

## **Maternal deaths in Mexico, 2010-2014: seeking to understand individual and systemic factors through health information systems**

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Trends of Maternal Mortality Ratios (MMR) have been carefully monitored over the past decades. Nevertheless, official reports are often limited to ecological descriptions of magnitudes and temporal trends of MMR, due to methodological complexities of matching birth and death information. With its complete and detailed civil registration system, Mexico offers an ideal setting to analyze trends in MMR, as well the potential drivers of such trends, at an individual level. This study uses multidimensional contingency tables to match births and deaths, based on key maternal characteristics and then fits multivariate models to elucidate the underlying individual and institutional drivers of maternal mortality. We used data from 2010 to 2014 on maternal deaths obtained from the databases of the Deliberate Search and Reclassification of Maternal Deaths (BIRRM), as well as data on births from the Birth Information Subsystem (SINAC) databases. We used Multiple Imputation by Chained Equations (MICE) to deal with missing and unspecified data. Then we merged birth and death datasets based on covariate patterns from a multidimensional contingency table. Finally, we estimated incidence rate ratios and 95% uncertainty intervals using multiple negative binomial regression models, including multiple adjustments for individual, institutional and geographical characteristics.