

## Mothers and Their Infants Are in It Together: Severe Maternal Mortality and Infant Mortality

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In a recently released study in *Pediatrics* ([10.1542/peds.2019-3870](https://doi.org/10.1542/peds.2019-3870)), Dr. Kazuyoshi Aoyama and colleagues examined the relationship between severe maternal morbidity (SMM) and infant mortality.

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In a recently released study in *Pediatrics* ([10.1542/peds.2019-3870](https://doi.org/10.1542/peds.2019-3870)), Dr. Kazuyoshi Aoyama and colleagues examined the relationship between severe maternal morbidity (SMM) and infant mortality. This population-based study was conducted in Ontario, Canada, within a universal healthcare system, and included 1,892,857 singleton births between 2002-2016. The study methods are deceptively simple: the main exposure was SMM from 23 weeks of gestation to 42 days postpartum, and the primary outcome was infant mortality from 10 days after delivery to 365 days of age. Given a wealth of high quality maternal and infant information from population-based databases, the authors were able to control for and consider both medical and socio-demographic participant factors. They examined the influence of SMM on infant mortality both as a composite (of all 40 indicators of SMM), and by total number of indicators of SMM (0, 1, 2, 3, 4 or  $\geq 5$ ). Finally, the authors also looked at the relationship of maternal sepsis-related SMM to infant death with a diagnosis of bacterial sepsis.

The article is a treasure trove of information, and even though the short answer is “yes – there is a positive relationship” between SMM and infant mortality, the ins and outs of the sub- analyses are fascinating. A good way to start if you are a “visual learner” is with Figure 2: “Relative risk of infant death  $\leq$  365 days after birth, according to the presence or absence of severe maternal morbidity (SMM), further stratified by maternal factors (panel a) and infant factors (panel b),” which graphically summarizes the article. The figure displays each maternal factor on the left of the figure, e.g. age, parity, country of origin, body mass index, delivery mode, chronic illnesses, as a dichotomous choice, for example, mothers with, versus those without, preexisting chronic hypertension, and on the right shows the resulting adjusted relative risk of infant mortality for each group with, versus without, accompanying SMM. My description is intolerably clunky, which is why the graphic display is so informative. The article is particularly well written and easy to read, so even with multiple analyses, the results are understandable, and the relationship of individual maternal factors to infant risk is highly informative for pediatricians.

The overall take home message from this article is that risk of both stillbirth and infant mortality are higher among mothers with SMM, with a dose-response effect, and with a significant positive relationship of maternal sepsis-related SMM and infant death due to sepsis. I think these results give us as pediatricians at least two paths forward. We can support our patients' mothers in getting prenatal care as a critical potential preventive measure. We can also increase our attention to the mother's antenatal, intrapartum and postpartum course and her conditions, because this information is directly related to her infant's risk – our increased vigilance even beyond the newborn nursery period may make a difference in infant outcome. I think you will find reading this article worth every moment spent if you want to raise your awareness of how severe maternal morbidity may be putting a new infant in your practice at an increased risk: you can boost your awareness of which specific infants may need closer monitoring, which gives you a chance to intervene and potentially reduce that risk.

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