153555- EPIDEMIOLOGY OF MATERNAL CARDIAC ARREST IN CANADA: A NATIONWIDE STUDY

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INTRODUCTION
Cardiac arrest during pregnancy is a rare event with an estimated incidence of 1:30,000 to 1:50,000 deliveries.\textsuperscript{1,2} Such events can be catastrophic, leading to a significant potential for major morbidity and mortality for the mother and the neonate. The maternal and neonatal case fatality rates have been reported to be 83\% and 58\%, respectively.\textsuperscript{3}

OBJECTIVES
The objective of this study was to generate information about maternal cardiac arrest in Canada by examining the frequency, temporal incidence, associated conditions, maternal survival and fatality rates.

METHODS
This retrospective cohort study was conducted after institutional Research Ethics Board approval. It was based on the hospitalization database for childbirth in Canada (except Quebec) for 12 fiscal years from 2002/03 to 2013/14. The database is housed at the Public Health Agency of Canada (PHAC), prepared under strict confidentiality guidelines by Canadian Institute for Health Information (CIHI). The study population was all women with gestational age 20 weeks and higher with cardiac arrest during hospitalization for childbirth. Cardiac arrest was defined based on ICD-10-CA diagnostic (I46.0, I46.1, I46.9, I49.00, I49.01) and intervention codes (1.HZ.30.^^, 1.HZ.09.JA-FS, 1.HZ.09.LA-FS, 1.HZ.09.LA-CJ). The study population and maternal mortality rate were summarized using descriptive statistics. Multivariable logistic regression analysis was used to identify medical and obstetrical conditions independently associated with maternal cardiac arrest.
RESULTS
There were 261 cases of maternal cardiac arrest among 3,282,150 hospitalizations for delivery. The records included about 70% of all obstetric deliveries in Canada. 185 women survived to hospital discharge (70.9%, 95% confidence interval [CI] 65.2% to 76.2%). The fatality rate was 28.8%. The frequency of cardiac arrest in 2002-2014 varied from 5 to 11 per 100,000 deliveries; there was no significant difference between the years (p=0.26). There was no significant variation in the incidence among Canadian provinces (p=0.42). Women who suffered cardiac arrest were more likely to be 35 yr and older (odds ratio 2.34; 95% CI 1.69 to 3.26). Aortic aneurysm and dissection was the most common condition associated with maternal cardiac arrest, followed by obstetric embolism and heart failure. Table 1 lists statistically significant associations between maternal obstetric/ medical conditions, and cardiac arrest.

DISCUSSION
This is the first Canadian population based cohort study on the epidemiology of maternal cardiac arrest. The event rate is 8:100,000, and agrees with that reported in the US cohort. \(^4\) Survival rate reported in this study is higher than previously reported, potentially owing to the differences in case identification between the studies, using the population database and those relying on active surveillance.\(^3\) The information from this report could be used to develop prospective database of the cases and guide development of the system approach in dealing with this condition.

References:

1. Cantwell R et al. BJOG 2011; 118:1–203
2. Lewis G.
