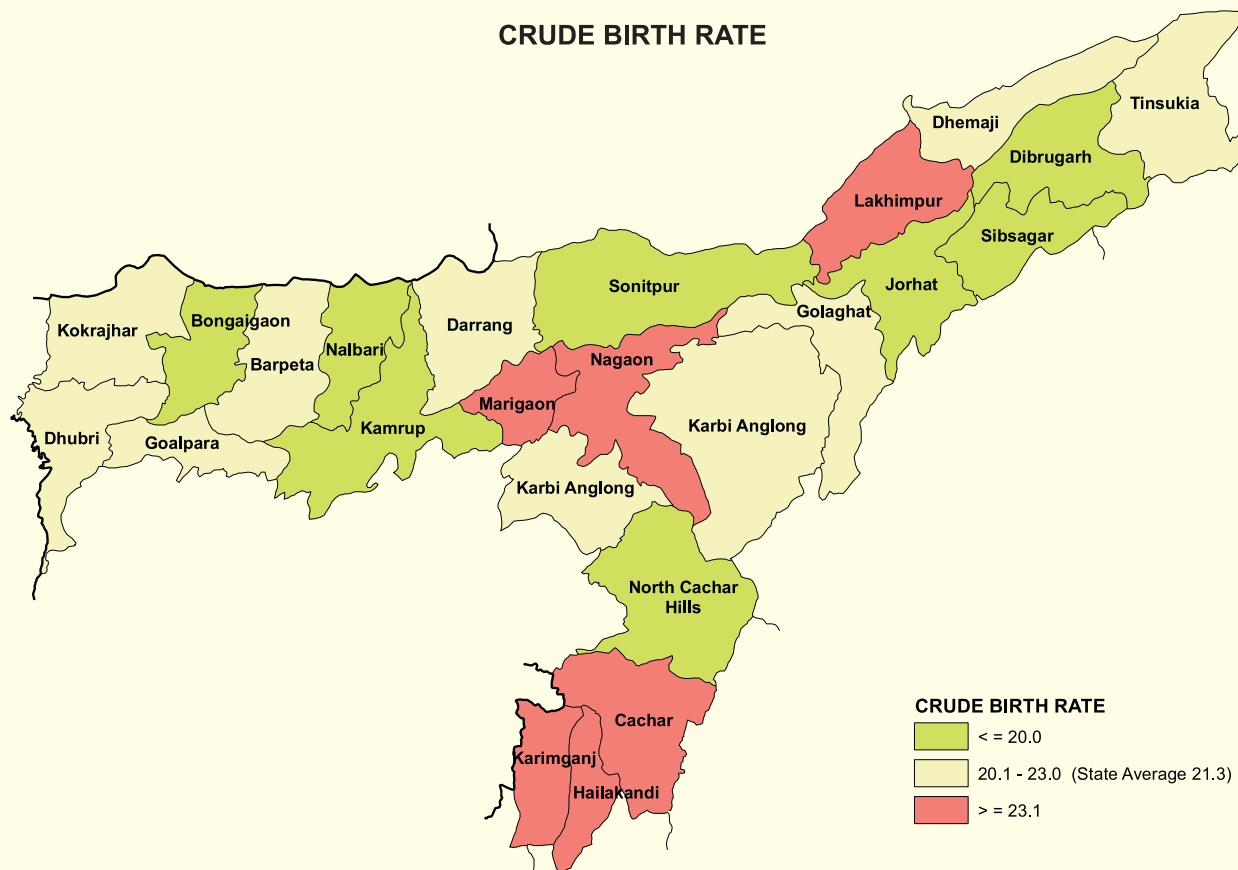### Distribution of Sample Population

84% Rural
16 % Urban
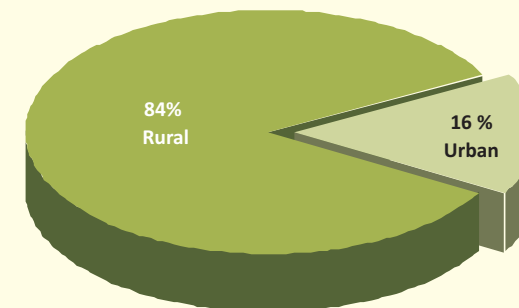
Table-2 : Crude Birth Rate & 95% Confidence Interval for Crude Birth Rate

District		Crude Birth Rate			95% Confidence Interval for Crude Birth Rate					
					Total		Rural		Urban	
		Total	Rural	Urban	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
ASSAM		21.3 (21.9)	22.3 (22.8)	16.6 (17.2)	21.0 (21.5)	21.7 (22.2)	22.0 (22.4)	22.7 (23.3)	15.9 (16.5)	17.3 (18.0)
01	Kokrajhar	22.6 (23.1)	23.1 (23.9)	18.2 (15.9)	20.4 (20.6)	24.9 (25.7)	20.8 (21.3)	25.5 (26.4)	9.1 (3.2)	27.3 (28.6)
02	Dhubri	21.9 (22.1)	23.0 (22.9)	14.7 (17.3)	20.6 (20.8)	23.3 (23.4)	21.5 (21.4)	24.6 (24.3)	13.2 (15.4)	16.3 (19.1)
03	Goalpara	21.9 (22.5)	22.3 (22.9)	18.3 (18.1)	20.5 (20.9)	23.4 (24.1)	20.8 (21.2)	23.8 (24.6)	15.7 (16.8)	20.9 (19.4)
04	Bongaigaon	19.4 (19.7)	20.6 (21.0)	11.5 (12.0)	18.2 (18.4)	20.6 (21.0)	19.4 (19.5)	21.9 (22.5)	9.5 (10.3)	13.5 (13.7)
05	Barpeta	20.6 (20.8)	21.3 (21.5)	14.6 (15.3)	19.1 (19.0)	22.1 (22.7)	19.7 (19.6)	22.9 (23.5)	12.2 (11.4)	17.1 (19.2)
06	Kamrup	18.0 (18.7)	21.0 (21.0)	15.2 (16.3)	17.2 (17.9)	18.8 (19.5)	19.8 (19.9)	22.2 (22.1)	14.2 (15.2)	16.2 (17.4)
07	Nalbari	18.6 (18.8)	18.8 (18.9)	12.7 (14.6)	16.6 (17.0)	20.5 (20.6)	16.8 (17.1)	20.8 (20.8)	10.6 (11.0)	14.8 (18.3)
08	Darrang	20.5 (20.8)	20.9 (21.2)	10.9 (-)	18.1 (17.7)	22.9 (23.9)	18.5 (18.0)	23.3 (24.4)	7.6 (-)	14.2 (-)
09	Marigaon	23.2 (23.5)	23.6 (23.9)	16.3 (16.1)	22.4 (22.6)	24.0 (24.5)	22.7 (22.9)	24.4 (24.9)	12.9 (12.2)	19.8 (20.1)
10	Nagaon	23.7 (24.6)	25.2 (26.0)	17.7 (17.9)	22.4 (23.1)	25.0 (26.1)	23.7 (24.4)	26.6 (27.7)	14.0 (13.6)	21.4 (22.3)
11	Sonitpur	19.0 (19.8)	19.3 (20.2)	17.5 (17.4)	18.0 (18.8)	20.1 (20.8)	18.2 (19.1)	20.4 (21.3)	14.2 (14.9)	20.7 (20.0)
12	Lakhimpur	23.6 (24.4)	24.1 (25.0)	20.1 (20.2)	21.5 (21.9)	25.7 (26.9)	21.8 (22.3)	26.3 (27.7)	14.4 (12.8)	25.7 (27.5)
13	Dhemaji	22.8 (23.0)	23.0 (23.1)	20.4 (21.5)	21.9 (21.9)	23.7 (24.0)	22.0 (22.0)	24.0 (24.2)	18.3 (20.0)	22.4 (23.1)
14	Tinsukia	20.8 (21.1)	22.0 (22.5)	15.6 (15.7)	19.9 (20.2)	21.6 (22.1)	21.1 (21.5)	22.9 (23.5)	13.6 (13.6)	17.7 (17.9)
15	Dibrugarh	19.4 (20.1)	20.5 (21.4)	15.9 (16.2)	18.6 (19.1)	20.2 (21.1)	19.6 (20.3)	21.4 (22.5)	14.3 (14.7)	17.5 (17.7)
16	Sibsagar	19.1 (19.7)	19.3 (19.9)	17.0 (17.2)	18.2 (18.7)	20.1 (20.8)	18.3 (18.9)	20.3 (21.0)	14.5 (12.8)	19.4 (21.7)
17	Jorhat	19.3 (20.0)	20.0 (20.8)	17.5 (17.9)	18.7 (19.4)	20.0 (20.7)	19.3 (15.9)	20.6 (25.7)	15.9 (16.3)	19.2 (19.5)
18	Golaghat	21.4 (21.9)	21.4 (21.9)	21.3 (21.8)	20.5 (21.0)	22.3 (22.9)	20.5 (21.0)	22.3 (22.9)	18.0 (18.0)	24.7 (25.7)
19	Karbi Anglong	20.8 (21.2)	21.8 (22.2)	17.8 (18.0)	19.7 (20.0)	22.0 (22.4)	20.4 (20.9)	23.1 (23.5)	15.4 (15.5)	20.2 (20.5)
20	North Cachar Hills	18.3 (18.6)	19.1 (19.5)	17.6 (17.9)	17.1 (17.3)	19.5 (20.0)	17.0 (17.0)	21.3 (22.0)	16.2 (16.6)	18.9 (19.1)
21	Cachar	25.8 (26.5)	26.6 (27.4)	22.3 (22.6)	24.5 (25.0)	27.1 (27.9)	25.2 (26.6)	28.0 (28.3)	18.7 (18.6)	25.9 (26.6)
22	Karimganj	25.5 (25.8)	26.0 (26.4)	17.4 (17.4)	22.8 (22.8)	28.2 (28.9)	23.2 (23.2)	28.9 (29.6)	12.4 (14.7)	22.5 (20.0)
23	Hailakandi	31.2 (32.1)	33.3 (34.2)	19.0 (19.9)	25.9 (28.4)	36.4 (35.9)	27.1 (29.8)	39.5 (38.7)	9.4 (11.3)	28.5 (28.5)

CRUDE BIRTH RATE

Dhemaji

Tinsukia

Dibrugarh

Lakhimpur

Sibsagar

Sonitpur

Jorhat

Golaghat

Kokrajhar

Bongaigaon

Darrang

Nalbari

Barpeta

Nagaon

Marigaon

Kamrup

Karbi Anglong

Dhubri

Goalpara

Karbi Anglong

North Cachar
Hills

Cachar

Karimganj

Hailakandi

CRUDE BIRTH RATE

- `<= 20.0`
- `20.1 - 23.0  (State Average 21.3)`
- `>= 23.1`

Crude Birth Rate

	Total		Rural		Urban	
	21.3	21.9	22.3	22.8	16.6	17.2

■ First Updation   ■ Baseline
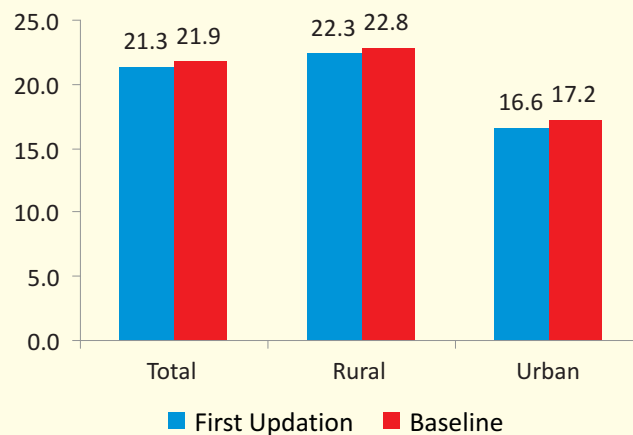
Birth rate in rural areas is significantly higher than urban areas
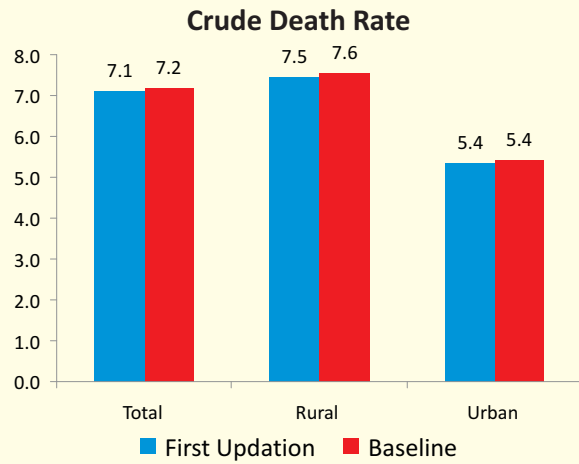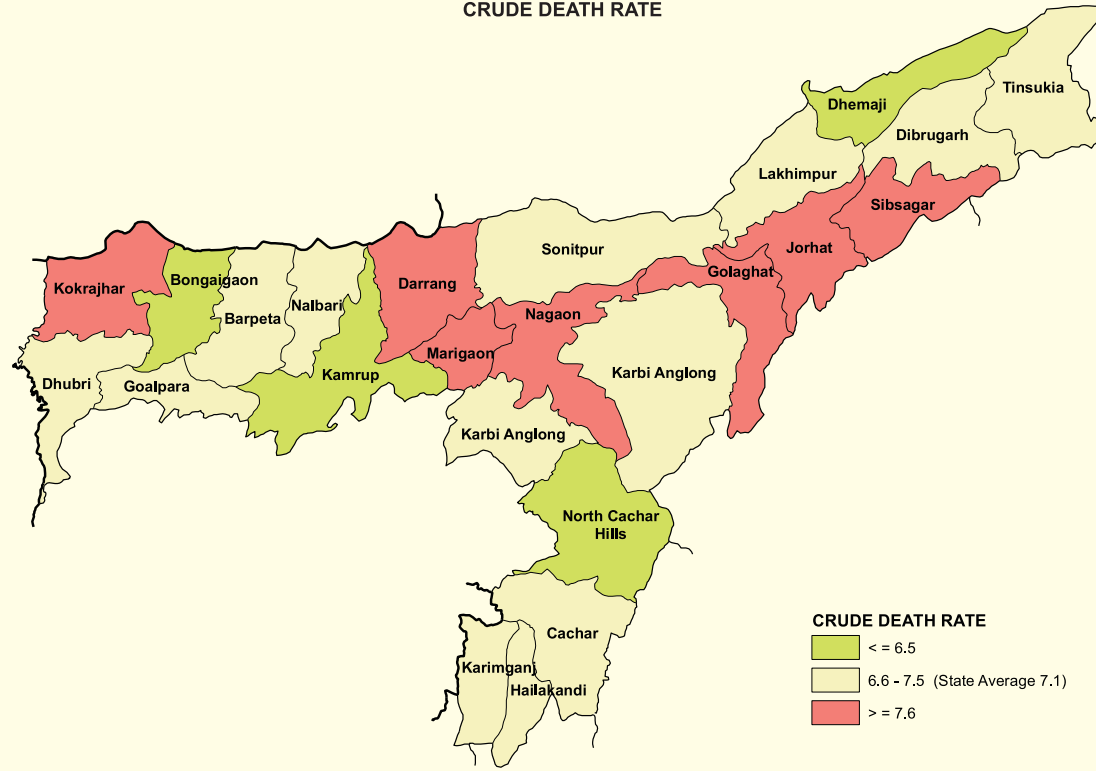
Crude Birth Rate = (Number of Live Births in reference period / Mid-year population) × 1000

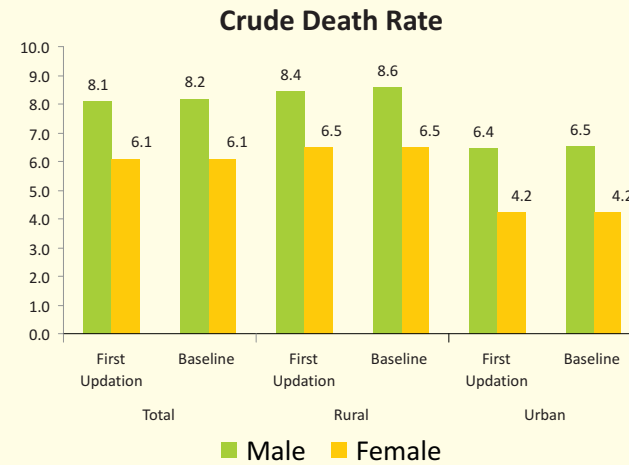## Table-3 : Crude Death Rate & 95% Confidence Interval for Crude Death Rate

District		Crude Death Rate									95% Confidence Interval for Crude Death Rate					
		Total			Rural			Urban			Total		Rural		Urban	
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
ASSAM		7.1 (7.2)	8.1 (8.2)	6.1 (6.1)	7.5 (7.6)	8.4 (8.6)	6.5 (6.5)	5.4 (5.4)	6.4 (6.5)	4.2 (4.2)	6.9 (7.0)	7.3 (7.4)	7.3 (7.3)	7.7 (7.8)	5.1 (5.1)	5.7 (5.7)
01	Kokrajhar	7.6 (7.7)	8.0 (7.9)	7.2 (7.4)	7.8 (7.7)	8.2 (7.9)	7.4 (7.6)	5.3 (7.0)	5.4 (8.0)	5.2 (5.9)	6.5 (6.4)	8.7 (8.9)	6.6 (6.3)	9.1 (9.1)	4.6 (5.8)	6.0 (8.2)
02	Dhubri	7.1 (7.1)	8.5 (8.3)	5.7 (5.8)	7.4 (7.4)	9.0 (8.7)	5.7 (6.0)	5.2 (4.8)	5.2 (5.3)	5.3 (4.3)	6.2 (6.0)	8.0 (8.1)	6.4 (6.2)	8.4 (8.6)	3.6 (3.2)	6.8 (6.5)
03	Goalpara	6.8 (6.9)	8.2 (8.3)	5.4 (5.4)	6.9 (6.9)	8.2 (8.3)	5.5 (5.4)	6.0 (6.8)	7.7 (7.8)	4.2 (5.7)	6.4 (6.3)	7.3 (7.5)	6.4 (6.3)	7.3 (7.5)	4.0 (4.3)	8.0 (9.2)
04	Bongaigaon	6.1 (6.2)	7.8 (8.1)	4.3 (4.3)	6.2 (6.5)	8.0 (8.4)	4.3 (4.5)	5.1 (4.7)	6.1 (6.1)	4.1 (3.3)	5.5 (5.5)	6.6 (6.9)	5.6 (5.7)	6.8 (7.2)	4.0 (3.3)	6.3 (6.1)
05	Barpeta	6.8 (6.7)	8.4 (8.0)	5.1 (5.3)	6.9 (6.7)	8.3 (7.9)	5.4 (5.5)	6.2 (6.5)	8.9 (8.6)	3.3 (4.3)	6.0 (6.0)	7.7 (7.4)	6.0 (6.0)	7.8 (7.5)	4.3 (5.0)	8.2 (7.9)
06	Kamrup	5.7 (5.9)	6.6 (6.9)	4.7 (4.8)	7.6 (7.8)	8.4 (9.0)	6.7 (6.5)	3.9 (3.9)	4.8 (4.8)	2.9 (2.9)	5.1 (5.3)	6.2 (6.5)	6.7 (6.8)	8.4 (8.8)	3.3 (3.3)	4.5 (4.6)
07	Nalbari	7.4 (7.4)	8.4 (8.2)	6.4 (6.7)	7.5 (7.5)	8.5 (8.2)	6.6 (6.8)	3.8 (5.8)	5.8 (8.5)	1.8 (3.1)	6.6 (6.3)	8.2 (8.5)	6.7 (6.3)	8.3 (8.6)	2.5 (3.4)	5.1 (8.2)
08	Darrang	8.2 (8.3)	8.7 (9.4)	7.8 (7.1)	8.3 (8.5)	8.8 (9.7)	7.8 (7.3)	7.1 (-)	6.6 (-)	7.7 (-)	7.1 (6.9)	9.4 (9.8)	7.1 (7.0)	9.5 (10.0)	4.7 (-)	9.6 (-)
09	Marigaon	8.2 (8.5)	8.8 (9.1)	7.6 (7.7)	8.3 (8.4)	8.9 (9.1)	7.7 (7.7)	6.0 (9.0)	7.2 (10.0)	4.6 (8.0)	7.5 (7.6)	8.9 (9.3)	7.6 (7.6)	9.0 (9.3)	4.2 (5.4)	7.7 (12.6)
10	Nagaon	8.1 (8.1)	9.1 (9.0)	7.0 (7.2)	8.5 (8.5)	9.4 (9.3)	7.6 (7.7)	6.3 (6.4)	8.0 (7.9)	4.6 (4.8)	7.3 (7.6)	8.8 (8.6)	7.6 (7.9)	9.4 (9.0)	5.3 (5.1)	7.4 (7.7)
11	Sonitpur	6.6 (6.5)	7.1 (7.2)	6.0 (5.9)	6.6 (6.7)	7.1 (7.2)	6.2 (6.2)	5.9 (5.4)	7.1 (7.0)	4.7 (3.7)	6.1 (6.0)	7.1 (7.1)	6.1 (6.1)	7.2 (7.3)	4.6 (4.1)	7.3 (6.7)
12	Lakhimpur	6.9 (6.9)	8.0 (8.0)	5.7 (5.7)	7.2 (7.2)	8.2 (8.3)	6.1 (6.0)	4.5 (4.7)	6.4 (5.7)	2.6 (3.6)	6.0 (5.8)	7.8 (8.0)	6.2 (6.0)	8.2 (8.4)	2.5 (1.7)	6.5 (7.6)
13	Dhemaji	4.4 (4.5)	5.1 (5.1)	3.6 (3.8)	4.4 (4.5)	5.1 (5.0)	3.7 (3.9)	4.3 (4.8)	5.4 (5.8)	3.1 (3.7)	4.0 (4.0)	4.8 (4.9)	4.0 (4.0)	4.8 (4.9)	3.4 (3.4)	5.2 (6.1)
14	Tinsukia	7.3 (7.5)	8.1 (8.4)	6.4 (6.5)	7.5 (7.8)	8.3 (8.7)	6.7 (6.8)	6.4 (6.3)	7.4 (7.3)	5.4 (5.2)	6.8 (7.0)	7.8 (8.0)	6.9 (7.2)	8.1 (8.3)	5.5 (5.5)	7.4 (7.1)
15	Dibrugarh	7.3 (7.5)	8.5 (8.9)	6.0 (6.1)	7.8 (8.1)	9.0 (9.5)	6.6 (6.6)	5.8 (6.0)	7.2 (7.3)	4.4 (4.5)	6.8 (7.0)	7.8 (8.1)	7.2 (7.5)	8.3 (8.7)	5.0 (5.0)	6.7 (6.9)
16	Sibsagar	8.1 (8.1)	9.3 (9.5)	6.7 (6.7)	8.3 (8.3)	9.6 (9.7)	6.9 (6.9)	5.7 (5.7)	6.7 (6.9)	4.6 (4.4)	7.5 (7.5)	8.6 (8.7)	7.7 (7.6)	8.8 (9.0)	4.9 (4.8)	6.5 (6.6)
17	Jorhat	8.0 (8.2)	9.1 (9.5)	6.9 (6.9)	8.1 (8.4)	9.2 (9.6)	7.0 (7.1)	7.7 (7.7)	8.7 (9.0)	6.6 (6.5)	7.6 (7.7)	8.4 (8.7)	7.6 (6.5)	8.6 (10.2)	7.0 (7.0)	8.3 (8.4)
18	Golaghat	7.9 (8.0)	8.7 (9.0)	7.1 (6.9)	8.2 (8.3)	9.1 (9.4)	7.3 (7.1)	5.8 (5.8)	5.8 (6.1)	5.7 (5.6)	7.2 (7.4)	8.5 (8.7)	7.5 (7.6)	8.8 (8.9)	3.7 (3.6)	7.8 (8.1)
19	Karbi Anglong	6.9 (6.9)	7.8 (7.7)	5.9 (6.0)	7.0 (7.0)	7.8 (7.7)	6.2 (6.2)	6.4 (6.4)	7.5 (7.7)	5.2 (5.0)	6.4 (6.4)	7.4 (7.3)	6.4 (6.4)	7.6 (7.6)	5.4 (5.7)	7.4 (7.0)
20	North Cachar Hills	5.5 (5.5)	6.2 (6.2)	4.8 (4.8)	6.9 (6.9)	7.6 (7.5)	6.2 (6.1)	4.3 (4.3)	5.0 (5.0)	3.5 (3.6)	5.1 (5.1)	5.9 (6.0)	6.1 (6.1)	7.7 (7.6)	3.9 (4.0)	4.7 (4.7)
21	Cachar	7.4 (7.5)	8.5 (8.6)	6.4 (6.4)	7.6 (7.8)	8.6 (8.9)	6.6 (6.7)	6.7 (6.5)	7.9 (7.8)	5.4 (5.3)	6.8 (7.0)	8.0 (8.1)	6.9 (7.5)	8.3 (8.1)	5.9 (5.6)	7.4 (7.5)
22	Karimganj	6.7 (6.6)	7.1 (6.8)	6.2 (6.3)	6.8 (6.7)	7.3 (7.0)	6.4 (6.5)	- (4.7)	- (4.8)	- (4.5)	5.6 (5.7)	7.8 (7.5)	5.7 (5.8)	7.9 (7.7)	- (3.0)	- (6.3)
23	Hailakandi	7.2 (7.0)	8.3 (8.2)	6.0 (5.9)	7.2 (7.1)	8.2 (8.1)	6.2 (6.0)	6.9 (7.0)	8.6 (8.6)	5.1 (5.3)	6.4 (5.6)	8.0 (8.5)	6.5 (5.4)	8.0 (8.7)	3.9 (5.5)	9.9 (8.5)

CRUDE DEATH RATE

CRUDE DEATH RATE

- $\leq$ 6.5
- 6.6 - 7.5 (State Average 7.1)
- $\geq$ 7.6

Crude Death Rate

	Total	Rural	Urban
First Updation	7.1	7.5	5.4
Baseline	7.2	7.6	5.4

First Updation ■ Baseline ■

Mortality rate in rural areas is 2.1 points higher than urban areas as per the First Updation round

Crude Death Rate

	First Updation	Baseline	First Updation	Baseline	First Updation	Baseline
	Total		Rural		Urban	
Male	8.1	8.2	8.4	8.6	6.4	6.5
Female	6.1	6.1	6.5	6.5	4.2	4.2

Male ■ Female ■

In both urban as well as rural areas death rates are higher among men than women

Crude Death Rate = (Number of Deaths in reference period / Mid-year population) $\times$ 1000

Table-4 : Natural Growth Rate   **ASSAM**

District		Natural Growth Rate		
		Total	**Rural**	**Urban**
ASSAM		**14.2 (14.7)**	**14.9 (15.3)**	**11.2 (11.8)**
01	Kokrajhar	15.1 (15.5)	15.3 (16.2)	12.9 (8.9)
02	Dhubri	14.8 (15.1)	15.6 (15.5)	9.5 (12.4)
03	Goalpara	15.1 (15.6)	15.4 (16.0)	12.3 (11.4)
04	Bongaigaon	13.3 (13.5)	14.4 (14.5)	6.4 (7.3)
05	Barpeta	13.8 (14.2)	14.4 (14.8)	8.4 (8.8)
06	Kamrup	12.3 (12.8)	13.4 (13.2)	11.3 (12.4)
07	Nalbari	11.2 (11.4)	11.2 (11.4)	8.9 (8.8)
08	Darrang	12.3 (12.5)	12.6 (12.7)	3.8 (-)
09	Marigaon	15.0 (15.1)	15.2 (15.5)	10.4 (7.1)
10	Nagaon	15.6 (16.5)	16.7 (17.5)	11.4 (11.6)
11	Sonitpur	12.5 (13.3)	12.6 (13.5)	11.5 (12.0)
12	Lakhimpur	16.7 (17.5)	16.9 (17.8)	15.5 (15.5)
13	Dhemaji	18.4 (18.5)	18.6 (18.6)	16.0 (16.7)
14	Tinsukia	13.5 (13.7)	14.5 (14.7)	9.2 (9.4)
15	Dibrugarh	12.1 (12.6)	12.7 (13.4)	10.1 (10.2)
16	Sibsagar	11.1 (11.6)	11.0 (11.6)	11.3 (11.5)
17	Jorhat	11.4 (11.8)	11.9 (12.4)	9.9 (10.1)
18	Golaghat	13.5 (13.9)	13.2 (13.6)	15.6 (16.0)
19	Karbi Anglong	14.0 (14.4)	14.7 (15.2)	11.5 (11.7)
20	North Cachar Hills	12.8 (13.1)	12.2 (12.6)	13.3 (13.5)
21	Cachar	18.3 (18.9)	19.0 (19.7)	15.6 (16.0)
22	Karimganj	18.8 (19.3)	19.2 (19.7)	- (12.7)
23	Hailakandi	24.0 (25.1)	26.0 (27.2)	12.1 (12.9)

Natural Growth Rate

Natural Growth Rate of Population in Rural areas is 3.7 points
higher than Urban areas as per the First Updation round

Natural Growth Rate

Top 3 Districts
(First Updation Round)

Bottom 3 Districts
(First Updation Round)

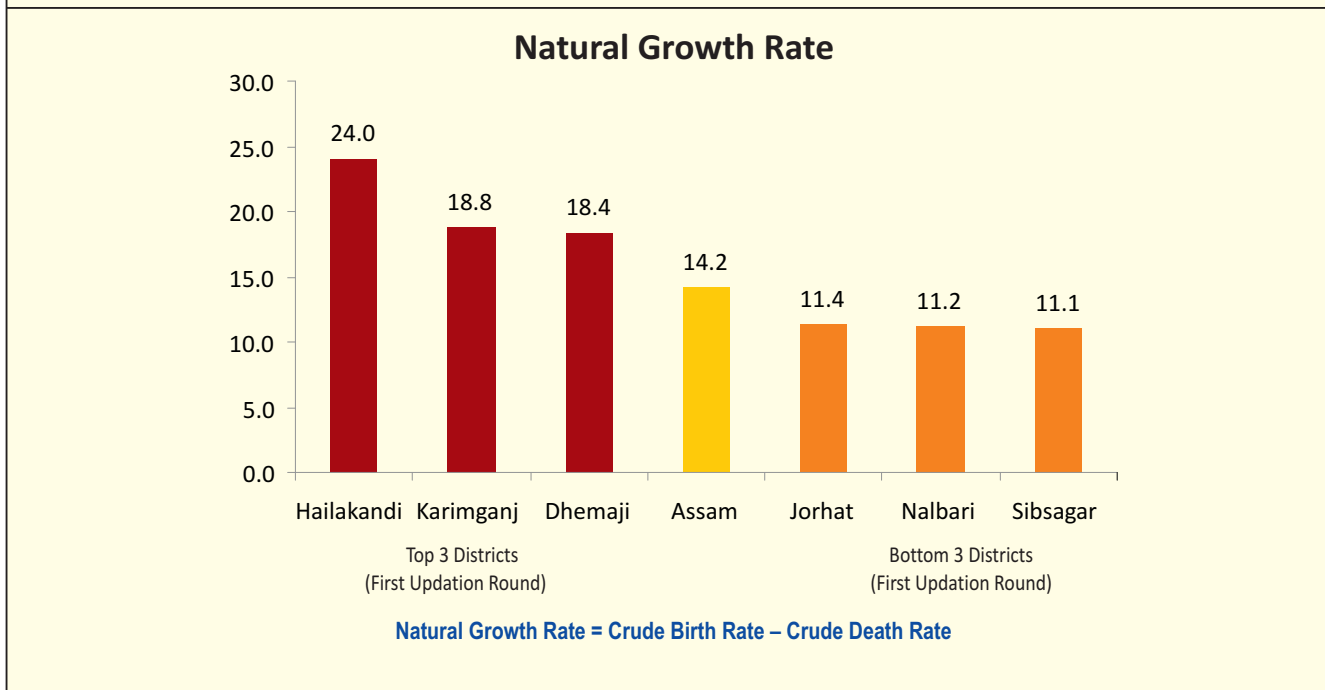**Natural Growth Rate = Crude Birth Rate – Crude Death Rate**
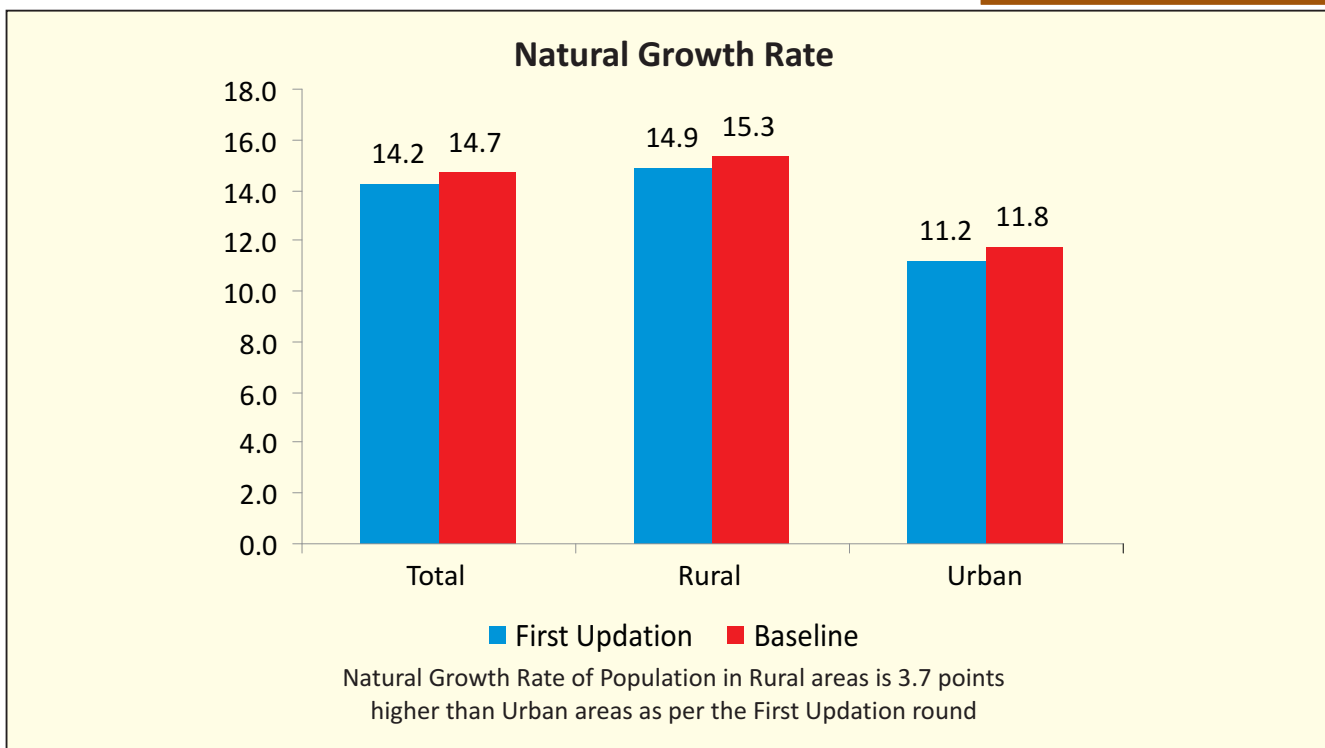
Table-5 : Infant Mortality Rate & 95% Confidence Interval for Infant Mortality Rate

District		Infant Mortality Rate									95% Confidence Interval for Infant Mortality Rate					
		Total			Rural			Urban			Total		Rural		Urban	
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
ASSAM		**57 (60)**	**56 (58)**	**58 (62)**	**61 (64)**	**61 (62)**	**62 (66)**	**32 (35)**	**30 (34)**	**34 (36)**	**55 (57)**	**60 (62)**	**59 (61)**	**64 (67)**	**27 (30)**	**37 (40)**
01	Kokrajhar	74 (76)	76 (74)	71 (78)	79 (80)	83 (78)	74 (83)	- (-)	- (-)	- (-)	51 (53)	96 (98)	56 (56)	102 (104)	- (-)	- (-)
02	Dhubri	68 (72)	67 (69)	69 (75)	70 (76)	72 (74)	69 (78)	- (-)	- (-)	- (-)	56 (62)	81 (81)	58 (66)	83 (86)	- (-)	- (-)
03	Goalpara	56 (56)	55 (57)	56 (55)	58 (58)	56 (58)	60 (58)	- (-)	- (-)	- (-)	46 (46)	66 (66)	47 (47)	68 (68)	- (-)	- (-)
04	Bongaigaon	49 (53)	49 (53)	50 (53)	52 (56)	52 (56)	52 (55)	- (-)	- (-)	- (-)	41 (42)	57 (63)	44 (45)	60 (66)	- (-)	- (-)
05	Barpeta	46 (48)	54 (47)	37 (49)	48 (51)	55 (48)	41 (54)	- (-)	- (-)	- (-)	37 (38)	55 (57)	39 (41)	58 (61)	- (-)	- (-)
06	Kamrup	42 (46)	43 (45)	41 (46)	61 (63)	62 (62)	61 (64)	17 (22)	18 (22)	16 (22)	36 (38)	49 (53)	52 (52)	71 (75)	12 (15)	22 (29)
07	Nalbari	59 (64)	59 (64)	60 (63)	60 (65)	60 (65)	61 (65)	- (-)	- (-)	- (-)	41 (41)	78 (86)	42 (42)	79 (88)	- (-)	- (-)
08	Darrang	73 (69)	70 (68)	75 (70)	74 (71)	72 (70)	77 (72)	- (-)	- (-)	- (-)	51 (49)	94 (89)	53 (50)	96 (91)	- (-)	- (-)
09	Marigaon	66 (72)	68 (71)	64 (74)	67 (74)	69 (72)	66 (76)	28 (-)	47 (-)	8 (-)	59 (64)	73 (80)	60 (65)	75 (82)	12 (-)	44 (-)
10	Nagaon	64 (66)	62 (64)	66 (69)	67 (69)	66 (67)	68 (71)	46 (49)	41 (43)	52 (55)	57 (60)	71 (72)	60 (62)	74 (76)	21 (34)	71 (64)
11	Sonitpur	65 (68)	64 (67)	66 (69)	68 (72)	67 (70)	70 (73)	34 (41)	35 (44)	34 (38)	53 (59)	77 (78)	55 (61)	82 (82)	25 (26)	44 (56)
12	Lakhimpur	53 (56)	47 (55)	59 (57)	55 (59)	50 (58)	60 (60)	30 (29)	18 (32)	42 (26)	44 (44)	62 (68)	45 (46)	65 (72)	18 (16)	43 (42)
13	Dhemaji	40 (44)	38 (42)	42 (45)	41 (45)	38 (43)	44 (47)	26 (30)	32 (35)	19 (26)	33 (36)	46 (52)	33 (36)	48 (54)	14 (14)	38 (47)
14	Tinsukia	51 (55)	49 (52)	53 (58)	53 (57)	51 (53)	54 (60)	42 (45)	40 (43)	45 (48)	47 (51)	55 (59)	49 (52)	57 (61)	29 (32)	55 (58)
15	Dibrugarh	52 (55)	52 (53)	53 (57)	54 (56)	56 (56)	52 (57)	46 (-)	38 (-)	56 (-)	45 (46)	60 (64)	47 (50)	61 (63)	19 (-)	74 (-)
16	Sibsagar	56 (58)	53 (56)	60 (60)	59 (60)	56 (59)	62 (62)	- (-)	- (-)	- (-)	48 (50)	65 (66)	50 (52)	67 (69)	- (-)	- (-)
17	Jorhat	55 (57)	53 (56)	56 (59)	57 (60)	57 (59)	58 (61)	46 (47)	41 (45)	50 (50)	50 (52)	60 (62)	51 (44)	63 (76)	36 (39)	55 (55)
18	Golaghat	59 (62)	56 (58)	62 (66)	62 (64)	59 (61)	65 (69)	35 (-)	33 (-)	38 (-)	49 (52)	69 (71)	51 (54)	73 (75)	16 (-)	54 (-)
19	Karbi Anglong	59 (59)	51 (53)	67 (65)	61 (61)	53 (55)	71 (68)	47 (49)	43 (45)	51 (52)	50 (50)	67 (68)	51 (52)	72 (71)	34 (27)	60 (70)
20	North Cachar Hills	56 (58)	52 (55)	59 (61)	64 (66)	59 (61)	69 (72)	48 (50)	46 (48)	50 (51)	45 (48)	66 (67)	49 (50)	78 (82)	34 (40)	61 (60)
21	Cachar	54 (57)	52 (56)	55 (58)	56 (60)	54 (58)	58 (61)	42 (44)	41 (42)	44 (46)	47 (49)	60 (65)	48 (56)	63 (63)	27 (27)	58 (61)
22	Karimganj	68 (69)	63 (66)	74 (73)	70 (71)	64 (67)	76 (75)	- (32)	- (40)	- (23)	58 (55)	79 (83)	60 (56)	80 (86)	- (24)	- (41)
23	Hailakandi	54 (55)	55 (57)	52 (54)	56 (56)	56 (57)	56 (56)	- (-)	- (-)	- (-)	39 (36)	68 (75)	40 (35)	72 (78)	- (-)	- (-)

INFANT MORTALITY RATE
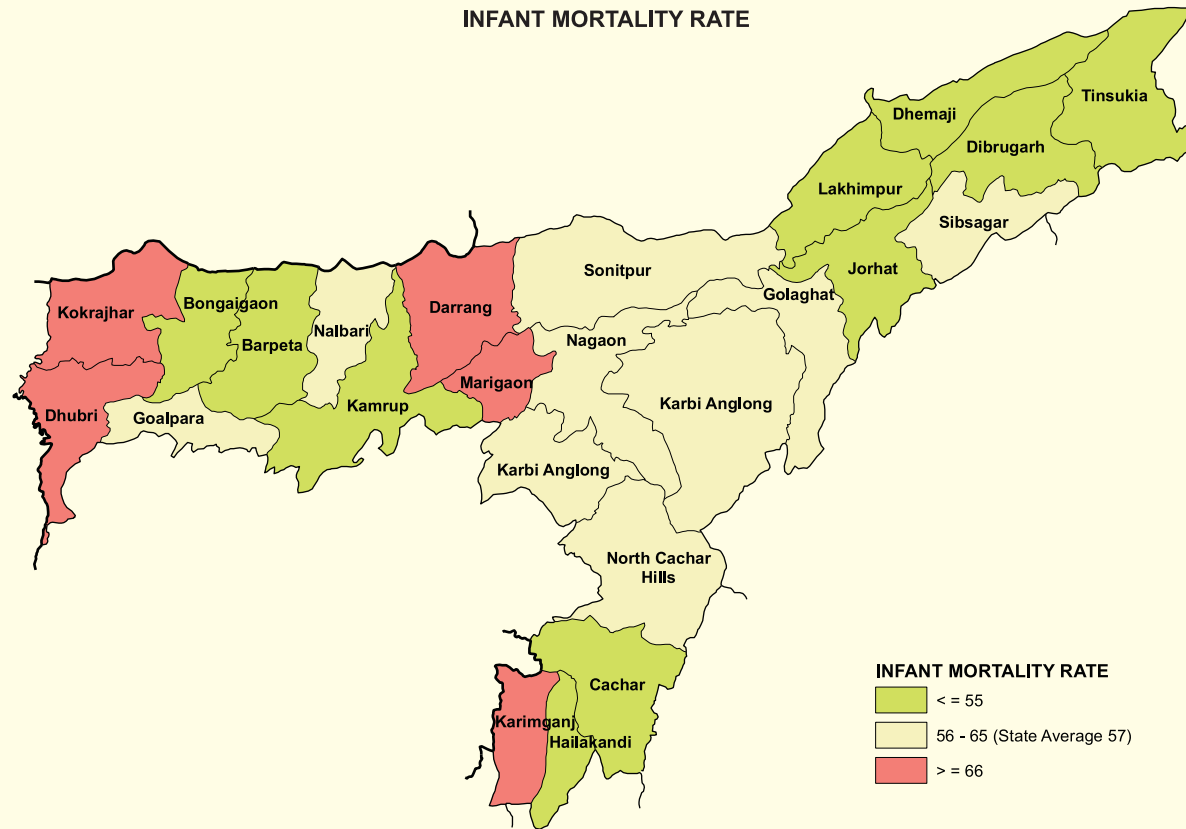
INFANT MORTALITY RATE

- ☐ < = 55
- ☐ 56 - 65 (State Average 57)
- ☐ > = 66

Infant Mortality Rate

	First Updation	Baseline
Total	57	60
Rural	61	64
Urban	32	35
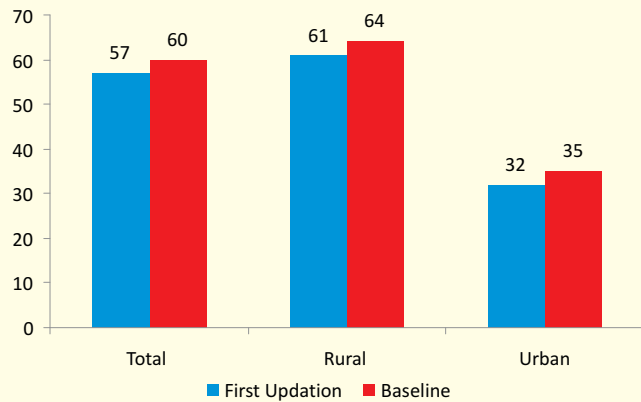
Infant Mortality rate in rural areas is 29 points higher than urban areas as per the First Updation round

Infant Mortality Rate

Total: First Updation Male 56 Female 58; Baseline Male 58 Female 62
Rural: First Updation Male 61 Female 62; Baseline Male 62 Female 66
Urban: First Updation Male 30 Female 34; Baseline Male 34 Female 36
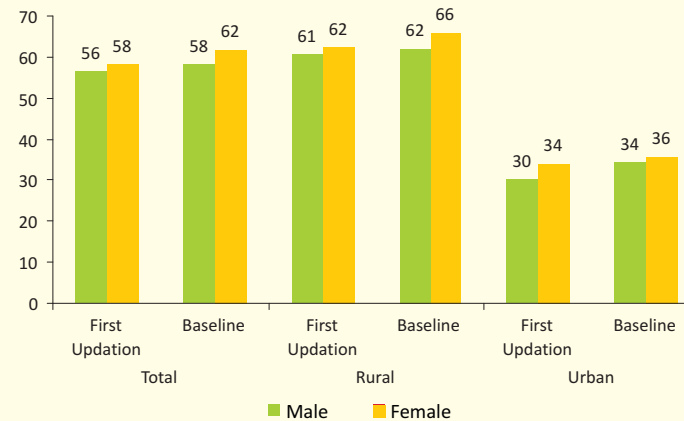
Female infants experience higher mortality than males in rural as well as urban areas

Infant Mortality Rate = (Number of Infant Deaths (less than 1 year of age) / Number of live births during reference period) × 1000

Table-6 : Neo-natal Mortality Rate & Post Neo-natal Mortality Rate

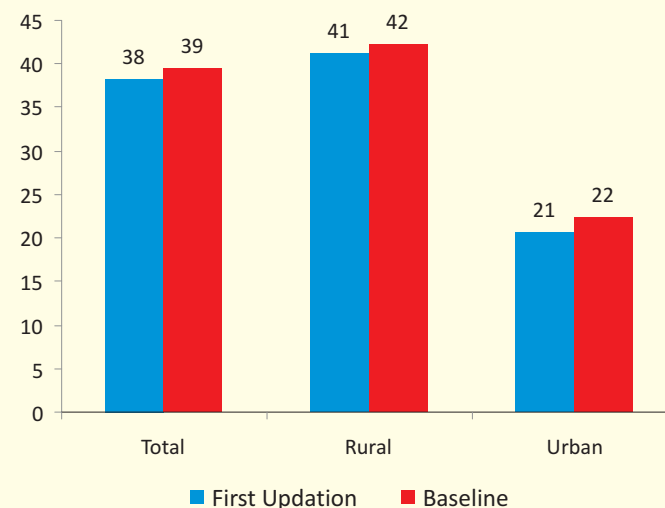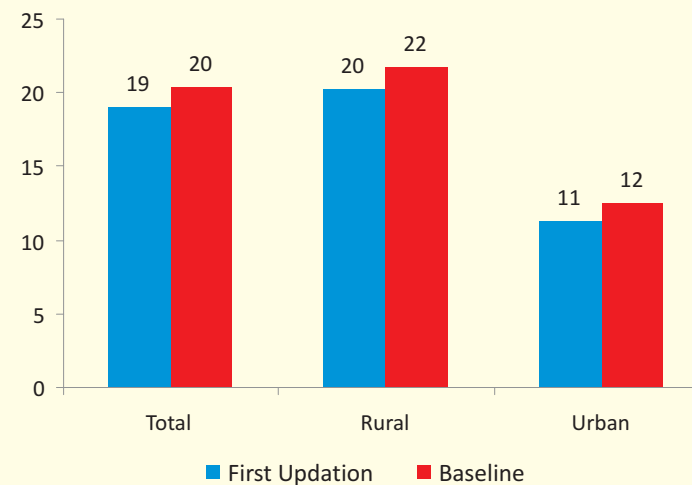| District		Neo-natal Mortality Rate			Post Neo-natal Mortality Rate		
		Total	Rural	Urban	Total	Rural	Urban
ASSAM		**38 (39)**	**41 (42)**	**21 (22)**	**19 (20)**	**20 (22)**	**11 (12)**
01	Kokrajhar	42 (41)	46 (43)	- (-)	31 (35)	33 (37)	- (-)
02	Dhubri	50 (50)	52 (54)	- (-)	18 (21)	19 (22)	- (-)
03	Goalpara	40 (39)	41 (40)	- (-)	16 (16)	16 (17)	- (-)
04	Bongaigaon	29 (31)	30 (31)	- (-)	20 (22)	22 (24)	- (-)
05	Barpeta	34 (33)	36 (35)	- (-)	12 (15)	13 (16)	- (-)
06	Kamrup	28 (30)	39 (42)	12 (15)	15 (15)	22 (22)	5 (7)
07	Nalbari	44 (48)	45 (49)	- (-)	15 (16)	15 (16)	- (-)
08	Darrang	41 (39)	42 (39)	- (-)	32 (31)	32 (31)	- (-)
09	Marigaon	42 (44)	43 (45)	20 (-)	24 (28)	24 (29)	8 (-)
10	Nagaon	40 (41)	41 (42)	32 (33)	24 (26)	25 (27)	14 (16)
11	Sonitpur	43 (46)	46 (48)	19 (26)	21 (22)	22 (23)	15 (16)
12	Lakhimpur	37 (41)	39 (43)	17 (25)	16 (15)	16 (16)	13 (4)
13	Dhemaji	26 (27)	27 (28)	13 (12)	13 (17)	13 (17)	13 (18)
14	Tinsukia	37 (39)	37 (40)	35 (37)	15 (16)	16 (17)	7 (8)
15	Dibrugarh	36 (37)	39 (40)	24 (-)	17 (18)	15 (16)	23 (-)
16	Sibsagar	37 (37)	40 (40)	- (-)	20 (21)	19 (21)	- (-)
17	Jorhat	42 (43)	44 (45)	35 (36)	13 (14)	13 (15)	11 (12)
18	Golaghat	45 (47)	47 (49)	26 (-)	14 (15)	14 (16)	9 (-)
19	Karbi Anglong	36 (36)	37 (37)	31 (33)	23 (23)	24 (25)	16 (15)
20	North Cachar Hills	33 (35)	35 (36)	32 (34)	22 (23)	29 (30)	15 (16)
21	Cachar	35 (36)	38 (40)	20 (20)	19 (20)	18 (20)	22 (24)
22	Karimganj	46 (46)	47 (47)	- (22)	22 (23)	23 (24)	- (11)
23	Hailakandi	35 (36)	37 (37)	- (-)	19 (20)	19 (19)	- (-)

Neo-natal Mortality Rate

Out of every 10 infant deaths, 7 pertains to Neo-nates in rural as well as urban areas as per the First Updation round

Neo-natal deaths : Infant dying before age of 29 days


Post Neo-natal Mortality Rate

Post Neo-natal deaths : Infant dying during age of 29 days to < 1 year

Table-7 : Under Five Mortality Rate (U5MR) & 95% Confidence Interval for Under Five Mortality Rate

| District		Under Five Mortality Rate (U5MR)									95% Confidence Interval for Under Five Mortality Rate					
		Total			Rural			Urban			Total		Rural		Urban	
		Total	Male	Female	Total	Male	Female	Total	Male	Female	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
ASSAM		75 (78)	74 (76)	76 (80)	81 (84)	80 (82)	82 (87)	39 (42)	36 (42)	42 (43)	74 (76)	77 (80)	80 (82)	83 (86)	36 (39)	42 (46)
01	Kokrajhar	100 (103)	98 (95)	103 (111)	108 (110)	107 (101)	110 (119)	- (-)	- (-)	- (-)	84 (86)	117 (119)	91 (92)	126 (128)	- (-)	- (-)
02	Dhubri	89 (91)	86 (87)	92 (96)	91 (97)	93 (92)	88 (101)	- (-)	- (-)	- (-)	79 (81)	99 (101)	81 (86)	101 (107)	- (-)	- (-)
03	Goalpara	74 (74)	75 (76)	72 (73)	77 (77)	77 (78)	77 (75)	- (-)	- (-)	- (-)	66 (67)	81 (82)	69 (69)	85 (84)	- (-)	- (-)
04	Bongaigaon	62 (68)	60 (67)	65 (69)	67 (73)	65 (73)	70 (74)	- (-)	- (-)	- (-)	56 (61)	69 (75)	60 (66)	75 (81)	- (-)	- (-)
05	Barpeta	63 (65)	73 (64)	52 (66)	67 (70)	76 (67)	57 (73)	- (-)	- (-)	- (-)	55 (57)	70 (72)	59 (62)	75 (77)	- (-)	- (-)
06	Kamrup	52 (57)	53 (56)	52 (58)	78 (80)	78 (76)	79 (83)	21 (29)	22 (30)	19 (27)	48 (52)	57 (62)	71 (73)	85 (87)	15 (22)	26 (35)
07	Nalbari	84 (88)	83 (87)	85 (88)	86 (90)	85 (90)	87 (91)	- (-)	- (-)	- (-)	68 (72)	99 (103)	70 (74)	102 (106)	- (-)	- (-)
08	Darrang	95 (90)	96 (88)	93 (92)	97 (93)	98 (91)	96 (95)	- (-)	- (-)	- (-)	81 (77)	108 (104)	83 (79)	111 (106)	- (-)	- (-)
09	Marigaon	85 (93)	87 (92)	82 (94)	87 (95)	89 (93)	85 (97)	31 (-)	47 (-)	14 (-)	79 (87)	91 (99)	81 (89)	93 (101)	9 (-)	53 (-)
10	Nagaon	82 (86)	80 (83)	85 (89)	89 (92)	87 (89)	92 (95)	47 (51)	43 (46)	52 (55)	75 (79)	89 (93)	82 (85)	97 (100)	30 (32)	65 (70)
11	Sonitpur	77 (80)	76 (79)	79 (82)	82 (85)	80 (83)	83 (86)	38 (47)	37 (51)	39 (42)	71 (74)	83 (86)	76 (78)	88 (91)	23 (31)	52 (62)
12	Lakhimpur	61 (68)	55 (66)	68 (70)	64 (71)	57 (68)	70 (73)	41 (43)	32 (45)	50 (40)	51 (57)	72 (79)	52 (59)	75 (83)	16 (17)	67 (68)
13	Dhemaji	48 (52)	45 (50)	51 (54)	49 (53)	45 (50)	54 (56)	31 (39)	42 (48)	19 (29)	42 (46)	54 (58)	43 (47)	56 (60)	16 (23)	46 (55)
14	Tinsukia	69 (74)	65 (69)	74 (79)	74 (78)	69 (73)	79 (84)	49 (52)	47 (49)	50 (56)	64 (68)	75 (79)	68 (72)	80 (85)	36 (39)	61 (65)
15	Dibrugarh	70 (71)	68 (69)	71 (74)	75 (76)	76 (75)	74 (78)	52 (-)	41 (-)	63 (-)	63 (64)	76 (78)	68 (69)	83 (84)	38 (-)	66 (-)
16	Sibsagar	78 (79)	76 (77)	79 (81)	79 (82)	78 (81)	81 (82)	- (-)	- (-)	- (-)	68 (70)	87 (88)	70 (72)	89 (91)	- (-)	- (-)
17	Jorhat	68 (71)	67 (69)	69 (72)	73 (76)	73 (75)	73 (77)	53 (54)	48 (51)	59 (58)	63 (66)	73 (76)	67 (70)	79 (82)	43 (44)	64 (64)
18	Golaghat	76 (82)	73 (78)	80 (86)	81 (86)	78 (82)	84 (90)	42 (-)	41 (-)	43 (-)	69 (74)	84 (90)	72 (77)	89 (95)	24 (-)	60 (-)
19	Karbi Anglong	78 (77)	68 (71)	88 (85)	83 (83)	72 (75)	96 (92)	57 (56)	54 (54)	59 (59)	69 (69)	86 (86)	74 (74)	93 (92)	40 (40)	73 (73)
20	North Cachar Hills	72 (78)	67 (72)	77 (84)	91 (99)	80 (85)	104 (113)	53 (57)	55 (58)	51 (56)	61 (67)	82 (88)	74 (81)	109 (117)	41 (45)	65 (70)
21	Cachar	76 (79)	75 (78)	77 (81)	80 (83)	80 (82)	80 (84)	56 (62)	52 (58)	60 (65)	70 (74)	81 (85)	74 (77)	86 (89)	41 (47)	71 (77)
22	Karimganj	80 (83)	73 (78)	87 (89)	82 (85)	75 (80)	90 (91)	- (40)	- (40)	- (39)	69 (72)	91 (95)	71 (74)	94 (97)	- (0)	- (80)
23	Hailakandi	98 (91)	98 (100)	96 (82)	103 (96)	103 (105)	104 (86)	- (-)	- (-)	- (-)	81 (75)	114 (107)	86 (79)	121 (113)	- (-)	- (-)

Under Five Mortality Rate
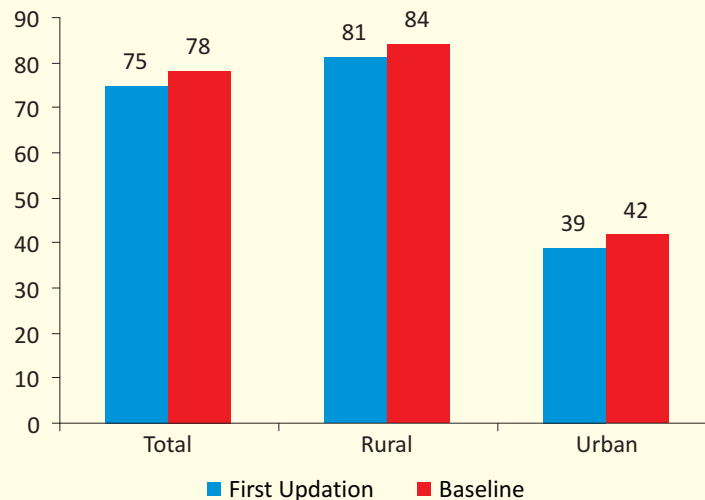
Under five Mortality rate in rural areas is 42 points higher
than urban areas as per the First Updation round

Under Five Mortality Rate
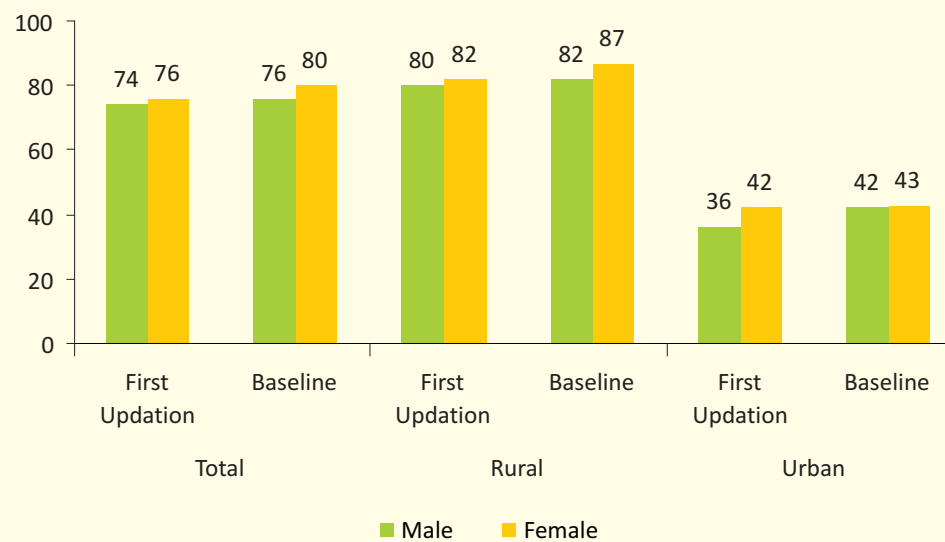
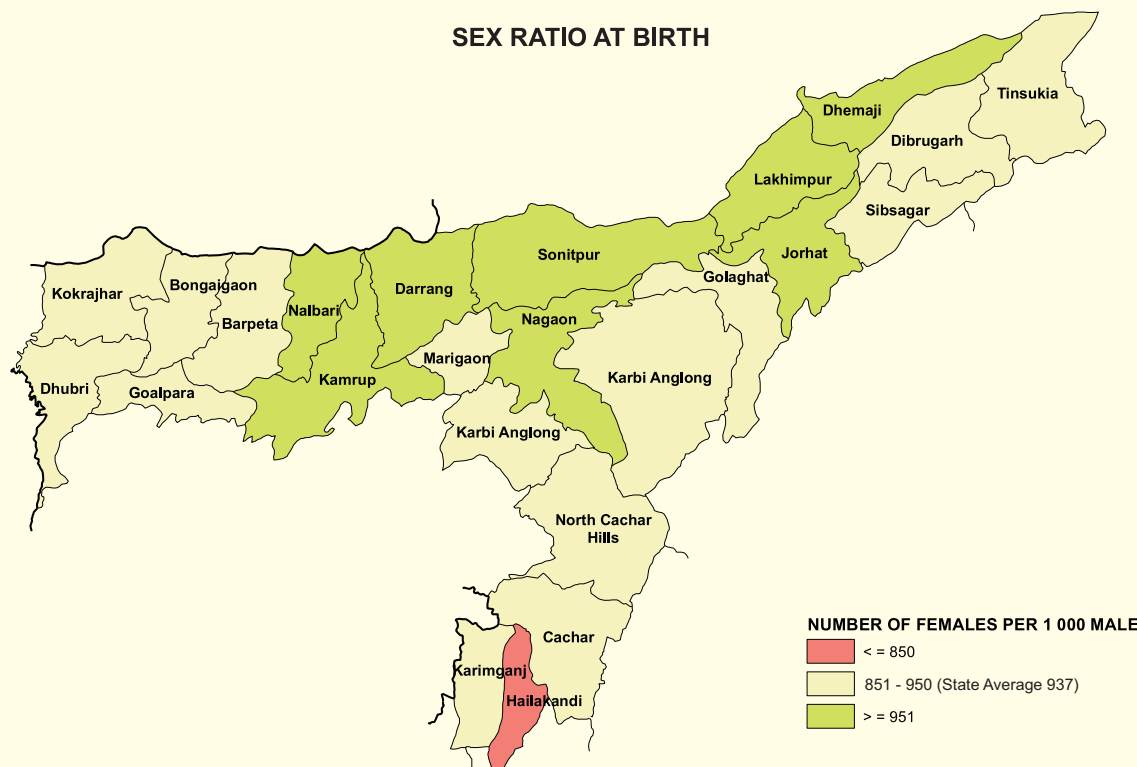More no. of females die before reaching age 5 years than males

The under-five mortality is the probability (5q0) that a child born in a specific year or time period will die before reaching the age of five,
subject to current age specific mortality rates. It is expressed as a rate per 1,000 live births.

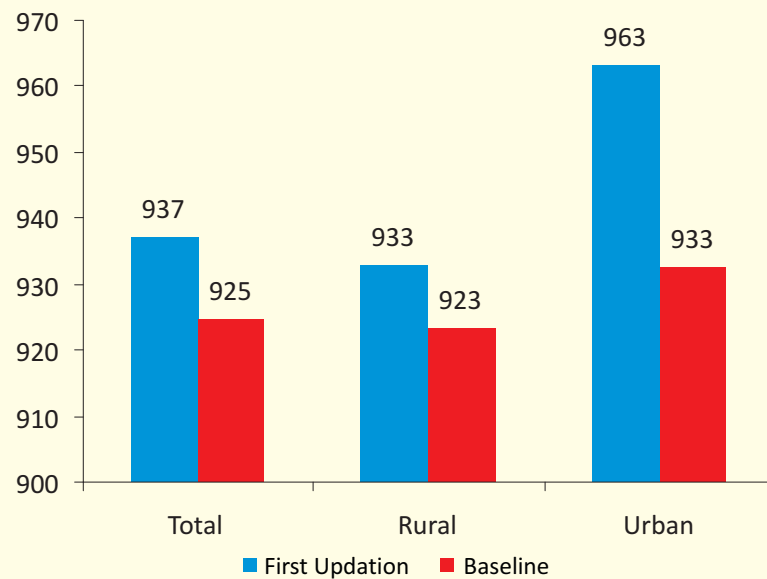## Table-8 : Sex Ratio at Birth & 95% Confidence Interval for Sex Ratio at Birth

District		Sex Ratio at Birth			95% Confidence Interval for Sex Ratio at Birth					
					Total		Rural		Urban	
		Total	Rural	Urban	Lower Limit	Upper Limit	Lower Limit	Upper Limit	Lower Limit	Upper Limit
ASSAM		937 (925)	933 (923)	963 (933)	926 (914)	948 (936)	921 (912)	945 (935)	932 (902)	995 (964)
01	Kokrajhar	893 (892)	907 (903)	745 (750)	799 (798)	998 (995)	808 (805)	1018 (1012)	488 (477)	1110 (1148)
02	Dhubri	914 (893)	911 (888)	950 (941)	853 (833)	980 (957)	848 (826)	979 (954)	715 (724)	1259 (1219)
03	Goalpara	920 (878)	910 (863)	1070 (1112)	869 (830)	974 (929)	858 (813)	965 (914)	852 (888)	1346 (1397)
04	Bongaigaon	946 (931)	958 (944)	817 (800)	893 (879)	1001 (986)	903 (889)	1016 (1002)	657 (648)	1011 (983)
05	Barpeta	908 (887)	885 (865)	1221 (1185)	854 (835)	965 (943)	831 (812)	943 (921)	920 (899)	1634 (1572)
06	Kamrup	977 (947)	962 (953)	996 (939)	937 (908)	1018 (988)	914 (905)	1012 (1004)	926 (872)	1071 (1011)
07	Nalbari	984 (937)	986 (938)	900 (889)	881 (838)	1100 (1046)	880 (837)	1105 (1051)	- (-)	- (-)
08	Darrang	974 (953)	967 (957)	1364 (786)	887 (868)	1070 (1047)	880 (870)	1063 (1052)	- (-)	- (-)
09	Marigaon	910 (920)	909 (921)	915 (902)	873 (883)	948 (959)	872 (883)	948 (960)	711 (696)	1174 (1166)
10	Nagaon	954 (943)	948 (937)	990 (988)	908 (897)	1003 (991)	900 (889)	999 (987)	841 (830)	1164 (1176)
11	Sonitpur	959 (949)	961 (964)	942 (836)	917 (908)	1002 (991)	917 (921)	1006 (1009)	809 (719)	1096 (969)
12	Lakhimpur	976 (984)	968 (991)	1054 (929)	893 (901)	1067 (1076)	880 (901)	1064 (1090)	813 (720)	1368 (1194)
13	Dhemaji	969 (950)	971 (951)	939 (941)	917 (899)	1024 (1004)	916 (897)	1030 (1009)	792 (797)	1112 (1111)
14	Tinsukia	948 (942)	958 (952)	894 (893)	909 (903)	990 (983)	915 (909)	1003 (996)	794 (793)	1007 (1005)
15	Dibrugarh	914 (912)	911 (909)	926 (921)	867 (866)	963 (960)	860 (859)	965 (963)	816 (813)	1051 (1043)
16	Sibsagar	923 (926)	928 (931)	863 (851)	862 (865)	989 (991)	865 (868)	996 (999)	645 (635)	1146 (1134)
17	Jorhat	973 (962)	982 (969)	945 (941)	935 (925)	1012 (1001)	939 (927)	1026 (1012)	864 (860)	1035 (1029)
18	Golaghat	940 (923)	951 (932)	857 (854)	886 (871)	996 (978)	894 (876)	1012 (991)	712 (708)	1030 (1028)
19	Karbi Anglong	926 (930)	905 (911)	1014 (1014)	871 (875)	985 (990)	845 (851)	969 (975)	878 (876)	1171 (1174)
20	North Cachar Hills	888 (884)	861 (855)	916 (914)	819 (815)	963 (959)	763 (757)	970 (964)	821 (819)	1021 (1020)
21	Cachar	929 (929)	911 (909)	1030 (1031)	893 (892)	968 (967)	873 (871)	950 (949)	907 (910)	1171 (1169)
22	Karimganj	922 (913)	925 (915)	863 (860)	850 (840)	1000 (991)	851 (841)	1005 (996)	570 (565)	1291 (1292)
23	Hailakandi	796 (810)	819 (836)	597 (588)	712 (724)	890 (905)	728 (743)	919 (939)	393 (388)	871 (857)

SEX RATIO AT BIRTH

Dhemaji
Tinsukia
Dibrugarh
Lakhimpur
Sibsagar
Sonitpur
Jorhat
Golaghat
Kokrajhar
Bongaigaon
Darrang
Nalbari
Barpeta
Nagaon
Marigaon
Dhubri
Goalpara
Kamrup
Karbi Anglong
Karbi Anglong
North Cachar Hills
Cachar
Karimganj
Hailakandi

NUMBER OF FEMALES PER 1 000 MALES

- < = 850
- 851 - 950 (State Average 937)
- > = 951

Sex Ratio at Birth

	Total	Rural	Urban
First Updation	937	933	963
Baseline	925	923	933

■ First Updation ■ Baseline

Sex Ratio at Birth = Number of female live births per 1,000 males live births

Table-9 : Sex Ratio (0-4 Years) & Sex Ratio (All Ages)

District		Sex Ratio (0-4 Years)			Sex Ratio (All Ages)		
		Total	Rural	Urban	Total	Rural	Urban
ASSAM		**957 (956)**	**958 (958)**	**951 (938)**	**959 (953)**	**962 (959)**	**947 (924)**
01	Kokrajhar	996 (1017)	998 (1024)	970 (919)	952 (953)	957 (957)	909 (916)
02	Dhubri	969 (960)	961 (953)	1063 (1037)	934 (930)	931 (925)	955 (965)
03	Goalpara	925 (957)	923 (955)	956 (988)	948 (946)	948 (947)	948 (935)
04	Bongaigaon	982 (984)	998 (998)	825 (849)	949 (948)	949 (951)	952 (932)
05	Barpeta	954 (941)	937 (925)	1187 (1176)	939 (936)	939 (936)	945 (936)
06	Kamrup	970 (960)	967 (981)	974 (934)	921 (909)	905 (946)	936 (873)
07	Nalbari	975 (987)	976 (989)	959 (906)	1037 (1039)	1038 (1042)	992 (970)
08	Darrang	917 (918)	918 (921)	875 (800)	956 (954)	956 (954)	955 (950)
09	Marigaon	939 (944)	941 (947)	876 (855)	960 (956)	961 (957)	943 (937)
10	Nagaon	958 (952)	969 (963)	894 (883)	974 (964)	980 (969)	949 (943)
11	Sonitpur	980 (977)	988 (987)	907 (884)	969 (968)	972 (972)	945 (944)
12	Lakhimpur	1007 (1010)	1010 (1015)	981 (966)	952 (950)	948 (950)	979 (946)
13	Dhemaji	961 (972)	967 (971)	896 (984)	951 (949)	952 (950)	943 (939)
14	Tinsukia	962 (956)	976 (969)	891 (887)	972 (962)	979 (967)	945 (945)
15	Dibrugarh	954 (950)	940 (936)	1010 (1006)	961 (953)	967 (958)	944 (938)
16	Sibsagar	951 (952)	951 (952)	951 (952)	967 (959)	970 (962)	930 (928)
17	Jorhat	987 (983)	1002 (998)	935 (933)	984 (975)	991 (981)	965 (960)
18	Golaghat	960 (955)	975 (969)	858 (856)	968 (959)	975 (966)	914 (907)
19	Karbi Anglong	925 (926)	916 (916)	967 (967)	954 (946)	952 (943)	962 (957)
20	North Cachar Hills	941 (940)	939 (936)	943 (944)	941 (935)	919 (912)	962 (955)
21	Cachar	961 (953)	956 (947)	987 (983)	984 (974)	986 (977)	973 (964)
22	Karimganj	947 (933)	946 (931)	984 (986)	977 (964)	976 (963)	987 (980)
23	Hailakandi	864 (874)	889 (900)	652 (631)	949 (942)	950 (943)	942 (935)

Sex Ratio (0- 4 Years)

Legend: First Updation, Baseline

	Total	Rural	Urban
First Updation	957	958	951
Baseline	956	958	938

Sex Ratio (0-4 Years) = Number of female in the age group (0-4) years per 1,000 male in the age group (0-4) years

Sex Ratio (All Ages)

Legend: First Updation, Baseline

	Total	Rural	Urban
First Updation	959	962	947
Baseline	953	959	924

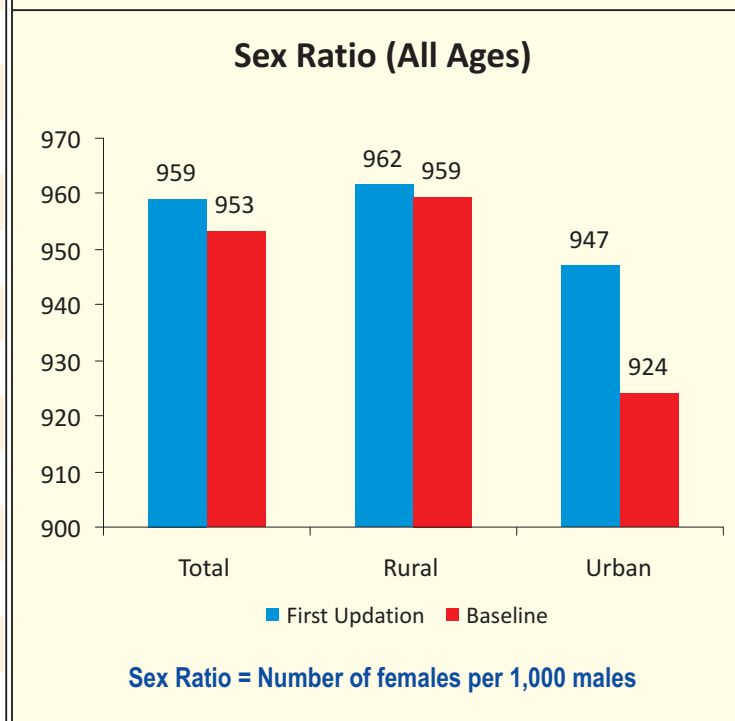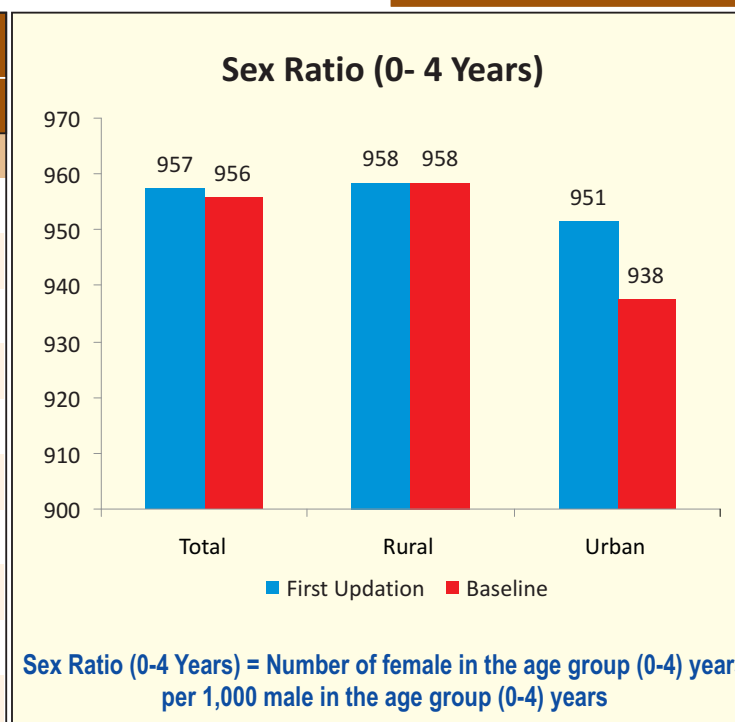**Sex Ratio = Number of females per 1,000 males**

Table-10 : Maternal Mortality Ratio (MMR)

State/Commissionary/(Districts)	Sample Female Population	Sample Live Births	Maternal Deaths	MMR	95% Confidence Interval		Maternal Mortality Rate	Life Time Risk
					Lower Limit	Upper Limit		
ASSAM	**483287 (460250)**	**111246 (111150)**	**386 (423)**	**347 (381)**	**312 (344)**	**382 (417)**	**27 (31)**	**0.93% (1.07%)**
HILLS AND BARAK VALLEY DIVISION (Karbi Anglong, North Cachar Hills, Cachar, Karimganj, Hailakandi)	76001 (71640)	19444 (19290)	56 (66)	288 (342)	213 (260)	363 (425)	25 (31)	0.86% (1.07%)
LOWER ASSAM DIVISION (Kokrajhar, Dhubri, Goalpara, Darrang, Bongaigaon, Barpeta, Kamrup, Nalbari)	134163 (128018)	29886 (29520)	97 (108)	325 (366)	260 (297)	389 (435)	24 (28)	0.84% (0.98%)
NORTH ASSAM DIVISION (Marigaon, Nagaon, Sonitpur, Lakhimpur, Dhemaji)	123502 (117042)	30245 (30259)	95 (111)	314 (367)	251 (299)	377 (435)	26 (32)	0.89% (1.10%)
UPPER ASSAM DIVISION (Tinsukia, Dibrugarh, Sibsagar, Jorhat, Golaghat)	149621 (143550)	31671 (32081)	138 (138)	436 (430)	363 (359)	508 (502)	31 (32)	1.07% (1.12%)

MATERNAL MORTALITY RATIO (MMR)
(Administrative Division)

First Updation ■ Baseline ■
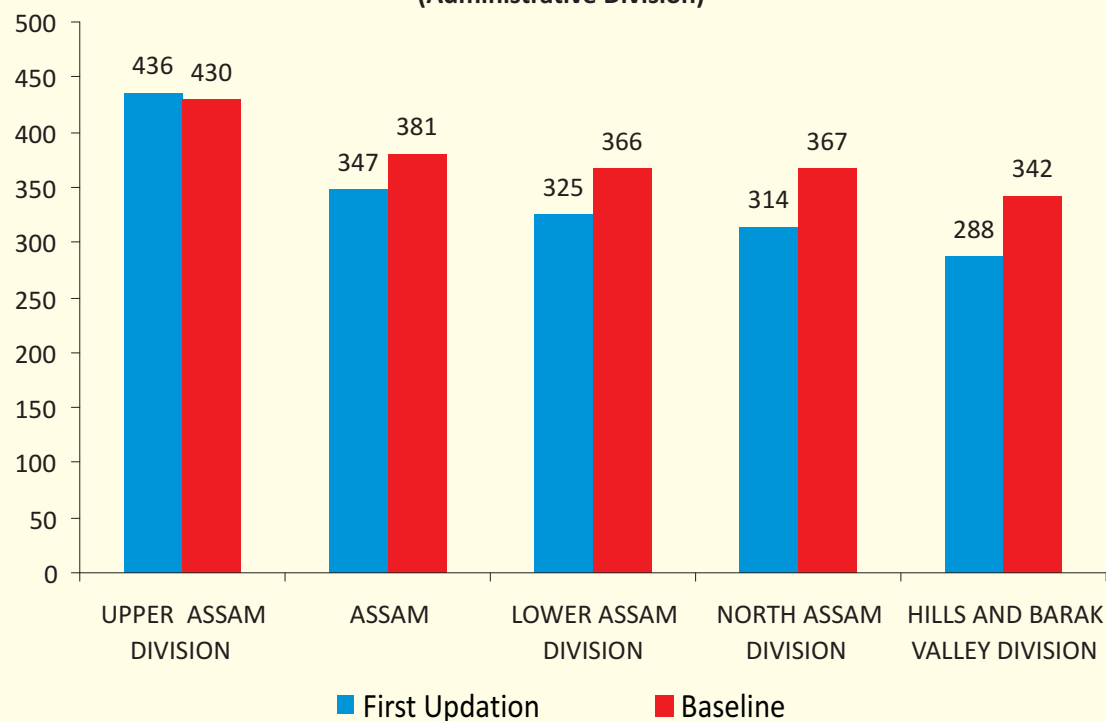
Table-11 : Age Distribution of Maternal & Non Maternal Deaths

Age Group	Sample Female Deaths	Maternal Deaths	Proportion	95% Confidence Interval		Non Maternal Deaths	Proportion	95% Confidence Interval	
				Lower Limit	Upper Limit			Lower Limit	Upper Limit
15-19	342 (310)	32 (28)	8 (7)	4 (2)	13 (11)	310 (282)	11 (11)	10 (10)	12 (13)
20-24	417 (386)	101 (112)	26 (26)	22 (22)	31 (31)	316 (274)	11 (11)	10 (10)	13 (12)
25-29	486 (424)	110 (117)	28 (28)	24 (23)	33 (32)	376 (307)	14 (12)	12 (11)	15 (14)
30-34	417 (376)	68 (81)	18 (19)	13 (15)	22 (23)	349 (295)	13 (12)	11 (11)	14 (13)
35-39	466 (459)	42 (50)	11 (12)	6 (7)	16 (17)	424 (409)	15 (17)	14 (15)	17 (18)
40-44	468 (406)	21 (24)	5 (6)	1 (2)	10 (10)	447 (382)	16 (15)	15 (14)	18 (17)
45-49	559 (536)	12 (11)	3 (3)	0 (0)	6 (6)	547 (525)	20 (21)	18 (20)	21 (23)
Total	3155 (2897)	386 (423)	100 (100)			2769 (2474)	100 (100)		

- **Maternal Mortality Ratio** = Proportion of maternal deaths per 1,00,000 live births
- **Maternal Mortality Rate** = Proportion of maternal deaths per 1,00,000 women in the ages 15-49 years
- *Life Time Risk* = $1- \left(1- \dfrac{Maternal\ Mortality\ Rate}{100000}\right)^{35}$

Note : In this Bulletin,

1. '-' denotes inadequate sample.
2. Data within brackets ( ) pertain to the corresponding estimates of baseline survey.

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3	Shri Rajeev Kumar	Senior Research Officer
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5	Shri Rajesh N. Malvia	Deputy Director
6	Shri Narendra Singh	Research Officer
7	Shri Mohan K. Tiwary	Assistant Director
8	Shri Harmeet Singh Maddh	Assistant Director
9	Shri Suresh Kumar	Assistant Director
10	Shri Brijesh Kumar	Statistical Investigator Gr. II
11	Shri Pankaj Shrivastava	Statistical Investigator Gr. II
12	Shri Ravinder Kumar	Statistical Investigator Gr. II
13	Shri Deepak Tyagi	Statistical Investigator Gr. II
14	Shri Sandeep Goel	Senior Compiler
15	Smt. Navita Bhatia	Compiler

AHS STATES IN INDIA
POSITION OF ASSAM

BOUNDARY, INTERNATIONAL —————— BOUNDARY, STATE/U.T. ——————

AFGHANISTAN

PAKISTAN

JAMMU AND KASHMIR

HIMACHAL PRADESH

PUNJAB

CHANDIGARH

UTTARAKHAND

HARYANA

NCT OF DELHI

RAJASTHAN

UTTAR PEADESH

NEPAL

C H I N A   T I B E T

SIKKIM

BHUTAN

ARUNACHAL PRADESH

ASSAM   NAGALAND

MEGHALAYA

MANIPUR

BIHAR

BANGLADESH

TRIPURA   MIZORAM

MYANMAR

JHARKHAND

WEST BENGAL

GUJARAT

MADHYA PRADESH

DAMAN & DIU

DADRA & NAGAR HAVELI

CHHATTISGARH

ORISSA

New More I. (INDIA)

MAHARASHTRA

ARABIAN SEA

BAY OF BENGAL

ANDHRA PRADESH   P

GOA

KARNATAKA

Coco Is. (MYANMAR)

Narcondam I. (INDIA)

Barren I. (INDIA)

A N D A M A N   A N D   N I C O B A R   I S L A N D S   (INDIA)

PUDUCHERRY

TAMIL NADU   P

L A K S H A D W E E P   S E A

LAKSHADWEEP (INDIA)

KERALA

ANDAMAN SEA

The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.

P - PUDUCHERRY

INDIRA POINT

SRI LANKA

INDIAN OCEAN

KILOMETRES
100 0 100 200 300 400

The responsibility for the correctness of internal details rests with the publisher.

The territorial waters of India extend into the sea to a distance of twelve nautical miles measured from the appropriate base line.

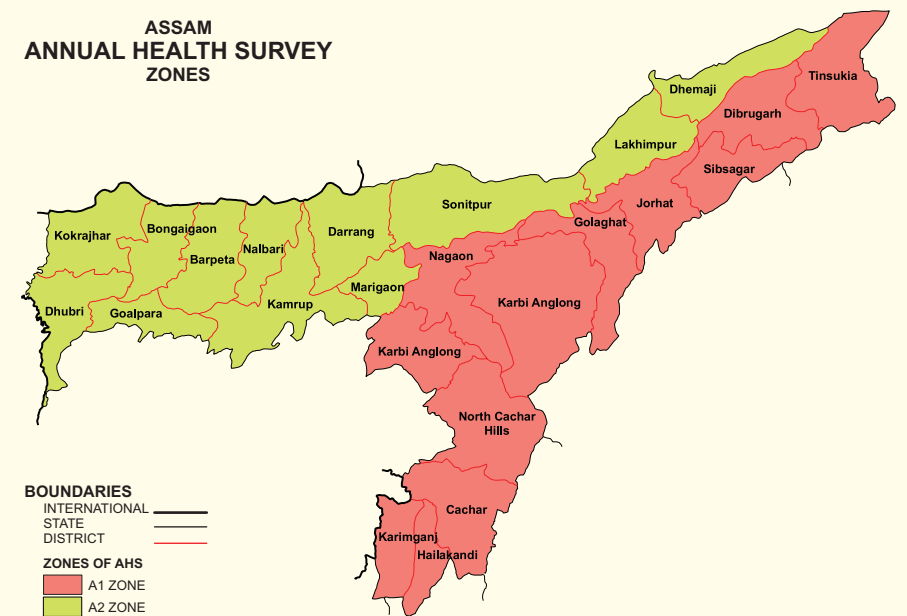The external boundaries and coastlines of India agree with the Record/Master Copy certified by Survey of India.

The state boundaries between Uttarakhand & Uttar Pradesh, Bihar & Jharkhand and Chattisgarh & Madhya Pradesh have not been verified by the Governments concerned.

The administrative headquarters of Chandigarh, Haryana and Punjab are at Chandigarh.

The interstate boundaries amongst Arunachal Pradesh, Assam and Meghalaya shown on the map are as interpreted from the North-Eastern Areas (Reorganisation) Act. 1971," but have yet to be verified.

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ASSAM
ANNUAL HEALTH SURVEY
ZONES

Dhemaji   Tinsukia

Dibrugarh

Lakhimpur

Sibsagar

Kokrajhar   Bongaigaon   Sonitpur

Darrang

Jorhat

Nalbari

Golaghat

Barpeta

Nagaon

Dhubri   Goalpara   Kamrup   Marigaon

Karbi Anglong

Karbi Anglong

North Cachar Hills

Cachar

Karimganj

Hailakandi

BOUNDARIES
INTERNATIONAL ——————
STATE ——————
DISTRICT ——————

ZONES OF AHS
A1 ZONE
A2 ZONE