SOGC | Prevention of Maternal Mortality in Canada

An Overview of Canada's Toolkit for Confidential Enquiry #savingmoms #savingbabies #maternalmortality

The Society of Obstetricians and Gynaecologists of Canada (SOGC) has been working toward developing a foundation for preventing maternal and perinatal morbidity and mortality in Canada. The mission is to increase awareness of the issues surrounding pregnancy-related deaths and to promote change among individuals, healthcare systems, and communities in order to reduce the number of deaths.

The maternal mortality ratio (MMR) is a critical measure of a nation's health, and thus a key performance indicator of the strength and quality of health care. In Canada, maternal mortality is an infrequent yet often preventable event with devastating consequences to families and care providers. There have been reports of a rise in maternal mortality from the 1990s (5.1 to 11.9 per 100, 000 live births)(1,2). Despite this concerning statistic, monitoring maternal deaths, and particularly identifying cases of preventable death, has been difficult and inconsistent in Canada.

In Canada, maternal mortality-related data sources have traditionally been based on death registrations and hospitalization data, neither of which provides the clinical and social context required to identify intervention points for preventing maternal deaths (3). Furthermore, these data sources consistently under-ascertain and misclassify maternal deaths, leading to an underestimation of Canada's MMR. In this respect, Canada is far behind other developed countries. As a result, the WHO applies an adjustment coefficient for Canada of 60% upward to correct for underreporting, based on previous measurements of under ascertainment for maternal mortality (4-9), and in 2010, urged the Society of Obstetricians and Gynaecologists of Canada (SOGC) to work with partners to review national maternal mortality surveillance programs. During the process, it became apparent that although several provinces/territories in Canada have established maternal mortality review committees, on a national level there is no system to synthesize and report on maternal mortality; there is little standardization across jurisdictions with respect to definitions, data collected, maternal mortality review process and no accurate national picture for prevalence and trends.

In an effort to address these gaps, the SOGC has coordinated meetings of National and International experts and reviewed the state of maternal health surveillance in Canada (10-11). A call resulted, for the establishment of a Confidential Enquiry system dedicated to identifying underlying causes of maternal death, specifically identifying those that are preventable. Nearly a decade later, these efforts had stalled for reasons including Canada's decentralized administration of health care, the lack of personnel required to perform the collection and anonymization of data to protect patient privacy and fragmented leadership. Recently the issue has been actively resurrected and momentum has been driving the coordinated efforts forward toward a process, based on the United Kingdom's (UK) established system, that will yield meaningful outcomes for pregnant women, their care providers and the system of care (12). This will improve Canada's maternal death statistics, and more importantly generate system and practice information required to understand how deaths might be prevented in the future, inform provincial/territorial and national networks for improvement in maternal mortality and severe morbidity, and identify trends and emerging issues.

In the UK, the Confidential Enquiry into Maternal Death is a legislated surveillance program that captures information from midwives, obstetricians, coroners, and members of the public anytime a maternal death occurs. Early in its establishment in 2012, it identified double the number of maternal deaths compared to reports that relied on vital statistics alone (12). The Confidential Enquiry has also shown that a substantial fraction of maternal deaths resulted from suboptimal care, and is working towards system-wide changes to prevent this (12).

Identifying women at higher risk for severe maternal morbidity and maternal death is not easy. There have been significant shifts in the demographics of child-bearing population in Canada and factors such as advanced maternal age; prevalence of significant medical co-morbidities (i.e., increased rates of obesity; diabetes; mental illness; and substance use); a growing refugee and immigrant population with different risks and susceptibilities; are all leading to a new set of contributing causes of maternal mortality that the existing system was not designed to measure and is unequipped to analyze. Emerging knowledge also underscores the critical importance in understanding the causes of maternal deaths, the circumstances, and the complexities that surround them. Recent US data show that over 60% of pregnancy-related maternal deaths were preventable (13). We suspect the same would be true for Canada, but we have no data to confirm this. Which means we cannot implement interventions to save lives.

Maternal mortality is the tip of the iceberg when it comes to maternal health, with estimates of another 75 to 100 women experiencing severe complications for every woman who dies as a result of being pregnant. Evidence from the United States suggests that there is a direct relationship between the probability of a woman dying during childbirth or in the 42 days following pregnancy termination and the number of risk factors and/or morbidities that are present. In the United Kingdom (UK) and in the United States (USA), a number of comprehensive studies have shown that substance use and mental health contribute significantly to maternal deaths, (14-19) the magnitude which can only be realized with capturing information that may not be contained in basic medical records and may extend beyond 42 days post delivery. More specifically, in the UK between 2013 and 2015, two thirds of the women who died within a year of their pregnancy had pre-existing physical or mental health problem (14) . Massachusetts maternal mortality review data indicate that deaths attributable to substance use rose from 8.7% in 2005 to 41.4% in 2014 and that 90.2% of the maternal deaths between 42 days and 365 days post-partum were substance use-related (20).

Both the UK and the US data also show that the causes of pregnancy-related deaths change with postpartum duration, and data sources underscore the critical importance of ascertaining and reviewing those deaths that occur after 42 days and up to 1 year post-delivery in order to truly understand contributing factors and circumstances (13-14). Currently, only Alberta currently defines Maternal Mortality out to 1 year post-delivery.

Canadian provinces and territories have a critical role to play in the design and implementation of this system, as do Coroners/Medical Examiners, vital statistics, and maternal mortality review committees. The SOGC has been engaging with relevant federal and provincial leaders as well as multi-disciplinary

clinical experts since 2016 to develop the foundation for the process and to draft standardized definitions and a common minimum dataset of indicators that can be rolled up to tell a national story about maternal deaths in Canada. In addition, over the past 2 years, leaders of the Perinatal Programs of four provinces (BC, AB, ON and NS) have been participating in a pilot project to develop a Toolkit that includes policies and procedures, as well as standardized data/information fields, maternal mortality review best practice, reporting templates, tools, resources and knowledge translation materials that align with a Confidential Enquiry-type system, with the ultimate goal of capturing and reviewing all maternal deaths to one year post-delivery, identifying contributory factors and opportunities for prevention. The ultimate goal is to eliminate all future preventable deaths in Canada.

The Toolkit consists of materials that are standardized enough to provide useful templates for maternal mortality review, but flexible enough for each jurisdiction or committee to adapt them for their own context. It is anticipated that those who are new to maternal mortality review will have the materials, tools and resources that they need to be able to initiate a process without a lot of difficulty, and with guidance from a very experienced group who are motivated and excited to provide leadership. The toolkit has elements that are based on the United States' MMRIA (1) and the UK's EMBRRACE programs (2), and includes the WHO's Maternal Death Surveillance Response Technical Guidance which is an excellent resource for all participating in Maternal mortality reviews (3).

Identifying every single maternal death is a critical factor to improving Canada's surveillance programs – if deaths are not identified as "maternal", they will not be picked up by our existing federal and provincial/territorial surveillance systems. More complete ascertainment, by implementing a confidential enquiry component to maternal death reviews, will provide accurate prevalence and allow us to determine trends, to identify priorities for recommendations and to report on the effectiveness of interventions. Identifying factors that could contribute to prevention will ultimately not only save pregnant/post-partum women, but it will also mitigate maternal morbidities and improve perinatal outcomes.

1 https://reviewtoaction.org/tools/mmria
2 https://www.npeu.ox.ac.uk/mbrrace-uk
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