

Maternal Mortality India 2000-2020

Internationally comparable MMR estimates by the Maternal Mortality Inter-Agency Group (MMEIG): WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division

Table 1: Estimates

Year	MMR ^{a*†}	PM ^{b*†}	HIV-related indirect deaths [†]	Live births ^c (Thousands)	Maternal deaths [†]
2000	384 [339, 454]	0.15 [0.13, 0.17]	0	28615	110010
2005	286 [256, 335]	0.11 [0.1, 0.13]	0	27646	78993
2010	179 [163, 205]	0.07 [0.07, 0.08]	0	26599	47528
2015	128 [122, 135]	0.05 [0.05, 0.06]	0	24828	31699
2020	103 [93, 110]	0.04 [0.04, 0.04]	0	23139	23753

^a Maternal mortality ratio (MMR) defined as maternal deaths per 100,000 live births for women of reproductive age (15-49 years).

^b Proportion maternal (PM) defined as the proportion of all-cause deaths for women of reproductive age (15-49 years) that are due to maternal causes.

^c UN Population Division, Department of Economic and Social Affairs. World Population Prospects. New York; 2022.

* The uncertainty intervals (UI) for all estimates refer to the 80% uncertainty intervals (10th and 90th percentiles of the posterior distributions). This was chosen as opposed to the more standard 95% intervals because of the substantial uncertainty inherent in maternal mortality outcomes.

† Figures presented in the table are estimates based on national data, such as surveys or administrative records, or other sources, produced by the international agency when country data for some year(s) is not available, when multiple sources exist, or when there are data quality issues.

Table 2: Estimates

Period	Annual rate reduction*	Percent change in MMR*
2000, 2020	6.64 [5.85, 7.67]	73.48 [68.99, 78.44]
2010, 2020	5.58 [4.38, 7.52]	42.76 [35.45, 52.84]

* Figures presented in the table are estimates based on national data, such as surveys or administrative records, or other sources, produced by the international agency when country data for some year(s) is not available, when multiple sources exist, or when there are data quality issues.

Data from civil registration vital statistics system (CRVS)

No data available

Excluded data from CRVS

No data excluded

Data from other sources

Table 3: Data from other sources

Study period*	Source	Source type	Maternal deaths ^a	Preganancy-related deaths ^b	Female deaths, 15-49	Maternal PM ^c	Pregnancy-related PM ^{d†}	MMR per 100,000 lb ^e	Adjusted MMR per 100,000 lb	F+ ^{f†}	F-g [†]	U+ ^{h†}
[1991, 1993)	NFHS - 1: 1992-1993	Miscellaneous	NA	NA	NA	0.1787053	NA	437.0000	480.7000	NA	NA	NA
[1997, 1999)	Maternal Mortality 1997 - 1998	Miscellaneous	1589	NA	NA	0.1528433	NA	398.0000	437.8000	NA	NA	NA
[1998, 2000)	NFHS - 2: 1998-1999	Miscellaneous	NA	NA	NA	0.2053979	NA	540.0000	594.0000	NA	NA	NA
[1999, 2002)	Maternal Mortality 1999 - 2001	Miscellaneous	1512	NA	NA	0.1250447	NA	327.0000	359.7000	NA	NA	NA
[2001, 2004)	Million Death Study 2001 - 2003	Miscellaneous	1383	NA	NA	0.1171589	NA	301.0000	331.1000	NA	NA	NA
[2004, 2007)	Maternal Mortality 2004 - 2006	Miscellaneous	1110	NA	NA	0.1006255	NA	254.0000	279.4000	NA	NA	NA
[2007, 2010)	Maternal Mortality 2007 - 2009	Miscellaneous	926	NA	NA	0.0857579	NA	212.0000	233.2000	NA	NA	NA
[2010, 2013)	Maternal Mortality 2010 - 2012	Miscellaneous	767	NA	NA	0.0734938	NA	178.0000	195.8000	NA	NA	NA
[2011, 2014)	Maternal Mortality 2011 - 2013	Miscellaneous	718	NA	NA	0.0694673	NA	167.0000	183.7000	NA	NA	NA
[2014, 2017)	Maternal Mortality 2014 - 2016	Miscellaneous	556	NA	NA	0.0545178	NA	130.0000	143.0000	NA	NA	NA
[2015, 2018)	Office of the Registrar General [India], 2021	Specialized study	NA	NA	9289	0.0533965	NA	127.1666	127.1666	NA	NA	NA
[2016, 2019)	Office of the Registrar General [India], 2020	Specialized study	NA	NA	9377	0.0478831	NA	114.6338	114.6338	NA	NA	NA

[2017, 2020)	Office of the Registrar General [India], 2022	Specialized study	NA	NA	8828	0.0472361	NA	115.1834	115.1834	NA	NA	NA
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^a Maternal deaths defined according to the ICD-10.

^b Pregnancy-related deaths defined according to ICD-10.

^c Maternal PM is calculated when deaths are defined as maternal.

^d Pregnancy-related PM is calculated when reported deaths are defined as pregnancy related deaths.

^e The MMR in this column is calculated from the PM.

^f False positive: true non-maternal death which may be incorrectly labeled as a maternal death.

^g False negative: maternal death which may be incorrectly classified as a non-maternal death.

^h Maternal deaths not registered in the CRVS.

* Kindly note the interpretation of notation: for a period [a,b) the observation starts on date a and ends before date b; thus a period covering 1st January 2000 through 31st December 2000 is denoted [2000,2001).

† Calculated from studies which undertake specialized analyses of routine reporting of maternal deaths.

‡ Survey data has been adjusted by 1.1 for underreporting and standardized by age when obtained using the direct sisterhood method.

Data from studies excluded in regression

Table 4: Data from studies excluded in regression

Study period*	Source	Source type	Reason for exclusion
[2012, 2013)	Tripathy and Mishra, 2017	Miscellaneous	PM could not be obtained

* Kindly note the interpretation of notation: for a period [a,b) the observation starts on date a and ends before date b; thus a period covering 1st January 2000 through 31st December 2000 is denoted [2000,2001).

Predictor variables used in the model

Table 5: Predictor variables used in the model

Year	GDP ^{a*} (Per capita, PPP)	GFR ^b (Per 1000 women ages 15-49)	SBA ^c (%)
2000	2568	110	45
2005	3258	100	57
2010	4179	80	77
2015	5487	70	87
2020	6516	60	92

^a WHO, MMEIG. Gross domestic product (GDP) per capita measured in purchasing power parity (PPP) equivalent dollars using 2017 as the baseline year were taken from World Bank's World Development Indicators (WDI) database, and in instances supplemented by unofficial estimates derived by MMEIG using growth rates in United Nations GDP data and/or previous MMEIG GDP estimates. Geneva; 2021.

^b General fertility rate (GFR) from UN Population Division, Department of Economic and Social Affairs. World Population Prospects. New York; 2022.

^c Skilled Birth Attendant (SBA) from WHO, UNICEF joint SBA database. Geneva; 2022. In some instances, supplemented with unofficial estimates derived by MMEIG. Annual series were estimated by fitting a multilevel time series (AR1) model with region- and country-specific intercepts and slopes.

* A 5-year moving average was calculated.

Estimates

(Input data) The following adjustments were applied to maternal deaths depending on the source type:

1. An age-standardization was applied to population based surveys that obtained data from the direct sisterhood method.
2. An upward adjustment of 10% was applied to all input data that were not obtained from CRVS or specialized studies, to account for underreporting.

(Model adjusted data) The following model adjustments were applied to maternal deaths depending on the source type and the definition of reported deaths

1. A model adjustment derived from BMis was applied to maternal deaths obtained from CRVS.
2. A model adjustment was applied to observations of pregnancy-related deaths to remove accidental/incidental (non-maternal) deaths from the count.

