Registered Home Births

National Audit Report 2022

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

HSE

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NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

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Definitions and terminology

The HSE National Home Birth Service is available to women who are considered at normal risk. An individualised approach is taken for each woman accessing the service to determine eligibility. To ensure comparison, the Designated Midwifery Officers (DMO's) and the NPEC used the following definitions which are included in this report:

Antepartum Referrals: Referral to hospital due to complications which have arisen during pregnancy, requiring review by an obstetrician.

Antepartum Transfers: Where a transfer of care from the home birth service to the maternity unit during pregnancy is required due to a change in the woman's eligibility for the service, as per the HSE MOU/ Agreement (Annex 1) or due to maternal choice. (1)

Booking visit: Booking visit relates to the woman's first antepartum visit with the Community Midwife.

Born Before Arrival (BBA): BBA refers to giving birth at home before the midwife had time to arrive, or giving birth before arrival to hospital where this was the intended place of birth. For the purpose of this report, BBAs with home as the intended place of birth will be named as "unattended home births" and they will be grouped under the category of having a home birth. Those BBAs whose intended place of birth was the hospital (including antepartum/intrapartum transfers) will be named "BBAs" in this report.

Community Midwife: For the purpose of this report, community midwife is referring to both self-employed community midwives (SECMs) and integrated hospital community midwives (IHCMs) that provide care to women who chose to register for a home birth.

Early Neonatal Death: Death of a live born baby occurring before 7 completed days after birth.

Exclusion Criteria: The HSE MOU/Agreement for home birth services (Annex 1) outline medical and other factors requiring registered birth in a maternity unit and medical and other conditions requiring referral to a consultant obstetrician by the midwife for final assessment when planning place of birth. (1)

Gravida: The number of times the woman has been pregnant, irrespective of duration; prior to the home birth in this report.

Intrapartum Transfer: The HSE MOU/Agreement for home birth services (Annex 1) outlines indications for intrapartum transfer. (1)

Labouring at home: This group includes both women who start labouring at home and who gave birth at home, and women who start labouring at home but have an intrapartum transfer.

Maternity Unit: Refers to the 19 maternity hospitals in the Republic of Ireland providing maternity care services.

Parity: The number of completed pregnancies, whether live birth or stillbirth, of at least 24 weeks gestation or with a birthweight ≥500g; prior to the home birth in this report.

Postpartum Transfer: The HSE MOU/Agreement for home birth services (Annex 1) outlines indications for postpartum transfer. (1)

Stillbirth: A baby born without signs of life from 24 weeks' gestation and/or with a birth weight of ≥500g.

Executive Summary

Overall description and trends

This is the ninth national clinical audit report on registered HSE home births in Ireland under the care of the Self-Employed Community Midwives (SECMs) and the Integrated Hospital Community Service (IHCS) in the National Maternity Hospital (NMH), Waterford (UHW) and Wexford (WGH). This is the first year of the report which includes the NMH integrated hospital service data. The report provides details on the 432 women who were registered for a home birth from January 1st, 2022, to December 31st, 2022. Of these, 218 women gave birth at home. These equate to 0.8% and 0.4% of all women who gave birth in the country in 2022, respectively[1]. While a gradual increase has been noted in the number of women who were registered for a home birth since 2017, this number has risen significantly in the last three years with 345 women registering in 2020, 429 in 2021 and 432 in 2022.

Geographical distribution

The geographical distribution of home births is reflective of the number of community midwives available in each region. For the first time in this report, Dublin Mid Leinster reported the highest number of home births in 2022. Regardless of the increased numbers for this area because of the addition of the NMH (n=48) and the Coombe hospital (n=17) registered home births, Dublin Mid Leinster home birth services had the highest number of registered home births (n=124) compared to home birth South (n=113), which was the area with the highest numbers historically.

Maternal characteristics

Body mass index (BMI) was reported for a total of 93.8% of women registered for home birth, which shows a decrease in the available data since 2019. BMI for the majority of women registered for a home birth was in the healthy category (56.8%). Three women indicated that they were smoking at their booking visit, one of whom gave up during pregnancy. Thus, 0.5% of women smoked throughout their pregnancy for this report. In Ireland, it is estimated that 11% of pregnant women smoke throughout their pregnancy. (2) Regarding alcohol consumption, almost all (99.8%) women registered for home birth did not consume alcohol during their pregnancy. As smoking and alcohol consumption are risk factors for a range of adverse perinatal outcomes, it is encouraging to continue to see low rates in this cohort.

Almost two-thirds of the women who were registered for a home birth were multiparous women (64%). Women who were registered for home birth also had an older age profile than all women who gave birth in the country with 75% in 2022 versus 66% aged between 30-39 years, 2019-2022. Maternal age over 40 was seen in this report as being one of the main reasons requiring review by an obstetrician when planning the place of birth.

Antepartum care

While 93% of women who registered for a home birth also registered with their general practitioner (GP) during pregnancy, only 36% received all their shared care from their GP. All women planning a home birth were booked with a maternity unit/hospital.

The majority of women who registered for a home birth had a booking scan before 14 weeks of gestation (72%). There is missing data on booking scan details for 7 women who registered, which could be attributed to the women registering with the home birth service after they have had their initial scan. All but three women had an anomaly scan. Anomaly scans were commonly performed between 18 and 21 weeks of gestation (64%) or after 21 weeks of gestation (35%).

Of the 432 women who were registered for home birth in 2022, 23.4% (n=101 of 432) had a reported risk factor that required review by an obstetrician to determine eligibility for the service. Of the 306 women who had a previous pregnancy and were registered for a home birth, 73 (24.0%, unknown for two women) were reported to have had a previous obstetric condition or risk factor for review. The most common conditions were a history of Group B streptococcus (12.3%) and experiencing three or more miscarriages (12.3%).

Antepartum transfers

Care was transferred antenatally to the maternity unit for 136 women. An additional 19 women also transferred antenatally due to maternal request. Similar to previous years, nulliparous women were more likely to transfer in the antepartum period compared to multiparous women (47% versus 29%). Of the women who transferred during the antepartum period, 14.2% were transferred because of post-maturity, 9.7% because of prolonged rupture of membranes and 9.0% due to malpresentation of the fetus. Of the women transferred to the maternity hospital during the antepartum period, none returned to the care of the home birth service, and therefore, there were not any intrapartum transfers among this group in 2022. In the triennial report covering the years 2018 to 2020, 3% of women had both antepartum and intrapartum transfers.

Following the transfer of care, 33.3% nulliparous women and 87.5% multiparous women (n=63) had

[1]Rates calculated using HIPE data on the total national number of women who gave birth in the hospital in 2022 (See Appendix B for more information).

a spontaneous vaginal birth in 2022. Nulliparous women were more likely to have a caesarean section than multiparous women in 2022 in line with previous findings (56.7% versus 9.7%). The mode of birth was unknown for 14% of women, which could be an example of the SECMs not having full access to the birth details when a woman is transferred into the maternity unit.

Full access to the birth details/maternity clinical records was available for 37% of women who were transferred to the maternity hospital in the antepartum period. This percentage is higher than in 2021, which was 22%. Some details were available for a further 48% of women in 2022. The community midwives were unable to access the women's clinical records after antepartum transfer in one-sixth of cases (16%).

Intrapartum transfers

Of the 277 women who began labouring at home, 24% (n=65) were transferred to a maternity hospital. Nulliparous women were more likely to transfer during labour than multiparous women (44% versus 15%). Approximately, 79% of intrapartum transfers occurred during the first stage of labour, potentially reflecting caution by the community midwives around the decision to transfer. Almost 31% of intrapartum transfers to the maternity unit were associated with confirmed delay in 1st or 2nd stage of labour (n=20, 30.8%), another 30% with maternal request for medical analgesia (n=18, 27.7%), and approximately 12% with meconium-stained liquor (n=8, 12.3%). In 2022, six women required transfer during the 3rd stage of labour.

The average time it took to transfer a woman was 28.1 minutes. Among the women who were transferred via ambulance (n=42), the mean time between when the ambulance was called to when the ambulance arrived at the home was 29.8min. The mean time the ambulance took from arriving to the home to arriving to the hospital was 33.52min.

The prevalence of antepartum and intrapartum transfers varies very widely in the literature. According to a few systematic reviews and meta-analyses, the proportion of women needing transfer varied from 3.5% to 31.9%. (3,4) Similarly, a Dutch study showed that 46.9% of women, who were in caseload midwifery care, were referred to obstetrician-led care (24.2% antepartum and 22.8% in the intrapartum period). (5)

Infant outcomes and examinations

Of the 218 infants born at home, 3% needed some form of resuscitation ranging from requiring suction only, oxygen and intermittent positive pressure ventilation (IPPV). This is in line with other large-scale longitudinal studies, which have shown that 3%-10% of newborns will need some form of additional support at birth, with up to 5% requiring IPPV. (6–8) Thirteen infants who were born at home were transferred to a maternity hospital. Most of the babies were transferred because they were accompanying their mothers being transferred to the maternity unit (n=7). Six of these infants were admitted into the Special Care Baby Unit (SCBU) and one was cared for on the maternity ward. All of them were later discharged alive and well.

Vitamin K is offered to all women in Ireland for administration to their newborn infants as standard practice. Following informed discussion, 16% (n=35 of 218) of women who gave birth at home declined this option for their infants. Following their home birth, 79% of women returned to the maternity unit on day 3 to have their baby's routine newborn examination done by the hospital neonatologist/paediatrician and 13% of women had their GP complete this check.

Postpartum care

Women who birthed at home were on average discharged 12 days after the birth of their infants from the care of the community midwife. On the day of the home birth, 96% of women were breastfeeding exclusively, with 94% breastfeeding exclusively on the day of discharge from the care of the community midwife. Women who birthed at home were twice as likely to be breastfeeding exclusively on the day of discharge compared to all women who gave birth (94% vs. 46%). Seven women required transfer to a maternity hospital in the postpartum period.

Summary

This report provides information on the national clinical audit on registered home births in Ireland in 2022. This report offers an informative resource for clinicians to inform women and for women themselves to be self-informed clearly and transparently concerning registered home birth as an option in Ireland. Clinical audit by the NPEC in collaboration with the home birth service will provide evidence that care provision adheres to the standards and guidelines as included in the selection criteria and as specified in the Memorandum of Understanding (MOU) and Agreement between the HSE and the community midwives. The NPEC in collaboration with the DMOs continue to develop the audit tool for home births for this to be achieved.

RECOMMENDATIONS PROGRESSED FROM PREVIOUS REPORTS

NPEC should continue collaboration with the DMOs to further develop the home birth audit form.

Several measures have been put in place to develop and improve the audit form for the home birth audit, including building and managing the new data collection form on a secure online platform. Further development of the audit form is ongoing for more accurate data to be captured. By improving the quality of the audit form and the data collected, it will ensure that evidence-based care continues to be reviewed.

Owner: NPEC/ Home Birth services

Newborn Infant Physical Examination (NIPE) availability in the community setting

In 2022, there was an increase in the number of midwives who performed the NIPE on infants born at home (15%) compared to last year's report in 2021 (2%). While 12.8% of infant examinations were done by the GP (23% in 2021). Further support could be put in place to facilitate newborn examination being completed in the community, including improving access to midwives trained in NIPE exam for the home birth population.

Owner: Maternity services/ The Irish College General Practitioners (ICGP)

Maternity units should consider identifying a liaison obstetrician or a specific home birth clinic for women who are registered with the home birth services in Ireland.

Since 2020, when the number of home births increased, there has been a decrease in the percentage of home birth liaison obstetricians available (i.e. 83% in 2019, 61% in 2020, 58% in 2021 and 48% in 2022). However, with the ongoing integration of HSE home births into the acute services governance, the improvement of hospital-based support and communication pathways should be progressed and further established.

Owner: Maternity services

RECOMMENDATIONS

It is recommended that the home birth service identifies a communication pathway to continue to capture data points when a woman's care is transferred to the maternity unit.

Access to the birth details/maternity clinical records of women who were transferred to the maternity hospital in the antepartum period was higher in 2022 compared to 2021 (i.e. full access was 37% in 2022 and 22% in 2021); however, the level of missing information in this audit still high among women and their infants who need a transfer of care. To more accurately capture the outcomes of both the woman and infant in these circumstances, it is recommended that communication pathways is further supported between the services. With the ongoing integration of HSE home births into the acute services governance, gaining access to maternity clinical records for the home birth services may facilitate this further.

Owner: Maternity services

Continue to encourage presence of a second midwife at the home birth.

Approximately 78% of women had both a primary and second midwife present at birth in 2022 which shows a small increase from last year (74% in 2021). The presence of two midwives at the home birth has been a mandatory part of the service since 2014. This should continue to be encouraged as an important safety measure when providing community care.

Owner: Maternity services

Introduction

Purpose of this audit

The primary aim of this report is to present national statistics and an overview of audit findings from the HSE home births service in the Republic of Ireland (ROI) for the year 2022. This report draws on information collected from the registered home birth in Ireland audit. Clinical audit is defined as "a clinically led quality improvement process that seeks to improve patient care and outcomes through systematic review of care against explicit criteria and acting to improve care when standards are not met." (9) The audit examines both the maternal and fetal outcomes of registered HSE home births, including outcomes whereby the care of the woman is transferred for hospital care in the antepartum, intrapartum or postpartum period. Consequently, this report aims to provide data to firstly ascertain adherence to the national evidence-based guidelines, protocols and standards and, secondly, to provide evidence which facilitates maternity healthcare providers to review practice in the home setting, where appropriate.

Pathway of care in the Republic of Ireland

As illustrated in Figure 1 when a woman enquires about having a home birth, she can contact a designated midwifery officer (DMO) or the self-employed community midwife (SECM) in her area, or book directly with the small number of hospitals providing an integrated community service. The criteria for home birth are discussed with the woman and eligibility for the service is agreed. An application form and consent form are signed between the community midwife and the woman, and then forwarded to the DMO to confirm eligibility. Some women may require an individual assessment by a Consultant Obstetrician. The DMO informs the Director of Public Health Nursing, Local Public Health Nurse, the woman's GP, the Director of Midwifery at the maternity hospital where the woman is booked and the Administration Department of the HSE, Local Health Office (LHO) about the forthcoming home birth. Women intending to have a home birth are advised to register with a GP and to register and avail of services with a maternity hospital of their choice. The community midwife will be the primary carer for the woman and infant up to 10-14 days after the birth. Full service to the woman denotes a minimum of 11 visits by the community midwife, which is generally divided into 5 antepartum visits, labour, and birth, and 5 postpartum visits, subject to individual needs.

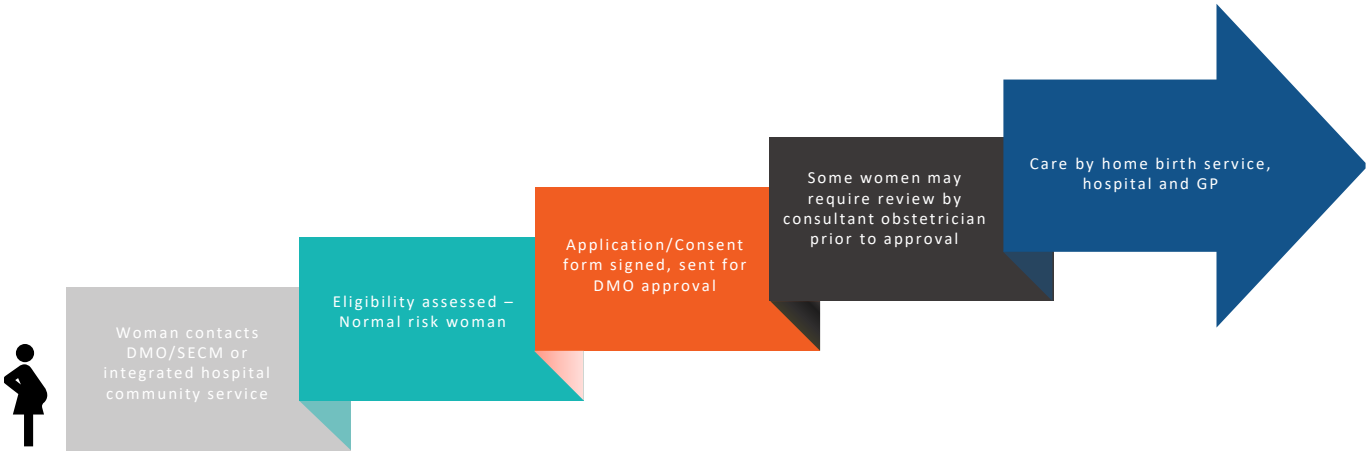


Figure 1: Pathway of care for home birth enquiries.

Methods

Data recording

In 2022, 22 SECMs in Ireland provided a home birth service on behalf of the HSE. As outlined in the MOU between HSE and the community midwives, each community midwife is required to partake in clinical audit. In the National Maternity Hospital (NMH), University Hospital Waterford (UHW) and Wexford General Hospital (WGH), the home birth service is available in the hospital from a team of midwives through an Integrated Hospital Community Service (IHCS).

Domiciliary notes of midwifery care are sent by the community midwife to the DMO or manager of the service. The DMO reviews the domiciliary midwifery notes, then collates the data using a secure online audit tool and that anonymised data is analysed by the NPEC. The list of DMOs that submitted data for this report are included in Appendix A. Data on all women who registered with the HSE home birth service and who gave birth between January 1, 2022 and December 31, 2022 were collected using the standardised NPEC data collection form. Figure 2 illustrates the flow of information in the data collection process.

Study data were collected and managed using REDCap electronic data capture tools hosted at University College Cork.[2,3] REDCap (Research Electronic Data Capture) is a secure, web-based software platform designed to support data capture for research studies, providing 1) an intuitive interface for validated data capture; 2) audit trails for tracking data manipulation and export procedures; 3) automated export procedures for seamless data downloads to common statistical packages; and 4) procedures for data integration and interoperability with external sources.

Data analysis

The findings of this audit are divided in two sections. The first section, named "registered home births", focuses on describing the trends, geographical distribution and maternal characteristics of women who registered for a home birth with the Health Service Executive (HSE) home birth service in 2022. It also includes main findings for antepartum care, antepartum and intrapartum transfers among the whole cohort of women who registered for a home birth in the same reporting year. The second section, named "home births", reports the main characteristics of women who had a home birth or whose intended place of birth was home, excluding women who had antepartum and/or intrapartum transfers and gave birth at the maternity hospital or whose intended place of birth was the hospital. It also includes infant outcomes, postpartum care and infant feeding, postpartum transfers and adverse incident reports among women who gave birth at home or whose intended place of birth was home. Women who started labouring at home and gave birth at hospital, "hospital births", are also included in this section as a comparable group to women who started labouring at home and gave birth at home, "home births".

Findings are tabulated using counts and percentages for categorical variables and mean and standard deviation (SD) are used to describe scale/numeric variables through the report. Parametric tests (i.e. t-tests), 95% confidence intervals (CI) and p-values are calculated to compare the differences in means for distance to the SECM and to the maternity hospital by reporting year and for the duration of labour, by parity and by place of birth. A cut-off of 5% was agreed to consider statistically significant differences. However, data for these outcomes are skewed, and non-parametric tests would have been more appropriate to use. Both parametric and non-parametric tests are conducted to verify similarity in the results. When similarity is found, parametric statistics are chosen to be reported because of the strong preference to use means rather than medians in the literature. All analysis were done using the statistical software SPSS version 29.

Comparison to National Statistics

Where possible, tabulated maternal and infant characteristics are compared with national population data. Comparisons are made with the most recent publications available nationally at the time of the analysis stage of the report. It includes the Central Statistics Office's (CSO) Vital Statistics Annual Report, the census of the Republic of Ireland in 2022, as well as perinatal statistics from the Perinatal Statistics Report by the Healthcare Pricing Office (HPO). The Hospital In-patient Enquiry (HIPE) of national data on discharges from acute hospitals in Ireland is also used when no other comparable and most updated report or resource is available at the time of the analysis of the report. Appendix B shows the main sources used for the general population data by outcome for the report on 2022 data and what sources were used in previous years when comparison is done through the report. The summary of sources used for national comparisons in Ireland in 2022 can be seen in Appendix B.

Data on BMI was obtained for 31,476 women who gave birth or booked to give birth in one of the country's four large maternity hospitals in 2021. This is 54.3% of the 57,983 women who gave birth in hospital in 2019, according to HIPE data. We multiplied the BMI data on 31,476 women by 1.84 (i.e. 100%/54.3%) to estimate the national number of maternities by BMI category.

[2]PA Harris, R Taylor, R Thielke, J Payne, N Gonzalez, JG. Conde, Research electronic data capture (REDCap) – A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.

[3]PA Harris, R Taylor, BL Minor, V Elliott, M Fernandez, L O'Neal, L McLeod, G Delacqua, F Delacqua, J Kirby, SN Duda, REDCap Consortium, The REDCap consortium: Building an international community of software partners, J Biomed Inform. 2019 May 9 [doi: 10.#@:V j.jbi.2019.103208]

Missing data

To ensure accuracy of information, missing or incomplete data were sought from respective community midwives and maternity units by the DMO. However, for some cases, information may still be missing because the community midwives do not always receive a full dataset when the women are transferred into the maternity units. The extent of missing data is reported in the results section.

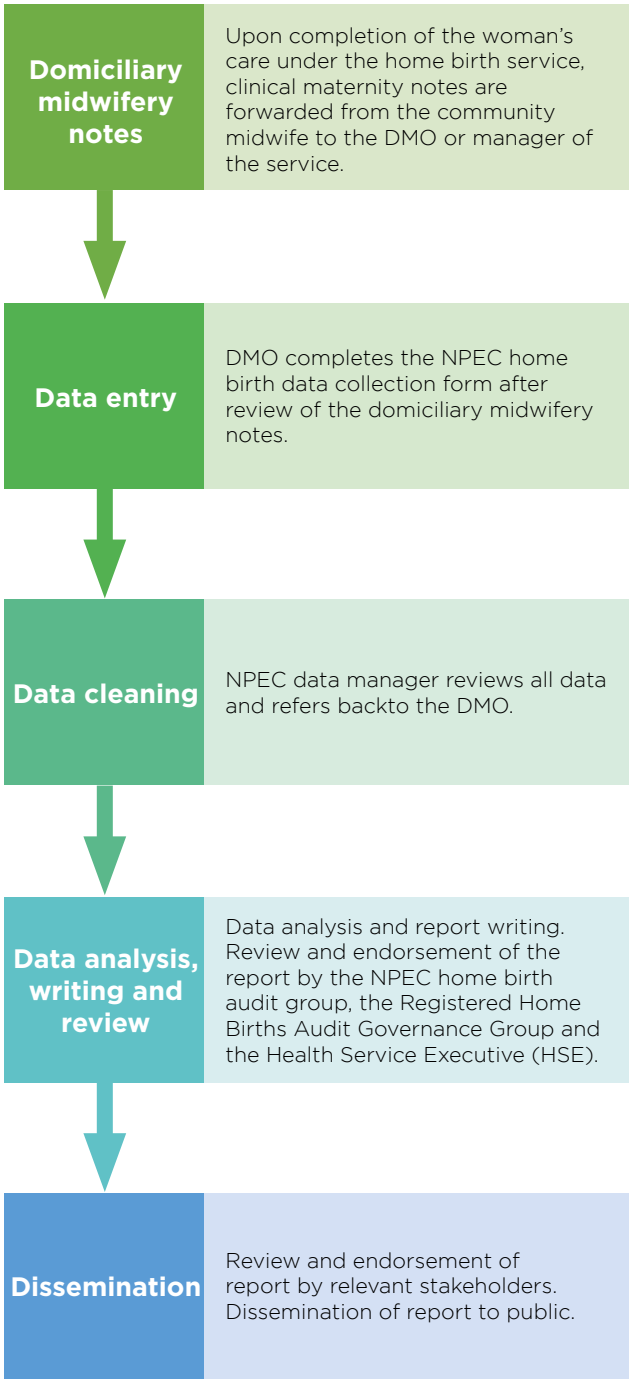


Figure 2: Flow of information in the NPEC data collection process.

Data Quality Statement

In the National Perinatal Epidemiology Centre, the maintenance of data at high quality standards is a priority. The purpose of this data quality statement is to support the interpretation and quality of the information contained in this report.

This quality statement, presented in Appendix H, has been developed in line with the Health Information and Quality Authority (HIQA) guidance on data quality framework for health and social care.[4] The statement describes the quality of the data according to five data quality dimensions as defined by HIQA:

1. Relevance
2. Accuracy and reliability
3. Timeliness and punctuality
4. Coherence and comparability
5. Accessibility and clarity

The Registered Home Births National Audit Report 2022 adheres to the following national and international legislation and standards:

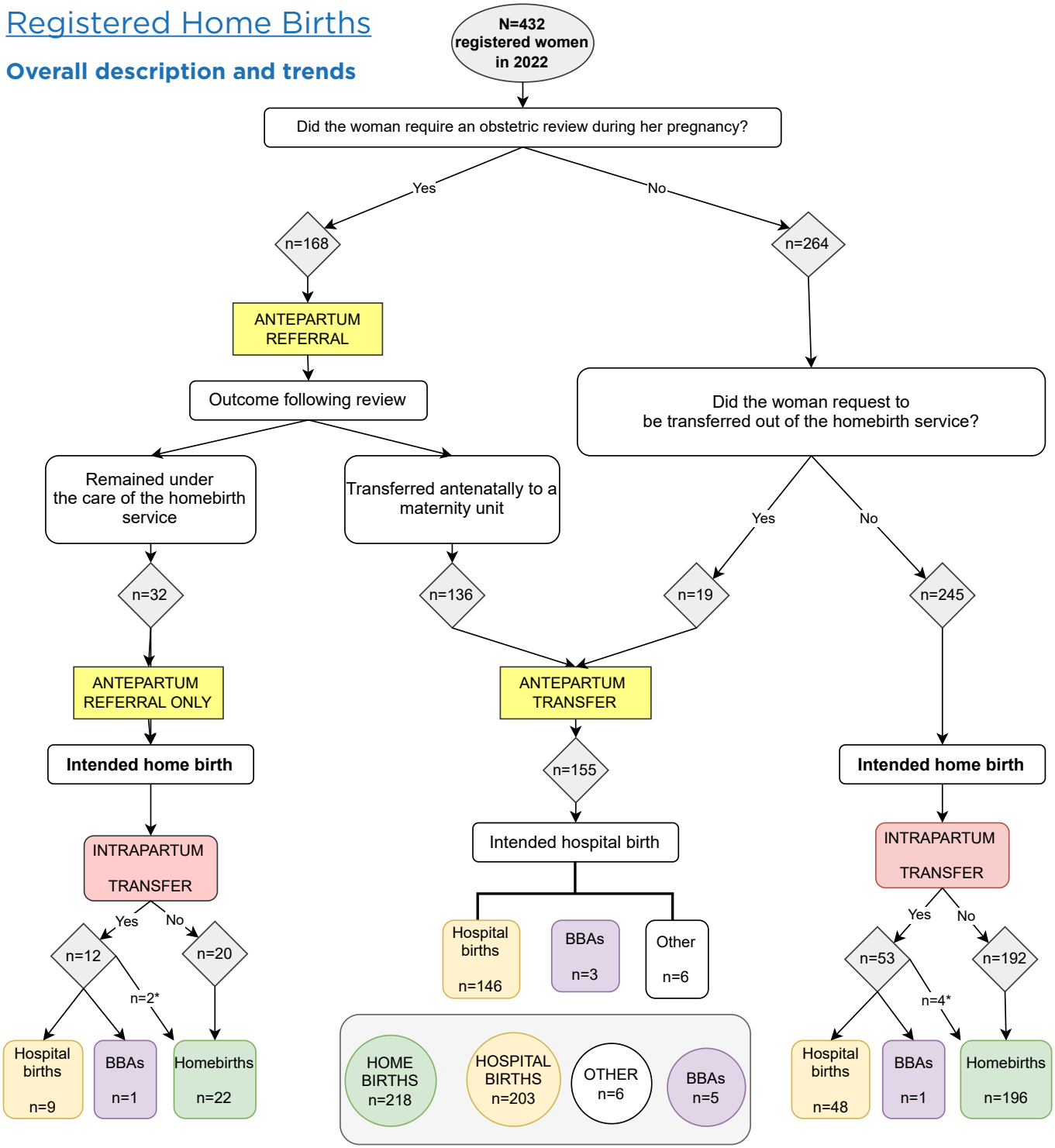
- The European Union General Data Protection Regulation 2016
- The Data Protection Act 1988
- Data Protection (Amendment) Act 2003
- Data Protection Act 2018 (Section 36(2)) (Health Research) Regulations 2018
- Information Management Standards for National Health and Social Care Data (2017)
- National Office of Clinical Audit Standards for National Clinical Audit
- National Standards for Safer Better Healthcare (2012)
- FAIR (Findable, Accessible, Interoperable, and Re-usable) Data Principles

[4]Health Information and Quality Authority. Guidance on a data quality framework for health and social care 2018 : HIQA; 2018 [cited 2019]. Available from: https://www.hiqa.ie/sites/default/files/2018-10/Guidance-for-a-data-quality-framework.pdf.

Findings

Registered Home Births

Overall description and trends



Notes:
*Six women gave birth at home but required intrapartum transfers in the 3rd stage of labour.
Five intended hospital births were born before arrival to the hospital (BBAs)
Six women moved residence or chose private services and therefore, did not remain under the care of the HSE home birth service and are classified as "other"

Figure 3: Flowchart of registered home births, 2022.

For the period from January 1st, 2022 to December 31st 2022, there were 432 women who were registered for a home birth with the Health Service Executive (HSE) home birth service. The number of women who were registered for a home birth steadily increased from 2018 to 2022 (Table 1). This increase is also evidenced in the rate per 1,000 maternities for the Republic of Ireland since 2012 (Figure 4).

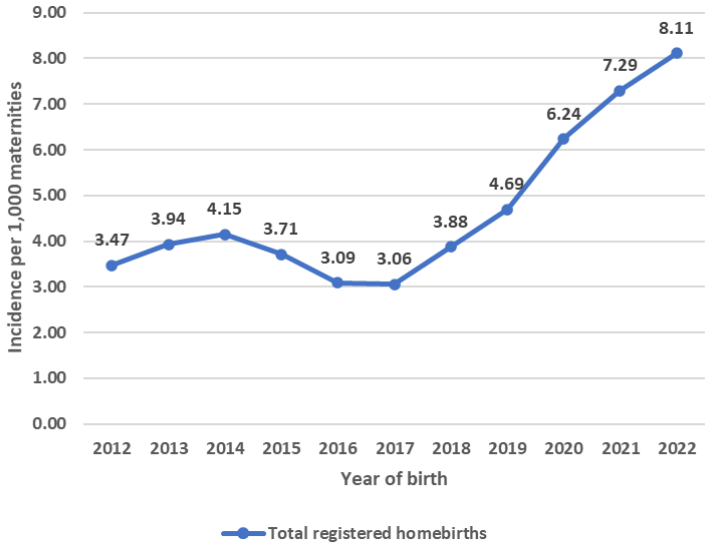


Figure 4: Rate of women registered for a home birth among all maternities in the Republic of Ireland, 2012-2022.

Note: The national number of women who gave birth in hospital based on Hospital In-Patient Enquiry (HIPE) data, with the maternities in one non-participating unit excluded for 2014 and 2015.

Geographical distribution

The distribution of home births by HSE region is markedly different to the overall distribution of births nationally. For the first time in this report, Dublin Mid Leinster reports the majority of women registering for home birth (n=189). This year, Dublin Mid Leinster includes women who registered with the Coombe maternity hospital (n=17) and the women who registered with the integrated hospital community service (IHCS) available in the National Maternity Hospital (NMH, n=48; Table 1).

IHCS available in UHW (n=4), WGH (n=4) and NMH (n=48) reported a total of 56 women registered for 2022, which represents 13% of the total of women registered for a home birth in the Republic of Ireland in 2022. The remainder of the women in this report chose to have their care provided by self-employed community midwives.

Table 1: Distribution of women who were registered for home birth by HSE area/year, 2012-2022.

HSE area/year	Dublin North East (N=474)	Dublin Mid Leinster*** (N=745)	HSE West (N=388)	HSE South** (N=1349)	HSE South East* (N=90)	All areas (N=3,046)
2012	18(8.1)	41(18.4)	56(25.1)	108(48.4)	0(0)	223(100)
2013	38(14.6)	51(19.6)	43(16.5)	128(49.2)	0(0)	260(100)
2014	36(14.2)	51(20.1)	37(14.6)	130(51.2)	0(0)	254(100)
2015	23(10.4)	30(13.6)	46(20.8)	122(55.2)	0(0)	221(100)
2016	27(14)	25(13)	26(13.5)	115(59.6)	0(0)	193(100)
2017	31(16.8)	18(9.7)	11(5.9)	115(62.2)	10(5.4)	185(100)
2018	39(16.9)	41(17.7)	27(11.7)	108(46.8)	16(6.9)	231(100)
2019	46(16.9)	66(24.3)	27(9.9)	122(44.9)	11(4)	272(100)
2020	64(18.6)	104(30.1)	35(10.1)	127(36.8)	15(4.3)	345(100)
2021	76(17.7)	129(30)	44(10.2)	161(37.4)	20(4.7)	430(100)
2022	76(17.6)	189(43.8)	36(8.3)	113(26.2)	18(4.2)	432(100)

Note: Values are shown as n(%) unless otherwise stated.

The numbers above reflect corrected data as part of a review by the HSE and Public Health, following the change to governance of the home birth services. The numbers in Table 1 are now as per the reviewed dataset and may vary from that of previous reports. This amounted to less than 0.5% of all cases from the years 2012-2022.

*HSE South East home births were reported as HSE South home birth numbers until year-end 2016.

*From 2017, HSE South East includes Wexford General Hospital registered home births.

**HSE South includes Waterford University Hospital registered home births.

***From 2022, HSE Dublin Mid Leinster includes the Coombe Hospital and NMH registered home births.

Maternal Characteristics

Age

The age range of women who were registered for a home birth in 2022 was 18-43 years, with the average age being 33.5 years. Consistent with data from previous reports, women who registered for a home birth tended to be of an older age demographic when compared to all women who gave birth in Ireland, 2019-2022 (Table 2). A higher majority (n=323 of 432, 74.8%) of women who were registered to give birth at home were aged 30-39 years in 2022 compared to 66.1% of all women who gave birth from 2019 to 2022.

Table 2: Age distribution of women who were registered for a home birth, 2019-2022.

Age group	2019 (N=271)	2020 (N=345)	2021 (N=429)	2022(N=432)	All registered home births (N=1477)	All births 2019-2022* (10) (N=226952) (%)
<25 yrs	8(3)	5(1.4)	8(1.9)	12(2.8)	33(2.2)	9.0
25-29 yrs	43(15.9)	48(13.9)	66(15.4)	63(14.6)	220(14.9)	16.7
30-34 yrs	84(31)	128(37.1)	179(41.7)	166(38.4)	557(37.7)	34.4
35-39 yrs	113(41.7)	142(41.2)	140(32.6)	157(36.3)	552(37.4)	31.7
>=40 yrs	23(8.5)	22(6.4)	36(8.4)	34(7.9)	115(7.8)	8.3

Note: Values are shown as n(%) unless otherwise stated. Age unknown for one woman in 2019.

*Data on maternal age was obtained using HIPE data on maternal hospital admissions for all the 19 maternity hospital in Ireland for 2022.

Marital status

As outlined in Table 3, consistent with previous years, the majority of women who were registered for a home birth were married (66.0%).

Table 3: Marital status of women who were registered for a home birth, 2019-2022.

Marital status	2019 (N=269)	2020 (N=344)	2021 (N=424)	2022 (N=432)
Married	173(64.3)	232(67.4)	247(58.3)	285(66)
Not married	96(35.7)	110(32)	176(41.5)	146(33.8)
Divorced/Separated	0(0)	2(0.6)	1(0.2)	1(0.2)

Note: Values are shown as n(%) unless otherwise stated. Marital status unknown for three women in 2019, one woman in 2020 and five women in 2021.

Ethnicity

The majority of women who registered for a home birth were of white Irish ethnicity, which is consistent with the percentage of white Irish in the female population aged 15-49 years surveyed in 2022 (i.e. 71.3% for 2022 versus 75.4% for female population in 2022, Table 4). (11) The numbers of Asian/Asian Irish (n=5), Black/Black Irish (n=1), mixed ethnicities (n=2) and Irish Traveller ethnicity (n=1) are small and are under representative of the population.

Table 4: Ethnicity of women who were registered for a home birth, 2019-2022.

Ethnicity	2019 (N=270)	2020(N=343)	2021 (N=429)	2022(N=432)	15-49-year-old females population 2022 (11) (N=1,135,084) (%)
White Irish	199(73.7)	271(79)	313(73)	308(71.3)	75.4
Other white background	61(22.6)	60(17.5)	102(23.8)	115(26.6)	14.8
Other ethnic backgrounds	10(3.7)	12(3.5)	14(3.3)	9(2.1)	9.8

Note: Values are shown as n(%) unless otherwise stated. Other ethnic backgrounds include Asian/Asian Irish, Black/Black Irish, and other/mixed ethnic backgrounds including Irish Traveller ethnicities for the year 2022. Ethnicity unknown for two women in 2019 and two women in 2020.

Body mass index

Body mass index (BMI) was available for 93.8% (n=405) of women in 2022. As in previous years, the BMI for approximately 57% of women was in the healthy range (18.5-24.9kgm-2), almost one third were classified as overweight (25.0-29.9kgm-2) and one in ten were classified as obese (>30.0kgm-2). The BMI profile of women who were registered for a home birth in the category of BMI less than 25 kgm-2 (58.3%) was higher than that of the general population of women giving birth in Ireland in 2021 (48.2%), based on a comparison with data collated from the country's four large maternity hospitals in 2021 in Ireland. The percentage of obese women who were registered for a home birth (10.4%) was lower than of the general population of women giving birth in Ireland in 2021 (21.1%). A contributing factor to this may be that a BMI of greater than 35 at the booking visit is a factor for birth in an obstetric unit, as per the MOU. Similar percentages were found when comparing the overweight population.

Table 5: Body Mass Index (BMI) of women who were registered for a home birth, 2019-2022.

BMI Category (kgm-2)	2019 (N=260)	2020 (N=332)	2021 (N=421)	2022 (N=405)	Maternities* 2021 (N=31476) (%)
Underweight (<18.5)	7(2.7)	4(1.2)	7(1.7)	6(1.5)	-
Healthy (18.5-24.9)	154(59.2)	193(58.1)	246(58.4)	230(56.8)	-
BMI <25.0	161(61.9)	197(59.3)	253(60.1)	236(58.3)	48.2
Overweight (25.0-29.9)	70(26.9)	104(31.3)	131(31.1)	127(31.4)	30.7
Obese (>=30.0)	29(11.2)	31(9.3)	37(8.8)	42(10.4)	21.1

Note: Values are shown as n(%) unless otherwise stated. BMI was unknown for 12 women in 2019, 13 women in 2020, eight women in 2021 and 27 women in 2022. *Data on maternities by BMI were obtained for 31,476 women who gave birth or booked to give birth in one of the country's four large maternity hospitals in 2021 and used to estimate the national number of maternities by BMI category.

Smoking, alcohol and drug consumption

Smoking status and alcohol consumption at the time of the booking visit was recorded for the majority of women (99.5% and 99.1%, respectively). Three women (0.7%) indicated that they were smoking at time of booking, one of whom gave up during pregnancy. Thus, two of the 430 (0.5%, unknown for one woman) women smoked throughout their pregnancy for this report.

The vast majority of women (n=427 of 428, 99.8%) reported they did not consume alcohol at their booking visit. One of them reported to have consumed alcohol monthly or less during her pregnancy. Less than 0.5% had a documented history of drug abuse or attendance at a drug rehabilitation unit prior to this pregnancy (n=1 of 431).

Physical activity

Physical activity was recorded for approximately 50% of the women (n=222). Of them, 90% engaged regularly in physical activity (i.e. more than once a week), 9.9% (n=22) had occasional physical activity (i.e. once every two weeks) at the time of the booking visit.

Distance of the woman's residence to services

Data related to the distance of the woman's residence to the community midwife and to the maternity hospital the woman was registered with is shown in Figure 5. More than 64% of the women were within 30 kilometres of the SECM (n=242 of 376, 64.4%, excluding n=56 women whose care was provided by ICHMs at the maternity hospital; mean=27.1kms) and more than 70% were within 30 kilometres of the maternity hospital (n=313 of 432, 72.5%, including women whose care was provided by ICHMs; mean=22.8kms). The average distance to the maternity hospital was reduced from a mean of 26.4kms in 2021 compared to 22.8kms in 2022, with statistically significant differences (mean change= -3.61kms; 95%CI= -6.39 to -0.82; p-value < 0.05). There was an increase in the distance to the SECM in 2022 compared to 2021 (27.1kms versus 26.3kms, respectively); however, the difference did not reach statistically significant differences (mean change=0.80; 95%CI=-1.96 to 3.57; p-value=0.57). Information relating to transfer time will be discussed later in the report.

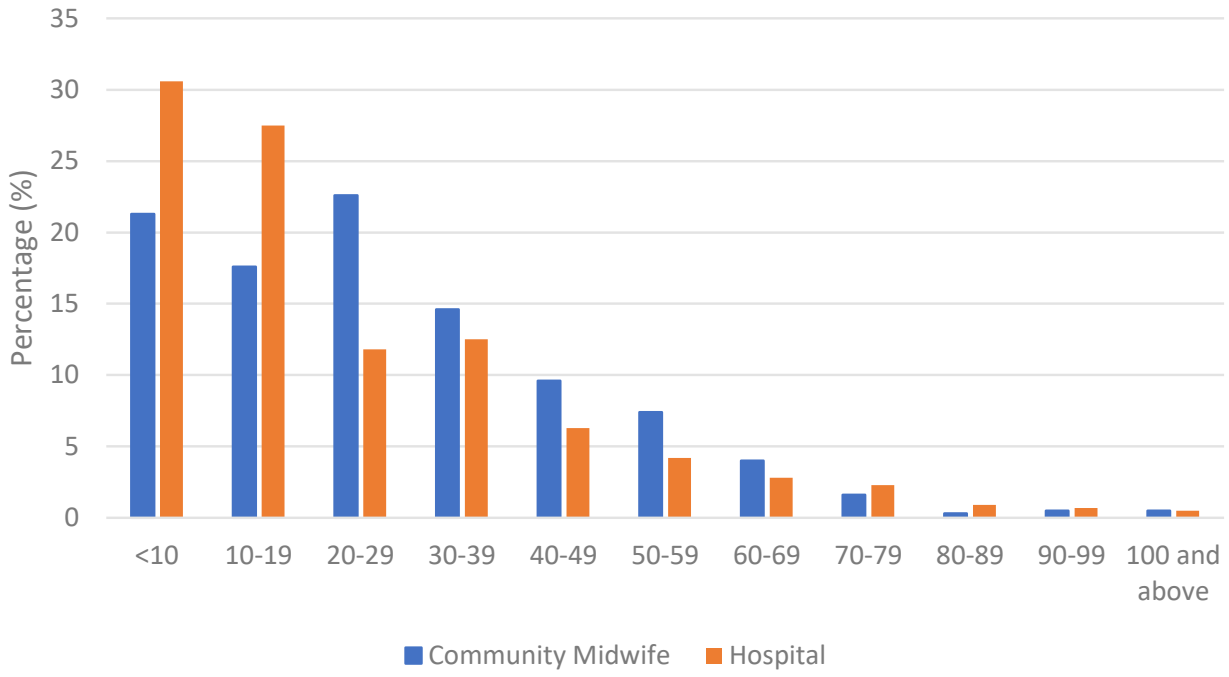


Figure 5: Distance (km) of the women from the community midwife and the maternity hospital, 2022.

Previous pregnancy

Approximately, 29% of women who registered for a home birth did not have a previous pregnancy (n=126 of 432, 29.2%). As indicated in Table 6, almost two-thirds of the women who were registered for a home birth in 2022 had a previous birth (n=276 of 431, 64.0%, number of previous births was missing for one woman), which is similar to that of previous years (69.9%, 65.5% and 64.1% for 2019, 2020 and 2021 respectively).

Table 6: Parity of women who were registered for a home birth, 2019-2022.

Parity	2019 (N=272)	2020 (N=345)	2021 (N=429)	2022 (N=431)	All births 2019-2021 (N=172,158) (%)
Nulliparous	82(30.1)	119(34.5)	154(35.9)	155(36)	39.0
Multiparous	190(69.9)	226(65.5)	275(64.1)	276(64)	61.0

Note: Values are shown as n(%) unless otherwise stated. Parity unknown for one woman in 2022. Data on parity was obtained using HIPE data on maternal hospital admissions for all the 19 maternity hospital in Ireland between 2019 and 2021.

Table 7 specifies gravida and parity for 431 women who were registered for a home birth in 2022 (unknown for one woman). Prior to this current pregnancy, approximately one-third of women (n=126, 29.1%) were never pregnant before and 71% (n=305) had at least one previous pregnancy. Almost 7% (n=29, 6.7%) of women experienced pregnancies which only resulted in miscarriages, i.e. <24 weeks gestation and birthweight <500g and 45.0% of women had only completed pregnancies i.e. live births from 24 weeks of gestation and/or stillbirths (n=194, 45.0%). Nineteen percent of women had experienced previous completed pregnancies plus at least one pregnancy <24 weeks gestation and birthweight <500g (n=82; Table 7).

Table 7: Gravida/parity of women prior to the pregnancy, 2022.

	Parity						
Gravida	**0**	**1**	**2**	**3**	**4**	**5**	**Total**
0	126	0	0	0	0	0	126
1	22	118	0	0	0	0	140
2	6	27	53	0	0	0	86
3	1	9	17	17	0	0	44
4	0	3	6	4	3	0	16
5	0	1	3	3	5	3	15
≥6	0	0	0	1	2	1	4
Total	155	158	79	25	10	4	431

Note: We refer to gravida and parity prior to the current pregnancy in 2022. Green represents women with previous pregnancies that were always complete; orange represents women who had experienced complete pregnancy and pregnancy <24 weeks gestation and birthweight <500g; and red represents women whose previous pregnancies were always <24 weeks gestation and birthweight <500g. *Parity unknown for one woman in 2022.

Of the women who had previous births (n=276), 11.2% (n=31) had a previous home birth only, 18.1% (n=50) have given birth in both the home and hospital setting, 69.6% (n=192) have previously given birth in hospital only. A small number of the women who previously gave birth at hospital (n=3) also had a previous BBA.

Antepartum care

Shared Care

All women who were registered for a home birth also registered with a maternity unit (100%). A specific liaison obstetrician or a specific liaison clinic was available in the maternity unit for less than half of the women (n=165, 38.6% and n=42, 9.8%, respectively, unknown for four women). A non-specific obstetrician was available for half of women who registered for a home birth (n=221, 51.6%, unknown for four women). Availability of liaison obstetricians/clinics may be influenced by ongoing integration of the services.

Approximately 93% of women, who registered for a home birth, were also registered with a general practitioner (GP; n=347 of 372, 93.3%, unknown for 60 women), but only 35.9% of them (n=124 of 345, missing for two women) received all their shared care from their GP. The GP was unable to provide some aspects of shared care for more than 64% of the women (n=221 of 345, 64.1%, missing for two women) with 34.4% (n=76) of these women not receiving any shared care from their GP. Where a GP was not able to provide antenatal care, they were also unlikely to be able to complete the examination of the newborn on day 3 (n=123, 55.7%).

Midwifery-led hospital services (n=85, 38.5%) and care from the community midwife only (n=68, 30.8%) were the most common alternatives to providing shared care when a GP was unable to do so. Of the women who received shared care from their maternity hospital's obstetric-led service, 30% had a specific liaison obstetrician or clinic available (n=21 of 71, 29.6%, unknown for one woman).

Estimated date of delivery and antepartum ultrasound scans

Estimated date of delivery (EDD) was calculated using ultrasound scan alone in the majority of cases (n=176 of 431, 40.8%) in 2022. For the remainder of the women, EDD was calculated using last menstrual period (LMP) only for 36% of women (n=157, 36.4%), and both ultrasound scan and LMP for 23% of women (n=98 of 431, 22.7%), missing information for one woman.

Approximately 72% of women who registered for a home birth had a booking scan before 14 weeks of gestation (n=305 of 425, 71.8%, missing for seven women). Both, women who were not reported to have had a booking scan performed and those who data was missing for, could possibly be attributed to the women registering with the home birth service after they have had their initial scan.

Of the 432 women registered for a home birth in 2022, 99.3% (n=427 of 430, missing information for two women) had an anomaly scan. Anomaly scans were commonly performed between 18 and 21 weeks of gestation (n=272 of 423, 64.3%) or after 21 weeks of gestation (n=149 of 423, 35.2%), and rarely performed at less than 18 weeks (n=2, 0.5%; unknown for four women).

Risk factors requiring review when planning place of birth

In 2022, 23.4% (n=101 of 432) of women who registered for a home birth had a reported risk factor that required review by an obstetrician to determine eligibility for the service. Of them, 82.2% (n=83) had only one risk factor, 15.8% (n=16) had two risk factors and the remaining two women had three or more risk factors. In total, 122 risk factors were identified in 2022. Consistently with previous years, maternal age over 40 at the booking visit (33.7%) was the most common risk factor identified in 2022. It was followed by endocrine disorders (14.9%), infection (13.9%) and mental health history (10.9%; Table 8). Other risk factors include those such as in vitro fertilization (IVF, n=4) and anaemia (n=4), among others.

Table 8: Risk factors indicating individual assessment when planning place of birth, 2019-2022.

Risk factors	2019 (N=47)	2020 (N=58)	2021 (N=98)	2022 (N=101)
BMI >35 or < 18	0(0)	1(1.7)	3(3.1)	5(5)
Cardiovascular disease	1(2.1)	2(3.4)	1(1)	2(2)
Endocrine disorder	11(23.4)	10(17.2)	14(14.3)	15(14.9)
Gastrointestinal disease	1(2.1)	1(1.7)	4(4.1)	1(1)
Gynaecological abnormality	12(25.5)	17(29.3)	18(18.4)	7(6.9)
Haematological disorder	0(0)	2(3.4)	0(0)	0(0)
Immune disease	0(0)	0(0)	0(0)	0(0)
Infection	1(2.1)	1(1.7)	2(2)	14(13.9)
Maternal age over 40 at booking	12(25.5)	12(20.7)	36(36.7)	34(33.7)
Mental health history	6(12.8)	6(10.3)	18(18.4)	11(10.9)
Musculoskeletal disorder	3(6.4)	2(3.4)	0(0)	4(4)
Respiratory issues/ Asthma	1(2.1)	0(0)	1(1)	1(1)
Safeguarding concerns	1(2.1)	0(0)	0(0)	0(0)
Distance from SECM/Hospital	0(0)	0(0)	0(0)	2(2)
Other	1(2.1)	6(10.3)	18(18.4)	26(25.7)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive (i.e., some women had more than one risk factor, and, in such cases, each risk factor was counted in the table above).

Of the 306 women who had a previous pregnancy and were registered for a home birth, 73 (24.0%, unknown for two women) were reported to have had a previous obstetric condition or risk factor for review which included a history of Group B streptococcus (12.3%), three or more miscarriages (12.3%), preterm labour or mid-trimester loss (9.6%), extensive vaginal, cervical, or third- or fourth- degree perineal trauma (8.2%) and previous baby weighing >4.5kg (8.2%; Table 9). There was a 3.18% increase in the reporting of previous pregnancy problems compared to the previous year 2021. Which might reinforce the hypothesis that the increase found in the previous report may possibly be attributed to an update in the data collection tool, following a recommendation from the triennial report. Other risk factors include those such as previous induction of labour for an infant measuring small-for-dates or post maturity (n=5, respectively) and anaemia (n=4), among others.

Table 9: Previous pregnancy conditions or risk factors indicating individual assessment when planning place of birth, 2019-2022.

Previous pregnancy conditions/ risk factors	2019 (N=14)	2020 (N=15)	2021 (N=61)	2022 (N=73)
Extensive vaginal, cervical, or third- or fourth- degree perineal trauma	1(7.1)	0(0)	4(6.6)	6(8.2)
Gestational diabetes	0(0)	2(13.3)	2(3.3)	3(4.1)
Group B streptococcus	3(21.4)	3(20)	11(18)	9(12.3)
Para 5 or more	0(0)	0(0)	7(11.5)	4(5.5)
Postpartum depression	0(0)	0(0)	5(8.2)	2(2.7)
Postpartum haemorrhage	0(0)	2(13.3)	4(6.6)	4(5.5)
Pre-eclampsia developing at term	0(0)	1(6.7)	1(1.6)	2(2.7)
Preterm labour or mid trimester loss	1(7.1)	0(0)	2(3.3)	7(9.6)
Previous baby >4.5kg	0(0)	1(6.7)	5(8.2)	6(8.2)
Previous baby with congenital anomaly	0(0)	2(13.3)	3(4.9)	5(6.8)
Previous neonatal death	0(0)	1(6.7)	0(0)	1(1.4)
Retained placenta	1(7.1)	0(0)	1(1.6)	2(2.7)
Shoulder dystocia	1(7.1)	0(0)	1(1.6)	1(1.4)
Three or more miscarriages	0(0)	0(0)	6(9.8)	9(12.3)
Other	7(50)	3(20)	19(31.1)	27(37)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive (i.e., some women had more than one condition, and, in such cases, each condition was counted in the table above).

Current pregnancy

Of the 432 women who were registered for a home birth in 2022, 176 women (40.7%) were reported to have a medical or obstetric condition develop during the current pregnancy (Table 10). The most common conditions reported in 2022 were indication of maternal infection (16.5%; four of which were COVID related cases), post-dates pregnancy (14.8%), malpresentation of the fetus (10.2%) and prolonged rupture of membranes (8.5%; Table 10).

Table 10: Current conditions identified in this pregnancy, 2019-2022.

Conditions this pregnancy	2019 (N=91)	2020 (N=126)	2021 (N=147)	2022 (N=176)
Anaemia	0(0)	2(1.6)	7(4.8)	14(8)
Antepartum haemorrhage	6(6.6)	3(2.4)	4(2.7)	7(4)
Any indication of maternal infection	2(2.2)	2(1.6)	5(3.4)	29(16.5)
Atypical antibodies	2(2.2)	0(0)	0(0)	0(0)
Concern with fetal heart rate	3(3.3)	5(4)	2(1.4)	3(1.7)
Diagnoses of oligo/polyhydramnios	6(6.6)	1(0.8)	6(4.1)	7(4)
Group B streptococcus	4(4.4)	5(4)	8(5.4)	13(7.4)
Hypertension	3(3.3)	3(2.4)	3(2)	2(1.1)
Intrauterine death	0(0)	0(0)	0(0)	1(0.6)
Low lying placenta/ Placenta praevia	2(2.2)	3(2.4)	4(2.7)	3(1.7)
Macrosomia/ Large for dates	2(2.2)	4(3.2)	6(4.1)	5(2.8)
Malpresentation	6(6.6)	6(4.8)	9(6.1)	18(10.2)
Maternal request for transfer	1(1.1)	2(1.6)	2(1.4)	4(2.3)
Meconium stained liquor	0(0)	0(0)	0(0)	2(1.1)
Onset of gestational diabetes	1(1.1)	6(4.8)	10(6.8)	10(5.7)
Post dates	16(17.6)	23(18.3)	22(15)	26(14.8)
Pre-eclampsia	2(2.2)	2(1.6)	1(0.7)	2(1.1)
Premature rupture of membranes	5(5.5)	7(5.6)	4(2.7)	3(1.7)
Prolonged rupture of membranes with no signs of labour	8(8.8)	15(11.9)	18(12.2)	15(8.5)
Small for gestational age/ Intrauterine growth restriction	7(7.7)	10(7.9)	7(4.8)	7(4)
Reduced fetal movements	2(2.2)	7(5.6)	4(2.7)	5(2.8)
Suspected fetal anomaly	3(3.3)	2(1.6)	1(0.7)	1(0.6)
Threatened preterm labour	1(1.1)	1(0.8)	5(3.4)	6(3.4)
T**hromboembolic disease**	0(0)	0(0)	0(0)	1(0.6)
Unstable lie	2(2.2)	2(1.6)	2(1.4)	2(1.1)
Other	18(19.8)	18(14.3)	32(21.8)	26(14.8)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive (i.e., some women had more than one condition, and, in such cases, each issue was counted in the table above).

Of the 176 women who had a problem arise during this pregnancy while under the care of the home birth service, 95.5% (n=168) were reviewed by an obstetrician in the maternity unit. The care was transferred antenatally to a maternity unit for 80.9% (n=136) of them. Of the 136, 25% (n=34) of woman remained under the home birth service with a plan to birth in hospital. An additional 19 women, who did not require a referral for obstetric review, were also transferred antenatally due to maternal request. The remaining eight women had a problem that did not require referral to an obstetrician and was managed appropriately by the community team.

Following the obstetric review, there was a small cohort of women (n=32) who required extra monitoring during their pregnancy but that did not require transfer of care to the maternity unit, demonstrating effective collaboration between services. Reasons included: anaemia, indication of maternal infection low-lying placenta that required re-scanning and was later deemed safe, malpresentation, diagnoses of oligo/polyhydramnios, post-dates, fetal growth monitoring requiring extra growth scans and reduced fetal movements. Twelve of these women (37.5%) went on to have an intrapartum transfer, nine gave birth in hospital, two at home and one gave birth before arrival to the hospital. The remaining 20 women did not require transfer and gave birth at home.

Women who did not require an antepartum transfer and therefore continued their pregnancy under the care of the home birth service (n=277), received between one to 14 antepartum visits from the midwife. The median number of antepartum visits to the women was six. As indicated in Figure 6, the majority of visits for both nulliparous and multiparous women in 2022 were between four and nine visits (50.0% and 55.9%, respectively).

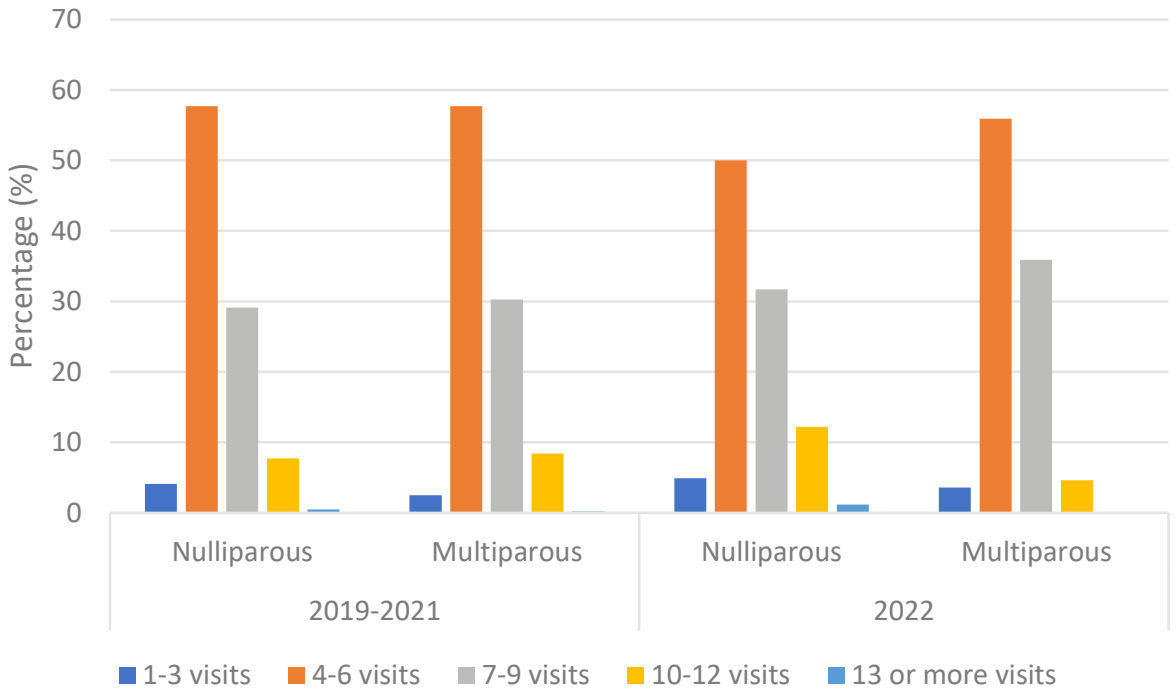


Figure 6: Number of antepartum visits by parity, 2019-2022.

Note: Values are shown as n(%) unless otherwise stated. *Number of antepartum visits unknown for two nulliparous and unknown for four multiparous women from 2019-2022

Antepartum transfers

A total of 136 women were transferred in the antepartum period due to a problem arising during the pregnancy. Nineteen further women transferred their care to the maternity unit by choice. Therefore, in 2022, a total of 155 (35.9%) women were transferred to a maternity hospital during their pregnancy. This is in line with previous findings, where approximately one-third of women's care was transferred antenatally to a maternity hospital (Table 11). No woman was transferred back to the home birth service later in the pregnancy in 2022. Of the women who were transferred in the antepartum period, three women gave birth before arrival at the hospital (BBAs), six women gave birth outside of the HSE service, and the remaining 146 women gave birth in hospital. Similar to previous years, nulliparous women were more likely to transfer in the antepartum period compared to multiparous women (47% versus 29%).

Table 11: Antepartum transfer by parity, 2019-2022.

	Total	Nulliparous	Multiparous
2019	89/272(32.7)	35/82(42.7)	54/190(28.4)
2020	122/345(35.4)	53/119(44.5)	69/226(30.5)
2021	128/429(29.8)	71/154(46.1)	57/275(20.7)
2022	155/432(35.9)	73/155(47.1)	81/276(29.3)

Note: Values are shown as n/total (%) unless otherwise stated. Parity unknown for one woman in 2022.

The most common reasons for antepartum transfers in 2022 were post-dates pregnancy (n=22, 14.2%), prolonged rupture of membranes with no signs of labour (n=15, 9.7%) and malpresentation (n=14, 9.0%, Table 12).

Table 12: Reasons for antepartum transfers, 2019-2022.

Reasons for antepartum transfer*	2019 N=89	2020 N=122	2021 N=128	2022 N=155
Anaemia	0(0)	1(0.8)	1(0.8)	1(0.6)
Antepartum haemorrhage	6(6.7)	3(2.5)	3(2.3)	5(3.2)
Any indication of maternal infection	2(2.2)	2(1.6)	4(3.1)	4(2.6)
Atypical antibodies	1(1.1)	0(0)	0(0)	0(0)
Concern with fetal heart rate	3(3.4)	5(4.1)	1(0.8)	1(0.6)
Diagnoses of oligo/polyhydramnios	4(4.5)	1(0.8)	6(4.7)	6(3.9)
Group B streptococcus	4(4.5)	6(4.9)	6(4.7)	11(7.1)
Hypertension	3(3.4)	2(1.6)	2(1.6)	1(0.6)
Intrauterine death (i.e. miscarriage)	0(0)	0(0)	0(0)	1(0.6)
Low lying placenta/ Placenta praevia	1(1.1)	2(1.6)	2(1.6)	0(0)
Macrosomia/ Large for dates	2(2.2)	5(4.1)	5(3.9)	5(3.2)
Malpresentation	5(5.6)	8(6.6)	8(6.3)	14(9)
Maternal request for transfer	1(1.1)	2(1.6)	2(1.6)	4(2.6)
Mental Health deterioration/new onset mental health disorder	0(0)	0(0)	0(0)	0(0)
Meconium-stained liquor	0(0)	0(0)	0(0)	2(1.3)
Onset of gestational diabetes	1(1.1)	6(4.9)	9(7)	9(5.8)
Post dates	16(18)	23(18.9)	21(16.4)	22(14.2)
Pre-eclampsia	2(2.2)	2(1.6)	1(0.8)	2(1.3)
Premature rupture of membranes	5(5.6)	7(5.7)	4(3.1)	2(1.3)
Prolonged rupture of membranes with no signs of labour	8(9)	14(11.5)	18(14.1)	15(9.7)
Reduced fetal movements	2(2.2)	7(5.7)	2(1.6)	2(1.3)
Small for gestational age/ Intrauterine growth restriction	7(7.9)	10(8.2)	6(4.7)	3(1.9)
Suspected fetal anomaly	3(3.4)	0(0)	1(0.8)	1(0.6)
Threatened preterm labour	0(0)	1(0.8)	3(2.3)	5(3.2)
Thromboembolic disease	0(0)	0(0)	0(0)	1(0.6)
Unstable lie	1(1.1)	2(1.6)	0(0)	0(0)
Other	12(13.5)	17(13.9)	23(18)	19(12.3)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive. A further 19 women transferred their care to the maternity unit by choice, with no other problems arising during the pregnancy.

Full access to the birth details/maternity clinical records was available for 36.8% (n=57 of 155) of women who were transferred to the maternity hospital in the antepartum period. Some details were available for a further 47.7% (n=74) of women. The community midwives were unable to access the women's clinical records after antepartum transfer in one sixth (n=24, 15.5%) of cases.

Following transfer of care, 33.3% nulliparous women (n=20) and 87.5% multiparous women (n=63) had a spontaneous vaginal birth in 2022. Nulliparous women were more likely to have a caesarean section than multiparous women in 2022 in line with previous findings (56.7% versus 9.7%; Table 13). The mode of birth was unknown for 14% of women (n=22 of 154, 14.3%, parity was unknown for one woman who had an antepartum transfer).

Table 13: Mode of birth for women who were transferred in the antepartum period and gave birth in the maternity unit, 2019-2022.

	2019-2021		2022	
Mode of birth*	**Nulliparous (N=141)**	**Multiparous (N=156)**	**Nulliparous (N=60)**	**Multiparous (N=72)**
Spontaneous vaginal birth	52(36.9)	131(84)	20(33.3)	63(87.5)
Ventouse	21(14.9)	4(2.6)	4(6.7)	2(2.8)
Forceps	7(5)	1(0.6)	2(3.3)	0(0)
Caesarean section	61(43.3)	20(12.8)	34(56.7)	7(9.7)

Note: Values are shown as n(%) unless otherwise stated. *Mode of birth for women who were transferred in the antepartum period and gave birth in a maternity unit was unknown for 18 nulliparous women and 24 multiparous women in 2019-2021, and 13 nulliparous women and nine multiparous women in 2022 due to limited access to notes following transfer.

Intrapartum transfers

Of the 277 women who began labouring at home in 2022, 23.5% (n=65) were transferred to the hospital. Of these women, 64.6% were transferred by ambulance (n=42), one woman who started labouring near the hospital went on foot, and the remainder by private car (n=22). It took between five and 77 minutes to transfer women from their homes to the hospital. The average time it took to transfer a woman was 28.1 minutes.

Among the women who were transferred via ambulance (n=42), information on ambulance times was available for almost 79% of women (n=33). The mean time between when the ambulance was called to when the ambulance arrived at the home was 29.8min (SD=19.0 minutes; range= 4 to 97 minutes). The mean time the ambulance took from arriving to the home to arriving to the hospital was 33.52min (SD=23.3, range=6 to 120 minutes).

More than half of women who had an intrapartum transfer, were transferred to a maternity unit in less than 30 minutes in 2022 (n=30 of 58, 51.7%, missing information for seven women). Another 43% took between 30 and 60 minutes to be transferred (n=25, 43.1%). International studies show average times for intrapartum transfers between 15 and 30 minutes, which is similar to our results. (12,13) Approximately 5% of transfers took longer than 61 minutes (Table 14).

Of the 65 women who were transferred in the intrapartum period, 87.7% (n=57) women gave birth in the hospital, six women gave birth at home but were transferred in before the 3rd stage of labour was completed, and two women gave birth before arrival at the hospital (BBAs).

Table 14: Length of intrapartum transfer, 2019-2022.

	2019-2021			2022		
Length of intrapartum transfer	**Nulliparous N=97**	**Multiparous N=44**	**Total N=141**	**Nulliparous N=32**	**Multiparous N=26**	**Total N=58**
<30min	56(57.7)	17(38.6)	73(51.8)	20(62.5)	10(38.5)	30(51.7)
30-40	18(18.6)	16(36.4)	34(24.1)	8(25)	9(34.6)	17(29.3)
41-60	19(19.6)	8(18.2)	27(19.1)	3(9.4)	5(19.2)	8(13.8)
>=61 min	4(4.1)	3(6.8)	7(5)	1(3.1)	2(7.7)	3(5.2)

Note: Values are shown as n(%) unless otherwise stated. Data for length of transfer was missing for 11 women in 2019-2021 and for seven women in 2022.

As demonstrated in Table 15, nulliparous women were three times more likely to transfer during labour than multiparous women in 2022 and in line with previous findings (43.9% versus 14.9%).

Table 15: Intrapartum transfer by parity, 2019-2022.

	Total	Nulliparous	Multiparous
2019	44/201(21.9)	27/52(51.9)	17/149(11.4)
2020	53/249(21.3)	37/72(51.4)	16/177(9.0)
2021	55/303(18.2)	39/83(47.0)	16/220(7.3)
2022	65/277(23.5)	36/82(43.9)	29/195(14.9)

Note: Values are shown as n(%) unless otherwise stated.

Approximately seventy-nine percent of intrapartum transfers occurred during the first stage of labour (n=51, 78.5%). As outlined in Table 16, six women required transfer during the 3rd stage of labour.

Table 16: Stage of labour at decision to transfer, 2019-2022.

	2019-2021			2022		
Stage of labour*	Nulliparous N=130	Multiparous N=63	Total N=193	Nulliparous N=36	Multiparous N=29	Total N=65
1st stage	93(71.5)	37(58.7)	130(67.4)	27(75)	24(82.8)	51(78.5)
2nd stage	9(6.9)	5(7.9)	14(7.3)	6(16.7)	2(6.9)	8(12.3)
3rd stage	28(21.5)	21(33.3)	49(25.4)	3(8.3)	3(10.3)	6(9.2)

Note: Values are shown as n(%) unless otherwise stated. *Information missing for two multiparous women in 2019-2021.

As indicated in Table 17, in 2022, almost 31% of intrapartum transfers to the maternity unit were associated with confirmed delay in 1st or 2nd stage of labour (n=20, 30.8%), another 30% with maternal request for medical analgesia (n=18, 27.7%), and approximately 12% with meconium-stained liquor (n=8, 12.3%).

Table 17: Reasons for intrapartum transfer, 2019-2022.

Reasons intrapartum transfers	2019 (N=44)	2020 (N=53)	2021 (N=55)	2022 (N=65)	Total (N=217)
Any indication of maternal infection	0(0)	0(0)	0(0)	0(0)	0(0)
Concern with fetal heart rate monitoring	5(11.4)	1(1.9)	1(1.8)	3(4.6)	10(4.6)
Confirmed delay in 1st or 2nd stage of labour	12(27.3)	17(32.1)	22(40)	20(30.8)	71(32.7)
Hypertension	0(0)	0(0)	0(0)	1(1.5)	1(0.5)
Intrapartum haemorrhage/bleeding	0(0)	2(3.8)	0(0)	3(4.6)	5(2.3)
Maternal pyrexia	0(0)	0(0)	0(0)	0(0)	0(0)
Maternal request	2(4.5)	3(5.7)	1(1.8)	0(0)	6(2.8)
Maternal request for analgesia	12(27.3)	13(24.5)	24(43.6)	18(27.7)	67(30.9)
Maternal tachycardia	2(4.5)	0(0)	0(0)	1(1.5)	3(1.4)
Meconium-stained liquor	5(11.4)	7(13.2)	3(5.5)	8(12.3)	23(10.6)
Obstetric emergency	0(0)	0(0)	0(0)	1(1.5)	1(0.5)
Preterm labour	1(2.3)	0(0)	2(3.6)	0(0)	3(1.4)
Prolonged rupture of membranes	5(11.4)	7(13.2)	5(9.1)	4(6.2)	21(9.7)
Retained placenta/incomplete placenta or further management of 3rd stage required	0(0)	3(5.7)	2(3.6)	6(9.2)	11(5.1)
Community midwife unavailable for care	2(4.5)	0(0)	2(3.6)	4(6.2)	8(3.7)
Undiagnosed breech	2(4.5)	0(0)	0(0)	0(0)	2(0.9)
Other	3(6.8)	3(5.7)	6(10.9)	6(9.2)	18(8.3)

Note: Values are shown as n(%) unless otherwise stated. *Some women had more than one reason for intrapartum transfer and in such cases, each reason was counted in the table above.

Maternal request for medical analgesia was more common among nulliparous women than for multiparous women in 2022 (38.9% versus 13.8%), similarly to previous years (37.9% versus 20.4%; Table 18). The difference between nulliparous and multiparous women who were transferred during labour because of confirmed delay in the 1st or 2nd stage of labour was less evident in 2022 (36.1% versus 24.1%, respectively), but is still in line with the findings in the aggregate data from previous years (Table 18).

Table 18: Most common reasons for intrapartum transfers by parity, 2019-2022.

	2019-2021			2022		
	Nulliparous	Multiparous	Total	Nulliparous	Multiparous	Total
Confirmed delay in 1st or 2nd stage of labour	35/103 (34.0)	16/49 (32.7)	51/152 (33.6)	13/36 (36.1)	7/29 (24.1)	20/65 (30.8)
Maternal request for analgesia	39/103 (37.9)	10/49 (20.4)	49/152 (32.2)	14/36 (38.9)	4/29 (13.8)	18/65 (27.7)

Note: Values are shown as n/N(%) unless otherwise stated.

The community midwives had full access to the birth details/maternity clinical records for almost 50% of women who were transferred in the intrapartum period (n=29 out of 65, 44.6%), access to some details was available for approximately the other half of the women (n=34, 52.3%), and no access for 3% of the women who were transferred during labour (n=2). Community midwives remained involved in the woman's care after transfer for approximately half of the women (n=34 of 62, 54.8%, unknown for three women). Some support was given either in labour or postnatally for a further 23% (n=14, 22.6%).

As indicated in Table 19, more than 60% of women who transferred to the maternity unit during the intrapartum period had a spontaneous vaginal birth (n=37 of 60, 61.7%), and 16.7% (n=10) had a caesarean section. Spontaneous vaginal birth was two times more common among multiparous women, and caesarean section was more common among nulliparous women (Table 19).

Table 19: Mode of birth for women who had an intrapartum transfer, 2019-2022.

	2019-2021			2022		
Mode of birth*	Nulliparous (N=98)	Multiparous (N=47)	Total (N=145)	Nulliparous (N=34)	Multiparous (N=26)	Total (N=60)
Spontaneous vaginal birth	43(43.9)	34(72.3)	88(60.7)	15(44.1)	22(84.6)	37(61.7)
Ventouse	21(21.4)	7(14.9)	28(19.3)	7(20.6)	0(0)	7(11.7)
Forceps	11(11.2)	2(4.3)	13(9)	4(11.8)	2(7.7)	6(10)
Caesarean section	23(23.5)	4(8.5)	27(18.6)	8(23.5)	2(7.7)	10(16.7)

Note: Values are shown as n(%) unless otherwise stated. *Unknown for seven women in 2019-2021 and five women in 2022.

The type of pain relief used for women who transferred during labour was recorded for more than 95% of women (62 of 65, 95.4%, missing information for three women). Almost 80% of them used some type of pain relief during labour (n=49, 79.0%), with over 40% of women choosing to avail of an epidural in the hospital setting (n=26). This correlates with the most common reason for intrapartum transfer being for medical analgesia, as discussed previously in this report. Another 40% chose Entonox for pain relief.

Three women who gave birth in hospital following intrapartum had a reported estimated blood loss of more than 1500ml, and one of them was reported to have required a blood transfusion postpartum (blood loss was unknown for 15 women).

The perineum was intact for approximately 39% of women (n=23 of 59, unknown for six women), 12 women had an episiotomy, eight women had a 1st degree tear, fifteen had a 2nd degree and one woman had a 3rd degree tear. The perineum was sutured for 94% of women who had episiotomy or tear (n=34 of 36, 94.4%). One woman who had an intrapartum transfer in the 1st stage of labour and gave birth in hospital experienced a shoulder dystocia. The infant had Apgars of 9 and 10 and did not require resuscitation.

Home births

Labour details

Of the women who registered for a home birth in 2022 (n=432), 218 women gave birth at home (50.5%) including 49 nulliparous women and 169 multiparous women. The distribution of actual births at home by HSE region was similar to the distribution of registered home births (Table 20). The care of the women who registered for a home birth was predominately provided by SECMs (n=376 of 432, 87%), while 13% of women had their care provided by ICHMs in 2022 (n=56, 13%).

Table 20: Distribution of women who were registered for a home birth and gave birth at home by area/hospital, 2022.

	Total women registered for home birth (N=432)	Home birth (N=218)
Carlow, Kilkenny and South Tipp	14(3.2)	8(3.7)
Dublin Mid Leinster	141(32.6)	72(33)
Dublin North East	76(17.6)	34(15.6)
National Maternity Hospital	48(11.1)	24(11)
South	109(25.2)	55(25.2)
Waterford	4(0.9)	4(1.8)
West	36(8.3)	18(8.3)
Wexford	4(0.9)	3(1.4)

Note: Values are shown as n(%) unless otherwise stated.

Rupture of membranes

Approximately 97% of women who gave birth at home had a spontaneous rupture of membranes in 2022 (n=212 of 218, 97.2%), and 2.8% had an artificial rupture of membranes (n=6). Of the women who started labouring at home but were transferred in the intrapartum period and gave birth at the hospital (n=59), rupture of membranes also occurred spontaneously for the vast majority. (n=43 of 53, 81.1%, missing for six women; Table 21).

Table 21: Rupture of membranes by parity and place of birth, 2022.

	Nulliparous		Multiparous	
	Home N=49	**Hospital N=31**	**Home N=169**	**Hospital N=22**
Spontaneous	47(95.9)	26(83.9)	165(97.6)	17(77.3)
Artificial	2(4.1)	5(16.1)	4(2.4)	5(22.7)

Note: Values are shown as n(%) unless otherwise stated. *The data was missing for a total of six women who gave birth at the hospital. Hospital numbers are based on women who were transferred from the home birth service in the intrapartum period and gave birth at hospital or had a BBAs on their way to the hospital.

Liquor was clear for the majority of women who gave birth at home (93.9% for nulliparous and 91.7% for multiparous; Table 22). Women who gave birth in the maternity hospital following intrapartum transfer, irrespective of parity, were more likely to have meconium-stained liquor. This is in line with previous findings in this report where meconium-stained liquor was found to be the third most common reason for intrapartum transfer (Table 17).

Table 22: Liquor colour by parity, 2022.

	Nulliparous		Multiparous	
	Home (N=49)	**Hospital (N=31)**	**Home (N=169)**	**Hospital (N=22)**
Clear	46(93.9)	26(83.9)	155(91.7)	17(77.3)
Meconium	1(2)	4(12.9)	11(6.5)	5(22.7)
Blood stained	2(4.1)	1(3.2)	3(1.8)	0(0)

Note: Values are shown as n(%) unless otherwise stated. * The data was missing for a total of six women who gave birth at the hospital. Hospital numbers are based on women who were transferred from the home birth service in the intrapartum period and gave birth at hospital or had a BBAs on their way to the hospital.

Present at birth

As indicated in Table 23, the woman's primary community midwife was present at the vast majority of home births in 2022 (n=210 of 218, 96.3%). Approximately 78% of women had both a primary and second midwife present
at birth (n=169, 77.5%). A second midwife was called but only present at delivery of placenta in almost 12% of births (n=26, 11.9%) and a second midwife was called but only present postpartum for a small number of women (n=9, 4.1%). The woman's partner was also present in the majority of cases (n=216, 99.1%). Other people noted to have been present at the birth include a doula (n=16, 7.3%) and family members or friends (n=31, 14.2%). Student midwives and ambulance crew were among the other type of people who were present at the birth in 2022 (n=19, 8.7%).

Table 23: Who was present at the home birth by year, 2019-2022

	2019 (N=155)	2020 (N=197)	2021 (N=248)	2022 (N=218)
Primary community midwife	145(93.5)	186(94.4)	231(93.1)	210(96.3)
Second midwife present at birth	119(76.8)	166(84.3)	184(74.2)	169(77.5)
Second midwife called but only present at delivery of placenta	n/a	n/a	30(12.1)	26(11.9)
Second midwife called but only present postpartum	n/a	n/a	11(4.4)	9(4.1)
Doula	5(3.2)	9(4.6)	14(5.6)	16(7.3)
Partner	150(96.8)	185(93.9)	228(91.9)	216(99.1)
Other family members/friends	18(11.6)	15(7.6)	27(10.9)	31(14.2)
Other	9(5.8)	7(3.6)	17(6.9)	19(8.7)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive.

For women who were not attended by their primary community midwife for the birth (n=8), a community midwife arrived shortly after the birth for four women to continue to provide care to the woman and her baby. For the remaining four women, one of the women had a doula present at the birth, one had another family member, ambulance staff was present at birth for one woman and for the fourth woman, the midwife was phoned after the baby was born. The partner was present in all of the eight births. Multiparous women accounted for all but one of these women (n=7 of 8, 87.5%). It was reported that none of these women or their babies required transfer to hospital following the birth, and all the babies were alive and well and continued receiving their routine care under the home birth service.

As discussed previously in this report, there were five women whose care was transferred to their maternity unit in the antepartum (n=3) or intrapartum period (n=2) but who gave birth at home before they could be transported into the hospital (BBAs). All of them were multiparous women. All of them had liveborn babies, with one baby requiring additional care in the Neonatal Intensive Care Unit (NICU). The remaining women and infants continued to receive their routine care under the acute services. There were six women who gave birth at home and required intrapartum transfer during the 3rd stage of labour due to retained or incomplete placenta, or for further management of 3rd stage of labour (n=6). Four of the infants were transferred to the hospital to accompany their mother, and one of them required admission to the Special Care Baby Unit (SCBU). This baby was a liveborn and was well at discharge.

Duration of labour

Information about the duration of labour was available for 99.1% of women who gave birth at home (n=216 of 218). The mean duration of labour for those that gave birth at home was 2.52 hours in 2022 (SD=2.48 hours, range=0 to 19 hours). As in previous years, multiparous women laboured faster than nulliparous women (mean time 2.08 hours, 95%CI=1.78-2.37 for multiparous women versus 4.02 hours 95%CI=3.04-5.00 for nulliparous; Figure 7), with mean change of 1.94 hours and statistically significant differences (95%CI=1.19-2.96; p-value < 0.010). Similarly, women whose midwives arrived shortly after the birth (i.e. unattended home births) had a lower duration of labour compared to home births where the midwives were present at birth (mean time 0.86 hours, 95%CI=0.03-1.69 for unattended home births versus 2.57 hours, 95%CI=2.23-2.91 for home births where a midwife was present at the birth), with mean change of 1.71, but this did not reach statistically significant differences (95%CI=-0.16 to 3.58; p-value=0.07).

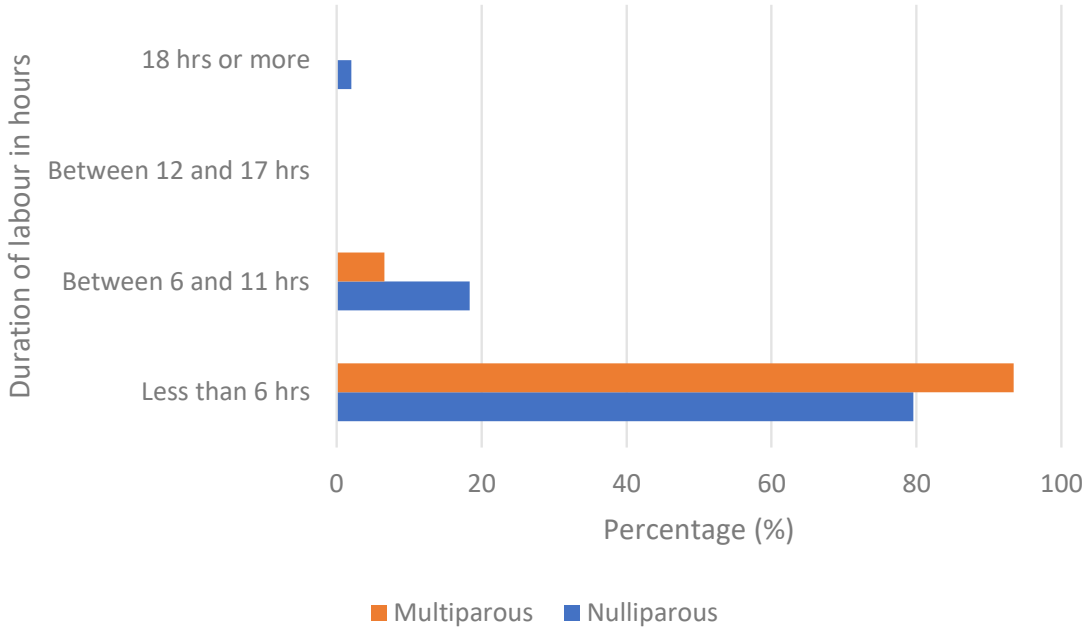


Figure 7. Duration of labour in hours by parity, 2022.

As documented in Table 24, the two most common maternal positions for birth were all fours position (n=81 of 214, 37.9%, unknown for four women) and kneeling position (n=58, 27.1%). Other birth positions included use of a birth stool and a running start position.

Table 24: Maternal position for birth by parity, 2022.

	Nulliparous (N=48)	Multiparous (N=166)	Total (N=214)
Kneeling	13(27.1)	45(27.1)	58(27.1)
All fours	13(27.1)	68(41)	81(37.9)
Standing	6(12.5)	10(6)	16(7.5)
Squatting	7(14.6)	14(8.4)	21(9.8)
Side lying	2(4.2)	17(10.2)	19(8.9)
Sitting	2(4.2)	6(3.6)	8(3.7)
Semi-recumbent	4(8.3)	2(1.2)	6(2.8)
Other	1(2.1)	4(2.4)	5(2.3)

Note: Values are shown as N(%) unless otherwise stated. Maternal position unknown for four women.

Pain relief

Type of pain relief used was recorded for all 218 women who gave birth at home (Figure 8). Over one third of women used no pain relief (n=75, 34.4%) with multiparous women being more likely to not use any pain relief (37.9% versus 22.4%). Nulliparous women were more likely to use water for pain relief than multiparous women (51.0% versus 30.8%). Approximately 6% of women gave birth in water (n=13 of 218, 6.0%). At the time of the births, the HSE had a pause on giving birth in water.

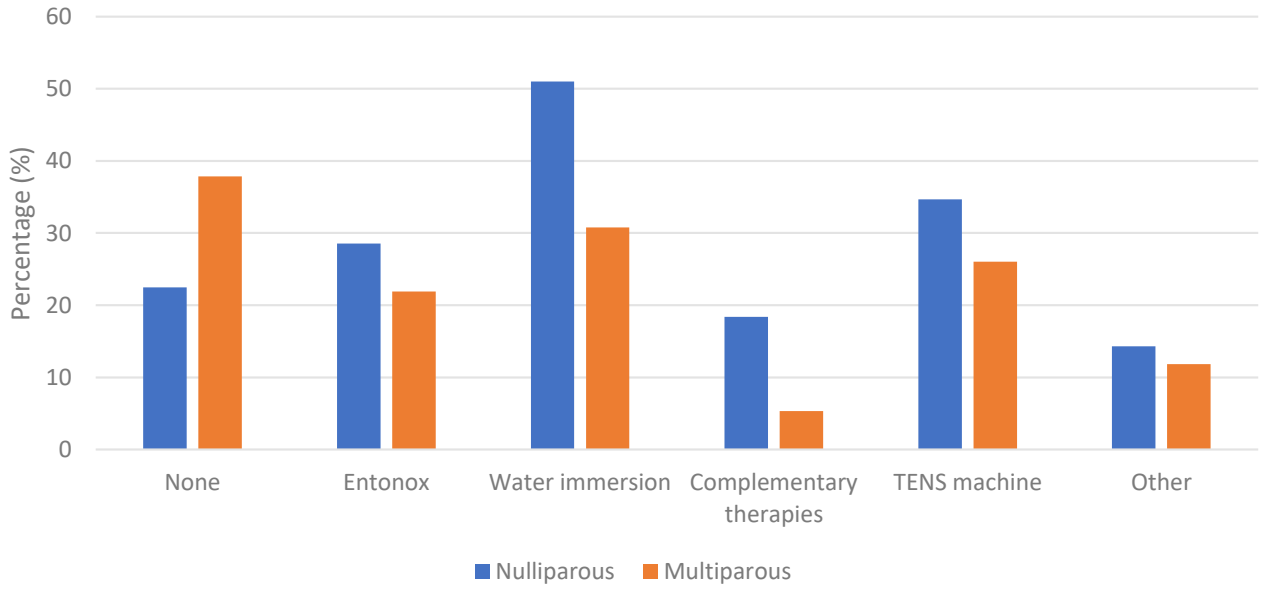


Figure 8: Pain relief used by women who gave birth at home, 2022.

Management of the third stage of labour

The vast majority of women who gave birth at home had a physiological third stage of labour (n=159 of 218, 72.9%). The physiological management of the third stage comprises of the following components: no routine use of uterotonic drugs, no clamping of the cord until pulsation has stopped, delivery of the placenta by maternal effort. (1)

Of the 59 women who had active management of the third stage of labour in the home, intramuscular syntocinon was administered in 39 cases, syntometrine in 23 cases, one woman required ergometrine, and one woman required a syntocinon infusion (figures are not mutually exclusive). Almost twenty nine percent of nulliparous women had active management at home (n=14 of 49, 28.6%; Figure 9) and almost twenty seven percent of multiparous women had active management in the home (n=45 of 169, 26.6%).

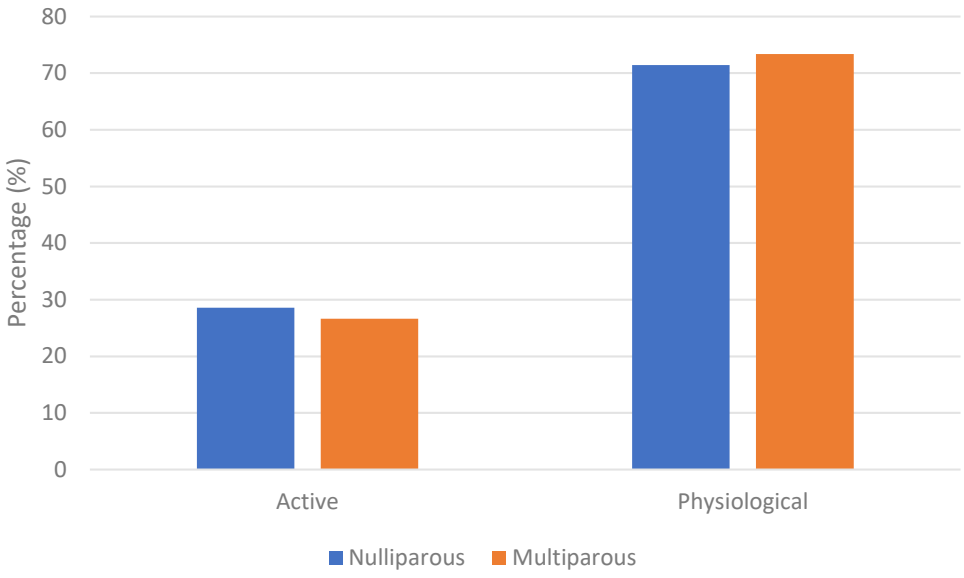


Figure 9: Management of the third stage of labour for home births, 2022.

Of the 218 women who gave birth at home, 18.9% had active management as the planned method of management of the 3rd stage of labour (n=41 of 217, missing information for one woman) with an average of estimated blood loss of 316.6ml (SD=102.8ml). A further 7.8% had active management following attempted physiological management of the 3rd stage (n=17 of 217) with an average blood loss of 595.3ml. As mentioned previously, the majority of women had physiological management as the planned method of management (n=159 of 217, 73.3%), with an average blood loss of 129.9ml.

Perineal outcomes

For almost half of the women (n=97 of 217, 44.7%, missing for one woman) who gave birth at home, the perineum remained intact (Table 25). Of those who birthed at home, multiparous women were as likely to have an intact perineum as nulliparous women (45.6% versus 41.7%). There were three women (n=3 of 217, 1.4%) who gave birth at home that had an episiotomy in 2022. Almost twice as many nulliparous women underwent perineal suturing than multiparous women who gave birth at home (n=18 of 28, 64.3%; versus n=36 of 92, 39.1%). Of the women who gave birth in hospital following transfer during their labour (n=59), 12 had an episiotomy (n=12 of 54, 22.2%, missing information for five women).

There were two women who had a 3rd degree tear, one gave birth at home and the other at hospital after being transferred in the intrapartum stage. The rate of third-degree tears for all women who gave birth in Ireland in 2022 was 3.6% (Table 25).

Table 25: Perineal outcomes for women who had a home birth in comparison to the general pregnant population, 2022.

	Home birth data (N=217)		HIPE Data (N=37,294)	
	Nulliparous (N=48) N(%)	**Multiparous (N=169) N(%)**	**Nulliparous (N=13,958)**	**Multiparous (N=23,336)**
Intact	20(41.7)	77(45.6)	1,489(10.7)	9,615(41.2)
Episiotomy	3(6.3)	0(0)	7,545(54.1)	2,405(10.3)
1st degree tear	11(22.9)	56(33.1)	1,488(10.7)	3,718(15.9)
2nd degree tear	14(29.2)	35(20.7)	4,075(29.2)	7,697(33.0)
3rd degree tear	0(0)	1(0.6)	391(2.8)	198(0.8)
4th degree tear	0 (0.0)	0 (0.0)	33(0.2)	11(0)

Note: Values are shown as n(%) unless otherwise stated. *Perineal outcomes for all women who gave birth in hospital in 2022 is based on Hospital In-Patient Enquiry (HIPE) data. HIPE data excludes women who had a caesarean section. An episiotomy and perineal tear were experienced by 1,063 (7.6%) of nulliparous and 308 (1.3%) of multiparous women. Because of this, the percentages for nulliparous and multiparous women add to more than 100%.

Estimated blood loss at birth

The median estimated blood loss for those who had a home birth was 250ml. The HSE's Home Birth Service guideline on the management of postpartum haemorrhage (PPH) defines a PPH as "the loss of 500mls or more of blood from the genital tract within 24 hours of the birth of the baby."(14) Less than 2.5% of women had a blood loss between 500 and 1000 ml (n=5, 2.3%, Figure 10) with approximately 96% of women who birthed at home losing less than 500ml (n=210 of 218, 96.3%). Three women who required transfer to the hospital during the 3rd stage of labour had a major PPH (over 1000ml and under 2500ml) with total estimated blood loss between 1200 and 2300mls recorded. One woman required a blood transfusion. The three women required additional care on hospital ward and were later discharged home well. There were no women reported to have experienced a major obstetric haemorrhage in this audit.

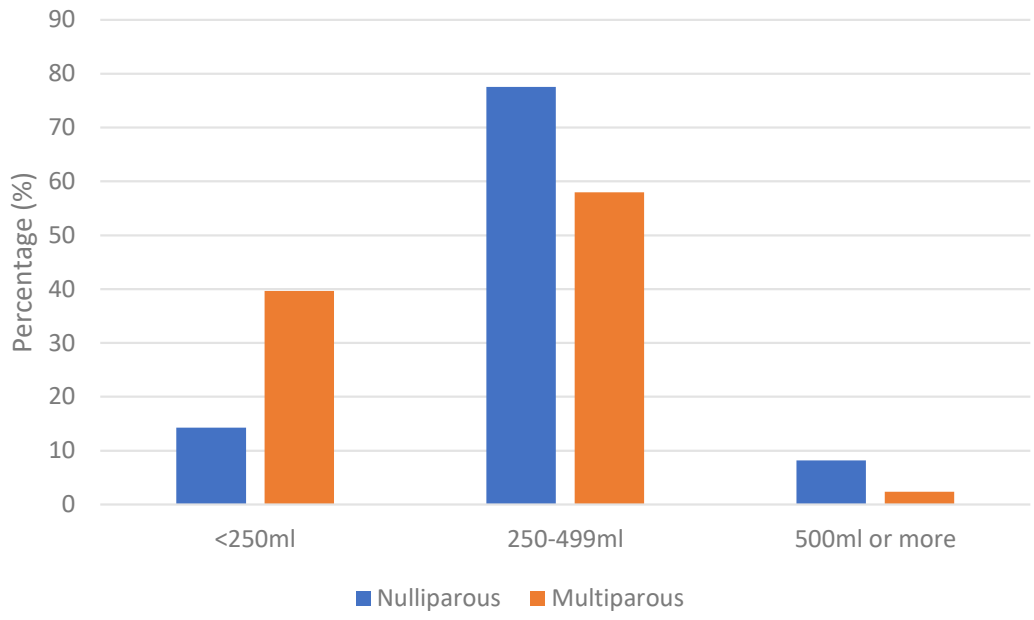


Figure 10: Estimated blood loss (mls) at delivery for women who gave birth at home, 2022.

Infant outcomes

Infant characteristics

Of the 218 infants born at home, 102 were female (46.8%) and 116 were male (53.2%). The mean birth weight for infants born at home was 3708.5 grams, ranging from 2,550 to 5,020 grams, unknown for one infant. Nulliparous women were more likely to have infants with lower weight than multiparous women (mean=3,553 SD=416 grams versus mean=3753, SD=402 grams respectively; Table 26).

Table 26: Infant birthweight by parity, 2022.

	Nulliparous (N=48)	Multiparous (N=169)	p-value
Birthweight in grams (mean, 95%CI)	3553.2 (3432.3-3674.2)	3752.6 (3691.5-3813.7)	<0.001

Note: Birthweight was missing for one infant.

Almost three quarters of infants who were born at home had a birth weight between 3,000 and 3,999 grams (n=159 of 217, 73.3%, missing for one infant). Less than a quarter of infants (n=48, 22.1%) who were born at home had a birth weight greater than 4,000 grams (Figure 11). There were no low-birth-weight infants (less than 2,500 grams) born at home.

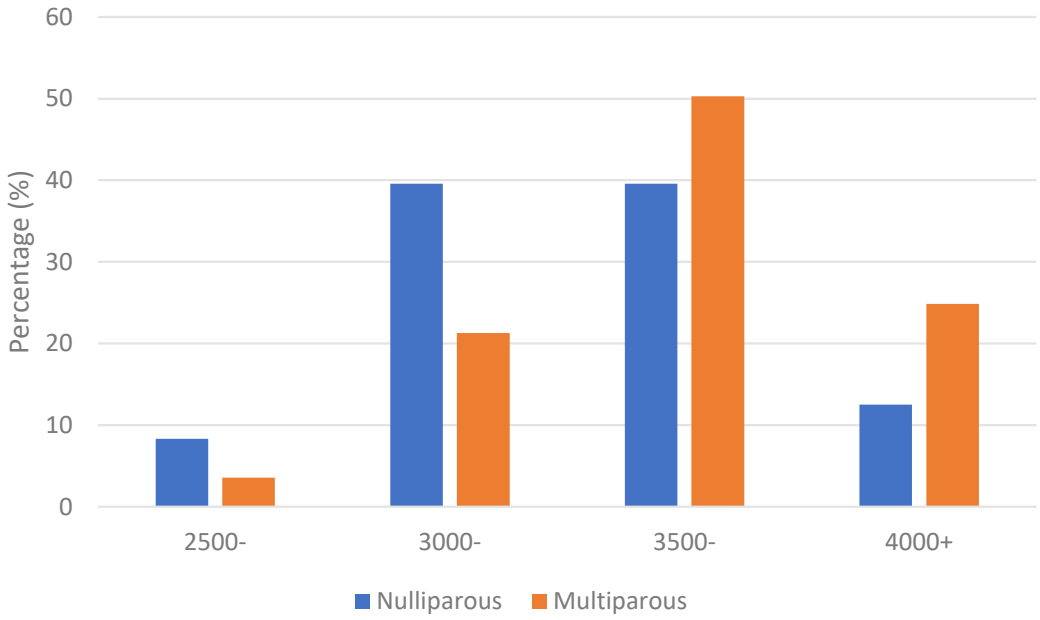


Figure 11: Distribution of birth weight in infants born at home, 2022.

Apgar scores

Data on Apgar scores at one minute and five minutes were available for 211 and 216 infants born at home (n=218) respectively. Only one infant had an Apgar score of less than six at one minute after birth (Figure 12). The infant required suction and intermittent positive pressure respiration (IPPR) and reached an Apgar score of seven at five minutes after birth. This infant was transferred to the hospital and admitted to the SCBU. The baby was discharged 3 days later and was reported to the audit as alive and well. At five minutes, the majority of infants had an Apgar score of either nine (n=59, 27.3%) or ten (n=155, 71.8%).

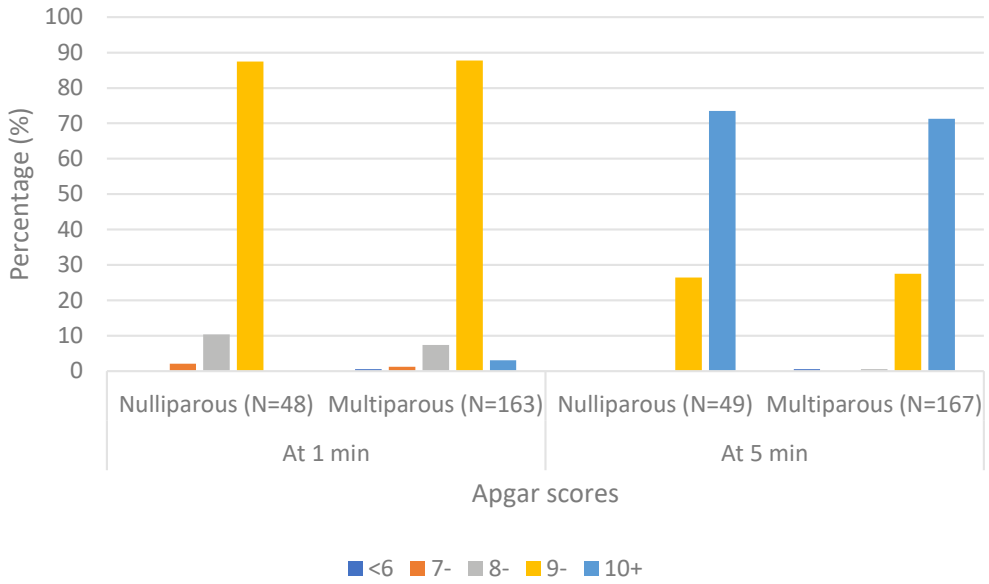


Figure 12: Apgar scores at 1 and 5 minutes for infants born at home, 2022.

Resuscitation and other infant outcomes

Seven of the 218 infants born at home (3.2%) needed some form of resuscitation. One infant was resuscitated with suction only, four infants received oxygen and two infants were resuscitated by intermittent positive pressure ventilation. Of the seven babies that required resuscitation, four were transferred to the maternity unit for review (one of them as an intrapartum transfer in the 3rd stage of labour). Two of the infants did not require additional support, however, were transferred to hospital to accompany their mother who required transfer. The other two babies required additional support and were admitted to the SCBU. Cardiac massage was not required by any baby born at home as a mode of resuscitation in 2022.

Of the women who required transfer to the hospital in the first or second stage of labour, six infants required some form of resuscitation after their birth in the hospital (n=6 of 59, 10.2%, missing information for three infants). In 2022, all infants who required resuscitation at birth following intrapartum transfer were transferred to the hospital in the first stage of labour. Two liveborn infants required suction, oxygen and intermittent positive pressure ventilation; one of which also required external cardiac massage and was intubated. These two infants were admitted to and cared for in the NICU. Two infants had some form of resuscitation, the methods of which was not documented, both these babies were admitted to the SCBU for 2-3 days and later discharged alive and well. One further infant required oxygen and intermittent positive pressure ventilation, however required no further additional care and was discharged alive and well

One woman who gave birth at birth at home experienced a shoulder dystocia (n=1 of 218, 0.5%), resolved with position change. The infant had Apgars of 9 at 1 minute and 9 at 5 minutes and did not require any resuscitation or additional care. A NIRF form was completed. There is some variance in the literature regarding rates of shoulder dystocia, with 1% reported by one study for high income countries, and 2.7% reported in a large US study of a low-risk cohort. (15,16)

Newborn examination and screening

Nine of the 218 infants born at home (4.1%) were suspected of having an anomaly at first examination, the most common of which was tongue tie (n=4; Table 27).

Table 27: Anomalies among babies who were born at home, 2022.

	Total (N=9)
Birth mark	1(11.1)
Hypospadias	1(11.1)
Sacral dimple	2(22.2)
Skin tag	1(11.1)
Tongue tie	4(44.4)
Undescended testes	1(11.1)
Other non-fatal anomaly	2(22.2)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive.

The National Newborn Bloodspot Screening (NBBS) Programme was performed on 97.7% of the infants born at home (n=213 of 218), with five women declining the offer to perform this screening. Medical examination of the newborn was carried out by a general practitioner in 12.8% of cases where the infant was birthed at home (n=28 of 218). A hospital paediatrician examined 72.5% (n=158) of the infants born at home, and a midwife trained in Newborn Clinical Examination examined 14.7% (n=32) of the infants born at home. Data on medical examination of the newborn was recorded for 94.9% of infants born in the maternity unit following transfer (n=56 of 59, missing information for three infants). Examination was undertaken by a hospital paediatrician for all these infants, except for one infant where a midwife trained in NIPE performed the examination.

Of the infants who were birthed at home (n=217, missing information for one infant), 83.9% (n=182) had vitamin K administered (Table 28). Of them, 72.0% had vitamin K administered by intramuscular (IM) injection in 2022 (n=131 of 182, unknown for one woman), and more than one fourth of infants had vitamin K administered orally (n=51, 28.0%). Vitamin K was offered to all babies after birth, as advised by the HSE to reduce risk of bleeding disorders, (17) and it was declined by 16.1% (n=35) of women whose infants were born at home, versus 3.6% (n=2 of 55, missing for four infants) of infants born in the hospital following transfer (Table 28).

Table 28: Vitamin K administration, 2022.

	Home (N=217)	Hospital (N=55)
Vitamin K was administered orally	51(23.5)	7(3.2)
Vitamin K administered IM	131(60.4)	46(21.2)
Offered but declined	35(16.1)	2(0.9)

Note: Values are shown as n(%) unless otherwise stated. *Data missing for four infant who was transferred at the intrapartum stage to the hospital, and one infant who was born at home.

Infant transfers

Thirteen of the infants born at home were transferred to hospital for reasons specified in Table 29. Ten infants were transferred by ambulance and three infants transferred by private car. The most common reason for infant transfer was to accompany their mother who required transfer to the maternity unit (n=7 of 13, 53.8%). Seven infants required additional care, six of which were admitted into the Special Care Baby Unit (SCBU) with the length of stay ranging from half a day to seven days, and one was cared for on the ward following transfer. All of the 13 infants were well at discharge.

Table 29: Reasons for infant transfer, 2022.

	2022 (N=13)
Accompanying mother being transferred to the maternity unit	7(53.8)
Delay in passing urine or meconium	1(7.7)
Jaundice	1(7.7)
Low Apgar score	1(7.7)
Respiratory symptoms	3(23.1)
Thermoregulation concern	1(7.7)
Other	1(7.7)

Note: Values are shown as n(%) unless otherwise stated. Categories are not mutually exclusive.

Perinatal mortality

There was one early neonatal death reported among the 432 women who were registered for home birth in 2022, as reported to the NPEC Perinatal Mortality National Clinical Audit (PMNCA). The inquest has taken place, the report is awaited for this case.

The perinatal mortality rate for all women who registered for a home birth from 2012 to 2022 was 2.95 perinatal deaths per 1,000 births, equivalent to one perinatal death for every 340 registered home births (Table 30). In the years 2012-2022, there were five stillbirths and four early neonatal deaths, all of which were reported by the relevant hospitals to the NPEC PMNCA. Table 30 almost provides data on perinatal deaths (excluding cases due to termination of pregnancy or due to major congenital anomalies) from all births in Ireland in 2022. The relatively small number of deaths among the registered home births limits the scope for making meaningful comparisons. However, it can be seen that the rate of stillbirth, early neonatal death and perinatal death among registered home births was broadly similar to the equivalent rates among all births in 2022.

Table 30: Perinatal mortality rates for registered home births, 2012-2022.

	Registered Home Births, 2012-2022		All births, 2022	
	Number	**Rate (95% CI)**	**Number**	**Rate (95% CI)**
Total births	3046		54,705	
Stillbirths	5	1.64(0.70-3.83)	147	2.69(2.27-3.16)
Early neonatal deaths	4	1.31(0.51-3.37)	58	1.06(0.81-1.37)
Total perinatal deaths	9	2.95(1.55-5.60)	205	3.75(3.25-4.30)

Note: Rate per 1,000 births; 95% CI=95% Poisson confidence interval; Deaths from all births in 2022 exclude cases due to termination of pregnancy or due to major congenital anomalies.

Postpartum care and infant feeding

Women who gave birth at home were discharged from the care of the home birth service, on average, 12 days after the birth of their babies. In some circumstances the community midwives may provide care beyond the agreed timeframe, this is provided on an individual basis. For 2022, 11.5% women who gave birth at home received postpartum care beyond 14 days (n=25 of 217, missing for one woman).

The average number of postpartum visits by the community midwife among the 217 women who gave birth at home was 5.2 visits (missing for one woman). It ranged between three and 11 visits, with 90.3% of women having between 4 and 6 postpartum visits in 2022 (n=196 of 218, missing for one woman).

Method of feeding was recorded on both day one and on day of discharge from the care of the community midwives. As outlined in Table 31, the vast majority of women who gave birth at home were exclusively breastfeeding on both day one (n=209 of 218, 95.9%) and on day of discharge (n=204 of 218, 93.6%). Women who birthed at home were twice as likely to breastfeed exclusively on the day of discharge than the total population of women who gave birth in Ireland in 2021 (93.6% versus 46.3%). (18)

Table 31: Method of feeding, 2022.

	Day one		Day of discharge		Total maternities, HPO, NPRS (18)
	Home (N=218)	Hospital (N=54)	Home (N=218)	Hospital (N=55)	2021 N=59,762
Exclusive breastfeeding	209(95.9)	44(81.5)	204(93.6)	49(89.1)	46.3
Partial breastfeeding	5(2.3)	8(14.8)	9(4.1)	5(9.1)	-
Artificially feeding	4(1.8)	2(3.7)	5(2.3)	1(1.8)	61.8

Note: Values are shown as n(%) unless otherwise stated. Among women who were transferred and gave birth in hospital (n=59), the information was missing for five women on day one and for four women at discharge.

Postpartum transfers

There were 17 reported postpartum complications among the 217 women who gave birth at home in 2022 (Table 32, unknown for one woman). Seven of these women required transfer to the hospital in the postpartum period (which is considered from birth to 6 weeks). The remaining women had a complication that did not require transfer of care and was managed in the community setting. Six women were transferred by ambulance, and one by private car. Indications for transfer are outlined in Table 32. Six of the women were transferred shortly after the birth, and a further woman was transferred on day 2 due to complications arising in the days after the birth.

Table 32: Reasons for maternal transfer in the postpartum period, 2022.

	Postpartum complications (N=17)	Postpartum transfers (N=7)
Accompanying infant being transferred to the maternity unit	0(0)	0(0)
Breast concern: blocked duct, mastitis, engorgement	5(29.4)	0(0)
Excessive abdominal/ pelvic pain	2(11.8)	2(28.6)
Extensive tear or requires complicated suturing	0(0)	1(14.3)
Hypertension	1(5.9)	1(14.3)
Maternal pyrexia	0(0)	0(0)
Offensive lochia	0(0)	0(0)
Post-partum haemorrhage	4(23.5)	2(28.6)
Psychological well-being concern	4(23.5)	0(0)
Signs of thromboembolic disease	0(0)	0(0)
Woman generally unwell or seems unduly anxious	1(5.9)	0(0)
Wound infection and/or excessive pain	0(0)	0(0)
Other	3(17.6)	1(14.3)

Note: Values are shown as n(%) unless otherwise stated. Maternal complications unknown for one woman.

Adverse incidents

There were 42 adverse incidents identified among women who registered for a home birth in 2022 (n=432), 31 of them occurred among women who gave birth at home (n=218). A HSE National Incident Report Form (NIRF) was completed in all the cases, except for one (Table 33). In 2022, 80% of incidents were classified as Category 3 (n=24) and 16.7% were Category 2 (n=5), missing for one case. There was one Category 1 incident reported for 2022.

Nine of the adverse incident reports were submitted due to waterbirth (30%). A NIRF form was required for these cases due to the implementation of the temporary pause on waterbirth in the home setting by the HSE, effective since November 2020. Seven of the incident report forms were in relation to giving birth at home before the midwife arrived (i.e. unattended home births, 23.3%), and the remaining incidents were in relation to a variety of other reasons (Table 33).

Table 33: List of adverse incidents reported by category, 2022.

	Category 1	Category 2 (N=5)	Category 3 (N=24)	Total (N=30)
Maternal death	1(100)	0(0)	0(0)	1(3.3)
Unattended home births	0(0)	1(20)	6(25)	7(23.3)
Infant admission to NICU	0(0)	1(20)	0(0)	1(3.3)
No second midwife present	0(0)	0(0)	4(16.7)	4(13.3)
PPH	0(0)	1(20)	2(8.3)	3(10)
Retained placenta	0(0)	2(40)	2(8.3)	4(13.3)
Shoulder dystocia	0(0)	0(0)	1(4.2)	1(3.3)
Waterbirth	0(0)	0(0)	9(37.5)	9(30)

Sadly, there was one maternal death of a woman who gave birth at home in 2022. A review into the case is ongoing with a report due to be published from the HSE.

Appendix A: Designated Midwifery Officers submitting 2022 data

HSE Area / Hospital	Contact	
Dublin Mid Leinster	**Margaret Hanahoe** Email: margaret.hanahoe@hse.ie Tel: 086 207 7276	
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South	**Jo Delaney and Denise Malone** Email: homebirth.south@hse.ie Tel: (021) 492 3483	
South East	**Michelle Waldron** Home Birth Service Carlow, Kilkenny, South Tipperary Email: michelle.waldron@hse.ie **Emmeliene Farrell** Home Birth Service Carlow, Kilkenny Email: emmeliene.farrell@hse.ie Tel: 087 188 0976	**Sinead Heaney** Home Birth Service South Tipperary Email: sinead.heaney@hse.ie
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Incoming DMO's that will be submitting data:	**Melanie Adams** Midland Regional Hospital Portlaoise Email: melanie.adams@hse.ie Tel: (057) 869 6827 Mobile: 087 705 1663 **Patricia Kingsnorth** Our Lady of Lourdes Hospital Drogheda Email: patricia.kingsnorth@hse.ie Tel: 087 100 9125	**Janet Murphy** University Hospital Waterford Email: janet.murphy1@hse.ie Tel: 087 924 3538 **Maggie Dowling** Tipperary University Hospital

Appendix B: Summary of national sources used for national comparisons in Ireland, 2022

Outcome	2019-2021	2022
Trends in registered home births rates	The national number of women who gave birth in hospital based on Hospital In-Patient Enquiry (HIPE) data, with the maternities in one non-participating unit excluded for 2014 and 2015.	The national number of women who gave birth in hospital based on Hospital In-Patient Enquiry (HIPE) data, with the maternities in one non-participating unit excluded for 2014 and 2015.
Maternal age	Age of mother of all births using vital statistics annual report for each year (CSO), 2021	HIPE data for maternities in 2022
Ethnicity	Ethnicity for the female population aged 15-49 years surveyed in the census in 2016 (CSO).	Ethnicity for the female population aged 15-49 years surveyed in the census in 2022 (CSO).
Parity	Perinatal Statistics from the most updated and published Perinatal Statistics Report, (HPO), 2020	HIPE data for all maternities in 2021
Breastfeeding	Perinatal Statistic Report, (HPO), 2020	Perinatal Statistic Report, (HPO), 2021
Perineal outcomes	All women who gave birth in hospital in 2021 is based on HIPE data	All women who gave birth in hospital in 2021 is based on HIPE data

Note: Central Statistics Office (CSO); Healthcare Pricing Office (HPO); Hospital In-Patient Enquiry (HIPE).

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Annex 1: Midwifery Practice Guidelines HSE Home Birth Service 2018

https://www.hse.ie/eng/services/list/3/maternity/new-home-birth-policies-and-procedures/hb004-midwifery-practice-guidelines-hse-home-birth-service.pdf

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