HSC Public Health Agency

Children's Health in Northern Ireland

2023/24

Health Intelligence Unit

April 2025

Improving your health and wellbeing

Contents

Introduction

The Children's Health in Northern Ireland report draws data from the following main sources:

- Northern Ireland Maternity System (NIMATS)
- Northern Ireland Child Health System (CHS)
- EPIC
- Northern Ireland Statistics and Research Agency (NISRA)

Topics covered include:

- Maternal age at birth
- Gestation at antenatal booking and delivery
- Maternal risk factors
- Maternal Body Mass Index at antenatal booking appointment
- Method of delivery
- Infant birth weight
- Breastfeeding
- Childhood growth measurements (Body Mass Index) – Primary 1 and Year 8

Further information on the sources used to produce this report can be found in Appendix 1.

Data tables (Excel and CSV format) which have been used to create this report are available:
https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Encompass (EPIC)

On 9 November 2023, as part of the Encompass Programme being implemented across Northern Ireland, a new single, integrated health and social care record was introduced. The South Eastern Health and Social Care Trust (SEHSCT) was the first Health Trust to go live with this new system in November 2023. At the time of publication of this report, the Encompass Programme has been rolled out to two further Trusts - Belfast (June 2024) and Northern (November 2024), with the remaining two Trusts (Southern and Western) following in Spring 2025.

Prior to the introduction of Encompass, data for all births in Northern Ireland would have been recorded on the Northern Ireland Maternity System (NIMATS). As SEHSCT went live during 2023/24, data for births occurring in SEHSCT between 9 November 2023 and 31 March 2024 will be recorded on this new system.

It is not yet possible to extract consistent data from the new system for all sections within this report. Sections relating to infant gestation (at time of antenatal booking appointment), maternal risk factors, maternal BMI and method of delivery will exclude those births occurring in SEHSCT (mainly Ulster Hospital) between 9 November 2023 and 31 March 2024 (approximately 1,400 births). To present an estimate of the total number of births in SEHSCT, the data has been uplifted by a factor for these four sections only. Only data showing births in Ulster Hospital have been uplifted, therefore other data e.g. births by area of residence will exclude births in SEHSCT between 9 November 2023 and 31 March 2024. All other data across Northern Ireland remains unaffected for births during 2023/24.

Key Points

Birth rate is falling

In Northern Ireland, the crude birth rate per 1,000 population has fallen from 13.3 in 2013 to 10.4 in 2023.

Women are giving birth later in life

Average maternal age is increasing, from 29.9 years in 2013/14 to 31.0 years in 2023/24. For first time mothers, the average age has increased from 27.9 years in 2013/14 to 28.9 years in 2023/24.

Younger women book for antenatal care later in the pregnancy

In 2023/24, the proportion of births to women booking at 15+ weeks gestation was higher for women under 20 years (19.0%) compared to all mothers (6.0%).

Fewer mothers are smoking

The proportion of women who reported smoking at time of antenatal booking appointment has fallen from 14.8% in 2013/14 to 9.5% in 2023/24.

Diabetes prevalence is increasing

In 2023/24, 12.4% of mothers had diabetes (2013/14 = 5.1%).

Mother's BMI is rising

Over one in four (28.6%) mothers in 2023/24 were measured as obese (BMI = 30.00 or more) at time of antenatal booking appointment. This compares to 19.7% ten years ago (2013/14).

Women giving birth by Caesarean Section continues to rise

The proportion of singleton, live infants born by Caesarean Section increased from 27.9% in 2013/14 to 39.0% in 2023/24.

Women living in more deprived areas more likely to give birth to an infant with a low birth weight

The proportion of low birth weight infants born to mothers residing in the most deprived areas of Northern Ireland in 2023/24 was higher at 7.4%, compared to mothers from least deprived areas (5.2%).

Only 1 in 2 infants are breastfed at discharge from hospital

In 2023/24, just over half of live infants (53.6%) were breastfed (total/partial feeding) at discharge (where feeding status was known).

Northern Ireland has the highest level of obesity in Primary 1 children in United Kingdom

Based on the British 1990 (UK90) Growth Reference, in 2023/24, 25.3% of children in Northern Ireland measured in Primary 1 were considered overweight or obese. This compares to 22.1% in England and 22.3% in Scotland. At time of publication, data for 2023/24 for Wales was not available, however the equivalent figure for 2022/23 was 24.8%.

Some data in the comments above and throughout the report will refer to data which has been uplifted to reflect missing data for South Eastern Health and Social Care Trust for births 9 November 2023 - 31 March 2024 (see page 4 for further information).

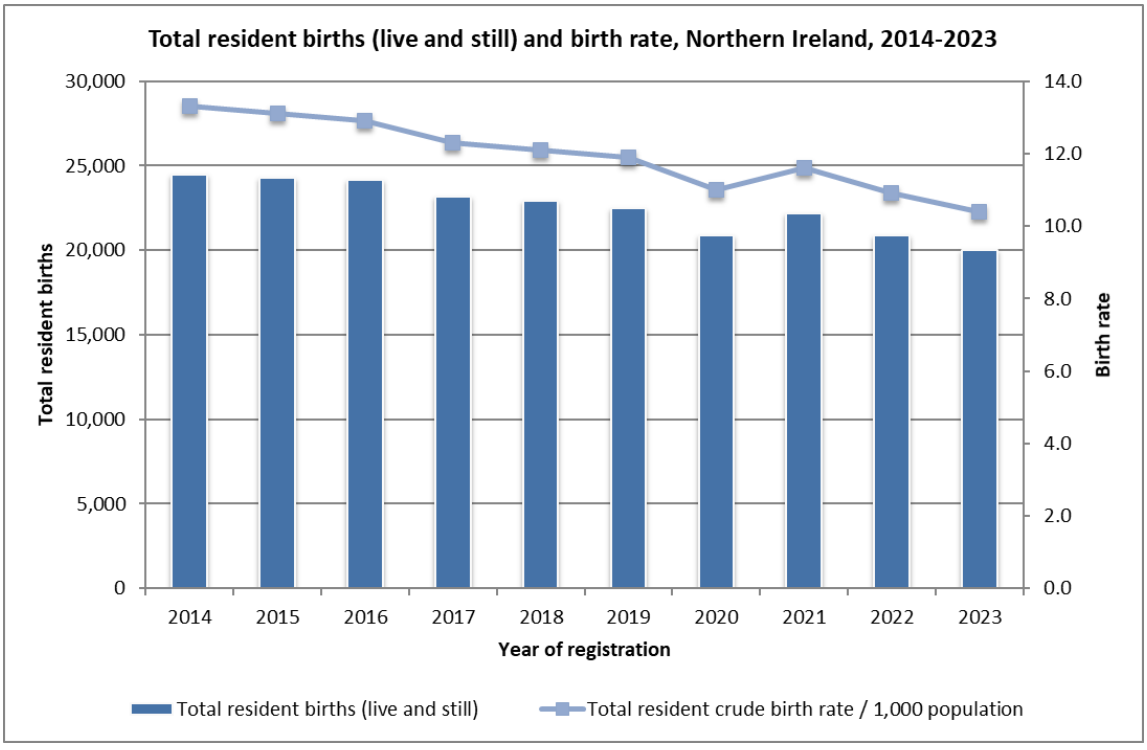
Key Trends

In 2023, there were 20,029 births registered in Northern Ireland (19,962 live, 67 still births). This represents a total birth rate of 10.4 (crude rate per 1,000 population).

Figure 1 shows a decreasing trend in the birth rate in the last ten years. However, published population projections would suggest that the number of births is expected to increase again. By 2038/39, based on current levels and trends in fertility, the number of births in NI is projected to be just over 21,500. Between 2023 and 2038/39, the largest increase is projected to occur in the Southern Health and Social Care Trust area.

Although the birth rate is falling in Northern Ireland, it remains the highest rate across the United Kingdom in 2023 (England 9.8, Wales 8.7, Scotland 8.4).

Figure 1: Total resident births and birth rate, 2014-2023 (Data Table 1.2)

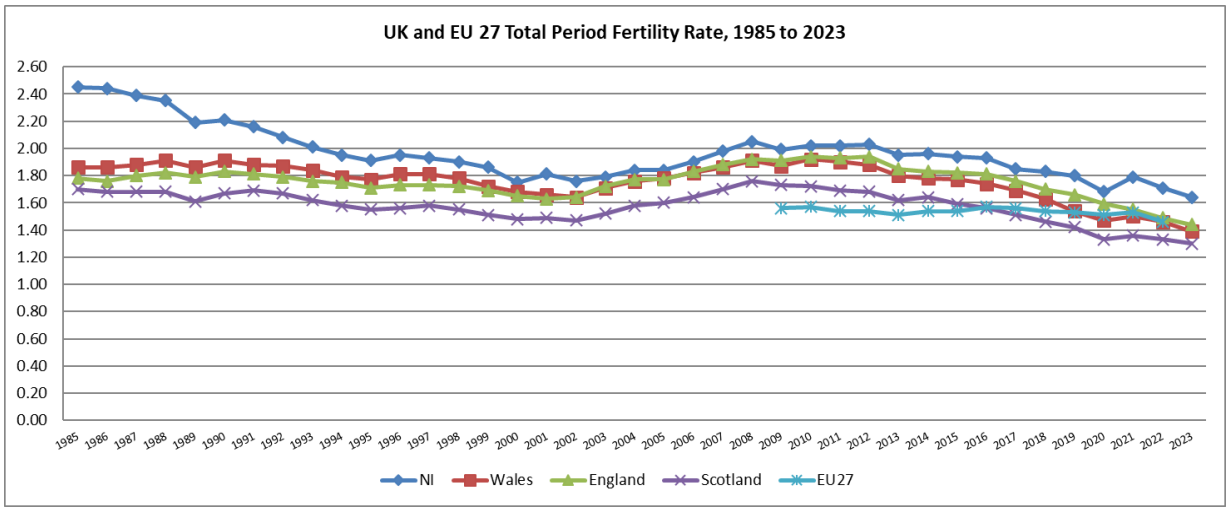


Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Fertility

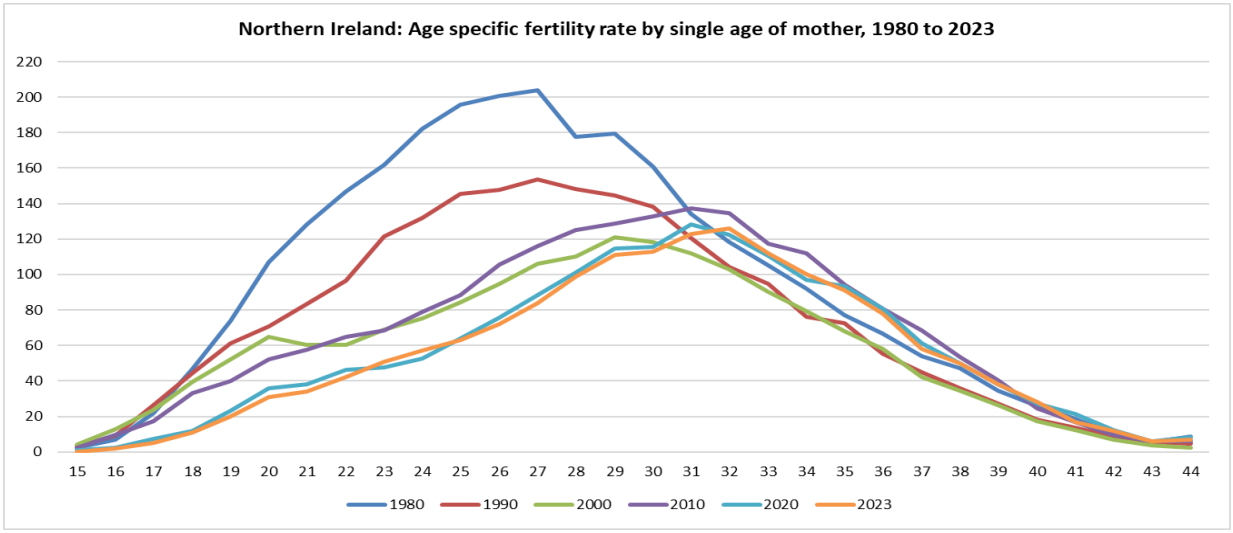
Fertility rates, which measure the number of children born per woman of child bearing age, have been gradually falling across Northern Ireland. In 2023, the Total Period Fertility Rate[1] for Northern Ireland was 1.64 children, which was the highest across the four UK countries (England (1.44), Wales (1.39), Scotland (1.30)).

Figure 2: UK and EU total period fertility rate, 1985 to 2023 (Data Table 2.3)



Decreasing fertility levels may be attributed to the availability of contraception and abortion services and the shift to women having children later in life, if at all.

Figure 3: Age specific fertility rate by single age of mother, 1980 to 2023 (Data Table 2.4)



Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

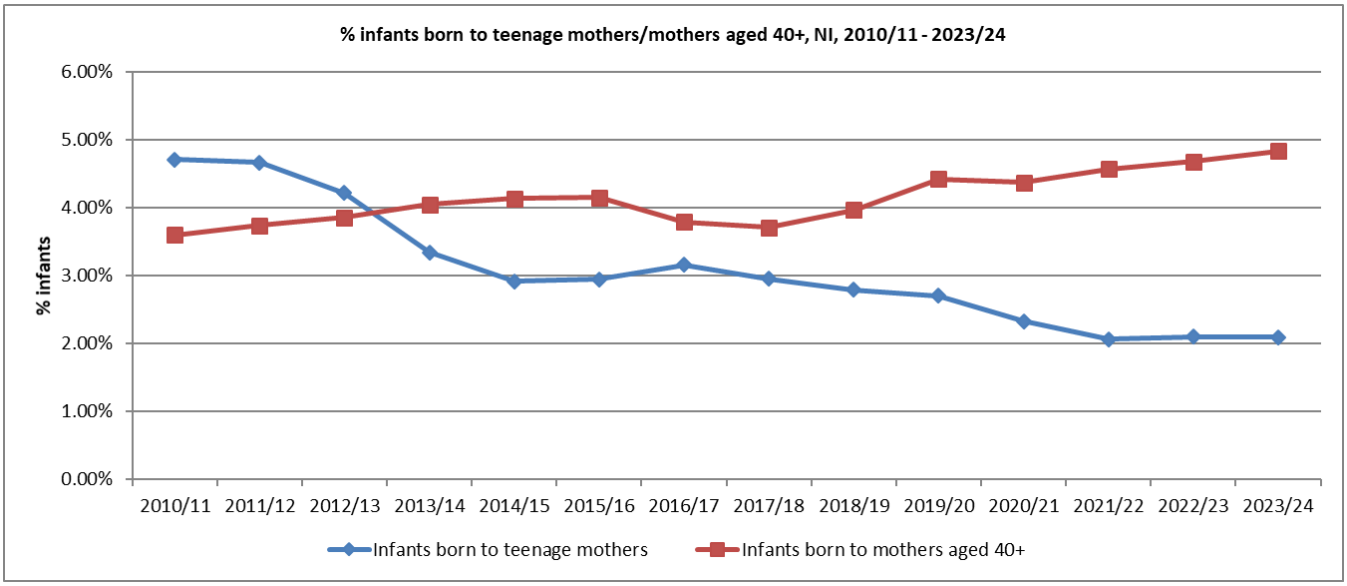
[1] Total Period Fertility Rate: the average number of children that would be born to a cohort of women who experienced, throughout their childbearing years, the fertility rates of the calendar year in question

Maternal age at birth

During 2023/24, the average age of all mothers giving birth was 31.0 years. Average maternal age is steadily increasing, from 29.9 years in 2013/14 to 31.0 years in 2023/24. For first time mothers, the average age has increased from 27.9 years in 2013/14 to 29.0 years in 2023/24. In 2023/24, the highest proportion of mothers were aged between 30 and 34 (more than one-third (36%) of all mothers).

During 2023/24, births to teenage mothers (under 20 years) accounted for 2.1% of all births. The number of births to teenage mothers has been falling, from 811 births in 2013/14 to 417 in 2023/24. However, the percentage teenage births varies by level of deprivation of mother, from 1.0% in the least deprived areas of Northern Ireland in 2023/24 to 4.2% in the most deprived areas[2].

Figure 4: Infants born to teenage mothers/mothers aged 40+ (Data Table 3.1)



For some young people, teenage parenthood is planned and a positive experience. However, many pregnancies in women aged 16-19 years are unplanned. Unplanned pregnancy has been associated with negative social and psychological consequences for both young parents and their children.[3,4,5,6,7] For young parents these include:

- Poor physical and mental health;
- Poverty - reliance on state benefits or part-time work (if at all), typically lower paid;

[2] Northern Ireland Multiple Deprivation Measure 2017, Northern Ireland Statistics and Research Agency
https://www.nisra.gov.uk/statistics/deprivation/northern-ireland-multiple-deprivation-measure-2017-nimdm2017
[3] Whitaker R et al. Intervention now to eliminate repeat unintended pregnancy in teenagers (INTERUPT): a systematic review of intervention effectiveness and cost-effectiveness, and qualitative and realist synthesis of implementation factors and user engagement. Health Technology Assessment 2016;20(16)
https://nil-admin.nihr.ac.uk/document/download/2003397
[4] Public Health England (PHE). A framework for supporting teenage mothers and young fathers. London: PHE, 2019.
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/796582/PHE_Young_Parents_Support_Framework_April2019.pdf
[5] Department for Children, Schools and Families (DCSF). Teenage parents: who cares? A guide to commissioning and delivering maternity services for young parents. Nottingham: DCSF, 2008.http://webarchive.nationalarchives.gov.uk/20130102182314/https://www.education.gov.uk/publications/eOrderingDownload/Teenage%20parents.pdf
[6] Oringanje C et al. Interventions for preventing unintended pregnancies among adolescents. Cochrane Database of Systematic Reviews 2016, Issue 2.
https://www.cochranelibrary.com/cdsr/doi/10.1002/14651858.CD005215.pub3/epdf/full
[7] Nelson HD et al. Associations of unintended pregnancy with maternal and infant health outcomes: a systematic review and meta-analysis. JAMA. 2022 Nov 1;328(17):1714-1729.
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9627416/

- Poor educational achievement/career prospects e.g. education may be interrupted as a result of pregnancy or having to withdraw from education completely and
- Social isolation.

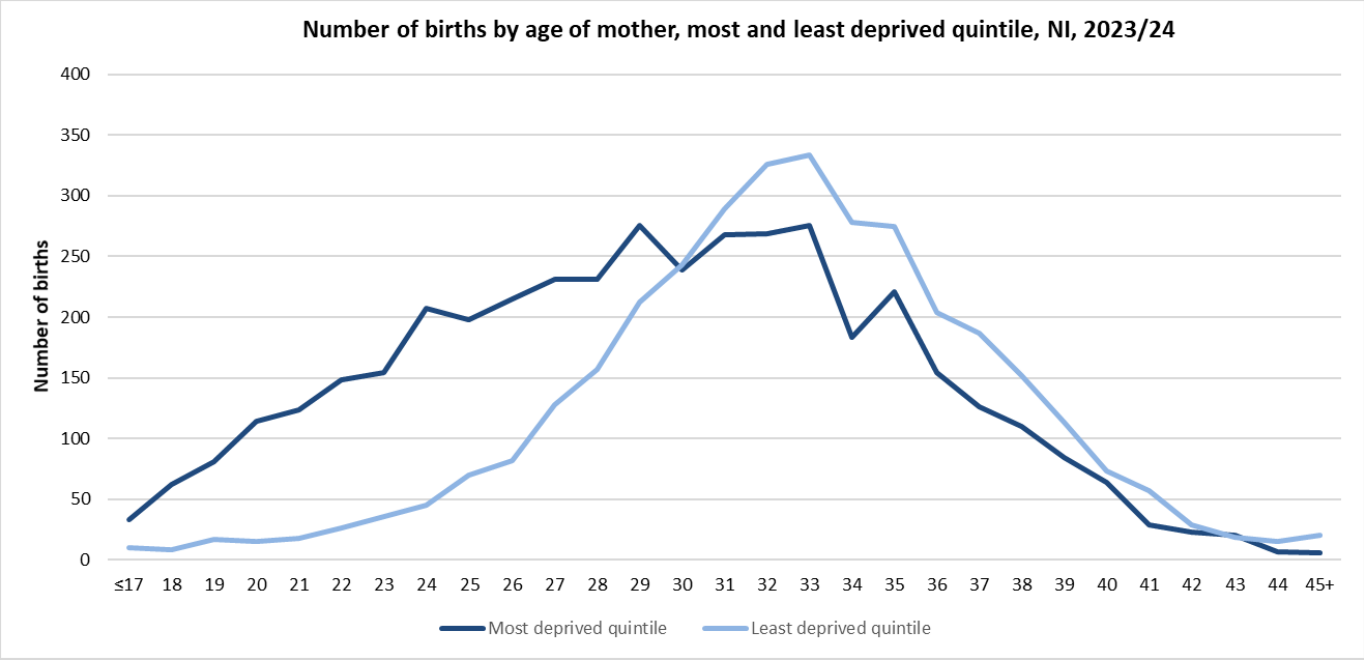
During 2023/24, 4.8% of all births were to older mothers (aged 40 and over). Figure 4 above shows an overall upward trend in the proportion of births to older mothers, rising from 3.6% in 2010/11 to 4.8% in 2023/24.

Fertility rates in Northern Ireland show that women are postponing having children until later in life. This is likely due to advances in assisted conception technologies e.g. IVF allowing older women to conceive, improvements in women's educational/professional outlook and the availability of contraception. However, pregnancies in older women can be complicated by:

- Greater risk of problems in pregnancy e.g. diabetes, hypertension, pre-eclampsia
- General age-related health conditions affecting pregnancy e.g. diabetes, obesity
- Higher rate of multiple births

Figure 5 highlights the differences in the number of mothers giving birth by age, who live in the most and least deprived areas of Northern Ireland.

Figure 5: Births by age of mother, most and least deprived quintile, 2023/24 (Data Table 3.4)

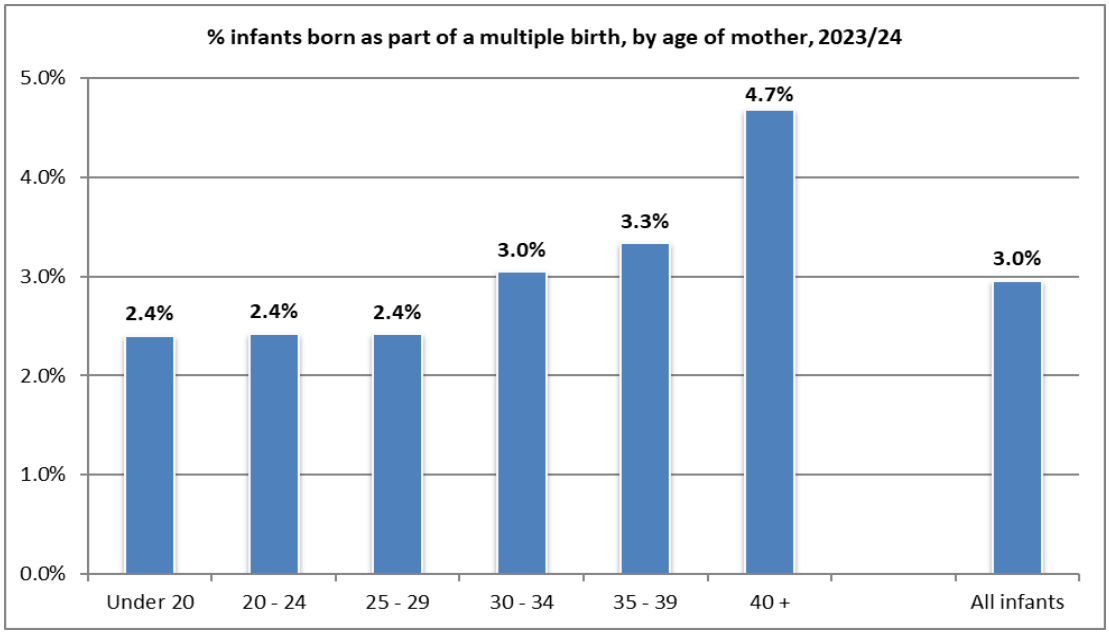


Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Multiple Births

The proportion of infants born as part of a multiple birth has remained fairly steady over the last ten years, at around 3% of all infants (2023/24 = 3.0%). Generally, the incidence of multiple births increased with mother's age (Figure 6), however note that numbers of multiple births are small when split by age group.

Figure 6: Infants born as part of a multiple birth, by age of mother, 2023/24 (Data Table 4.2)



Using registered births data from the Northern Ireland Statistics and Research Agency[8], the proportion of maternities resulting in a multiple birth has increased slightly over the last few decades e.g. in 1993, 1.17% maternities resulted in a multiple birth, compared to 1.55% in 2023. This increase may be due to the rise in fertility treatments (especially when multiple embryos were transferred) and the increase in the average age of a mother giving birth (older women are more likely to have a multiple pregnancy)[9]. The rise in women giving birth who are obese may be a factor in this increase also.

However, having a multiple pregnancy increases the risk of maternal mortality, miscarriage, post-partum haemorrhage, preterm birth and intervention during delivery e.g. Caesarean Section. Infants are at risk of complications if the placenta is shared e.g. possible stillbirth. Other risks to infants include premature birth (<37 weeks gestation), low birth weight, congenital abnormalities, physical/learning disabilities, and perinatal mortality[10,11,12]

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

[8] Northern Ireland Statistics and Research Agency, Registrar General Annual Reports https://www.nisra.gov.uk/statistics/births-deaths-and-marriages/registrar-general-annual-report
[9] Smith LK, Manktelow BN, Draper ES, et al. "Trends in the incidence and mortality of multiple births by socioeconomic deprivation and maternal age in England: population-based cohort study". BMJ Open 2014;4:e004514. doi:10.1136/bmjopen-2013- 004514 http://bmjopen.bmj.com/content/4/4/e004514.full.pdf+html
[10] National Institute for Health and Care Excellence (NICE) "Multiple pregnancy: twin and triplet pregnancies", Quality standard, September 2019 http://www.nice.org.uk/guidance/qs46/resources/multiple-pregnancy-twin-and-triplet-pregnancies-2098670068933
[11] National Institute for Health and Care Excellence (NICE) "Twin and triplet pregnancy", Guidance, April 2024 https://www.nice.org.uk/guidance/ng137
[12] Royal College of Obstetricians and Gynaecologists, "Multiple Pregnancy: having more than one baby", Nov 2016 https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-multiple-pregnancy.pdf

Gestation at antenatal booking and delivery

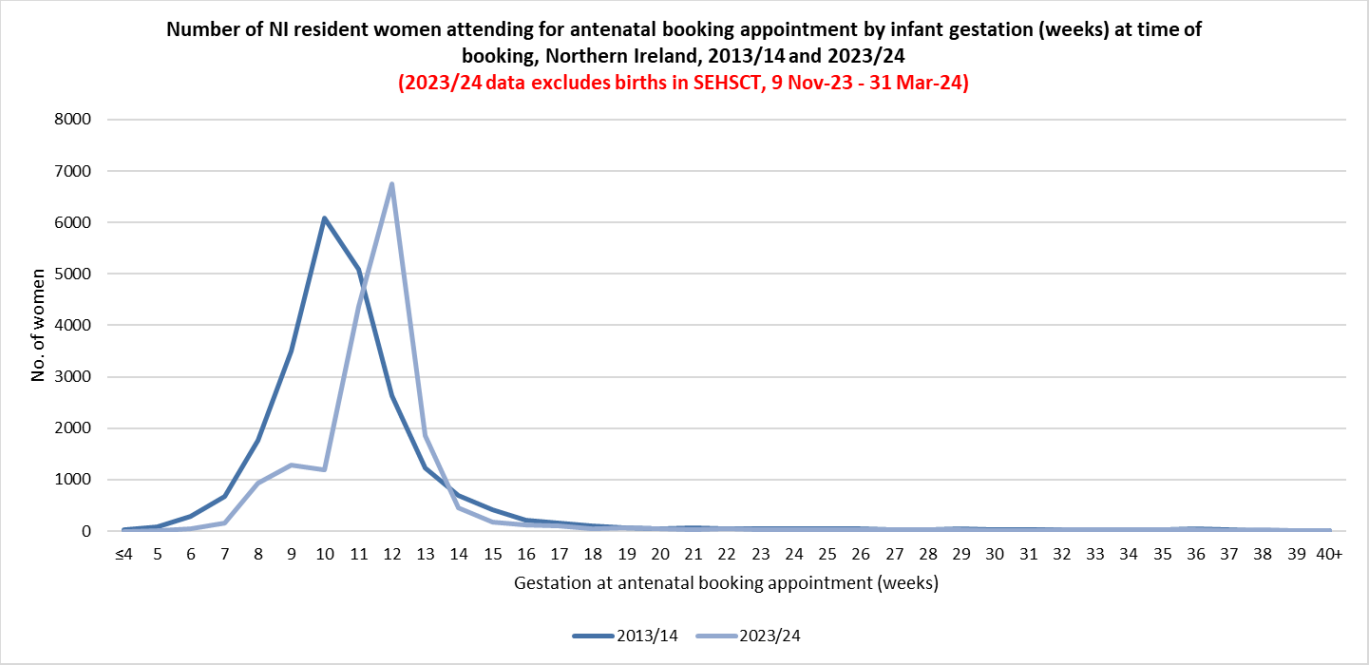
GESTATION AT ANTENATAL BOOKING

Antenatal care is beneficial in improving outcomes for women and their infants. Women are encouraged to attend for antenatal care (booking appointment) by 10 weeks gestation[13,14]. At these early stages, potential risks to the pregnancy can be identified. Appropriate lifestyle advice can be given on healthy eating, physical activity etc. and help and support can be provided e.g. to help a mother stop smoking. Early antenatal care ensures women are provided with the correct advice, support, screening and interventions to promote positive experiences and outcomes for both mother and baby.

Although it is recognised that the earlier a mother attends for antenatal care, the better the outcome for her and her baby, there are some groups of women e.g. young mothers, women from a non-white ethnic group, those with low income or educational level, and those living in more deprived areas, who do not attend early in pregnancy. One study[15] also associated late booking with those women who have had numerous prior births, or those who were migrants to the UK or who had limited English language skills.

Almost 6% of births to women in 2023/24 were not booked for antenatal care until 15 weeks or more gestation. Generally, this proportion has been falling over the last ten years from 7.2% in 2013/14. (Just over 20% of births to women in 2023/24 were booked by 10 weeks gestation).

Figure 7: Women attending for antenatal booking appointment by infant gestation, 2013/24 and 2023/24
(Data Table 5.3)



[13]National Institute for Health and Care Excellence (NICE) "Antenatal care", Quality Standard QS22, September 2012 (updated February 2023) http://www.nice.org.uk/guidance/qs22/resources/antenatal-care-2098542418117
[14] Department of Health "A Strategy for Maternity Care in Northern Ireland, 2012 – 2018 https://www.health-ni.gov.uk/articles/maternity-strategy-northern-ireland-2012-2018
[15] Cresswell et al, BMC Pregnancy and Childbirth "Predictors of the timing of initiation of antenatal care in an ethnically diverse urban cohort in the UK", 2012 http://bmcpregnancychildbirth.biomedcentral.com/articles/10.1186/1471-2393-13-103

In 2023/24, the proportion of births to women booking at 15+ weeks gestation:

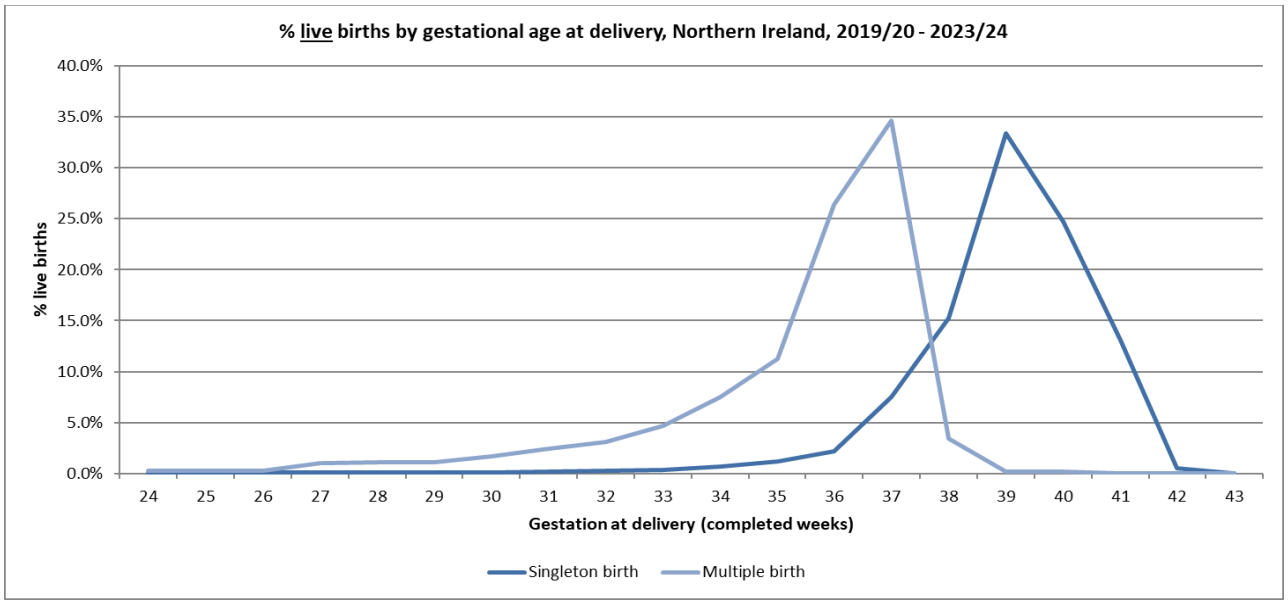
- was higher for women under 20 years (19.0%)
- was higher for women of a non-white ethnic group (27.4%) compared to women of a white ethnic group (4.4%)
- was higher for women living in more deprived areas (8.9%) compared to those living in less deprived areas (4.4%).

GESTATION AT DELIVERY

WHO states that "*Preterm birth is the leading cause of death in new-borns less than 28 days old with more than a million preterm infants dying each year. Those that do survive risk a range of disabilities throughout their lives. Alarmingly, in almost all countries with reliable data, preterm birth rates are increasing".*[16].
An infant born pre-term is at greater risk of neonatal death, infection, long term intellectual/developmental disabilities, visual/hearing impairment, feeding problems/poor growth and respiratory illness.

In Northern Ireland in 2023/24, 7.6% of infants were born pre-term i.e. less than 37 weeks gestation at birth. In the last ten years, there has been little variation in the proportion of infants born pre-term (2013/14 = 7.7%). However, there are slight differences when considering mother's age and deprivation level. Data for 2023/24, indicated that the youngest and oldest mothers, and those women living in more deprived areas, were more likely to give birth at <37 weeks gestation. The greatest difference can be seen in the proportion of pre-term births for singleton (5.8%) and multiple (66.0%) births.

Figure 8: Live births by gestational age at delivery, 2023/24 (Data Table 5.6)



Data in Figure 8 is shown for live infants with a gestational age between 24 and 43 completed weeks only. Infants born outside this gestational range are not shown due to risk of disclosure. However, percentages are calculated based on all live infants born in these years.

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

[16] World Health Organisation, "New recommendations from WHO to help improve the health of preterm infants", September 2022
https://www.who.int/news/item/30-09-2022-new-recommendations-from-WHO-to-help-improve-the-health-of-preterm-birth

Maternal Risk Factors

SMOKING

Giving up smoking is one of the best things a mother-to-be can do to improve her own health and the health of her baby. Giving up at any stage of the pregnancy provides benefits.

The Public Health Agency[17] [18] provides information on the effects of smoking while pregnant:

- Pregnancy complications e.g. three times more likely to have problems with the placenta
- Premature delivery, still birth and miscarriage
- Low birth weight/small for gestational age – increased risk of infection, other health problems, neonatal death
- Higher carbon monoxide levels can reduce the amount of oxygen available to the infant, while nicotine from cigarettes can narrow the blood vessels, restricting the blood flow and reducing the supply of nutrients and oxygen to the infant.

An infant born to a mother who smoked is at greater risk of[19]:

- Sudden or unexplained death (SIDS)
- Developing respiratory conditions such as asthma, chest infections
- Developing behavioural problems e.g. Attention Deficit Hyperactivity Disorder (ADHD).

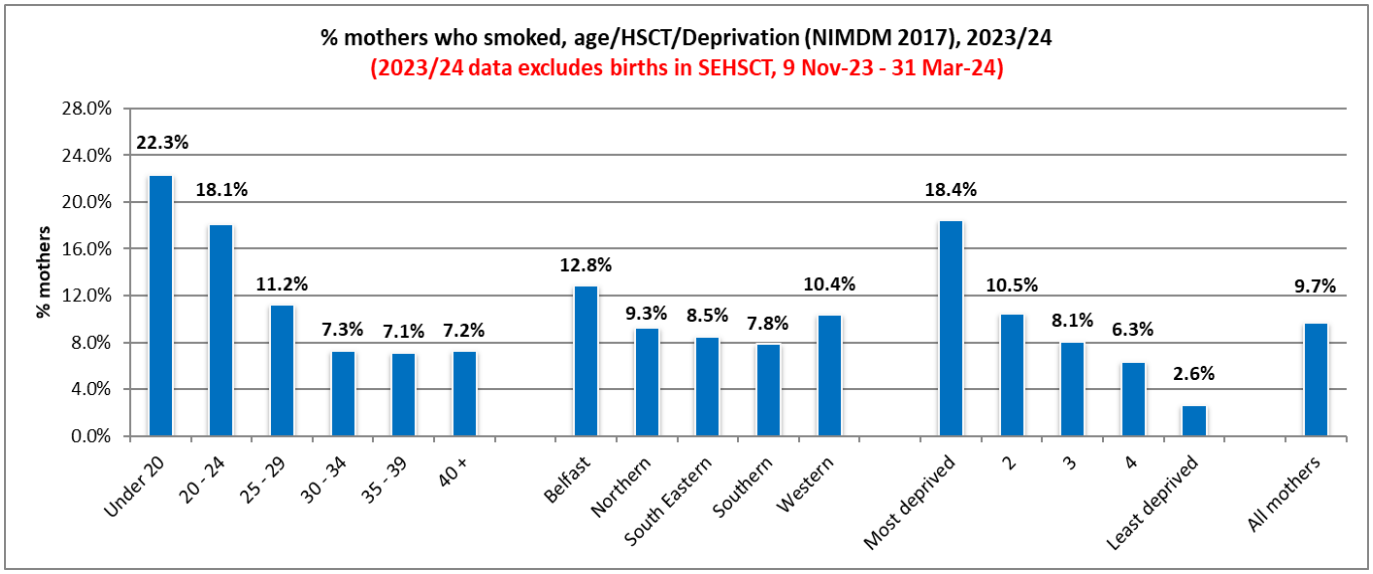
The proportion of women who reported smoking at time of antenatal booking appointment has fallen from 14.8% in 2013/14 to 9.5% in 2023/24. Of mothers who were smoking at the start of their pregnancy, around 1 in 3 (32%) quit smoking during the pregnancy (2023/24).

Of those giving birth in 2023/24, younger mothers were more likely to smoke (22.3% of those aged <20 years) compared to older mothers (7.2% of those aged 40 and over). Mothers living in the most disadvantaged areas reported higher smoking rates than those living in the least disadvantaged areas (18% compared with 3% respectively, 2023/24). Smoking rates were higher amongst those women who were of a white ethnic background (10.1%), compared to those of a non-white ethnic background (3.6%).

[17] Public Health Agency, Stop Smoking https://www.stopsmokingni.info/why-quit/smoking-pregnancy
[18] Public Health Agency, "Give your baby a breather - help and advice on giving up smoking during pregnancy" http://www.publichealth.hscni.net/sites/default/files/Give%20your%20baby%20a%20breather%20booklet%2001_17.pdf
[19] Institute of Public Health, "A Tobacco-Free Future: An All-Island Report on Tobacco, Inequalities and Childhood", 2013 https://www.publichealth.ie/reports/tobacco-free-future-all-island-report-tobacco-inequalities-and-childhood

Figure 9: Mothers who smoked by age, Health Trust of residence, deprivation level, 2023/24

(Data Table 6.2)



DIABETES

The prevalence of diabetes in the general population is increasing and the same trend can be seen among pregnant women. There are additional risks to mother and baby associated with pre-existing diabetes - Type 1 and Type 2. Women with diabetes are more likely to deliver an infant that is large for gestational age (with induced labour and increased need for a Caesarean Section possible). Women may have an increased risk of pre-eclampsia or miscarriage.

Infants born to mothers with diabetes are at greater risk of [20,21]:

- Stillbirth / born pre-term (<37 weeks gestation)
- Neonatal death
- Congenital abnormality
- Birth injury in higher weight infants e.g. shoulder dystocia
- The increased risk of obesity and diabetes in later life.

Gestational diabetes is diabetes which develops during pregnancy. Pregnancy places a heavy demand on the body and some women are less able to produce enough insulin, resulting in high blood glucose levels. It is becoming more prevalent in women of child bearing age, possibly due to increasing maternal age and obesity levels, which brings additional risk to the mother and her baby. Mothers with gestational diabetes are more likely to develop Type 2 diabetes in later life[22].

[20] Diabetes UK, Pregnancy and diabetes, https://www.diabetes.org.uk/guide-to-diabetes/life-with-diabetes/pregnancy
[21] Royal College of Obstetricians and Gynaecologists, March 2013 https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-gestational-diabetes.pdf
[22] R Dennison, E Chen, ME Green, C Legard, D Kotecha, G Farmer, S Sharp, RJ Ward, JA Usher-Smith, SJ Griffin, The absolute and relative risk of type 2 diabetes after gestational diabetes: A systematic review and meta-analysis of 129 studies, in Diabetes Research and Clinical Practice, 15 December 2020 https://pmc.ncbi.nlm.nih.gov/articles/PMC7610694/

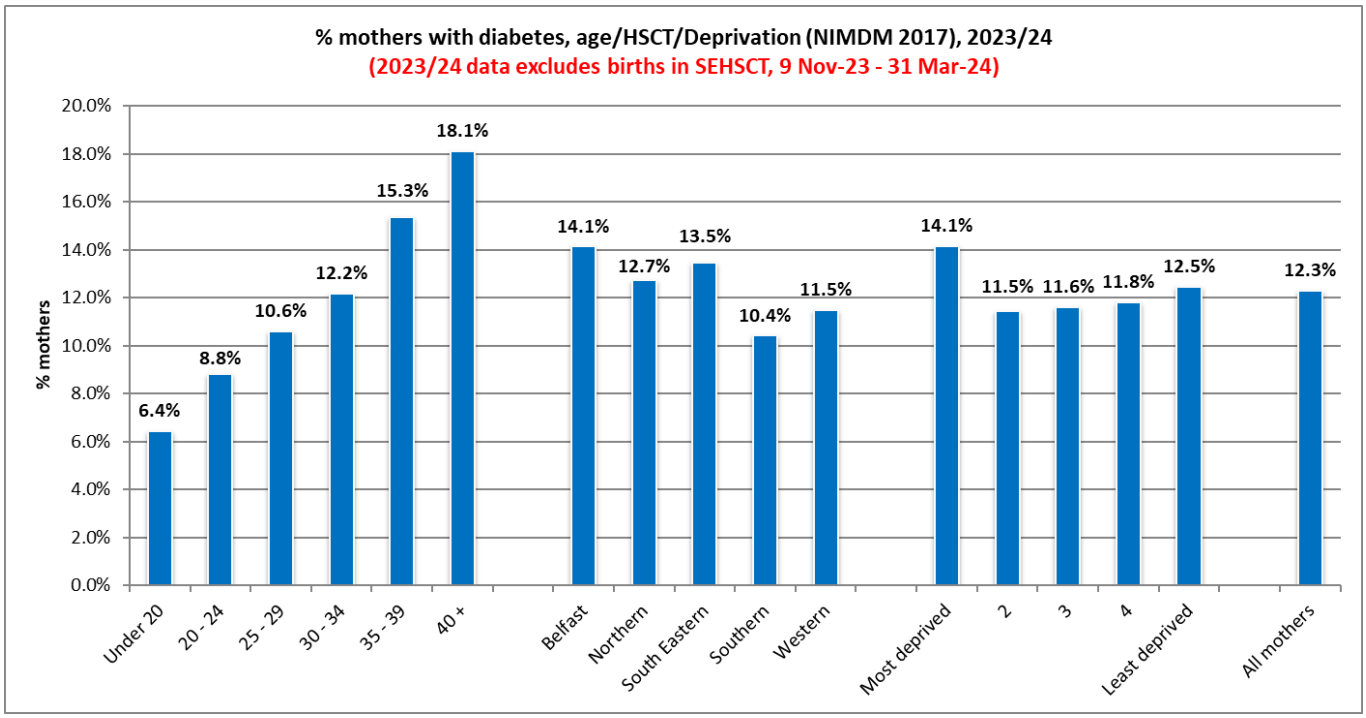
Risk factors for developing gestational diabetes include[23]:

- Being overweight or obese
- Coming from an African-Caribbean, South Asian, Chinese or Middle Eastern background
- Having a close relative e.g. parent, brother or sister with diabetes
- Having had gestational diabetes before
- Having had a very large baby in a previous pregnancy (≥4.5kg)

In 2023/24, 12.4% of mothers had diabetes (2013/14 = 5.1%). The percentage of mothers with diabetes increased with age, from 6.4% of those aged less than 20 years, compared to 18.1% of mothers aged 40 and over. A higher proportion of mothers from a non-white ethnic background had diabetes (23.2%), compared to those from a white ethnic background (11.5%).

Figure 10: Mothers with diabetes by age, Health Trust of residence, deprivation level, 2023/24

(Data Table 6.3)



Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

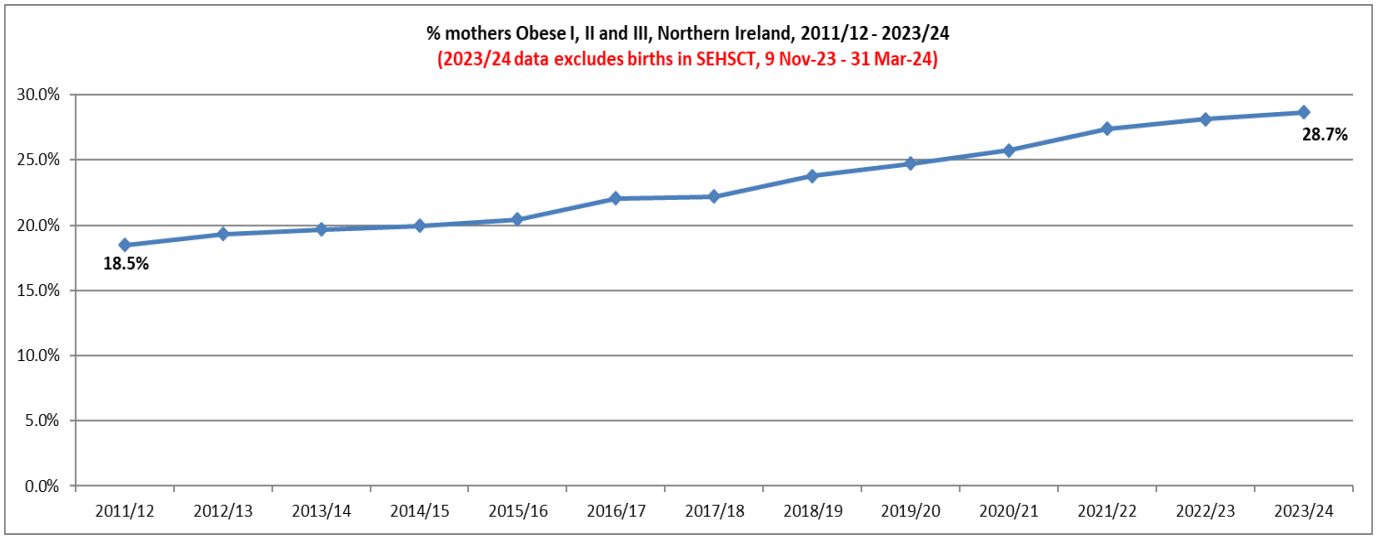
[23] Diabetes UK, https://www.diabetes.org.uk/diabetes-the-basics/gestational-diabetes

Maternal BMI at antenatal booking

The proportion of women giving birth who had an unhealthy weight (BMI = 25.00 or more) at time of antenatal booking appointment, has increased year on year, from 49% in 2013/14 to 60% in 2023/24. Over one in four (28.6%) mothers in 2023/24 were measured as obese (BMI = 30.00 or more). Of this, 4.6% were considered morbidly obese (BMI = 40.00 or more). These obesity levels in pregnancy mirrored levels in the general population. The most recent results from the Northern Ireland Health Survey[24] (2023/24) indicated that 26% of the adult female population (aged 16+) were measured as obese (20% obese, 6% morbidly obese).

In 2023/24, just over 1% of mothers giving birth were considered underweight (BMI<18.50) at time of booking. This figure has dropped slightly in the last ten years from 2% in 2013/14. Women measured as underweight were more likely to be younger (especially under 20 years old), of a non-White ethnic group and live in more deprived areas of Northern Ireland.

Figure 11: Mothers who were obese at time of antenatal booking (Data Table 7.1)



The proportion of mothers who were obese was highest amongst women who were older (17% aged <20 years, 31% aged 40+ years), who lived in more deprived areas (32% most deprived, 23% least deprived) and who were not first time mothers (25% first time mothers, 31% not first time).

Obesity (and excessive weight gain during pregnancy) is associated with increased risks to both mother and infant, including[25] [26]:

- Reduced fertility
- Greater risk of miscarriage / still birth / congenital anomalies

[24] Department of Health, Health Survey Northern Ireland https://www.health-ni.gov.uk/topics/doh-statistics-and-research/health-survey-northern-ireland
[25] The BMJ, "Obesity and pregnancy: mechanisms of short term and long term adverse consequences for mother and child", February 2017 https://www.bmj.com/content/356/bmj.j1
[26] British Dietetic Association, "Maternal Obesity", December 2015, updated November 2019 https://www.bda.uk.com/resource/maternal-obesity.html

- Greater risk of developing gestational diabetes
- Having a larger baby (>4kg) resulting in complications such as infant shoulder dystocia
- Increased risk of requiring instrumental delivery or Caesarean Section
- Greater risk of conditions such as diabetes and hypertension to both mother and child
- Maternal death

Postnatally, maternal obesity has been linked to depression and difficulties in breastfeeding, with adverse cardiovascular and respiratory outcomes in children[27]. The Royal College of Obstetricians and Gynaecologists[28] adds that mothers who were obese were also at risk of thrombosis (blood clot), high blood pressure and pre-eclampsia, post-Caesarean wound infection, anaesthetic complications and postpartum haemorrhage.

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

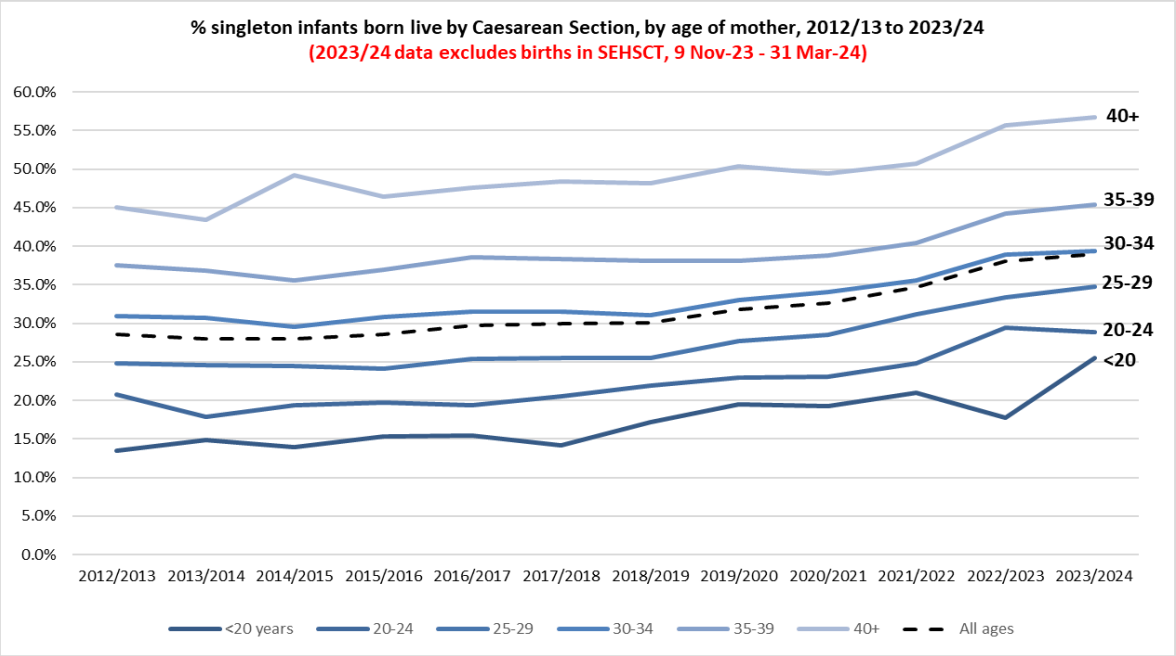
[27] "Maternal Obesity", Public Health England, December 2015 https://khub.net/c/document_library/get_file?uuid=a5768682-fb3d-4fda-ab4a-937a8d80f855&groupId=31798783
[28] Royal College of Obstetricians and Gynaecologists, "Being overweight in pregnancy and after birth" https://www.rcog.org.uk/for-the-public/browse-our-patient-information/being-overweight-in-pregnancy-and-after-birth/

Method of Delivery

In 2023/24, almost 48% of all infants were born by a normal delivery method, 40% delivered by Caesarean section, with the remaining 12% by another method e.g. instrumental delivery. Of those delivered by Caesarean Section, 23% were elective (or planned) and 17% were an emergency (or unplanned) Caesarean Section.

The proportion of singleton, live infants born by Caesarean Section continued to rise over the last ten years, from 27.9% in 2013/14 to 39.0% in 2023/24. There is little difference in the proportion of infants delivered by Caesarean Section when considering mothers' ethnic group, deprivation status or parity, however Figure 12 demonstrates that older mothers were more likely to deliver via Caesarean Section.

Figure 12: Singleton infants born by Caesarean Section by age of mother (Data Table 8.3)



In some pregnancies where help is needed at birth, a Caesarean Section may be necessary, however there are risks associated with a Caesarean Section. These may include [29] [30]:

- Wound infection
- Blood clots or excess bleeding
- Damage to other organs e.g. bladder
- Longer recovery time
- Maternal death

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

[29] National Institute for Health and Care Excellence (NICE), "Caesarean birth", NICE Guideline (NG192), March 2021, updated January 2024 https://www.nice.org.uk/guidance/ng192
[30] Royal College of Obstetricians and Gynaecologists "Choosing to have a caesarean section https://www.rcog.org.uk/globalassets/documents/patients/patient-information-leaflets/pregnancy/pi-choosing-to-have-a-c-section.pdf

Infant Birth Weight

LOW BIRTH WEIGHT

Low birth weight is defined as weight at birth of less than 2,500 grammes (or 5.5 pounds), irrespective of gestational age. In Northern Ireland, in 2023/24, 6.4% of all infants were born with a low birth weight (6.2% live, 73.0% still).

Typically, a baby might have a lower birth weight because they were born earlier than expected (<37 weeks gestation) or where growth has been restricted (small for gestational age).

Low birth weight in infants can be prevented, with the following risk factors associated with low birth weight[31,32,33,34,35]:

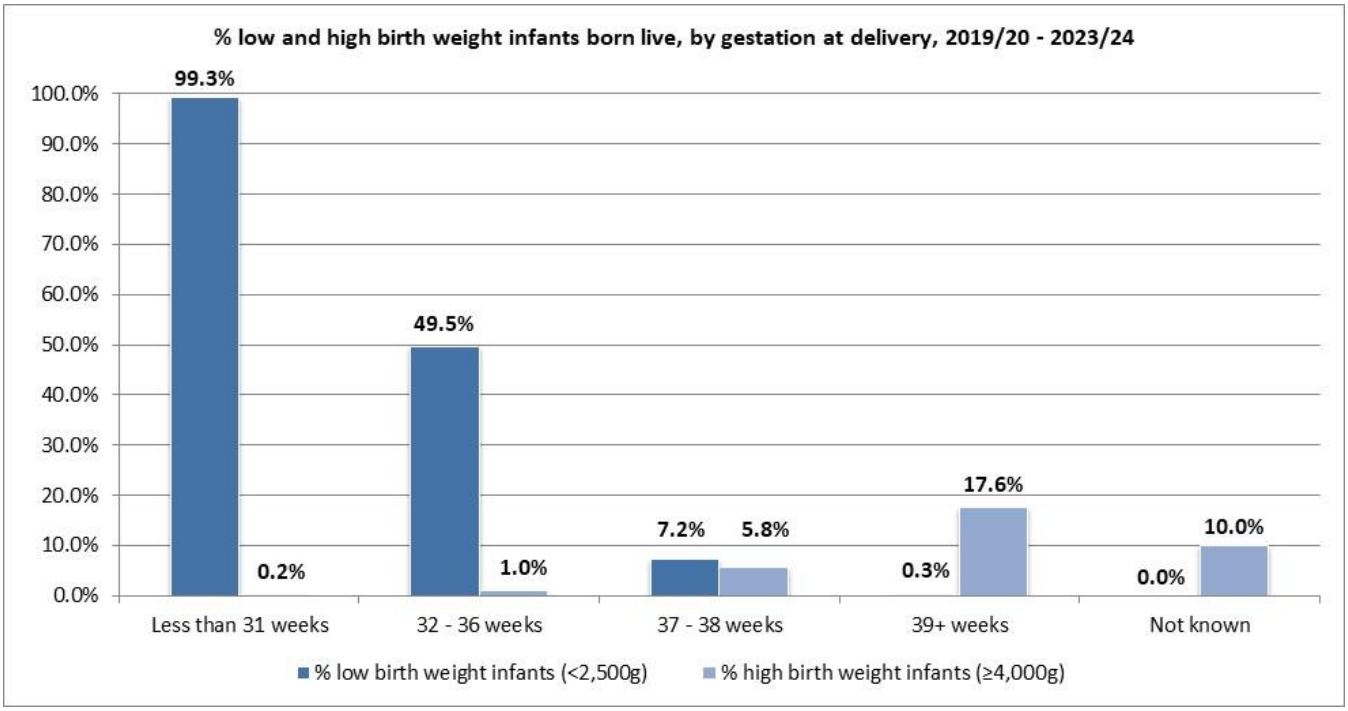
- Younger (<17) / older mothers (>35)
- Low maternal BMI / poor maternal diet / over-exercising by mother
- Maternal smoking (heavy) / substance misuse / alcohol consumption (heavy)
- Previous pregnancy with a low birth weight baby
- Multiple pregnancy
- Certain medications e.g. for high blood pressure, epilepsy
- Non-attendance at antenatal care.

A birth weight below 2,500g contributes to a range of poor outcomes, including still birth and infant mortality[36,37,38,39] e.g. respiratory problems, infections, difficulty eating/gaining weight. In later life - diabetes, high blood pressure, heart disease, obesity, possible lower life expectancy, possible lower educational achievement maybe as a result of intellectual and developmental disabilities.

The proportion of low birth weight infants born to mothers residing in the most deprived areas in 2023/24 was higher at 7.4% than to mothers from least deprived areas (5.2%).

[31] World Health Organisation, "Born too soon - The global action report on preterm birth", 2012 https://www.who.int/publications/i/item/9789241503433
[32] Han Z, Mulla S, Beyene J et al. "Maternal underweight and the risk of preterm birth and low birth weight: a systematic review and meta-analyses". Int J Epidemiol 2011;40(1):65–101 https://www.researchgate.net/publication/49629130_Maternal_underweight_and_the_risk_of_preterm_birth_and_low_birth_weight_a_systematic_review_and_meta-analyses
[33] Patra J, Bakker R, Irving H, Jaddoe V, Malini S, Rehm J. Dose–response relationship between alcohol consumption before and during pregnancy and the risks of low birthweight, preterm birth and small for gestational age (SGA)—a systematic review and meta-analyses. BJOG 2011;118:1411–1421 https://pmc.ncbi.nlm.nih.gov/articles/PMC3394156/
[34] Bramham Kate, Parnell Bethany, Nelson-Piercy Catherine, Seed Paul T, Poston Lucilla, Chappell Lucy C et al. Chronic hypertension and pregnancy outcomes: systematic review and meta-analysis BMJ 2014; 348 :g2301 http://www.bmj.com/content/348/bmj.g2301
[35] Royal College of Obstetricians and Gynaecologists, "Having a small baby" https://www.rcog.org.uk/for-the-public/browse-all-patient-information-leaflets/having-a-small-baby/
[36] Royal College of Obstetricians and Gynaecologists, "Having a small baby" https://www.rcog.org.uk/for-the-public/browse-all-patient-information-leaflets/having-a-small-baby/
[37] Class QA, Rickert ME, Lichtenstein P, *et al*. Birth weight, physical morbidity, and mortality: a population-based sibling-comparison study. Am J Epidemiol 2014;179:550–8. https://pmc.ncbi.nlm.nih.gov/articles/PMC3927978/
[38] Institute of Health Economics, Canada, "Determinants and Prevention of Low Birth Weight: A Synopsis of the Evidence", 2008 https://www.ihe.ca/publications/determinants-and-prevention-of-low-birth-weight-a-synopsis-of-the-evidence
[39] Public Health Wales, Low Birth Weight – Review of risk factors and interventions – Technical Report, 2014, https://www2.nphs.wales.nhs.uk/ChildrenMatFamiliesDocs.nsf/($all)/E3F761EC6EFE646F80257D490044FBAE/$file/Low%20Birth%20Weight%20-%20technical%20paper%20v1.pdf?OpenElement

Figure 13: Low and high birth weight infants born live by gestation at delivery, 2019/20 – 2023/24
(Data Table 9.3)



HIGH BIRTH WEIGHT

In Northern Ireland, in 2023/24, 12.2% of live infants were born with a birth weight of 4,000g+ and of these 1.4% with a birth weight of 4,500g+. The proportion of infants born with a higher birth weight has been decreasing in recent years.

A higher proportion (12.6%) of mothers in 2023/24 who were of a white ethnic group gave birth to infants with a higher weight (≥4,000g), than those of a non-white ethnic group (5.6%).

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Breastfeeding

BREASTFEEDING AT DISCHARGE FROM HOSPITAL

Breastfeeding has multiple benefits for infants and mothers.[40] For infants, evidence supports the role of breastfeeding in reducing the risk of ear and respiratory infections, gastroenteritis, bowel complications e.g. necrotising enterocolitis (NEC), Sudden Infant Death Syndrome (cot death) and childhood leukaemia.[41,42,43] There is evidence to suggest likely effects in reducing obesity and the risk of developing Type 2 diabetes.[44] Breastfeeding mothers have a reduced risk of breast cancer, ovarian cancer and Type 2 diabetes.[45,46,47,48]

However, despite the benefits to both infant and mother, breastfeeding rates across Northern Ireland remain low.

In 2023/24, just over half of live infants (53.6%) were breastfed (total or partial feeding) at discharge (where feeding status was known). (93% of infants had a feeding status recorded). Only 23.7% of infants born to mothers under 20 were breastfed at discharge, compared to 64.1% of infants to mothers aged 40 and over. The proportion breastfeeding was markedly lower in more deprived areas - 40.6% of mothers from the most deprived areas were breastfeeding at discharge, compared to 68.4% of mothers from the least deprived areas. It should however be noted that breastfeeding rates increase with age of mother, and more deprived areas tend to have a higher proportion of younger mothers.

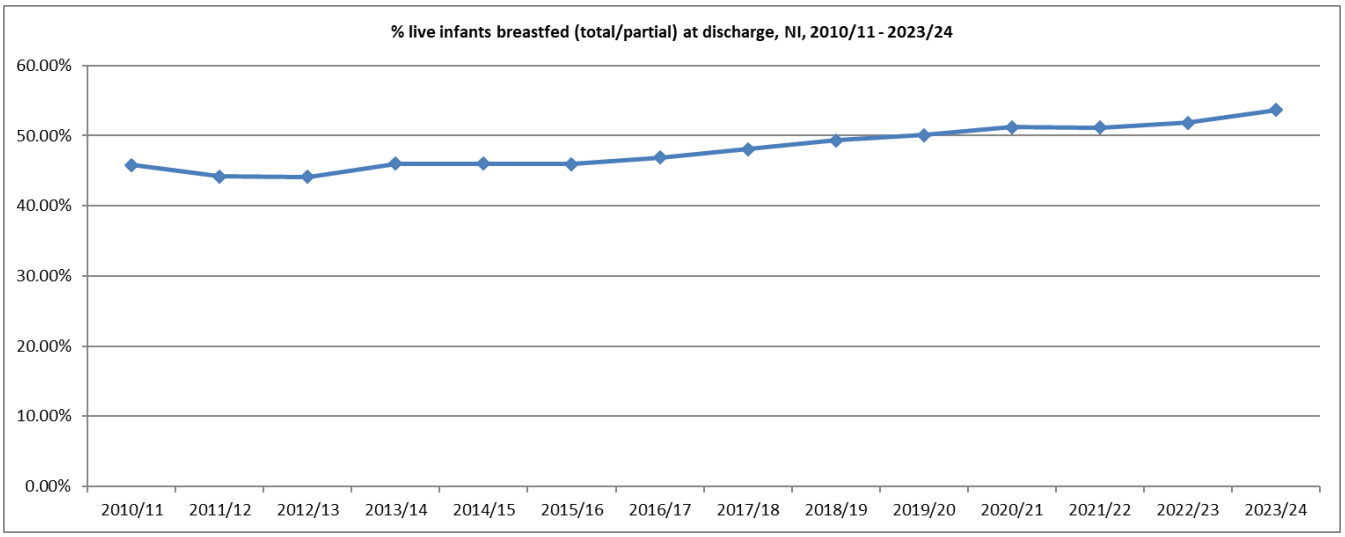
Note:

Breastfeeding data on the Child Health System is recorded as either 'Total', 'Partial' or 'Not at all'. Total – where the child receives breast milk only, with no other type of milk, liquids or food given. Partial – where the child receives breast milk, as well as formula milk and other liquids or food. Not at all - where the child does not receive any breast milk at all, but rather other feeding methods are used.

Recording of breastfeeding data may not be complete. In any year, there will be a number of records where the breastfeeding status is not known. As a result, percentage breastfeeding is calculated as a valid percentage. The calculation is based on those records where feeding status was known i.e. blank data has been removed from the denominator value.

[40] UNICEF Research on maternal health https://www.unicef.org.uk/babyfriendly/news-and-research/baby-friendly-research/maternal-health-research/
[41] Department of Health, "Breastfeeding – A Great Start. A Strategy for Northern Ireland 2013 – 2023 https://www.health-ni.gov.uk/publications/breastfeeding-strategy
[42] Health Service Executive, Republic of Ireland, 2008 "The Evidence for Breastfeeding" https://www.breastfeeding.ie/Uploads/The-evidence-for-breastfeeding.pdf
[43] UNICEF Research on infant health https://www.unicef.org.uk/babyfriendly/news-and-research/baby-friendly-research/infant-health-research/
[44] Horta BL, Rollins N, Dias MS, Garcez V, Pérez-Escamilla R. Systematic review and meta-analysis of breastfeeding and later overweight or obesity expands on previous study for World Health Organization. Acta Paediatr. 2023 Jan;112(1):34-41.
[45] Chowdhury R, Sinha B, Sankar MJ, Taneja S, Bhandari N, Rollins N, Bahl R, Martines J. Breastfeeding and maternal health outcomes: a systematic review and meta-analysis. Acta Paediatr. 2015 Dec;104(467):96-113. doi: 10.1111/apa.13102. PMID: 26172878; PMCID: PMC4670483.
[46] Fan D, Xia Q, Lin D, Ma Y, Rao J, Liu L, Tang H, Xu T, Li P, Chen G, Zhou Z, Guo X, Zhang Z, Liu Z. Role of breastfeeding on maternal and childhood cancers: An umbrella review of meta-analyses. J Glob Health. 2023 Jun 23;13:04067.
[47] Rameez RM, Sadana D, Kaur S, Ahmed T, Patel J, Khan MS, Misbah S, Simonson MT, Riaz H, Ahmed HM. Association of Maternal Lactation With Diabetes and Hypertension: A Systematic Review and Meta-analysis. JAMA Netw Open. 2019 Oct 2;2(10):e1913401. doi: 10.1001/jamanetworkopen.2019.13401. PMID: 31617928; PMCID: PMC6806428.
[48] Aune D, Norat T, Romundstad P, Vatten LJ. Breastfeeding and the maternal risk of type 2 diabetes: a systematic review and dose-response meta-analysis of cohort studies. Nutr Metab Cardiovasc Dis. 2014 Feb;24(2):107-15. doi: 10.1016/j.numecd.2013.10.028.

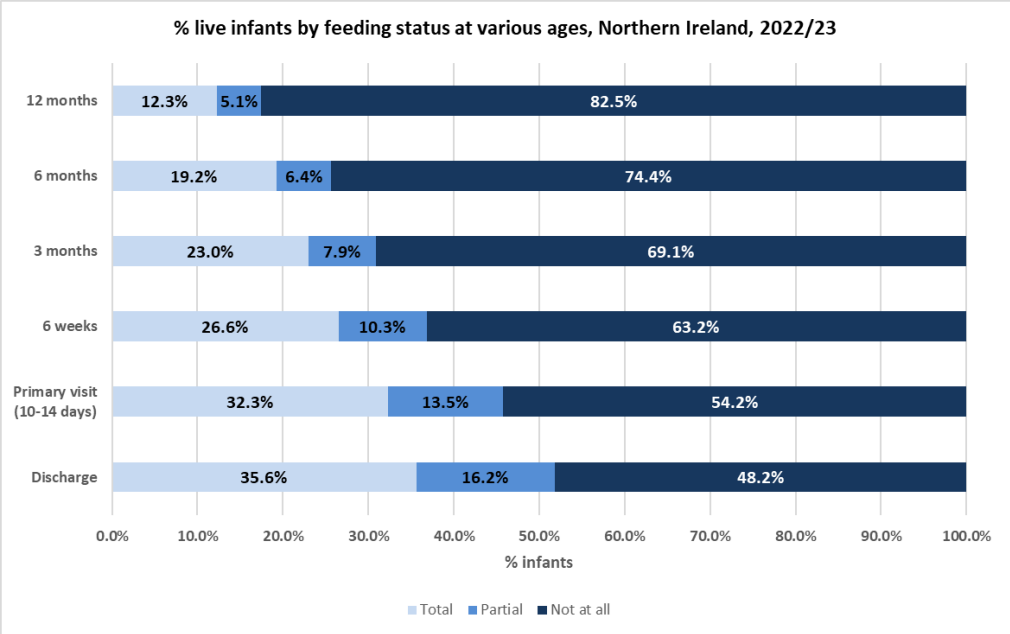
Figure 14: Live infants breastfed (total or partial) at discharge, 2010/11 – 2023/24 (Data Table 10.1)



BREASTFEEDING DURATION

In Northern Ireland, infant feeding status is recorded at discharge from hospital, 10-14 days old, 6 weeks old, 3 months old, 6 months old and 12 months old. Of infants delivered in 2022/23, the proportion breastfed gradually decreased with time. 51.8% of infants were breastfed at discharge (total/partial), falling to 17.5% of infants at 12 months old. The proportion of infants breastfed at 12 months increased with age of mother – 6.3% of mothers aged less than 20 years, to 23.6% of mothers aged 40+. At all stages where breastfeeding was recorded, the rate was substantially higher in those infants born to mothers who lived in less deprived areas, when compared to mothers from more deprived areas.

Figure 15: Live infants by feeding status at various ages, 2022/23 (Data Table 10.6)



Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Childhood Immunisations

Vaccination Coverage

The COVER (Cover of Vaccination Evaluated Rapidly) programme monitors immunisation coverage data for children in the United Kingdom who reach their first, second or fifth birthday during each evaluation year.

Northern Ireland

Detailed coverage data for Northern Ireland can be found at the link below:

Public Health Agency, Health Protection Department

https://www.publichealth.hscni.net/publications/annual-immunisation-and-vaccine-preventable-diseases-reports

https://www.publichealth.hscni.net/directorate-public-health/health-protection/surveillance-data

Rest of United Kingdom

Detailed coverage data for the rest of the UK can be found at the links below:

NHS Digital

https://digital.nhs.uk/data-and-information/publications/statistical/nhs-immunisation-statistics

UK Health Security Agency

https://www.gov.uk/government/collections/vaccine-uptake

Public Health Scotland/ISD Scotland

https://beta.isdscotland.org/topics/child-health/immunisation/

Public Health Wales

https://phw.nhs.wales/topics/immunisation-and-vaccines/

Childhood growth measurements (BMI)

This report shows that 21% of Primary 1 children and 27% of Year 8 children were measured as overweight or obese in 2023/24.

A child who is obese may have a greater risk of Type 2 diabetes, asthma, musculo-skeletal problems, heart disease/high blood pressure and low self-esteem/mental illness/eating disorders in later life[49] [50]. An obese child is more likely to become an obese adult.

In this report, growth measurement data is available using the International Obesity Task Force Classification (IOTF) and the British 1990 (UK90) Growth Reference (See Appendix 2). This report section will concentrate on the International Obesity Task Force Classification (IOTF) classification, although comparisons with other UK countries will be provided using the British 1990 (UK90) classification.

PRIMARY 1

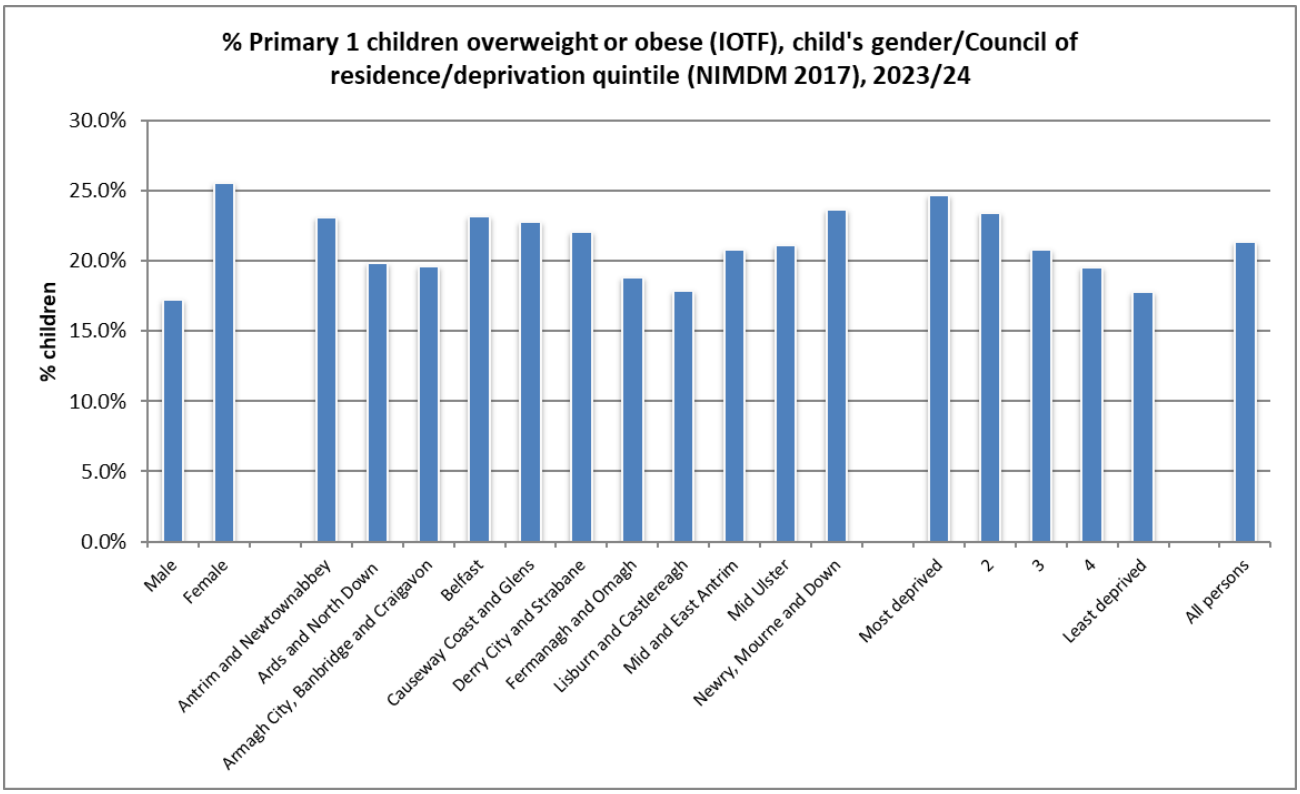
Based on the UK90 classification, in 2023/24, 25.3% of children in Northern Ireland measured in Primary 1 were considered overweight or obese. This compares to 22.1% in England and 22.3% in Scotland. At time of publication, data for 2023/24 for Wales was not available, however the equivalent figure for 2022/23 was 24.8%.

IOTF

Of those children measured in Primary 1, 15.5% were considered overweight and 5.8% were considered obese, therefore 21.3% were either overweight or obese. This figure has fluctuated since 2008/09 when measurements first became available - ranging from 20.4% to 22.1%. At this age, more females than males were measured as overweight/obese (25.6% female, 17.2% male). Levels of overweight/obesity declined as deprivation level decreased. 24.7% of children living in the most deprived areas of Northern Ireland were measured as overweight/obese, compared to 17.8% of children from the least deprived areas.

[49] Royal College of Paediatrics and Child Health, https://www.rcpch.ac.uk/key-topics/nutrition-obesity/about-childhood-obesity
[50] Royal College of Paediatrics and Child Health, State of Child Health, 2020 https://stateofchildhealth.rcpch.ac.uk/

Figure 16: Primary 1 children overweight or obese, 2023/24 (Data Table 12.2)



YEAR 8

In 2023/24, over a quarter of children in Year 8 were measured as overweight/obese (27%). 21% of children were measured as overweight, 6% obese. Unfortunately, this figure has not improved much since 2010/11 – fluctuating between 26.4% and 28.2% across these years.

A higher proportion of children living in the most deprived areas of Northern Ireland were measured as overweight/obese (32.3%), compared to 22.0% of children from the least deprived areas.

Link to Data Tables: https://www.publichealth.hscni.net/directorates/directorate-operations/statistics

Appendix 1

Data Sources

The **Northern Ireland Maternity System (NIMATS)** contains a range of demographic and clinical information on mothers and infants. It captures data relating to the current complete maternity process, but also contains details about the mother's past medical and obstetric history. It is a key source for data on birth numbers, interventions, maternal risk factors, birth weights, maternal smoking, BMI and breastfeeding on discharge.

The **Child Health System (CHS)** is a patient centred community based operational system comprising seven modules. This report draws on the information in Modules 1 and 4.

Module 1 – Child Register

Module 2 – Preschool Vaccination and Immunisation

Module 3 – Preschool Developmental Surveillance

Module 4 – School Health

Module 5 – Special Needs

Module 6 – New-born Hearing

Module 7 – Influenza

EPIC

Epic Systems, a provider of health information technology, is used to access, organise, store and share electronic medical records. In Northern Ireland, Epic will replace a number of historic IT systems, and will provide a single source of information about each patient.

The **Northern Ireland Statistics and Research Agency (NISRA),** which incorporates the **General Register Office (GRO),** is an executive agency within the Department of Finance (NI). They aim to deliver trustworthy, high-quality statistics, analysis, research and registration services which provide evidence to inform policy discussions and public debate in Northern Ireland. *(Source: NISRA Corporate Plan, 2025-29)*

Note:

Births are presented using all of the above sources, and therefore may not agree. For example, births provided by NISRA are based on the number of births registered with a District Registrar in any year. It is likely that some births occurring in a year may not be registered until the following year, and therefore the reason for any differences.

Appendix 2

Classification of Growth Measurements in Northern Ireland

International Obesity Task Force (IOTF)

The IOTF thresholds are derived from BMI data from six large, nationally representative, cross-sectional surveys from Brazil, Great Britain, Hong Kong, the Netherlands, Singapore, and the United States. These samples include 192,727 children aged 0 to 25 years. Each data set has over 10,000 subjects, with age ranges covering at least the period from 6 to 18 years. Age and sex specific cut-off points are extrapolated from the adult BMI cut-offs of 25kg/m2 and 30kg/m2 for overweight and obesity respectively. Three grades of thinness are defined from equivalent adult BMIs of 16, 17 and 18.5.

British 1990 Growth Reference (UK90)

The UK90 BMI reference provides centile curves for BMI for British children from birth to 23 years. They are based on a sample of 32,222 measurements from 12 distinct surveys collected between 1978 and 1994. The sample was rebased to 1990 levels and the data were then used to express BMI as a centile based on the BMI distribution, adjusted for skewness, age and sex using Cole's LMS method (*'Growth monitoring with the British 1990 growth reference'. Cole Arch Dis Child.1997; 76: 47-49*.)

The BMI classification of each child is derived by calculating the child's BMI centile and assigning the BMI classification based on the following thresholds:

- Underweight is defined as a BMI centile less than or equal to the 2nd centile
- Healthy weight is defined as a BMI centile greater than the 2nd centile but less than the 85th centile
- Overweight is defined as a BMI centile greater than or equal to the 85th centile but less than the 95th centile (i.e. overweight but not obese)
- Obese is defined as a BMI centile greater than or equal to the 95th centile.

Further information on classifications:

National Obesity Observatory, "A simple guide to classifying body mass index in children", June 2011
https://khub.net/documents/31798783/32039025/A+simple+guide+to+classifying+body+mass+index+in+children/ced23256-6f8d-43c7-9f44-222e2beebf97?version=1.0

Produced by

Health Intelligence Unit, Public Health Agency

www.publichealth.hscni.net

April 2025

For further information, please contact:

phahealthintelligence@hscni.net