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SPECIAL BULLETIN ON MATERNAL MORTALITY IN INDIA 2015-17

SAMPLE REGISTRATION SYSTEM

OFFICE OF REGISTRAR GENERAL, INDIA

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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 2015-17, is being brought out as a sequel to the previous Bulletin (2014-16). With this, the maternal mortality data from SRS is available for a period of 21 years.

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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, Odisha, Rajasthan, Uttar Pradesh & Uttarakhand and Assam; "Southern" States which include Andhra Pradesh, Telangana, 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 (2014-2016). It is heartening that the Maternal Mortality Ratio of India has declined from 130 in 2014-2016 to 122 in 2015-17. The decline has been most significant in EAG States & Assam from 188 to 175. Among the Southern States, the decline has been from 77 to 72 and in the Other States from 93 to 90.

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, 2015-17

India & Major States	Sample Female Population (15-49 years)	Live Births	Maternal Deaths	MMR	95% CI	Maternal Mortality Rate	Lifetime risk
INDIA	**6475970**	**429173**	**525**	**122**	**(112-133)**	**8.1**	**0.3%**
Assam	184598	12301	28	229	(144-313)	15.2	0.5%
Bihar	277090	28374	47	165	(118-212)	16.9	0.6%
Jharkhand	124697	10018	8	76	(22-130)	6.1	0.2%
Madhya Pradesh	318906	29603	56	188	(139-238)	17.5	0.6%
Chhattisgarh	97649	7588	11	141	(57-226)	11.0	0.4%
Odisha	294187	19553	33	168	(110-225)	11.1	0.4%
Rajasthan	256166	23184	43	186	(131-242)	16.8	0.6%
Uttar Pradesh	406636	37832	82	216	(170-263)	20.1	0.7%
Uttarakhand	227477	14977	13	89	(42-137)	5.9	0.2%
EAG AND ASSAM SUBTOTAL	**2187407**	**183430**	**320**	**175**	**(155-194)**	**14.6**	**0.5%**
Andhra Pradesh	330420	15995	12	74	(32-116)	3.6	0.1%
Telangana	214727	10851	8	76	(24-127)	3.8	0.1%
Karnataka	309456	23388	23	97	(57-136)	7.3	0.3%
Kerala	339174	15226	6	42	(9-75)	1.9	0.1%
Tamil Nadu	300893	22896	14	63	(31-96)	4.8	0.2%
SOUTH SUBTOTAL	**1494669**	**88356**	**63**	**72**	**(54-89)**	**4.2**	**0.1%**
Gujarat	365562	25394	22	87	(51-123)	6.0	0.2%
Haryana	189375	14978	15	98	(48-148)	7.7	0.3%
Maharashtra	405444	23821	13	55	(26-85)	3.3	0.1%
Punjab	165469	9208	11	122	(51-194)	6.8	0.2%
West Bengal	462453	24480	23	94	(55-132)	5.0	0.2%
Other states	1205591	59506	57	96	(71-121)	4.7	0.2%
OTHER SUBTOTAL	**2793894**	**157387**	**141**	**90**	**(75-105)**	**5.1**	**0.2%**

Table 2: Age Distribution of Maternal and Non-Maternal deaths; India, 2015-17

	Maternal Deaths		Non-maternal Deaths	
Age Groups	**Proportion**	**95 % CI**	**Proportion**	**95 % CI**
15-19	4%	(3-6)	10%	(9-10)
20-24	34%	(30-38)	11%	(10-12)
25-29	34%	(30-38)	13%	(12-13)
30-34	16%	(13-19)	13%	(12-13)
35-39	7%	(5-10)	15%	(14-15)
40-44	4%	(2-5)	18%	(17-19)
45-49	1%	(0-2)	21%	(21-22)
15-49	**100%**		**100%**	