

VERY LOW BIRTH WEIGHT INFANTS IN THE REPUBLIC OF IRELAND, 2019

A LAY SUMMARY

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

The National Perinatal Epidemiology Centre (NPEC) collaborates with the Irish maternity services to translate clinical audit and epidemiological data into improved maternity care for families in Ireland. It publishes several reports and studies regarding perinatal, maternal and neonatal health and care. The NPEC is directed by Professor Richard A Greene and is composed of a team of midwives, researchers, epidemiologists, administrators and doctors. Established in 2007, on foot of recommendations

from the Lourdes Hospital Report, the NPEC was founded so every time a mother gives birth in Ireland, the important interventions (improvements), the good outcomes and the complications are recorded and analysed at a national specialist centre.¹

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.

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, with standard and specific methods, 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.²

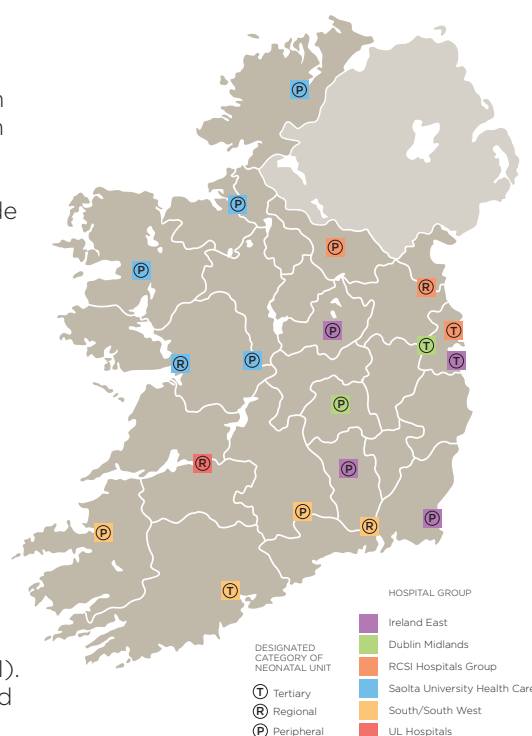
WHAT IS A VERY LOW BIRTH WEIGHT (VLBW) INFANT?

A very low birth weight (VLBW) infant is an infant who is born alive, but is very small (401-1,500 grams) or very premature (after 22 but before 30 weeks of pregnancy).

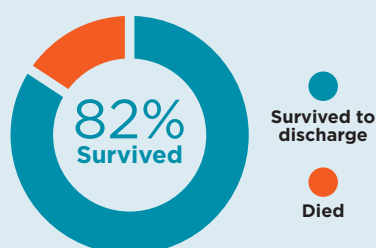
By virtue of their small size and/or prematurity, these are a high risk group of infants, at greater risk of dying and experiencing ill health than infants born after 30 weeks gestation or with a birth weight greater than 1,500g. Some of the most common complications for VLBW infant include low oxygen levels at birth, infection and problems of the respiratory, digestive and nervous systems.

NATIONAL CLINICAL AUDIT: NEONATAL CARE OF VLBW INFANTS IN IRELAND

Since 2014, the National Perinatal Epidemiology Centre, working with NICORE (Neonatal Intensive Care Outcomes Research and Evaluation), a national group of neonatologists (doctors providing care for newborn babies) and paediatricians, has been auditing the outcomes of VLBW babies in the Republic of Ireland (ROI). The aim is to review the care provided to these babies and to recommend specific improvements in care.



505
VLBW INFANTS
BORN IN ROI
IN 2019



THE VERMONT OXFORD NETWORK (VON)

- The Vermont Oxford Network (VON) is a non-profit international voluntary collaboration of health care professionals dedicated to improving the quality and safety of medical care for newborn infants and their families.
- Today, the VON is comprised of over 1300 Neonatal Intensive Care Units around the world. Participating centres use the most comprehensive and up-to-date confidential data on high-risk infants to benchmark their practices and outcomes and identify areas for improvement.

Tertiary centres provide 24 hour consultant neonatology cover.

Regional centres have < 8,000 births annually, have dedicated neonatal intensive care units (NICUs) but do not have 24-hour consultant neonatology cover.

Peripheral centres do not have dedicated NICUs nor dedicated consultant neonatology cover but they do have designated areas for newborn infants namely Special Care Baby Units (SCBUs).

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

² www.cdc.gov/careerpaths/k12teacherroadmap/epidemiology.html

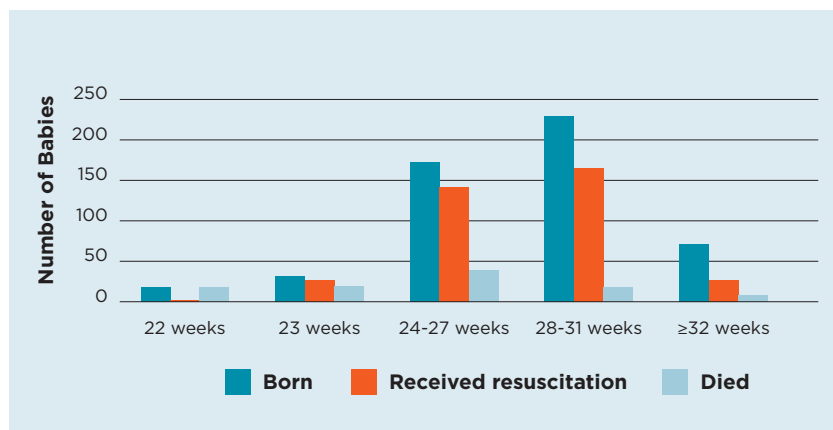


Figure 1: Number of VLBW infant born, who received resuscitation and who died in 2019, according to the gestational age group (duration of pregnancy).

	Number of infant born	Number (%) who died
All	505	93 (18%)
22 weeks	15	15 (100%)
23 weeks	29	19 (65%)
24-27 weeks	164	39 (24%)
28-31 weeks	232	14 (6%)
≥32 weeks	65	6 (9%)

Table 1: Number of VLBW infant born and who died in 2019, according to gestational age.

(Note: Survival outcome unknown for 7 babies)

CARE IN DESIGNATED CATEGORIES OF NEONATAL CENTRE

The current Model of Care for Neonatal Services, published in 2015, recommends that infants born before reaching a gestational age (or duration of pregnancy) of 28 weeks should ideally be delivered at one of the four tertiary neonatal centres.

Nevertheless, only 155 (80%) of infants born between 23 and 27 weeks gestation (193 infants) in 2019 were delivered in a tertiary neonatal centre. This figure has remained unchanged since 2017.

A total of 21 (11%) infants delivered at <28 weeks were born in a regional neonatal centre and 17 (9%) were born in a peripheral centre in 2019.

MORTALITY OF VERY LOW BIRTH WEIGHT INFANTS

In 2019, 93 (approximately one in five) VLBW infants born in Ireland died before they were discharged from hospital or before they reached their first birthday. Risk of dying was especially high for those born at 22 and 23 weeks of gestation (Table 1).

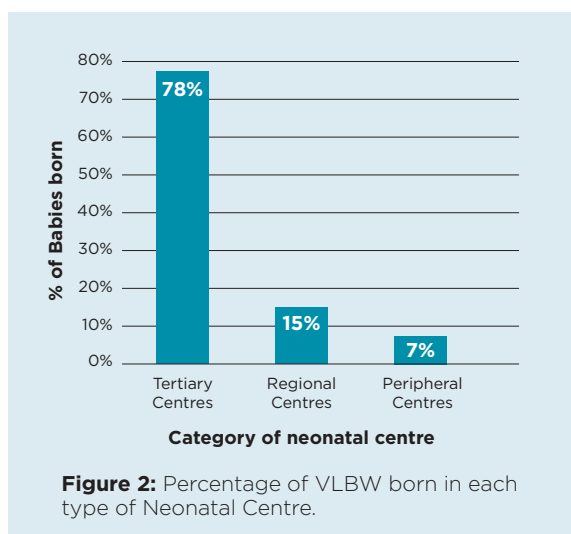


Figure 2: Percentage of VLBW born in each type of Neonatal Centre.

RESUSCITATION OF VERY LOW BIRTH WEIGHT INFANTS

Similar to previous years (2015-2018), in 2019 approximately 8% of ROI infants died in the delivery room (38 infants in total). At least 75% of the VON units had a lower percentage of deaths in the delivery room (Median 0%, Q1= 0%, Q3= 4%) than reported in ROI. Fourteen (37%) of these 38 ROI infants had a major congenital anomaly and 21 (55%) were born at less than 24 weeks gestation.

It has been recommended that resuscitation should be administered to all infants born at 23 weeks who present in favourable condition. From 2014 to 2018, there was a **steady increase in the number of infants born at 23 weeks who are resuscitated in the delivery room (from 42% to 89%). In 2019, 83% of infants born at 23 weeks were resuscitated in the delivery room.** The increase in infants receiving resuscitation has been associated with an increase in the number of these infants surviving to discharge (from 19% in 2014 to 35% in 2019).

Key Infant Outcomes

Adjusting for the risk profile of the VLBW infants born in the ROI showed that:

- ROI infants had a higher risk of Pneumothorax than expected (a serious lung disease also called 'collapsed lung'), similar to previous years*
- ROI had lower rates of retinopathy of prematurity (ROP, a potentially blinding eye disorder), than expected.
- Death and serious health conditions were more common among the most premature infant.

* To better understand this higher risk of pneumothorax, further in-depth analysis using data from the past 6 years is being completed which will be published in a specific data issue.

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

National Perinatal Epidemiology Centre
Department of Obstetrics and Gynaecology,
5th Floor, Cork University Maternity Hospital,
Wilton, Cork

www.ucc.ie/en/npec/
npec@ucc.ie
+353 (0)21 420 5053
Follow us on twitter @NPEC_UCC

