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SPECIAL BULLETIN ON MATERNAL MORTALITY IN INDIA 2010-12

SAMPLE REGISTRATION SYSTEM

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Reduction of mortality of women is an area of concern for the Governments across the globe. The International Conference on Population and Development in 1994 had recommended reduction in maternal mortality by at least 50 percent of the 1990 levels by the year 2000 and further one half by the year 2015.

2. The Office of the Registrar General, India under the Ministry of Home Affairs, apart from conducting Population Census and monitoring the implementation of Registration of Births and Deaths Act in the country, has been giving estimates on fertility and mortality using the Sample Registration System (SRS). SRS is the largest demographic sample survey in the country that among other indicators provide direct estimates of maternal mortality through a nationally representative sample. Verbal Autopsy instruments are administered for the deaths reported under the SRS on a regular basis to yield cause-specific mortality profile in the country. The First Report on maternal mortality in India (1997-2003) – Trends, Causes and Risk Factors was released in October, 2006. The present Bulletin, which provides only the levels of maternal mortality for the period 2010-12, is being brought out as a sequel to the previous Bulletin (2007-09). With this, the maternal mortality data from SRS is available for a period of 16 years.

3. In order to understand the maternal mortality situation in the country better and to map the changes that have taken place, specially, at the regional levels, States have been categorized into three groups namely, “Empowered Action Group” (EAG) States comprising Bihar, Jharkhand, Madhya Pradesh, Chhattisgarh, Orissa, Rajasthan, Uttar Pradesh & Uttarakhand and Assam; “Southern” States which include Andhra Pradesh, Karnataka, Kerala and Tamil Nadu; and “Other” States covering the remaining States/UTs as was done in respect of Maternal Mortality Report (1997-2003) and also in the Maternal Mortality Bulletin (2007-2009). It is heartening that the Maternal Mortality Ratio of India has declined from 212 in 2007-2009 to 178 in 2010-2012. The decline has been most significant in EAG States & Assam from 308 to 257. Among the Southern States, the decline has been from 127 to 105 and in the Other States from 149 to 127.

4. The key statistics presented in the Bulletin is the Maternal Mortality Ratio (MMR). This is derived as the proportion of maternal deaths per 1,00,000 live births reported under the SRS. Besides, the 95% Confidence Intervals (95% CI) of the estimates based on the calculated Standard Error (SE) have also been presented. In addition, estimates of Maternal Mortality Rate viz. maternal deaths to women in the ages 15-49 per lakh of women in that age group, and the life time risk have been presented. The life time risk is defined as the probability that at least one women of reproductive age(15-49) will die due to child birth or puerperium assuming that chance of death is uniformly distributed across the entire reproductive span and has been worked out using the following formula:

$$LifeTimeRisk = 1 - \left(1 - \frac{MaternalMortalityRate}{100000} \right)^{35}$$

5. The maternal deaths being a rare event require prohibitively large sample size to provide robust estimates. In order to enhance the SRS sample size, the results have been derived by following the practice of pooling the three years data to yield reliable estimates of maternal mortality. Further, in order to take care of the undercount mainly on account of out-migration as VA forms during the period was administered after the conduct of the Half Yearly Surveys, the actual number of maternal deaths for each state has been multiplied by a ‘Correction Factor’. This correction factor, which is the ratio of total female deaths in a particular age group in SRS to the counts for the corresponding age group as yielded from VA forms, has been applied separately for different reproductive age groups as was done in the past.

Table 1: Maternal Mortality Ratio (MMR), Maternal Mortality Rate and Life Time Risk; India, EAG & Assam, South and Other states, 2010-12

India & Major States	Sample Female Population	Live Births	Maternal Deaths	MMR	95% CI	Maternal Mortality Rate	Lifetime risk
INDIA TOTAL	6169091	430170	767	178	(166-191)	12.4	0.4%
Assam	195275	12811	42	328	(229-427)	21.5	0.8%
Bihar/Jharkhand	371114	38549	84	219	(172-266)	22.8	0.8%
Madhya Pradesh/Chhattisgarh	353851	32533	75	230	(178-282)	21.1	0.7%
Orissa	293129	19981	47	235	(168-302)	16.0	0.6%
Rajasthan	269335	26702	68	255	(194-315)	25.2	0.9%
Uttar Pradesh/Uttarakhand	542640	53194	156	292	(247-338)	28.7	1.0%
EAG AND ASSAM SUBTOTAL	2025344	183770	472	257	(234-280)	23.3	0.8%
Andhra Pradesh	357699	22427	25	110	(67-153)	6.9	0.2%
Karnataka	390941	21909	32	144	(94-194)	8.1	0.3%
Kerala	305268	15351	10	66	(25-106)	3.3	0.1%
Tamil Nadu	410769	22622	20	90	(51-130)	5.0	0.2%
SOUTH SUBTOTAL	1464677	82309	87	105	(83-128)	5.9	0.2%
Gujarat	301207	23552	29	122	(77-166)	9.5	0.3%
Haryana	179220	14243	21	146	(83-209)	11.6	0.4%
Maharashtra	342534	20684	18	87	(47-127)	5.2	0.2%
Punjab	206148	11988	19	155	(85-226)	9.0	0.3%
West Bengal	526090	29682	35	117	(78-156)	6.6	0.2%
Other	1123871	63942	87	136	(108-165)	7.8	0.3%
OTHER SUBTOTAL	2679070	164091	208	127	(110-144)	7.8	0.3%

Table 2: Age Distribution of Maternal and Non-Maternal deaths, India, 2010-12

Age Groups	Maternal Deaths		Non-maternal Deaths	
	Proportion	95 % CI	Proportion	95 % CI
15-19	7%	(5-8)	12%	(11-13)
20-24	39%	(35-42)	16%	(15-16)
25-29	28%	(25-32)	13%	(12-14)
30-34	17%	(14-19)	12%	(12-13)
35-39	7%	(5-9)	12%	(12-13)
40-44	2%	(1-3)	15%	(15-16)
45-49	0%	(0-1)	19%	(19-20)
15-49	100%		100%	

MATERNAL MORTALITY RATIO (MMR) ALONG WITH 95% CONFIDENCE INTERVAL, INDIA AND STATES, 2010 - 2012

