



NATIONAL PERINATAL  
EPIDEMIOLOGY CENTRE



# Perinatal Mortality in Ireland

Lay Summary 2017

# National Perinatal Epidemiology Centre

The National Perinatal Epidemiology Centre works with the maternity services in Ireland. The NPEC are a team of midwives, researchers, administrators, clinicians and is directed by Professor Richard Greene. The NPEC produces annual reports on perinatal mortality in Ireland, maternal morbidity in Ireland, home births in Ireland 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 Department of Obstetrics and Gynaecology, University College Cork. *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. Unusual trends are easily and quickly observed and most importantly acted on.*<sup>1</sup> NPEC continues to build on its existing portfolio of audit and quality review.

## What is clinical audit?

Clinical audit is a process that seeks to improve patient care and outcomes through the systematic review and evaluation of current practice against research based standards.

## 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).<sup>2</sup>

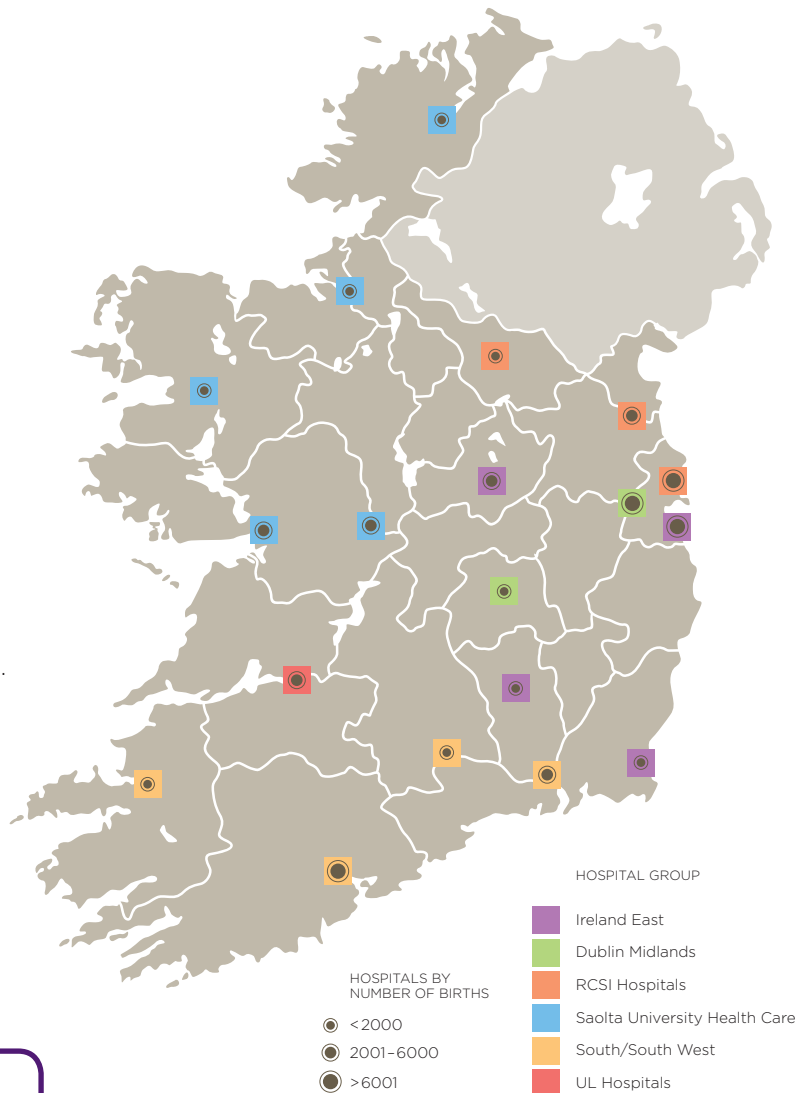
## Deaths of babies in the Republic of Ireland in 2017

This is the seventh report of the national clinical audit on perinatal mortality in Ireland published by the National Perinatal Epidemiology Centre (NPEC).

In 2017 there were 381 perinatal deaths occurring during pregnancy or shortly after birth among 62,076 births with a birthweight of at least 500g or at least 24 weeks gestation at delivery.<sup>3</sup>

Stillbirths, early neonatal and late neonatal deaths accounted for 235 (61.7%), 111 (29.1%) and 35 (9.2%) of the 381 deaths, respectively.

The perinatal mortality rate (PMR) was 5.6 deaths per 1,000 births.



<b>7th</b> ANNUAL REPORT	<b>381</b> PERINATAL DEATHS	<b>235</b> STILL BIRTHS
<b>111</b> EARLY NEONATAL	<b>35</b> LATE NEONATAL	<b>5.6</b> DEATHS PER 1,000 BIRTHS

**62,076** BABIES BORN IN IRELAND IN 2017

Full report available at: [www.ucc.ie/en/npec/](http://www.ucc.ie/en/npec/)

Footnotes for this page and back page

<sup>1</sup> [health.gov.ie/blog/press-release/tanaiste-announces-new-national-perinatal-epidemiology-centre-in-cork-university-hospital/](http://health.gov.ie/blog/press-release/tanaiste-announces-new-national-perinatal-epidemiology-centre-in-cork-university-hospital/)

<sup>2</sup> [www.cdc.gov/careerpaths/k12teacherradmap/epidemiology.html](http://www.cdc.gov/careerpaths/k12teacherradmap/epidemiology.html)

<sup>3</sup> Healthcare Pricing Office. Perinatal Statistics Report 2017. Dublin: Health Service Executive. Provisional data [in press].

<sup>4</sup> National Women and Infants Health Programme, (2017) National Maternity Strategy Implementation Plan Launched. <https://www.hse.ie/eng/services/publications/corporate/national-maternity-strategy-implementation-plan.pdf>

<sup>5</sup> Clinical Practice Guideline No 29 (2014). Fetal Growth Restriction Guideline - Recognition, Diagnosis and Management: Institute of Obstetricians and Gynaecologists, Royal College of Physicians of Ireland and Directorate of Strategy and Clinical Programmes, Health Service Executive.

<sup>6</sup> Nuzum D, Meaney S, O'Donoghue K. The public awareness of stillbirth: an Irish population study. BJOG 2018;125:246-252

<sup>7</sup> O'Keeffe LM, Dahly DL, Murphy M, et al Positive lifestyle changes around the time of pregnancy: a cross-sectional study BMJ Open 2016;6:e010233. doi: 10.1136/bmjopen-2015-010233

## Definitions

**Stillbirth:** a child born weighing 500 grammes or more or having a gestational age of 24 weeks or more who shows no sign of life.

**Early neonatal death:** Death of a live born baby occurring within 7 completed days of birth.

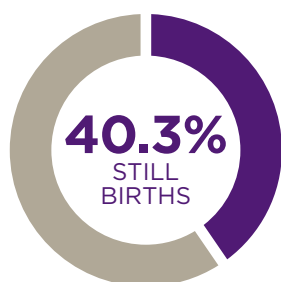
**Late neonatal death:** Death of a live born baby occurring after the 7th day and within 28 completed days of birth.

**Major congenital abnormality:** Any genetic or structural defect arising at conception or during embryogenesis incompatible with life or potentially treatable but causing death.

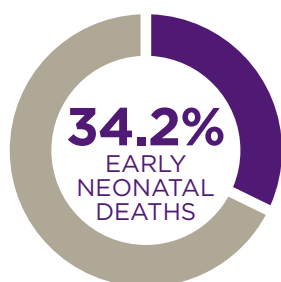
## Fetal growth in pregnancy

A notable fact from the 2017 report is that low birthweight is associated with perinatal death. Approximately forty percent (40.3%) of all stillbirths and one third (34.2%) of neonatal deaths were classified as severely small for gestational age. This highlights the importance of close monitoring for fetal growth during pregnancy.

### LOW BIRTHWEIGHT ASSOCIATED WITH PERINATAL DEATH



40.3% OF ALL STILLBIRTHS CLASSIFIED AS SEVERELY SMALL FOR GESTATIONAL AGE



34.2% OF EARLY NEONATAL DEATHS CLASSIFIED AS SEVERELY SMALL FOR GESTATIONAL AGE

## Maternal characteristics

The report explores a number of maternal characteristics associated with perinatal loss. An association between maternal age and perinatal mortality was identified. Compared to mothers aged between 25-29 years, women aged less than 20 years had 2.7 times the rate of perinatal mortality and women aged greater than 40 years had at 1.8 times the rate of perinatal mortality.

## Perinatal Mortality Rate: 5.6 /1,000 births

A positive note from the 2017 report was, the perinatal mortality rate, corrected perinatal mortality rate, stillbirth rate and neonatal rate were similar to rates in 2016.

## Why do babies die?

**Major congenital abnormality and specific placental conditions were the main causes of perinatal death in Ireland in 2017.**

The PMR rate was 3.5 per 1,000 births when deaths due to major congenital abnormality were excluded.

### STILLBIRTH:

**Placental disease (32.3%),  
Major congenital abnormality (27.2%),  
Unexplained (11.1%)**

### EARLY NEONATAL DEATHS:

**Major congenital abnormality (55.9%),  
Respiratory disorders (21.6%)**

### LATE NEONATAL DEATH:

**Major congenital abnormality (37.1%),  
Gastro-intestinal disorders (22.9%),  
Respiratory disorders (14.3%)**

## Investigating perinatal deaths

Finding out why a baby dies is important not only to the bereaved family but is essential in learning lessons to help prevent such tragedies occurring in the future. An autopsy of the baby and a detailed examination of the placenta by a perinatal pathologist are both vital components in the thorough investigation of a perinatal death. Parental consent is required for an autopsy to be performed but is not needed for a placental examination.

Similar to previous reports, a post-mortem examination was performed more often in stillbirths (60.0%) than in neonatal deaths (42.5%) in 2017. For the majority of the perinatal deaths where an autopsy was not performed, an autopsy was offered and presumably declined by parents (72.1% of the cases without autopsy).

It is encouraging to see that a high rate of placental histology examinations continues in 2017 (99.1% in stillbirths and in 92.7% of early neonatal deaths).

# A message from our public representative

The 2019 NPEC Study Day, held at the Aviva Stadium in January, was no doubt a proud day for all at NPEC, celebrating their ten year anniversary of implementing a national audit system for collecting important data on perinatal mortality from all the maternity units in Ireland, with the purpose of enabling learning on why some of our babies die and identifying any improvements, and equitable access in care, nationally.

NPEC must be reasonably happy to see that some of their repeated recommendations from numerous audits over the last number of years are being actioned and progressed by the National Women and Infants Health Programme (NWIHP). One such recommendation is access to fetal anomaly scanning; it is expected that fetal anomaly ultrasound scanning will be universally available for all pregnant women in Ireland by the end of this year.

But there is no room for complacency in our maternity services and we must continue to excel in our auditing tasks and ensure that all the vital relevant information is included in all data submitted to the NPEC.

To enable true learning, transparency, open

disclosure and improvements in care and outcomes, we need to be able to assess the whole clinical picture for each maternity unit through the use of clinical audit to see what is working and what might need further attention.

This has been missing from the various review investigation reports and previous audits, with opportunities to learn and share openly in a timely manner being lost.

However, the recently published audit on Therapeutic Hypothermia (TH) cooling on neonates in Ireland 2016 - 2017 is a good example of what we can learn when we do include all relevant information. If there were any doubts previously, this audit highlighted very clearly that intra-partum monitoring was an on-going concern. New Cardiotocography (CTG) training and guidelines are now being developed to address this issue.

On a last note, the main points I took away from the 2019 Study Day were 'back to basics, standardisation of care, the need for more national guidelines, the importance of fetal anomaly scanning, and the monitoring of fetal growth'. The importance of monitoring fetal growth was discussed in a presentation entitled 'Grow Assessment

Protocol - How Is It Working For Us?' by the Director of Midwifery for Our Lady of Lourdes Hospital Drogheda, Ms Grainne Milne. The findings from this presentation showed the importance of identifying fetal growth restriction and that all maternity units nationally should know their antenatal small for gestational age (SGA) detection rates.

Recommendations were made by the Royal College of Obstetrics and Gynaecologists (RCOG) regarding universal access to second trimester fetal anomaly scanning which they have been advocating since the Year 2000. Let's hope our babies really do count and not have to wait 19 years for standardised growth scans and monitoring.

To borrow a quote from an older presentation by Dr Alan Finan of Cavan General Hospital, at the 2018 NPEC Study Day, "A lot done, a lot more to do". A patient's perspective is so important in our health services in order to get a deep understanding of how care and patient safety can be improved upon and of what worked well and what didn't.

**Siobhan Whelan**  
Patient representative,  
NPEC Perinatal Mortality Group

## Recommendations

### Recommendations from previous reports being progressed by the National Women's and Infants Health Programme.

- The establishment of an enquiry for stillbirth and neonatal death should be considered in order to enhance the lessons which may improve care. An initial step would be the establishment of a standardised review of a case series of unexpected perinatal deaths associated with intrapartum events.
- The resourcing of perinatal pathology services on a regional and national basis, as recommended by the Faculty of Pathology, would provide equal access to review for all perinatal deaths nationally and would facilitate an agreed approach to classification of autopsy, placental histology and cytogenetics. See *further recommendation below*.
- As recommended by the Institute of Obstetrics and Gynaecology, second trimester fetal anomaly ultrasound scanning should be universally available for all pregnant women in Ireland. The NPEC

Perinatal Mortality Advisory Group supports the work of the NWIHP as they work with the Hospital Groups Chief Executive Officers to ensure that each maternity hospital/unit provides all pregnant women with access to dating and anomaly scans.<sup>4</sup>

### Based on the findings of this and previous reports, the NPEC Perinatal Mortality Advisory Group makes the following recommendations:

- Standardised approach to improved antenatal detection of fetal growth restriction (FGR) with timely delivery is a preventative strategy to reduce perinatal mortality.<sup>5</sup>
- Again, we recommend the generation of customized birth weight centile charts for every woman during pregnancy and concomitantly, staff should be trained in risk assessment, plotting of symphysial fundal height (SFH) and scan weight estimates in order to reduce stillbirths in Ireland.
- Based on feedback to the NPEC, other methodologies could be considered. A

multidisciplinary working group should be developed to address a national standardised approach to the detection of FGR. A national approach should also evaluate the use of a standard growth curve across all Irish maternity units. The Institute of Obstetrics and Gynaecology would be well placed to facilitate this working group.

- Anonymised placental histology reports on perinatal death should be submitted to the NPEC as part of this audit: this would facilitate standardised interpretation and classification of placental conditions.
  - The Hospital Groups should examine the allocation of funding for the perinatal pathology service to ensure that a structured approach is taken to recruit staff in a timely manner.
  - Further research exploring factors impacting on autopsy rates, particularly in the case of neonatal deaths, is warranted.
  - Consideration should be given to the establishment
- of a national working group to include Obstetricians, Neonatologists, Midwives and Allied Health Professionals whose remit is to look at the problem of preterm birth (PTB) in Ireland at a national level and how it is best addressed.
- The NPEC Perinatal Mortality Advisory Group suggests that the NWIHP engage with the Coroner Service of Ireland regarding the clinical management of cases to allow timely reporting to families and hospitals of provisional information on cause of death e.g. draft autopsy report as per other jurisdictions.
  - A public health education programme on perinatal deaths and modifiable risk factors should be developed.<sup>6,7</sup>
  - Funding should be provided by the Health Service Executive (HSE) to ensure that staffing levels allow protected time for clinical audit. Robust clinical audit of perinatal outcomes in all maternity units in Ireland is vital for patient care, but such audit requires the protected time of clinical staff.

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