

New study points to strategies to reduce maternal death

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The number of severe maternal morbidities (SMM) a pregnant woman has is highly linked to her risk of maternal death, according to a new study by researchers at ICES and St. Michael's Hospital.

SMM is defined by potentially life-threatening [conditions](#) such as ICU admission, invasive ventilation, and cardiac conditions that develop during pregnancy.

The study published today in *JAMA Open Network* looked at the data for more than 1.9 million hospital births in Ontario and found that the number of SMM conditions was strongly associated with [maternal death](#) up to 42 days postpartum. The researchers found that the number of SMM was exponentially associated with maternal [death](#).

"Our findings show that some SMM are predictive of death, and in light of that we should be targeting preventable SMM, or limiting their progression using an early warning system, in order to reduce maternal deaths," says Dr. Joel Ray, lead author on the study and a researcher at ICES and the Li Ka Shing Knowledge Institute of St. Michael's Hospital.

The researchers found that women with one SMM were 20 times more likely to die than women who did not have an SMM and that risk grew to 102 times the risk with two SMM, and up to 2192 times higher the risk with six or more SMM.

The findings show the most common SMM conditions were postpartum hemorrhage with blood transfusion, ICU admission, puerperal sepsis (bacterial infection), severe preeclampsia (high blood pressure) and urgent need for hysterectomy.

The researchers identified 181 maternal deaths among all 1,953,943 births—a rate of 9.3 per 100,000 births. Of the 181 deaths, 68 per cent of the women who died had at least one SMM condition. Women who

died tended to be older, first-time moms, of lower income and Afro-Caribbean origin, with a multi-fetal pregnancy, pre-existing diabetes, [high blood pressure](#) and kidney disease.

"Despite improved family planning and obstetric care, maternal deaths have remained stable in Canada, and as many as half of those are thought to be preventable. Our findings illustrate the value of utilizing existing maternal early warning systems and protocols to identify a woman's clinical deterioration in order to reduce maternal deaths," adds Ray.

"Prevalence of severe maternal morbidity and factors associated with [maternal mortality](#) in Ontario, Canada," was published today in *JAMA Open Network*.

Provided by St. Michael's Hospital

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