

Infants who required Therapeutic Hypothermia in Ireland, 2016-2017

What is Therapeutic Hypothermia?

Before or during birth, a small number of infants experience reduced oxygen or blood supply. After birth, some of these infants will show abnormal neurological behaviour, diagnosed as hypoxic-ischaemic encephalopathy (HIE).

Therapeutic Hypothermia (TH) is now considered the standard treatment for infants with moderate to severe HIE. It is a therapy during which the infant is cooled within six hours of birth to a targeted core body temperature of between 33°C to 34°C for a duration of 72 hours. A normal core body temperature for infants is about 36.4°C, but this can vary slightly. Following the 72 hour period of cooling, the infant is rewarmed to normal body temperature over a 6-12 hour period.

TH is regarded as the greatest single advance in Neonatology over the last 25 years as research has demonstrated it reduces the rate of death, severe disability and lifelong cerebral palsy reduction for these infants.

In Ireland, TH is administered in four tertiary maternity hospitals: National Maternity Hospital, Rotunda Hospital, Coombe Women and Infants University Hospital and Cork University Maternity Hospital). All infants born in other hospitals requiring this treatment are transferred to one of these four tertiary hospitals.

Purpose of this report

The National Clinical Programme Paediatrics and Neonatology (NCPN) has identified a gap in the knowledge available nationally to clinicians and managers regarding TH. In 2017, a collaboration was agreed between the NCPN and the National Perinatal Epidemiology Centre to examine the care of all infants who underwent TH in the years, 2016 and 2017.

The primary aim of this report is to present an overview and national statistics on TH in Ireland for the years 2016 and 2017.

Number of Infants born in the Republic of Ireland who underwent TH

Sixty-three infants underwent TH in 2016 and 77 in 2017; a total of 140 in the two-year period. This suggests that one in 900 infants born in Ireland during 2016/2017 required TH.

The survival rate for the TH cohort was 88%, as 17 of the 140 infants died.

63
infants

63 infants underwent TH in **2016**

1/900

1 in 900 infants born in Ireland during 2016/2017 required TH

77
infants

77 infants underwent TH in **2017**

88%

88% survival rate for the TH cohort, 17 of the 140 infants died

The report explores a number of maternal characteristics associated with TH. Mothers in their first pregnancy accounted for 60% of the TH cohort suggesting that parity may be associated with increased risk of the infant requiring TH.

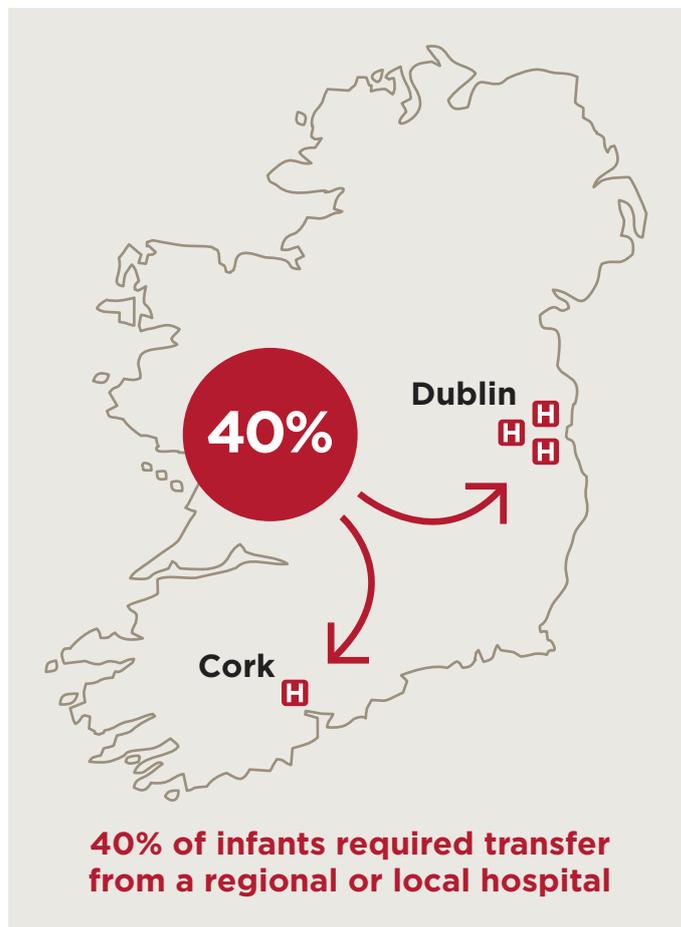
At 47%, Caesarean Section was the most common mode of delivery for all 140 infants. Of which:

- 47% of mothers had a pre-labour Caesarean Section
- 53% of mothers had a Caesarean Section after the onset of labour.

Less than 2% of mothers had an elective caesarean section.

Of infants who underwent TH in 2016 or 2017, 60% were born in a tertiary hospital with 40% of infants requiring transfer from a regional or local hospital. Of the infants who were transferred from these hospitals, 89% were transferred by the National Neonatal Transport Programme (NNTP).

The Apgar scoring system is used to assess an infant's health at birth to determine the need for prompt intervention. At 1 minute of life, 79% of the TH infants had a low Apgar score indicating they required intervention and 59% of all the TH infants required intubation at birth.



Recommendations

- Ongoing national review of therapeutic hypothermia infant cases is required.
- Development of a national E-Register of all infants treated with therapeutic hypothermia.
- Regular training updates and drills are necessary to ensure optimum management of complex obstetric situations.
- All therapeutic hypothermia infants require daily Sarnat grading assessment.
- The start time of either active or passive cooling should be documented. However the 72 hour treatment clock begins when the infant reaches the targeted 33-34°C rectal temperature.
- All therapeutic hypothermia infants require Cranial Ultrasounds to be carried out within the first four days of life.
- The development and implementation of a standardised review tool for perinatal events is advocated.
- Placental pathology examination is required in all therapeutic hypothermia infants.
- All therapeutic hypothermia infants should have a formal neurodevelopmental assessment using the 3rd Ed. Bayley assessment at 2 years of age.

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

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