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Prematurity: The National Perinatal Workload

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The Healthcare Pricing Office (HPO) published its perinatal statistics report for 2020 in September 2022. Information on every birth in the Republic of Ireland is submitted to the National Perinatal Reporting System (NPRS)[1]. The NPRS is the principal source of national data on perinatal events. Since 2014 the HPO has overseen the administration and management of the system. The data relates to the pregnancy, delivery, and ends 7 completed days after the birth. This data is essential to the understanding of how our perinatal services operate and to the planning for how those services will need to change and evolve over time. They highlight some of the most important aspects of perinatal care for mothers and their babies. They also highlight the importance of accurate reporting by hospitals and staff in maintaining a national perinatal reporting system.

In 2020, there was a total of 57,064 births in Ireland. While this represents a 23.3% decline from 73,777 births in 2011[2], the birth rate at 11.4/1,000 births, remains the highest among the 27 EU countries.

There were 3,982 (7%) preterm births in 2020, proportionally increased from 2011 (6%). The data demonstrates that the frequency of prematurity is heavily skewed in the direction of more mature preterm infants. There were 24 births at 23 weeks gestation compared with 3,342 births at 32-36 weeks gestation.

This prematurity pattern and distribution informs the categorisation and management of preterm infants. Infants born at 32 weeks gestation and above account for 3,288 (82.5%) of preterm births, and are mostly managed in the local, level 1, neonatal units. Infants born at 27 weeks to 31 weeks gestation account for 417 (10.5%) of preterm births and can be managed in the regional neonatal units. Infants born less than 27 weeks gestation account for 120 (2.9%) of preterm births and are managed in the tertiary centres.

Where there is a higher mortality rate, greater numbers of staff, higher levels of skill, and experience are required to achieve a live outcome. In infants 32-36 weeks gestation, the perinatal mortality rate is 23.9/1,000 births. In infants 28 to 31 weeks gestation the perinatal mortality is 106/1,000 births.

In infants 23 to 26 weeks gestation, the perinatal mortality rate ranges from 418/1,000 births at 26 weeks to 791/1,000 births at 23 weeks gestation. Nearly 30% of neonatal deaths within the first 7 days are associated with a gestational age of less than 28 weeks. The perinatal mortality rate is 2.1 per 1,000 live births when infants are born at term in Ireland; the rate is 54.7 per 1,000 among preterm births. This has improved over the past decade as care has advanced. The overall preterm perinatal mortality rate was 67.5 per 1,000 in 2011. Not included in the HPO data are deaths outside the perinatal period; very preterm infants remain at risk after 7 days of life.

The cohort of extremely preterm infants less than 27 weeks are very high risk and extremely vulnerable. They are numerically few, 120 annually, but highly challenging. The measures needed to achieve better outcomes requires the concentration of expertise and experience in a small number of perinatal centres. The mothers should be transferred antenatally, where possible. When this is not possible the infant will be transported after birth to the tertiary centre by the National Neonatal Transport Programme.

There are many strands to the management of a very preterm birth. The challenges range from the diagnosis of labour, the decision-making around obstetric intervention, and the need for skilled resuscitation and stabilisation. The data in the 2020 report provides an insight into these challenges. The stillbirth rates are extremely high in very preterm births. The average is almost 300/1,000 births between 23 and 26-weeks gestation. There is the difficult equipoise between allowing the high-risk pregnancy to continue for as long as possible and intervening when infant compromise is inevitable. The infrequency of these perinatal events mean that studies are small, and the levels of evidence are not strong. Decision making is heavily dependent on the individual centre's level of experience based on clinical case through-put. Good outcomes depend upon the proper application of knowledge and experience. Survival rates of these preterm babies are increasing, although a recent meta-analysis[3] of 13,229 extremely premature infants reports that their neurodevelopmental outcomes remains challenging.

The incidence of low birthweight (less than 2,500g) is lower than the prematurity rate. There were 3,825 (6.7%) live births less than 37 weeks gestation and 3,153 (5.5%) live births less than 2.5Kg. One explanation is that a proportion of borderline preterm infants at 35-36 weeks gestation weigh more than 2.5Kg, particularly those at 36 weeks gestation.

Multiple pregnancies have a significant impact on the incidence of preterm births. The prematurity rate in multiple pregnancies (1,176) is 57.6% - whereas its 5% in singleton pregnancies (2,600). Infants of a multiple pregnancy more often have a prolonged hospital stay, longer than 6 days, than singletons (4.5% vs 32%). The average gestational age for singletons is 39.1 weeks, but in twins it is 35.4 weeks, and 32.4 weeks for higher-order multiples. Of the 57,064 births in 2020, 39 were higher-order multiples, who are almost always born before 37 weeks. This is a 56% decrease in higher-order multiple births over a 10-year period.

The findings from the 2020 Perinatal Statistics Report demonstrate that the proportion of preterm infants born in Ireland who are less than 27 weeks at birth is small, later prematurity is much more common. Close links between local, regional, and tertiary centres in maternity hospitals remain important to the provision of high-quality neonatal care in Ireland. The Healthcare Pricing Office and the National Perinatal Reporting System provides valuable data for the planning of the perinatal services.

References:

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