



Perinatal Statistics Report

Health Research and
Information Division
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ACKNOWLEDGEMENTS

The National Perinatal Reporting System (NPRS) within the Health Research and Information Division (HRID) at the Economic and Social Research Institute (ESRI) is responsible for collecting, coding, inputting, and validating data on all births nationally on an annual basis. Data on 71,963 births were analysed for this report. For each of these records additional information, apart from that required to register each birth, had to be collected in each hospital and by each independent midwife.

The collection and analysis of national perinatal data is a large undertaking, and the compilation of an accurate and comprehensive database on a timely basis is greatly dependent on the commitment and support of those at the forefront of collecting the data. Principal among these are the staff of the maternity hospitals and units, as well as the many independent midwives involved in practice. We would like to express our sincere appreciation to all who contribute to the accurate recording and timely notification of statistical information for all births nationally.

In addition to financing the NPRS, the Department of Health and Children and the Health Service Executive continues to provide essential support for the operation and development of this system. We would like to acknowledge Hugh Magee and Alan Cahill, in particular, for the advice and assistance provided in the course of preparing this report.

The production of this report is very much a team effort within the Health Research and Information Division. We would like to acknowledge, specifically, Aoife Brick, Richard Layte, Aisling Mulligan, Deirdre Murphy, Sinead O'Hara, Jacqueline O'Reilly, and Eithne Sexton for reviewing earlier drafts of this report. We would also like to thank Brian McCarthy and Shane McDermott for their work on the development of the NPRS software system for data entry and validation. Preparation of the data and production of this report was undertaken by Sheelagh Bonham, assisted by Barbara Clyne, Catherine Glennon, Anna Lachacz, and Izabella Nowacka. We wish to express our sincere thanks to all our colleagues for their hard work and commitment.

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KEY FINDINGS

The Perinatal Statistics Report 2007 presents national statistics on perinatal events in Ireland. This report is based on data collected from the National Perinatal Reporting System (NPRS) and provides information on mothers giving birth and babies born in 2007.

SUMMARY STATISTICS, 2007

Live Births, Stillbirths, Early Neonatal Deaths, Perinatal Deaths, and Adjusted Perinatal Deaths

	Total Births	Live Births		Stillbirths		Early Neonatal Deaths		Perinatal Deaths		Adjusted Perinatal Deaths*	
	Number	Number	Rate	Number	Rate	Number	Rate	Number	Rate	Number	Rate
Singleton	69,692	69,318	-	374	5.4	118	1.7	492	7.1	354	5.1
Multiple	2,271	2,252	-	19	8.4	14	6.2	33	14.5	29	12.8
Total	71,963	71,570	-	393	5.5	132	1.8	525	7.3	383	5.4

* In this and subsequent tables, 'Adjusted Perinatal Rate' excludes all deaths due to congenital anomalies.

BABIES:

Of the babies born in 2007

- 6.1% were preterm (less than 37 weeks gestation), the highest reported since 1999 (5.7%)
- 5.3% of live births were low birthweight (less than 2,500 grams)
- 45% of babies were breastfed at discharge from hospital, this compares to 41% in 2003 and 36% in 1999
- 26% of total live births were delivered by Caesarean section. This rate was 25% for singletons and 64% for multiples. The Caesarean section rate for total live births was 20% in 1999
- the average length of stay in hospital was 3.3 days for a singleton birth and 10.0 days for a multiple birth
- the perinatal mortality rate was 7.3 per 1,000 live births and stillbirths; 7.1 for singleton births and 14.5 for multiple births; for the years 1999-2007 the highest perinatal mortality rate was 8.9 in 2000 and the lowest recorded was 7.0 in 2006
- a perinatal mortality rate of 8.7 per 1,000 live births and stillbirths was recorded for babies to mothers aged 19 years or less and to those aged 35 years or more, which was higher than the perinatal mortality rates recorded for babies born to mothers in the other age group categories.

MOTHERS:

Of the women who gave birth in 2007

- average age has steadily increased from 30.1 years in 1999 to 31.1 years in 2007
- 27% were aged 35 years or older, up from 21% in 1999
- 14% of first births were to women aged 35 years or older, this has been increasing each year and was recorded at 9% for 1999
- 3.5% of total mothers giving birth were aged 19 years or less, compared to 6.2% in 1999
- 42% gave birth for the first time, with an average age for first time mothers of 28.8 years
- 32% of births were to single mothers, with an average age for single mothers of 27.1 years
- 1.6% had a multiple pregnancy
- 58% of women having a singleton live birth delivered spontaneously, while deliveries using forceps accounted for 4% and vacuum extractions for 12%. 25% of women gave birth by Caesarean section, compared to 20% in 1999
- the average length of stay in hospital was 3.6 days, and was longer for women who had a Caesarean section (5.6 days)
- an estimated 1 in 5 births were to mothers from outside Ireland in 2007. This compares to 1 in 6 in 2004. In 2007, 7.2% of all births were to mothers from EU15 to EU27 Accession States, while mothers from Africa and Asia each accounted for 3.6% of all births.

SECTION ONE

INTRODUCTION



INTRODUCTION

Annual reports on perinatal statistics in Ireland are compiled from the statistical data collected in Part 3 of the standard Birth Notification Form (BNF01/2003) used to notify local registrars of all live births and stillbirths occurring in Ireland. This statistical data set, known as the National Perinatal Reporting System (NPRS), is a valuable resource and the only complete reporting system on births nationally. Since 1999 the Economic and Social Research Institute (ESRI) has been contracted by the Department of Health and Children, and more recently the Health Service Executive, to oversee the collection, processing, management, and reporting of data submitted to the NPRS. Previous reports in this series are available for download at http://www.esri.ie/health_information/nprs/nprs_reports/

PURPOSE OF THIS REPORT

The principal aim of this report is the presentation of national statistics on perinatal events for the year 2007. This data set includes all births from 22 weeks gestation to the end of the first week of life.

This report aims to

- describe the fundamental social and biological characteristics of mothers and their babies
- report on pregnancy outcomes with particular reference to perinatal mortality
- highlight important aspects of perinatal care
- stimulate a wider interest in research in the area of perinatal epidemiology
- promote a general recognition of the importance of having an accurate and complete perinatal reporting system at a national level.

STRUCTURE OF THIS REPORT

This chapter provides background information and details on data source, quality, and data elements.

SECTION 2 contains summary data on selected variables since 1999 and trends in international comparisons.

SECTION 3 contains tables relating to the following variables: maternal age, marital status, socio-economic group of mother and father (derived from collection of data on occupations), nationality of mother and father, maternal parity, distribution of previous stillbirths, interval since last birth, birthweight, gestational age, and month of birth.

SECTION 4 presents tables relating to variables which fall more naturally into the category of the use of health care facilities, and deals in particular with the following: type of antenatal care received, timing of first antenatal visit, length of mother's antenatal and postnatal stay, whether hospital admission was booked or not, mother's immunity to rubella, method of delivery, classification of outcome according to size of maternity unit, transfer of infants between hospitals, length of infant's hospital stay, and type of feeding.

SECTION 5 deals with perinatal outcomes in detail, examining perinatal deaths by birthweight and gestational age, with particular focus on cause of death. In this section tables are presented on the following variables: numbers of antepartum and intrapartum stillbirths and early neonatal deaths by birthweight groups and gestational age, numbers and rates for cause of death, age at death for early neonatal deaths, and numbers and percentages of stillbirths and early neonatal deaths undergoing post-mortem examinations.

APPENDICES include trends and tables on domiciliary births and source data tables for figures used throughout this report.

CONVENTIONS USED IN THIS REPORT

Singleton and multiple births are presented separately for each variable, since numbers and rates can vary considerably for the two groups.¹ Caution should be exercised when interpreting rates based on small numbers. *Rates calculated from 20 observations or less are distinguished by italic type as a warning to the user that their reliability as a measure may be affected by the small number of observations.*

Appendix I contains a guide cross referencing the tables in this report with those in *Perinatal Statistics Report 2006*.

Throughout this report, 'Not Stated' values are not included in the calculation of percentages used in discussion. 'Not Stated' values are shown in data tables. Where a particular value of a variable does not occur in a table, the row corresponding to that value is not included. This arises most frequently in relation to multiple births.

Unless otherwise stated, discussion on total births in this report includes live births and stillbirths for singleton and multiple births.

NATIONAL MINIMUM DATA SET

The NPRS data set provides for a national minimum data set, and is intended to serve as a basis for the development of a series of analyses overtime. Births are registered and notified on a standard four-part Birth Notification Form (BNF01/2003) used to notify local registrars of all live births and stillbirths occurring in Ireland. The third part of the form has all

¹ Tables for singleton and multiple births are not presented in separate sections as in previous Perinatal Statistics Reports.

identifying information deleted and is sent to the HRID at the ESRI (see Appendix B). Figure 1.1 provides a diagrammatic representation of the information system around the registration of births. All the tables in this report are based on data contained in the third copy of the standard form.

The data collected by the NPRS can be grouped logically into demographic, clinical and administrative data as follows:

DEMOGRAPHIC DATA

- Date of infant's birth, sex of infant, multiple birth indicator
- Date of father's birth, father's county and country of residence, father's occupation, father's nationality (from 2004)
- Date of mother's birth, mother's county and country of residence, mother's occupation, mother's nationality (from 2004)
- Marital status of mother and date of present marriage

CLINICAL DATA

- Infant's birthweight and period of gestation, and mother's obstetric history (including parity)
- Autopsy indicator – whether stillbirth occurred before or during labour
- Main cause of death and one secondary cause of death for infant
- Maternal immunity to rubella, method of delivery
- Infant's BCG vaccination
- Main maternal disease or condition and one secondary maternal disease or condition affecting the infant or foetus
- Main disease or congenital malformation and one secondary disease or congenital malformation affecting the infant or foetus

ADMINISTRATIVE DATA

- Hospital number, case number (unique to hospital of birth)
- Type of birth indicator, place of birth
- Date of last birth (live birth or stillbirth)
- Type of death indicator, place of death
- Type of antenatal care received, date of first visit to doctor and hospital during pregnancy
- Type of feeding, pre-booked admission indicator, dates of mother's admission and discharge, date of infant's discharge
- Infant transfer indicator, hospital number for hospital to which infant was transferred

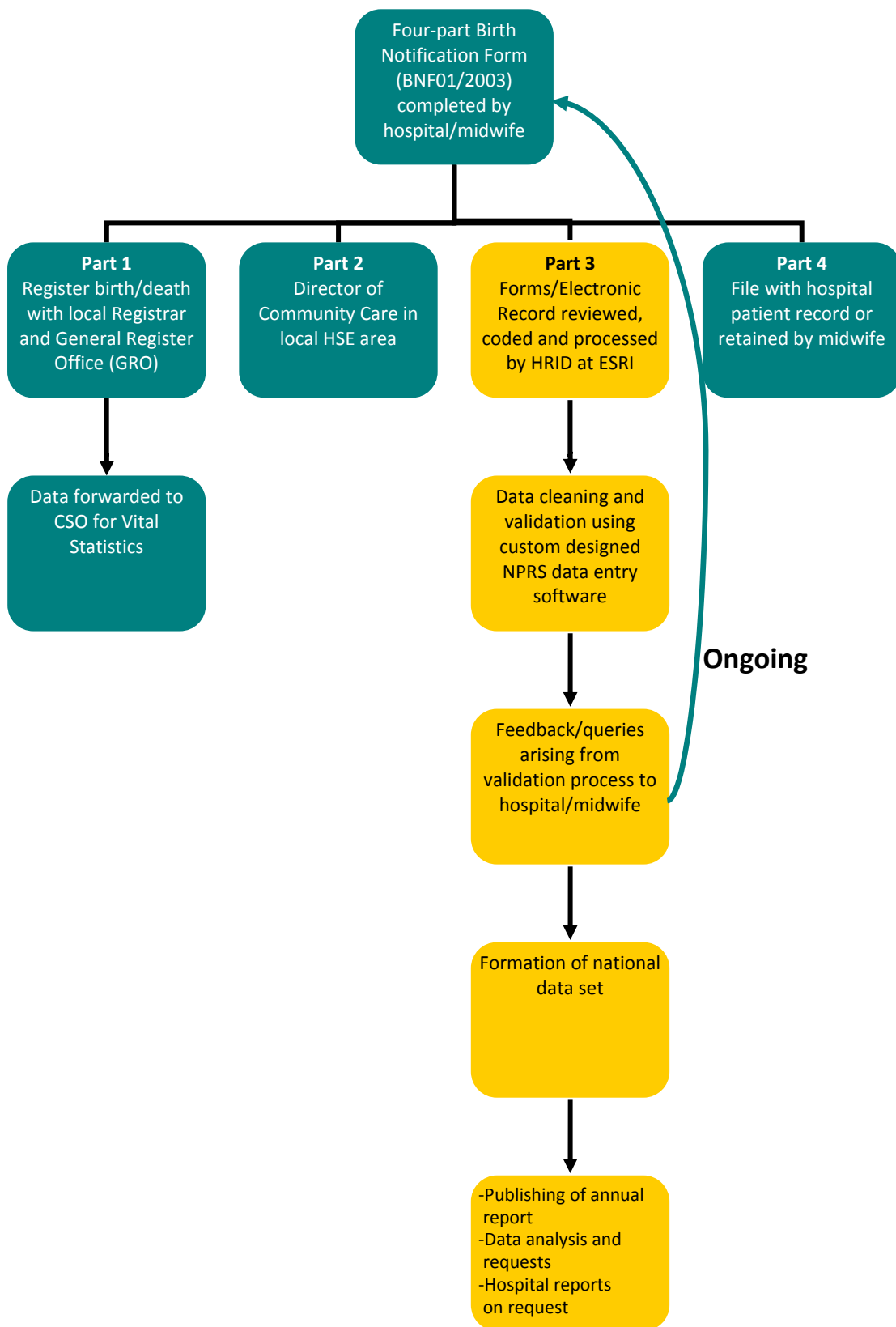
DATA COLLECTION AND QUALITY

The NPRS seeks to compile an accurate, complete and up-to-date data set on perinatal events over a specified time period. The national data sets on perinatal events are produced to the highest professional standards and comply with our commitments to confidentiality, access and timeliness.

The link between the birth notification form and the birth registration process for the General Register Office (GRO) ensures complete coverage of all births for the NPRS (see Figure 1.1). In addition, each birth is recorded using case reference numbers unique to each hospital/maternity unit. Missing records can be identified by using this unique case reference number system. Where a record is found to be missing, a request is made to each hospital/maternity unit to provide the birth notification form for any missing records. Similarly, independent midwives are requested to submit an annual summary of all births attended for a specified year, which is cross checked against the birth notification forms received.

The Information Technology and Support team at the HRID has developed a data entry and validation software system for NPRS data which is custom designed for our processing requirements. Data are received, either in electronic or paper format, from the hospitals/independent midwives and entered onto the NPRS data system. A comprehensive series of edits are built into this software system to check for completeness, validity, logical and coding errors at the point of data entry. The completeness of each record is dependent on those persons responsible for notification and registration of the births in each hospital/maternity unit throughout the country and each independent midwife working in the community.

FIGURE 1.1 NATIONAL PERINATAL REPORTING SYSTEM, DATA COLLECTION



Notes: CSO denotes Central Statistics Office.
HSE denotes Health Service Executive.

SECTION TWO

TIME TRENDS AND INTERNATIONAL COMPARISONS



INTRODUCTION

This section presents data on selected statistics and three key indicators: perinatal mortality, birth rate and fertility. At a national level, data presented here show how these parameters have changed over time. International comparisons then allow the most recent statistics for Ireland to be compared with those for other European countries. The indicators for Ireland were estimated using data from the NPRS for the period 1999 to 2007.

Table 2.1 outlines trends in selected statistics for the period 1999 to 2007. Over the 1999 to 2007 period the average age of all mothers giving birth increased by just over one year from 30.06 years to 31.09 years. For single mothers, the average age increased from 24.74 years in 1999 to 27.06 years in 2007, while the percentage of total births to single mothers increased from 29.73 to 31.84 per cent. Average parity (number of previous live and still births) has declined from 1.10 to 1.00 over the period and the interval in years since delivery of the last birth has remained relatively stable over the period, ranging from 3.81 to 3.87 years. These data indicate that, on average, women giving birth in Ireland are doing so at an older age and having fewer births.

Trends in babies' characteristics have been largely consistent over the period 1999 to 2007. While the average birthweight for singleton births did not record any significant change from year to year, the average birthweight for multiple births varied somewhat. The average birthweight for multiple births ranged from a high of 2,509.85 grams in 2000 to a low of 2,421.36 grams in 2007. The average birthweight for all babies remained stable from one year to the next. The percentage of low birthweight babies showed little variation amongst singleton births but was more variable among multiple births. The percentage of total births recording low birthweights varied from 4.87 per cent in 2000 to 5.26 per cent in 2007.

Other statistics relating to the birth episode and post delivery are also outlined in Table 2.1. Booked admissions have consistently reported high percentages and have steadily increased to over 99 per cent for 2007. The percentages of women choosing combined antenatal care has also increased between 1999 and 2007 reaching a high of 79.01 per cent in 2006 and declining slightly in 2007 to 77.45 per cent. Method of delivery records declining trends for spontaneous and forceps deliveries for both singleton and multiple births, with total spontaneous deliveries falling from 64.46 per cent in 1999 to 57.26 per cent in 2007. The trend in delivery by caesarean section has increased from 20.43 per cent in 1999 to 26.24 per cent in 2007. (See also ESRI Working Paper 309, *Recent Trends in the Caesarean Section Rate in Ireland, 1999-2006*, Brick, A., and Layte, R., ESRI, August 2009.) Average lengths of stay for both mother and baby have declined between 1999 and 2007. Mother's average length of stay was recorded at 4.71 days in 1999 and has fallen steadily to 3.58 days in 2007. The decrease in average length of stay for babies has been less distinct, falling from 4.34 days in 1999 to 3.50 days in 2007. The percentage of women breastfeeding at discharge from hospital has risen from 36.16 per cent in 1999 to 45.22 per cent in 2007.

TABLE 2.1
Trends in Selected Statistics, 1999-2007

Selected Statistics	1999	2000	2001	2002	2003	2004	2005	2006	2007
General Characteristics									
Average Age of Mother in years ¹	30.06	30.18	30.27	30.41	30.58	30.79	31.02	31.04	31.09
Average Maternal Parity ¹	1.10	1.09	1.07	1.06	1.05	1.05	1.05	1.02	1.00
Single Mothers (%) ^{1,2}	29.73	30.09	30.14	30.01	30.20	30.63	30.71	31.53	31.84
Average Age of Single Mothers in years ^{1,2}	24.74	24.98	25.36	25.72	26.10	26.38	26.63	26.82	27.06
Average Number of Previous Stillbirths per 1,000 maternities ¹	14.03	13.06	13.57	12.43	12.02	12.60	12.79	10.57	10.76
Average Weight in grams ³									
- Singleton Births	3,505.35	3,517.27	3,509.36	3,503.73	3,500.64	3,507.96	3,503.23	3,503.93	3,499.33
- Multiple Births	2,467.24	2,509.85	2,470.41	2,489.72	2,487.13	2,471.20	2,469.18	2,464.77	2,421.36
- Total Births	3,477.19	3,491.05	3,476.96	3,474.07	3,471.11	3,476.56	3,471.97	3,473.04	3,465.41
Low Birthweight <2500 grams (%) ³									
- Singleton Births	3.80	3.84	3.84	3.76	3.87	3.71	3.76	3.74	3.79
- Multiple Births	47.71	43.35	46.46	44.18	45.07	45.56	45.62	46.38	50.44
- Total Births	4.99	4.87	5.17	4.94	5.07	4.98	5.02	5.01	5.26
Average Gestational Age at delivery in weeks ¹	39.48	39.46	39.47	39.45	39.44	39.38	39.42	39.40	39.38
Average Interval since last birth in years ¹	3.82	3.84	3.81	3.85	3.78	3.72	3.76	3.84	3.87
Perinatal Care									
Hospital & GP combined antenatal care (%) ¹	72.53	72.43	73.29	74.07	75.86	77.29	77.47	79.01	77.45
Mother's Average Length of Stay in days ⁴	4.71	4.54	4.38	4.09	3.95	3.85	3.84	3.72	3.58
Immunity to Rubella (%) ¹	89.63	87.76	86.84	86.49	87.30	90.49	90.26	92.21	92.36
Booked Hospital Admissions (%) ¹	96.57	96.49	98.17	97.59	97.47	98.14	98.41	98.96	99.01
Mothers Breastfeeding (%) ⁵	36.16	38.41	39.13	41.14	41.32	42.46	44.13	44.45	45.22
Post-mortems for Early Neonatal Deaths (%) ⁶	44.37	39.41	33.55	42.07	41.72	38.16	24.43	26.85	30.77

TABLE 2.1

Trends in Selected Statistics, 1999-2007 (contd.)

Selected Statistics		1999	2000	2001	2002	2003	2004	2005	2006	2007
Perinatal Care										
Method of Delivery (%) ⁷										
	<i>Singleton Births</i>									
-	Spontaneous	65.35	64.56	64.29	63.27	62.24	60.54	60.05	59.80	58.41
-	Caesarean	19.69	20.55	21.05	21.61	23.14	24.23	24.86	24.33	25.03
-	Forceps ⁸	4.27	3.78	3.21	3.19	2.89	2.48	2.85	3.04	3.73
	<i>Multiple Births</i>									
-	Spontaneous	32.33	33.73	29.83	33.62	26.30	28.23	25.51	25.83	21.86
-	Caesarean	47.23	50.31	52.74	49.49	58.33	55.82	60.44	59.78	63.66
-	Forceps ⁸	3.08	2.52	2.71	2.99	1.56	2.34	1.67	2.47	2.75
	<i>Total Births</i>									
-	Spontaneous	64.46	63.76	63.22	62.41	61.20	59.56	59.00	58.79	57.26
-	Caesarean	20.43	21.32	22.04	22.43	24.17	25.19	25.93	25.39	26.24
-	Forceps ⁸	4.24	3.74	3.20	3.18	2.85	2.48	2.82	3.02	3.70
Infant's Average Length of Stay in days ⁹										
-	Singleton Births	4.17	4.08	3.89	3.68	3.62	3.55	3.52	3.47	3.29
-	Multiple Births	10.68	10.73	11.45	10.16	10.09	10.59	10.14	9.85	9.96
-	Total Births	4.34	4.25	4.12	3.87	3.80	3.76	3.72	3.66	3.50

Notes: ¹ 'Not Stated' or 'Not Known' values are not included in the calculation of percentages.
² Based on maternities.

² Data recording marital status as 'never married' are classified as 'single' marital status in this report.

³ Based on live births.

⁴ Based on maternities with live births.

⁵ Based on maternities with live births. Excludes early neonatal deaths.

⁶ Based on early neonatal deaths.

⁷ Based on live births. These figures were not based on total maternities but on total births in order to give a more accurate picture, as each infant in a multiple pregnancy can have a different method of delivery. See Tables 4.7a, 4.7b and 4.8 for data on all Methods of Delivery.

⁸ Excludes breech deliveries.

⁹ Based on live births. Excludes early neonatal deaths.

PERINATAL MORTALITY

In 2007 approximately 1 in every 180 births were stillborn and 1 in every 550 live births died in the first week of life. Despite improvements in reducing perinatal mortality in recent decades, the perinatal period continues to be a time of relatively high risk. Table 2.2 below shows the numbers and rates for total births and perinatal deaths for Ireland from 1999 to 2007. The perinatal mortality rate is the ratio of total stillbirths and early neonatal deaths to total live births and stillbirths, and is expressed as the rate per 1,000 live births and stillbirths. Stillbirths account for almost three quarters of perinatal deaths and are almost three times as common as early neonatal deaths. Set in this context, analysis of the foetal mortality rate is clearly a public health concern. Section 5 of this report focuses on perinatal outcomes in more detail, examining perinatal deaths by birthweight and gestational age, with particular focus on cause of death. In 1999 the perinatal mortality rate was 8.2 per 1,000 live births and stillbirths. This rate peaked at 8.9 per 1,000 in 2000 and declined to a low of 7.0 per 1,000 in 2006. For 2007 the perinatal mortality rate has increased to 7.3 per 1,000 live births and stillbirths (see Figure 2.1). For numbers and rates by singleton and multiple births see 'Singleton and Multiple Births' page 16.

TABLE 2.2

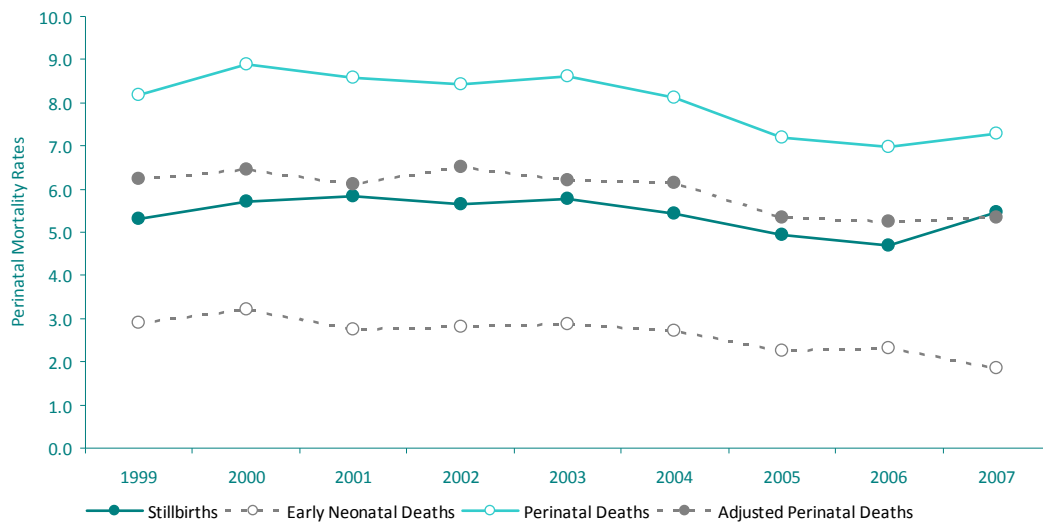
Live Births, Stillbirths, Early Neonatal Deaths, and Perinatal Deaths, Ireland, 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Numbers									
Live Births	54,019	54,871	57,922	60,522	61,632	62,067	61,480	65,502	71,570
Stillbirths	288	315	339	343	357	339	306	308	393
Early Neonatal Deaths	157	176	160	170	177	168	139	152	132
Perinatal Deaths	445	491	499	513	534	507	445	460	525
Adjusted Perinatal Deaths	338	355	356	396	384	382	330	345	383
Rates									
Stillbirths	5.3	5.7	5.8	5.6	5.8	5.4	5.0	4.7	5.5
Early Neonatal Deaths	2.9	3.2	2.8	2.8	2.9	2.7	2.3	2.3	1.8
Perinatal Deaths	8.2	8.9	8.6	8.4	8.6	8.1	7.2	7.0	7.3
Adjusted Perinatal Deaths	6.2	6.4	6.1	6.5	6.2	6.1	5.4	5.3	5.3

Note: See Appendix A for further details on calculation of rates.

FIGURE 2.1

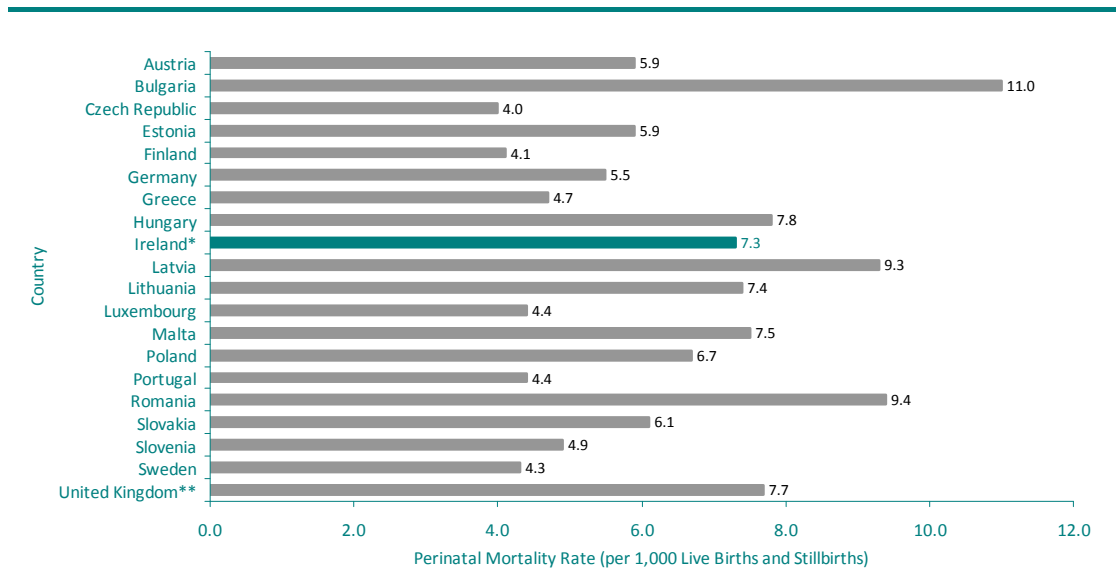
Stillbirth, Early Neonatal and Perinatal Mortality Rates, Ireland, 1999-2007



Note: See Table 2.2 for data.

Figure 2.2 presents the 2007 perinatal mortality rate for 20 European countries. In 2007, Ireland had a comparatively high perinatal mortality rate, 7.3 per 1,000 live births and stillbirths, ranking 13th out of 20 countries included in the Eurostat system. Of these countries, Bulgaria recorded the highest perinatal mortality rate in 2007, at 11.0 per 1,000 live births and stillbirths. The country with the lowest perinatal mortality rate was the Czech Republic at 4.0 per 1,000 live births and stillbirths. When countries are compared it should be remembered that rates are affected by many factors such as national policies on abortion, screening for congenital anomalies, availability of services related to fertility treatment, differences in the comprehensiveness and accuracy of registration and notification systems, and variations in definitions employed (in particular, for stillbirth).

FIGURE 2.2
Perinatal Mortality Rates for Selected EU Countries, 2007



Source: 'Population and Social Conditions', Eurostat, Data Navigation Tree, date consulted August 2009.
<http://epp.eurostat.ec.europa.eu>

* National Figure compiled by NPRS. See Table 2.2 for data.

** *Health Statistics Quarterly* 42, 66. Available on the Office for National Statistics website at:
http://www.statistics.gov.uk/downloads/theme_health/HSQ42.pdf

BIRTH RATES²

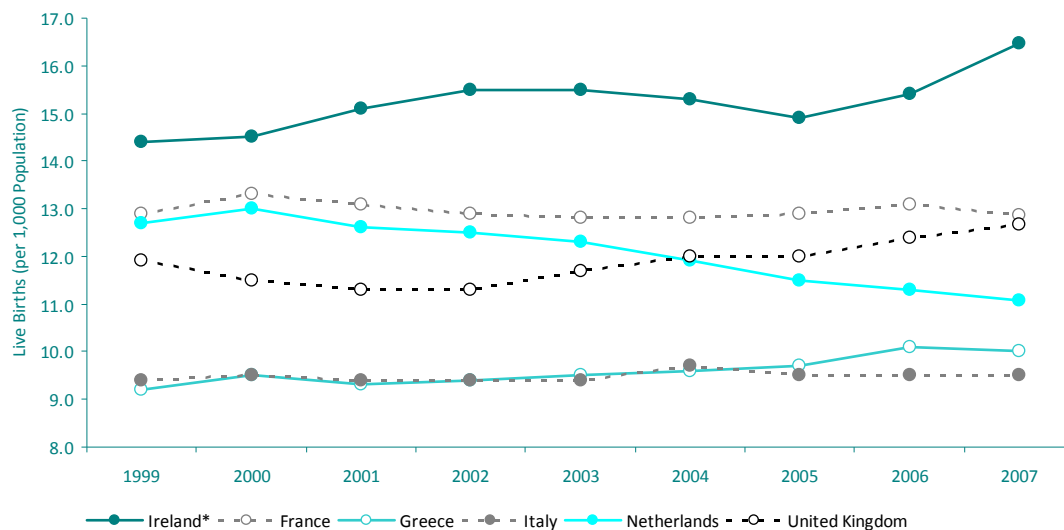
The birth rate is based on the total number of live births per 1,000 population.³ Figure 2.3 shows trends in birth rates for selected EU countries since 1999. For the countries reviewed, Ireland has consistently had the highest birth rate over the period. While Ireland's birth rate was closer to that of other European countries in 1999 and 2000, since then the gap has grown between Ireland and France, the European country closest to Ireland in terms of birth rates. Ireland's birth rate peaked at 15.5 per 1,000 population in 2002 and 2003, declining slightly in 2004 and 2005 and then returning to 15.4 per 1,000 in 2006. In 2007, the birth rate increased substantially to 16.5 per 1,000 population which is the highest recorded rate for the 27 EU countries presented in Figure 2.4.⁴ After Ireland, the country with the next highest birth rate is France (12.9) followed by the United Kingdom (12.7). In 2007, Germany (8.3) had the lowest birth rate with Austria (9.2) next in line.

² It should be noted that the crude birth rate could rise or fall depending on the numbers of women in the age cohorts from 15 to 49 years old. Changes in the crude birth rate often mask underlying trends in fertility. The next section is, therefore, concerned with changes in fertility over time.

³ The population estimates used in the denominator of the birth rate were calculated by the Department of Health and Children and obtained from Ireland and Northern Ireland's Population Health Observatory (INIsPHO) PHIS (Online) Indicators System, <http://www.inispho.org/phis/indicators>, date consulted August 2009. For the Census year 2002, population data from PHIS concur with the Census. Population estimates for 2006 were obtained from *Census 2006*. Population estimates for 2007 were obtained from the Economic and Social Research Institute.

⁴ Provisional data obtained from the Vital Statistics section, CSO estimates the birth rate to be 16.5 for 2007 (personal communication, October 2009).

FIGURE 2.3
Trends in Birth Rates for Selected EU Countries, 1999-2007



Source: 'Population and Social Conditions', Eurostat, Data Navigation Tree, date consulted August 2009. <http://epp.eurostat.ec.europa.eu>
 * Data for Ireland are based on NPRS data on live births from 1999 onwards. Population estimates were obtained from Ireland and Northern Ireland's Population Health Observatory (INISPHO) PHIS (Online) Indicators System, <http://www.inispho.org/phis/indicators>, date consulted August 2009. For the Census year 2002, population data from PHIS concur with the Census. Population estimates for 2006 were obtained from *Census 2006*. Population estimates for 2007 were obtained from the Economic and Social Research Institute.

FIGURE 2.4
Birth Rates per 1,000 Population for EU Countries, 2007



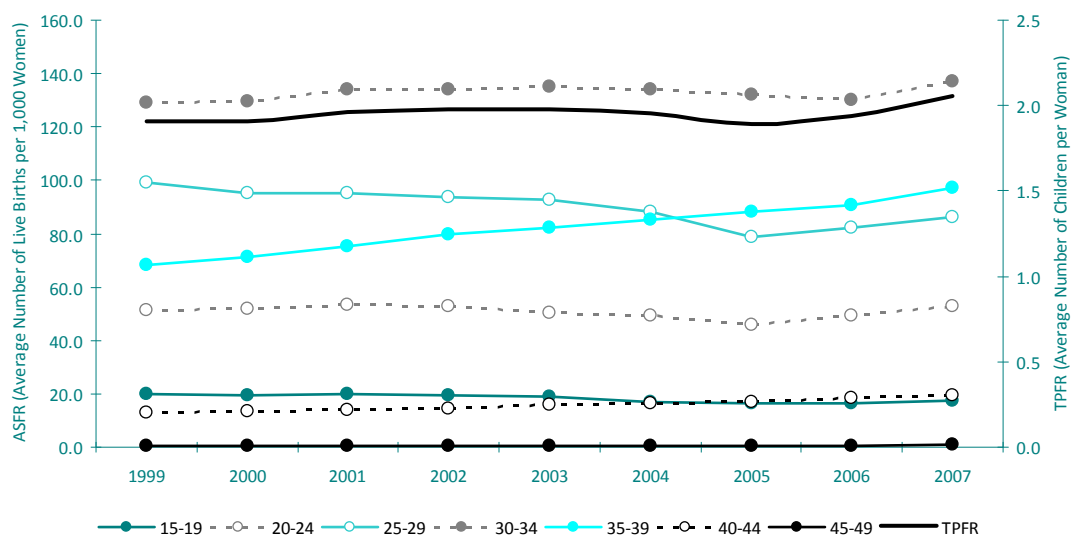
Source: 'Population and Social Conditions', Eurostat, Data Navigation Tree, date consulted August 2009. <http://epp.eurostat.ec.europa.eu>
 * Data for Ireland are based on NPRS data on live births. Population estimates for 2007 were obtained from the Economic and Social Research Institute.

FERTILITY

Figure 2.5 shows the trend in the total period fertility rate (TPFR) in Ireland from 1999 to 2007. The TPFR for a given year indicates the number of children a woman could expect to have if the age-specific fertility rates (ASFR) for that year applied throughout her fertile years.⁵ The Irish TPFR has increased overall from an average of 1.91 in 1999 to 2.06 in 2007, the highest since the early ninties.⁶ The ASFRs used in the calculation of the TPFR, and also shown in Figure 2.5, indicate differences in fertility patterns between younger and older age groups. Compared to 1999, only the age group categories 15 to 19 years and 25 to 29 years recorded lower ASFRs in 2007; all other age group categories recorded higher ASFRs in 2007, some more than others. Women in the older age group categories (35 to 49 years) recorded increased rates each year over the period 1999 to 2007, whilst women in the younger age group categories (15 to 29 years) recorded decreasing rates each year up to 2005, with the 20 to 29 year age groups beginning to increase in 2006. The most significant change noted is for the increase in the ASFR for the 35 to 39 year age group, which in 2007 remains above the 25 to 29 year age group for a third year. Since 2005 the number of live births per 1,000 women has increased for all age group categories, with marked increases for 2007 in particular. In all years the 30 to 34 year age group recorded the highest ASFR. Notably, the ASFR for 40 to 44 year age group remained greater than that reported for the 15 to 19 year age group in 2007, a trend also observed in 2005 and 2006.

FIGURE 2.5

Age-Specific Fertility Rates (ASFRs) and Total Period Fertility Rates (TPFRs), Ireland, 1999-2007



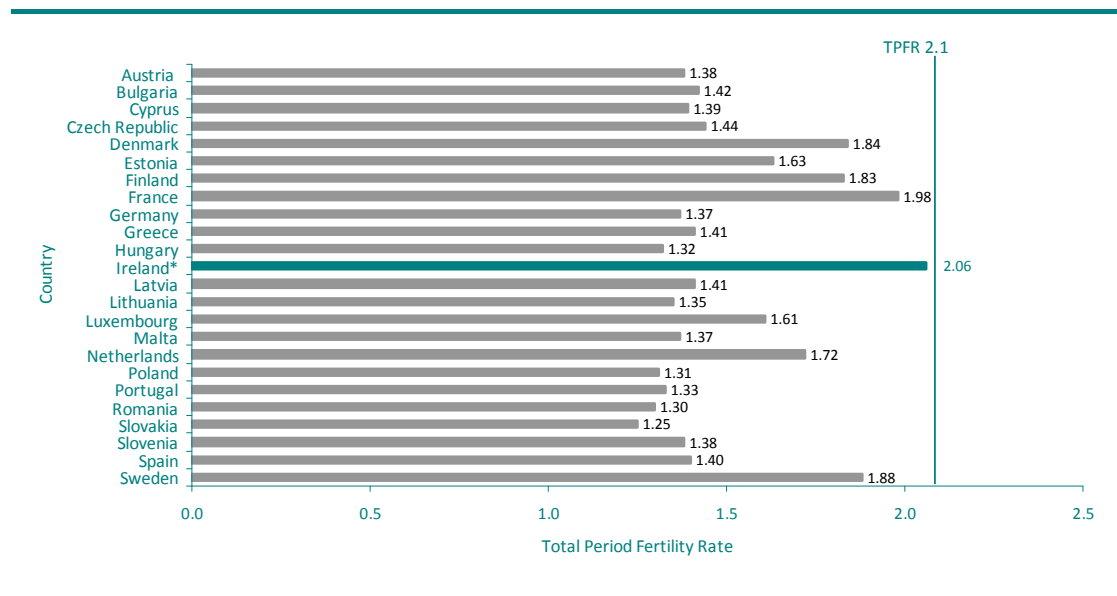
Source: Total period fertility rates (TPFRs) and age-specific fertility rates (ASFRs) are calculated using NPRS data from 1999 onwards. Female population estimates for the years 1999 to 2005 were obtained from Ireland and Northern Ireland's Population Health Observatory (INISPHO) PHIS (Online) Indicators System, <http://www.inispho.org/phis/indicators>, date consulted August 2009. For the Census year 2002, population data from PHIS concur with the Census. Population estimates for 2006 were obtained from *Census 2006*. Population estimates for 2007 were obtained from the Economic and Social Research Institute.

⁵ ASFR is the number of live births to women in a particular age group divided by the female population in that age group, multiplied by 1,000. The TPFR is compiled by summing the ASFRs for the relevant five-year age groups, dividing by 1,000 and multiplying by 5.

⁶ Report on Vital Statistics 2006, Central Statistics Office, Ireland

At 2.06, for the first time since 1999 the TPF_R for Ireland has almost reached the level of 2.1 required for the long-term replacement of the population in the absence of any net inward migration. Using data from Eurostat and the NPRS, Figure 2.6 shows that, for 2007, Ireland had the highest TPF_R in the EU at 2.06, with France just behind with a TPF_R of 1.98. For 2007, Slovakia had the lowest TPF_R (1.25) of the EU countries for which data were available.

FIGURE 2.6
Total Period Fertility Rates for Selected EU Countries, 2007



Source: 'Population and Social Conditions', Eurostat, Data Navigation Tree, date consulted August 2009, <http://epp.eurostat.ec.europa.eu>

* Data for Ireland are based on NPRS data on live births.

Population estimates for 2007 were obtained from the Economic and Social Research Institute.

SINGLETON AND MULTIPLE BIRTHS

Table 2.3 below shows the numbers of singleton and multiple births each year for the period 1999 to 2007. In 2007 there were 69,730 singleton births, 2,192 twin births, 87 triplets, and 4 quadruplets reported to NPRS. Of these, 50 births weighed less than 500 grams: 38 singleton births and 12 multiple births. In accordance with the World Health Organization (WHO) guidelines the National Perinatal data set includes only births weighing 500 grams or more. For the purposes of this report, therefore, there were 69,692 singleton births, 2,185 twin births, 83 triplet births and 3 quadruplet births in 2007. The twinning rate was 15.4 per 1,000 maternities in 2007. Due to the small number of multiple births the twinning rate can vary from year to year. During 1999 to 2007 the average twinning rate was 14.7 per 1,000 maternities.

TABLE 2.3
Singleton and Multiple Births, 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Singleton births	52,830	53,737	56,422	59,071	60,164	60,499	59,902	63,839	69,692
Twin births	1,392	1,397	1,756	1,728	1,747	1,849	1,833	1,916	2,185
Triplet births	85	48	71	54	78	54	47	51	83
Quadruplet births	0	4	7	12	0	4	4	4	3
Quintuplet births	0	0	5	0	0	0	0	0	0
Twinning rate (per 1,000 maternities)	14.8	12.8	15.3	14.4	14.3	15.0	15.1	14.8	15.4

Note: See Appendix A for details on calculation of twinning rate.

The number of stillbirths and early neonatal deaths for singleton and multiple births between 1999 and 2007 is presented in Table 2.4. In all years higher mortality rates are estimated for multiple births when compared to singleton births, though the number for multiple births was small. In 2007, the stillbirth mortality rate for singleton births was 5.4 per 1,000 live births and stillbirths. The early neonatal mortality rate for singleton births was 1.7 per 1,000 live births.

TABLE 2.4
Live Births, Stillbirths and Early Neonatal Deaths, Numbers and Rates, for Singleton and Multiple Births, 1999-2007

	1999	2000	2001	2002	2003	2004	2005	2006	2007
Numbers									
Total Births	54,307	55,186	58,261	60,865	61,989	62,406	61,786	65,810	71,963
Singleton	52,830	53,737	56,422	59,071	60,164	60,499	59,902	63,839	69,692
Multiple	1,477	1,449	1,839	1,794	1,825	1,907	1,884	1,971	2,271
Live Births	54,019	54,871	57,922	60,522	61,632	62,067	61,480	65,502	71,570
Singleton	52,556	53,442	56,115	58,752	59,837	60,186	59,621	63,555	69,318
Multiple	1,463	1,429	1,807	1,770	1,795	1,881	1,859	1,947	2,252
Stillbirths	288	315	339	343	357	339	306	308	393
Singleton	274	295	307	319	327	313	281	284	374
Multiple	14	20	32	24	30	26	25	24	19
Early Neonatal Deaths	157	176	160	170	177	168	139	152	132
Singleton	130	153	136	149	156	140	109	129	118
Multiple	27	23	24	21	21	28	30	23	14
Rates									
Stillbirths	5.3	5.7	5.8	5.6	5.8	5.4	5.0	4.7	5.5
Singleton	5.2	5.5	5.4	5.4	5.4	5.2	4.7	4.4	5.4
Multiple	9.5	13.8	17.4	13.4	16.4	13.6	13.3	12.2	8.4
Early Neonatal Deaths	2.9	3.2	2.8	2.8	2.9	2.7	2.3	2.3	1.8
Singleton	2.5	2.9	2.4	2.5	2.6	2.3	1.8	2.0	1.7
Multiple	18.5	16.1	13.3	11.9	11.7	14.9	16.1	11.8	6.2

Note: See Appendix A for details on calculation of rates.

SECTION THREE

GENERAL CHARACTERISTICS



INTRODUCTION

This section presents more detailed analyses of data reported to the NPRS for 2007. Singleton and multiple births are reported in separate tables. For selected variables, the following tables outline data for live births, stillbirths and early neonatal deaths, together with their corresponding rates. The perinatal mortality rate and adjusted perinatal mortality rate are also outlined in each table. Tables and figures are presented in some detail for a number of variables relating to the mother (age, marital status, occupation, nationality, parity, number of previous stillbirths, and interval since last birth), father (occupation and nationality), and infant (birthweight, gestational age, and month of birth).

MATERNAL AGE

The average maternal age for all births rose from 30.6 to 31.1 years over the five years 2003 to 2007.⁷ The number of total births to mothers aged 19 years and under decreased from 2,880 in 2003 to 2,521 in 2007 (see Tables 3.1a and 3.1b). The percentage of births to mothers aged 19 years and under fell from 4.6 to 3.5 per cent over the five-year period.⁸ The number of births to mothers 35 years or over increased from 14,540 in 2003 to 19,128 in 2007 (see Tables 3.1a and 3.1b), representing an increase from 23.5 to 26.6 per cent of births.

TABLE 3.1a: SINGLETON BIRTHS

Age of Mother

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Age of Mother	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Under 15 Years	10	0.0	0	0.0	0	0.0	0.0	0.0
15-19 Years	2,428	3.5	14	5.7	7	2.9	8.6	5.7
20-24 Years	8,814	12.7	54	6.1	14	1.6	7.7	6.2
25-29 Years	16,258	23.5	82	5.0	22	1.4	6.4	4.9
30-34 Years	23,652	34.1	100	4.2	42	1.8	6.0	4.1
35-39 Years	15,179	21.9	97	6.3	30	2.0	8.3	5.6
40-44 Years	2,858	4.1	20	6.9	3	1.0	8.0	5.9
45 Years and Over	103	0.1	1	9.6	0	0.0	9.6	0.0
Not Stated	16	0.0	6	272.7	0	0.0	272.7	272.7
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

TABLE 3.1b: MULTIPLE BIRTHS

Age of Mother

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Age of Mother	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
15-19 Years	69	3.1	0	0.0	1	14.5	14.5	14.5
20-24 Years	125	5.6	1	7.9	4	32.0	39.7	39.7
25-29 Years	359	15.9	1	2.8	0	0.0	2.8	2.8
30-34 Years	841	37.3	5	5.9	6	7.1	13.0	9.5
35-39 Years	707	31.4	12	16.7	3	4.2	20.9	19.5
40-44 Years	140	6.2	0	0.0	0	0.0	0.0	0.0
45 Years and Over	11	0.5	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

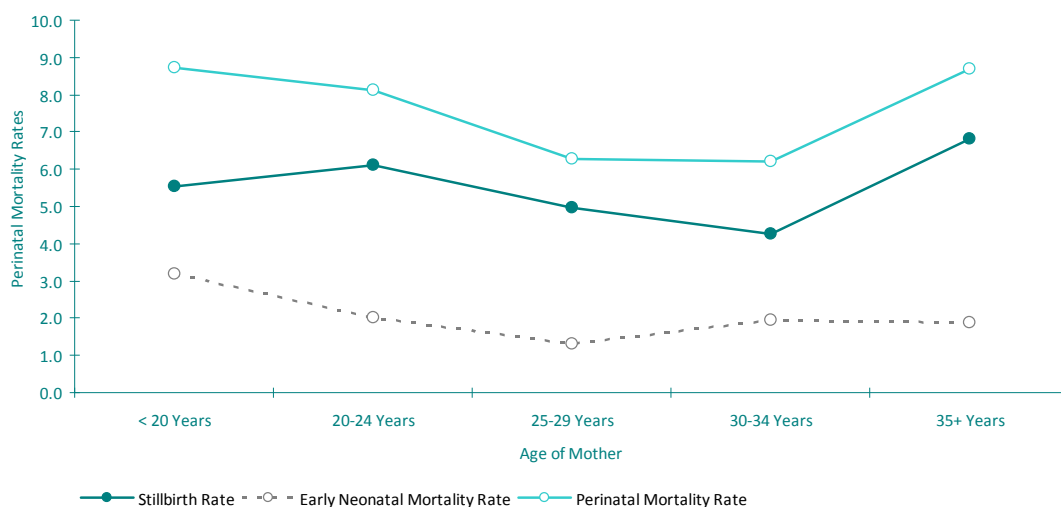
⁷ For data on 2003, see *Report on Perinatal Statistics for 2003*, The Economic and Social Research Institute, December 2006.

⁸ Throughout this section, 'Not Stated' values are not included in the calculation of percentages for discussion.

When we examine perinatal mortality rates by mother's age, the importance of focusing on both early and late childbearing becomes apparent. As highlighted in Figure 3.1, perinatal mortality rates are highest for mothers aged 19 years and under and 35 years and over, with a rate of 8.7 per 1,000 live births and stillbirths for both categories. The lowest stillbirth and total perinatal mortality rates were recorded in the 30-34 year age group (4.3 and 6.2 per 1,000 live births and stillbirths respectively). Rates for early neonatal mortality were fairly consistent for mothers aged over 20 years, with slightly higher rates recorded for mothers aged 19 years and under.

FIGURE 3.1

Age-Specific Stillbirth, Early Neonatal and Perinatal Mortality Rates, Total Births, 2007



Note: See Appendix H, Table H1 for data.

MOTHER'S MARITAL STATUS

The distribution of total births by mother's marital status has remained fairly consistent in recent years with over two-thirds to married women, and just under one third to single women (see Figure 3.2).⁹ In the case of multiple births, these proportions differ; just over 74 per cent of multiple births were to married women (see Table 3.2b). Although a very small proportion of total births, the percentage of births to mothers whose marital status is 'divorced' is increasing, and has doubled from 0.3 per cent of total births in 2003 to 0.6 per cent of total births in 2007 (see Figure 3.2). The distribution of single mothers by mother's area of residence is shown in Figure 3.3. Dublin City recorded the highest percentage of single mothers at just over 40 per cent, and was followed by counties Louth, Wexford and Tipperary South recording between 36 and 40 per cent. Galway recorded the lowest number of single mothers at 24.2 per cent and was closely followed by Roscommon at 24.3 per cent.¹⁰

⁹ Data recording marital status as 'never married' are classified as 'single' marital status in discussion in this report.

¹⁰ Percentages of single mothers by county will be affected by the female age populations for each county.

TABLE 3.2a: SINGLETON BIRTHS

Mother's Marital Status

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Marital Status	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Married	45,897	66.2	220	4.8	77	1.7	6.4	4.3
Never Married	22,142	31.9	143	6.4	40	1.8	8.2	6.7
Widowed	87	0.1	0	0.0	0	0.0	0.0	0.0
Separated	789	1.1	9	11.3	1	1.3	12.5	8.8
Divorced	399	0.6	1	2.5	0	0.0	2.5	2.5
Not Stated	4	0.0	1	200.0	0	0.0	200.0	200.0
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

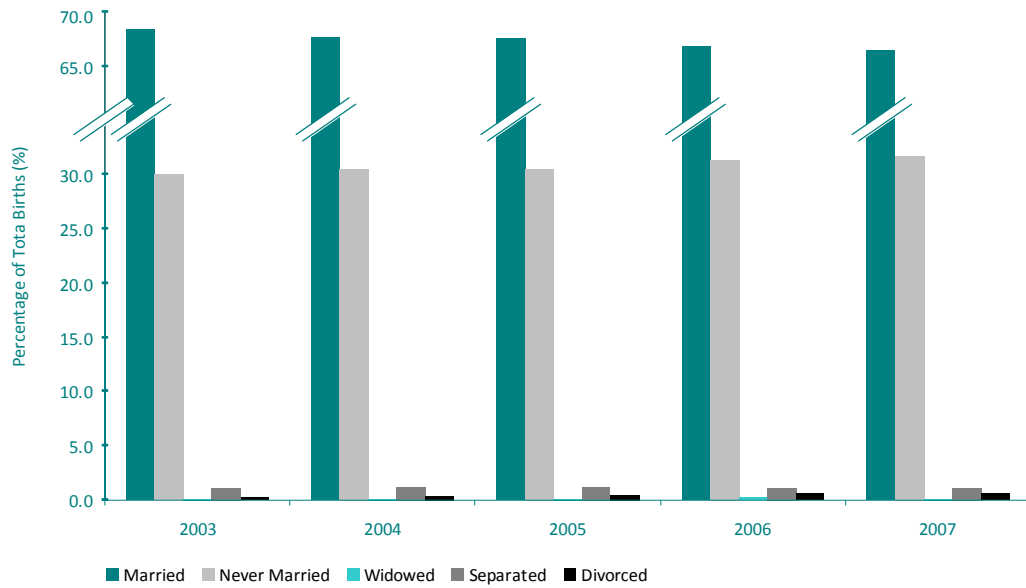
TABLE 3.2b: MULTIPLE BIRTHS

Mother's Marital Status

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

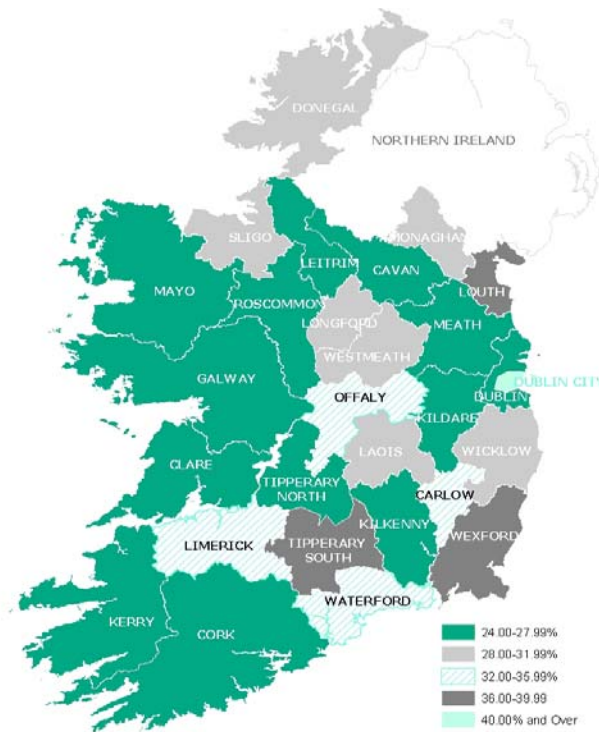
Mother's Marital Status	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Married	1,668	74.1	15	8.9	9	5.4	14.3	11.9
Never Married	531	23.6	3	5.6	5	9.4	15.0	15.0
Widowed	2	0.1	0	0.0	0	0.0	0.0	0.0
Separated	28	1.2	1	34.5	0	0.0	34.5	34.5
Divorced	22	1.0	0	0.0	0	0.0	0.0	0.0
Not Stated	1	0.0	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

FIGURE 3.2
Percentage of Births by Mother’s Marital Status, Total Births, 2003-2007



Note: See Appendix H, Table H2 for data. ‘Not Stated’ values are not included in the calculation of percentages.

FIGURE 3.3
Percentage of Births to Single Mothers by Mother’s County of Residence, Total Births, 2007



Notes: See Appendix H, Table H3 for data. ‘Not Stated’ values are not included in the calculation of percentages.
Example: Of all births to mothers resident in Carlow, 35.7% were to single mothers.

OCCUPATION

MOTHER'S OCCUPATION

Almost half of total births were to mothers whose occupation was recorded as either 'home duties' (23.6 per cent) or 'intermediate non-manual workers' (22.9 per cent). The occupations with the next highest percentage of births were 'lower professional', reported as 13.9 per cent of total births and 'other non-manual workers', reported as 12.5 per cent of total births (see Tables 3.3a and 3.3b). Where rates are calculated on more than 20 observations, the occupations recording the highest perinatal mortality rates were 'unemployed' and 'home duties' (see Figure 3.4).

TABLE 3.3a: SINGLETON BIRTHS

Mother's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Farmers & Farm Managers	65	0.1	2	29.9	0	0.0	29.9	29.9
Other Agricultural Occupations & Fishermen	89	0.1	0	0.0	0	0.0	0.0	0.0
Higher Professional	4,168	6.0	21	5.0	7	1.7	6.7	4.1
Lower Professional	9,540	13.8	40	4.2	17	1.8	5.9	4.1
Employers & Managers	4,954	7.1	21	4.2	9	1.8	6.0	3.6
Salaried Employees	1,040	1.5	7	6.7	3	2.9	9.6	5.8
Intermediate Non-Manual Workers	15,806	22.8	59	3.7	21	1.3	5.0	3.7
Other Non-Manual Workers	8,667	12.5	41	4.7	9	1.0	5.7	4.4
Skilled Manual Workers	1,238	1.8	5	4.0	2	1.6	5.6	4.8
Semi-Skilled Manual Workers	2,385	3.4	15	6.3	4	1.7	7.9	5.8
Unskilled Manual Workers	7	0.0	0	0.0	0	0.0	0.0	0.0
Unemployed	2,306	3.3	27	11.6	4	1.7	13.3	10.7
Not Classifiable	2,595	3.7	20	7.6	5	1.9	9.6	7.7
Home Duties	16,315	23.5	111	6.8	36	2.2	8.9	6.5
Not Stated	143	0.2	5	33.8	1	7.0	40.5	34.0
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

Note: See Appendix C for a description of the classification system for occupation.

TABLE 3.3b: MULTIPLE BIRTHS

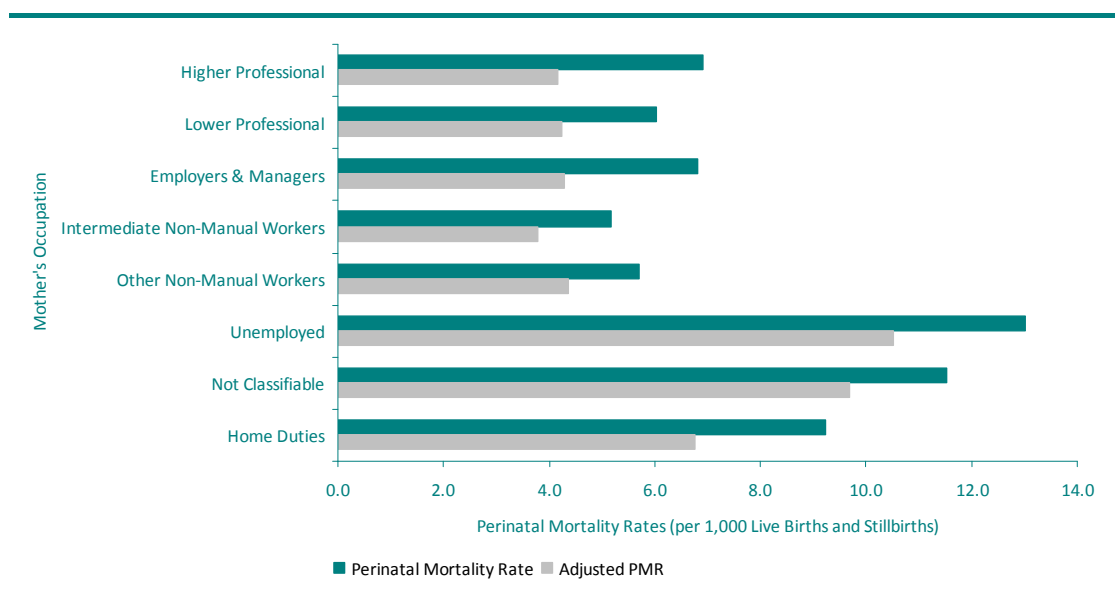
Mother's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Other Agricultural Occupations & Fishermen	4	0.2	0	0.0	0	0.0	0.0	0.0
Higher Professional	155	6.9	2	12.7	0	0.0	12.7	6.4
Lower Professional	365	16.2	3	8.2	0	0.0	8.2	8.2
Employers & Managers	167	7.4	1	6.0	4	24.0	29.8	24.0
Salaried Employees	45	2.0	0	0.0	0	0.0	0.0	0.0
Intermediate Non-Manual Workers	565	25.1	3	5.3	2	3.5	8.8	7.1
Other Non-Manual Workers	237	10.5	1	4.2	0	0.0	4.2	4.2
Skilled Manual Workers	45	2.0	0	0.0	1	22.2	22.2	22.2
Semi-Skilled Manual Workers	63	2.8	1	15.6	0	0.0	15.6	15.6
Unemployed	48	2.1	0	0.0	0	0.0	0.0	0.0
Not Classifiable	71	3.2	3	40.5	3	42.3	81.1	81.1
Home Duties	480	21.3	5	10.3	4	8.3	18.6	16.5
Not Stated	7	0.3	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

Note: See note to Table 3.3a.

FIGURE 3.4
Perinatal Mortality Rates by Mother's Occupation, Total Births, 2007



Note: See Appendix H, Table H4 for data. Rates based on 20 or less observations are not included in this Figure.

FATHER'S OCCUPATION¹¹

For over one-quarter of total births, the father's occupation was recorded as 'skilled manual workers'. Apart from 'not applicable', the next highest occupational grouping, 'other non-manual workers', was recorded as 9.6 per cent of total births (see Tables 3.4a and 3.4b). Where rates are calculated on more than 20 observations, the occupations recording the highest perinatal mortality rates were amongst the lower socio-economic groups, where father's occupations were recorded as either 'unemployed' or 'semi-skilled manual workers' (see Figure 3.5).

The similar pattern observed among perinatal mortality rates for both mother and father's occupation indicate that socio economic grouping may have a bearing on perinatal outcomes. For further discussion and analysis see Working Paper 312, Layte, R., and Clyne, B., *Did the Celtic Tiger Decrease Socio-Economic Differentials in Perinatal Mortality in Ireland?* ESRI, September 2009.

¹¹ The occupation category 'Not applicable' applies to father's occupation only. Where mother's marital status is recorded as 'never married', 'widowed', 'separated' or 'divorced', the GRO does not require father's details to register the birth. This information, therefore, is generally not provided in these circumstances. Where father's details are provided, they are included in the statistics.

TABLE 3.4a: SINGLETON BIRTHS

Father's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Father's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Farmers & Farm Managers	2,101	3.0	9	4.3	5	2.4	6.6	4.3
Other Agricultural Occupations & Fishermen	712	1.0	4	5.6	0	0.0	5.6	5.6
Higher Professional	5,314	7.7	22	4.1	6	1.1	5.2	3.2
Lower Professional	3,280	4.7	17	5.2	5	1.5	6.7	4.9
Employers & Managers	5,710	8.2	21	3.7	7	1.2	4.9	3.5
Salaried Employees	1,506	2.2	5	3.3	1	0.7	4.0	2.7
Intermediate Non-Manual Workers	5,471	7.9	27	4.9	9	1.6	6.5	4.9
Other Non-Manual Workers	6,590	9.5	32	4.8	9	1.4	6.2	4.4
Skilled Manual Workers	17,416	25.1	59	3.4	27	1.6	4.9	3.4
Semi-Skilled Manual Workers	3,106	4.5	14	4.5	8	2.6	7.1	4.2
Unskilled Manual Workers	822	1.2	4	4.8	2	2.4	7.3	2.4
Unemployed	2,107	3.0	17	8.0	5	2.4	10.4	6.6
Not Classifiable	1,544	2.2	8	5.2	2	1.3	6.4	5.8
Not Applicable	13,182	19.0	120	9.0	31	2.4	11.4	9.2
Home Duties	71	0.1	1	13.9	0	0.0	13.9	0.0
Not Stated	386	0.6	14	35.0	1	2.6	37.5	22.8
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

Note: See Appendix C for a description of the classification system for occupation.

TABLE 3.4b: MULTIPLE BIRTHS

Father's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Father's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Farmers & Farm Managers	62	2.8	0	0.0	0	0.0	0.0	0.0
Other Agricultural Occupations & Fishermen	16	0.7	0	0.0	0	0.0	0.0	0.0
Higher Professional	193	8.6	3	15.3	0	0.0	15.3	10.3
Lower Professional	107	4.8	0	0.0	0	0.0	0.0	0.0
Employers & Managers	222	9.9	2	8.9	3	13.5	22.3	9.0
Salaried Employees	72	3.2	0	0.0	0	0.0	0.0	0.0
Intermediate Non-Manual Workers	222	9.9	2	8.9	0	0.0	8.9	8.9
Other Non-Manual Workers	219	9.7	0	0.0	0	0.0	0.0	0.0
Skilled Manual Workers	517	23.0	5	9.6	4	7.7	17.2	17.2
Semi-Skilled Manual Workers	105	4.7	1	9.4	0	0.0	9.4	9.4
Unskilled Manual Workers	21	0.9	0	0.0	0	0.0	0.0	0.0
Unemployed	69	3.1	0	0.0	0	0.0	0.0	0.0
Not Classifiable	38	1.7	0	0.0	0	0.0	0.0	0.0
Not Applicable	360	16.0	3	8.3	5	13.9	22.0	22.0
Home Duties	5	0.2	0	0.0	0	0.0	0.0	0.0
Not Stated	24	1.1	3	111.1	2	83.3	185.2	185.2
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

Note: See note to Table 3.4a.

FIGURE 3.5
Perinatal Mortality Rates by Father's Occupation, Total Births, 2007



Note: See Appendix H, Table H5 for data. Rates based on 20 or less observations are not included in this Figure.

NATIONALITY

MOTHER'S NATIONALITY

Information on mother's nationality was reported for the first time in 2004. For the purposes of this report mother's nationality is recorded as 'place of birth'. See Appendix F for a detailed description on classification of nationality. In 2004, 84.4 per cent of total births were to women born in Ireland;¹² this figure fell to 79.3 per cent in 2007 (see Tables 3.5a and 3.5b). Babies born to mothers from the EU15 to EU27 accession states accounted for 7.2 per cent of births in 2007.¹³ Figure 3.6 shows the percentage of total births by nationality of mothers accounting for the majority of total births to non-Irish mothers in 2007. Between 2004 and 2007 the percentage of total births to mothers within the EU15 to EU27 accession states category increased from less than 1 per cent to over 7 per cent whilst births to mothers from Africa decreased from 5.6 per cent to 3.6 per cent. Births to mothers from the UK remained relatively stable over this time period and births to mothers from Asia increased from 2.5 per cent to 3.6 per cent of total births (see Figure 3.6).

In 2007, higher mortality rates were recorded for babies born to mothers from Africa (10.5 per 1,000 live births and stillbirths) when compared to births to Irish mothers at 7.1 per 1,000 live births and stillbirths. Lower mortality rates were reported, however, for babies born to mothers from the EU15 to EU27 accession states, 5.7 per 1,000 live births and stillbirths (see Tables 3.5a and 3.5b).

The average maternal age for total births in 2007 is 31.1 years and, as demonstrated in Figure 3.7, there is some variation when mother's age is examined across nationality groups. Mothers from the EU15 to EU27 accession group are on average younger at 27.0 years, as were mothers from the rest of Europe (29.3 years). Mother's from the EU15 (excluding Ireland and UK) and Australia recorded the highest average maternal age at 32.5 years and 32.4 years respectively. For most other nationalities, the average age was closer to the average age for total births.

¹² For data on 2004, see *Report on Perinatal Statistics for 2004*, The Economic and Social Research Institute, December 2007.

¹³ In previous reports, prior to the accession of Bulgaria and Romania to the EU, this category was titled EU15 to EU25 accession states. On 1 January 2007, Bulgaria and Romania joined the European Union, giving 27 Member States. In 2007, less than 1 per cent of total births were to mothers whose nationality was recorded as either Bulgarian or Romanian.

TABLE 3.5a: SINGLETON BIRTHS

Mother's Nationality

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Nationality	Live Births	Per Cent (%) Live Births	Per Cent (%) Live Births by Mother's Marital Status			Stillbirths	Per Cent (%) Stillbirths	Per Cent (%) Stillbirths by Mother's Marital Status			Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
			Married	Never Married	Other*			Married	Never Married	Other*					
Ireland	54,714	78.9	52.4	25.4	1.2	297	79.4	44.9	31.8	2.7	5.4	91	1.7	7.1	5.0
UK	2,053	3.0	1.8	1.1	0.1	7	1.9	1.6	0.3	0.0	3.4	4	1.9	5.3	3.9
EU15 (excluding Ireland & UK)	931	1.3	0.8	0.5	0.0	1	0.3	0.0	0.3	0.0	1.1	1	1.1	2.1	2.1
EU15 to EU27 Accession States	5,022	7.2	4.0	3.0	0.3	25	6.7	3.7	2.7	0.3	5.0	4	0.8	5.7	4.8
Rest of Europe	642	0.9	0.7	0.2	0.0	2	0.5	0.5	0.0	0.0	3.1	2	3.1	6.2	4.7
Africa	2,470	3.6	2.5	0.9	0.1	18	4.8	3.2	1.6	0.0	7.2	8	3.2	10.5	8.1
Asia	2,546	3.7	3.0	0.6	0.1	13	3.5	2.9	0.5	0.0	5.1	5	2.0	7.0	5.5
America	639	0.9	0.7	0.2	0.0	4	1.1	0.8	0.3	0.0	6.2	1	1.6	7.8	7.8
Australia	100	0.1	0.1	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
New Zealand and Other Oceania	40	0.1	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Other Nationality	12	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Not Stated	149	0.2	0.1	0.1	0.0	7	1.9	1.1	0.8	0.0	44.9	2	13.4	57.7	39.2
Total	69,318	100	66.2	31.9	1.8	374	100	58.8	38.2	2.9	5.4	118	1.7	7.1	5.1

Notes: * Includes; divorced, married but separated, widowed, and not stated.
See Appendix F for a description of the classification system used for nationality.

TABLE 3.5b MULTIPLE BIRTHS

Mother's Nationality

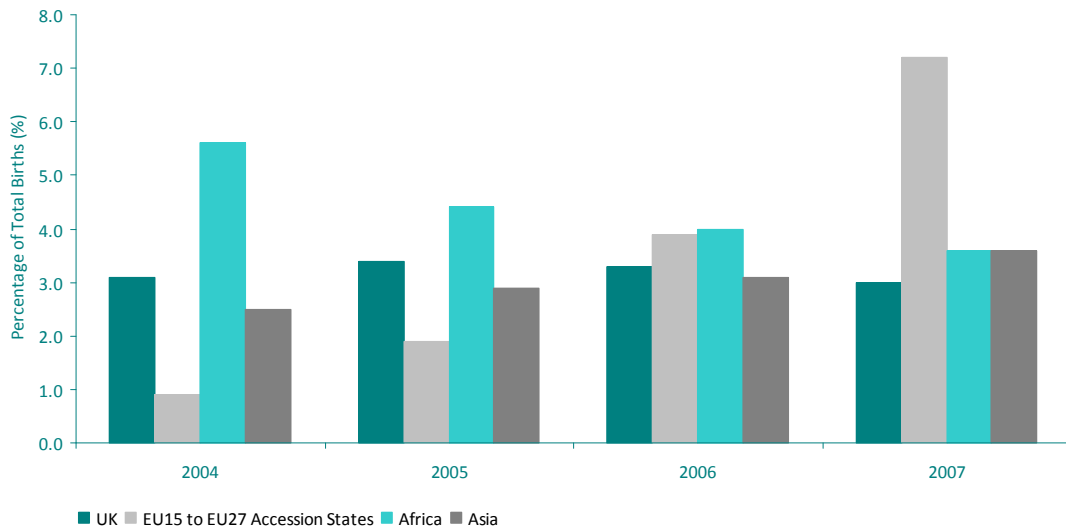
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Nationality	Live Births	Per Cent (%) Live Births	Per Cent (%) Live Births by Mother's Marital Status			Stillbirths	Per Cent (%) Stillbirths	Per Cent (%) Stillbirths by Mother's Marital Status			Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
			Married	Never Married	Other*			Married	Never Married	Other*					
Ireland	1,877	83.3	63.2	18.6	1.6	16	84.2	68.4	10.5	5.3	8.5	13	6.9	15.3	13.2
UK	58	2.6	1.6	1.0	0.0	1	5.3	5.3	0.0	0.0	16.9	0	0.0	16.9	16.9
EU15 (excluding Ireland & UK)	34	1.5	0.9	0.6	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
EU15 to EU27 Accession States	107	4.8	2.3	1.9	0.5	1	5.3	0.0	5.3	0.0	9.3	1	9.3	18.5	18.5
Rest of Europe	16	0.7	0.7	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Africa	95	4.2	3.0	1.1	0.1	1	5.3	5.3	0.0	0.0	10.4	0	0.0	10.4	10.4
Asia	41	1.8	1.6	0.3	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
America	14	0.6	0.5	0.1	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Australia	6	0.3	0.3	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Not Stated	4	0.2	0.0	0.1	0.1	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Total	2,252	100	74.1	23.6	2.4	19	100	78.9	15.8	5.3	8.4	14	6.2	14.5	12.8

Notes: * Includes; divorced, married but separated, widowed, and not stated.
See note to Table 3.5a.

FIGURE 3.6

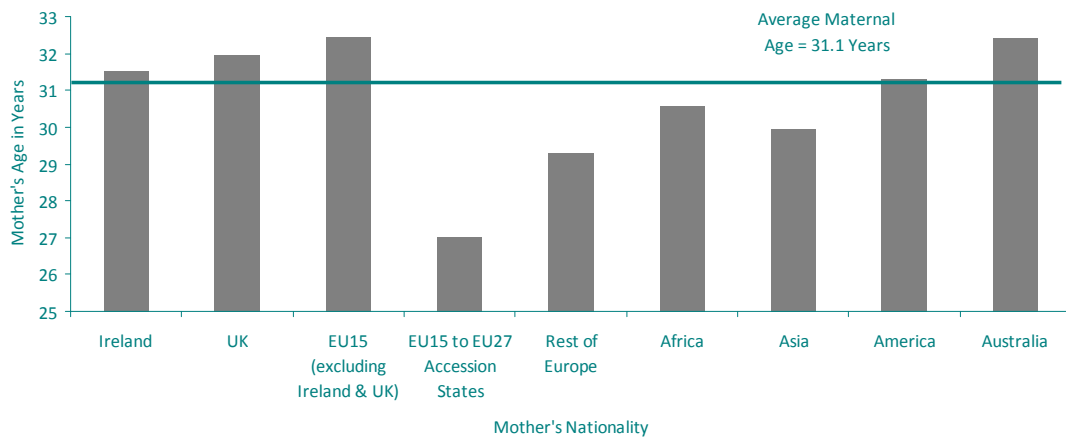
Percentage of Births by Nationality for Non-Irish Mothers, Total Births, 2004-2007*



Notes: See Appendix H, Table H6 for data. 'Not Stated' values are not included in the calculation of percentages. On 1 January 2007, Bulgaria and Romania joined the European Union, giving 27 Member States. Prior to 2007 there were 25 Member States in the European Union. In 2007, less than 1 per cent of total births were to mothers whose nationality was recorded as either Bulgarian or Romanian. *Mothers from the UK, EU15 to EU27 Accession States, Africa, and Asia accounted for 17.4 per cent of total births in 2007.

FIGURE 3.7

Average Age of Mother by Mother's Nationality, Total Births, 2007



Note: See Appendix H, Table H7 for data.

FATHER'S NATIONALITY

Information on father's nationality (place of birth) was also reported for the first time in 2004 and 2007 data is shown in Tables 3.6a and 3.6b. See Appendix F for a detailed description on classification of nationality. Father's nationality was recorded as 'not applicable' for over 23 per cent of all births, decreasing from 28.4 per cent in 2004.¹⁴ Excluding these births, the largest proportion, 79.8 per cent of total births, occurred to Irish fathers, compared to 84.4 per cent in 2004. Father's nationality shows a similar pattern to mother's nationality, with the next highest proportions of births occurring to fathers from EU15 to EU27 accession states (6 per cent), followed by fathers from Africa (3.9 per cent).

¹⁴ The nationality category 'Not applicable' applies under father's nationality only. Where mother's marital status is recorded as 'never married', 'widowed', 'separated' or 'divorced', the GRO does not require father's details to register the birth. This information, therefore, is generally not provided in these circumstances. Where father's details are provided, they are included in the statistics.

For data on 2004, see *Report on Perinatal Statistics for 2004*, The Economic and Social Research Institute, December 2007.

TABLE 3.6a: SINGLETON BIRTHS

Father's Nationality

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Father's Nationality	Live Births	Per Cent (%) Live Births	Per Cent (%) Live Births by Mother's Marital Status			Stillbirths	Per Cent (%) Stillbirths	Per Cent (%) Stillbirths by Mother's Marital Status			Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
			Married	Never Married	Other*			Married	Never Married	Other*					
Ireland	41,853	60.4	52.1	7.8	0.5	182	48.7	41.2	7.0	0.5	4.3	59	1.4	5.7	3.8
UK	1,806	2.6	2.1	0.5	0.1	9	2.4	1.6	0.5	0.3	5.0	2	1.1	6.1	2.8
EU15 (excluding Ireland & UK)	506	0.7	0.6	0.1	0.0	1	0.3	0.3	0.0	0.0	2.0	1	2.0	3.9	2.0
EU15 to EU27 Accession States	3,206	4.6	3.7	0.8	0.1	10	2.7	2.7	0.0	0.0	3.1	1	0.3	3.4	3.1
Rest of Europe	508	0.7	0.7	0.0	0.0	4	1.1	0.8	0.3	0.0	7.8	1	2.0	9.8	9.8
Africa	2,060	3.0	2.8	0.2	0.0	12	3.2	3.2	0.0	0.0	5.8	6	2.9	8.7	6.3
Asia	1,971	2.8	2.8	0.1	0.0	13	3.5	3.2	0.3	0.0	6.6	5	2.5	9.1	7.6
America	476	0.7	0.6	0.1	0.0	4	1.1	1.1	0.0	0.0	8.3	1	2.1	10.4	8.4
Australia	105	0.2	0.1	0.0	0.0	1	0.3	0.3	0.0	0.0	9.4	3	28.6	37.7	28.6
New Zealand and Other Oceania	73	0.1	0.1	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Multi-Nationality	1	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Other Nationality	3	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Not Stated	455	0.7	0.7	0.0	0.0	18	4.8	4.5	0.0	0.3	38.1	5	11.0	48.6	28.1
Not Applicable	16,295	23.5	0.0	22.4	1.1	120	32.1	0.0	30.2	1.9	7.3	34	2.1	9.4	7.6
Total	69,318	100	66.2	31.9	1.8	374	100	58.8	38.2	2.9	5.4	118	1.7	7.1	5.1

Notes: * Includes; divorced, married but separated, widowed, and not stated.
See Appendix F for a description of the classification system used for nationality.

TABLE 3.6b: MULTIPLE BIRTHS

Father's Nationality

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Father's Nationality	Live Births	Per Cent (%) Live Births	Per Cent (%) Live Births by Mother's Marital Status			Stillbirths	Per Cent (%) Stillbirths	Per Cent (%) Stillbirths by Mother's Marital Status			Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
			Married	Never Married	Other*			Married	Never Married	Other*					
Ireland	1,513	67.2	61.5	5.0	0.6	12	63.2	63.2	0.0	0.0	7.9	9	5.9	13.8	11.2
UK	64	2.8	2.6	0.3	0.0	1	5.3	5.3	0.0	0.0	15.4	0	0.0	15.4	15.4
EU15 (excluding Ireland & UK)	32	1.4	1.2	0.2	0.1	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
EU15 to EU27 Accession States	67	3.0	2.3	0.6	0.1	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Rest of Europe	14	0.6	0.5	0.0	0.1	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Africa	59	2.6	2.5	0.0	0.1	1	5.3	5.3	0.0	0.0	16.7	0	0.0	16.7	16.7
Asia	28	1.2	1.2	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
America	14	0.6	0.6	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Australia	6	0.3	0.3	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0	0.0	0.0	0.0
Not Stated	31	1.4	1.4	0.0	0.0	1	5.3	5.3	0.0	0.0	31.3	0	0.0	31.3	31.3
Not Applicable	424	18.8	0.0	17.5	1.3	4	21.1	0.0	15.8	5.3	9.3	5	11.8	21.0	21.0
Total	2,252	100	74.1	23.6	2.4	19	100	78.9	15.8	5.3	8.4	14	6.2	14.5	12.8

Notes: * Includes; divorced, married but separated, widowed, and not stated.
See note to Table 3.6a.

MATERNAL PARITY

Maternal parity is a mother's total number of previous live births and stillbirths. Almost 42 per cent of total births in 2007 were to primiparous women¹⁵ and 31.9 per cent were to women who had one previous live birth or stillbirth (see Tables 3.7a and 3.7b).

Over the period 2003 to 2007, the average maternal age rose from 28.2 to 28.9 years for primiparous mothers and from 32.2 to 32.7 years for multiparous mothers.¹⁶ During this five year period the proportion of mothers giving birth for the first time and aged 35 years or more increased from 12 to 14.5 per cent, while the proportion of multiparous mothers aged 35 years or more increased from 31.3 to 35.3 per cent (see Figures 3.8 and 3.9).

Maternal parity by mother's age for 2007 is shown in Figure 3.10. Over 90 per cent of mothers aged less than 20 years gave birth for the first time with only 7.8 per cent delivering for the second time and 0.8 per cent delivering more than a third time. A closer to equal distribution was observed for mothers aged between 30 and 34 years giving birth for the first and second time. As expected, mothers aged 40 years or more were relatively evenly distributed for first, second and third time deliveries.

TABLE 3.7a: SINGLETON BIRTHS

Maternal Parity

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Maternal Parity	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0	28,998	41.8	178	6.1	47	1.6	7.7	6.0
1	22,092	31.9	97	4.4	36	1.6	6.0	4.1
2	11,554	16.7	45	3.9	26	2.3	6.1	4.1
3	4,317	6.2	26	6.0	5	1.2	7.1	4.2
4	1,393	2.0	16	11.4	3	2.2	13.5	9.3
5	543	0.8	4	7.3	1	1.8	9.1	7.3
6	220	0.3	5	22.2	0	0.0	22.2	13.5
More than 6	183	0.3	3	16.1	0	0.0	16.1	10.8
Not Stated	18	0.0	0	0.0	0	0.0	0.0	0.0
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

¹⁵ Women giving birth for the first time

¹⁶ Women who have had at least one previous pregnancy resulting in a live birth or stillbirth

TABLE 3.7b: MULTIPLE BIRTHS

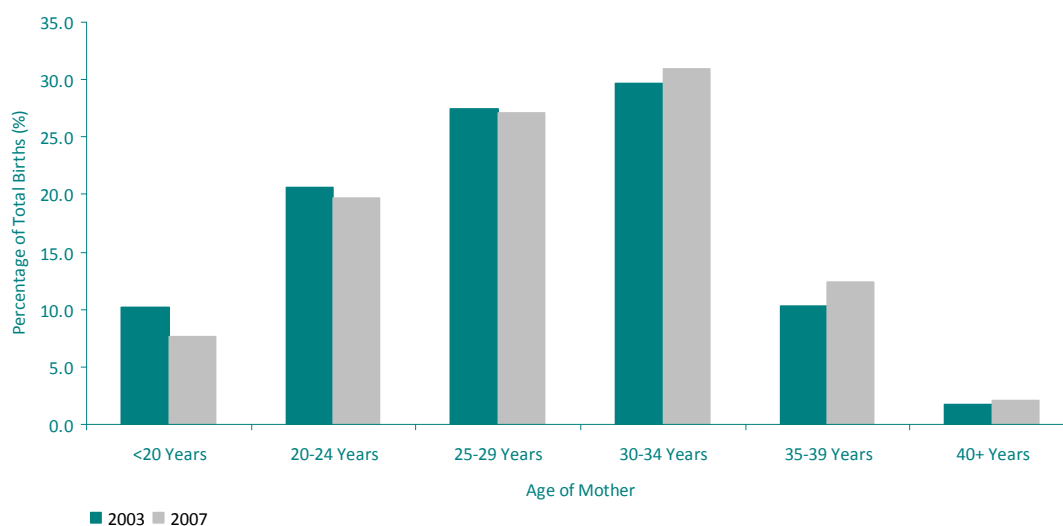
Maternal Parity

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Maternal Parity	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0	973	43.2	7	7.1	8	8.2	15.3	14.3
1	742	32.9	7	9.3	5	6.7	16.0	12.1
2	338	15.0	5	14.6	1	3.0	17.5	17.5
3	125	5.6	0	0.0	0	0.0	0.0	0.0
4	46	2.0	0	0.0	0	0.0	0.0	0.0
5	12	0.5	0	0.0	0	0.0	0.0	0.0
6	8	0.4	0	0.0	0	0.0	0.0	0.0
More than 6	8	0.4	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

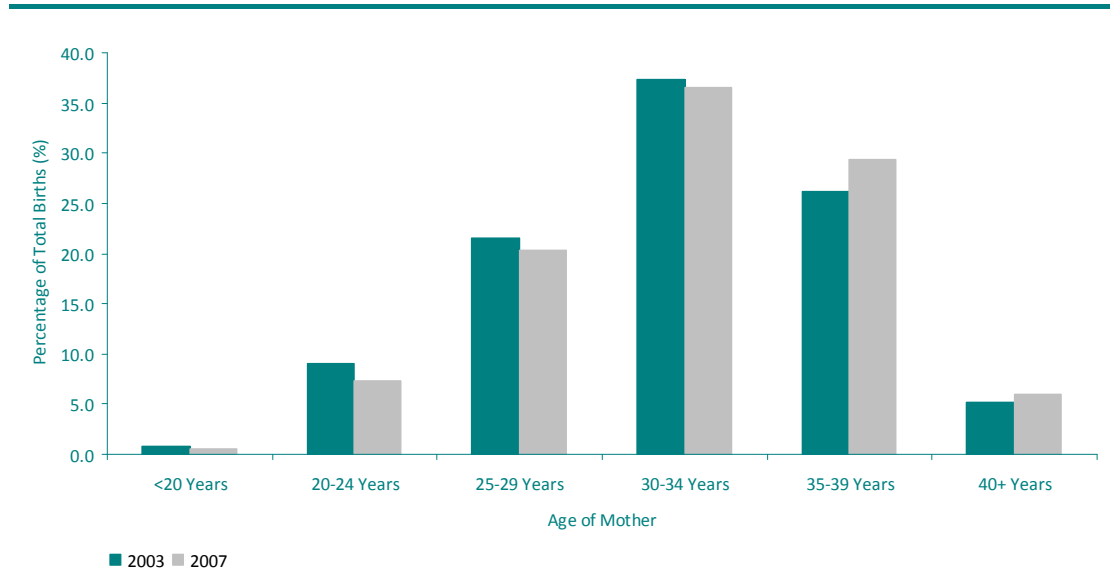
FIGURE 3.8

Total Births to Primiparous Mothers in each Maternal Age Group, 2003 and 2007



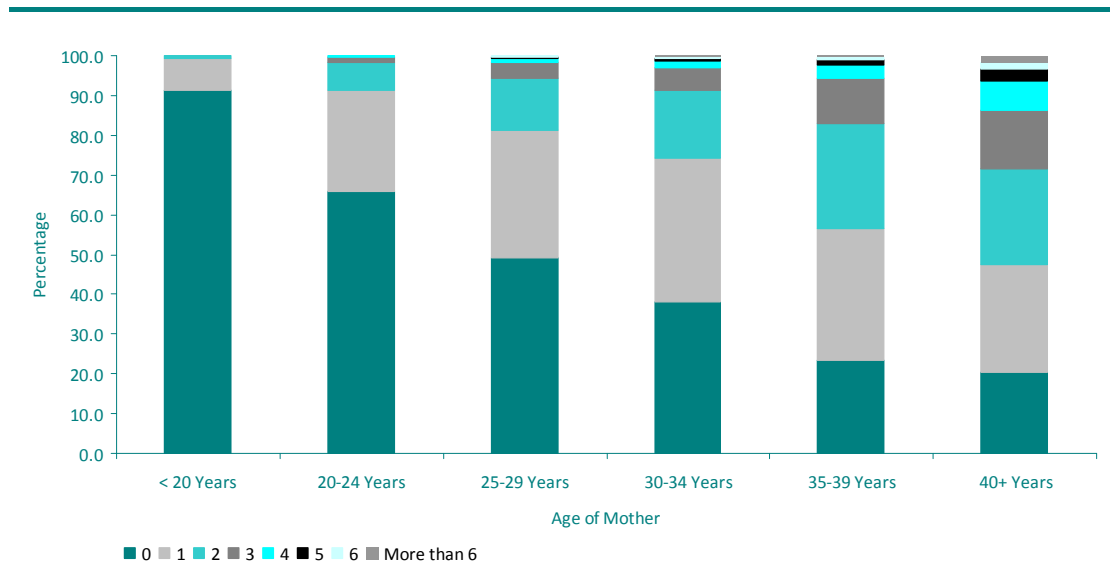
Notes: See Appendix H, Table H8 for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 3.9
Total Births to Multiparous Mothers in each Maternal Age Group, 2003 and 2007



Notes: See Appendix H, Table H9 for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 3.10
Parity by Age of Mother, Total Births, 2007



Notes: See Appendix H, Table H10 for data. 'Not Stated' values are not included in the calculation of percentages.

NUMBER OF PREVIOUS STILLBIRTHS

In 2007, of total births to multiparous women, 98.3 per cent recorded no previous stillbirths while 1.7 per cent recorded at least 1 previous stillbirth. This shows very little variation from previous years.

TABLE 3.8a: SINGLETON BIRTHS

Previous Stillbirths (for women having second and subsequent births)
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Previous Stillbirths	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0	39,636	98.3	187	4.7	69	1.7	6.4	4.3
1	625	1.6	9	14.2	2	3.2	17.4	11.1
2	38	0.1	0	0.0	0	0.0	0.0	0.0
3 and over	12	0.0	0	0.0	0	0.0	0.0	0.0
Not Stated	9	0.0	0	0.0	0	0.0	0.0	0.0
Total	40,320	100	196	4.8	71	1.8	6.6	4.4

Note: Primiparae (i.e. women with no previous live births or stillbirths) are not included in this table.

TABLE 3.8b: MULTIPLE BIRTHS

Previous Stillbirths (for women having second and subsequent births)
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Previous Stillbirths	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0	1,256	98.2	12	9.5	6	4.8	14.2	11.9
1	19	1.5	0	0.0	0	0.0	0.0	0.0
2	4	0.3	0	0.0	0	0.0	0.0	0.0
Total	1,279	100	12	9.3	6	4.7	13.9	11.6

Note: See note to Table 3.8a.

INTERVAL SINCE LAST BIRTH

Tables 3.9a and 3.9b outline the interval in years since mother's last birth for singleton and multiple births respectively. Just over 42 per cent of total births were first deliveries, a marginal increase from 41.1 per cent in 2003.¹⁷ Of the remaining births, there was a decrease in the proportion of mothers whose previous birth was less than 3 years ago, from 30.5 per cent in 2003 to 29.5 per cent in 2007.

TABLE 3.9a: SINGLETON BIRTHS

Interval in Years Since Last Birth

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Interval Since Last Birth	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
No previous births	28,998	41.8	178	6.1	47	1.6	7.7	6.0
1 year or less	529	0.8	4	7.5	7	13.2	20.6	11.4
>1 year to 2 years	9,631	13.9	49	5.1	18	1.9	6.9	4.2
>2 years to 3 years	10,142	14.6	35	3.4	14	1.4	4.8	3.5
>3 years to 4 years	6,260	9.0	26	4.1	9	1.4	5.6	3.7
>4 years to 5 years	3,997	5.8	16	4.0	5	1.3	5.2	3.0
>5 years to 6 years	2,704	3.9	15	5.5	4	1.5	7.0	4.4
More than 6 years	6,454	9.3	45	6.9	11	1.7	8.6	6.5
Number of previous births unknown	3	0.0	0	0.0	0	0.0	0.0	0.0
Not Stated	600	0.9	6	9.9	3	5.0	14.9	11.6
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

Table 3.9b: MULTIPLE BIRTHS

Interval in Years Since Last Birth

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Interval Since Last Birth	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
No previous births	973	43.2	7	7.1	8	8.2	15.3	14.3
1 year or less	30	1.3	0	0.0	0	0.0	0.0	0.0
>1 year to 2 years	308	13.7	2	6.5	0	0.0	6.5	6.5
>2 years to 3 years	302	13.4	2	6.6	2	6.6	13.2	6.6
>3 years to 4 years	210	9.3	4	18.7	1	4.8	23.4	18.8
>4 years to 5 years	92	4.1	0	0.0	0	0.0	0.0	0.0
>5 years to 6 years	61	2.7	0	0.0	2	32.8	32.8	32.8
More than 6 years	266	11.8	4	14.8	1	3.8	18.5	18.5
Not Stated	10	0.4	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

¹⁷ For data on 2003, see *Report on Perinatal Statistics for 2003*, The Economic and Social Research Institute, December 2006.

BIRTHWEIGHT

The birthweight of a baby is widely used as a key indicator of health status. According to the World Health Organisation (WHO), low birthweight babies are defined as weighing less than 2,500 grams. This is further divided into very low birthweight (weighing less than 1,500 grams) and extremely low birthweight (weighing less than 1,000 grams). Low birthweight babies are more likely to have poor perinatal outcomes with consequences for later life experience.¹⁸ In 2007, the average birthweight of live births was 3,499 grams for singletons and 2,421 grams for multiples. The average birthweight of total live births in 2007 was 3,465 grams. The percentage of total births classified as low birthweight was 5.3 per cent (3.8 per cent of singletons and 50.4 per cent of multiples). There is considerable variation in low birthweight rates between singleton and multiple births (see Tables 3.10a and 3.10b). The percentage of singleton live births weighing less than 1,500 grams was 0.7 per cent compared to 7.5 per cent for multiple births (see Figure 3.11). The combined percentage of total live births with very low and extremely low birthweights (<1,500g) was just under 1 per cent. In 2007, 92 per cent of total live born babies were in the healthy birthweight category 2,500-4,499 grams (see Figure 3.12).

TABLE 3.10a: SINGLETON BIRTHS

Birthweight

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Birthweight (grams)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
500-749	86	0.1	67	437.9	35	407.0	666.7	645.8
750-999	91	0.1	26	222.2	12	131.9	324.8	261.7
1000-1249	131	0.2	30	186.3	5	38.2	217.4	160.0
1250-1499	161	0.2	26	139.0	9	55.9	187.2	105.9
1500-1999	516	0.7	41	73.6	16	31.0	102.3	58.4
2000-2499	1,645	2.4	47	27.8	18	10.9	38.4	19.9
2500-2999	7,462	10.8	45	6.0	10	1.3	7.3	5.5
3000-3499	23,127	33.4	50	2.2	7	0.3	2.5	2.1
3500-3999	24,462	35.3	28	1.1	4	0.2	1.3	1.0
4000-4499	9,658	13.9	10	1.0	2	0.2	1.2	0.9
4500 and Over	1,969	2.8	2	1.0	0	0.0	1.0	1.0
Not Stated	10	0.0	2	166.7	0	0.0	166.7	90.9
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

¹⁸ EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT. European Perinatal Health Report, 2008. www.europeristat.com

TABLE 3.10b: MULTIPLE BIRTHS

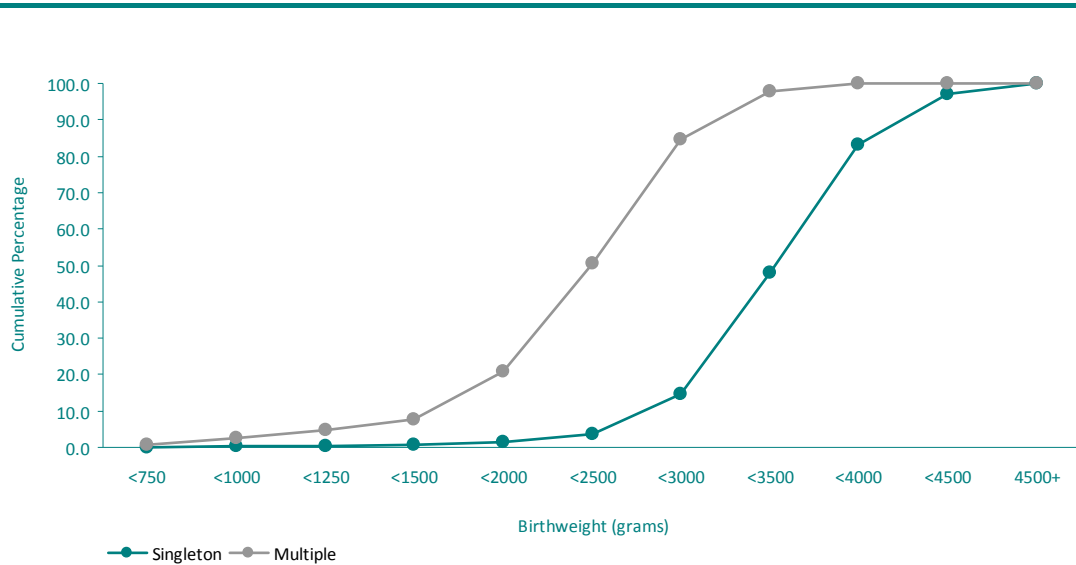
Birthweight

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Birthweight (grams)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
500-749	19	0.8	1	50.0	7	368.4	400.0	400.0
750-999	41	1.8	5	108.7	5	122.0	217.4	200.0
1000-1249	48	2.1	0	0.0	1	20.8	20.8	0.0
1250-1499	62	2.8	0	0.0	0	0.0	0.0	0.0
1500-1999	301	13.4	2	6.6	0	0.0	6.6	6.6
2000-2499	665	29.5	1	1.5	0	0.0	1.5	1.5
2500-2999	766	34.0	4	5.2	0	0.0	5.2	5.2
3000-3499	304	13.5	2	6.5	0	0.0	6.5	6.5
3500-3999	44	2.0	0	0.0	1	22.7	22.7	0.0
4000-4499	2	0.1	0	0.0	0	0.0	0.0	0.0
Not Stated	0	0.0	4	1000.0	0	0.0	1,000.0	1,000.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

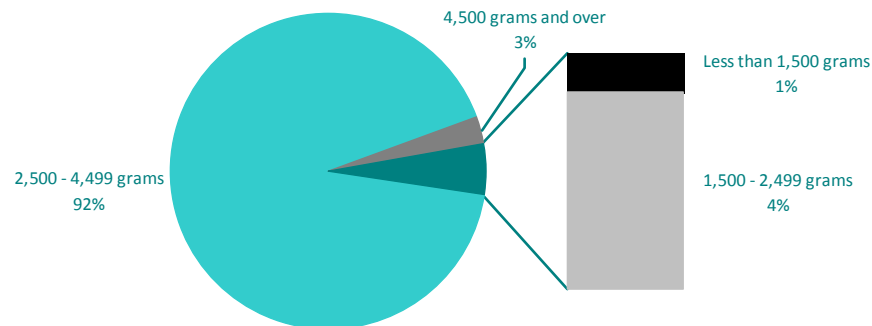
FIGURE 3.11

Birthweights: Cumulative Percentages of Total Live Births, 2007



Note: See Tables 3.10a and 3.10b for data. 'Not Stated' values are not included in the calculation of percentages.

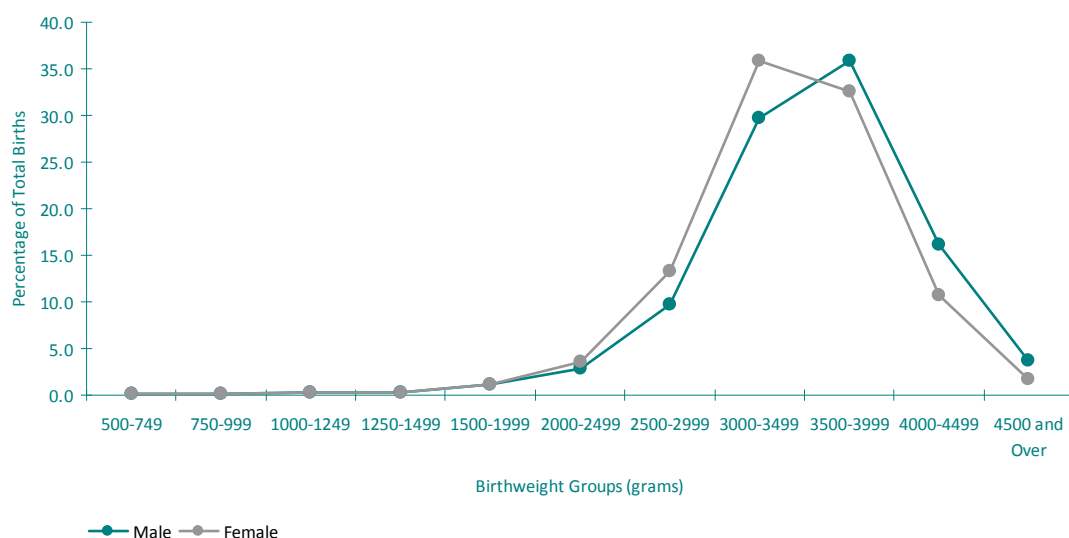
FIGURE 3.12
Percentage Births by Birthweight Groups, Total Live Births, 2007



Note: See Appendix H, Table H11 for data. 'Not Stated' values are not included in the calculation of percentages.

The average birthweight of stillborn babies was 2,012 grams in 2007 compared to the 3,465 grams reported for live born babies. Low birthweight occurred in 63.6 per cent of stillborn babies. Just over 40 per cent of stillborn babies weighed less than 1,500 grams. Figure 3.13 shows the percentage distribution across birthweight groups by sex. A marginally smaller proportion of male live born babies were low birthweight (4.8 per cent) compared with female babies (5.7 per cent). The average birthweight of live born male babies was 3,529 grams compared to 3,399 grams for females.

FIGURE 3.13
Percentage Distribution for Males and Females across Birthweight Groups, Total Births, 2007



Note: See Appendix H, Table H12 for data. 'Not Stated' values are not included in the calculation of percentages.

GESTATIONAL AGE

The average gestational age for total births in 2007 was 39.3 weeks. The percentage of all babies born at term (37-41 weeks) was 90.5 per cent (see Tables 3.11a and 3.11b). Preterm births (born before 37 completed weeks gestation) were associated with higher risk of perinatal death and comprise 6.1 per cent of total births. Figure 3.14 presents perinatal mortality rates by gestational age for total births. Most preterm births occurred at a gestational age of 32-36 completed weeks (4.9 per cent of total births). For stillborn babies the mean gestational age was 33.3 weeks compared to 39.4 weeks for live borns. Preterm birth occurred in 59.8 per cent of stillborns and 5.8 per cent of live borns. For singleton births the average gestational age was 39.4 completed weeks compared with 35.8 for twins and 32.5 for higher order multiple births. Preterm delivery occurred in 46.3 per cent of twins and in 96.5 per cent of higher order multiple births. Mortality rates should be interpreted with caution as they can differ significantly for singleton and multiple births.

TABLE 3.11a: SINGLETON BIRTHS

Gestational Age at Delivery

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Gestational Age (weeks)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	1	0.0	5	833.3	1	1,000.0	1,000.0	1,000.0
22-27	163	0.2	70	300.4	41	251.5	476.4	452.9
28-31	368	0.5	64	148.1	16	43.5	185.2	139.4
32-36	2,535	3.7	84	32.1	40	15.8	47.3	24.2
37-41	63,784	92.0	148	2.3	20	0.3	2.6	2.0
42 and Over	2,457	3.5	3	1.2	0	0.0	1.2	0.8
Not Stated	10	0.0	0	0.0	0	0.0	0.0	0.0
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

TABLE 3.11b: MULTIPLE BIRTHS

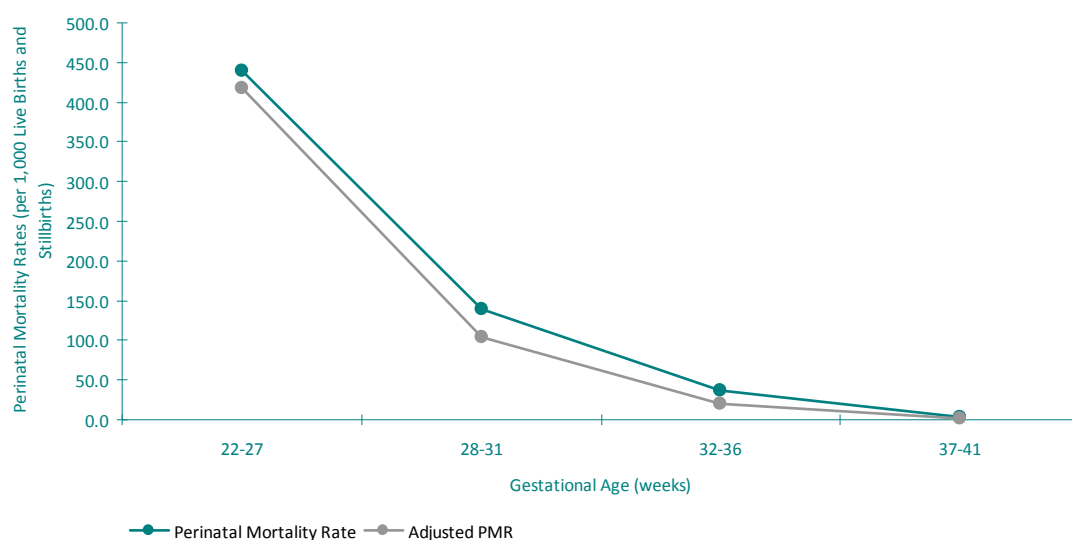
Gestational Age at Delivery

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Gestational Age (weeks)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	0	0.0	2	1000.0	0	0.0	1,000.0	1,000.0
22-27	49	2.2	2	39.2	12	244.9	274.5	260.0
28-31	147	6.5	1	6.8	0	0.0	6.8	6.8
32-36	887	39.4	7	7.8	1	1.1	8.9	7.8
37-41	1,167	51.8	7	6.0	1	0.9	6.8	5.1
42 and Over	2	0.1	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

FIGURE 3.14

Perinatal Mortality Rates by Gestational Age at Delivery, Total Births, 2007



Notes: See Appendix H, Table H13 for data. Rates based on 20 or less observations are not included in this Figure.

MONTH OF BIRTH

There was some seasonal variation in the distribution of singleton births by month. As shown in Table 3.12a fewer babies were born during the winter months (January and February) and higher numbers were born during July to October, peaking in August (9.1 per cent) and September (8.9 per cent). Multiple births show higher percentages born during the later part of the year (see Table 3.12b and Figure 3.15).

TABLE 3.12a: SINGLETON BIRTHS

Month of Birth

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Month of Birth	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
January	5,430	7.8	29	5.3	12	2.2	7.5	4.4
February	4,848	7.0	25	5.1	8	1.7	6.8	4.5
March	5,657	8.2	25	4.4	10	1.8	6.2	4.4
April	5,476	7.9	27	4.9	6	1.1	6.0	4.7
May	5,975	8.6	28	4.7	14	2.3	7.0	5.2
June	5,813	8.4	34	5.8	8	1.4	7.2	4.6
July	6,030	8.7	33	5.4	10	1.7	7.1	5.3
August	6,285	9.1	34	5.4	12	1.9	7.3	5.2
September	6,173	8.9	38	6.1	4	0.6	6.8	5.5
October	6,030	8.7	28	4.6	9	1.5	6.1	4.1
November	5,743	8.3	39	6.7	14	2.4	9.2	6.8
December	5,858	8.5	34	5.8	11	1.9	7.6	6.1
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

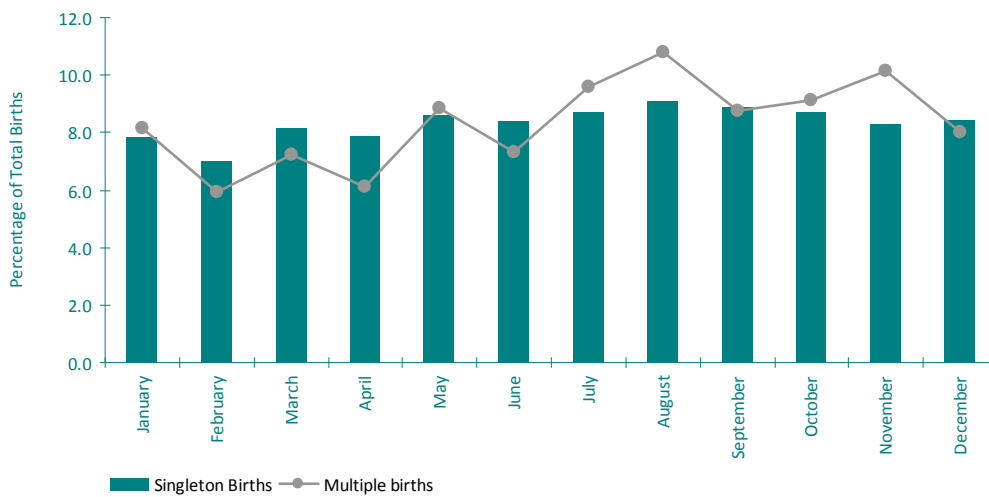
TABLE 3.12b: MULTIPLE BIRTHS

Month of Birth
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Month of Birth	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
January	182	8.1	3	16.2	0	0.0	16.2	16.2
February	134	6.0	1	7.4	1	7.5	14.8	14.8
March	163	7.2	1	6.1	2	12.3	18.3	6.2
April	139	6.2	0	0.0	1	7.2	7.2	7.2
May	200	8.9	1	5.0	0	0.0	5.0	5.0
June	164	7.3	2	12.0	0	0.0	12.0	12.0
July	217	9.6	1	4.6	0	0.0	4.6	4.6
August	242	10.7	3	12.2	4	16.5	28.6	28.6
September	198	8.8	1	5.0	1	5.1	10.1	10.1
October	206	9.1	1	4.8	4	19.4	24.2	19.4
November	229	10.2	1	4.3	1	4.4	8.7	8.7
December	178	7.9	4	22.0	0	0.0	22.0	16.6
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

FIGURE 3.15

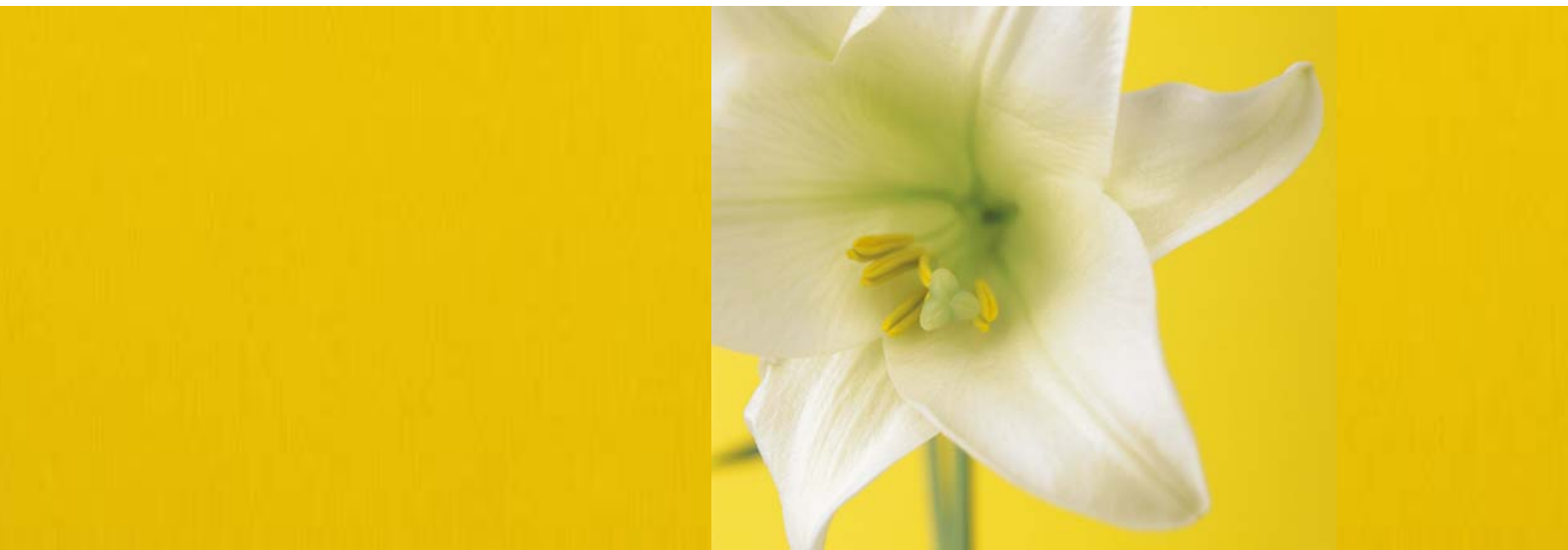
Percentage of Births by Month of Birth, Total Births, 2007



Note: See Tables 3.13a and 3.13b for data.

SECTION FOUR

PERINATAL CARE



INTRODUCTION

This section presents a detailed review on aspects of perinatal care for the mother and baby. Singleton and multiple births are reported in separate tables. The following tables outline data for live births, stillbirths and early neonatal deaths, together with the relevant rates. The perinatal mortality rate and adjusted perinatal mortality rate are also outlined in each table. Tables and figures are presented in some detail for a number of variables, including type of antenatal care, timing of first antenatal visit, mother's antenatal and postnatal length of stay, method of delivery, mother's immunity to rubella, infant's length of stay, and type of feeding.

TYPE OF ANTENATAL CARE

The preferred choice of antenatal care was the combined hospital and G.P. option accounting for just over 77 per cent of total births.¹⁹ Hospital/Obstetrician care accounted for a further 20.8 per cent of total births, leaving only a very small proportion of births delivered under other antenatal care schemes. Tables 4.1a and 4.1b show that a higher percentage of multiple births are delivered under hospital/obstetrician schemes when compared to singleton births. Deliveries under domino schemes and midwifery led maternity units within some hospitals were included under combined care.

TABLE 4.1a: SINGLETON BIRTHS

Type of Antenatal Care

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Type of Antenatal Care	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Hospital/Obstetrician	14,059	20.3	117	8.3	30	2.1	10.4	6.8
General Practitioner Only	695	1.0	5	7.1	3	4.3	11.4	8.6
Hospital and G.P. Combined	53,835	77.7	238	4.4	80	1.5	5.9	4.3
None	179	0.3	10	52.9	4	22.3	74.1	69.1
Midwife Only	503	0.7	3	5.9	1	2.0	7.9	7.9
Unknown	47	0.1	1	20.8	0	0.0	20.8	20.8
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

TABLE 4.1b: MULTIPLE BIRTHS

Type of Antenatal Care

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Type of Antenatal Care	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Hospital/Obstetrician	755	33.5	9	11.8	6	7.9	19.6	17.1
General Practitioner Only	18	0.8	0	0.0	0	0.0	0.0	0.0
Hospital and G.P. Combined	1,474	65.5	10	6.7	8	5.4	12.1	10.8
None	4	0.2	0	0.0	0	0.0	0.0	0.0
Unknown	1	0.0	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

¹⁹ Throughout this section, 'Not Stated' values are not included in the calculation of percentages for discussion.

DURATION OF PREGNANCY AT FIRST ANTENATAL VISIT

Although 77.2 per cent of total births were recorded as receiving combined antenatal care in 2007, the date of the first visit to the doctor was recorded as 'not known' for 45.1 per cent of these births. As a result of the absence of these data, the timing of first contact with health professionals within this category will reflect the date of the first hospital visit, even though this is likely to have been later than the first doctor visit. The percentage of mothers attending antenatal care during the first 12 weeks in 2007 was, therefore, estimated at around 55 per cent of total births, which is low by European standards. Consequently, caution should be exercised in interpreting the data presented here on the timing of the first visit to health services (see Tables 4.2a and 4.2b).

TABLE 4.2a: SINGLETON BIRTHS

Time of First Visit to Doctor or Hospital during Pregnancy
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Time of first visit (weeks)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-12	36,633	52.8	162	4.4	61	1.7	6.1	4.1
13-19	22,167	32.0	130	5.8	31	1.4	7.2	5.3
20 and over	7,910	11.4	66	8.3	18	2.3	10.5	8.0
Not Stated	2,608	3.8	16	6.1	8	3.1	9.1	7.6
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

TABLE 4.2b: MULTIPLE BIRTHS

Time of First Visit to Doctor or Hospital during Pregnancy
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Time of first visit (weeks)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-12	1,308	58.1	5	3.8	5	3.8	7.6	6.1
13-19	636	28.2	11	17.0	6	9.4	26.3	24.8
20 and over	206	9.1	0	0.0	3	14.6	14.6	9.8
Not Stated	102	4.5	3	28.6	0	0.0	28.6	28.6
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

MOTHER'S ANTENATAL LENGTH OF STAY

The average antenatal length of stay was 0.7 days for singleton births and 2.1 days for multiple births. Tables 4.3a and 4.3b outline the distribution of antenatal length of stay for singleton and multiple births. Over 90 per cent of singleton births and 77.3 per cent of multiple births were delivered within less than 2 days of mother's admission to hospital. Mother's antenatal length of stay was 9 days or more for only 0.8 per cent of singleton births and 5.8 per cent for multiple births.

TABLE 4.3a: SINGLETON BIRTHS

Mother's Antenatal Length of Stay
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Antenatal Length of Stay	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-1 Days	62,349	90.2	294	4.7	97	1.6	6.2	4.5
2 Days	3,735	5.4	43	11.4	10	2.7	14.0	8.0
3-5 Days	1,977	2.9	26	13.0	4	2.0	15.0	13.5
6-8 Days	477	0.7	6	12.4	3	6.3	18.6	14.6
9-11 Days	186	0.3	1	5.3	0	0.0	5.3	5.3
12-14 Days	106	0.2	0	0.0	0	0.0	0.0	0.0
More than 2 Weeks	251	0.4	3	11.8	4	15.9	27.6	23.7
Not Stated	52	0.1	0	0.0	0	0.0	0.0	0.0
Total	69,133	100	373	5.4	118	1.7	7.1	5.1

Notes: 'Not Stated' includes 41 births where place of birth was recorded as domiciliary but birth was registered by a hospital. For these cases, the mother was not admitted, or was admitted post delivery, under a planned community midwife scheme. Therefore, dates of mother's antenatal length of stay were not applicable. There were 5 births where place of birth was recorded as 'Born Before Arrival'. In these cases, mother's admission date was after the infant's date of birth. Therefore, antenatal length of stay was not applicable. There were 6 births where mother's admission date was not stated.

Domiciliary births, of which there were 186 singleton births, are excluded from this table. See Appendix G for detailed analysis.

TABLE 4.3b: MULTIPLE BIRTHS

Mother's Antenatal Length of Stay
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Antenatal Length of Stay	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-1 Days	1,740	77.3	16	9.1	9	5.2	14.2	12.5
2 Days	121	5.4	0	0.0	0	0.0	0.0	0.0
3-5 Days	181	8.0	3	16.3	3	16.6	32.6	32.6
6-8 Days	78	3.5	0	0.0	0	0.0	0.0	0.0
9-11 Days	27	1.2	0	0.0	0	0.0	0.0	0.0
12-14 Days	26	1.2	0	0.0	1	38.5	38.5	38.5
More than 2 weeks	79	3.5	0	0.0	1	12.7	12.7	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

Note: There were no domiciliary multiple births.

MOTHER'S POSTNATAL LENGTH OF STAY

Maternal postnatal length of stay can be influenced by factors such as method of delivery, post delivery complications, neonatal mortality, and hospital discharge policies. In 2007, the mother's median postnatal length of stay was 3 days for live born singleton births and 4 days for live born multiple births. Average postnatal lengths of stay for singleton and multiple births were 2.8 and 4.6 days respectively.

For singleton births, 48 per cent of mothers remained in hospital for less than 3 days and a further 48.8 per cent were discharged between 3 and 5 days (see Table 4.4a). For multiple births, 8.7 per cent of mothers remained in hospital in hospital for less than 3 days, whilst 72.2 per cent were discharged between 3 and 5 days post delivery (see Table 4.4b).

TABLE 4.4a: SINGLETON BIRTHS

Mother's Postnatal Length of Stay

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Postnatal Length of Stay	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-1 Days	12,097	17.5	242	19.6	54	4.5	24.0	17.9
2 Days	20,968	30.3	67	3.2	19	0.9	4.1	3.0
3-5 Days	33,837	48.9	53	1.6	42	1.2	2.8	1.8
6-8 Days	1,910	2.8	4	2.1	2	1.0	3.1	1.6
9-11 Days	204	0.3	4	19.2	0	0.0	19.2	14.5
12-14 Days	33	0.0	0	0.0	0	0.0	0.0	0.0
More than 2 Weeks	42	0.1	2	45.5	1	23.8	68.2	23.8
Not Stated	42	0.1	1	23.3	0	0.0	23.3	23.3
Total	69,133	100	373	5.4	118	1.7	7.1	5.1

Notes: 'Not Stated' includes 37 births where place of birth was recorded as domiciliary but birth was registered by a hospital. For these cases, the mother was not admitted under a planned community midwife scheme. Therefore, dates of mother's postnatal length of stay were not applicable. There were 6 births where mother's discharge date was not stated.

Domiciliary births, of which there were 186 singleton births, are excluded from this table. See Appendix G for detailed analysis.

TABLE 4.4b: MULTIPLE BIRTHS

Mother's Postnatal Length of Stay

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

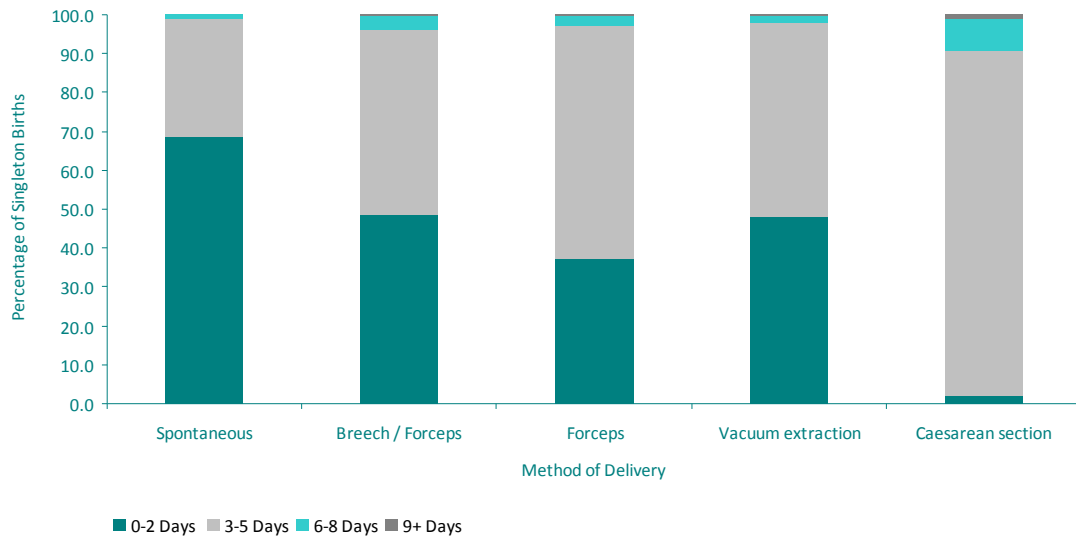
Postnatal Length of Stay	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
0-1 Days	33	1.5	0	0.0	5	151.5	151.5	125.0
2 Days	163	7.2	1	6.1	3	18.4	24.4	24.4
3-5 Days	1,621	72.0	16	9.8	4	2.5	12.2	10.4
6-8 Days	370	16.4	0	0.0	2	5.4	5.4	5.4
9-11 Days	43	1.9	2	44.4	0	0.0	44.4	44.4
12-14 Days	17	0.8	0	0.0	0	0.0	0.0	0.0
More than 2 weeks	5	0.2	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

Note: There were no domiciliary multiple births.

The average postnatal length of stay for mothers differed by method of delivery and plurality. Average maternal postnatal length of stay for spontaneous delivery for singleton births was 2.1 days compared to 3.4 days for multiple births. Singleton births delivered by caesarean section resulted in an average maternal postnatal length of stay of 4.4 days compared to 5.2 days for multiple births. Figures 4.1 and 4.2 show the postnatal lengths of stay by method of delivery for singleton and multiple births. For spontaneous deliveries, 68.5 per cent of singleton births compared to 23.7 per cent of multiple births recorded a postnatal length of stay of less than 3 days, and a length of stay between 3 and 5 days for 30.6 per cent for singletons and 68.7 per cent for multiple births. Delivery by caesarean section with a postnatal length of stay of 6 days or more accounted for 9.1 per cent of singleton caesarean deliveries compared to 24.7 per cent for multiple caesarean deliveries.

FIGURE 4.1

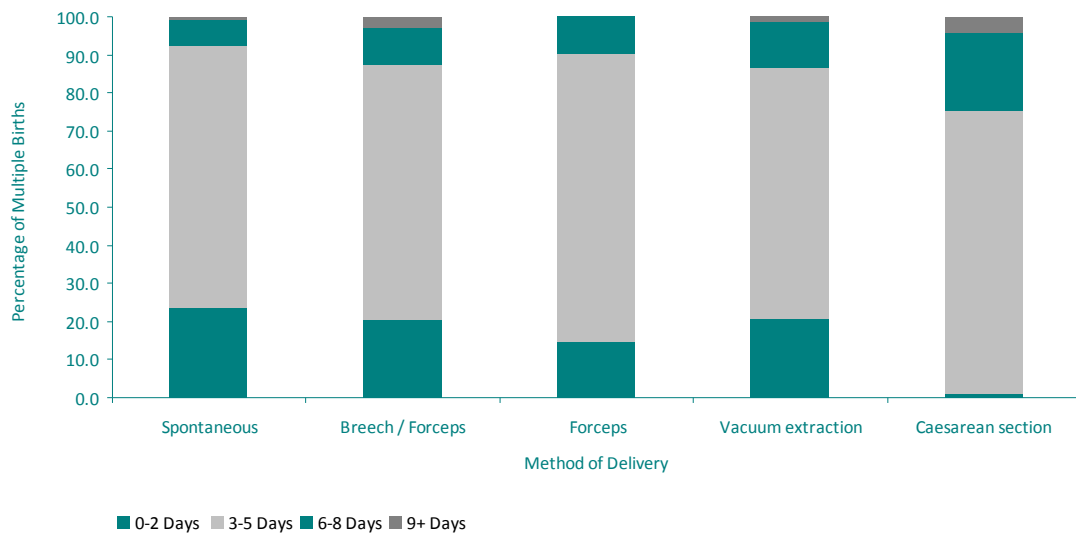
Mother's Postnatal Length of Stay by Method of Delivery, Singleton Births, 2007



Note: See Appendix H, Table H14 for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 4.2

Mother's Postnatal Length of Stay by Method of Delivery, Multiple Births, 2007



Note: See Appendix H, Table H15 for data. 'Not Stated' values are not included in the calculation of percentages.

ADVANCE HOSPITAL BOOKINGS

In 2007, 99 per cent of total births were booked at time of admission to hospital. A smaller proportion of multiple births, 97.3 per cent, were booked at admission compared to singleton births, 99.1 per cent (see Tables 4.5a and 4.5b).

TABLE 4.5a: SINGLETON BIRTHS

Advance Hospital Bookings
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Advance Hospital Bookings	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Booked	68,474	99.0	350	5.1	108	1.6	6.7	4.7
Not Booked	601	0.9	22	35.3	10	16.6	51.4	43.7
Not Stated	58	0.1	1	16.9	0	0.0	16.9	16.9
Total	69,133	100	373	5.4	118	1.7	7.1	5.1

Notes: 'Not Stated' includes 36 births where place of birth was recorded as domiciliary but birth was registered by a hospital. For these cases, the mother was not admitted under a planned community midwife scheme. Therefore, hospital bookings were not applicable.

Domiciliary births, of which there were 186 singleton births, are excluded from this table. See Appendix G for detailed analysis.

TABLE 4.5b MULTIPLE BIRTHS

Advance Hospital Bookings
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Advance Hospital Bookings	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Booked	2,190	97.2	19	8.6	14	6.4	14.9	13.2
Not Booked	62	2.8	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

Note: There were no domiciliary multiple births.

RUBELLA: IMMUNE STATUS OF MOTHER

In 2007, of total babies born, 92.4 per cent of births were to mothers with rubella immunity. A further 2.9 per cent of births were to mothers who were not rubella immune and mother's rubella immunity was not known for 4.8 per cent of total babies born (see Tables 4.6a and 4.6b).

TABLE 4.6a: SINGLETON BIRTHS

Rubella: Immune Status of Mother, Numbers and Percentages, 2007

Rubella	Number (Live Births and Stillbirths)	Per Cent (%)
Immune	64,372	92.4
Not Immune	2,024	2.9
Unknown	3,294	4.7
Not Stated	2	0.0
Total	69,692	100

TABLE 4.6b: MULTIPLE BIRTHS

Rubella: Immune Status of Mother, Numbers and Percentages, 2007

Rubella	Number (Live Births and Stillbirths)	Per Cent (%)
Immune	2,092	92.1
Not Immune	47	2.1
Unknown	132	5.8
Total	2,271	100

METHOD OF DELIVERY

Among babies born in Ireland, the percentage of normal vaginal deliveries for live born babies decreased from 61.2 per cent in 2003 to 57.3 per cent in 2007. Tables 4.7a and 4.7b outline method of delivery for singleton and multiple births. There were 18,781 live births delivered by caesarean section, representing a caesarean section rate of 26.2 per cent for total live births in 2007, 25 per cent for singletons and 63.7 per cent for multiples, (see Figure 4.3). In 2007, 15.8 per cent of total live births were born by instrumental delivery (either forceps or vacuum extraction). These percentages differed for live singleton births (16 per cent) and live multiple births (9.5 per cent).

TABLE 4.7a: SINGLETON BIRTH

Method of Delivery

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Method of Delivery	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Spontaneous	40,484	58.4	297	7.3	61	1.5	8.8	6.5
Breech / Forceps	259	0.4	37	125.0	8	30.9	152.0	109.9
Forceps	2,588	3.7	6	2.3	2	0.8	3.1	2.7
Vacuum extraction	8,523	12.3	6	0.7	1	0.1	0.8	0.8
Caesarean section	17,348	25.0	28	1.6	45	2.6	4.2	2.5
Other specified & combined	111	0.2	0	0.0	1	9.0	9.0	0.0
Not stated	5	0.0	0	0.0	0	0.0	0.0	0.0
Total	69,318	100	374	5.4	118	1.7	7.1	5.1

TABLE 4.7b: MULTIPLE BIRTHS

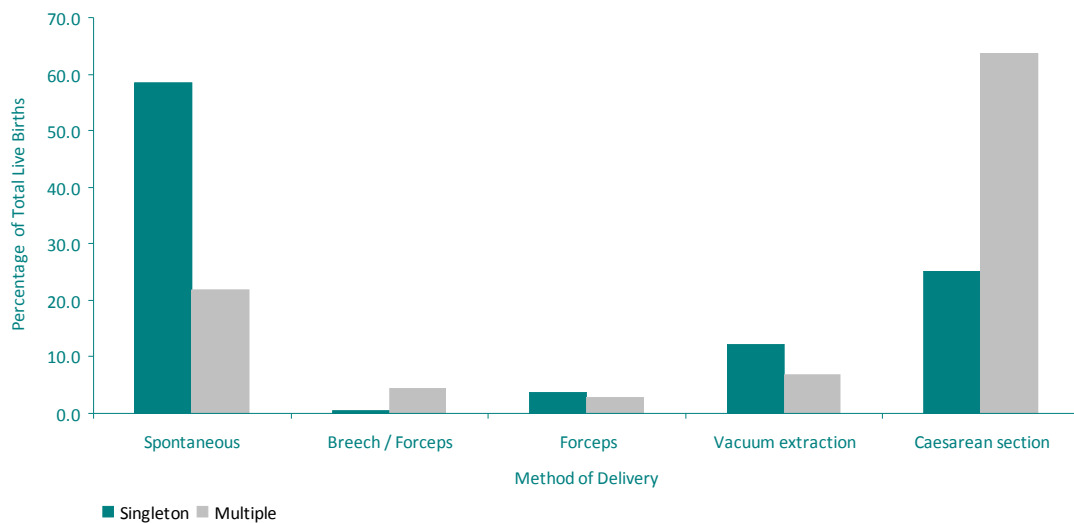
Method of Delivery

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Method of Delivery	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Spontaneous	492	21.8	6	12.0	4	8.1	20.1	20.1
Breech / Forceps	102	4.5	2	19.2	2	19.6	38.5	38.5
Forceps	62	2.8	0	0.0	2	32.3	32.3	32.3
Vacuum extraction	151	6.7	0	0.0	1	6.6	6.6	6.6
Caesarean section	1,433	63.6	11	7.6	5	3.5	11.1	8.3
Other specified & combined	11	0.5	0	0.0	0	0.0	0.0	0.0
Not stated	1	0.0	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	19	8.4	14	6.2	14.5	12.8

FIGURE 4.3

Percentage of Births by Method of Delivery for Live Singleton and Live Multiple Births, 2007



Note: See Tables 4.13 and 4.14 for data. 'Not Stated' values are not included in the calculation of percentages.

The percentage of births born by caesarean section increased with maternal age (see Table 4.8). In 2007, caesarean section rates ranged from 15.7 per cent for mothers aged less than 20 years to 38 per cent for mothers aged 40 years and older. The percentage of babies delivered by spontaneous delivery fell from 64.8 per cent for mothers aged less than 20 years to 50.5 per cent to mothers aged 40 years and older. The percentage delivered by vacuum extraction also fell from 14.8 per cent for mothers aged less than 20 years to 7.5 per cent for mothers aged 40 years and older.

TABLE 4.8: TOTAL BIRTHS

Method of Delivery by Mother's Age, 2007

Method of Delivery Frequency Col. Per Cent	Mother's Age							Total
	Under 20 Years	20-24 Years	25-29 Years	30-34 Years	35-39 Years	40 Years and Over	Not Stated	
Spontaneous	1,634 64.8	5,764 64.1	10,088 60.4	13,507 54.9	8,689 54.3	1,582 50.5	15 68.2	41,279 57.4
Breech / Forceps	16 0.6	50 0.6	86 0.5	131 0.5	97 0.6	19 0.6	1 4.5	400 0.6
Forceps	100 4.0	329 3.7	651 3.9	1,011 4.1	470 2.9	94 3.0	1 4.5	2,656 3.7
Vacuum extraction	373 14.8	1,222 13.6	2,236 13.4	3,064 12.5	1,547 9.7	236 7.5	2 9.1	8,680 12.1
Caesarean section	397 15.7	1,620 18.0	3,619 21.7	6,835 27.8	5,156 32.2	1,190 38.0	3 13.6	18,820 26.2
Other specified & combined	1 0.0	7 0.1	19 0.1	49 0.2	34 0.2	12 0.4	0 0.0	122 0.2
Not stated	0 0.0	2 0.0	1 0.0	1 0.0	2 0.0	0 0.0	0 0.0	6 0.0
Total	2,521 100	8,994 100	16,700 100	24,598 100	15,995 100	3,133 100	22 100	71,963 100

SIZE OF MATERNITY UNIT

Over 57 per cent of total births in Ireland take place in maternity units accommodating at least 4,000 births annually. A further 20.6 per cent of total births occur in maternity units reporting between 2,000 and just under 4,000 births annually (see Table 4.9 and Figure 4.4).

TABLE 4.9: TOTAL BIRTHS

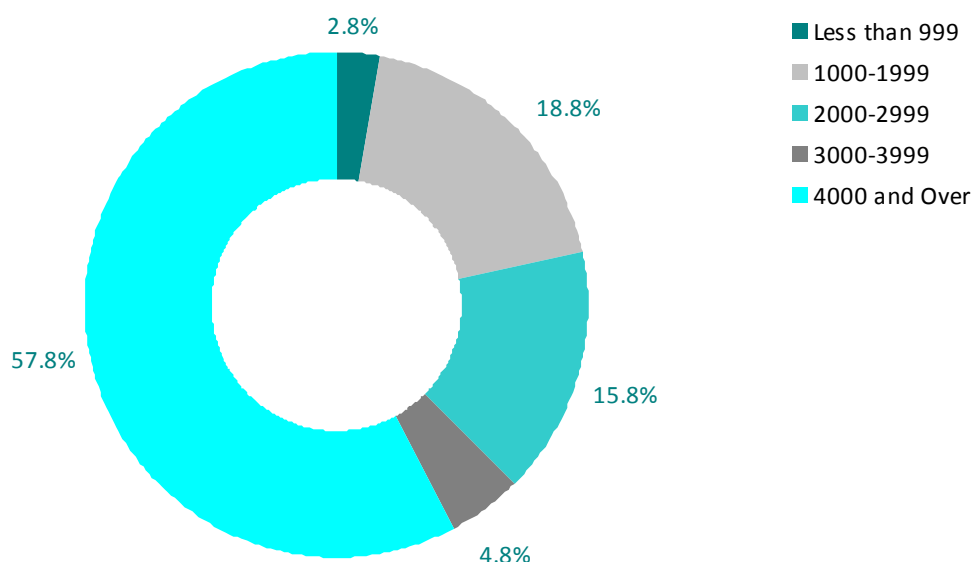
Size of Maternity Unit (number of live births and stillbirths annually)
Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Size of Maternity Unit	Number of Hospitals	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 999	4	1,991	2.8	10	5.0	3	1.5	6.5	5.0
1000-1999	8	13,438	18.8	68	5.0	24	1.8	6.8	4.5
2000-2999	5	11,304	15.8	64	5.4	18	1.4	6.8	5.1
3000-3999	1	3,401	4.8	16	5.4	3	1.4	6.8	5.1
4000 and Over	6	41,251	57.8	234	5.6	84	2.0	7.7	5.7
Total	24	71,385	100.0	392	5.5	132	1.8	7.3	5.3

Notes: This table includes singleton and multiple births but excludes domiciliary births, of which there were 186 singleton births. There are 20 maternity units in Ireland at present, all of which deliver over 1,000 births per annum. In March 2007, the separate maternity units in Cork transferred their services to the Cork University Maternity Hospital. Occasionally, births can take place in hospitals without maternity units; these are usually exceptional circumstances and are included in the NPRS data set.

FIGURE 4.4

Percentage of Births by Size of Maternity Unit, Total Live Births, 2007



Note: See Table 4.9 for data. The size of the unit refers to the number of live births and stillbirths occurring in 2007.

INTER-HOSPITAL TRANSFER OF INFANTS

For singleton births, almost all live births remained in the hospital in which they were born with just less than 1 per cent of live births being transferred to another hospital for medical reasons (see Tables 4.10a). For multiple births, 97 per cent remained in the hospital of birth with almost 3 per cent being transferred for medical reasons (see Table 4.10b).

TABLE 4.10a: SINGLETON BIRTHS

Inter-Hospital Transfer of Infants

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Infant Transfer	Live Births	Per Cent (%) Live Births	Early Neonatal Deaths	Early Neonatal Mortality Rate
Transferred	393	0.6	5	12.7
Not Transferred	68,688	99.4	113	1.6
Not Stated	52	0.1	0	0.0
Total	69,133	100	118	1.7

Notes: 'Not Stated' includes 35 births where place of birth was recorded as domiciliary but birth was registered by a hospital. For these cases, the baby was not admitted under a planned community midwife scheme. Therefore, transfer details were not applicable.

Domiciliary births, of which there were 185 singleton live births, are excluded from this table. See Appendix G for detailed analysis.

TABLE 4.10b: MULTIPLE BIRTHS

Inter-Hospital Transfer of Infants

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Infant Transfer	Live Births	Per Cent (%) Live Births	Early Neonatal Deaths	Early Neonatal Mortality Rate
Transferred	65	2.9	0	0.0
Not Transferred	2,184	97.0	14	6.4
Not Stated	3	0.1	0	0.0
Total	2,252	100	14	6.2

Note: There were no domiciliary multiple births.

INFANT'S LENGTH OF STAY

Almost 95 per cent of live singleton births and 59 per cent of live multiple births were discharged from hospital within 5 days of birth (see Tables 4.11a and 4.11b respectively). Approximately 50 per cent of both singleton and multiple births were discharged between 3 and 5 days following delivery. For multiple births, a further 16.7 per cent remained in hospital for between 6 and 10 days and a further 17.3 per cent were discharged between 11 and 28 days.

TABLE 4.11a: SINGLETON BIRTHS

Percentage Distribution of Live Births by Infant's Length of Stay in Hospital, 2007

Infant's Length of Stay (Days)	Live Births	Per Cent (%) Live Births
0-2	32,566	47.2
3-5	32,693	47.4
6-10	2,403	3.5
11-28	884	1.3
29 or more	424	0.6
Not Stated	45	0.1
Total	69,015	100

TABLE 4.11b: MULTIPLE BIRTHS

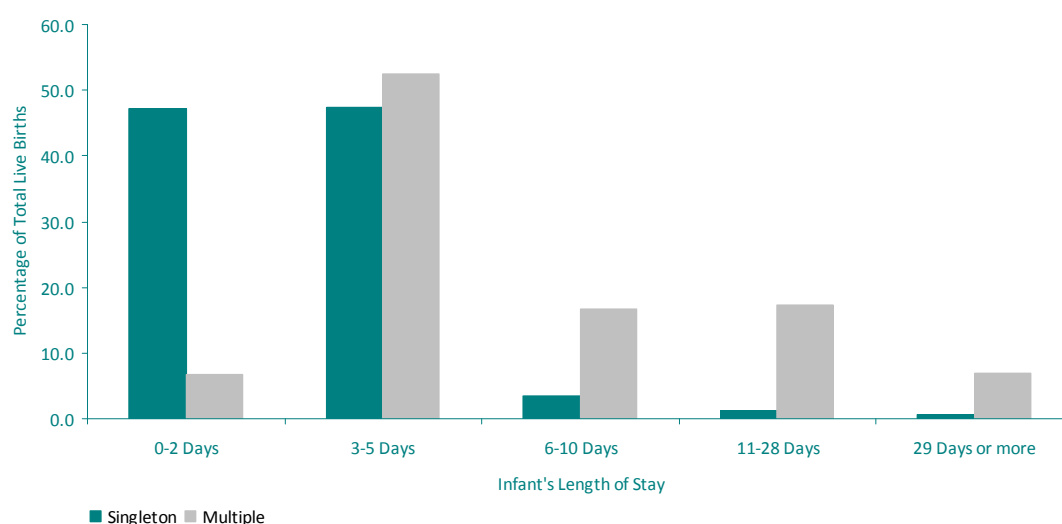
Percentage Distribution of Live Births by Infant's Length of Stay in Hospital, 2007

Infant's Length of Stay (Days)	Live Births	Per Cent (%) Live Births
0-2	148	6.6
3-5	1,172	52.4
6-10	373	16.7
11-28	388	17.3
29 or more	156	7.0
Not Stated	1	0.0
Total	2,238	100

Notes: These tables do not include domiciliary births and early neonatal deaths. 'Not Stated' includes 37 births where place of birth was recorded as domiciliary but birth was registered by a hospital. In these cases, the infant was not admitted under a planned community midwife scheme. Therefore, infant's length of stay was not applicable.

FIGURE 4.5

Percentage of Births by Infant's Length of Stay for Live Singleton and Live Multiple Births, 2007



Note: See Tables 4.11a and 4.11b for data. 'Not Stated' values are not included in the calculation of percentages.

INFANT'S TYPE OF FEEDING

Breastfeeding statistics are based on live births only and exclude early neonatal deaths. Type of feeding is recorded at the time of discharge from hospital. As shown in Tables 4.12a and 4.12b, artificial feeding is more common for both singleton (49.2 per cent) and multiple births (57.6 per cent). The overall percentage of total live births exclusively breastfed at the time of discharge from hospital in 2007 was 45 per cent. This is slightly different to the percentage of mother's breastfeeding (45.2 per cent), due to plurality of births (see Table 2.1, page 9).

TABLE 4.12a: SINGLETON BIRTHS

Age of Mother by Infant's Type of Feeding, Numbers and Percentages, Live Births, 2007

Age of Mother Frequency Row Per Cent Col. Per Cent	Type of Feeding				
	Artificial	Breast	Combined	Not Stated	Total
Under 15 Years	6 60.0 0.0	4 40.0 0.0	0 0.0 0.0	0 0.0 0.0	10 100 0.0
15-19 Years	1,776 73.1 5.2	560 23.1 1.8	86 3.5 2.3	6 0.2 6.2	2,428 100 3.5
20-24 Years	5,122 58.1 15.0	3,251 36.9 10.3	424 4.8 11.5	17 0.2 17.5	8,814 100 12.7
25-29 Years	8,138 50.1 23.9	7,177 44.1 22.8	925 5.7 25.1	18 0.1 18.6	16,258 100 23.5
30-34 Years	10,885 46.0 31.9	11,449 48.4 36.4	1,286 5.4 34.9	32 0.1 33.0	23,652 100 34.1
35-39 Years	6,856 45.2 20.1	7,505 49.4 23.9	798 5.3 21.6	20 0.1 20.6	15,179 100 21.9
40-44 Years	1,229 43.0 3.6	1,462 51.2 4.6	164 5.7 4.4	3 0.1 3.1	2,858 100 4.1
45 Years and Over	46 44.7 0.1	51 49.5 0.2	5 4.9 0.1	1 1.0 1.0	103 100 0.1
Not Stated	12 75.0 0.0	4 25.0 0.0	0 0.0 0.0	0 0.0 0.0	16 100 0.0
Total	34,070 49.2 100	31,463 45.4 100	3,688 5.3 100	97 0.1 100	69,318 100 100

Note: The 'Not Stated' category for type of feeding includes 85 early neonatal deaths.

TABLE 4.12b: MULTIPLE BIRTHS

Age of Mother by Infant's Type of Feeding, Numbers and Percentages, Live Births, 2007

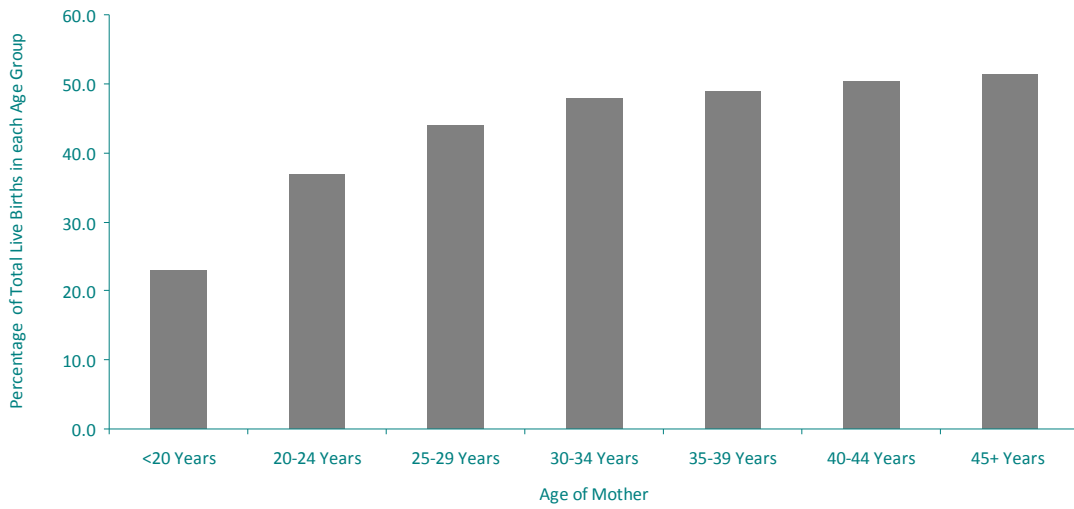
Age of Mother Frequency Row Per Cent Col. Per Cent	Type of Feeding				Total
	Artificial	Breast	Combined	Not Stated	
15-19 Years	52	11	5	1	69
	75.4	15.9	7.2	1.4	100
	4.0	1.6	1.9	12.5	3.1
20-24 Years	74	29	19	3	125
	59.2	23.2	15.2	2.4	100
	5.7	4.2	7.2	37.5	5.6
25-29 Years	196	118	45	0	359
	54.6	32.9	12.5	0.0	100
	15.2	17.1	17.1	0.0	15.9
30-34 Years	506	237	95	3	841
	60.2	28.2	11.3	0.4	100
	39.2	34.4	36.1	37.5	37.3
35-39 Years	382	241	83	1	707
	54.0	34.1	11.7	0.1	100
	29.6	35.0	31.6	12.5	31.4
40-44 Years	78	46	16	0	140
	55.7	32.9	11.4	0.0	100
	6.0	6.7	6.1	0.0	6.2
45 Years and Over	4	7	0	0	11
	36.4	63.6	0.0	0.0	100
	0.3	1.0	0.0	0.0	0.5
Total	1,292	689	263	8	2,252
	57.4	30.6	11.7	0.4	100
	100	100	100	100	100

Note: The 'Not Stated' category for type of feeding includes 7 early neonatal deaths.

As shown in Figure 4.6, the percentage of total live births breastfed varies by maternal age. Infants born to older mothers are more likely to be breastfed than those born to younger mothers. In 2007, 23 per cent of infants born to mothers under 20 were exclusively breastfeeding compared to 50.4 per cent born to those mothers aged 40-44 and 51.3 per cent to those aged 45 and over.

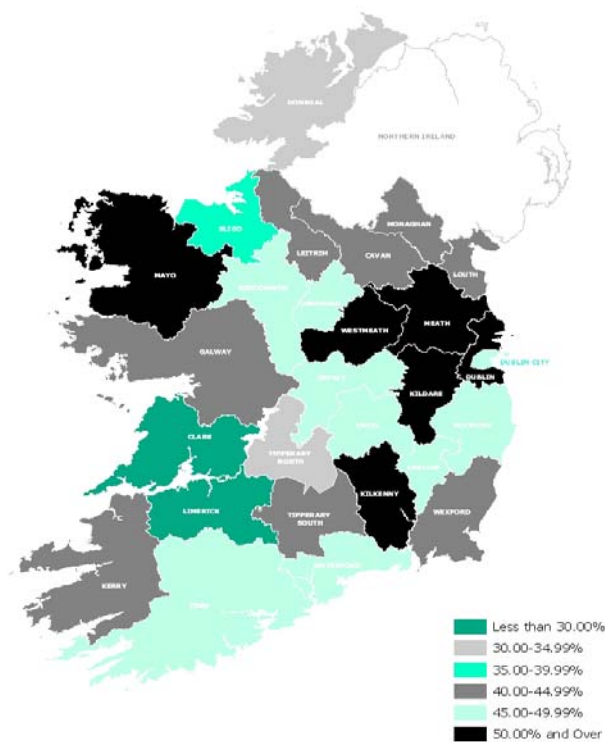
Figure 4.7 shows that the prevalence of breastfeeding at time of discharge also varies by geographic location. Infants born to mothers resident in Dublin County recorded the highest rate of breastfeeding at 54.8 per cent, closely followed by Westmeath with 52.3 per cent. Very low rates were recorded for infants whose mother was resident in Limerick and Clare (21.6 and 23.4 per cent respectively).

FIGURE 4.6
Percentage of Breastfed Infants by Age of Mother, Total Live Births, 2007



Note: See Appendix H, Table H16 for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 4.7
Percentage Distribution of Breastfed Infants by Mother's County of Residence, Total Live Births, 2007



Note: See Appendix H, Table H17 for data. 'Not Stated' values are not included in the calculation of percentages. Example: Of all live births to mothers resident in Galway, 41.2 per cent were breastfed.

Type of feeding was also found to vary according to mother's occupation (see Table 4.13 and Figure 4.8). Within all occupational categories combined feeding accounted for less than 10 per cent of total live births. In general, infants born to mothers in the higher occupational groupings were more likely to be breastfed while infants born to mothers in the lower occupational groupings were more likely to be fed artificially. In 2007, 64.2 per cent of infants born to mothers who were unemployed were fed artificially, while 63.8 per cent of infants born to mothers with a higher professional occupation were breastfed.

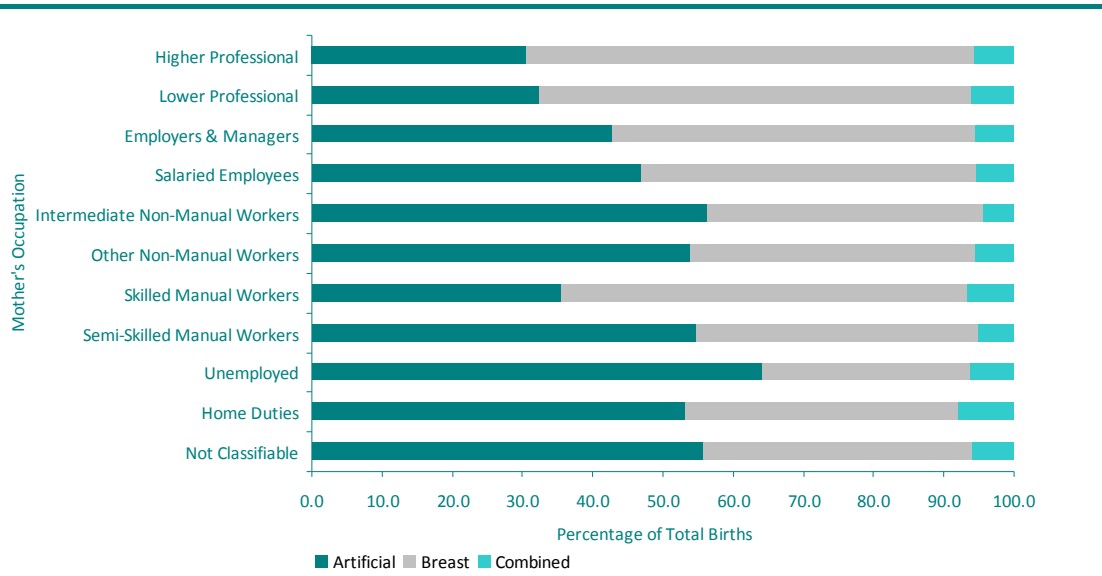
TABLE 4.13: TOTAL LIVE BIRTHS
Mother's Occupation by Infant's Type of Feeding, 2007

Mother's Occupation Frequency Row Per Cent Col. Per Cent	Type of Feeding				
	Artificial	Breast	Combined	Not Stated	Total
Farmers & Farm Managers	29 44.6 0.1	34 52.3 0.1	2 3.1 0.1	0 0.0 0.0	65 100 0.1
Other Agricultural Occupations & Fishermen	36 38.7 0.1	50 53.8 0.2	7 7.5 0.2	0 0.0 0.0	93 100 0.1
Higher Professional	1,316 30.4 3.7	2,754 63.7 8.6	248 5.7 6.3	5 0.1 4.8	4,323 100 6.0
Lower Professional	3,198 32.3 9.0	6,101 61.6 19.0	591 6.0 15.0	15 0.2 14.3	9,905 100 13.8
Employers & Managers	2,186 42.7 6.2	2,648 51.7 8.2	280 5.5 7.1	7 0.1 6.7	5,121 100 7.2
Salaried Employees	509 46.9 1.4	515 47.5 1.6	58 5.3 1.5	3 0.3 2.9	1,085 100 1.5
Intermediate Non-Manual Workers	9,193 56.2 26.0	6,455 39.4 20.1	702 4.3 17.8	21 0.1 20.0	16,371 100 22.9
Other Non-Manual Workers	4,780 53.7 13.5	3,631 40.8 11.3	483 5.4 12.2	10 0.1 9.5	8,904 100 12.4
Skilled Manual Workers	453 35.3 1.3	742 57.8 2.3	86 6.7 2.2	2 0.2 1.9	1,283 100 1.8
Semi-Skilled Manual Workers	1,340 54.7 3.8	978 40.0 3.0	126 5.1 3.2	4 0.2 3.8	2,448 100 3.4
Unskilled Manual Workers	1 14.3 0.0	6 85.7 0.0	0 0.0 0.0	0 0.0 0.0	7 100 0.0
Unemployed	1,507 64.0 4.3	697 29.6 2.2	145 6.2 3.7	5 0.2 4.8	2,354 100 3.3
Home Duties	1,417 53.2 4.0	1,031 38.7 3.2	211 7.9 5.3	7 0.3 6.7	2,666 100 3.7
Not Classifiable	9,340 55.6 26.4	6,429 38.3 20.0	1,000 6.0 25.3	26 0.2 24.8	16,795 100 23.5
Not Stated	57 38.0 0.2	81 54.0 0.3	12 8.0 0.3	0 0.0 0.0	150 100 0.2
Total	35,362 49.4 100	32,152 44.9 100	3,951 5.5 100	105 0.1 100	71,570 100 100

Note: See Appendix C for a description of the classification system for occupation.

FIGURE 4.8

Percentage Distribution of Infants Feeding by Mother's Occupation, Total Live Births, 2007



Notes: See Table 4.13 for data. 'Not Stated' values are not included in the calculation of percentages. Categories where percentages would be based on <100 births are not included in this graph.

SECTION FIVE

PERINATAL OUTCOMES



INTRODUCTION

The NPRS data set collects morbidity and mortality data on mothers giving birth and their babies. The Tenth Revision of the International Classification of Diseases (ICD-10)²⁰ came into effect for coding Irish births from 1 January 2005 onwards. The NPRS coders are trained in ICD-10 coding practices, with particular focus on chapters *Pregnancy, childbirth and the puerperium*, *Certain conditions originating in the perinatal period*, and *Congenital malformation, deformations and chromosomal abnormalities* (Chapters XV – XVII). See Appendix D for a detailed description on cause of death classification and coding rules applied by coders in the NPRS Unit at the ESRI.

This section presents a detailed review on aspects of perinatal outcomes for the infant. Singleton and multiple births are reported in separate tables. Cause of death is examined in greater detail according to the guidelines set out by the WHO in ICD-10. The following tables outline data for live births, antepartum and intrapartum stillbirths, and early neonatal deaths, together with the relevant rates.

Numbers of deaths, mortality rates, and cause of death are presented by birthweight, highlighting percentages of deaths by type of death and birthweight as well as details of rates by cause of death within each birthweight category. Numbers of deaths and mortality rates by gestational age at delivery are also presented. Cause of death is then examined in greater detail, outlining numbers and percentages by type of death. Age at death for early neonatal deaths and post-mortem examination details are also presented in this section.

²⁰ World Health Organization, 2005, *International Statistical Classification of Diseases and Related Health Problems*, 10th Revision, Vols. 1-3. Geneva: World Health Organization.

MORTALITY BY BIRTHWEIGHT CATEGORY

Tables 5.1a and 5.1b summarise live births, antepartum and intrapartum stillbirths, early neonatal deaths, and their relevant mortality rates by birthweight groups. Just over two-thirds of singleton perinatal deaths and more than 75 per cent of multiple perinatal deaths weighed less than 2,500 grams (see Figures 5.1 and 5.2).²¹ Low birthweight babies (weighing less than 2,500 grams) are particularly vulnerable and had higher perinatal mortality rates (see Figure 5.3). The perinatal mortality rate for low birthweight babies was 115.8 per 1,000 for singleton births and 19.2 per 1,000 for multiple births. This compares to a perinatal mortality rate of 2.4 per 1,000 singleton and 6.2 per 1,000 multiple births weighing 2,500 grams or more.

TABLE 5.1a: SINGLETON BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Birthweight, 2007

Birthweight (grams)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
500-749	86	0.1	58	6	3	437.9	35	407.0	666.7	645.8
750-999	91	0.1	24	1	1	222.2	12	131.9	324.8	261.7
1000-1249	131	0.2	30	0	0	186.3	5	38.2	217.4	160.0
1250-1499	161	0.2	23	2	1	139.0	9	55.9	187.2	105.9
1500-1999	516	0.7	33	4	4	73.6	16	31.0	102.3	58.4
2000-2499	1,645	2.4	44	2	1	27.8	18	10.9	38.4	19.9
2500-2999	7,462	10.8	42	2	1	6.0	10	1.3	7.3	5.5
3000-3499	23,127	33.4	41	4	5	2.2	7	0.3	2.5	2.1
3500-3999	24,462	35.3	21	4	3	1.1	4	0.2	1.3	1.0
4000-4499	9,658	13.9	7	1	2	1.0	2	0.2	1.2	0.9
4500 and Over	1,969	2.8	2	0	0	1.0	0	0.0	1.0	1.0
Not Stated	10	0.0	2	0	0	166.7	0	0.0	166.7	90.9
Total	69,318	100	327	26	21	5.4	118	1.7	7.1	5.1

²¹ Throughout this section, 'Not Stated' values are not included in the calculation of percentages for discussion.

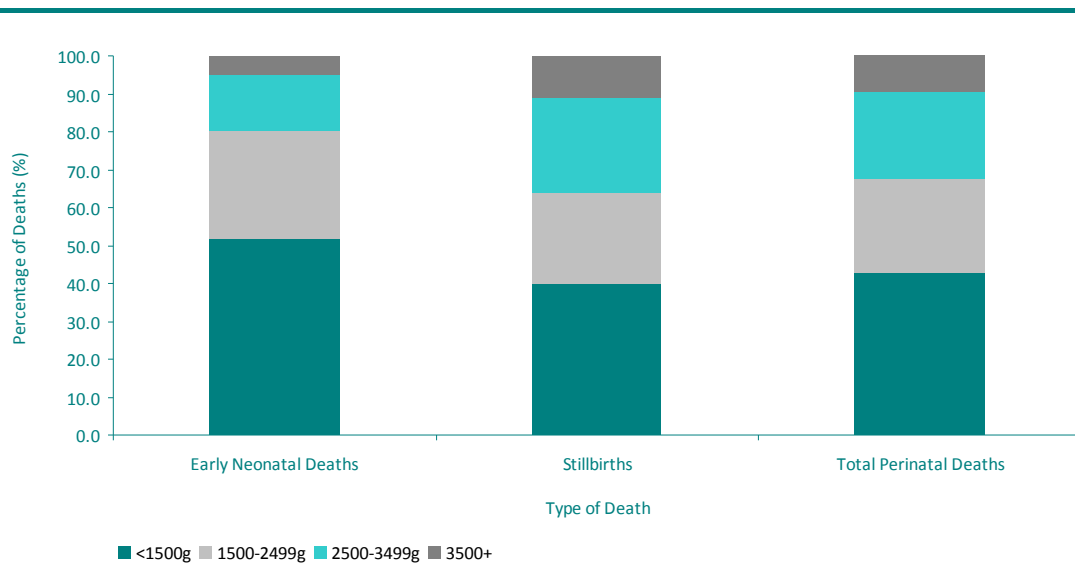
TABLE 5.1b: MULTIPLE BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Birthweight, 2007

Birthweight (grams)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
500-749	19	0.8	0	0	1	50.0	7	368.4	400.0	400.0
750-999	41	1.8	4	0	1	108.7	5	122.0	217.4	200.0
1000-1249	48	2.1	0	0	0	0.0	1	20.8	20.8	0.0
1250-1499	62	2.8	0	0	0	0.0	0	0.0	0.0	0.0
1500-1999	301	13.4	1	0	1	6.6	0	0.0	6.6	6.6
2000-2499	665	29.5	1	0	0	1.5	0	0.0	1.5	1.5
2500-2999	766	34.0	3	1	0	5.2	0	0.0	5.2	5.2
3000-3499	304	13.5	2	0	0	6.5	0	0.0	6.5	6.5
3500-3999	44	2.0	0	0	0	0.0	1	22.7	22.7	0.0
4000-4499	2	0.1	0	0	0	0.0	0	0.0	0.0	0.0
Not Stated	0	0.0	4	0	0	1,000.0	0	0.0	1,000.0	1,000.0
Total	2,252	100	15	1	3	8.4	14	6.2	14.5	12.8

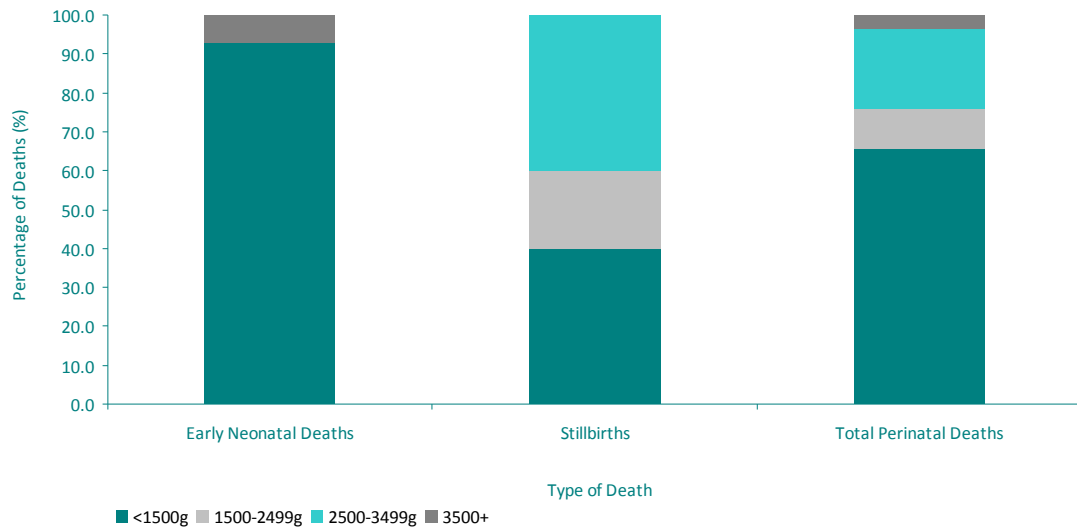
FIGURE 5.1

Deaths by Birthweight Groups, Singleton Births, 2007



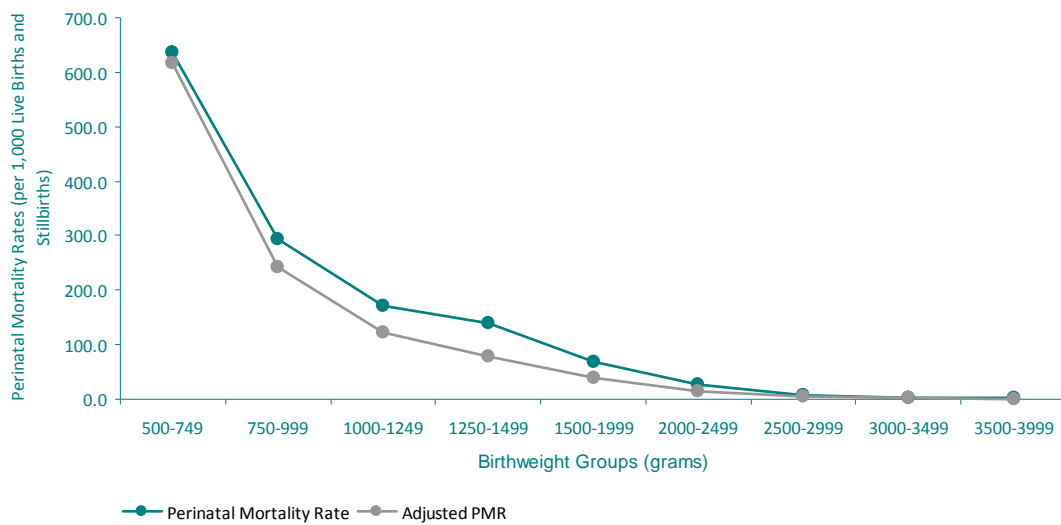
Note: See Table 5.1a for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 5.2
Deaths by Birthweight Groups, Multiple Births, 2007



Note: See Table 5.1b for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 5.3
Perinatal Mortality Rates by Birthweight Groups, Total Births, 2007



Note: See Appendix H, Table H18 for data. Rates based on 20 or less observations are not included in this Figure.

CAUSE OF DEATH BY BIRTHWEIGHT

Tables 5.2a and 5.2b show cause of death by each birthweight group for singleton and multiple births respectively. The relevant rate within each birthweight group is also provided in these tables. Over two-thirds of total singleton and multiple perinatal deaths weighed <2,500 grams. The highest percentage (30.2 per cent) of these deaths were due to congenital malformations. This was followed by immaturity (20.6 per cent) and maternal factors (16.7 per cent), and 15.3 per cent recorded cause of death as unexplained (see Figure 5.4). Almost one-third of total singleton and multiple perinatal deaths weighed at least 2,500 grams. Of these, 23 per cent were due to maternal factors, 20 per cent were due to congenital malformation, and 29.7 per cent recorded cause of death as unexplained (see Figure 5.5).

TABLE 5.2a: SINGLETON BIRTHS

Perinatal Mortality: Numbers and Rates, by Birthweight and Cause of Death, 2007

Cause of Death	ICD-10 Code		Birthweight (grams)											Not Stated	Total
			500-749	750-999	1000-1249	1250-1499	1500-1999	2000-2499	2500-2999	3000-3499	3500-3999	4000-4499	4500 and Over		
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery	P00-P04	Number	18	6	6	6	9	11	14	11	9	2	1	0	93
		Rate	117.6	51.3	37.3	32.1	16.2	6.5	1.9	0.5	0.4	0.2	0.5	0.0	1.3
Disorders related to length of gestation and foetal growth	P05-P08	Number	46	9	2	2	2	0	1	0	0	0	0	1	63
		Rate	300.7	76.9	12.4	10.7	3.6	0.0	0.1	0.0	0.0	0.0	0.0	83.3	0.9
Birth trauma	P10-P15	Number	1	0	0	0	0	0	0	0	0	0	0	0	1
		Rate	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Respiratory and cardiovascular disorders specific to the perinatal period	P20-P29	Number	12	4	4	2	6	6	7	9	5	1	0	0	56
		Rate	78.4	34.2	24.8	10.7	10.8	3.5	0.9	0.4	0.2	0.1	0.0	0.0	0.8
Infections specific to the perinatal period	P35-P39	Number	2	0	2	2	1	0	1	1	0	2	0	0	11
		Rate	13.1	0.0	12.4	10.7	1.8	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.2
Haemorrhagic and haematological disorders of foetus and newborn	P50-P61	Number	1	0	2	0	0	0	3	3	0	0	0	0	9
		Rate	6.5	0.0	12.4	0.0	0.0	0.0	0.4	0.1	0.0	0.0	0.0	0.0	0.1
Transitory endocrine and metabolic disorders specific to foetus and newborn	P70-P74	Number	0	0	0	0	0	0	0	0	0	1	0	0	1
		Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0
Conditions involving the integument and temperature regulation of foetus and newborn	P80-P83	Number	2	3	0	2	2	2	1	3	0	0	0	0	15
		Rate	13.1	25.6	0.0	10.7	3.6	1.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2
Other disorders originating in the perinatal period	P90.0-P94.9, P96.0-P96.8	Number	0	0	0	0	0	0	1	1	0	2	0	0	4
		Rate	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.2	0.0	0.0	0.1

TABLE 5.2a: SINGLETON BIRTHS (contd.)

Perinatal Mortality: Numbers and Rates, by Birthweight and Cause of Death, 2007

Singleton Births

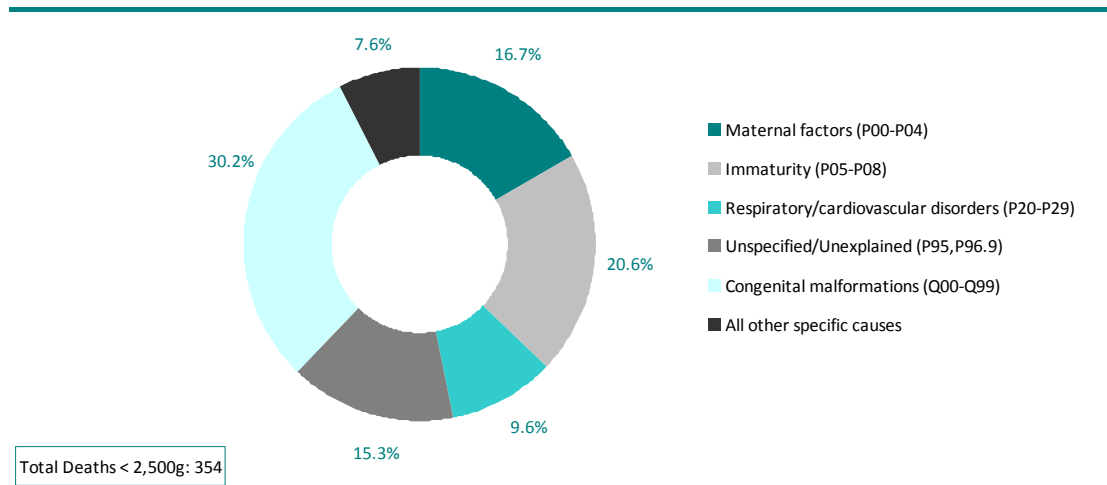
Cause of Death	ICD-10 Code		Birthweight (grams)												Total
			500-749	750-999	1000-1249	1250-1499	1500-1999	2000-2499	2500-2999	3000-3499	3500-3999	4000-4499	4500 and Over	Not Stated	
Foetal death of unspecified cause, Condition originating in the perinatal period, unspecified	P95, P96.9	Number	10	5	8	3	11	14	13	21	11	1	1	0	98
		Rate	65.4	42.7	49.7	16.0	19.7	8.3	1.7	0.9	0.4	0.1	0.5	0.0	1.4
Congenital malformations of the nervous system	Q00-Q07	Number	5	3	1	2	5	10	2	1	1	2	0	0	32
		Rate	32.7	25.6	6.2	10.7	9.0	5.9	0.3	0.0	0.0	0.2	0.0	0.0	0.5
Congenital malformations of the circulatory system	Q20-Q28	Number	2	0	1	1	2	2	2	1	2	1	0	0	14
		Rate	13.1	0.0	6.2	5.3	3.6	1.2	0.3	0.0	0.1	0.1	0.0	0.0	0.2
Congenital malformations of the respiratory system	Q30-Q34	Number	0	0	0	0	0	1	0	1	1	0	0	0	3
		Rate	0.0	0.0	0.0	0.0	0.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Other congenital malformations of the digestive system	Q38-Q45	Number	0	0	0	1	0	0	1	1	0	0	0	0	3
		Rate	0.0	0.0	0.0	5.3	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Congenital malformations of the urinary system	Q60-Q64	Number	0	1	0	3	3	3	2	1	0	0	0	0	13
		Rate	0.0	8.5	0.0	16.0	5.4	1.8	0.3	0.0	0.0	0.0	0.0	0.0	0.2
Congenital malformations and deformations of the musculoskeletal system	Q65-Q79	Number	0	1	0	2	2	4	1	1	1	0	0	0	12
		Rate	0.0	8.5	0.0	10.7	3.6	2.4	0.1	0.0	0.0	0.0	0.0	0.0	0.2
Other congenital malformations	Q80-Q89	Number	1	0	1	2	2	3	0	0	1	0	0	0	10
		Rate	6.5	0.0	6.2	10.7	3.6	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.1
Chromosomal abnormalities, not elsewhere classified	Q90-Q99	Number	1	5	8	6	12	9	6	2	1	0	0	1	51
		Rate	6.5	42.7	49.7	32.1	21.5	5.3	0.8	0.1	0.0	0.0	0.0	83.3	0.7
All other causes	A00.0-099.9, R00.0-Z99.9	Number	1	1	0	1	0	0	0	0	0	0	0	0	3
		Rate	6.5	8.5	0.0	5.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
All Causes of Perinatal Mortality	-	Number	102	38	35	35	57	65	55	57	32	12	2	2	492
		Rate	666.7	324.8	217.4	187.2	102.3	38.4	7.3	2.5	1.3	1.2	1.0	166.7	7.1

TABLE 5.2b: MULTIPLE BIRTHS

Perinatal Mortality: Numbers and Rates, by Birthweight and Cause of Death, 2007

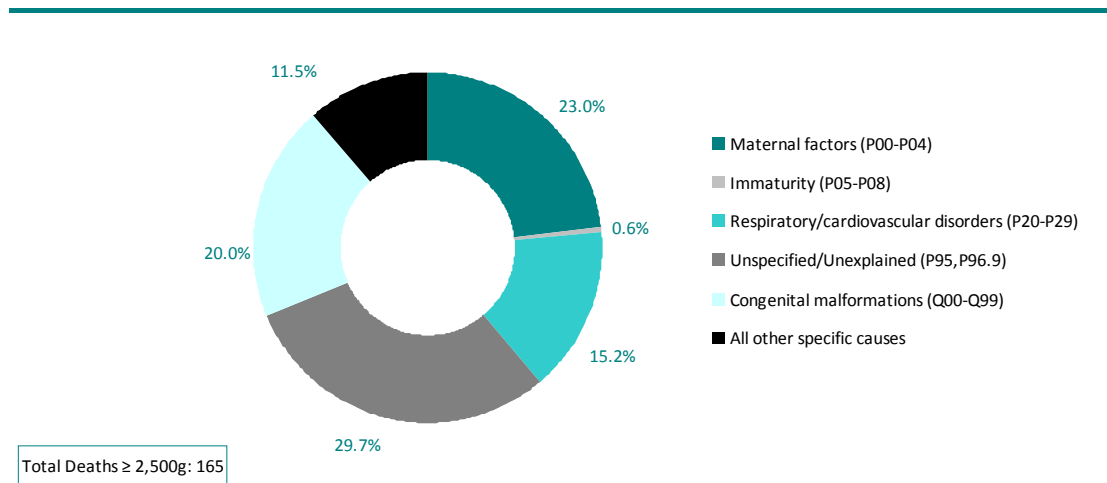
Cause of Death	ICD-10 Code		Birthweight (grams)									Total
			500-749	750-999	1000-1249	1500-1999	2000-2499	2500-2999	3000-3499	3500-3999	Not Stated	
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery	P00-P04	Number	0	1	0	1	1	1	0	0	0	4
		Rate	0.0	21.7	0.0	3.3	1.5	1.3	0.0	0.0	0.0	1.8
Disorders related to length of gestation and foetal growth	P05-P08	Number	7	5	0	0	0	0	0	0	3	15
		Rate	350.0	108.7	0.0	0.0	0.0	0.0	0.0	0.0	750.0	6.6
Respiratory and cardiovascular disorders specific to the perinatal period	P20-P29	Number	0	0	0	0	0	2	1	0	0	3
		Rate	0.0	0.0	0.0	0.0	0.0	2.6	3.3	0.0	0.0	1.3
Haemorrhagic and haematological disorders of foetus and newborn	P50-P61	Number	1	1	0	0	0	0	0	0	0	2
		Rate	50.0	21.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.9
Foetal death of unspecified cause, Condition originating in the perinatal period, unspecified	P95, P96.9	Number	0	2	0	1	0	1	1	0	0	5
		Rate	0.0	43.5	0.0	3.3	0.0	1.3	3.3	0.0	0.0	2.2
Other congenital malformations	Q80-Q89	Number	0	1	0	0	0	0	0	1	0	2
		Rate	0.0	21.7	0.0	0.0	0.0	0.0	0.0	22.7	0.0	0.9
Chromosomal abnormalities, not elsewhere classified	Q90-Q99	Number	0	0	1	0	0	0	0	0	1	2
		Rate	0.0	0.0	20.8	0.0	0.0	0.0	0.0	0.0	250.0	0.9
Total	-	Number	8	10	1	2	1	4	2	1	4	33
		Rate	400.0	217.4	20.8	6.6	1.5	5.2	6.5	22.7	1,000.0	14.5

FIGURE 5.4
Total Deaths < 2,500 grams by Cause of Death, 2007



Note: See Tables 5.2a and 5.2b for data. 'Not Stated' values are not included in the calculation of percentages.

FIGURE 5.5
Total Deaths ≥ 2,500 grams by Cause of Death, 2007



Note: See note to Figure 5.4.

MORTALITY BY GESTATIONAL AGE

Tables 5.3a and 5.3b illustrate the significant impact of prematurity (less than 37 completed weeks gestation) on stillbirth and early neonatal mortality rates. Similar to low birthweight babies, almost two-thirds of singleton perinatal deaths were born preterm while 75.7 per cent of multiple perinatal deaths were preterm (see Figures 5.6 and 5.7). The perinatal mortality rates for babies born before 37 completed weeks of gestation were 97.6 per 1,000 singleton births and 22.8 per 1,000 multiple births. For babies born at 37 or more completed weeks these rates were 2.6 per 1,000 singleton births and 6.8 per 1,000 multiple births. Figure 5.8 shows the perinatal mortality rates by gestational age at delivery for total births, illustrating the higher rates associated with lower gestational age.

TABLE 5.3a: SINGLETON BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Gestational Age, 2007

Gestational Age at Delivery (weeks)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	1	0.0	4	0	1	833.3	1	1,000.0	1,000.0	1,000.0
22-27	163	0.2	60	7	3	300.4	41	251.5	476.4	452.9
28-31	368	0.5	62	0	2	148.1	16	43.5	185.2	139.4
32-36	2,535	3.7	76	4	4	32.1	40	15.8	47.3	24.2
37-41	63,784	92.0	122	15	11	2.3	20	0.3	2.6	2.0
42 and Over	2,457	3.5	3	0	0	1.2	0	0.0	1.2	0.8
Not Stated	10	0.0	0	0	0	0.0	0	0.0	0.0	0.0
Total	69,318	100	327	26	21	5.4	118	1.7	7.1	5.1

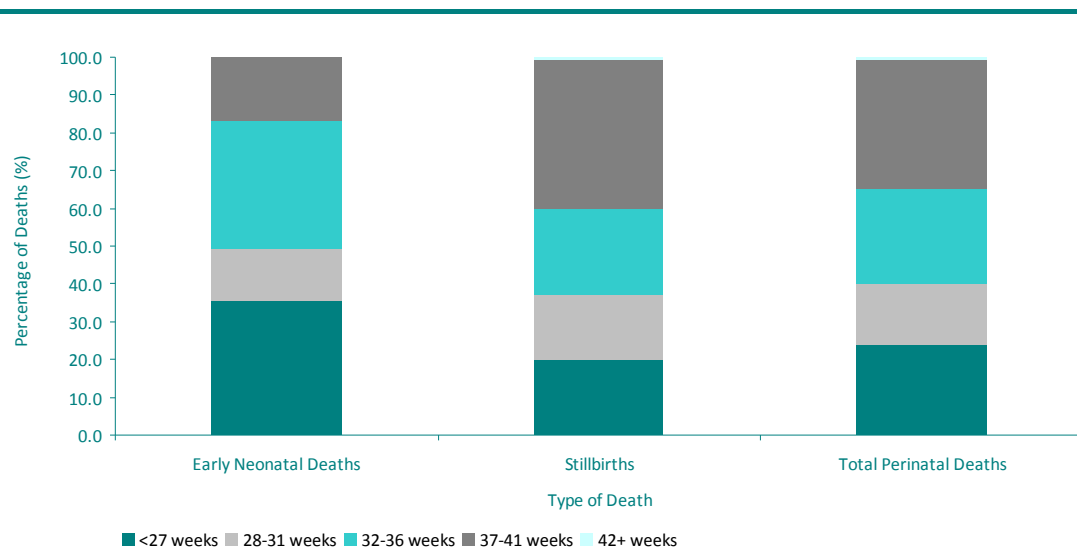
TABLE 5.3b: MULTIPLE BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Gestational Age, 2007

Gestational Age at Delivery (weeks)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	0	0.0	2	0	0	1000.0	0	0.0	1,000.0	1,000.0
22-27	49	2.2	1	0	1	39.2	12	244.9	274.5	260.0
28-31	147	6.5	1	0	0	6.8	0	0.0	6.8	6.8
32-36	887	39.4	5	0	2	7.8	1	1.1	8.9	7.8
37-41	1,167	51.8	6	1	0	6.0	1	0.9	6.8	5.1
42 and Over	2	0.1	0	0	0	0.0	0	0.0	0.0	0.0
Total	2,252	100	15	1	3	8.4	14	6.2	14.5	12.8

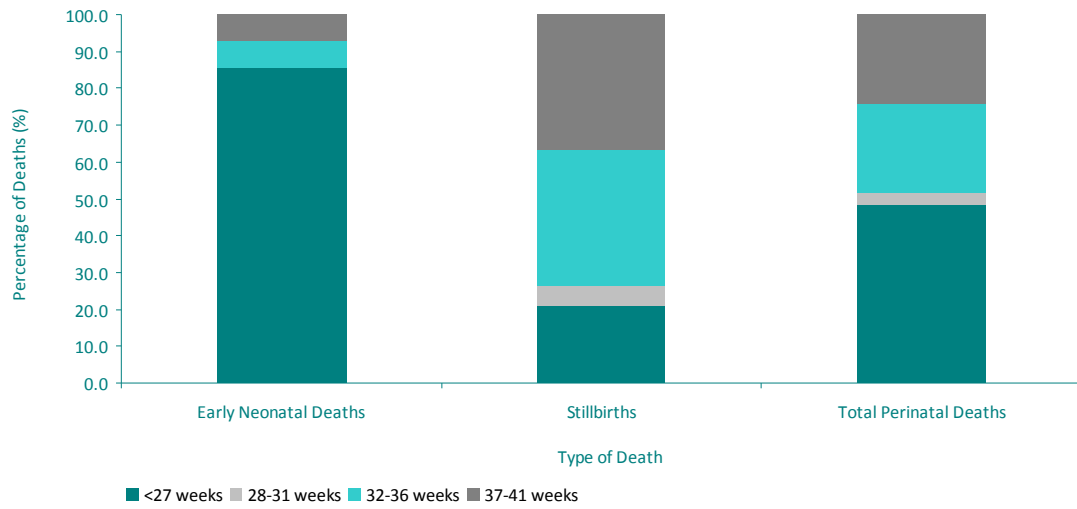
FIGURE 5.6

Deaths by Gestational Age Groups, Singleton Births, 2007



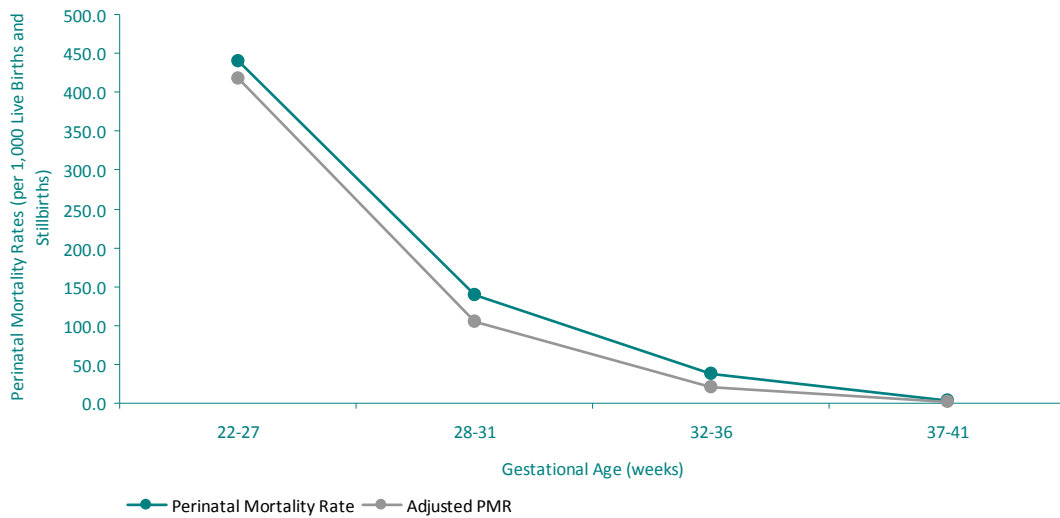
Note: See Table 5.3a for data.

FIGURE 5.7
Deaths by Gestational Age Groups, Multiple Births, 2007



Note: See Table 5.3b for data.

FIGURE 5.8
Perinatal Mortality Rates by Gestational Age at Delivery, Total Births, 2007



Note: See Appendix H, Table H19 for data. Rates based on 20 or less observations are not included in this Figure.

CAUSE OF DEATH

Of the 71,963 births recorded by the NPRS in 2007, 393 were stillbirths and 132 were early neonatal deaths, giving a total of 525 perinatal deaths and a perinatal mortality rate of 7.3 per 1,000 live births and stillbirths. As noted in Section Two, although the Irish perinatal mortality rate has been generally declining, it is still relatively high in comparison to other EU member states. Meaningful international and European comparisons by cause of death, however, are complicated by differences across countries relating to classifications, data availability, and definition of perinatal death. Some countries report on cause of death for stillbirths only,²² while others include late neonatal deaths (7 to 27 days) in their perinatal statistics.²³ The European Perinatal Health Report compiled from the EURO-PERISTAT perinatal health indicators compares rates of perinatal mortality across EU countries for 2004 and compares cause of foetal death due to congenital anomalies only. The indicator for causes of all perinatal deaths has been highlighted as an indicator for future development in this project.²⁴

Since 2005, mortality data in the NPRS data set has been coded using the WHO ICD-10 classification.²⁵ Under this system, the main cause of death is defined as the pathological condition of the infant or foetus, which in the opinion of the certifier, made the greatest contribution towards the death.²⁶ Each year around 20 per cent of all perinatal deaths are classified as 'unspecified/unexplained'. With approximately half of all perinatal deaths in Ireland not undergoing post mortem, it is perhaps unsurprising that such a high percentage of deaths are classified as such. While this poses limitations in the application of the data for clinicians, epidemiologists and service planners, it is, however, not a situation unique to Ireland, as many countries report high percentages of unexplained deaths in the perinatal period in their perinatal data sets, even where different classification systems are used. The UK Confidential Enquiry into Maternal and Child Health (CEMACH), for example, employs the Wigglesworth Classification and for 2007 reported unknown as cause of death for 76.1 per cent of stillbirths and 1.4 per cent of neonatal deaths.²⁷

²² See, for example, *Canadian Perinatal Health Report, 2008 Edition*. Public Health Agency of Canada. Canadian Perinatal Health Report, 2008 Edition. Ottawa, 2008. <http://www.publichealth.gc.ca/cphr/>

²³ See, for example, *Australia's Mothers and Babies, 2006*. Laws, P.J. & Hilder, J.L. 2008. Australia's mothers and babies 2006. Perinatal statistics series no. 22. Cat. No. PER 46. Sydney: AIHW National Perinatal Statistics Unit.

²⁴ EURO-PERISTAT Project, with SCPE, EUROCAT, EURONEOSTAT. *European Perinatal Health Report*. 2008. www.europeristat.com

²⁵ World Health Organisation, 2005, *International Statistical Classification of Diseases and Related Health Problems, 10th Revision*, Vols. 1-3. Geneva: World Health Organisation.

²⁶ See Appendix D for more detail

²⁷ *Confidential Enquiry into Maternal and Child Health (CEMACH) Perinatal Mortality 2007: United Kingdom*. CEMACH: London, 2009.

TABLE 5.4a: SINGLETON BIRTHS

Stillbirths, Early Neonatal Deaths and Mortality Rates by Cause of Death by ICD-10 Chapter and Selected Sub-Categories, 2007

Cause of Death	ICD-10 Code	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Total Perinatal Deaths	Perinatal Mortality Rate
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery	P00-P04	90	1.3	3	0.0	93	1.3
Foetus and newborn affected by maternal conditions that may be unrelated to present pregnancy	P00.0 - P00.9	5	0.1	0	0.0	5	0.1
Foetus and newborn affected by maternal complications of pregnancy	P01.0 - P01.9	6	0.1	0	0.0	6	0.1
Foetus and newborn affected by complications of placenta, cord and membranes	P02.0 - P02.9	69	1.0	3	0.0	72	1.0
Foetus and newborn affected by other complications of labour and delivery	P03.0 - P03.9	9	0.1	0	0.0	9	0.1
Disorders related to length of gestation and foetal growth	P05-P08	30	0.4	33	0.5	63	0.9
Slow foetal growth and foetal malnutrition	P05.0 - P05.9	8	0.1	0	0.0	8	0.1
Disorders related to short gestation and low birthweight, not elsewhere classified	P07.0 - P07.3	22	0.3	33	0.5	55	0.8
Birth trauma	P10-P15	1	0.0	0	0.0	1	0.0
Respiratory and cardiovascular disorders specific to the perinatal period	P20-P29	40	0.6	16	0.2	56	0.8
Intrauterine hypoxia	P20.0 - P20.9	38	0.5	0	0.0	38	0.5
Other respiratory conditions originating in the perinatal Period	P28.0 - P28.9	0	0.0	8	0.1	8	0.1
Infections specific to the perinatal period	P35-P39	9	0.1	2	0.0	11	0.2
Bacterial sepsis of newborn	P36.0 - P36.9	5	0.1	1	0.0	6	0.1
Other infections specific to the perinatal period	P39.0 - P39.9	4	0.1	1	0.0	5	0.1
Haemorrhagic and haematological disorders of foetus and newborn	P50-P61	7	0.1	2	0.0	9	0.1
Foetal blood loss	P50.0 - P50.9	3	0.0	1	0.0	4	0.1
Intracranial nontraumatic haemorrhage of foetus and newborn	P52.0 - P52.9	3	0.0	1	0.0	4	0.1
Transitory endocrine and metabolic disorders specific to foetus and newborn	P70-P74	1	0.0	0	0.0	1	0.0
Conditions involving the integument and temperature regulation of foetus and newborn	P80-P83	11	0.2	4	0.1	15	0.2
Other disorders originating in the perinatal period	P90-P96	97	1.4	5	0.1	102	1.5
Other disturbances of cerebral status of newborn	P91.0-P91.9	1	0.0	3	0.0	4	0.1
Foetal death of unspecified cause, Condition originating in the perinatal period, unspecified	P95, P96.9	96	1.4	2	0.0	98	1.4

TABLE 5.4a: SINGLETON BIRTHS (contd.)

Stillbirths, Early Neonatal Deaths and Mortality Rates by Cause of Death by ICD-10 Chapter and Selected Sub-Categories, 2007

Cause of Death	ICD-10 Code	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Total Perinatal Deaths	Perinatal Mortality Rate
Congenital malformations of the nervous system	Q00-Q07	17	0.2	15	0.2	32	0.5
Anencephaly and similar malformations	Q00.0 - Q00.2	14	0.2	8	0.1	22	0.3
Congenital hydrocephalus	Q03.0 - Q03.9	1	0.0	3	0.0	4	0.1
Other congenital malformations of the brain	Q04.0 - Q04.9	1	0.0	3	0.0	4	0.1
Congenital malformations of the circulatory system	Q20-Q28	9	0.1	5	0.1	14	0.2
Other congenital malformations of heart	Q24.0 - Q24.9	3	0.0	3	0.0	6	0.1
Congenital malformations of the respiratory system	Q30-Q34	2	0.0	1	0.0	3	0.0
Other congenital malformations of the digestive system	Q38-Q45	1	0.0	2	0.0	3	0.0
Congenital malformations of the urinary system	Q60-Q64	4	0.1	9	0.1	13	0.2
Renal agenesis and other reduction defects of kidney	Q60.0 - Q60.6	2	0.0	6	0.1	8	0.1
Congenital malformations and deformations of the musculoskeletal system	Q65-Q79	5	0.1	7	0.1	12	0.2
Congenital malformations of musculoskeletal system, not elsewhere classified	Q79.0 - Q79.9	3	0.0	2	0.0	5	0.1
Other congenital malformations	Q80-Q89	9	0.1	1	0.0	10	0.1
Chromosomal abnormalities, not elsewhere classified	Q90-Q99	38	0.5	13	0.2	51	0.7
Down's syndrome	Q90.0 - Q90.9	11	0.2	1	0.0	12	0.2
Edward's syndrome and Patau's syndrome	Q91.0 - Q91.7	16	0.2	12	0.2	28	0.4
Other trisomies and partial trisomies of the autosomes, not elsewhere classified	Q92.0 - Q92.9	6	0.1	0	0.0	6	0.1
All other causes	A00.0-099.9, R00.0-Z99.9	3	0.0	0	0.0	3	0.0
Total	-	374	5.4	118	1.7	492	7.1

TABLE 5.4b: MULTIPLE BIRTHS

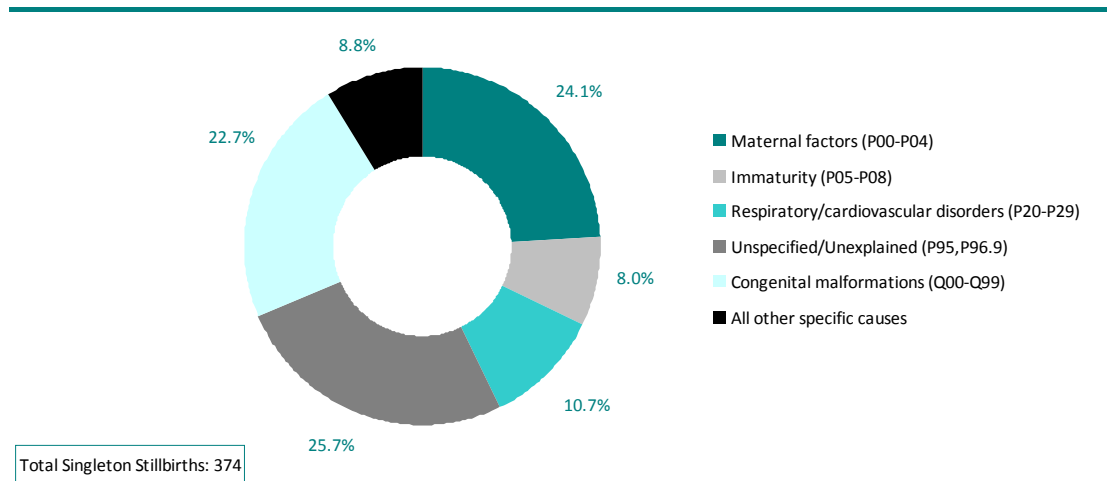
Stillbirths, Early Neonatal Deaths and Mortality Rates by Cause of Death by ICD-10 Chapter, 2007

Cause of Death	ICD-10 Code	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Total Perinatal Deaths	Perinatal Mortality Rate
Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery	P00-P04	4	1.8	0	0.0	4	1.8
Disorders related to length of gestation and foetal growth	P05-P08	6	2.6	9	4.0	15	6.6
Respiratory and cardiovascular disorders specific to the perinatal period	P20-P29	3	1.3	0	0.0	3	1.3
Haemorrhagic and haematological disorders of foetus and newborn	P50-P61	0	0.0	2	0.9	2	0.9
Other disorders originating in the perinatal period	P90-P96	5	2.2	0	0.0	5	2.2
Other congenital malformations	Q80-Q89	0	0.0	2	0.9	2	0.9
Chromosomal abnormalities, not elsewhere classified	Q90-Q99	1	0.4	1	0.4	2	0.9
Total	-	19	8.4	14	6.2	33	14.5

STILLBIRTHS

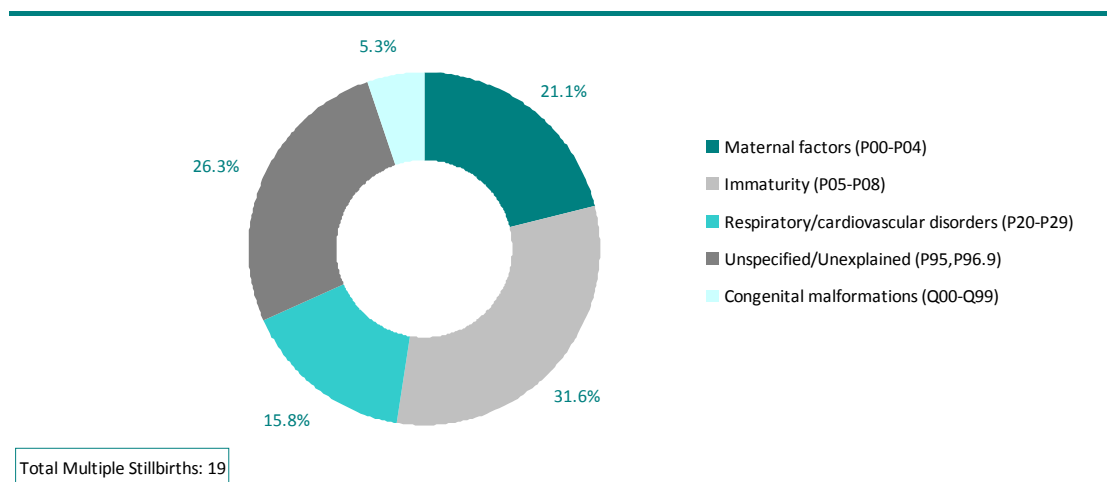
Apart from unspecified/unexplained deaths, the leading cause of death for stillbirths was maternal factors (P00-P04) for singleton births (24.1 per cent) and immaturity (P05-P08) for multiple births (31.6 per cent), (see Figures 5.9 and 5.10). The cause of death was unexplained for around one-quarter of all stillbirths in 2007.

FIGURE 5.9
Stillbirths by Cause of Death, Singleton Births, 2007



Note: See Table 5.4a for data.

FIGURE 5.10
Stillbirths by Cause of Death, Multiple Births, 2007

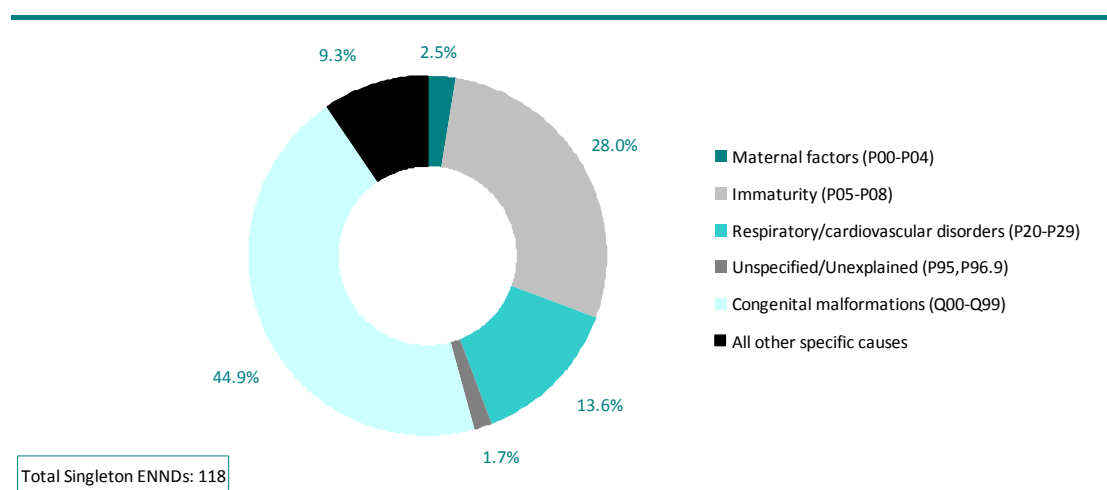


Note: See Table 5.4b for data.

EARLY NEONATAL DEATHS

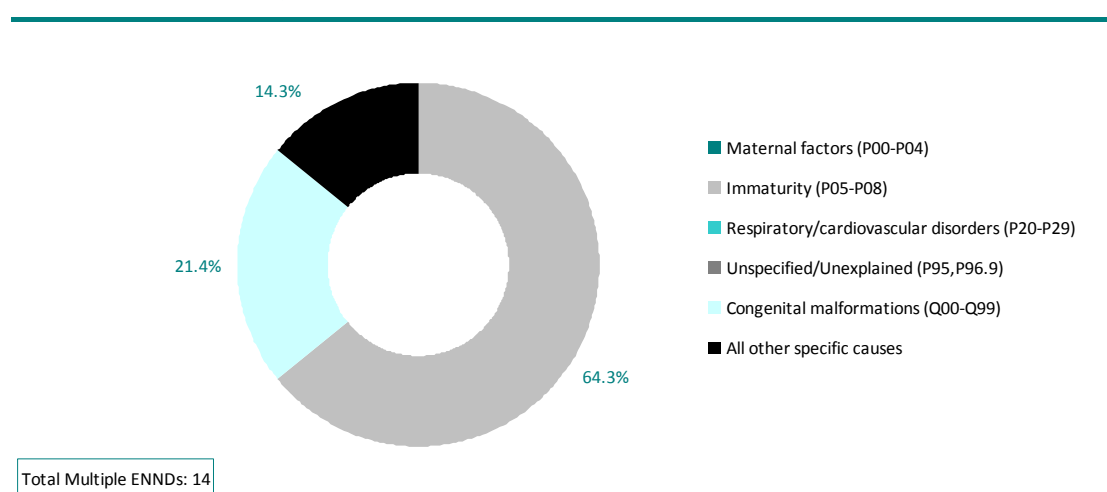
Almost 45 per cent of singleton early neonatal deaths were due to congenital malformations (Q00-Q99) and a further 28 per cent were due to immaturity (see Figure 5.11). Almost two-thirds of multiple early neonatal deaths were due to immaturity (64.3 per cent) and a further 21.4 per cent were due to congenital malformations (see Figure 5.12).

FIGURE 5.11
Early Neonatal Deaths, by Cause of Death, Singleton Births, 2007



Note: See Table 5.4a for data. ENNDs denotes Early Neonatal Deaths.

FIGURE 5.12
Early Neonatal Deaths, by Cause of Death, Multiple Births, 2007

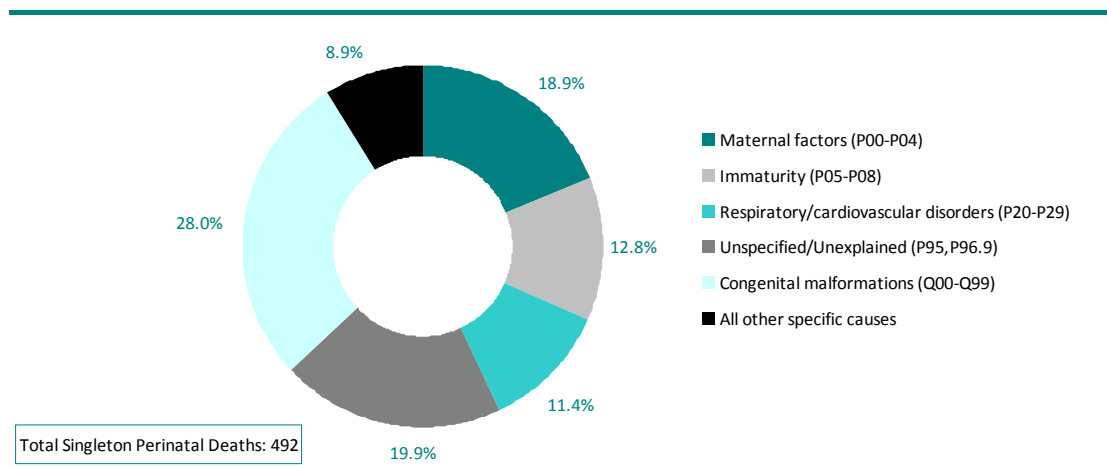


Note: See Table 5.4b for data. ENNDs denotes Early Neonatal Deaths.

TOTAL PERINATAL DEATHS

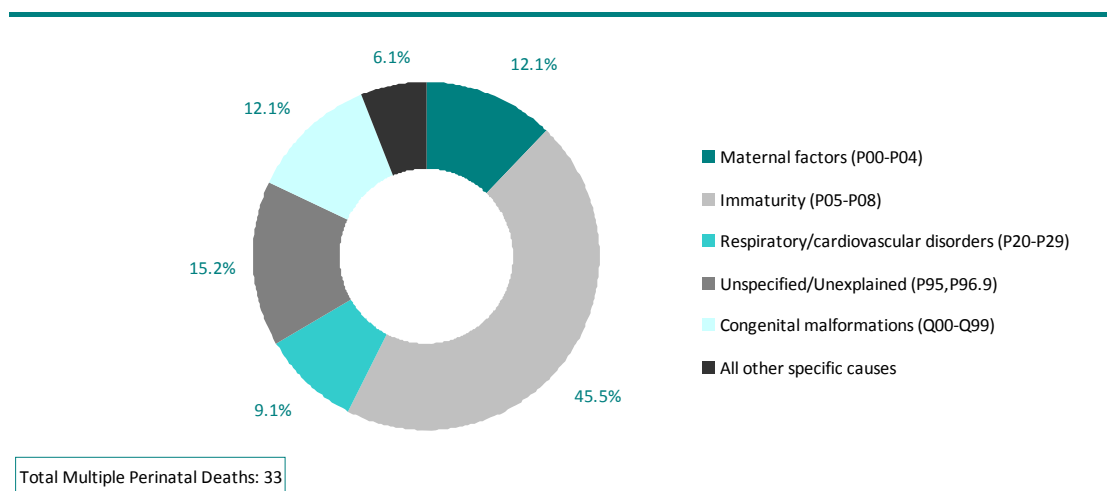
The leading cause of death for total perinatal deaths was congenital malformations (27 per cent) followed by maternal factors (18.5 per cent). For singleton births, congenital malformations were the greatest contributor to cause of death, accounting for 28 per cent of total singleton perinatal deaths (see Figure 5.13). For multiple births, the largest contributor was immaturity (45.5 per cent) followed by maternal factors and congenital malformations, 12.1 per cent in each (see Figure 5.14). Overall, 19.9 per cent and 15.2 per cent of singleton and multiple deaths were unexplained.

FIGURE 5.13
Perinatal Deaths by Cause of Death, Singleton Births, 2007



Note: See Table 5.4a for data.

FIGURE 5.14
Perinatal Deaths by Cause of Death, Multiple Births, 2007



Note: See Table 5.4b for data.

AGE AT DEATH

Age at death is recorded for early neonatal deaths and is shown in Tables 5.5a and 5.5b. Just over 35 per cent of total early neonatal deaths happened within the first hour of life. A total of 73.6 per cent of early neonatal deaths occurred before completing the first day of life and a further 26.4 per cent occurred before completing the first week of life.

TABLE 5.5a: SINGLETON BIRTHS
Age at Death, Early Neonatal Deaths, 2007

Time	Frequency	Per Cent (%)
Completed Hours		
<1	42	35.6
1	20	16.9
2	9	7.6
3	3	2.5
4	2	1.7
5	1	0.8
6	2	1.7
7	1	0.8
11	1	0.8
12	3	2.5
13	1	0.8
15	1	0.8
17	1	0.8
19	1	0.8
20	1	0.8
22	1	0.8
Total under 1 day	90	76.3
Completed Days		
1	12	10.2
2	1	0.8
3	3	2.5
4	6	5.1
5	1	0.8
6	2	1.7
Total under 1 Week	25	21.2
Unknown	3	2.5
Total	118	100

TABLE 5.5b: MULTIPLE BIRTHS
Age at Death, Early Neonatal Deaths, 2007

Time	Frequency	Per Cent (%)
Completed Hours		
<1	4	28.6
1	1	7.1
Total under 1 day	5	35.7
Completed Days		
1	2	14.3
2	3	21.4
3	2	14.3
5	2	14.3
Total under 1 Week	9	64.3
Total	14	100

POST-MORTEM EXAMINATION UPTAKE

Data on autopsy uptake are shown in Tables 5.6a and 5.6b. Post-mortems were less likely in the case of early neonatal deaths compared to stillbirths and this trend is consistent over recent years. The percentage of early neonatal deaths undergoing post-mortem examinations was 30.8 per cent compared to 48.3 per cent for stillbirths. An autopsy was undertaken in 44 per cent of total perinatal deaths in 2007.

TABLE 5.6a: SINGLETON BIRTHS

Stillbirths and Early Neonatal Deaths undergoing Post-Mortem Examinations, 2007

Post Mortem Frequency	Type of Death		
	Early Neonatal Deaths	Stillbirths	Total
Row Per Cent			
Col. Per Cent			
Post-Mortem	35	180	215
	16.3	83.7	100
	29.7	48.1	43.7
No Post-Mortem	81	192	273
	29.7	70.3	100
	68.6	51.3	55.5
Not Stated	2	2	4
	50.0	50.0	100
	1.7	0.5	0.8
Total	118	374	492
	24.0	76.0	100
	100	100	100

TABLE 5.6b: MULTIPLE BIRTHS

Stillbirths and Early Neonatal Deaths undergoing Post-Mortem Examinations, 2007

Post Mortem Frequency	Type of Death		
	Early Neonatal Deaths	Stillbirths	Total
Row Per Cent			
Col. Per Cent			
Post-Mortem	5	9	14
	35.7	64.3	100
	35.7	47.4	42.4
No Post-Mortem	9	10	19
	47.4	52.6	100
	64.3	52.6	57.6
Total	14	19	33
	42.4	57.6	100
	100	100	100

APPENDICES



APPENDIX A

DEFINITIONS

This section collates the definitions of the terms used in the analyses for this report.

OUTCOMES AND RATES²⁸

Perinatal Period: The perinatal period commences at 22 completed weeks (154 days) of gestation (the time when birth weight is normally 500 g), and ends seven completed days after birth.

Birth Rate: The Birth Rate or Crude Birth Rate is the ratio of total live births to total population over a specified period of time. The birth rate is often expressed as the number of live births per 1,000 members of the population in a particular time period (for example year).

Live Birth: A live birth is defined as the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of pregnancy, which, after such separation, breathes or shows any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles, whether or not the umbilical cord has been cut or the placenta is attached. In accordance with WHO guidelines, live births weighing less than 500 grams are not included in the national statistics presented in this report.

Stillbirth and Stillbirth Rate: Foetal death is defined as death prior to the complete expulsion or extraction from its mother of a product of conception, irrespective of the duration of the pregnancy. A foetal death is indicated by the fact that, after such separation, the foetus does not breathe or show any other evidence of life, such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles. Following WHO guidelines, a stillbirth in this report, refers to the death of a foetus weighing at least 500 grams. The **stillbirth rate** is given as follows:

$$\frac{\text{Number of Stillbirths} \times 1,000}{\text{Total Number of Live Births and Stillbirths}}$$

²⁸ In this report, where rates are based on very small numbers, they should be interpreted with caution. Rates calculated from 20 cases or less are distinguished by italic type as a warning to the user that their reliability as a measure may be affected by the small number of observations.

Early Neonatal Death (ENND) and Early Neonatal Mortality Rate: An early neonatal death refers to the death of a live born infant during the first week of life. The **early neonatal mortality rate** is calculated as follows:

$$\frac{\text{Number of Early Neonatal Deaths} \times 1,000}{\text{Total Number of Live Births}}$$

Perinatal Death and Perinatal Mortality Rate (PMR): Perinatal deaths include stillbirths and early neonatal deaths. The **perinatal mortality rate (PMR)** is calculated as follows:

$$\frac{\text{Number of Stillbirths and Early Neonatal Deaths} \times 1,000}{\text{Total Number of Live Births and Stillbirths}}$$

In this report a second perinatal mortality rate has been calculated excluding all stillbirths and early neonatal deaths due to congenital anomalies. This **adjusted rate (Adjusted PMR)** to some extent removes those perinatal events where death was unavoidable, but no attempt has been made to exclude only invariably fatal congenital anomalies.

Congenital Anomalies are physiological or structural abnormalities that develop at or before birth and are present at the time of birth. Congenital anomalies are those diseases/conditions categorised in *ICD-10*, Chapter XVII, *Congenital Malformations, Deformities and Chromosomal Abnormalities* (Q00.0-Q99.9).

Twinning Rate: This is given by:

$$\frac{\text{Number of Twin Maternities} \times 1,000}{\text{Total Number of Maternities}}$$

Twin maternities, which resulted in stillbirths, are included in the calculation of the twinning rate.

OTHER ITEMS

The definitions given below relate to the principal classification variables contained in the main section of the report and refer only to those terms where explanation is considered necessary. The definitions are grouped according to the section in which they first appear.

GENERAL CHARACTERISTICS

Born Before Arrival (BBA): Born before arrival indicates that an infant was delivered before arrival at hospital.

Domiciliary Birth: Domiciliary births are *planned* home births. The vast majority of these are attended by an independent midwife and are not associated with a hospital. In 2007, there were 46 births under hospital administered home birth schemes. For the purposes of this report these births are treated as hospital births due to their small numbers.

Marital Status: Five categories are recognised as specified below:

1. Married
2. Never Married²⁹
3. Widowed
4. Separated, covering the following categories:
 - Deserted
 - Legally separated
 - Church decree of nullity
 - Otherwise separated
5. Divorced.

Mother's and Father's Occupation: Occupations are coded and grouped, with minor modifications, according to the system of socio-economic groupings as used by the Central Statistics Office in the *1991 Census of Population, Volume 6*. Details are given in Appendix C.

Mother's and Father's Nationality: This indicates place of birth for mother and father. This definition is for the sole purpose of giving the necessary directions for the completion of the Birth Notification Form and is not a legal definition.

Parity: Maternal parity indicates a mother's total number of previous live births and stillbirths.

Time Since Last Birth: This variable gives the time, grouped into yearly intervals, since the mother's last live birth or stillbirth.

Birthweight: Birthweight is given in grams and hospitals are asked to record the weight within the first hour after birth. In accordance with WHO guidelines, infants weighing under 500 grams are not included in the national statistics presented in this report.

Period of Gestation: Gestational age at delivery is recorded in completed weeks, and is measured or estimated according to the best method available in each case.

²⁹ Data recording marital status as 'Never Married' are classified as 'Single' marital status in discussion in this report.

PERINATAL CARE

Antenatal Length of Stay: This is computed as the difference, in days, between a mother's date of admission and her date of delivery. Domiciliary births are not included in tables relating to this variable.

Postnatal Length of Stay: This is computed as the difference, in days, between the date of delivery and the date of the mother's discharge from hospital. A return of 'not stated' for this variable may indicate that the completed form was returned before the mother had been discharged. Domiciliary births are not included in tables relating to this variable.

Hospital Admission Booked or Unbooked: This indicates whether a mother's admission into hospital for delivery was booked or unbooked prior to delivery. Domiciliary births are not included in the tables relating to this variable.

Immunity to Rubella: An affirmative answer should be recorded only where there is documented evidence of a rubella antibody test. A history of rubella or previous immunisation is not sufficient.

Method of Delivery: Six categories are used:

1. Spontaneous cephalic delivery
2. Breech delivery, spontaneous, with or without forceps to after-coming head, breech extraction
3. Forceps delivery
4. Vacuum extraction³⁰
5. Caesarean section
6. Other Specified and Combined (for example, combination of spontaneous delivery followed by a vacuum extraction or caesarean section).

Size of Maternity Unit: Size in this context refers to the number of live births and stillbirths occurring during the year.

Transfer of Infants: This identifies infants who were transferred to another hospital for medical reasons.

Length of Infant's Stay: This is computed as the difference, in days, between the infant's date of birth and the date of the infant's discharge from hospital. A return of 'not stated' for this variable may indicate that the completed form was returned before the infant had been discharged. Where an infant was transferred to another hospital, the date of the transfer is

³⁰ Also known as Ventouse Deliveries (Source: World Health Organization, 2005, *International Statistical Classification of Diseases and Related Health Problems*, 10th Revision, Vol. 1. Geneva: World Health Organization.)

given as the date of the infant's discharge. Domiciliary births and perinatal deaths are not included in the tables relating to this variable.

Type of Feeding: This indicates whether artificial feeding, breastfeeding, or a combination of both was being used at the time of discharge. The **Breastfeeding Rate** is based on live births only (excluding ENNDs), and is calculated as follows:

$$\frac{\text{Number of Mothers Breastfeeding} \times 100}{\text{Total Number of Live Births (excluding ENNDs)}}$$

PERINATAL OUTCOMES

Antepartum and Intrapartum Stillbirths: These refer to stillbirths occurring prior to and during labour respectively.

Cause of Death: This categorisation indicates the principal underlying pathological cause, which in the opinion of the certifier made the greatest contribution to the death of the infant or foetus. In assigning cause of death in the NPRS, the guidelines recommended by the WHO have been followed. A summary of these guidelines is provided in Appendix D. The Tenth Revision of the ICD (ICD-10) came into effect for coding Irish births from 1 January 2005 onwards.

Age at Death: The age of early neonatal deaths is given in completed hours if the infant survived less than one day and in completed days otherwise.

Post-mortem: This indicates whether or not a post-mortem examination was performed. In some cases a return of 'not stated' may be due to the notification form being returned prior to post-mortem.

Note: All perinatal statistics and definitions are based on WHO ICD-10 Classifications.

APPENDIX B

COPY OF PART 3 OF THE BIRTH NOTIFICATION FORM USED BY NPRS

The following format was used for births in 2007.

Notification of Birth - To: National Perinatal Reporting System, The Economic & Social Research Institute, Whitaker Square, Sir John Rogerson's Quay, Dublin 2

TYPE OF BIRTH 1 PLACE OF BIRTH (Hospital = 1, BBA = 2, Domiciliary = 3) 2 NAME AND ADDRESS OF HOSPITAL _____

(Live = 1, Still = 2) HOSPITAL NO. 3 _____ CASE NO. 6 _____ Y Y Y Y

INFANT'S DETAILS

DATE OF BIRTH (DDMMYYYY) 14 _____ TIME OF BIRTH _____

IF MULTIPLE BIRTH ORDER OF BIRTH No. 22 of 23

SEX (Male = 1, Female = 2, Indeterminate = 3) 24

BIRTHWEIGHT 25 _____ GRAMMES

PERIOD OF GESTATION 29 _____ WEEKS

FATHER'S DETAILS

COUNTRY _____ 31 _____

COUNTRY _____ 34 _____

NATIONALITY _____ 38 _____

OCCUPATION _____ 42 _____

DATE OF BIRTH (DDMMYYYY) 44 _____

MOTHER'S DETAILS

COUNTRY _____ 52 _____

COUNTRY _____ 55 _____

NATIONALITY _____ 59 _____

OCCUPATION _____ 63 _____

DATE OF BIRTH (DDMMYYYY) 65 _____

MARITAL STATUS (Married = 1, Not Married = 2, Widowed = 3, Married then Separated = 4, Divorced = 5) 75

DATE OF PRESENT MARRIAGE (DDMMYYYY) 74 _____

DATE OF LAST BIRTH (live or still) (DDMMYYYY) 82 _____

NO. OF PREVIOUS LIVE BIRTHS 90 _____

CHILDREN STILL LIVING 92 _____

STILLBIRTHS 94 _____

SPONTANEOUS ABORTIONS 96 _____

PERINATAL DEATH

TYPE OF DEATH (Early Neonatal = 1, Stillbirth = 2) 98

WAS AUTOPSY PERFORMED (Yes = 1, No = 2) 99

AGE AT DEATH 100 _____ DAYS 101 _____ HOURS

PLACE OF DEATH _____ 103 _____

IF STILLBIRTH DID DEATH OCCUR BEFORE LABOUR (1) DURING LABOUR (2) NOT KNOWN (3) 106 _____

CAUSE OF DEATH

MAIN DISEASE OR CONDITION IN FETUS OR INFANT _____ 107 _____

OTHER DISEASES OR CONDITIONS IN FETUS OR INFANT _____ 112 _____

MOTHER'S HEALTH

ANTENATAL CARE THIS PREGNANCY (Hospital / Obstetrician = 1, G.P. Only = 2, Combined = 3, None = 4, Midwife Only = 5) 117

DATE OF FIRST VISIT TO DOCTOR DURING PREGNANCY (DDMMYYYY) 118 _____

DATE OF FIRST VISIT TO HOSPITAL DURING PREGNANCY (DDMMYYYY) 126 _____

WAS MOTHER IMMUNE TO RUBELLA (Yes = 1, No = 2, Not Known = 3) 134

METHOD OF DELIVERY (Spontaneous = 1, Breech & Forceps = 2, Forceps = 3, Vac. Extraction = 4, Caesarian Sec. = 5, Other = 6) 135

MAIN MATERNAL DISEASE OR CONDITION AFFECTING FETUS OR INFANT _____ 136 _____

OTHER MATERNAL DISEASES OR CONDITIONS AFFECTING FETUS OR INFANT _____ 141 _____

INFANT'S HEALTH

TYPE OF FEEDING (Artificial = 1, Breast = 2, Combined = 3) 146

WAS BCG ADMINISTERED (Yes = 1, No = 2) 147

MAIN DISEASE OR CONGENITAL MALFORMATION AFFECTING INFANT _____ 148 _____

OTHER DISEASES OR CONGENITAL MALFORMATIONS AFFECTING INFANT _____ 153 _____

HOSPITAL

WAS ADMISSION BOOKED (Yes = 1, No = 2) 158

DATE OF MOTHER'S ADMISSION (DDMMYYYY) 159 _____

DATE OF MOTHER'S DISCHARGE (DDMMYYYY) 167 _____

DATE OF INFANT'S DISCHARGE (DDMMYYYY) 175 _____

WAS INFANT TRANSFERRED TO OTHER HOSPITAL FOR MEDICAL REASONS (Yes = 1, No = 2) 183

IF 'YES', NAME OF HOSPITAL _____ 184 _____

GENERAL PRACTITIONER ATTENDED BY MOTHER

Signature

Date

BNF01/2003

APPENDIX C

CLASSIFICATION OF OCCUPATION

Occupations have been coded and classified in a set of socio-economic groups according to a system devised by the CSO. The final CSO Category of 'Unknown' has been differentiated into five distinct groups for the purposes of the Perinatal Reporting System. These are 'Unemployed', 'Not Classifiable', 'Not Applicable', 'Home Duties', and 'Not Stated'. Occupation is coded as unemployed when occupation is given as unemployed and where no previous occupation is stated. If a previous occupation is stated then occupation is coded to the relevant category. 'Not Classifiable' has been used to categorise indecipherable, unclear, or unlisted occupations where efforts to clarify the information have failed. 'Home Duties' is entered where occupation has been entered as 'full-time mother/father/parent', 'stay at home mother/father/parent', 'housewife', 'home duties', etc. 'Not Stated' applies to those cases where either the mother's or father's occupation has been left blank or has been recorded as 'unknown'.

Under Father's occupation, the following applies:

'Not Applicable' is entered when the marital status of the mother has been given as never married, widowed, separated or divorced, and where father's occupation has been left blank. 'Not Stated' applies to those cases where the marital status of the mother is recorded as either married or not stated, and where father's occupation has been left blank or has been recorded as 'unknown'. In either case, if an occupation is given for the father then the appropriate occupational code has been used.

The full list of socio-economic groups used in this report is as follows:

- Farmers & Farm Managers
- Other Agricultural Occupations & Fishermen
- Higher Professional
- Lower Professional
- Employers & Managers
- Salaried Employees
- Intermediate Non-Manual Workers
- Other Non-Manual Workers
- Skilled Manual Workers
- Semi-Skilled Manual Workers
- Unskilled Manual Workers
- Unemployed
- Not Classifiable
- Not Applicable (Father's Occupation Only)
- Home Duties
- Not Stated.

APPENDIX D

CAUSE OF DEATH CLASSIFICATION

The main cause of death has been determined according to the guidelines set out by the WHO in the Tenth Revision of the ICD.³¹ Briefly, the principal coding criteria are as follows:

The main cause of death as far as possible should indicate the pathological condition of the infant or foetus, which in the opinion of the certifier made the greatest contribution towards the death.

The following rules are extracted from *ICD-10, Second Edition, 2005, 4. Rules and guidelines for mortality and morbidity coding*. These rules have been applied to cause of death coding in the NPRS data set as follows:

Section (A) – main disease or condition in foetus or infant

Section (B) – other diseases or conditions in foetus or infant

Section (C) – main maternal disease or condition affecting foetus or infant

Section (D) – other maternal disease or condition affecting foetus or infant.

Rule P1. Mode of death or prematurity entered in section (a)

If heart or cardiac failure, asphyxia or anoxia (any condition in P20.-, P21.-) or prematurity (any condition in P07.-) is entered in section (a) and other conditions of the infant or foetus are entered in either section (a) or section (b), code the first-mentioned of these other conditions as if it had been entered alone in section (a) and code the condition actually entered in section (a) as if it had been entered in section (b).

Rule P2. Two or more conditions entered in sections (a) or (c)

If two or more conditions are entered in section (a) or section (c), code the first-mentioned of these as if it had been entered alone in section (a) or (c) and code the others as if they had been entered in sections (b) or (d).

³¹ World Health Organization, 2005, *International Statistical Classification of Diseases and Related Health Problems, 10th Revision*, Vols. 1-3. Geneva: World Health Organization.

Rule P3. No entry in sections (a) or (c).

If there is no entry in section (a) but there are conditions of the infant or foetus entered in section (b), code the first-mentioned of these as if it had been entered in section (a); if there are no entries in either section (a) or section (b), either code P95 (Foetal death of unspecified cause) for stillbirths or code P96.9 (Condition originating in the perinatal period, unspecified) for early neonatal deaths should be used for section (a).

Similarly, if there is no entry in section (c) but there are maternal conditions entered in section (d), code the first-mentioned of these as if it had been entered in section (c); if there are no entries in either section (c) or section (d) use some artificial code, e.g. xxx.x for section (c) to indicate that no maternal condition was reported.

Rule P4. Conditions entered in wrong section.

If a maternal condition (i.e. conditions in P00-P04) is entered in section (a) or section (b), or if a condition of the infant or foetus is entered in section (c) or section (d), code the conditions as if they had been entered in the respective correct section.

For the purpose of the cause of death tables included in this report, one further criterion has been applied. Where no infant's condition is given then, where a specific maternal condition is given (any condition in P00-P04), the main cause of death is classified under the maternal condition.

Table D1 summarises these rules.

TABLE D1
Cause of Death Coding Rules

ICD-10 Rule	Cause of Death as recorded on the Birth Notification Form				Action
	Section A	Section B	Section C	Section D	
	Main disease or condition in foetus or infant	Other disease or condition in foetus or infant	Main maternal disease or condition affecting foetus or infant	Other maternal disease or condition affecting foetus or infant	
Rule 1	Heart or cardiac failure, asphyxia, anoxia, prematurity (P20.-, P21.- or P07.-)	Other condition	No entry	No entry	Code the stated 'other condition' in section A and move condition entered in section A to section B.
Rule 2	Two or more conditions listed	No entry	Two or more conditions listed	No entry	Code the first mentioned condition in sections A and C respectively and code the second mentioned conditions in sections B and D respectively.
Rule 3	No entry	Condition entered	No entry	Condition entered	Code the first mentioned condition in section B to section A and the first mentioned condition in section D to section C.
	No entry	No entry	No entry	No entry	Code 'Foetal death of unspecified cause' (P95) for stillbirths or 'Conditions originating in the perinatal period, unspecified' (P96.9) for early neonatal deaths in section A.
Rule 4	Maternal condition entered (P00-P04)	Maternal condition entered (P00-P04)	Infant condition entered	Infant condition entered	Code maternal conditions in sections C and D respectively. Code infant conditions in sections A and B respectively.
Additional Rule	No entry	No entry	Maternal condition (P00-P04)	No entry	Code maternal condition to section A.

Table D2 illustrates the main chapter blocks relating to cause of death categories in this report.

TABLE D2

ICD 10, Cause of Death Codes

ICD-10 CODE	CAUSE OF DEATH
P00–P04	Foetus and newborn affected by maternal factors and by complications of pregnancy, labour and delivery
P05–P08	Disorders related to length of gestation and foetal growth
P10–P15	Birth trauma
P20–P29	Respiratory and cardiovascular disorders specific to the perinatal period
P35–P39	Infections specific to the perinatal period
P50–P61	Haemorrhagic and haematological disorders of foetus and newborn
P70–P74	Transitory endocrine and metabolic disorders specific to foetus and newborn
P75–P78	Digestive system disorders of foetus and newborn
P80–P83	Conditions involving the integument and temperature regulation of foetus and newborn
P90–P96	Other disorders originating in the perinatal period
Q00–Q07	Congenital malformations of the nervous system
Q10–Q18	Congenital malformations of eye, ear, face and neck
Q20–Q28	Congenital malformations of the circulatory system
Q30–Q34	Congenital malformations of the respiratory system
Q35–Q37	Cleft lip and cleft palate
Q38–Q45	Other congenital malformations of the digestive system
Q50–Q56	Congenital malformations of genital organs
Q60–Q64	Congenital malformations of the urinary system
Q65–Q79	Congenital malformations and deformations of the musculoskeletal system
Q80–Q89	Other congenital malformations
Q90–Q99	Chromosomal abnormalities, not elsewhere classified

All other codes (A00 – O99, R00 - Z99) have been classified to the category ‘all other causes’.

APPENDIX E

CLASSIFICATION OF COUNTY OF RESIDENCE

The following codes are applied to mother's and father's county of residence. Where a Dublin postal code, such as Dublin 13, is entered then a code of 10 is applied for Dublin City. Where there is no postal code and Dublin is recorded then a code of 11 is applied for Dublin County. For births occurring in the HSE South region where Tipperary is recorded as county of residence then a code of 62, Tipperary South Riding, is applied. For births occurring in other HSE regions where Tipperary is recorded as county of residence then a code of 32, Tipperary North Riding, is applied. Where a mother's or father's county of residence is unknown the code 99 is applied. The code 90 is applied where the address given is outside the Republic of Ireland.

10	Dublin City	50	Donegal
11	Dublin County	51	Sligo
12	Kildare	52	Leitrim
13	Wicklow	60	Carlow
20	Laois	61	Kilkenny
21	Offaly	62	Tipperary South Riding
22	Longford	63	Waterford
23	Westmeath	64	Wexford
30	Clare	70	Cork
31	Limerick	71	Kerry
32	Tipperary North Riding	80	Galway
40	Meath	81	Mayo
41	Cavan	82	Roscommon
42	Monaghan	90	Other – all places outside Republic of Ireland
43	Louth	99	Not Stated

APPENDIX F

CLASSIFICATION OF NATIONALITY

Nationality for mother and father is defined by the place of their birth. This definition is for the sole purpose of giving the necessary directions for the completion of the Birth Notification Form and is not a legal definition.

Nationalities have been coded and classified into a set of groups according to a system devised by the CSO.

Country groupings are as follows:

Ireland includes the following:

Ireland
Irish American
Irish English
Irish European
Irish Other.

UK includes the following:

England
Great Britain
Northern Ireland
Scotland
Wales.

EU 15 (excluding Ireland and the UK) includes the following:

Austria	Italy
Belgium	Luxembourg
Denmark	Netherlands
Finland	Portugal
France	Spain
Germany	Sweden.
Greece	

EU 15 to EU 27 accession states includes the following:

Bulgaria	Lithuania
Cyprus	Malta
Czech Republic	Poland
Estonia	Slovakia
Hungary	Slovenia
Latvia	Romania.

Rest of Europe includes the following:

Albania	Jersey
Andorra	Liechtenstein
Armenia	Macedonia, The Former Yugoslav Republic of,
Azerbaijan	Moldova, Republic of
Belarus	Monaco
Bosnia and Herzegovina	Norway
Croatia	Russian Federation

Faroe Islands	San Marino
Georgia	Switzerland
Gibraltar	Turkey
Guernsey	Ukraine
Iceland	Vatican City
Isle of Man	Yugoslavia, Federal Republic of.

Africa includes the following:

Algeria	Malawi
Angola	Mali
Benin	Mauritania
Botswana	Mauritius
Burkina Faso	Mayotte
Burundi	Morocco
Cameroon	Mozambique
Cape Verde	Namibia
Central African Republic	Niger
Chad	Nigeria
Comoros	Reunion
Congo	Rwanda
Congo, The Democratic Republic of the	Saint Helena
Cote d'Ivoire	Sao Tome and Principe
Djibouti	Senegal
Egypt	Seychelles
Equatorial Guinea	Sierra Leone
Eritrea	Somalia
Ethiopia	South Africa
Gabon	Sudan
Gambia	Swaziland
Ghana	Tanzania, United Republic of
Guinea	Togo
Guinea-Bissau	Tunisia
Kenya	Uganda
Lesotho	Western Sahara
Liberia	Zambia
Libyan Arab Jamahiriya	Zimbabwe.
Madagascar	

Asia includes the following:

Afghanistan	Macao
Bahrain	Malaysia
Bangladesh	Maldives
Bhutan	Mongolia
British Indian Ocean Territory	Myanmar
Brunei Darussalam	Nepal

Cambodia	Oman
China	Pakistan
East Timor	Palestinian Territory, Occupied
Hong Kong	Philippines
India	Qatar
Indonesia	Saudi Arabia
Iran, Islamic Republic of	Singapore
Iraq	Sri Lanka
Israel	Syrian Arab Republic
Japan	Taiwan, Province of China
Jordan	Tajikistan
Kazakhstan	Thailand
Korea, Democratic People's Republic of	Turkmenistan
Korea, Republic of	United Arab Emirates
Kuwait	Uzbekistan
Kyrgyzstan	Vietnam
Lao People's Democratic Republic	Yemen.
Lebanon	

America includes the following:

Anguilla	Guyana
Antigua and Barbuda	Haiti
Argentina	Honduras
Aruba	Jamaica
Bahamas	Martinique
Barbados	Mexico
Belize	Montserrat
Bermuda	Netherlands Antilles
Bolivia	Nicaragua
Brazil	Panama
Canada	Paraguay
Cayman Islands	Peru
Chile	Puerto Rico
Colombia	Saint Kitts and Nevis
Costa Rica	Saint Lucia
Cuba	Saint Pierre and Miquelon
Dominica	Saint Vincent and the Grenadines
Dominican Republic	Suriname
Ecuador	Trinidad and Tobago
El Salvador	Turks and Caicos Islands
Falkland Islands (Malvinas)	United States
French Guiana	Uruguay
Greenland	Venezuela
Grenada	Virgin Islands, British
Guadeloupe	Virgin Island, US.
Guatemala	

Australia includes the following:

Australia.

New Zealand and Other Oceania includes the following:

American Samoa	Niue
Antarctica	Norfolk Island
Bouvet Island	Northern Mariana Islands
Christmas Island	Palau
Cocos (Keeling) Islands	Papua New Guinea
Cook Islands	Pitcairn
Fiji	Samoa
French Polynesia	Solomon Islands
French Southern Territories	South Georgia and the South Sandwich Islands
Guam	Svalbard and Jan Mayen
Heard Island and McDonald Islands	Tokelau
Kiribati	Tonga
Marshall Islands	Tuvalu
Micronesia, Federated States of	United States Minor Outlying Islands
Nauru	Vanuatu
New Caledonia	Wallis and Futuna.
New Zealand	

Multi-Nationality includes the following:

Mixed/Multi-Nationality (stated as so).

No Nationality:

Stated as so.

Not Stated:

Where nationality is not provided.

Not Applicable:

This applies to father's nationality only. Where mother's marital status is stated as 'never married', 'widowed', 'separated' or 'divorced' the General Register Office does not require father's details to register the birth, and as such this information is generally not provided.

All Other Nationalities:

Where nationality is not recorded to any category listed above.

APPENDIX G

DOMICILIARY BIRTHS, 1999-2007

INTRODUCTION

Domiciliary births have been included, unless otherwise stated, in the analysis presented in previous sections. Domiciliary births are defined as planned home births attended by an independent midwife and are not associated with a hospital. Births delivered under hospital administered home birth schemes are recorded as hospital births.

In 1999 there were 246 domiciliary births. Of these, there was one early neonatal death and no stillbirths. In 2000 the number of domiciliary births fell to 216 with, again, one early neonatal death and no stillbirths. There were no domiciliary multiple births in 1999 or 2000.

In 2001 the number of domiciliary births increased to 245. Of these, there was one stillbirth and no early neonatal deaths. There was one set of domiciliary twin births in 2001.

The trend in the number of domiciliary births continued to be upwards, increasing to 288 in 2002. Of these, there were no stillbirths and one early neonatal death. There were no domiciliary multiple births in 2002.

In 2003 and 2004 the number of domiciliary births decreased to 236 and 202 respectively. Of these, there were no stillbirths and one early neonatal death in 2004. There were no domiciliary multiple births in 2003 or 2004. In 2005 there were 183 planned domiciliary births reported to NPRS. There were no stillbirths, early neonatal deaths or multiple births among domiciliary births in 2005.

For 2006 there were 170 domiciliary births. Again, there were no stillbirths, early neonatal deaths or multiple births among domiciliary births in 2006. There were 186 domiciliary births recorded in 2007 and there was one stillbirth and no early neonatal deaths. There were no domiciliary multiple births in 2007.

Table G1 below highlights trends across domiciliary births from 1999 to 2007 and shows that those women choosing a domiciliary delivery were older (average age 34 years), with higher maternal parity, 1.60 previous births, than those choosing to have their babies in a hospital setting (see Table 2.1, page 9). Only 16.1 per cent of mothers recorded marital status as 'never married' compared to over 30 per cent in hospital maternities. The average birthweight was higher at 3,699 grams and breastfeeding was significantly higher at over 95 per cent. Further tables show that almost 85 per cent of domiciliary births were to

multiparous women (Table G2). Over 80 per cent of domiciliary births were to women aged 30 years or more (Table G3). All but two births weighed over 2,500 grams, with over 90 per cent weighing over 3,000 grams, and all babies were born at 37 or more completed weeks gestation (Table G4). Almost two-thirds of domiciliary births were to married women aged between 30 to 39 years of age (Table G5). The most common mother's occupation was 'lower professional' followed by 'home duties' (Table G6). The highest proportion of breastfed babies were to those whose father's occupation was recorded as 'skilled manual workers', and to mother's recording an occupation of 'lower professional' (Tables G7 and G8).

The tables that follow present selected statistics on domiciliary births for 1999 to 2007 (G1) and contain a range of cross-tabulations relating to all domiciliary births for 2007 (G2-G8). The format of each cross-tabulation is identical. The values of the two variables are given along the top row and left-hand side column. The top number in each cell indicates the number of observations relating to that combination of variable values. The second number indicates the percentage contribution of that cell to the total for the whole row. The last number indicates the percentage contribution of that cell to the total for the whole column. The figures at the end of each row or column give the overall total for that row or column, and the associated percentages express each of these figures as a percentage of the grand total.

TABLE G1: DOMICILIARY BIRTHS
Trends in Selected Statistics, 1999-2007

Selected Statistics	1999	2000	2001	2002	2003	2004	2005	2006	2007
General Characteristics									
Average Age of Mother in years ¹	33.47	33.33	33.18	34.07	34.01	34.31	33.37	34.34	34.12
Average Maternal Parity ¹	1.52	1.62	1.40	2.07	1.63	1.60	1.70	1.72	1.60
Single Mothers (%) ^{1,2}	25.20	29.63	31.56	22.57	27.97	29.21	23.50	20.00	16.13
Average Weight in grams ³									
Total Live Births	3,699.46	3,726.71	3,686.75	3,730.06	3,754.25	3,738.40	3,760.09	3,742.20	3,699.24
Low Birthweight <2,500 grams (%) ³									
Total Live Births	0.43	1.86	0.00	0.35	0.00	0.99	0.55	0.59	1.08
Average Gestational Age at delivery in weeks	40.04	39.92	40.02	40.14	40.05	39.99	40.03	40.08	39.98
Average Interval since last birth in years	3.46	3.40	3.82	3.74	3.65	3.54	3.30	3.44	3.38
Perinatal Care									
Combined Antenatal Care - Midwife and GP/Hospital (%) ⁴	59.76	57.87	55.33	57.29	66.10	64.36	71.58	76.47	60.75
Immunity to Rubella (%) ¹	92.34	90.70	93.44	91.61	94.07	97.03	95.08	96.47	100.00
Mothers Breastfeeding (%) ⁵	98.25	96.63	95.02	94.04	94.07	97.51	93.99	97.06	95.68

Notes: There were no domiciliary multiple births in 1999, 2000 or in the years 2002 -2007.

There was one set of domiciliary twin births in 2001.

'Not Stated' values are not included in the calculation of percentages.

¹ Based on maternities.

² Data recording marital status as 'never married' are classified as 'single' marital status in this report.

³ Based on live births.

⁴ Based on maternities. This figure applies to the percentage of home births where antenatal care is stated as 'combined', rather than 'midwife only'.

⁵ Based on maternities with live births. Excludes early neonatal deaths.

TABLE G2: DOMICILIARY BIRTHS
Age of Mother by Maternal Parity, 2007

Age of Mother	Maternal Parity							Total
	0	1	2	3	4	5	6	
Frequency								
Row Per Cent								
Col. Per Cent								
20-24 Years	1	3	0	0	0	0	0	4
	25.0	75.0	0.0	0.0	0.0	0.0	0.0	100
	3.4	4.3	0.0	0.0	0.0	0.0	0.0	2.2
25-29 Years	9	11	6	0	0	0	0	26
	34.6	42.3	23.1	0.0	0.0	0.0	0.0	100
	31.0	15.7	11.3	0.0	0.0	0.0	0.0	14.0
30-34 Year	12	27	24	10	2	1	0	76
	15.8	35.5	31.6	13.2	2.6	1.3	0.0	100
	41.4	38.6	45.3	45.5	33.3	20.0	0.0	40.9
35-39 Years	6	25	21	9	2	2	0	65
	9.2	38.5	32.3	13.8	3.1	3.1	0.0	100
	20.7	35.7	39.6	40.9	33.3	40.0	0.0	34.9
40-44 Years	1	4	2	3	2	1	1	14
	7.1	28.6	14.3	21.4	14.3	7.1	7.1	100
	3.4	5.7	3.8	13.6	33.3	20.0	100.0	7.5
45 Years and Over	0	0	0	0	0	1	0	1
	0.0	0.0	0.0	0.0	0.0	100.0	0.0	100
	0.0	0.0	0.0	0.0	0.0	20.0	0.0	0.5
Total	29	70	53	22	6	5	1	186
	15.6	37.6	28.5	11.8	3.2	2.7	0.5	100
	100	100	100	100	100	100	100	100

TABLE G3: DOMICILIARY BIRTHS
Age of Mother by Gestational Age at Delivery, 2007

Age of Mother	Gestational Age (weeks)		
	37-41	42 and Over	Total
Frequency			
Row Per Cent			
Col. Per Cent			
20-24 Years	3	1	4
	75.0	25.0	100
	1.7	12.5	2.2
25-29 Years	26	0	26
	100.0	0.0	100
	14.6	0.0	14.0
30-34 Year	72	4	76
	94.7	5.3	100
	40.4	50.0	40.9
35-39 Years	62	3	65
	95.4	4.6	100
	34.8	37.5	34.9
40-44 Years	14	0	14
	100.0	0.0	100
	7.9	0.0	7.5
45 Years and Over	1	0	1
	100.0	0.0	100
	0.6	0.0	0.5
Total	178	8	186
	95.7	4.3	100
	100	100	100

TABLE G6: DOMICILIARY BIRTHS
 Mother's Occupation by Birthweight, 2007

Mother's Occupation	Birthweight (grams)						Total
	2000-2499	2500-2999	3000-3499	3500-3999	4000-4499	4500 and Over	
Farmers & Farm Managers	0	0	0	0	0	1	1
	0.0	0.0	0.0	0.0	0.0	100.0	100
	0.0	0.0	0.0	0.0	0.0	5.6	0.5
Higher Professional	1	1	2	8	4	4	20
	5.0	5.0	10.0	40.0	20.0	20.0	100
	50.0	10.0	4.2	10.4	12.9	22.2	10.8
Lower Professional	0	4	15	27	7	3	56
	0.0	7.1	26.8	48.2	12.5	5.4	100
	0.0	40.0	31.3	35.1	22.6	16.7	30.1
Employers & Managers	0	0	1	3	0	0	4
	0.0	0.0	25.0	75.0	0.0	0.0	100
	0.0	0.0	2.1	3.9	0.0	0.0	2.2
Salaried Employees	0	0	1	0	0	0	1
	0.0	0.0	100.0	0.0	0.0	0.0	100
	0.0	0.0	2.1	0.0	0.0	0.0	0.5
Intermediate Non-Manual Workers	0	0	6	8	3	2	19
	0.0	0.0	31.6	42.1	15.8	10.5	100
	0.0	0.0	12.5	10.4	9.7	11.1	10.2
Other Non-Manual Workers	0	1	5	10	6	3	25
	0.0	4.0	20.0	40.0	24.0	12.0	100
	0.0	10.0	10.4	13.0	19.4	16.7	13.4
Skilled Manual Workers	0	0	1	0	2	0	3
	0.0	0.0	33.3	0.0	66.7	0.0	100
	0.0	0.0	2.1	0.0	6.5	0.0	1.6
Not Classifiable	0	2	0	3	2	1	8
	0.0	25.0	0.0	37.5	25.0	12.5	100
	0.0	20.0	0.0	3.9	6.5	5.6	4.3
Home Duties	1	2	17	18	7	4	49
	2.0	4.1	34.7	36.7	14.3	8.2	100
	50.0	20.0	35.4	23.4	22.6	22.2	26.3
Total	2	10	48	77	31	18	186
	1.1	5.4	25.8	41.4	16.7	9.7	100
	100	100	100	100	100	100	100

Note: See Appendix C for a description of the classification system for occupation.

TABLE G7: DOMICILIARY BIRTHS

Father's Occupation by Infant's Type of Feeding, Live Births, 2007

Father's Occupation	Type of Feeding			
	Artificial	Breast	Combined	Total
Frequency				
Row Per Cent				
Col. Per Cent				
Farmers & Farm Managers	0	4	0	4
	0.0	100.0	0.0	100
	0.0	2.3	0.0	2.2
Other Agricultural Occupations & Fishermen	0	1	0	1
	0.0	100.0	0.0	100
	0.0	0.6	0.0	0.5
Higher Professional	0	22	0	22
	0.0	100.0	0.0	100
	0.0	12.4	0.0	11.9
Lower Professional	1	24	0	25
	4.0	96.0	0.0	100
	14.3	13.6	0.0	13.5
Employers & Managers	2	21	0	23
	8.7	91.3	0.0	100
	28.6	11.9	0.0	12.4
Salaried Employees	0	3	0	3
	0.0	100.0	0.0	100
	0.0	1.7	0.0	1.6
Intermediate Non-Manual Workers	0	17	0	17
	0.0	100.0	0.0	100
	0.0	9.6	0.0	9.2
Other Non-Manual Workers	0	13	0	13
	0.0	100.0	0.0	100
	0.0	7.3	0.0	7.0
Skilled Manual Workers	2	58	1	61
	3.3	95.1	1.6	100
	28.6	32.8	100.0	33.0
Semi-Skilled Manual Workers	0	1	0	1
	0.0	100.0	0.0	100
	0.0	0.6	0.0	0.5
Unskilled Manual Workers	0	1	0	1
	0.0	100.0	0.0	100
	0.0	0.6	0.0	0.5
Unemployed	0	2	0	2
	0.0	100.0	0.0	100
	0.0	1.1	0.0	1.1
Not Classifiable	2	8	0	10
	20.0	80.0	0.0	100
	28.6	4.5	0.0	5.4
Not Applicable	0	2	0	2
	0.0	100.0	0.0	100
	0.0	1.1	0.0	1.1
Total	7	177	1	185
	3.8	95.7	0.5	100
	100	100	100	100

Note: See Appendix C for a description of the classification system for occupation.

TABLE G8 : DOMICILIARY BIRTHS

Mother's Occupation by Infant's Type of Feeding, Live Births, 2007

Mother's Occupation	Type of Feeding			
	Artificial	Breast	Combined	Total
Frequency				
Row Per Cent				
Col. Per Cent				
Farmers & Farm Managers	0	1	0	1
	0.0	100.0	0.0	100
	0.0	0.6	0.0	0.5
Higher Professional	1	19	0	20
	5.0	95.0	0.0	100
	14.3	10.7	0.0	10.8
Lower Professional	1	53	1	55
	1.8	96.4	1.8	100
	14.3	29.9	100.0	29.7
Employers & Managers	0	4	0	4
	0.0	100.0	0.0	100
	0.0	2.3	0.0	2.2
Salaried Employees	0	1	0	1
	0.0	100.0	0.0	100
	0.0	0.6	0.0	0.5
Intermediate Non-Manual Workers	3	16	0	19
	15.8	84.2	0.0	100
	42.9	9.0	0.0	10.3
Other Non-Manual Workers	0	25	0	25
	0.0	100.0	0.0	100
	0.0	14.1	0.0	13.5
Skilled Manual Workers	0	3	0	3
	0.0	100.0	0.0	100
	0.0	1.7	0.0	1.6
Not Classifiable	1	7	0	8
	12.5	87.5	0.0	100
	14.3	4.0	0.0	4.3
Home Duties	1	48	0	49
	2.0	98.0	0.0	100
	14.3	27.1	0.0	26.5
Total	7	177	1	185
	3.8	95.7	0.5	100
	100	100	100	100

Note: See Appendix C for a description of the classification system for occupation.

APPENDIX H

SOURCE DATA FOR FIGURES

TABLE H1: TOTAL BIRTHS

Age of Mother

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Age of Mother	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
< 20 Years	2,507	3.5	14	5.6	8	3.2	8.7	6.0
20-24 Years	8,939	12.5	55	6.1	18	2.0	8.1	6.7
25-29 Years	16,617	23.2	83	5.0	22	1.3	6.3	4.9
30-34 Years	24,493	34.2	105	4.3	48	2.0	6.2	4.3
35+ Years	18,998	26.5	130	6.8	36	1.9	8.7	6.1
Not Stated	16	0.0	6	272.7	0	0.0	272.7	272.7
Total	71,570	100	393	5.5	132	1.8	7.3	5.3

TABLE H2: TOTAL BIRTHS

Percentage of Births by Mother's Marital Status, 2003-2007

Marital Status	2003	2004	2005	2006	2007
Married	68.4	67.7	67.6	66.8	66.4
Never Married	30.1	30.5	30.5	31.4	31.7
Widowed	0.1	0.1	0.1	0.2	0.1
Separated	1.1	1.2	1.2	1.1	1.1
Divorced	0.3	0.4	0.5	0.6	0.6

TABLE H3: TOTAL BIRTHS

Mother's County of Residence by Mother's Marital Status, 2007

Mother's County of Residence	Mother's Marital Status						Total
	Married	Never Married	Widowed	Separated	Divorced	Not Stated	
Frequency							
Row Per Cent							
Col. Per Cent							
Carlow	629	352	1	4	0	0	986
	63.8	35.7	0.1	0.4	0.0	0.0	100
	1.3	1.5	1.1	0.5	0.0	0.0	1.4
Cavan	782	291	3	13	12	0	1,101
	71.0	26.4	0.3	1.2	1.1	0.0	100
	1.6	1.3	3.4	1.6	2.8	0.0	1.5
Clare	1,300	482	3	15	7	0	1,807
	71.9	26.7	0.2	0.8	0.4	0.0	100
	2.7	2.1	3.4	1.8	1.7	0.0	2.5
Cork	5,624	2,210	16	88	59	0	7,997
	70.3	27.6	0.2	1.1	0.7	0.0	100
	11.8	9.7	18.0	10.6	14.0	0.0	11.1
Donegal	1,452	638	2	30	22	0	2,144
	67.7	29.8	0.1	1.4	1.0	0.0	100
	3.0	2.8	2.2	3.6	5.2	0.0	3.0
Dublin City	8,421	5,909	18	186	72	1	14,607
	57.7	40.5	0.1	1.3	0.5	0.0	100
	17.6	25.9	20.2	22.5	17.1	16.7	20.3
Dublin County	3,958	1,515	5	58	27	0	5,563
	71.1	27.2	0.1	1.0	0.5	0.0	100
	8.3	6.6	5.6	7.0	6.4	0.0	7.7
Galway	2,838	931	2	47	24	0	3,842
	73.9	24.2	0.1	1.2	0.6	0.0	100
	5.9	4.1	2.2	5.7	5.7	0.0	5.3
Kerry	1,471	551	2	28	11	0	2,063
	71.3	26.7	0.1	1.4	0.5	0.0	100
	3.1	2.4	2.2	3.4	2.6	0.0	2.9
Kildare	2,786	1,086	1	33	12	0	3,918
	71.1	27.7	0.0	0.8	0.3	0.0	100
	5.8	4.8	1.1	4.0	2.8	0.0	5.4
Kilkenny	928	348	0	5	2	0	1,283
	72.3	27.1	0.0	0.4	0.2	0.0	100
	1.9	1.5	0.0	0.6	0.5	0.0	1.8
Laois	866	400	2	14	3	1	1,286
	67.3	31.1	0.2	1.1	0.2	0.1	100
	1.8	1.8	2.2	1.7	0.7	16.7	1.8
Leitrim	347	130	2	7	2	0	488
	71.1	26.6	0.4	1.4	0.4	0.0	100
	0.7	0.6	2.2	0.8	0.5	0.0	0.7
Limerick	1,916	1,053	6	28	13	0	3,016
	63.5	34.9	0.2	0.9	0.4	0.0	100
	4.0	4.6	6.7	3.4	3.1	0.0	4.2
Longford	410	168	1	16	5	0	600
	68.3	28.0	0.2	2.7	0.8	0.0	100
	0.9	0.7	1.1	1.9	1.2	0.0	0.8

TABLE H3: TOTAL BIRTHS (contd.)

Mother's County of Residence by Mother's Marital Status, 2007

Mother's County of Residence	Mother's Marital Status						Total
	Married	Never Married	Widowed	Separated	Divorced	Not Stated	
Frequency							
Row Per Cent							
Col. Per Cent							
Louth	1,088	712	3	28	13	0	1,844
	59.0	38.6	0.2	1.5	0.7	0.0	100
	2.3	3.1	3.4	3.4	3.1	0.0	2.6
Mayo	1,353	462	4	22	21	2	1,864
	72.6	24.8	0.2	1.2	1.1	0.1	100
	2.8	2.0	4.5	2.7	5.0	33.3	2.6
Meath	2,478	974	0	26	32	0	3,510
	70.6	27.7	0.0	0.7	0.9	0.0	100
	5.2	4.3	0.0	3.1	7.6	0.0	4.9
Monaghan	570	230	0	10	5	0	815
	69.9	28.2	0.0	1.2	0.6	0.0	100
	1.2	1.0	0.0	1.2	1.2	0.0	1.1
Offaly	771	388	0	9	4	0	1,172
	65.8	33.1	0.0	0.8	0.3	0.0	100
	1.6	1.7	0.0	1.1	0.9	0.0	1.6
Roscommon	562	185	0	13	2	0	762
	73.8	24.3	0.0	1.7	0.3	0.0	100
	1.2	0.8	0.0	1.6	0.5	0.0	1.1
Sligo	616	279	0	12	7	0	914
	67.4	30.5	0.0	1.3	0.8	0.0	100
	1.3	1.2	0.0	1.5	1.7	0.0	1.3
Tipperary North	651	257	3	12	2	0	925
	70.4	27.8	0.3	1.3	0.2	0.0	100
	1.4	1.1	3.4	1.5	0.5	0.0	1.3
Tipperary South	917	536	4	14	7	0	1,478
	62.0	36.3	0.3	0.9	0.5	0.0	100
	1.9	2.3	4.5	1.7	1.7	0.0	2.1
Waterford	1,144	661	0	21	14	0	1,840
	62.2	35.9	0.0	1.1	0.8	0.0	100
	2.4	2.9	0.0	2.5	3.3	0.0	2.6
Westmeath	955	429	3	20	10	1	1,418
	67.3	30.3	0.2	1.4	0.7	0.1	100
	2.0	1.9	3.4	2.4	2.4	16.7	2.0
Wexford	1,359	872	3	40	25	0	2,299
	59.1	37.9	0.1	1.7	1.1	0.0	100
	2.8	3.8	3.4	4.8	5.9	0.0	3.2
Wicklow	1,600	764	5	28	7	1	2,405
	66.5	31.8	0.2	1.2	0.3	0.0	100
	3.3	3.3	5.6	3.4	1.7	16.7	3.3
Other	8	6	0	0	2	0	16
	50.0	37.5	0.0	0.0	12.5	0.0	100
	0.0	0.0	0.0	0.0	0.5	0.0	0.0
Total	47,800	22,819	89	827	422	6	71,963
	66.4	31.7	0.1	1.1	0.6	0.0	100
	100	100	100	100	100	100	100

Note: See Appendix E for the classification system employed for county of residence.

TABLE H4: TOTAL BIRTHS

Mother's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Mother's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Farmers & Farm Managers	65	0.1	2	29.9	0	0.0	29.9	29.9
Other Agricultural Occupations & Fishermen	93	0.1	0	0.0	0	0.0	0.0	0.0
Higher Professional	4,323	6.0	23	5.3	7	1.6	6.9	4.2
Lower Professional	9,905	13.8	43	4.3	17	1.7	6.0	4.2
Employers & Managers	5,121	7.2	22	4.3	13	2.5	6.8	4.3
Salaried Employees	1,085	1.5	7	6.4	3	2.8	9.2	5.5
Intermediate Non-Manual Workers	16,371	22.9	62	3.8	23	1.4	5.2	3.8
Other Non-Manual Workers	8,904	12.4	42	4.7	9	1.0	5.7	4.4
Skilled Manual Workers	1,283	1.8	5	3.9	3	2.3	6.2	5.4
Semi-Skilled Manual Workers	2,448	3.4	16	6.5	4	1.6	8.1	6.1
Unskilled Manual Workers	7	0.0	0	0.0	0	0.0	0.0	0.0
Unemployed	2,354	3.3	27	11.3	4	1.7	13.0	10.5
Not Classifiable	2,666	3.7	23	8.6	8	3.0	11.5	9.7
Home Duties	16,795	23.5	116	6.9	40	2.4	9.2	6.8
Not Stated	150	0.2	5	32.3	1	6.7	38.7	32.5
Total	71,570	100	393	5.5	132	1.8	7.3	5.3

Note: See Appendix C for a description of the classification system for occupation.

TABLE H5: TOTAL BIRTHS

Father's Occupation

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Father's Occupation	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Farmers & Farm Managers	2,163	3.0	9	4.1	5	2.3	6.4	4.2
Other Agricultural Occupations & Fishermen	728	1.0	4	5.5	0	0.0	5.5	5.5
Higher Professional	5,507	7.7	25	4.5	6	1.1	5.6	3.4
Lower Professional	3,387	4.7	17	5.0	5	1.5	6.5	4.7
Employers & Managers	5,932	8.3	23	3.9	10	1.7	5.5	3.7
Salaried Employees	1,578	2.2	5	3.2	1	0.6	3.8	2.5
Intermediate Non-Manual Workers	5,693	8.0	29	5.1	9	1.6	6.6	5.1
Other Non-Manual Workers	6,809	9.5	32	4.7	9	1.3	6.0	4.2
Skilled Manual Workers	17,933	25.1	64	3.6	31	1.7	5.3	3.8
Semi-Skilled Manual Workers	3,211	4.5	15	4.6	8	2.5	7.1	4.4
Unskilled Manual Workers	843	1.2	4	4.7	2	2.4	7.1	2.4
Unemployed	2,176	3.0	17	7.8	5	2.3	10.0	6.4
Not Classifiable	1,582	2.2	8	5.0	2	1.3	6.3	5.7
Not Applicable	13,542	18.9	123	9.0	36	2.7	11.6	9.5
Home Duties	76	0.1	1	13.0	0	0.0	13.0	0.0
Not Stated	410	0.6	17	39.8	3	7.3	46.8	33.3
Total	71,570	100	393	5.5	132	1.8	7.3	5.3

Note: See Appendix C for a description of the classification system for occupation.

TABLE H6: TOTAL BIRTHS

Percentage of Births by Mother's Nationality, 2004-2007

Mother's Nationality	2004	2005	2006	2007
Ireland	84.4	83.5	81.6	79.3
UK	3.1	3.4	3.3	3.0
EU15 to EU27 Accession States	0.9	1.9	3.9	7.2
Africa	5.6	4.4	4.0	3.6
Asia	2.5	2.9	3.1	3.6

Notes: Percentages calculated for the five most frequent nationalities in 2007. 'Not Stated' values are not included in the calculation of percentages.
On 1 January 2007, Bulgaria and Romania joined the European Union, giving 27 Member States. Prior to 2007 there were 25 Member States in the European Union. For 2007, less than 1 per cent of total births were to mothers whose nationality is recorded as either Bulgarian or Romanian.

TABLE H7: TOTAL BIRTHS

Mother's Average Age by Mother's Nationality, 2007

Mother's Nationality	Average Age in Years
Ireland	31.5
UK	32.0
EU15 (excluding Ireland & UK)	32.5
EU15 to EU27 Accession States	27.0
Rest of Europe	29.3
Africa	30.6
Asia	30.0
America	31.3
Australia	32.4
Total	31.1

Note: Average ages calculated for nationalities with > 100 births.

TABLE H8: TOTAL BIRTHS

Percentage of Births to Primiparous Women by Maternal Age, 2003 and 2007

Maternal Age (years)	2003	2007
<20 Years	10.2	7.6
20-24 Years	20.6	19.6
25-29 Years	27.4	27.2
30-34 Years	29.6	31.0
35-39 Years	10.3	12.4
40+ Years	1.7	2.1
Not Stated	0.1	0.0
Total	100	100

TABLE H9: TOTAL BIRTHS

Percentage of Births to Multiparous Women by Maternal Age, 2003 and 2007

Maternal Age (years)	2003	2007
<20 Years	0.8	0.5
20-24 Years	9.0	7.3
25-29 Years	21.5	20.3
30-34 Years	37.3	36.5
35-39 Years	26.1	29.3
40+ Years	5.2	6.0
Not Stated	0.1	0.0
Total	100	100

TABLE H10: TOTAL BIRTHS

Age of Mother by Maternal Parity, 2007

Age of Mother Frequency Row Per Cent	Maternal Parity									
	0	1	2	3	4	5	6	More than 6	Not Stated	Total
< 20 Years	2,302 91.3	197 7.8	19 0.8	1 0.0	0 0.0	1 0.0	0 0.0	0 0.0	1 0.0	2,521 100
20-24 Years	5,925 65.9	2,281 25.4	624 6.9	123 1.4	33 0.4	6 0.1	0 0.0	0 0.0	2 0.0	8,994 100
25-29 Years	8,195 49.1	5,391 32.3	2,154 12.9	661 4.0	197 1.2	68 0.4	23 0.1	8 0.0	3 0.0	16,700 100
30-34 Years	9,346 38.0	8,894 36.2	4,177 17.0	1,424 5.8	434 1.8	189 0.8	70 0.3	58 0.2	6 0.0	24,598 100
35-39 Years	3,735 23.4	5,321 33.3	4,218 26.4	1,788 11.2	569 3.6	196 1.2	85 0.5	78 0.5	5 0.0	15,995 100
40+ Years	643 20.5	847 27.0	748 23.9	469 15.0	222 7.1	99 3.2	55 1.8	49 1.6	1 0.0	3,133 100
Not Stated	10 45.5	7 31.8	2 9.1	2 9.1	0 0.0	0 0.0	0 0.0	1 4.5	0 0.0	22 100
Total	30,156 41.9	22,938 31.9	11,942 16.6	4,468 6.2	1,455 2.0	559 0.8	233 0.3	194 0.3	18 0.0	71,963 100

TABLE H11: TOTAL LIVE BIRTHS

Birthweight Groups, Numbers and Percentages, 2007

Birthweight Groups	Number	Per Cent
Less than 1,500 grams	639	0.9
1,500 - 2,499 grams	3,127	4.4
2,500 - 4,499 grams	65,825	92.0
4,500 grams and over	1,969	2.8
Not Stated	10	0.0
Total	71,570	100

TABLE H12: TOTAL LIVE BIRTHS

Birthweight Groups by Sex, 2007

Birthweight Group	Male		Female		Unknown		Total	
	Number	Per Cent	Number	Per Cent	Number	Per Cent	Number	Per Cent
500-749	48	0.1	57	0.2	0	0.0	105	0.1
750-999	66	0.2	66	0.2	0	0.0	132	0.2
1000-1249	93	0.3	86	0.2	0	0.0	179	0.3
1250-1499	103	0.3	119	0.3	1	25.0	223	0.3
1500-1999	405	1.1	412	1.2	0	0.0	817	1.1
2000-2499	1,050	2.9	1,260	3.6	0	0.0	2,310	3.2
2500-2999	3,576	9.8	4,650	13.3	2	50.0	8,228	11.5
3000-3499	10,874	29.7	12,557	35.9	0	0.0	23,431	32.7
3500-3999	13,102	35.8	11,404	32.6	0	0.0	24,506	34.2
4000-4499	5,900	16.1	3,760	10.8	0	0.0	9,660	13.5
4500 and Over	1,382	3.8	587	1.7	0	0.0	1,969	2.8
Not Stated	8	0.0	1	0.0	1	25.0	10	0.0
Total	36,607	100	34,959	100	4	100	71,570	100

TABLE H13: TOTAL BIRTHS

Gestational Age at Delivery

Live Births, Stillbirths, Early Neonatal Deaths, and Mortality Rates, 2007

Gestational Age (weeks)	Live Births	Per Cent (%) Live Births	Stillbirths	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	1	0.0	7	875.0	1	1,000.0	1,000.0	1,000.0
22-27	212	0.3	72	253.5	53	250.0	440.1	417.6
28-31	515	0.7	65	112.1	16	31.1	139.7	104.1
32-36	3,422	4.8	91	25.9	41	12.0	37.6	20.0
37-41	64,951	90.8	155	2.4	21	0.3	2.7	2.0
42 and Over	2,459	3.4	3	1.2	0	0.0	1.2	0.8
Not Stated	10	0.0	0	0.0	0	0.0	0.0	0.0
Total	71,570	100	393	5.5	132	1.8	7.3	5.3

TABLE H15: MULTIPLE BIRTHS

Method of Delivery by Mother's Postnatal Length of Stay, 2007

Method of Delivery	Postnatal Length of Stay				
	0-2 Days	3-5 Days	6-8 Days	9+ Days	Total
Frequency					
Row Per Cent					
Col. Per Cent					
Spontaneous	118	342	35	3	498
	23.7	68.7	7.0	0.6	100
	59.9	20.9	9.5	4.5	21.9
Breech / Forceps	21	70	10	3	104
	20.2	67.3	9.6	2.9	100
	10.7	4.3	2.7	4.5	4.6
Forceps	9	47	6	0	62
	14.5	75.8	9.7	0.0	100
	4.6	2.9	1.6	0.0	2.7
Vacuum extraction	31	100	18	2	151
	20.5	66.2	11.9	1.3	100
	15.7	6.1	4.9	3.0	6.6
Caesarean section	17	1,070	298	59	1,444
	1.2	74.1	20.6	4.1	100
	8.6	65.4	80.5	88.1	63.6
Other	1	7	3	0	11
	9.1	63.6	27.3	0.0	100
	0.5	0.4	0.8	0.0	0.5
Not stated	0	1	0	0	1
	0.0	100.0	0.0	0.0	100
	0.0	0.1	0.0	0.0	0.0
Total	197	1,637	370	67	2,271
	8.7	72.1	16.3	3.0	100
	100	100	100	100	100

TABLE H16: TOTAL LIVE BIRTHS

Age of Mother by Infant's Type of Feeding, 2007

Age of Mother	Type of Feeding				
	Artificial	Breast	Combined	Not Stated	Total
Frequency					
Row Per Cent					
<20 Years	1,834	575	91	7	2,507
	73.2	22.9	3.6	0.3	100
20-24 Years	5,196	3,280	443	20	8,939
	58.1	36.7	5.0	0.2	100
25-29 Years	8,334	7,295	970	18	16,617
	50.2	43.9	5.8	0.1	100
30-34 Years	11,391	11,686	1,381	35	24,493
	46.5	47.7	5.6	0.1	100
35-39 Years	7,238	7,746	881	21	15,886
	45.6	48.8	5.5	0.1	100
40-44 Years	1,307	1,508	180	3	2,998
	43.6	50.3	6.0	0.1	100
45 Years and Over	50	58	5	1	114
	43.9	50.9	4.4	0.9	100
Not Stated	12	4	0	0	16
	75.0	25.0	0.0	0.0	100
Total	35,362	32,152	3,951	105	71,570
	49.4	44.9	5.5	0.1	100

TABLE H17: TOTAL LIVE BIRTHS

Mother's County of Residence by Infant's Type of Feeding, 2007

Mother's County of Residence	Type of Feeding				
	Artificial	Breast	Combined	Not Stated	Total
Frequency					
Row Per Cent					
Col. Per Cent					
Carlow	514	454	12	0	980
	52.4	46.3	1.2	0.0	100
	1.5	1.4	0.3	0.0	1.4
Cavan	589	472	32	1	1,094
	53.8	43.1	2.9	0.1	100
	1.7	1.5	0.8	1.0	1.5
Clare	1,303	420	71	5	1,799
	72.4	23.3	3.9	0.3	100
	3.7	1.3	1.8	4.8	2.5
Cork	3,847	3,608	495	10	7,960
	48.3	45.3	6.2	0.1	100
	10.9	11.2	12.5	9.5	11.1
Donegal	1,302	666	156	5	2,129
	61.2	31.3	7.3	0.2	100
	3.7	2.1	3.9	4.8	3.0
Dublin City	6,499	7,008	987	24	14,518
	44.8	48.3	6.8	0.2	100
	18.4	21.8	25.0	22.9	20.3
Dublin County	2,104	3,025	394	6	5,529
	38.1	54.7	7.1	0.1	100
	5.9	9.4	10.0	5.7	7.7
Galway	1,688	1,577	560	1	3,826
	44.1	41.2	14.6	0.0	100
	4.8	4.9	14.2	1.0	5.3
Kerry	1,061	890	94	5	2,050
	51.8	43.4	4.6	0.2	100
	3.0	2.8	2.4	4.8	2.9
Kildare	1,742	1,966	183	5	3,896
	44.7	50.5	4.7	0.1	100
	4.9	6.1	4.6	4.8	5.4
Kilkenny	595	678	5	2	1,280
	46.5	53.0	0.4	0.2	100
	1.7	2.1	0.1	1.9	1.8
Laois	628	615	35	1	1,279
	49.1	48.1	2.7	0.1	100
	1.8	1.9	0.9	1.0	1.8
Leitrim	243	211	30	1	485
	50.1	43.5	6.2	0.2	100
	0.7	0.7	0.8	1.0	0.7
Limerick	2,289	645	56	6	2,996
	76.4	21.5	1.9	0.2	100
	6.5	2.0	1.4	5.7	4.2
Longford	285	277	26	3	591
	48.2	46.9	4.4	0.5	100
	0.8	0.9	0.7	2.9	0.8

TABLE H17: TOTAL LIVE BIRTHS (contd.)

Mother's County of Residence by Infant's Type of Feeding, 2007

Mother's County of Residence	Type of Feeding				
	Artificial	Breast	Combined	Not Stated	Total
	Frequency				
	Row Per Cent				
Col. Per Cent					
Louth	980	758	94	1	1,833
	53.5	41.4	5.1	0.1	100
	2.8	2.4	2.4	1.0	2.6
Mayo	828	954	77	1	1,860
	44.5	51.3	4.1	0.1	100
	2.3	3.0	1.9	1.0	2.6
Meath	1,596	1,765	131	3	3,495
	45.7	50.5	3.7	0.1	100
	4.5	5.5	3.3	2.9	4.9
Monaghan	437	356	21	0	814
	53.7	43.7	2.6	0.0	100
	1.2	1.1	0.5	0.0	1.1
Offaly	617	531	15	3	1,166
	52.9	45.5	1.3	0.3	100
	1.7	1.7	0.4	2.9	1.6
Roscommon	380	344	35	0	759
	50.1	45.3	4.6	0.0	100
	1.1	1.1	0.9	0.0	1.1
Sligo	479	331	95	2	907
	52.8	36.5	10.5	0.2	100
	1.4	1.0	2.4	1.9	1.3
Tipperary North	633	277	9	1	920
	68.8	30.1	1.0	0.1	100
	1.8	0.9	0.2	1.0	1.3
Tipperary South	823	634	11	3	1,471
	55.9	43.1	0.7	0.2	100
	2.3	2.0	0.3	2.9	2.1
Waterford	913	882	33	1	1,829
	49.9	48.2	1.8	0.1	100
	2.6	2.7	0.8	1.0	2.6
Westmeath	644	737	29	3	1,413
	45.6	52.2	2.1	0.2	100
	1.8	2.3	0.7	2.9	2.0
Wexford	1,244	921	112	6	2,283
	54.5	40.3	4.9	0.3	100
	3.5	2.9	2.8	5.7	3.2
Wicklow	1,094	1,140	153	5	2,392
	45.7	47.7	6.4	0.2	100
	3.1	3.5	3.9	4.8	3.3
Other	5	10	0	1	16
	31.3	62.5	0.0	6.3	100
	0.0	0.0	0.0	1.0	0.0
Total	35,362	32,152	3,951	105	71,570
	49.4	44.9	5.5	0.1	100
	100	100	100	100	100

Note: See Appendix E for the classification system employed for county of residence.

TABLE H18: TOTAL BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Birthweight, 2007

Birthweight (grams)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
500-749	105	0.1	58	6	4	393.1	42	400.0	635.8	615.9
750-999	132	0.2	28	1	2	190.2	17	128.8	294.5	243.4
1000-1249	179	0.3	30	0	0	143.5	6	33.5	172.2	121.8
1250-1499	223	0.3	23	2	1	104.4	9	40.4	140.6	77.6
1500-1999	817	1.1	34	4	5	50.0	16	19.6	68.6	39.6
2000-2499	2,310	3.2	45	2	1	20.4	18	7.8	28.0	14.6
2500-2999	8,228	11.5	45	3	1	5.9	10	1.2	7.1	5.4
3000-3499	23,431	32.7	43	4	5	2.2	7	0.3	2.5	2.2
3500-3999	24,506	34.2	21	4	3	1.1	5	0.2	1.3	1.0
4000-4499	9,660	13.5	7	1	2	1.0	2	0.2	1.2	0.9
4500 and Over	1,969	2.8	2	0	0	1.0	0	0.0	1.0	1.0
Not Stated	10	0.0	6	0	0	375.0	0	0.0	375.0	285.7
Total	71,570	100	342	27	24	5.5	132	1.8	7.3	5.3

TABLE H19: TOTAL BIRTHS

Live Births, Antepartum and Intrapartum Stillbirths, Early Neonatal Deaths, and Mortality Rates by Gestational Age, 2007

Gestational Age at Delivery (weeks)	Live Births	Per Cent (%) Live Births	Ante-partum Stillbirths	Intra-partum Stillbirths	Not Stated	Stillbirth Rate	Early Neonatal Deaths	Early Neonatal Mortality Rate	Perinatal Mortality Rate	Adjusted PMR
Less than 22	1	0.0	6	0	1	875.0	1	1,000.0	1,000.0	1,000.0
22-27	212	0.3	61	7	4	253.5	53	250.0	440.1	417.6
28-31	515	0.7	63	0	2	112.1	16	31.1	139.7	104.1
32-36	3,422	4.8	81	4	6	25.9	41	12.0	37.6	20.0
37-41	64,951	90.8	128	16	11	2.4	21	0.3	2.7	2.0
42 and Over	2,459	3.4	3	0	0	1.2	0	0.0	1.2	0.8
Not Stated	10	0.0	0	0	0	0.0	0	0.0	0.0	0.0
Total	71,570	100.0	342	27	24	5.5	132	1.8	7.3	5.3

APPENDIX I

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APPENDIX G

2007 Report	2006 Report	Title
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**Health Research and Information Division
The Economic and Social Research Institute**

Whitaker Square
Sir John Rogerson's Quay
Dublin 2
Ireland

Telephone + 353 1 8632000
Fax + 353 1 8632100

www.esri.ie

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