

MI-CRE 2026 Annual Research Symposium and Policy Forum

Identifying pregnancy episodes for medicine utilisation and safety research in New South Wales using the Medicines Intelligence Data Platform

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Disclosure of Interests Statement: Authors have no disclosures of interest.

Is the presenter an HDR student? No.

Has this research been submitted or presented elsewhere? If so where and when? Yes, PSANZ 2026 Congress, Perth 22nd March 2026.

Abstract

Background and Aims: Pregnancies ending greater than 20 weeks' gestation (live/still births) are well reported in Australian data and routine public health reports. However, there is a lack of population-level data on pregnancies ending before 20 weeks. Using routinely collected health data, we aimed to identify pregnancy episodes and their outcomes for medicine utilisation and safety research.

Design and Methods: We leveraged the Medicines Intelligence Data Platform, containing linked individual-level health data for all women residing in New South Wales (NSW), Australia. Information from hospitalisations, emergency department visits, Medicare claims, and pharmaceutical dispensings were used. We identified and estimated gestational age and outcomes of pregnancies between 2012-2020. We calculated rates of pregnancies ending after 20 weeks gestation (livebirth, stillbirth), pregnancy loss before 20 weeks (miscarriage, ectopic, molar pregnancies), termination of pregnancy (less than 20 weeks), and pregnancies with no observed outcome.

Results: We identified 1,047,373 pregnancies to 621,981 women (mean age 31 [SD 6] years). Pregnancy rates declined over the study period. Of all pregnancies identified, over two-thirds (68.5%) of pregnancies resulted in a livebirth, 0.5% a stillbirth, 9% a pregnancy loss, 15% a termination of pregnancy and 7% had no observed outcome. Of these with no observed outcome, 6% had no recorded care beyond 20 weeks and were considered a pregnancy loss (15%). Most pregnancy outcomes were identified 80% using hospital admissions, however majority of terminations were identified through medicare claims (66%) and dispensings (8.5%), with 40% of pregnancy losses identified through medicare. The mean estimated gestational age for pregnancy loss was 9 (SD 2) weeks, with a mean difference (minimum-maximum) of 7.4 (5.9) weeks. For births the difference was smaller at 2.2 (1.8) weeks.

Conclusions: We report the first population-based estimates of early pregnancy outcomes in NSW. Our estimates align with existing survey data and state reports. This study highlights the utility of administrative health data to identify pregnancies and outcomes and can be used to understand patterns of medicine use during pregnancy and potential impacts of medicine exposure on early pregnancy. Further work could be done to validate and scale this to nationally.

Acknowledgements: This research was completed using the Medicines Intelligence Data Platform. Data were provided by the Australian Government Department of Health and Aged Care and NSW Ministry of Health. Record linkage was conducted by the Australian Institute of Health and Welfare (AIHW) and Centre for Health Record Linkage (CHeReL). Secure data access was provided through the Sax Institute's Secure Unified Research Environment (SURE). We thank Melisa Litchfield for her assistance with data governance and ethics.