

Causes of Maternal Mortality in Japan

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SYSTEMATIC IDENTIFICATION OF factors contributing to adverse events in health care and mechanisms for reducing their occurrence have been used in hospitals, long-term care facilities, and the outpatient setting.¹⁻¹⁰ The need to comprehensively examine factors contributing to maternal mortality in Japan prompted our study of the Japanese obstetrics system.

The obstetrics system in Japan differs greatly from those of European and American countries. First, a distinguishing characteristic of the Japanese system is the low ratio of obstetricians per medical facility.^{11,12} There are approximately 11 000 medical facilities in Japan, including hospitals and clinics, that provide ambulatory or inpatient obstetric services, but only 14 000 obstetricians (including residents), for an average of 1.4 physicians per obstetric

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Context Japan's maternal mortality rate is higher than that of other developed countries.

Objectives To identify causes of maternal mortality in Japan, examine attributes of treating facilities associated with maternal mortality, and assess the preventability of such deaths.

Design and Setting Cross-sectional study of maternal deaths occurring in Japan between January 1, 1991, and December 31, 1992.

Subjects Of 230 women who died while pregnant or within 42 days of being pregnant, 197 died in a hospital and had medical records available, 22 died outside of a medical facility, and 11 did not have records available.

Main Outcome Measures Maternal mortality rates per 100 000 live births by cause (identified by death certificate review and information from treating physicians or coroners); resources and staffing patterns of facilities where deaths occurred; and preventability of death, as determined by a 42-member panel of medical specialists.

Results Overall maternal mortality was 9.5 per 100 000 births. Hemorrhage was the most common cause of death, occurring in 86 (39%) of 219 women. Seventy-two (37%) of 197 deaths occurring in facilities were deemed preventable and another 32 (16%) possibly preventable. Among deaths that occurred in a medical facility with an obstetrician on duty, the highest rate of preventable deaths (4.09/100 000 live births) occurred in facilities with 1 obstetrician. Among the 72 preventable deaths, 49 were attributed to 1 physician functioning as the obstetrician and anesthetist. While the unpreventable maternal death rate was highest in referral facilities, the preventable maternal death rate was 14 times lower in referral facilities than in transferring facilities.

Conclusions Inadequate obstetric services are associated with maternal mortality in Japan. Reducing single-obstetrician only delivery patterns and establishing regional 24-hour inpatient obstetrics facilities for high-risk cases may reduce maternal mortality in Japan.

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facility. Second, a majority of facilities do not have anesthesiologists, and 1 physician commonly serves as obstetrician and anesthetist. Third, obstetricians are the only specialists routinely delivering babies. There is virtually no tradi-

tion of family physicians providing obstetric care. Moreover, only about 1% of Japan's nurse-midwives practice independently; they usually function as an assistant to the obstetrician and, with the exception of cutting the umbilical cord,

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