



NATIONAL PERINATAL
EPIDEMIOLOGY CENTRE



**SEVERE
MATERNAL
MORBIDITY**
in Ireland

Lay Summary 2018

National Perinatal Epidemiology Centre

The National Perinatal Epidemiology Centre (NPEC) works with the maternity services in Ireland. The NPEC is directed by Professor Richard A Greene and are a team of midwives, researchers, administrators and clinicians. **Every time a mother gives birth in Ireland, the important interventions, the good outcomes and the complications are recorded and analysed at a national specialist centre.**¹ The NPEC produces annual clinical audit reports on perinatal mortality, maternal morbidity, home births and very low birth weight babies in Ireland. At local hospital level, the NPEC provides customised feedback to individual hospitals on how they compare against the national average. The NPEC is funded by the Health Service Executive (HSE) and is based at Cork University Maternity Hospital in the UCC Department of Obstetrics and Gynaecology. The Centre continues to build on its existing portfolio of audit and quality review.

What is clinical audit?

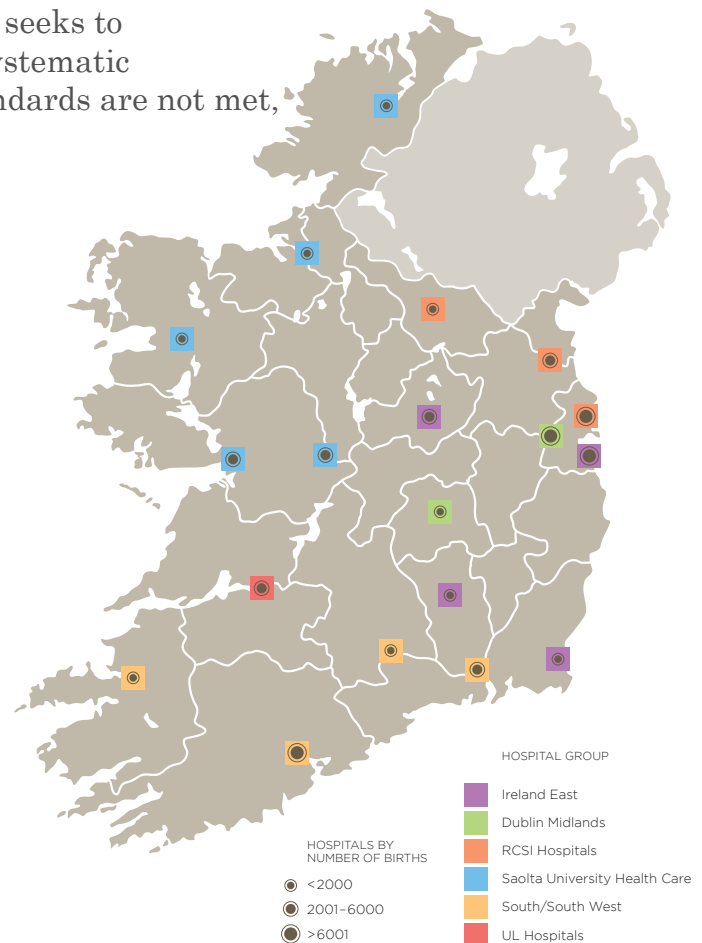
A clinically led, quality improvement process that seeks to improve patient care and outcomes through the systematic review of care against explicit criteria. Where standards are not met, changes are implemented and re-auditing is used to confirm improvement in patient care.

What is Epidemiology?

Epidemiology is the study (scientific, systematic, and data-driven) of the distribution (frequency, pattern) and determinants (causes, risk factors) of health-related states and events (not just diseases) in specified populations (neighbourhood, school, city, state, country, global).²

NPEC report on Severe Maternal Morbidity in Ireland 2018

This is the seventh report of the national clinical audit on severe maternal morbidity in Ireland published by the National Perinatal Epidemiology Centre (NPEC). The fundamental aim of the audit is to provide a national review of women experiencing severe maternal morbidities, to identify quality improvement initiatives and make recommendations for the improvement of maternal care in Ireland. All 19 maternity units provide data to the NPEC on women attending their unit who experienced a severe maternal morbidity as defined in this audit.



What is Severe Maternal Morbidity?

The World Health Organisation (WHO) defines maternal morbidity as “any health condition attributed to and/or aggravated by pregnancy and childbirth that has a negative impact on the woman’s wellbeing”. There are a wide range of maternal morbidities and unfortunately there is a lack of international consensus in defining the severity of maternal morbidity.

In order to evaluate the prevalence of severe maternal morbidity among women in Ireland and to make international comparisons, the NPEC adapted a validated international measurement tool using specific, clearly defined, definitions.

60,016 MATERNITIES IN THE REPUBLIC OF IRELAND IN 2018

401 WOMEN EXPERIENCED A SEVERE MATERNAL MORBIDITY IN 2018

Full report available at: www.ucc.ie/en/npec/

1 health.gov.ie/blog/press-release/tanaiste-announces-new-national-perinatal-epidemiology-centre-in-cork-university-hospital/

2 <https://www.cdc.gov/careerpaths/k12teacherroadmap/epidemiology.html>

Definitions

Severe maternal morbidity

Severe maternal morbidity (SMM) was defined as a pregnant or recently-pregnant woman (i.e. up to 42 days following the pregnancy end) who experienced any of the following fourteen, clearly defined, organ dysfunction morbidities: major obstetric haemorrhage (MOH), uterine rupture, eclampsia, renal or liver dysfunction, pulmonary oedema, acute respiratory dysfunction, pulmonary embolism, cardiac arrest, coma, cerebrovascular event, status epilepticus, septicæmic shock, anaesthetic complications and maternities involving peripartum hysterectomy. To allow for international comparison, two management proxies for maternal morbidity - ICU/CCU admission and interventional radiology - were also included. Definitions are available in the full report.

Major obstetric haemorrhage (MOH)

A women experiencing any of the following: a blood loss greater or equal to 2,500 mls; a transfusion of 5 or more units of blood; or received treatment to help the clotting process in order to stop bleeding. Bleeding may be vaginal or less commonly, internal, into the abdominal cavity.

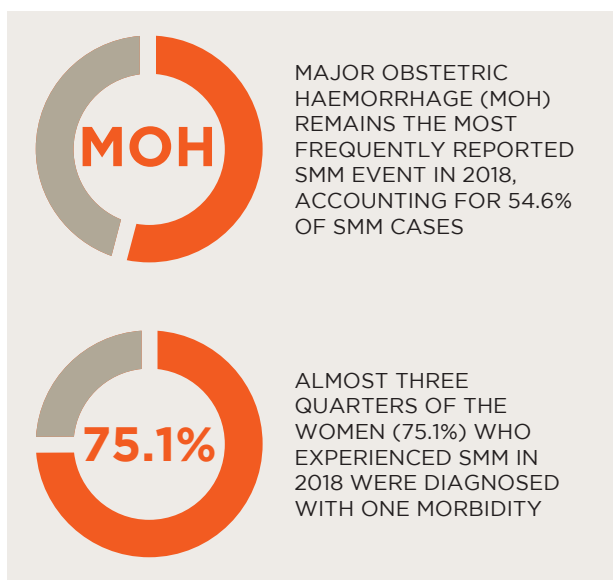
Calculating rates

The incidence rate of SMM and of specific morbidities are calculated per 1,000 maternities resulting in the live birth or stillbirth of a baby weighing at least 500g.

How many women experienced severe maternal morbidity?

The number of women experiencing one or more SMM was 6.7 per 1,000 maternities or one in 150 maternities in 2018.

Almost three quarters of the women (74.6%) who experienced SMM in 2018 were diagnosed with one morbidity; 21% were diagnosed with two morbidities; 4% with three SMMs; 0.5% with four morbidities; and 0.2% with five morbidities.



What severe morbidities were experienced by mothers in 2018?

Major obstetric haemorrhage (MOH) remains the most frequently reported SMM event in 2018, accounting for just over a half (54.6%) of SMM cases. The incidence of MOH cases in Ireland has increased significantly (56%) since 2011. Increasing rates of MOH have also been reported in the UK and other EU countries.

Admission to an intensive or coronary care unit (ICU/CCU) was the second most common event, having been reported in over a third (38.7%) of SMM cases. This rate has decreased over the last two years (Figure 1).

The next most common reported morbidities were renal or liver dysfunction (7.7%), peripartum hysterectomy (7%) and septicæmic shock (4.7%). These were followed by pulmonary embolism, i.e. a clot in the lung (4.5%).

Abnormal location of the placenta (a condition that can lead to massive bleeding and increased risk of maternal death) was the most reported indication for peripartum hysterectomy.

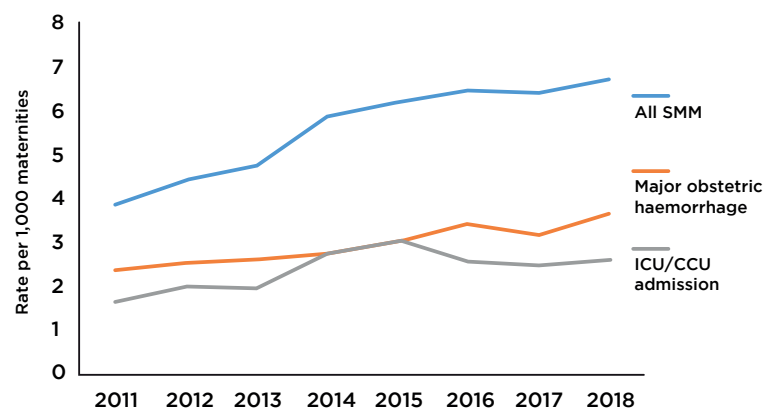


Figure 1. Trend in rate of severe maternal morbidity (SMM), major obstetric haemorrhage and intensive care admission/ coronary care admission (ICU/CCU), 2011-2018

Maternal characteristics associated with SMM

The report explores a number of maternal characteristics associated with severe maternal morbidity.

SMM was more common in women aged 40 years or over. In terms of ethnicity, there was a slight overrepresentation of women experiencing SMM whose ethnicity was described as Asian or Black.

The report highlighted an association between increased BMI and SMM. The majority (63.3%) of women who experienced a morbidity had a high BMI (36.9% overweight and 26.4% obese).

The perinatal mortality rate in women experiencing SMM was approximately seven times the perinatal mortality rate observed for all births in Ireland.

Multiple pregnancy was associated with over a fourfold increased risk of a woman experiencing a SMM compared to singleton pregnancies.

Virtually all of the women who experienced SMM in 2018 required an increased level of support/critical care.

A message from our public representative.

This is my third year on the NPEC Severe Maternal Morbidity Audit Group. I began this journey with very little awareness of the NPEC, this audit and the work of Prof. Richard Greene and his team. However, my involvement with this group has demonstrated to me the importance of collecting, collating and sharing data and information in relation to pregnancy and childbirth in order for change within our maternity services to occur.

Every family in our country will have been or will become a service user of our maternity services at some point. We rely on this service to provide the necessary care for our mothers and babies. More importantly, we expect it all to run smoothly. The knowledge acquired from this audit is invaluable in order to deliver the service that we expect within our Maternity Hospitals.

The collection of data over the last 9 years and 7 reports ensures increased and improved awareness of Severe Maternal Morbidity across all maternity units.

The fundamental aim of these audits year after year is:

1. to provide a national review of clearly defined severe maternal morbidities (SMMs),
2. to identify quality improvement initiatives and
3. to make recommendations for the improvement of maternal care for women in Ireland.

This is an ambitious aim in an overstretched health service but is clearly achievable given that all 19 maternity units are contributing and are participating in this process. This report and the work of the SMM audit team is the 'why and how' change occurs in the maternity services.

Claire Jones

Patient Representative

NPEC Severe Maternal Morbidity Group

Recommendations

- A quantitative approach involving volume and weight assessment to estimate blood loss should be considered for use in all maternity units. Development of a national tool-kit would assist standardisation of such an approach. This is being addressed by the National Women's and Infants Health Programme.
- Robust clinical audit on adverse maternal outcomes requires the protected time of clinical staff. Funding should be provided by the Health Service Executive (HSE) to facilitate same.
- A public health education programme on maternal morbidity and modifiable risk factors should be developed.
- Antenatal education:
 - a) Current antenatal education should provide information to women to ensure an understanding of maternal morbidity to achieve complication awareness.
 - b) When a pregnant woman is identified as high risk for significant morbidity, specific education should be available to her during antenatal birth preparation.
 - c) The national standards on antenatal education should provide guidance on specific education for maternal morbidity awareness.
- Maternal Newborn Clinical Management System (MN_CMS) data from Irish maternity units should be collated to identify the influence of risk factors for SMM in Ireland including ethnicity, maternal age, body mass index (BMI), smoking, employment status and other socio-economic factors. This should overcome the current deficit in the pregnant population data.
- Research on the incidence of morbidly adherent placenta in Ireland is warranted

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