Maternal Mortality Egypt 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	79 [67, 95]	0.05 [0.05, 0.06]	0	1926	1529
2005	58 [50, 67]	0.04 [0.04, 0.05]	0	2055	1185
2010	38 [33, 44]	0.03 [0.03, 0.04]	0	2371	905
2015	24 [20, 29]	0.03 [0.02, 0.03]	0	2745	657
2020	17 [13, 22]	0.02 [0.01, 0.02]	0	2477	417

[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	7.8 [6.02, 9.64]	79.01 [70.01, 85.44]
2010, 2020	8.11 [5.41, 11.38]	55.56 [41.79, 67.95]

* 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]
[1987, 1988)	1202	24504	1.507324	0.661238	0.999758	91.01512	0.8662853	NA
[1991, 1992)	713	22958	1.506219	0.661238	0.999758	85.78902	0.7758159	NA
[1992, 1993)	700	22200	1.506101	0.661238	0.999758	80.42604	0.7832367	NA
[2000, 2001)	487	20471	1.502655	0.661238	0.999758	72.10130	0.6680524	NA
[2001, 2002)	505	21314	1.502347	0.661238	0.999758	75.33578	0.6729211	NA
[2002, 2003)	640	21536	1.502028	0.661238	0.999758	76.52619	0.6858861	NA
[2003, 2004)	687	21725	1.500766	0.661238	0.999758	75.04836	0.7012532	NA
[2004, 2005)	527	21608	1.500344	0.661238	0.999758	75.22367	0.7077422	NA
[2005, 2006)	557	22107	1.499761	0.661238	0.999758	78.15527	0.7189690	NA
[2006, 2007)	596	22376	1.499010	0.661238	0.999758	80.27841	0.7395615	NA
[2007, 2008)	566	22249	1.498207	0.661238	0.999758	80.72932	0.7587196	NA
[2008, 2009)	443	22692	1.497332	0.661238	0.999758	83.43261	0.7863194	NA
[2009, 2010)	566	23426	1.496460	0.661238	0.999758	86.93038	0.8104626	NA
[2010, 2011)	513	24472	1.496836	0.661238	0.999758	92.42041	0.8332720	NA
[2011, 2012)	538	23772	1.495990	0.661238	0.999758	91.81924	0.8564867	NA
[2012, 2013)	519	24751	1.495125	0.661238	0.999758	96.51770	0.8861358	NA
[2013, 2014)	488	24340	1.494196	0.661238	0.999758	95.26792	0.8826512	NA
[2014, 2015)	483	24596	1.493206	0.661238	0.999758	99.67984	0.9482025	NA
[2015, 2016)	400	25619	1.492177	0.661238	0.999758	100.00000	0.9147898	NA
[2016, 2017)	340	24662	1.489422	0.661238	0.999758	100.00000	0.9084421	NA
[2017, 2018)	295	23828	1.488449	0.661238	0.999758	100.00000	0.9030972	NA
[2018, 2019)	277	24927	1.487605	0.661238	0.999758	100.00000	0.8970193	NA
[2019, 2020)	264	25405	1.484647	0.661238	0.999758	100.00000	0.8921079	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†]
[1992.25, 1993.16)	NMMS 1992 - 1993	Miscellaneous	772	NA	NA	0.103100	NA	150.17031	165.18734	NA	NA	NA
[2000, 2001)	NMMS 2000	Miscellaneous	585	NA	NA	0.068800	NA	101.42106	111.56317	NA	NA	NA
[2004, 2005)	NMMSS 2004	Miscellaneous	1251	NA	NA	0.058043	NA	82.82584	91.10842	NA	NA	NA
[2006, 2007)	NMMSS 2006	Miscellaneous	1143	NA	NA	0.051274	NA	68.44637	75.29101	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	7616	110	69
2005	8536	100	81
2010	10148	110	90
2015	10605	110	95
2020	11801	90	97

[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.