

R045: Mothers first: Unlocking the potential of Northern Ireland's administrative maternity data - UU

The Northern Ireland Maternity System (NIMATS) is a regional administrative data resource which contains a wide range of demographic and clinical information collected about mothers and their infants during antenatal check-ups, labour and delivery, and the postnatal period. Although NIMATS data is collected primarily for administrative purposes, there may be considerable potential for this wide-ranging data resource to also be used for research purposes. Currently, NIMATS is largely an under-utilized resource; only two projects using this data are listed on the HSC/BSO website (both are on-going, project IDs: R-021 and R-022). The metadata for NIMATS published on the HSC/BSO website documents the quality of NIMATS data from inception to 2015-16. Efforts have been made since 2016 to expand the collection of data in NIMATS (to include, for example, the occurrence of fertility problems and treatment, evidence of early mother/baby bonding, the smoking status of the mother, and whether the mother attempt breastfeeding in hospital) although the quality of this data for research purposes is not publicly known. This project, led by an academic team with extensive experience in administrative data analysis, midwifery/maternity research, and birth cohort design, and partnered by multiple stakeholders with a vested interest in the wellbeing, support and care of NI mothers will:

Primary research objective

We aim to deliver the most comprehensive description of expectant mothers in Northern Ireland to date using NIMATS in order to (i) test specific research questions relating to maternal identity and associated maternal health care provision/use, and health/risk related behaviours during and after pregnancy, (ii) explore data quality, quantity and utility with project partners in order to improve, enhance and advance NIMATS as a maternity data resource and (iii) facilitate exploration of NIMATS as a foundation administrative data resource to establish NI's first administrative data informed birth cohort.

Secondary research objectives

- a) We will, for the first time, accurately profile and describe expectant mothers in NI with a particular focus on a variety of recognised risk descriptors (e.g. single mother status; low socio-economic status; ethnic minority status; gravida/parity status; sexual health status (STIs); mental health status; in/fertility status; domestic violence history status) that have been shown to complicate, compromise and negatively affect mothers during and after pregnancy (see Section B4/B5 for background evidence and policy relevance).
- b) Maternal profiles generated through objective 'a' will afford an opportunity to more accurately consider, capture and describe variation in relation to an array of important maternity health behaviours (e.g. maternity service use; healthy eating/weight management (BMI); vitamin/mineral supplementation (folic acid/iron); tobacco and alcohol consumption; vaccination compliance (rubella; influenza); breast feeding; baby contact/communication) commonly

compromised by established maternal risk characteristics (see Section B5 for background evidence).

- c) Successful completion of objectives *a* and *b*, in turn, will afford an opportunity to consider and test whether variation in specific health behaviours for 'at risk' mothers influences e.g. labour/delivery (e.g. labour/delivery complications/problems) and/or offspring health (e.g. birth weight, physical health).
- d) Throughout, and informed by our non-academic partners, we will evaluate data quality, quantity and utility to reveal NIMATS strengths and weaknesses as an administrative data resource and to identify data gaps and quality concerns.

Building on objectives *a - d* we will explore NIMATS' utility and suitability as an administrative data anchor for NI's first birth cohort and NI's first administrative data spine (see Section B5 for UKRI (ESRC/MRC) promotion of admin data linked longitudinal research and innovation).