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Defining Maternal Sepsis and its Global Variation: A Systematic Survey Protocol

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ADMINISTRATIVE INFORMATION

Support - No support.

Review stage at the time of initial registration - Formal screening of search results against eligibility criteria.

Conflicts of interest - None declared.

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Amendments - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 6 November 2026 and was last updated on 6 November 2026.

INTRODUCTION

Review question / Objective To identify all definitions, items, and thresholds used to define maternal sepsis.

Rationale Maternal mortality in high-resource settings is relatively low, and a considerable number of individuals suffer from maternal mortality and morbidity (M&M) (1, 2). M&M refers to a group of pregnancy-related maternal events resulting in prolonged hospitalization and long-suffering disability (3). The severe maternal morbidity rate in Ontario is 27 per 1000 births, and maternal sepsis is one of the leading preventable causes of M&M after post-partum severe hemorrhage (4).

The Canadian Obstetric Survey System (CanOSS) was established to address the root causes behind rising rates of maternal M&M in Canada through gathering sociodemographic, and clinical, and contextual data that identify scopes to enhance maternity care (5, 6). CanOSS has collaborated with Better Outcomes Registry & Network (BORN) to ensure seamless and confidential collection to identify the root causes of condition-specific morbidity and mortality during pregnancy and the postpartum period (3, 7). This data is then used to identify and implement targeted approaches to reduce their occurrence (8). This pilot launch begun with a focus on severe postpartum hemorrhage, the leading cause of maternal deaths following childbirth in Ontario. The next condition of interest is maternal sepsis.

During pregnancy and postpartum, sepsis can escalate rapidly to septic shock and death as physiological changes during pregnancy often mask early warning signs. Early detection of sepsis is critical to initiate the timely management at earliest resulting in improving pregnancy outcome (9, 10).

However, there have been inconsistencies in definitions of sepsis across guidelines,

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terminology, and diagnostic criteria (11) that may lead to difficulties in early detection of sepsis and may impact pregnancy outcomes (12, 13). For more than two decades, the definition for sepsis in general adults has been studied and informed; however, validity and applicability of that definition for pregnant women is still questionable (13). Consensus to a definition around sepsis is absent due to limited data, as pregnant women are rarely considered in sepsis-trials (14). This informs the necessity of a standardized definition for maternal sepsis. Thus, this proposed systematic survey will examine the variations of definitions around maternal sepsis, their clinical items and thresholds, and will address the foundational work through arriving at operationalizable definitions, leading up to, and supporting the early stages of CanOSS-Ontario's Sepsis project.
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Condition being studied Our condition of interest is Maternal sepsis, a life-threatening condition characterized by host response failure against infection, can affect pregnant individuals during the antepartum, intrapartum, and postpartum periods (15).

METHODS

Search strategy We conducted a systematic search across Ovid MEDLINE, Ovid Embase, and Turning Research into Practice (TRIP) Pro with support from a librarian of McMaster University Health Sciences Library to identify peer-reviewed literature, clinical practice guidelines, and grey literature reporting operational definitions, clinical criteria or items, and thresholds for maternal sepsis.

For the Trip Pro search, we used the search term "maternal sepsis." For the MEDLINE and Embase strategies, we searched for sepsis (MeSH or keyword). Also, a validated guideline filter from the Canadian Drug Agency was applied. Grey literature searches via Trip Pro and websites of major international and national obstetric organizations (e.g., WHO, FIGO, SOGC, ACOG, RCOG) captured non-indexed clinical guidelines and policy documents.

We also did hand-screen for additional eligible sources in the reference lists of included studies. Our search covered articles up to 26 September 2026.

Participant or population Our review will not enroll participants. However, as the population of interest, we will consider pregnant, laboring, or postpartum individuals (up to 42 days following delivery) with suspected or diagnosed maternal sepsis. Sources across countries, health facilities, pregnancy period will be eligible when the items, thresholds, and rational for using that thresholds used in a definition of maternal sepsis can be extracted separately.

Intervention Not applicable.

Comparator Not applicable.

Study designs to be included We will include clinical practice guidelines, review articles, standalone definition articles, position statements, and obstetric survey system definitions, and other similar documents that have defined sepsis and septic shock.

Eligibility criteria Our key consideration for concept is definition, diagnostic items or criteria or components, clinical thresholds used for maternal sepsis. Studies reported exclusively on general sepsis management or management protocol, laboratory research without focusing maternal sepsis definition or predictive models will be excluded.

Any type of obstetric settings, health facility-based delivery units, surveillance networks across countries will be examined for the definition of maternal sepsis. Sepsis definition related with non-hospital settings, community only, or home delivery settings will be carefully evaluated and will be considered after decision agreement among the authors.

Information sources Our review's information source included clinical practice guidelines identified in previous systematic or scoping reviews of maternal sepsis. We explored pertinent websites of government bodies, professional socities, guideline developing organizations, obstetric survey systems, confidential enquiry programs and reports. We also examined reference lists of included sources and relevant reviews. A few authors were contacted to obtain additional information.
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Main outcome(s) The main outcome of interest in the synthesis will be the variations of definitions, items or criteria, and clinical thresholds identified in the definition of maternal sepsis. In addition, we will also record whether a single component is needed or more than one component to define maternal sepsis. Through our review, we will

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explore similarities and dissimilarities across definitions.

Additional outcome(s) Not applicable.

Data management We screened all references and duplicate records using COVIDENCE online review software. Three reviewers independently reviewed the title and abstracts to check inclusion and exclusion criteria and disagreements were resolved by discussion or consulting a senior reviewer. The selection process was depicted using Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA) Flow Diagram built-in within COVIDENCE.

Quality assessment / Risk of bias analysis This systematic survey intends to synthesize the existing clinical practice guidelines and literatures to determine what are the variations of definitions, items considered and clinical thresholds around maternal sepsis, rather than assessing the effectiveness of any interventions. Therefore, a formal risk of bias assessment of included studies will not be conducted.

Strategy of data synthesis We will extract data using a pre-piloted data extraction form. Extracted information will include study title, paper ID, study citation, DOI, Document type, year of publication; author names; guideline/journal; countries studied; study setting; study objective; definition of sepsis, population, sample size, clinical thresholds, study limitations. Key findings etc.

We will present the findings in structured tables and will summarize descriptively. Similar criteria will be grouped together to support comparison, while the original wording and threshold values will be retained. Where appropriate, counts and percentages will describe how frequently particular components, criteria, and thresholds appear across unique definitions. Duplicate publications reporting the same definition will be counted once. The latest eligible guideline from each organization and any earlier version containing a meaningfully different definition will be presented separately.

Study reporting and presentation will be done in accordance with the Preferred Reporting Items for Systematic Survey, an extension for Scoping Reviews (PRISMA-ScR) guidelines (16) and the synthesis without meta-analysis extension (17). The findings will identify areas of agreement and variation and will provide evidence for the later consensus process.

Subgroup analysis No subgroup analysis is planned.

Sensitivity analysis Not applicable.

Language restriction We did not impose any language restriction in the search strategy.

Country(ies) involved The review will be carried out in Canada.

Other relevant information As additional outcomes, we will consider rational for the different definitions, items, and thresholds. In addition, we will record any modifications to the items or criteria, and thresholds used to define sepsis for versions released by the same authority.

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Keywords Maternal sepsis, septic shock, definition, systematic survey.

Dissemination plans We will disseminate the findings through a peer-reviewed open access journal, and CanOSS-Ontario summit to be held in 2027. We will also report the INPLASY registration number and DOI in the final publication. .

Contributions of each author

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