

# Maternal mortality in Italy: a record-linkage study

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**Objective** To detect maternal deaths, analyse associated causes and compute absolute and specific maternal mortality ratio among five Italian regions in response to a recent ranking of Italy by the *Lancet* as having the lowest maternal mortality ratio among 181 countries.

**Design** Record-linkage study.

**Setting** Five Italian regions.

**Population** All women aged 15–49 years resident in the participating regions, with one or more hospitalisations for pregnancy or any pregnancy outcome between 2000 and 2007.

**Methods** Maternal deaths have been identified by record linkage between the Death Registry and the Hospital Discharge Database. Different time periods were analysed according to local data availability. Cases have been selected and causes of death have

been classified according to the 10th International Classification of Diseases.

**Main outcome measure** Maternal mortality ratio.

**Results** Underreporting of official figures based on death certification in the participating regions is 63%. A total of 118 maternal deaths have been identified resulting in a maternal mortality ratio of 11.8, compared with the official figure of 4.4, per 100 000 live births. Haemorrhage, thromboembolism, and hypertensive disorders of pregnancy are the leading causes of direct deaths.

**Conclusions** This study implies that only 37% of all maternal deaths are included in the official data. Our analysis shows a predominance of direct obstetric deaths, which implies that emphasis is needed on improvements of obstetric care.

**Keywords** Italy, maternal mortality.

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## Introduction

Maternal mortality—the death of women while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and the site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or incidental causes<sup>1</sup>—represents a dramatic event and is used as an indicator of the general health and development conditions of a country. It is considered a major marker of the performance of health systems,<sup>2,3</sup> reflecting access to and quality of prenatal

and obstetric care, as well as the health status of women in reproductive age.

In 2010, the WHO and UNICEF revised the estimates for the year 2008 and reported that approximately 358 000 women die worldwide from maternal mortality: 87% in Africa and Asia.<sup>4</sup> Even in developed countries, the situation is not as satisfactory as believed because mortality ratios based only on maternal deaths reported on death certificates are an underestimate of the true numbers.<sup>5,6</sup> The WHO maternal mortality ratio (MMR) for Europe in 2008 was 16 per 100 000 live-born children.<sup>4</sup> Recently, new estimates have been published reporting a promising reduction in the MMR among 181 countries worldwide.<sup>7</sup> In this report Italy ranked first with the lowest ratio, 3.9 per 100 000 live births. This supremacy calls into question the validity of official national figures based on death certification alone.

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