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Identifying early pregnancy cohorts using population-based health administrative data from British Columbia, Canada

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Background

Identifying pregnancies that end before 20 gestational weeks in miscarriage (spontaneous loss) or abortion (termination of pregnancy) using population-based health administrative data is challenging. Miscarriages and abortions often have multiple health care encounters per pregnancy and may include diagnostic or procedure codes for both miscarriage and abortion for the same pregnancy. Improved methods to identify these pregnancies are needed to overcome longstanding reproductive population data research limitations. The aim of this project was to develop an algorithm to better identify and classify miscarriages and abortions using linked health administrative data from British Columbia (BC), Canada, from 2004–2020.

Significance

Advancing methods to identify pregnancies ending before 20 weeks in health administrative data will expand the potential for rigorous reproductive population health research.

Methods

We identified pregnancies ending after 20 weeks using the BC Perinatal Data Registry (captures >99% of live births, stillbirths, and terminations at ≥ 20 weeks). We identified miscarriages and abortions in this cohort before 20 weeks using billing records, outpatient medication dispensations, hospital admission, and emergency department records. With a panel of clinician experts, we developed a hierarchical algorithm and episodic approach to identify and classify abortion and miscarriage records.

Results

We identified 728,299 births and 464,928 unique event records with codes for miscarriage and 692,738 records with codes for abortion in a cohort of females aged 15–49. After applying our episodic approach and hierarchical algorithm, we identified 957,743 pregnancies, of which 728,299 (76%) ended in birth, 102,673 (11%) in miscarriage and 123,890 (13%) in abortions.

