Maternal Mortality Philippines 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	129 [114, 145]	0.09 [0.08, 0.1]	0	2245	2897
2005	122 [109, 138]	0.08 [0.07, 0.09]	0	2334	2852
2010	105 [93, 121]	0.07 [0.06, 0.08]	0	2417	2538
2015	88 [77, 104]	0.06 [0.05, 0.07]	0	2396	2109
2020	78 [67, 96]	0.05 [0.04, 0.06]	1	2473	1935

[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	2.57 [1.34, 3.31]	40.22 [23.51, 48.37]
2010, 2020	2.95 [1.22, 4.4]	25.57 [11.51, 35.58]

* 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)

Table 3: Data from civil registration vital statistics system (CRVS)

Study period*	Maternal deaths[a]	Female deaths[b]	CRVS adjustment factor[c †]	Sensitivity[d †]	Specificity[e †]	Completeness[f †]	Usability[g]	Maternal deaths not included[h]
[1992, 1993)	975	23972	1.507579	0.661238	0.999758	72.44047	0.7076857	NA
[1993, 1994)	1474	24375	1.507540	0.661238	0.999758	74.52305	0.7186671	NA
[1994, 1995)	1784	24455	1.507514	0.661238	0.999758	75.30176	0.7314744	NA
[1995, 1996)	1483	24505	1.507484	0.661238	0.999758	75.00765	0.7328489	NA
[1996, 1997)	1545	25164	1.507095	0.661238	0.999758	78.31445	0.7532524	NA
[1997, 1998)	1512	25329	1.507075	0.661238	0.999758	78.99513	0.7599277	NA
[1998, 1999)	1577	26506	1.507065	0.661238	0.999758	82.16112	0.7743795	NA
[1999, 2000)	1303	25960	1.507047	0.661238	0.999758	80.00000	0.7805447	NA
[2000, 2001)	1690	27857	1.506595	0.661238	0.999758	84.55095	0.8248862	NA
[2001, 2002)	1765	29523	1.507000	0.661238	0.999758	89.01318	0.8427666	NA
[2002, 2003)	1798	29928	1.506524	0.661238	0.999758	89.55921	0.8563885	NA
[2003, 2004)	1797	30306	1.506463	0.661238	0.999758	89.97951	0.8622574	NA
[2006, 2007)	1719	33642	1.506125	0.661238	0.999758	96.01301	0.9321708	NA
[2007, 2008)	1666	33435	1.505990	0.661238	0.999758	96.40725	0.9497536	NA
[2008, 2009)	1716	34340	1.505311	0.661238	0.999758	97.51526	0.9558362	NA
[2009, 2010)	1591	35849	1.505170	0.661238	0.999758	100.00000	0.9644957	NA
[2010, 2011)	1714	35932	1.505026	0.661238	0.999758	99.46850	0.9711475	NA
[2011, 2012)	1462	36504	1.504847	0.661238	0.999758	99.04762	0.9763670	NA
[2014, 2015)	1570	37227	1.503392	0.661238	0.999758	100.00000	0.9718753	NA
[2016, 2017)	1479	39533	1.502943	0.661238	0.999758	100.00000	0.9762224	NA
[2017, 2018)	1474	39025	1.502761	0.661238	0.999758	100.00000	0.9802947	NA
[2018, 2019)	1562	39794	1.502638	0.661238	0.999758	100.00000	0.9803488	NA
[2019, 2020)	1418	40941	1.502545	0.661238	0.999758	100.00000	0.9755258	NA

[a] Maternal deaths from CRVS defined as ICD10 codes O00-O95; O98-O99 Pregnancy, childbirth and the puerperium and A34 Obstetrical tetanus. Late maternal deaths (O96) and those deaths due to sequalae of obstetric complications (O97) are excluded for the purposes of international comparison. WHO. International statistical classification of diseases and related health problems. Geneva; 2010.

[b] Female deaths 15-49 from the Civil Registration and Vital Statistics System (CRVS).

[c] CRVS adjustment factor = adjustment factor to account for the difference between CRVS-reported PM and true PM.

[d] Sensitivty = proportion of correctly classified maternal deaths out of all true maternal deaths.

[e] Specificity = proportion of correctly classified non-maternal deaths out of all true non-maternal deaths.

[f] Completeness = percentage of registered deaths of females of reproductive age.

[g] Usability = percentage of deaths that is estimated to be recorded with a well-defined code; completeness proportion*(1-proportion ill-defined)*100.

[h] Did not meet inclusion criteria due to: 1) low completeness and usability, or 2) other specialized studies are used. Please see next section of the profile for details.

[*] 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).

[†] Peterson E, Chou D, Moller A-B, Gemmill A, Say L, Alkema L. Estimating maternal mortality using data from national civil registration vital statistics systems: A Bayesian hierarchical bivariate random walk model to estimate sensitivity and specificity of reporting. arXiv:190908578 [stat] [Internet]. 2019 Sep 18 [cited 2021 Aug 11]; Available from: http://arxiv.org/abs/1909.08578.

Excluded data from CRVS

No data excluded

Data from other sources

Table 4: 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†]
[1986.37, 1993.37)	DHS 1993	Survey	NA	NA	NA	NA	0.1278148	223.6997	205.7380	NA	NA	NA
[1991, 1998)	NDHS 1998	Miscellaneous	NA	NA	NA	NA	0.1121882	172.0000	158.1885	NA	NA	NA
[2000.4, 2007.4)	FPS 2006	Survey	NA	NA	NA	NA	0.0961852	140.3419	129.0676	NA	NA	NA
[2004, 2012)	FHS 2011	Miscellaneous	NA	NA	NA	NA	0.1230000	182.4077	167.7573	NA	NA	NA

[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

No data excluded

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	4436	110	60
2005	5073	110	66
2010	5908	100	75
2015	7353	90	84
2020	8423	90	88

[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.