Planned Home Births in Ireland

ANNUAL REPORT 2016

NATIONAL PERINATAL EPIDEMIOLOGY CENTRE

Office of the Nursing & Midwifery Services Director

Feidhmeannacht na Seirbhíse Sláinte
Health Service Executive

Tús Áite do Shábháilteacht Othar
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Feidhmeannacht na Seirbhíse Sláinte
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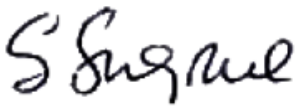
Acknowledgements

This is the 5th publication of a Planned Home Birth Annual Report (2016). The Report is an invaluable resource for all key stakeholders. A lot has happened in 2016 not least the publication of the Creating a Better Future Together, National Maternity Strategy 2016-2026. Having sat on the Maternity Strategy Steering Group, I am pleased to see this visionary document published and to have home births described in the report as a legitimate choice for women. Women in the "Supported Care pathway" will in the future be able to choose their place of birth in an integrated maternity service and home births will become part of the wider maternity services.

I wish to acknowledge the work undertaken by the Clinical Governance Group for home births under the expert guidance of the Chair Ms Rosemary Ryan as well as the National Implementation Steering Group (NISG). Home Birth policies, protocols, procedures and guidelines were drafted and presented to all Midwives and Obstetricians in December this year and they will be piloted for one year. They can be accessed on the HSE website. I would like to acknowledge the continued support of the Office of Nursing and Midwifery Services Director in the HSE, especially Ms Mary Wynne Chair of the NISG.

I also acknowledge the work conducted by the Designated Midwifery Officers and their efforts in improving the service. A number of new Self Employed Community Midwives have joined the service and I wish to welcome them on board and acknowledge the quality care provided on behalf of the HSE so that low risk women can avail of the home birth service.
This is an exciting time where the home birth service will prepare to become integrated and is just another option for women planning their place of birth.



National Lead Midwife,
Office of Nursing
and Midwifery Services Director,
HSE

Welcome to the Planned Home Births Annual Report 2016 from the Health Service Executive (HSE) in collaboration with the National Perinatal Epidemiology Centre (NPEC). At the NPEC we endeavour to provide Irish maternity services with a facility to undertake in-depth reviews of its own medical practices, through monitoring outcomes and regular audit. As such it is not only valuable that the HSE is auditing these data but essential to ensure that standards of home birth in Ireland are met. It is intended that results of these clinical audits will be reported in successive annual reports into the future.

Studies across Europe indicate that home birth should be an option for low risk women. Measurement of the outcome of care is central to the development of safe and high quality health care services. Support from The Office of Nursing and Midwifery Services Director, the Designated Midwife Officers and the Self Employed Community Midwives has been crucial in order to ensure that the data from this audit can provide a transparent account of the national home birth service, as provided by the SECMs on behalf of the HSE.
I extend my sincere thanks and appreciation to the many midwives who have supported and contributed data to the NPEC. Their work is greatly acknowledged. An important advancement within the NPEC has been the development and implementation of the online home births database which will allow for data to be audited in an even timelier manner in the future.

Lastly, I would like to thank the staff of the NPEC for their hard work and dedication to the mission of the Centre. Assessing the outcomes of maternity care provided, learning from the data and working together, we have great potential to improve the care of mothers and babies in Ireland. On behalf of all the staff at the NPEC, we look forward to a challenging and fruitful future.

Richard A Greene, Director, NPEC
National Perinatal Epidemiology Centre

Recommendations

The home birth service provides care to low risk healthy women. Over the course of her pregnancy a woman may need to be transferred to the nearest maternity unit/ hospital to receive more specialised and/or complex care. Presently, women must book with a maternity unit/hospital to allow a Self Employed Community Midwife (SECM) to refer women if such a need arises. The identification of a liaison consultant obstetrician in each maternity unit would further assist in the effective transfer of women to and from the home birth service, as required.

Following transfer, a structured notification system between the maternity unit and the SECM responsible for the woman's care should be developed to improve communication between services.

All pregnant women should have an accurate weight, height and BMI measured and documented in the midwifery notes both at their first antenatal visit and during the last trimester in order to ascertain the impact of maternal weight on perinatal outcomes in Ireland.

A second SECM was contacted when a woman began labouring at home. Yet, the proportion of women who have a second SECM in attendance at the home birth varies throughout the country. Further investigation exploring factors impacting on the attendance of a second SECM at a homebirth is warranted.

Development of a national tool-kit for SECM to assist in the estimation of blood loss should be considered. A quantitative approach involving volume and weight assessment to estimate blood loss should be considered. Such an approach would allow for standardisation across the maternity services.

It is of importance that the home birth service provides care that is in line with evidence-based care guidelines. All Designated Midwifery Officers should continue to collect and submit anonymised data on home births to inform this national clinical audit. In doing so, this will assist in ensuring that the necessary patient safety assurances are provided with consistency across each region in the country.

Executive Summary

This is the fifth national clinical audit on planned home births in Ireland under the care of Self Employed Community Midwives (SECMs). In 2016, 20 primary SECMs provided a home birth service on behalf of the Health Service Executive (HSE). Anonymised data were reported by the five Designated Midwifery Officers on a total of 192 planned home births in 2016. This equates to a 16% reduction in the number of women who intended on having a home birth compared to figures from 2015.

Of the women who intended on having a home birth, all but six women registered during pregnancy with their general practitioner. There were 30 recorded incidences where general practitioners refused to provide shared care. All but two women registered with their local maternity unit. Over half of all planned home births were arranged through the Health Service Executive (HSE) South home birth service (58%).

Almost three-quarters of the women who intended on having a home birth had a previous birth (74%). Women intent on a home birth had an older age profile to all mothers who gave birth in the country with 80% aged 30-39 years versus 64% for all women giving birth. Body mass index (BMI) was reported for 82% of mothers who planned to have a home birth. Of the women with data, most were in the healthy range (67%), 23% were overweight, and 10% were obese.

Smoking prevalence is unknown for the pregnant population in Ireland. In UK countries, 12-19% of pregnant women smoke throughout their pregnancy. Data reported for this clinical audit also indicated that three of the six mothers who smoked (50%) stopped smoking during pregnancy. Therefore just three women (2%) with a planned home birth in Ireland smoked throughout their pregnancy in 2016. Regarding alcohol, the vast majority (83%) of the home birth pregnant women did not consume alcohol during pregnancy. As smoking and alcohol consumption are a risk factor for a range of adverse perinatal outcomes, it is encouraging to continue to see a lower rates of such behaviours in this population.

Of the women who intended on having a home birth 33% were referred to the maternity hospital during the antenatal period. There was no difference in the rate of referral to the maternity hospital in the antenatal period for nulliparous and parous women (32% versus 33%). Of all the mothers who transferred during the antenatal period, 15% were transferred for induction of labour. Of the women referred to the maternity hospital during the antenatal period, 28% returned to the care of the SECM. This means that there were 46 women who did not return to the care of the SECM as care remained within the maternity hospital system following transfer. Of these 46 women, three-quarters had a spontaneous vertex delivery in the maternity hospital (72%).

Of the 146 mothers who began labouring at home, 18% were transferred to a maternity hospital. Nulliparous women were more than twice as likely to transfer during labour as parous women (32% versus 13%). These results should be interpreted with some caution given that there was a much lower proportion of nulliparous women who began labouring at home compared to parous women (25% versus 75%). It took between six and 75 minutes to transfer these women from their homes to the maternity hospital. Failure to progress in labour (23%) and meconium stained liquor (19%) were the primary reasons associated with transfers during the intra-partum period. The majority of these transfers occurred in the first stage of labour (81%) with one nulliparous woman who required transfer during the 3rd stage of labour.

Of the 120 infants born at home 4% needed some form of resuscitation. Four of all infants who were born at home were transferred to a maternity hospital. Three of these four infants

were admitted to the neonatal intensive care unit. All infants born at home in 2016 were examined by either a General Practitioner or a hospital Paediatrician following birth. Eight mothers were transferred to a maternity hospital for postnatal care.

Mothers who birth at home are discharged 14 days after the birth of their infants from the care of the SECM while mothers who deliver in the maternity hospital are generally discharged 3 days after the birth. On the day of the home birth, 98% of mothers were breastfeeding exclusively with 96% breastfeeding exclusively on the day of discharge from the care of the SECM. Mothers who birthed at home were twice as likely to be breastfeeding exclusively on day of discharge compared to all women who gave birth (96% versus 48%).

In summary, this national clinical audit provides information on planned home births in Ireland. This report offers an informative resource for clinicians to inform mothers in a clear and transparent manner in relation to planned home birth as a delivery option in Ireland. Clinical audit by the Home Birth Service in collaboration with the National Perinatal Epidemiology Centre will be on-going to ensure that care provision adheres to the standards and guidelines as included in the selection criteria and as specified in the Memorandum of Understanding and Agreement between the HSE and the SECMs. The National Perinatal Epidemiology Centre in collaboration with the Designated Midwifery Officers continue to develop the audit tool for home births in order for this to be achieved. It is hoped that hospital-based home birth services will also partake in the audit and therefore allow added information about options of care for women during pregnancy and delivery.

Purpose of this report

The primary aim of this report is to present an overview and national statistics on the home births service in the Republic of Ireland for the year 2016. This clinical audit is a national record of planned home births in the Republic of Ireland for 2016. The purpose of the audit is to examine both the maternal and fetal outcomes of planned home births, including outcomes whereby the care of the woman is transferred for hospital care in the antenatal period, during labour or the postnatal 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 an expectant mother enquires about having a home birth, she can contact a Designated Midwifery Officer (DMO) or the SECM directly. The expectant woman and the SECM discuss the criteria for home births and agree on eligibility for the service. An application form and consent is signed between the SECM and the woman, and then forwarded to the DMO to confirm eligibility, as 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 expectant mothers GP, the Director of Midwifery at the maternity hospital where the mother is booked and the Administration Department of the HSE, Local Health Office (LHO) about the forthcoming home birth. Expectant mothers intending to have a home birth are advised by the SECM to register with a GP and also to register and avail of antenatal services with a maternity hospital of their choice. The SECM will be the primary carer for the mother and child up to the age of 14 days.

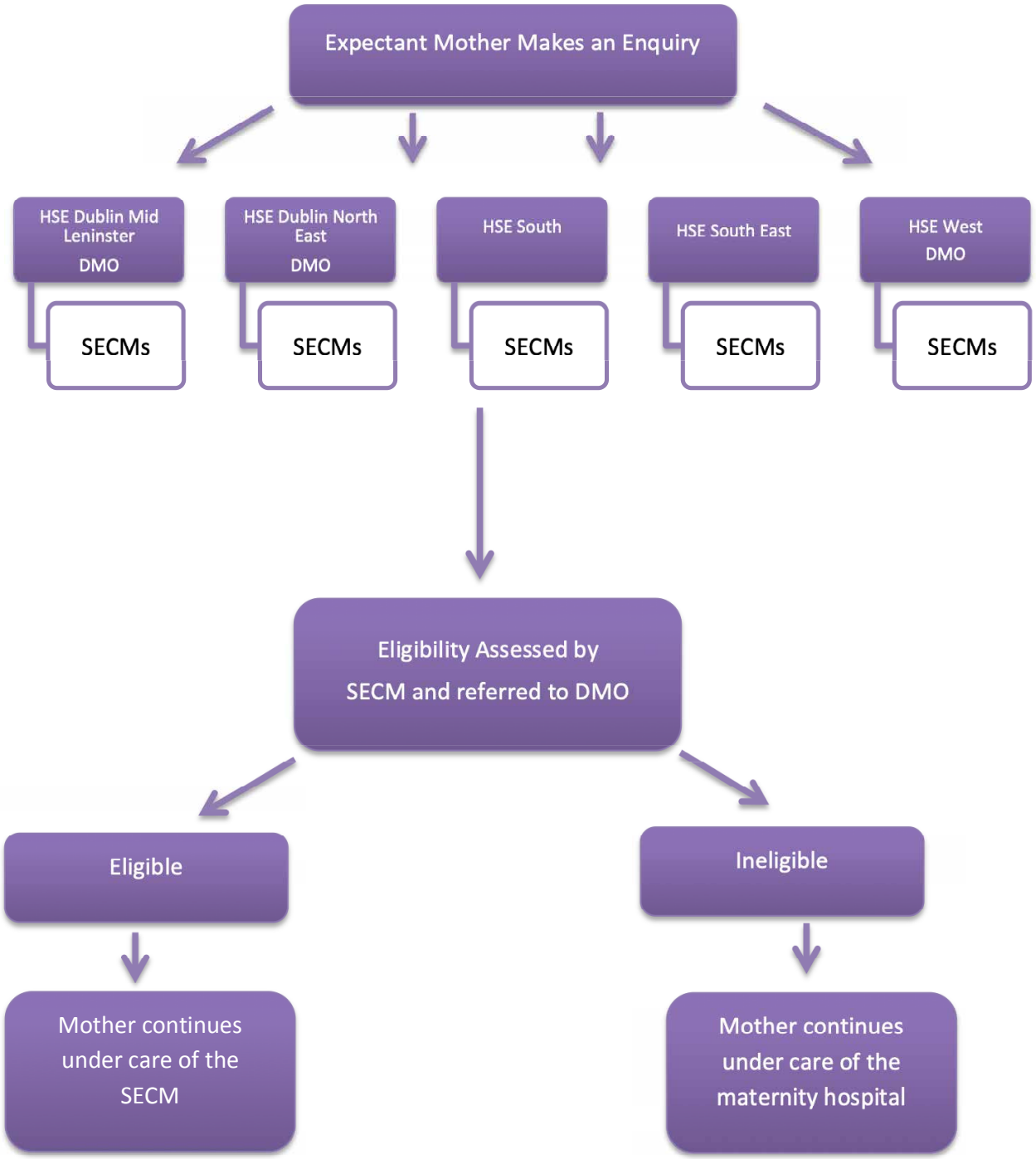


Figure 1: Pathway of care for planned home birth enquiries

Methods

Data recording

In 2016, 20 primary Self Employed Community Midwives (SECMs) in Ireland provided a home birth service on behalf of the Health Service Executive (HSE). As outlined in the MOU between HSE and the SECMs, each SECM is required to partake in clinical audit. Maternity records of midwifery care are sent by the SECM to the Designated Midwifery Officer (DMO) in their respective HSE area. The DMO reviews the maternity records, then collates the data using a standardised audit tool and that data are forwarded to the National Perinatal Epidemiology Centre (NPEC) for analysis. Data on all of the women who registered with the home birth service between January 1 and December 31 2016 were collected from all DMOs using a standardised NPEC data collection form. Figure 1 illustrates the flow of information. Each SECM forwards case notes to the DMO in their respective HSE area.

Missing data

To ensure accuracy of information, missing or incomplete data were sought from respective SECM and maternity units by the DMO. For analysis purposes, cases with missing data were excluded from calculations. However, the extent of missing data is reported in the results section.

Comparison to national statistics

Comparisons are made with the most recent publications available including the Central Statistics Office's Vital Statistics Fourth Quarter and Yearly Summary report as well as from the Healthcare Pricing Office.

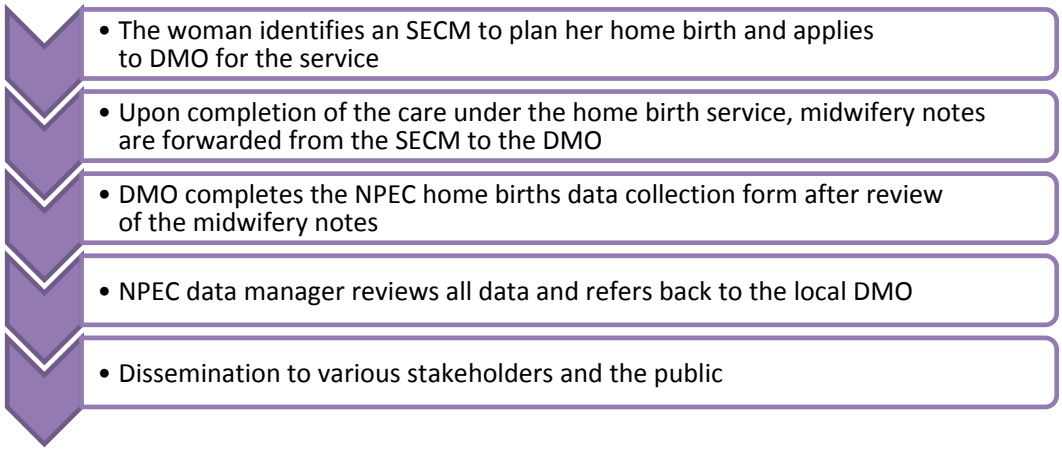


Figure 2: Flow of information in the NPEC data collection process.

Definitions and terminology

Women who are considered low risk, within an agreed criterion, are eligible for home birth in Ireland. To ensure comparison the DMO and the NPEC used the following definitions which are included in this report:

Exclusion Criteria: Table 1 and Table 2 of the HSE MOU/Agreement for home birth services outline medical and other factors requiring planned birth in an obstetric unit (Appendix B). Table 3 and Table 4 of the HSE MOU/ Agreement for home birth services outline medical and other conditions requiring referral to consultant obstetrician by the midwife for final assessment when planning place of birth.

Antepartum Referrals: Referral to hospital due to complications which have arisen during pregnancy.

Intrapartum Transfer: Hospital transfer during labour. Table 5 of the HSE MOU/Agreement for home birth services outlines indications for intrapartum transfer (Appendix D).

Postpartum Transfer: Hospital transfer following birth. Table 6 of the HSE MOU/Agreement for home birth services outlines indications for postpartum transfer (Appendix F).

Booking: Data sought by the NPEC Home Births Data Collection Form relate to the time of booking with both the maternity hospital and/or the SECM. For the purposes of this report, booking relates to the mother's first antenatal visit with the Self Employed Community Midwife.

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 2016.

Gravida: The number of times the mother has been pregnant, irrespective of duration; prior to the home birth in 2016.

Results

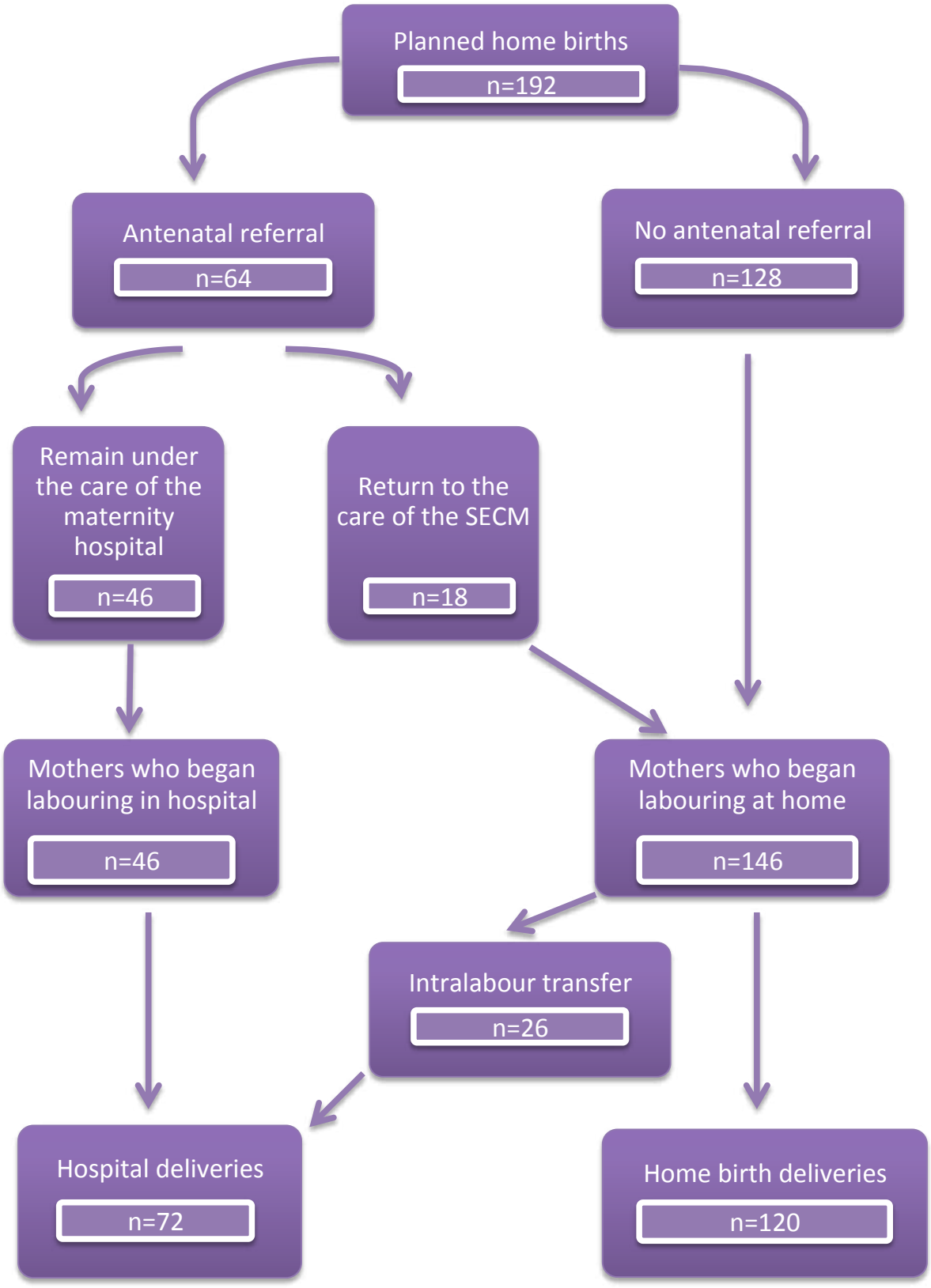


Figure 3: Flowchart of planned home births, 2016

For the period from January 1st to December 31st 2016, there were 192 mothers who intended on having a home birth. This equates to a 15.8% reduction in the number of women who intended on having a home birth in 2015 (n=228). The number of home births were not evenly distributed over the year where the lowest number of births occurred in July (5.7%) and the highest occurred in May (10.4%).

The distribution of home births by Health Service Executive (HSE) region is markedly different to the overall distribution of births. The percentage of home births ranged from 13.0% in HSE Dublin North East, 14.1% in both HSE Dublin Mid Leinster and HSE West, with 58.8% in HSE South (Table 1). These figures see a reduction in the proportion of home births in HSE West compared to the distribution of home births from 2013 to 2015. The overrepresentation of home births in HSE South persists from previous years.

Table 1: Distribution of mothers intending on having a home birth by HSE area, 2013 -2016

HSE area	Home births (2013) N=258	Home births (2014) N=252	Home births (2015) N=228	Home births (2016) N=192
Dublin North East	40(15.5)	38(15.1)	24(10.5)	25(13.0)
Dublin Mid Leinster	50(19.4)	50(19.8)	29(12.7)	27(14.1)
West	51(19.8)	44(17.5)	49(21.5)	27(14.1)
South	117(45.3)	120(47.6)	126(55.3)	113(58.8)

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

Maternal Characteristics

Age

The age range of the mothers who booked in for a home birth was 20-43 years. Consistent with data from 2015, home birth women tended to be older than all mothers who gave birth in Ireland (Table 2). Three quarters of women (79.7%) intending to give birth at home were aged 30-39 years compared to 63.6% of all women.

Table 2: Age distribution of mothers intending on having a home birth, 2015 and 2016

Age group	Home births (2015*)	Home births (2016)	All births[1] N=64,093 2016
<20yrs	1(0.4)	-	1.7%
20-24yrs	8(3.5)	6(3.1)	7.9%
25-29yrs	35(15.4)	18(9.4)	17.3%
30-34yrs	92(40.5)	76(39.6)	35.0%
35-39yrs	78(34.4)	77(40.1)	28.6%
>40yrs	13(5.7)	15(7.8)	6.7%

Note: Values are shown as n (%) unless otherwise stated. *Maternal age unknown for one mother.

Marital status

As outlined in Table 3, consistent with previous years, almost all the women who intended on having a home birth were either married (68.8%; n=132) or with a partner (17.7%; n=34).

Table 3: Marital status of mothers intending on having a home birth, 2015 and 2016

Marital status	Home births (2015)	Home births (2016)
Married	149(65.4)	132(68.8)
Partner	47(20.6)	34(17.7)
Never Married	31(13.6)	23(12.0)
Separated	0(0)	2(1.0)
Divorced	0(0)	0(0)
Widowed	0(0)	0(0)
Unknown	1(0.4)	1(0.5)

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

Ethnicity

Over three-quarters of the mothers who booked for a home birth were of white Irish ethnicity which is consistent with the percentage of white Irish who booked for a home birth in 2015 (75.3% versus 73.7%). The proportion of women with another white background, who booked for a home birth in 2016, is over representative of those in the female population aged 15-49 years (Table 4). The numbers of Asian/Asian Irish and Black/ Black Irish ethnicities are small but are under representative of the population.

Table 4: Ethnicity of mothers intending on having a home birth, 2015 and 2016

Ethnicity	Home births (2015)	Home births (2016)	15-49 year old female population 2016
White Irish	168(73.7)	147(76.6)	79.2%
Irish Traveller	0(0)	0(0)	0.7%
Other white background	55(24.1)	42(21.9)	13.7%
Asian/Asian Irish, Black/Black Irish, Other/mixed	5(2.2)	3(1.5)	6.3%

Note: Values are shown as n (%) unless otherwise stated. Population data from the National Census 2016.

Distance of the mother's residence to services

Data related to the distance of the woman's residence to the SECM and the nearest maternity hospital were available for 183 women. As outlined in Figure 5, almost half of the women were within 30 kilometres of the SECM (45.9%; n=84). The furthest distance from the woman's residence to the SECM was 103 kilometres. Over half of women were within 30 kilometres of the maternity hospital (59.6%; n=109). The furthest distance from the woman's residence to the maternity hospital was 106 kilometres.

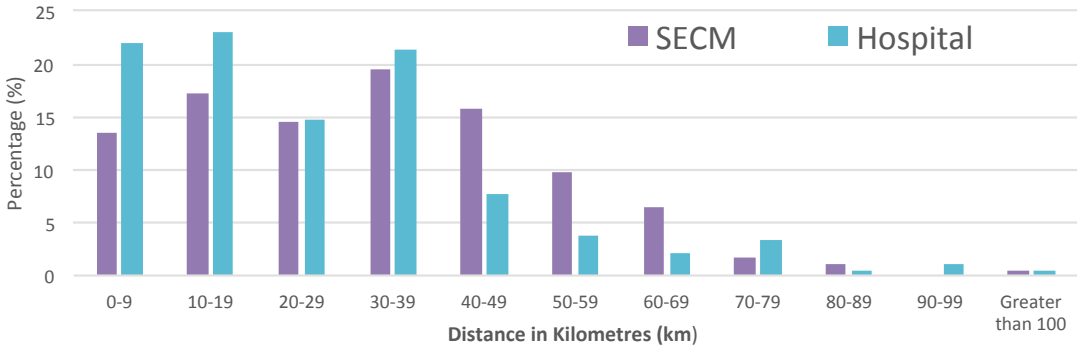


Figure 4: Distance (km) of woman from the SECM and the Maternity Hospital, 2016

Body mass index

Body mass index (BMI) was available for 82.3% (n=158) of women (Table 5). The BMI for two-thirds of women (65.2%; n=103) was in the healthy range (18.5-24.9kgm^{-2}). Almost one quarter (22.8%; n=36) were classified as overweight (25.0-29.9kgm^{-2}).

Table 5: Body mass index of mothers intending on having a home birth, 2015 and 2016

BMI Category (kgm^{-2})	Home births (2015*)	Home births (2016**)	Healthy Ireland Survey 2015 (%)[3]
Underweight (<18.5)	0(0)	1(1.9)	3
Healthy (18.5-24.9)	98(70.5)	103(65.2)	44
Overweight (25.0-29.9)	31(22.3)	36(22.8)	31
Obese (>30.0)	10(7.2)	16(10.1)	22

Note: Values are shown as n (%) unless otherwise stated. *BMI unknown for 90 mothers *BMI unknown for 34 mothers

Smoking and alcohol consumption

Smoking status of the mothers at their time of booking was recorded for all of the 192 women (100.0%). Six women (3.1%) were smokers at the time, three of whom gave up during pregnancy. These figures suggest a 50% (3 of 6) cessation rate although this estimated rate is based on small numbers. Thus, three of the 192 (1.6%) women smoked throughout their pregnancy. Alcohol consumption was known for all of the 192 women. Of these the vast majority of mothers (82.8%; 159) did not consume alcohol during pregnancy. Of the 33 who drank alcohol during pregnancy, 32 drank alcohol monthly or less.

Previous pregnancy

As indicated in Table 6, three-quarters of the women who intended on having a home birth had a previous birth (142 of 192, 74.0%). Table 7 specifies gravida/parity for all 192 women who intended on having a home birth in 2016. A quarter of women (n=50, 26.0%) were never pregnant before (gravida=0). Of the women who had been pregnant (gravida > 0), three quarters (n=107 of 142, 75.4%) had completed pregnancies (gravida = parity, indicated by green shading); 20% (n=29 of 142, 20.4%) experienced completed pregnancies but also experienced at least one pregnancy less than 24 weeks gestation and under 500g birthweight (gravida > parity > 0, indicated by orange shading) and 4% (n=6 of 142, 4.2%) experienced pregnancies which resulted in miscarriages i.e. their previous pregnancies never exceeded 24 weeks gestation or 500g birthweight (gravida > parity = 0, indicated by red shading).

Table 6: Distribution of parity of mothers intending on having a home birth, 2016

Parity	Home births (2016)	All Births[1] 2016 N=64,093
Nulliparous	50(26.0)	24,452(38.2)
Parous	142(74.0)	39,641(61.8)

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

Table 7: Gravida/parity of mothers prior to pregnancy in 2016

	Parity							
	0	1	2	3	4	5	6	Total
0	50							50
1	4	64						68
2	1	5	30					36
3	0	1	9	8				18
4	1	3	3	4	3			14
5	0	0	1	0	3	1		4
6	0	0	0	0	0	0	1	1
Total	56	73	43	12	6	1	1	192

Note: We refer to gravida and parity prior to the pregnancy in 2015. 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

Obstetric and medical conditions

All but six women registered during pregnancy with their general practitioner. There are 30 recorded incidences where general practitioners refused to provide shared care (15.6%). All but two women registered with a maternity unit of their choice.

Of the 142 women who had a previous pregnancy, three (2.1%) were reported to have had a previous medical or obstetric problems as outlined in Appendix B which included history of depression, Group B Streptococcus infection and gestational diabetes mellitus.

Of the 192 women who intended on having a home birth, 37 mothers (19.3 %) were reported to have a medical or an obstetric problem as outlined in Appendix B and or Appendix C (Table 8 & 9). All of the 39 women were reviewed by a consultant obstetrician in a maternity unit.

Table 8: Medical conditions and other factors requiring planned birth in an obstetric unit

	N=8
Breech	1
Epileptic	1
Gestational diabetes	1
Group B Streptococcus	1
Preterm labour	1
Polyhydramnios	2
Unstable lie	1

Table 9: Medical conditions and other factors requiring referral to consultant obstetrician by the midwife for final assessment when planning place of birth

	N=28
Age over 40 at booking	3
Antepartum haemorrhage	2
Body mass index at booking of >35	4
Bowel resection for Crohns disease	1
Congenital syphilis	1
Extensive vaginal, cervical or third-degree or fourth-degree perineal trauma	2
Fetal abnormality	1
Haemoglobin less than 10	1
History of a large loop excision of the transformation zone procedure	3
History of previous baby more than 4.5kgs	1
History of retained placenta	1
Hypothyroidism	2
On Aspirin 70mgs/daily for recurrent miscarriages	1
Sixth pregnancy	2
Under current outpatient psychiatric care	2
Uterine fibroid	1

Note: Factors are not mutually exclusive and therefore percentages add up to over 100%

Planning for the delivery

Of the 192 women who intended on having a home birth, 189 (98.4%) had an antenatal ultrasound scan. Estimated date of delivery (EDD) was calculated using ultrasound scan in the majority of cases (82.3%; 158). For the remainder of the women, EDD was calculated using both date of last menstrual period (LMP) and scan (9.5%; 18) or LMP only (8.3%; 16). Gestation was recorded for 187 of the 189 women who had an antenatal ultrasound scan. One-third of women had an antenatal ultrasound scan at 12 weeks gestation or earlier (32.6%; 61) and two thirds of the women had a scan between 12 and 19 weeks gestation (62.0%; 116). Fewer women had their antenatal ultrasound scan at 20 weeks gestation or later in 2016 compared to women who intended on having a home birth in 2015 (Table 10).

Table 10: Weeks gestation at antenatal ultrasound scan, 2015 and 2016

Gestation	Home births (2015*)	Home births (2016**)
Less than 12 Weeks	44(20.8)	61(32.6)
12-19 Weeks	140(66.0)	116(62.0)
20 Weeks or Later	28(13.2)	10(5.3)

Note: Values are shown as n (%) unless otherwise stated. * Gestation at scan unknown for 5 mothers. ** Gestation at scan unknown for 2 mothers.

The number of antepartum visits by the midwives to women intended on having a home birth ranged from one to 14 visits. The mean number of visits to the women was seven. As indicated in Table 11, the majority of attendances by the midwife for both nulliparous and parous women were between four and nine (94.0% and 79.4%).

Table 11: Number of antenatal visits to the SECM, 2016

	Nulliparous (n=50)	Parous (n=140*)
Up to 3 visits	0(0)	7(5.0)
4-6 visits	26(52.0)	64(45.7)
7-9 visits	21(42.0)	50(35.7)
10-12 visits	6(6.0)	15(10.7)
13-15 visits	0	4(2.9)

Note: Values are shown as n (%) unless otherwise stated. *Number of antenatal visits unknown for 2 mothers.

Antenatal referrals

Of the 192 women intending to have a home birth, 64 (33.3%) were referred to a maternity hospital due to complications arising during the antenatal period. In contrast to previous years, there was no difference in the rate of referral to the maternity hospital in the antenatal period by parity (32.0% versus 33.8%; Table 12).

Table 12: Antenatal referral by parity, 2016

	Nulliparous (n=50)	Parous (n=142)
No antenatal referral	34(68.0)	94(66.2)
Antenatal referral	16(32.0)	48(33.8)

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

Table 13: Reasons for antepartum transfer, 2016

	Nulliparous (n=16)	Parous (n=48)
Abdominal cramps		1(2.1)
Bleeding		4(8.3)
Breech presentation	3(18.8)	-
Bulging membranes	-	1(2.1)
Epilepsy	-	1(2.1)
Gestational diabetes mellitus	-	3(6.3)
Group B Streptococcus infection		1(2.1)
High head	-	1(2.1)
Hypertension	3(18.8)	2(4.2)
Induction of labour	5(31.5)	5(10.4)
Large for gestational age	-	2(4.2)
Low haemoglobin at term	-	1(2.1)
Low liquor	-	1(2.1)
Maternal request – lack of social support	-	1(2.1)
Meconium Stained Liquor on SROM	-	2(4.2)
Polyhydramnios diagnosed on ultrasound	-	1(2.1)
Post maturity	4(25.0)	7(14.6)
Premature rupture of membranes	1(6.3)	2(4.2)
Prolonged rupture of membranes	-	4(8.3)
Pruritic urticarial papules and plaques of pregnancy	-	1(2.1)
Raised liver function	-	1(2.1)
Reduced fetal movements	2(12.5)	-
Required antibiotics	-	1(2.1)
Small for gestational age	2(12.5)	3(6.3)
Suspected influenza	-	1(2.1)
Suspected abnormality of the heart	-	1(2.1)
Unstable lie	-	2(4.2)
Vomiting	1(6.3)	-

*Not mutually exclusive

Of the 64 women referred to the maternity hospital for antenatal care a quarter of the women (28.1%; n=18) were returned to the care of the SECM. There were two adverse outcomes identified for women who initially registered with the home birth service and who subsequently transferred to the maternity hospital during antenatal care.

Of the 46 women who were referred to the maternity hospital, and did not return to the care of the SECM, the majority had a spontaneous vertex delivery (71.7%; n=33). Nulliparous women were more likely to have a caesarean section delivery than parous women (15.4% versus 9.1%; see Table 14). The mode of delivery was unknown for one quarter of women (10.9%; n=5).

Table 14: Mode of delivery for women with an antenatal transfer and did not return to the care of the SECM, 2016

	Nulliparous (n=13)	Parous (n=33)
Spontaneous Vertex	5(38.5)	28(84.8)
Vaginal Breech	0(0)	0(0)
Ventouse	2(15.4)	0(0)
Forceps	1(7.7)	0(0)
Caesarean Section	2(15.4)	3(9.1)
Unknown	3(23.1)	2(6.1)

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

Intrapartum Transfers

Of the 146 women who began labouring at home 26 (17.8%) were transferred to a maternity hospital. Of these women 30.8% were transferred by ambulance (n=8). It took between 6 and 75 minutes to transfer these women from their homes to the maternity hospital. The average time it took to transfer women from their home to the maternity hospital was 36 minutes. As demonstrated in Table 15, nulliparous women were 2.5 times more likely to transfer during labour than parous women (32.4% versus 12.8%).

Table 15: Intrapartum transfer rates by parity, 2016

	Nulliparous (n=37)	Parous (n=109)
Home birth not transferred	25(67.6)	95(87.2)
Intrapartum transfer	12(32.4)	14(12.8)

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

Over three-quarters of intrapartum transfers occurred during the first stage of labour (80.8%; n=21). As outlined in Table 16, one nulliparous woman required transfer during the 3rd stage of labour.

Table 16: Stage of labour when transferred, 2016

	Nulliparous (n=12)	Parous (n=14)
1st Stage	8(66.7)	13(92.9)
2nd Stage	3(25.0)	1(7.1)
3rd Stage	1(8.3)	0(0)

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

As indicated in Table 17, almost one quarter of intrapartum transfers to the maternity unit were associated with failure to progress in labour (23.1% n=6). One in 5 women were transferred with meconium stained liquor (19.2%; n=5).

Table 17: Reasons for intrapartum transfer, 2016

	Nulliparous (n=12)	Parous (n=14)
Antepartum haemorrhage	-	2
Decelerations in fetal heart rate	2	-
Failure to progress in labour	3	3
GBS positive	-	1
Maternal request for analgesia	2	2
Meconium stained liquor	1	4
Parental request	1	-
Persistent Fetal tachycardia	1	-
Preterm labour		1
Prolonged rupture of the membranes	1	
Prolonged rupture of the membranes		1
Retained placenta	1	-

As indicated in Table 18, the mode of delivery was unknown for three women who transferred during labour to the maternity unit. Of the 23 recorded, half of women had a spontaneous vaginal delivery (26.5%; n=13 of 23).

Table 18: Mode of delivery for women with an intrapartum transfer, 2016

	Nulliparous (n=12)	Parous (n=14)
Spontaneous Vertex	3(25.0)	10(71.4)
Vaginal Breech	0(0)	0(0)
Ventouse	4(33.3)	1(7.1)
Forceps	2(16.7)	0(0)
Caesarean Section	3(25.0)	0(0)
Unknown	0(0)	3(21.4)

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

Medical interventions

Of the 26 women who transferred during labour, 4 (15.4%) had an epidural. No women were reported to have had a blood transfusion. One adverse incident was documented for women who had an intrapartum transfer to the maternity hospital. None of the infants who were born in hospital following an intrapartum transfer were admitted to the neonatal unit. Two of the 26 infants (7.7%) needed resuscitation, both infants were resuscitated with suction only.

Home birth deliveries

Delivery

The distribution of home births by HSE region was similar to the distribution of planned home births (Table 19).

Table 19: Distribution of mothers intending on having a home birth by HSE area, 2016

	Planned Home births N=192	Home births N=120
Dublin North East	25(13.0)	15(12.5)
Dublin Mid Leinster	27(14.1)	14(11.7)
West	27(14.1)	19(15.8)
South	113(58.8)	72(60.0)

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

Of the women who birthed at home, rupture of membranes occurred spontaneously in the vast majority of cases (Table 20). Liquor was clear in almost all cases (Table 21). Women who gave birth in the maternity hospital, irrespective of parity, were more likely to have meconium stained liquor.

Table 20: Rupture of membranes, 2016

	Nulliparous		Parous	
	Home	Hospital*	Home	Hospital**
Spontaneous	25(100)	11(55.0)	93(97.9)	26(68.4)
Artificial	0(0)	6(30.0)	1(1.1)	9(23.7)
Neither	0(0)	3(15.0)	1(1.1)	3(7.9)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for five woman. **Data missing for nine women.

Table 21: Liquor colour, 2016

	Nulliparous		Parous	
	Home	Hospital*	Home	Hospital**
Clear	25(100)	15(88.2)	92(96.8)	27(77.1)
Meconium	0(0)	2(11.8)	2(2.1)	7(20.0)
Other	0(0)	0(0)	1(1.1)	1(2.9)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for eight women. **Data missing for 113 women.

As indicated in Table 22, A Self Employed Community Midwife (SECM) was present at the vast majority of births (94.2%). A second midwife was also present at the majority of births (80.8%). Of the 120 women who birthed at home, seven infants were born before the arrival of either an SECM or a second midwife (5.8%).

Table 22: Who was present at the birth by HSE area, 2016

	Overall (n=120)	Dublin NE (n=15)	Dublin Mid-Leinster (n=14)	West (n=19)	South (n=72)
SECM	113(94.2)	14(93.3)	12(85.7)	18(94.7)	69(95.8)
Second Midwife	97(80.8)	9(60.0)	6(42.9)	18(94.7)	64(88.9)
Doula	1(0.8)	0(0)	0(0)	0(0)	1(1.4)
Partner	115(95.8)	13(86.7)	12(85.7)	19(100)	71(98.6)
Other	11(9.2)	4(26.7)	5(35.7)	1(5.3)	1(1.4)

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

Duration of labour

Over half of all the women laboured between three and six hours (mean duration 4.9 hours). The longest labour for women who birthed at home was 17 hours. As expected (Figure 6), parous women laboured faster with almost one third of those women having laboured for less than three hours (30.3%).

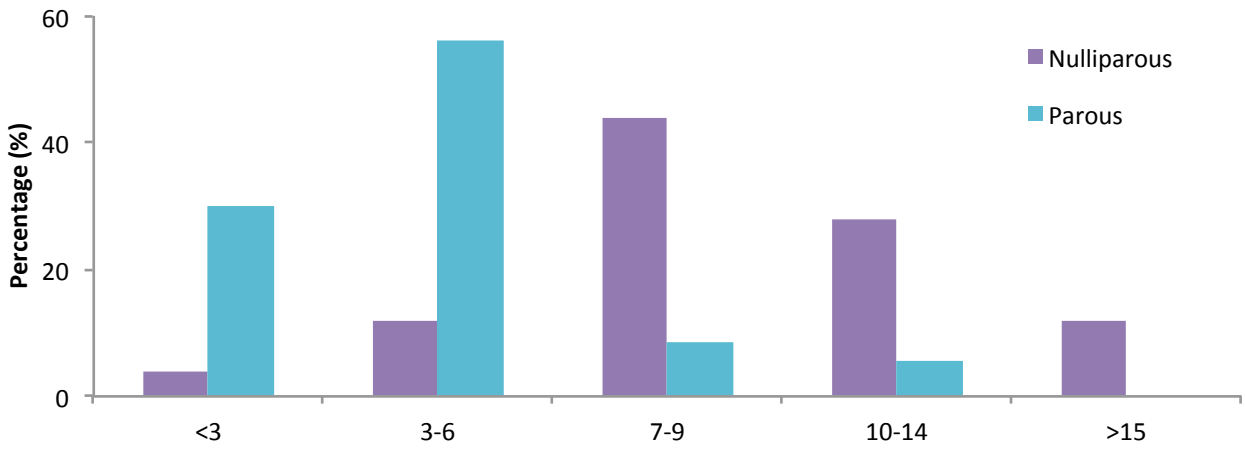


Figure 5: Duration of labour (hours completed) by parity, 2016

As documented in Table 23 there was some variation in maternal position for birth. Most women gave birth while kneeling (42.5%; 51). One fifth of parous women birthed on all fours (22.1%; n=21).

Table 23: Maternal position for birth by parity, 2016

	Nulliparous		Parous	
	Home	Hospital	Home	Hospital*
Kneeling	8(32.0)	1(4.0)	43(45.3)	14(29.8)
All fours	6(24.0)	0(0)	21(22.1)	5(10.6)
Standing	3(12.0)	0(0)	8(8.4)	1(2.1)
Squatting	2(8.0)	0(0)	7(7.4)	1(2.1)
Sitting	2(8.0)	6(24.0)	3(3.2)	7(14.9)
Other	4(16.0)	13(52.0)	13(13.7)	8(17.0)
Unknown	0(0)	5(20.0)	0(0)	4(8.5)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for five women

Management of the third stage of labour

The vast majority of women who gave birth at home had a physiological third stage of labour (79.2 %; n=95). One in every 4 nulliparous women had active management at home (24.0%; Figure 7). Of the 25 women who had active management in the home, syntocinon was administered in 10 cases, syntometrine in 13 cases and one woman had both syntocinon and syntometrine administered. Of the women who birthed in a maternity unit management of the third stage of labour was recorded in 68 of the 72 cases (94.4%). Of these women two thirds (64.8%; n=42) had active management.

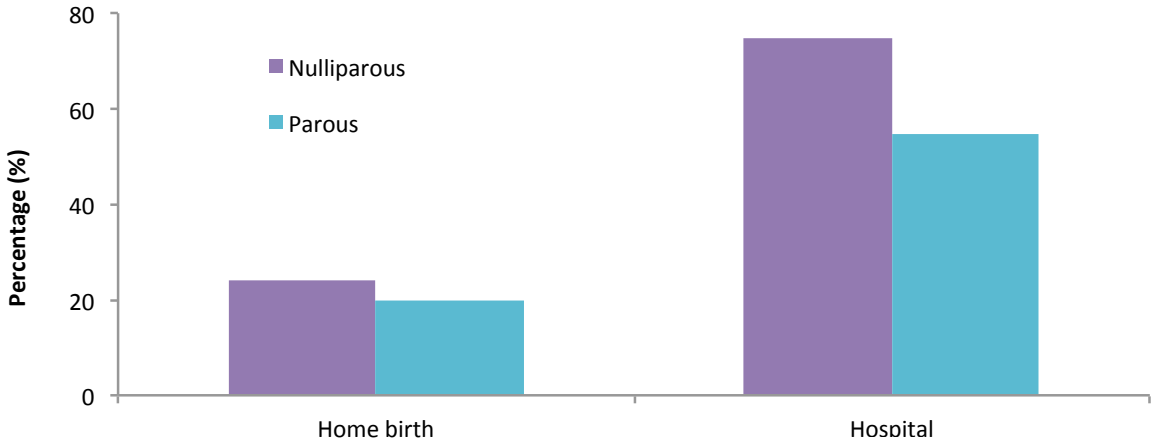


Figure 6: Active management of the third stage of labour, 2016

Pain Relief

Type of pain relief was recorded for all 120 women who gave birth at home (Figure 8). Half of the women used no pain relief (50.0%; n=60). Nulliparous women were almost twice as likely to use water as a type of pain relief than parous women (60.0% versus 32.6%). Of the 120 recorded, 33 women who had a home birth had a water birth (27.5%).

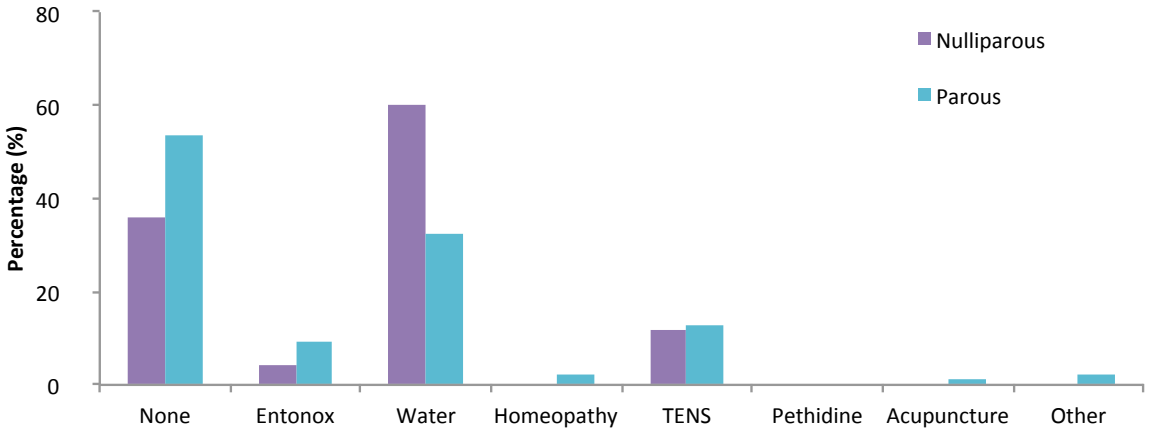


Figure 7: Pain relief used by women delivered in the home, 2016

Other incidences at birth

No cases of shoulder dystocia were reported for the 120 women who gave birth at home. For half of the women (50.8%) who gave birth at home the perineum remained intact (Table 24). Of those who birthed at home, parous women were more likely to have their perineum intact than nulliparous women (54.7% versus 36.0%). More than three times as many nulliparous women who gave birth in the hospital following transfer were reported to have had an episiotomy compared to nulliparous women who gave birth at home (12.0% versus 41.%). A higher number of nulliparous women who gave birth at home underwent perineal suturing than parous women who gave birth at home (44.0% versus 23.2%).

Table 24: Perineal Outcomes, 2016

	Nulliparous		Parous	
	Home	Hospital*	Home	Hospital**
Intact	9(36.0)	6(25.0)	52(54.7)	23(52.3)
Episiotomy	3(12.0)	10(41.7)	0(0)	4(9.1)
1st Degree Tear	4(16.0)	3(12.5)	18(18.9)	6(13.6)
2nd Degree Tear	9(36.0)	2(8.3)	24(25.3)	7(15.9)
3rd Degree Tear	0(0)	0(0)	1(1.1)	0(0)
4th Degree Tear	0(0)	0(0)	0(0)	0(0)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for four women. **Data missing for three women.

Estimated blood loss at delivery

The average estimated blood loss for those who delivered at home was 254 ml. All bar one woman who birthed at lost either 100-249ml or 250-499ml of blood. The maximum recorded blood loss was estimated at 1,000 ml (Figure 9).

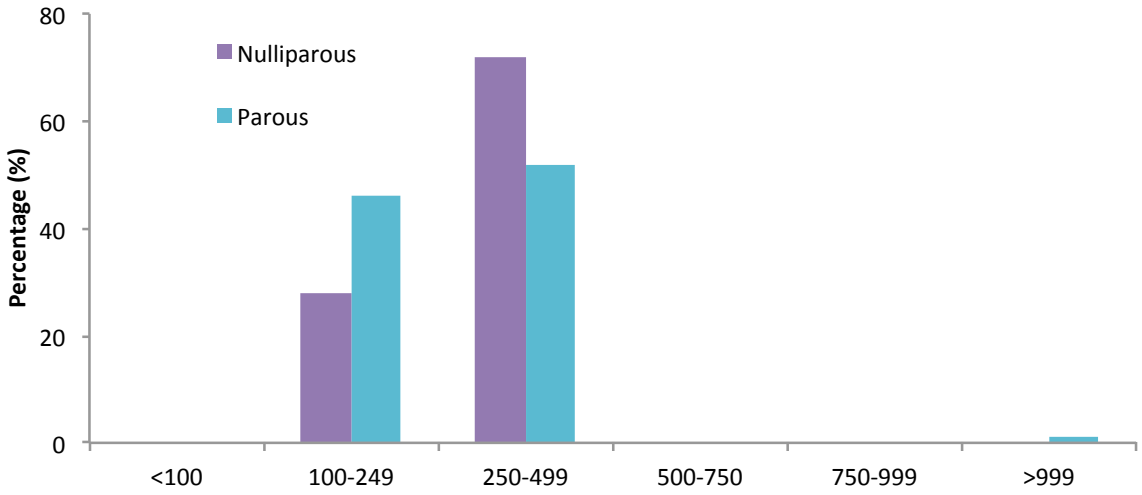


Figure 8: Estimated blood loss at delivery for women who delivered in the home, 2016

Characteristics of babies who were delivered at home

Of the 120 infants born at home, 63 were male (52.5%) and 57 were female (47.5%). The mean birth weight for infants born at home was 3,690 grams. Two-thirds of infants delivered at home had a birth weight between 3,000 and 3,999 grams (65.9%; n=79). Over a quarter of infants (26.7%) who were delivered at home had a birth weight between 4,000 and 4,499 (Figure 10). There was one low birth weight infants (less than 2,500 grams) born at home.

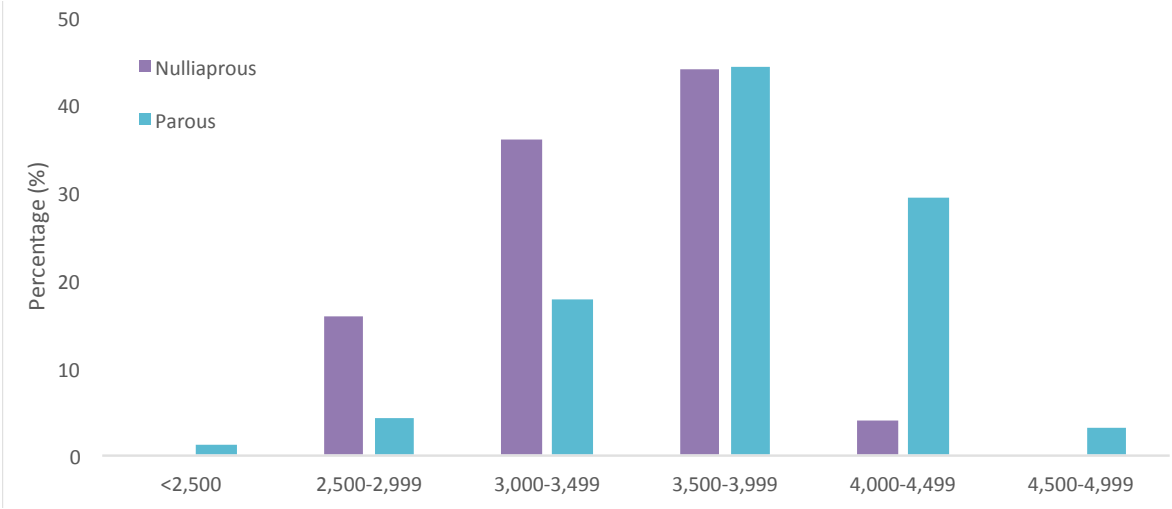


Figure 9: Distribution of birth weight in infants delivered in the home, 2016

Apgar scores

Data on Apgar score was missing for five infants at one minute, and three infants at five minutes. Of those recorded, only one in ten infants (10.4%; n=12) had an Apgar score of seven or eight at one minute after birth (Figure 11). At five minutes the majority of infants had an Apgar score of either nine (25.6%; n=30) or ten (72.6%; n=85).

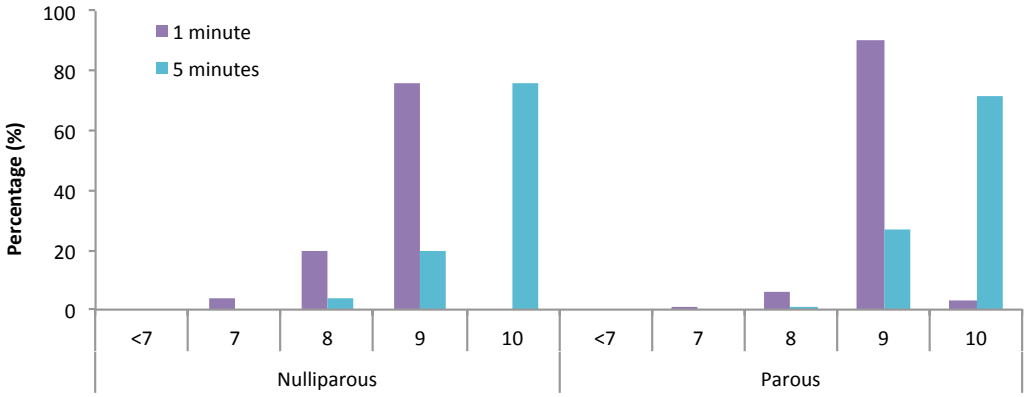


Figure 10: Apgar scores at 1 and 5 minutes for infants delivered in the home, 2016

Resuscitation

Five of the 120 infants born at home (4.2%) needed some form of resuscitation. One infant received tactile simulation, two of the five infants were resuscitated with suction only, and two infants were resuscitated by intermittent positive pressure ventilation as well as receiving oxygen.

Delivery examination and screening

Six of the 120 infants (5.0%) were suspected of having a congenital abnormality specifically: congenital dermal melanocytosis, right undescended testicle and four infants with suspected tongue tie. The National Newborn Bloodspot Screening Programme was performed on 97.5% of the infants (n=117).

As outlined in Table 25, medical examination of the newborn was carried out by a general practitioner in 86.7% (n=104) of cases where the infant was birthed at home. Data on medical examination was recorded for for 65 of the 72 infants born in the maternity unit following transfer. If those recorded, examination was undertaken by a hospital paediatrician for all bar one infant who was examined by a general practitioner (98.5%; n=64).

Table 25: Medical examination of the newborn, 2016

	Home	Hospital*
General Practitioner	104(86.7)	1(1.5)
Hospital Paediatrician	16(13.3)	64(98.5)
Not carried out	0(0.0)	0(0)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for seven infants

Of the infants who were birthed at home, two thirds had vitamin K administered either orally (65.3%, n=77). One in five infants who were born at home had vitamin K administered by intramuscular injection (21.2%; n=25). Vitamin K was not administered to 13.5% (n=16) of infants born at home versus 6.2% (n=4) of those infants born in the hospital following transfer (Table 26).

Table 26: Vitamin K administration, 2016

	Home*	Hospital**
Administered orally	77(65.3)	21(32.3)
Administered IM	25(21.2)	39(60.0)
Not administered	16 (13.5)	4(6.2)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for two infants. **Data missing for seven infants

Method of feeding

Method of feeding was recorded on both day one and on day of discharge from the care of the SECM. As outlined in Table 27, the vast majority of mothers were exclusively breastfeeding on both day one (98.3%, n=118) and on day of discharge (95.8, n=115). Mothers who birthed at home were twice as likely to breastfeed exclusively as the total population[4] on day of discharge (95.8% v 48.0%).

Table 27: Method of feeding, 2016

	Day one		Day of Discharge	
	Home	Hospital*	Home	Hospital*
Exclusive breastfeeding	118(98.3)	63(96.9)	115(97.5)	64(98.5)
Partial breastfeeding	0(0)	2(3.1)	3(2.5)	1(1.5)
Artificial	2(1.7)	0(0)	2(1.7)	0(0)

Note: Values are shown as n (%) unless otherwise stated. *Data missing for seven women.

Infant Transfers

Four of the infants delivered at home were transferred to hospital for reasons specified in Table 28. Three of the four infants were transferred by private care with one infant transferred by ambulance. Three of the four infants were admitted into the Neonatal Intensive Care Unit.

Table 28: Reasons for infant transfer, 2016

	n
Left clavicle fracture	1
Meconium at birth & sternal recession	1
Respiratory distress and hypoglycaemia.	1
Suspected sepsis and jaundice requiring phototherapy	1

Postnatal transfers

Eight women were transferred in the postnatal period for care in a maternity unit. Of the eight women four were transferred by private car and the remaining three women were transferred by ambulance. Indications for transfer are outlined in Table 29.

Table 29: Reasons for maternal transfer postpartum, 2016

	n
Accompany infant during NICU stay	1
Chest pain	1
Group B Strep	1
Lack of bonding with the infant	1
Infection of episiotomy site	1
Mastitis	1
Primary postpartum haemorrhage	1
Third degree tear	1

Medical interventions undertaken in the maternity hospital included; the administration of antibiotics (25.0%; n=2), administration of blood products (12.5%; n=1) and spinal anaesthetic (12.5%; n=1).

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2) Central Statistics Office. (2016) Vital Statistics Yearly Summary 2015. Cork: Central Statistics Office
3) Ipsos MRBI (2015).Healthy Ireland Survey 2015. Dublin: The Stationery Office.
4) Healthcare Pricing Office. (2017) Perinatal Statistics Report 2015. Dublin: Health Service Executive
5) Central Statistics Office. Census Summary Statistics. http://www.cso.ie/en/csolatestnews/presspages/2017/census2016summaryresults-part1/

Appendix A: Designated Midwife Officers

HSE Area	Contact
Dublin Mid-Leinster	Anne Clarke Designated Midwifery Officer HSE Dublin Mid Leinster Mill Lane Palmerstown Dublin 20 Tel: (01) 6201698 Mobile: 086 4107217 Email: homebirth.dublinml@hse.ie
Dublin North East	Ann O'Byrne Designated Midwifery Officer HSE DNE, Health Service Executive Dublin North City 2nd Floor, Ballymun Health Care Facility Ballymun Dublin 9 Tel: (01) 8467159 Mobile: 087 9457094 Email: homebirth.dne@hse.ie
South	Jo Delaney & Siobhán Sweeney Designated Midwifery Officers Home Birth Service Cork & Kerry Old Dr's Residence, St. Finbarrs Hospital Cork Tel: (021) 4923483 Mobile: 087 2889499 Email: Homebirth.South@hse.ie
West	Mary T Gibbons Designated Midwifery Officer, HSE West Office of Nursing/Midwifery Service Directorate. Mobile: 087 0525060 E-mail: mary.gibbons@hse.ie

HSE Area	Contact
Carlow Kilkenny South Tipperary	Michelle Waldron Designated Midwifery Officer Project Officer NMPDU HSE South, Office Complex Kilcreene Hospital Campus Co. Kilkenny Tel: (056) 7785620 Mobile: 087 7585024 Email: michelle.waldron@hse.ie
Waterford	Janet Murphy Designated Midwifery Officer, Waterford Tel: (051) 842207 Mobile: 087 9243538 E-mail: Janet.Murphy1@hse.ie
Wexford	Susan Ryan Team Leader Integrated Hospital/Community Midwifery Service Maternity Unit, Wexford General Hospital, Newtown Road, Wexford. Tel: (053) 9142233 ext 3463 Mobile: 087 9192905 Email: susane.ryan@hse.ie

Note: The above details are of Designated Midwifery Officers in their current post at time of publication.

A list of the Self Employed Community Midwives is available from the following link to the HSE website;
http://www.hse.ie/eng/services/list/3/maternity/homebirth_services.html

Appendix B: Medical conditions and other factors suggesting/requiring planned birth in an obstetric unit

Table 1: Medical conditions indicating increased risk suggesting planned birth at an obstetric unit

Disease area	Medical condition
Cardiovascular	Confirmed cardiac disease Hypertensive disorders
Respiratory	Asthma requiring an increase in treatment or hospital treatment in current pregnancy Cystic fibrosis
Haematological	Haemoglobinopathies – sickle-cell disease, beta-thalassaemia major History of thromboembolic disorders Immune thrombocytopenia purpura or other platelet disorder or platelet count below 100,000 Von Willebrand's disease Bleeding disorder in the woman or unborn baby Atypical antibodies that carry a risk of haemolytic disease of the newborn
Infective	*Risk factors associated with group B streptococcus whereby antibiotics in labour would be recommended Infective hepatitis B or hepatitis C with abnormal liver function tests Carrier of/infected with HIV Toxoplasmosis – women receiving treatment Current active infection of chicken pox/rubella/genital herpes in the woman or baby Tuberculosis under treatment
Immune	Scleroderma Systemic lupus erythematosus
Endocrine	Diabetes Maternal thyrotoxicosis
Renal	Abnormal renal function Renal disease requiring supervision by a renal specialist
Neurological	Epilepsy Myasthenia gravis Previous cerebrovascular accident
Gastrointestinal	Liver disease associated with current abnormal liver function tests
Psychiatric	Psychiatric disorder requiring current in-hospital care

*Confirmed maternal colonisation with group B streptococcus in current pregnancy, pre-term labour <37weeks, pre-term pre-labour rupture of membranes, pre-labour rupture of membranes longer than 18 hours at onset of labour.

Table 2: Other factors indicating increased risk requiring planned birth at an obstetric unit

Factor	Additional information
Previous pregnancy complications	Unexplained stillbirth/neonatal death or previous death related to intrapartum difficulty [to be discussed with neonatologists and obstetrician] Previous baby with neonatal encephalopathy Pre-eclampsia requiring preterm birth Placental abruption with adverse outcome Eclampsia Uterine rupture Primary postpartum haemorrhage requiring additional pharmacological treatment or blood transfusion Caesarean section Shoulder dystocia Retained placenta requiring manual removal
Current pregnancy	Multiple birth Placenta praevia Pre-eclampsia or pregnancy-induced hypertension Post-term pregnancy [For medical review by 40 weeks +10 days' gestation]. Home birth feasible to day 14 post-term. Pre-term labour <37 +0 weeks' gestation Pre-term pre-labour rupture of membranes Body mass index at booking greater than 35kg/m^2 or less than 18 kg/m^2 Term pregnancy (37+0 to 42+0 weeks' gestation) rupture of membranes for more than 18 hours Placental abruption Anaemia – haemoglobin less than 10g/dl at onset of labour Confirmed intrauterine death Induction of labour Substance misuse Alcohol dependency requiring assessment or treatment Onset of gestational diabetes Malpresentation – breech or transverse lie Recurrent antepartum haemorrhage
Fetal indications	Small for gestational age in this pregnancy (less than fifth centile or reduced growth velocity on ultrasound) Abnormal fetal heart rate (FHR)/doppler studies Ultrasound diagnosis of oligo/polyhydramnios
Previous gynaecological history	Myomectomy Hysterotomy

Appendix C: Medical conditions and other factors requiring referral to consultant obstetrician by the midwife for final assessment when planning place of birth

Table 3: Medical conditions indicating individual assessment when planning place of birth

Disease area	Medical condition
Cardiovascular	Cardiac disease without intrapartum implications
Haematological	Atypical antibodies not putting the baby at risk of haemolytic disease Sickle-cell trait Thalassaemia trait
Infective	Hepatitis B/C with normal liver function tests
Immune	Nonspecific connective tissue disorders
Endocrine	Hyperthyroidism Unstable hypothyroidism such that a change in treatment is required
Skeletal/ neurological	Spinal abnormalities Previous fractured pelvis Neurological deficits
Gastrointestinal	Liver disease without current abnormal liver function Crohn's disease Ulcerative colitis

Table 4: Other factors indicating individual assessment when planning place of birth

Disease area	Medical condition
Previous complications	Stillbirth/neonatal death with a known non-recurrent cause Pre-eclampsia developing at term Placental abruption with good outcome History of previous baby more than 4.5 kg Extensive vaginal, cervical, or third- or fourth-degree perineal trauma Previous term baby with jaundice requiring exchange transfusion
Current pregnancy	Antepartum bleeding of unknown origin (single episode after 24 weeks of gestation) Blood pressure of 140 mmHg systolic or 90 mmHg diastolic on two occasions Clinical or ultrasound suspicion of macrosomia Para 5 or more Recreational drug use Under current outpatient psychiatric care Age over 40 at booking
Fetal indications	Fetal abnormality
Gynaecological history	Major gynaecological surgery Cone biopsy or large loop excision of the transformation zone Fibroids Female circumcision
Other factors that may need to be considered in liaison with the DMO and SECM may include	Lack of family support/peer support network Safeguarding of children and vulnerable persons Inadequate facilities at home, terrain and location in line with ambulance service Distance from the midwife or *nearest hospital/maternity unit

*There is no national or international policy or a guideline indicating acceptable duration for transfer from home to hospital when a woman is in labour. The Birthplace National Prospective Cohort Study (2011) states: "effective management of transfer is clearly integral to providing good quality and safe care across a range of birth settings". In this study, team-working and transport issues were factors that staff and stakeholder respondents felt were key in the management of transfer. In the cohort study, the three main reasons for transfer were delay in the first stage of labour, signs of foetal distress, and delay in the second stage. Repair of perineal trauma was the primary reason for transfer after birth. A secondary analysis of the Birthplace National Prospective Cohort Study, Rowe (2013) et al, concluded that "transfers from home & commonly take up to 60 minutes from decision to transfer, to first assessment in an obstetric unit, even for transfers for potentially urgent reasons. Most transfers are not urgent and emergencies and adverse outcomes are uncommon, but urgent transfer is more likely for nulliparous women." It is noted that "in women who gave birth within 60 minutes after transfer, adverse neonatal outcomes occurred in 1-2% of transfers" (Rowe et al, 2013).
Other considerations include the RCOG principle that if LSCS is required, to obtain an optimal outcome the baby should be delivered within 30 minutes of the decision being made.
Another is the HIQA Response Standards for the National Ambulance Service, which requires a first responder to be on scene to a life-threatening or potentially life-threatening emergency within eight minutes in 75% of cases and a transporting vehicle on the scene of a life-threatening and potentially life-threatening emergency within 19 minutes in 80% of cases.
Using the above evidence, the clinical governance group recommend that it is the responsibility of the SECM to transfer the woman as soon as possible once the decision to transfer is made and to communicate clearly with the woman, her partner, ambulance service, the receiving maternity unit, labour ward manager and if necessary the consultant obstetrician and paediatrician on call. The communication must include the reason for the transfer, the current status, and possible preparation that would make handover of care more succinct. The midwife plans the transfer knowing the woman's home distance from the local maternity unit, the usual ambulance response times in that area and other influencing factors such as time of day, weather etc. Harris et al (2011) indicate that midwives in more remote units take account of distance and are more cautious in their decision-making about transfer. Ideally, the woman should be transferred to an obstetric unit within 30-40 minutes from the phone call to the ambulance service requesting the transfer. However, it is recognised and acknowledged that for many women it commonly takes 60 minutes (Rowe et al, 2013). The clinical governance group recommends that all transfers are prospectively reviewed and analysed so that more accurate guidance can be made in future policy documents.

Appendix D: Indications for intrapartum transfer

Table 5 Indications for intrapartum transfer

Have the following issues been discussed with and explained to the woman?
Spontaneous rupture of membranes greater than 18 hours
Indications for electronic foetal monitoring (EFM) including abnormalities of the foetal heart rate (FHR) on intermittent auscultation
Confirmed* delay in the first or second stages of labour
The presence of meconium
Maternal request for medical (epidural or alternative) pain relief
Obstetric emergency – including haemorrhage, cord presentation, cord prolapsed, maternal seizure or maternal collapse, shoulder dystocia, neonatal resuscitation
Retained placenta or incomplete placenta
Temperature of 38.0°C or above on a single reading or 37.5°C or above on two consecutive readings one hour apart
Malpresentation or breech presentation diagnosed for the first time at the onset of labour
A reading of 2+ of protein on urinalysis **and** a single reading of either raised diastolic blood pressure (over 90 mmHg) or raised systolic (over 140 mmHg)
Either raised diastolic blood pressure (over 90 mmHg) or raised systolic blood pressure (over 140 mmHg) on two consecutive readings taken 30 minutes apart
Third- or fourth-degree tear or other complicated perineal trauma requiring suturing
Any indication of maternal infection

Appendix E: Prolonged labour guidance (NICE 2014)

Delay in established first stage of labour

To define delay in established first stage, take the following into account:

- parity
- cervical dilatation and rate of change
- uterine contractions
- station and position of presenting part
- the woman's emotional state and physical mobility
- referral to the appropriate healthcare professional.

If delay in the established first stage is suspected, assess all aspects of progress in labour when diagnosing delay, including:

- cervical dilatation of less than 2 cm in four hours for first labours
- cervical dilatation of less than 2 cm in four hours or a slowing in the progress of labour for second or subsequent labours
- descent and rotation of the baby's head
- changes in the strength, duration and frequency of uterine contractions fetal and maternal wellbeing.

If delay is diagnosed, transfer the woman to obstetric care if she is at home.

Delay in established second stage of labour

For a nulliparous woman:

- Birth would be expected to take place within three hours of the start of the active second stage in most women.
- Diagnose delay in the active second stage when it has lasted two hours and refer the woman to a healthcare professional trained to undertake an operative vaginal birth if birth is not imminent.

Midwives will need to take into account the transfer time to the local maternity unit, knowing that birth has to take place within three hours from the start of the active second stage.

For a multiparous woman:

- Birth would be expected to take place within two hours of the start of the active second stage in most women.
- Diagnose delay in the active second stage when it has lasted one hour and refer the woman to a healthcare professional trained to undertake an operative vaginal birth if birth is not imminent.

Midwives will need to take into account the transfer time to the local maternity unit, knowing that birth has to take place within two hours from the start of the active second stage.

Appendix F: Indications for postpartum transfer

Table 6 Indications for Postpartum transfer

Mother:	Postpartum haemorrhage (>500 ml) or any amount that causes the mother's condition to deteriorate Pyrexia (38.0°C on one occasion or 37.5°C on two occasions one hour apart) Sustained tachycardia more than 90 beats/minute Tachypnoea more than 20 breaths/minute Dehydration and/or vomiting Mastitis Any abnormality or concern noted as per IMEWS observations Abdominal pain/pelvic pain or tenderness Symptoms of urinary tract infection Offensive lochia Perineal infection or excessive pain Woman generally unwell or seems unduly anxious or distressed Concerns for psychological wellbeing Signs of thromboembolic disease, for example DVT or pulmonary emboli Increase ≥ 10 mmHg in the systolic or diastolic blood pressure reading where a baseline has been established two hours following delivery
Infant	Congenital or genetic abnormality Respiratory symptoms – tachypnoea (RR>60 minute), grunting, rib recession, abnormal colour (for example cyanosis), suspected diaphragmatic hernia, trachea-esophageal fistula/atresia Low Apgar, ongoing central cyanosis Heart rate below 120 or above 160 beats/minute Body temperature of 38°C or above, or 37.5°C or above on two occasions 30 minutes apart, or less than 36°C Oxygen saturation below 95% Cyanosis confirmed by pulse oximetry Bile-stained vomiting, persistent vomiting or abdominal distension Delay in passing urine or meconium >24 hours Fits, jitteriness, abnormal lethargy, floppiness, high-pitched cry, pallor, reduced urinary output, symptoms of dehydration

	If meconium is present **during labour,** the woman should be transferred. If there is meconium at the birth, an assessment of the situation occurs. If the baby is vigorous and there are no signs of distress, transfer would not be indicated. The appearance of jaundice less than 24 hours old
In exceptional circumstances if a baby is born at home to a woman with lethargy. rupture of the membranes ≥18 hours	Record the infant's temperature, heart rate, respiratory rate at regular intervals in the first 24 hours following birth, ongoing observation and monitoring for offensive odour, change in skin colour, levels of alertness, feeding pattern, Where there is any deviation from the norm in respect of the mother and the baby then transfer to hospital should be considered.

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