



Independent Review of Maternity and Gynaecology Services in the Greater Dublin Area (GDA)

22 August 2008

Appendices

KPMG

This report contains 159 pages

Contents

	Page No
Appendix A: Stakeholder consultation	1
Appendix B: Discussion Guide for Independent Review of Maternity and Gynaecology Services in Greater Dublin Area	4
Appendix C: Advertisements	5
Appendix D: Maternity and Infant Care Scheme	6
Appendix E: Maternity Discharge Information in the Greater Dublin Area	7
Appendix F: Gynaecology Discharge Information	14
Appendix G: Comparative International Review	19
G1: Maternity Provision in Australia	19
G2: Maternity Provision in Canada	25
G3: Maternity Provision in France	35
G4: Maternity Provision in Germany	40
G5: Maternity Provision in the Netherlands	43
G6: Maternity Provision in the New Zealand	50
G7: Maternity Provision in Sweden	56
G8: Maternity Provision in the UK (England and Wales)	62
Appendix H: Long Listed Options	85
Appendix I: Bibliography/References	106
Appendix J: Original terms of reference	111
Appendix K: Accessibility Study	116
K1: Executive summary	116
K2: Scope of work	120
K3: Methodology & data	121



K4:	Current scenario (Rotunda, Holles St. & Coombe)	129
K5:	Scenario 1 – Mater, St Vincent’s & St. James’s	132
K6:	Scenario 2 – Mater, St. Vincent’s & Tallaght	136
K7:	Scenario 3 – Mater, St. Vincent’s & Beaumont	140
K8:	Scenario 4 – Mater, Beaumont & St. James’s	143
K9:	Scenario 5 – Mater, Tallaght & St. James’s	146
K10:	Scenario 6 – Mater, Beaumont & Tallaght	149
K11:	Extreme population projections	152
K12:	Potential outreach clinics	154
K13:	Discussion & comments	156
K14:	General comments	158

Appendix A: Stakeholder consultation

HSE	Maternity Hospitals			
<ul style="list-style-type: none"> Brendan Drumm John O'Brien Fionnuala Duffy Fenton Howell Sheila O'Malley Mary Byrne Marianne Healy Eithne Cusack Liz Roche Mary Wynne Niamh O'Rourke Seamus Mannion Diane Nurse James O'Grady John Bulfin Angela Fitzgerald Louise McMahon Eileen O'Donovan Chris Lyons Siobhan Halloran Netta Williams 	<ul style="list-style-type: none"> Chris Fitzpatrick Patricia Hughes John Ryan Mary Holden Sonia Varadkor Judith Fleming Mary Nolan Fiona Wall Paula Barry Fidelma McSweeney Orla Phelan Frances Ricketts Carmel Byrne Alison Rothwell Niall McElwee Louise Heavey Shannon John O'Leary Margaret Sheridan- Pereira Liam Briggs Deirdre Murphy Sean Daly 	<ul style="list-style-type: none"> Martin White Rosena Hanniffy Susan Kelly Bridget Boyd Patrick Donahue Brian Clearly Tricia Comman Veronique Currin Michael Robson Niall Doyle Mary Brosnan Michael Lenihan Ronan Gavin Karl O'Loan Margaret Hendre Geraldine Duffy L Sheely Clare O'Dwyer Tina Murphy Hilda Wall Geraldine McGuire 	<ul style="list-style-type: none"> Fionnuala McAuliffe Nicola Clarke Alan McNamara Tony Thompson Teresa McGreedy N Adams Roisin McCormack Shain Croke Bernie O'Callaghan Eoghan Mooney Peter Kelehan Michael Geary Pauline Treanor Fintan Fagan Ruth O'Toole Christine McDermott Orla O'Bryne Edna Woolhead Juliette Adetuchinu Eileen Lynch Fiona Hanrahan 	<ul style="list-style-type: none"> A Keenan Bernadette Beirne-Moore Lauri Cryan Cathy Ryan Hyland Chris Kenny Kieran Sterin Hilda Keefe John Cullan Mary Lafferty Sinead Heavey Kay Ruddy Abbe De Lacy Ailish McDonnell Anne De Lacy Miriam Hederman O'Brien



22 August 2008

Appendix A: Stakeholder consultation

HSE	Maternity Hospitals			
<ul style="list-style-type: none"> • Rita Lawlor • Rhonda Forsythe • Tadgh O'Brien • Bernadette Kiberd • Gerry O'Neill • Howard Johnson 	<ul style="list-style-type: none"> • Clive Brownlee • Alan Ashe • Hillary Prentice • Gordon Linney • Brian Davy • Ann Mulhell • Francis Richardson 	<ul style="list-style-type: none"> • John Murphy • Eleanor Molloy • Naomi McCallon • Adrienne Fiorlon • Peter Rosack • Stephen Carroll • Peter Boylan 	<ul style="list-style-type: none"> • Mary Brady • David Corcoran • Tom Clarke • Peter McParland • Peter McKenna • Mary Holohan • Sam Coulter Smith 	

Adult Hospitals		Paediatric hospitals		Private providers	DOHC
Mater <ul style="list-style-type: none"> Brian Conlan Connolly <ul style="list-style-type: none"> Carole Bavey Beaumont <ul style="list-style-type: none"> Liam Duffy Paul Byrne St Vincent's <ul style="list-style-type: none"> Nicky Jermyn Mary Duff Donal Kelly 	AMNCH <ul style="list-style-type: none"> Michael Lyons Philip Berman Board members Naas <ul style="list-style-type: none"> Barbara Fitzgerald St James <ul style="list-style-type: none"> Ian Carter Portlaoise <ul style="list-style-type: none"> Maureen Nolan Dolores Booth 	Our Lady's Children Hospital, Crumlin <ul style="list-style-type: none"> Pat Doherty Barry Lyons Joe McMenamin Eugene Dempsey Evelyn Hempenstall Orla O'Brien Michael McDermott John Russell Karina Butler 	<ul style="list-style-type: none"> Fin Breathnach Michael Lyons Andrew Green Jerry Kelleher Deirdre Coakley Geraldine Regan Sharon Haydon Temple Street <ul style="list-style-type: none"> Paul Cuniffe 	Blackrock <ul style="list-style-type: none"> Bryan Harty Mount Carmel <ul style="list-style-type: none"> Nigel Harding K Gleeson Hermitage <ul style="list-style-type: none"> Teresa McCluskey Eamon Fitzgerald 	<ul style="list-style-type: none"> Paul Barron Sheila Sugrue Mary McCarthy Philip Crowley Denis O'Sullivan
Consumer Groups		Academia	Health Information and Quality Authority	Institute for Obstetrics and Gynaecology	GP's
Irish Childbirth Trust <ul style="list-style-type: none"> Louisa Crowley Niamh Healy Doula Ireland <ul style="list-style-type: none"> Tracy Doneghan Caroline Curley Aims Ireland <ul style="list-style-type: none"> Louise McCann Emer McGann Breda Kerans Jene Kelly 	Women's Health Council <ul style="list-style-type: none"> Alessandria Futinin Le Leche League <ul style="list-style-type: none"> Aslien O'Moore-Cunningham Home Birth Association <ul style="list-style-type: none"> Padriacin Ni Mhurchu Krysia Lynch 	Trinity College <ul style="list-style-type: none"> Cara Martin Deirdre Daly Declan Devane Cecily Begley Kathryn Muldoon Margaret Carroll Joan Lalor Royal College of Surgeons Ireland <ul style="list-style-type: none"> Fergal Malone UCD <ul style="list-style-type: none"> Anne McMarion Colin O'Hertily 	<ul style="list-style-type: none"> Tracey Cooper 	<ul style="list-style-type: none"> John Higgins Michael O'Hare 	GP <ul style="list-style-type: none"> John Gilbert Gerry Bury

Appendix B: Discussion Guide for Independent Review of Maternity and Gynaecology Services in Greater Dublin Area

Our Role

We have been contracted by the HSE to undertake an independent review of maternity and gynaecology services in the Greater Dublin Area. The review will consider the best configuration of hospital, primary and community maternity and gynaecology services

The final output of the review will be an independent report containing the results of our option analysis

Meeting with you

Our discussions with you will be informal and confidential, any views you express to us will be anonymous in any communication we have with other stakeholders and reports

Thank you for making the time to meet with us

If you have any queries before or after our meeting with you please contact Anna Burns at anna.burns@kpmg.co.uk or on +44 7795 450 963

If you could please give some consideration to the following questions prior to our meeting

Questions

Can you please provide us with an outline of your role and background

What is your perspective on the quality and effectiveness of maternity and gynaecology services in the Greater Dublin Area

What do you perceive as being the key challenges and opportunities for maternity and gynaecology services

What would you do to strengthen the current services

How strong is the interface between primary, secondary and tertiary care in relation to maternity and gynaecology services

What are your expectations of the review

What would you like to see in a future service model

What best practice models in maternity and gynaecology are you aware of and how applicable are they to Dublin

Appendix C: Advertisements




Review of Maternity & Gynaecology Services in the Greater Dublin Area

The Health Transformation Programme is underway. The HSE is aiming to create a health and social care service that is easy to access, the public has confidence in and staff are proud to provide.

As part of this ambitious programme of change we have started a comprehensive review of all maternity and gynaecology services in Dublin City, County and surrounding areas.

When this review is complete we will publish an independent report which will include recommendations and an action plan for the development of consistently high quality, safe and sustainable maternity and gynaecology care services in both community and hospital settings in the Greater Dublin Area.

Have your say:

We are inviting members of the public, health professionals and interested parties to make comments or submissions on the development of maternity and gynaecology services in the Greater Dublin Area. Submissions received will inform the work of the review and contribute to the success of this important project.

Send your written comment or submission to:
Email: DublinObsandGynreview@kpmg.co.uk or Post:
Review of Maternity & Gynaecology Services in the Greater Dublin Area Team,
KPMG, 1 Stokes Place,
St. Stephen's Green, Dublin 2

Submissions should be received before 6th August 2007.
For more information, visit www.hse.ie

**EASIER ACCESS
PUBLIC CONFIDENCE
STAFF PRIDE**




Bureau du Service Sanitaire HSE

Révision des Services Maternité et Gynécologie de la zone Dublin et alentours.

Le Programme de Réforme de la Santé est en cours. Le HSE (ministère de la Santé) a pour objectif de créer un service de soins sociaux et médicaux facile d'accès, qui aura la confiance du public et que le personnel sera fier d'offrir.

Faisant partie de cet ambitieux programme, nous avons lancé une étude complète de tous les services de maternité et de gynécologie de la ville, du comté et des environs de Dublin.

Lorsque cette analyse sera terminée, nous publierons un rapport indépendant qui comprendra des recommandations et un plan d'actions pour développer la qualité, la sécurité et les services de maternité et de gynécologie du grand Dublin. Les avis reçus donneront des informations sur les travaux d'analyse et contribueront au succès de cet important projet.

Envoyez vos commentaires ou avis écrits à:
E-mail: DublinObsandGynreview@kpmg.co.uk

Adresse:
Equipe d'Etude des Services Maternité et Gynécologie de Dublin
KPMG, 1 Stokes Place,
St. Stephen's Green,
Dublin 2.

Les avis doivent être reçus avant le 6 août 2007.
Pour plus d'informations, consultez le site www.hse.ie

**Accès plus facile
Fierté du Personnel**

**EASIER ACCESS
PUBLIC CONFIDENCE
STAFF PRIDE**




Администрация Здравоохранения

Ревизия существующих консультаций по материнству и гинекологии в Дублине.

В данное время в службе здравоохранения происходит ряд изменений. АЗ настроена на создание легкодоступных служб социальной помощи и здравоохранения, которым может доверять население и гордиться служение.

Начатый проект предусматривает полную ревизию обслуживания по вопросам материнства и гинекологии в Дублине, графстве Дублин и окрестностях.

По завершении ревизии будет опубликован независимый доклад, включающий рекомендации и стратегию разработки высококачественной и надежной службы по вопросам материнства и гинекологии на территории Дублина. Полученные предложения будут использованы в ходе ревизии и должны оказать существенную помощь проекту в целом.

Свои комментарии и предложения вы можете направить по адресу:
Email: DublinObsandGynreview@kpmg.co.uk



Почта: Review of Maternity & Gynaecology Services in the Greater Dublin Area Team,
KPMG, 1 Stokes Place,
St. Stephen's Green,
Dublin 2.

Заявления должны быть поданы до 6 августа 2007.

Дополнительная информация доступна по адресу www.hse.ie

Облаченный доступ Народное доверие Гордость служащих

**EASIER ACCESS
PUBLIC CONFIDENCE
STAFF PRIDE**

Organ Wykonawczy Służby Zdrowia (HSE Health Services Executive)

Ocena usług ginekologicznych & położniczych w Dublinie i otaczających go regionach.

Został rozpoczęty program przemian i transformacji w Służbie Zdrowia.

Organ Wykonawczy Służby Zdrowia ma na celu stworzenie usług zdrowotnych i opieki społecznej, które będą łatwo dostępne, do których opinia publiczna będzie mieć zaufanie i z których personel medyczny będzie dumny.

Jako część tego ambitnego programu zmian rozpoczęliśmy dokładną ocenę wszystkich usług położniczych i ginekologicznych, które są zapewniane w Dublinie, hrabstwie Dublina i przyległych regionach.

Gdy zostaną zakończone przeprowadzane oceny, zostanie opublikowany niezależny raport, w skład którego wejdzie zalecenia i rekomendacje, plan działania mający na celu stworzenie wysokiej jakości, bezpiecznych i trwałych usług ginekologicznych i położniczych w Dublinie i otaczających go regionach.

Wnioski oparte będą na Państwa ocenie i przyczynią się do sukcesu tego ważnego projektu.

Proszę wysłać swoje pisemne komentarze lub konkluzje na adres: email:
DublinObsandGynreview@kpmg.co.uk

listy: Review of Maternity & Gynaecology Services in the Greater Dublin Area Team,
KPMG, 1 Stokes Place,
St. Stephen's Green,
Dublin 2.

Proszę nadsyłać swoje oceny do 6 sierpnia 2007 roku.

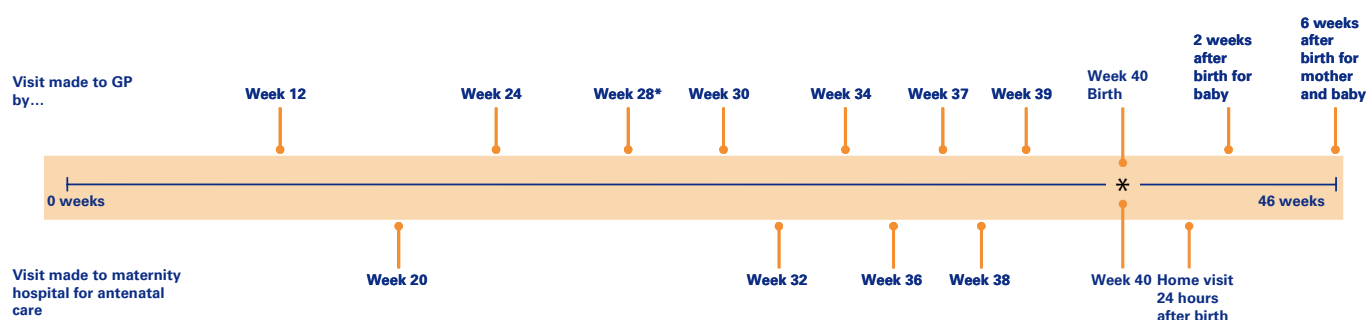
Po więcej informacji proszę wejść na stronę internetową Służby Zdrowia <http://www.hse.ie>

Łatwiejszy dostęp, zaufanie opinii publicznej i dumny personel medyczny.

**EASIER ACCESS
PUBLIC CONFIDENCE
STAFF PRIDE**

Appendix D: Maternity and Infant Care Scheme

The Maternity and Infant Care Scheme is available free of charge to all expectant mothers resident in Ireland. The schedule of visits involved is shown below



* If it is a first pregnancy the week 28 visit is made to a maternity hospital

Circular 47/2002

Circular 47/2002 dated 15th October 2002 from the Department of Health and Children outlines the revision of fees paid to General Practitioners from the Maternity and Infant Care Scheme. Part II paragraph 4 states:

“The medical practitioner shall provide the services in person except where he is unable or a good reason to do so. In such a case he shall, with the agreement (except in case of urgency) of the woman or a parent of the child, as the case may be, arrange for another registered medical practitioner to attend to provide the services. The Health Board will not be responsible for any payment to the latter practitioner”

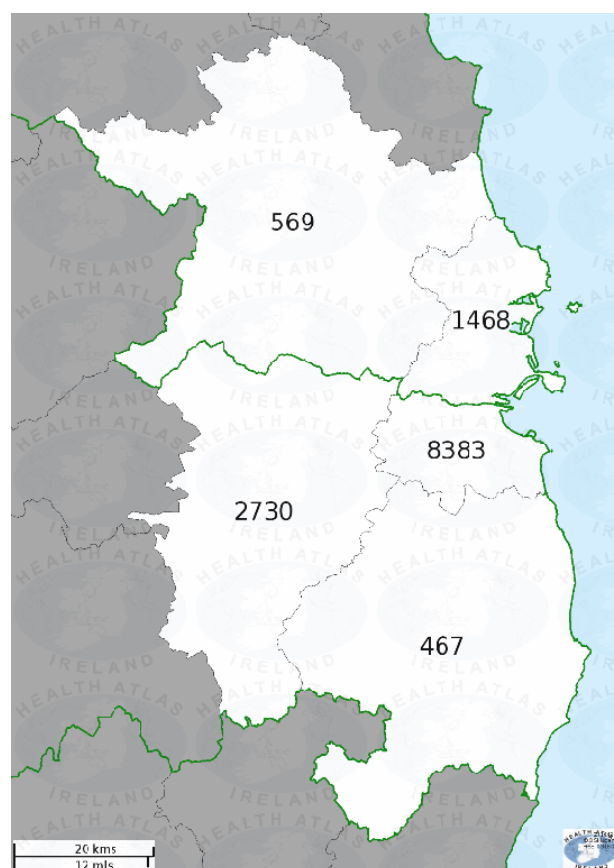
Appendix E: Maternity Discharge Information in the Greater Dublin Area

Maternity

*Number of obstetric discharges by County
at the CWH 2005*

CWH Women's Hospital	Number	% of activity
Carlow	201	1.4
Cavan	19	0.1
Clare	5	0
Cork	8	0.1
Donegal	6	0
Dublin North	1468	10.3
Dublin South	8383	58.6
Galway	5	0
Kerry	3	0
Kildare	2730	19
Kilkenny	24	0.2
Laois	103	0.7
Leitrim	10	0.1
Limerick	7	0
Longford	30	0.2
Louth	22	0.2
Mayo	5	0
Meath	569	4
Monaghan	10	0.1
Offaly	96	0.7
Roscommon	8	0.1
Sligo	6	0
Tipperary North	2	0
Tipperary South	5	0
Waterford	0	0
Westmeath	61	0.4
Wexford	43	0.3
Wicklow	467	3.3
Total	14296	100

*Number of obstetric discharges map by County for the
CWH year 2005 in GDA*

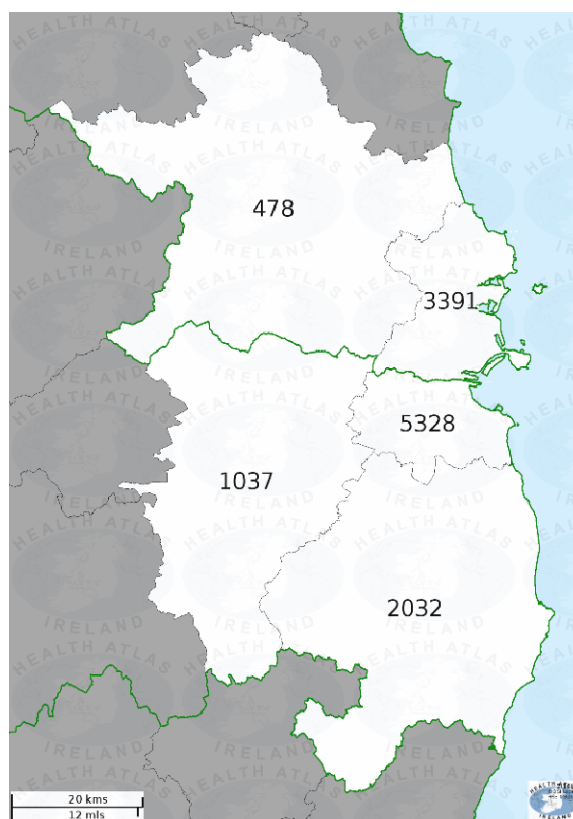


Number of Obstetric

Discharges table by County for NMH in 2005

CWH Women's Hospital	Number	% of activity
Carlow	31	0.2
Cavan	12	0.1
Clare	0	0
Cork	0	0
Donegal	8	0.1
Dublin North	3391	27
Dublin South	5328	42.5
Galway	4	0
Kerry	2	0
Kildare	1037	8.3
Kilkenny	6	0
Laois	34	0.3
Leitrim	5	0
Limerick	6	0
Longford	6	0
Louth	48	0.4
Mayo	6	0
Meath	478	3.8
Monaghan	7	0.1
Offaly	19	0.2
Roscommon	2	0
Sligo	1	0
Tipperary North	1	0
Tipperary South	4	0
Waterford	5	0
Westmeath	28	0.2
Wexford	42	0.3
Wicklow	2032	16.2
Total	12543	100

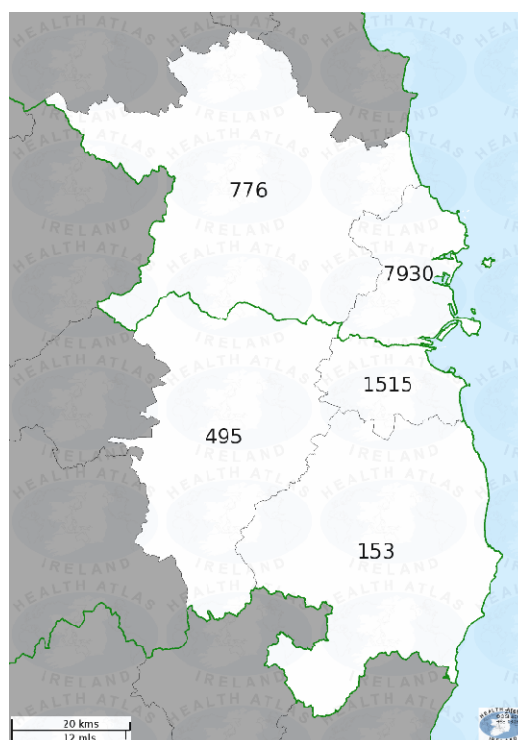
*Number of Obstetric Discharges map
by County for the NMH in 2005 in GDA*



*Number of Obstetric Discharges table
by County for the RH in 2005*

CWH Women's Hospital	Number	% of activity
Carlow	25	0.2
Cavan	59	0.5
Clare	3	0
Cork	2	0
Donegal	8	0.1
Dublin North	7930	70.8
Dublin South	1515	13.5
Galway	4	0
Kerry	3	0
Kildare	495	4.4
Kilkenny	6	0.1
Laois	18	0.2
Leitrim	0	0
Limerick	9	1
Longford	13	0.1
Louth	51	0.5
Mayo	8	0.1
Meath	776	6.9
Monaghan	17	0.2
Offaly	30	0.3
Roscommon	6	0.1
Sligo	8	0.1
Tipperary North	2	0
Tipperary South	6	0.1
Waterford	3	0
Westmeath	37	0.3
Wexford	13	0.1
Wicklow	153	1.4
Total	11200	100

*Number of Obstetric Discharges map by
County for the RH in 2005 in GDA*



Maternity ICD 10 Codes

Outlined below are relevant codes to help interpret the maternity and gynaecology discharge information.

(O00-O08) Pregnancy with abortive outcome

(O00.) Ectopic pregnancy

(O01.) Hydatidiform mole

(O02.) Other abnormal products of conception

(O03.) Spontaneous abortion

(O04.) Medical abortion

(O05.) Other abortion

(O06.) Unspecified abortion

(O07.) Failed attempted abortion

(O08.) Complications following abortion and ectopic and molar pregnancy

(O10-O16) Oedema, proteinuria and hypertensive disorders in pregnancy, childbirth and the puerperium

(O10.) Pre-existing hypertension complicating pregnancy, childbirth and the puerperium

(O11.) Pre-existing hypertensive disorder with superimposed proteinuria

(O12.) Gestational (pregnancy-induced) oedema and proteinuria without hypertension

(O13.) Gestational (pregnancy-induced) hypertension without significant proteinuria

(O14.) Gestational (pregnancy-induced) hypertension with significant proteinuria

(O14.1) Severe pre-eclampsia

HELLP syndrome

(O15.) Eclampsia

(O16.) Unspecified maternal hypertension

(O20-O29) Other maternal disorders predominantly related to pregnancy

(O20.) Haemorrhage in early pregnancy

(O21.) Excessive vomiting in pregnancy

(O21.0) Mild hyperemesis gravidarum

- (O21.1) Hyperemesis gravidarum with metabolic disturbance
- (O21.2) Late vomiting of pregnancy
- (O21.8) Other vomiting complicating pregnancy
- (O21.9) Vomiting of pregnancy, unspecified
- (O22.) Venous complications in pregnancy
- (O23.) Infections of genitourinary tract in pregnancy
- (O24.) Diabetes mellitus in pregnancy
- (O25.) Malnutrition in pregnancy
- (O26.) Maternal care for other conditions predominantly related to pregnancy
- (O26.0) Excessive weight gain in pregnancy
- (O26.1) Low weight gain in pregnancy
- (O26.2) Pregnancy care of habitual aborter
- (O26.3) Retained intrauterine contraceptive device in pregnancy
- (O26.4) Herpes gestationis
- (O26.5) Maternal hypotension syndrome
- (O26.6) Liver disorders in pregnancy, childbirth and the puerperium]
- (O26.7) Subluxation of symphysis (pubis) in pregnancy, childbirth and the [[puerperium]
- (O26.8) Other specified pregnancy-related conditions
- (O26.9) Pregnancy-related condition, unspecified
- (O28.) Abnormal findings on antenatal screening of mother
- (O29.) Complications of anaesthesia during pregnancy
- (O30-O48) Maternal care related to the fetus and amniotic cavity and possible delivery problems
- (O30.) Multiple gestation
- (O31.) Complications specific to multiple gestation

- (O32.) Maternal care for known or suspected malpresentation of fetus
- (O33.) Maternal care for known or suspected disproportion
- (O34.) Maternal care for known or suspected abnormality of pelvic organs
- (O35.) Maternal care for known or suspected fetal abnormality and damage
- (O36.) Maternal care for other known or suspected fetal problems
- (O40.) Polyhydramnios
- (O41.) Other disorders of amniotic fluid and membranes
- (O41.0) Oligohydramnios

Oligohydramnios without mention of rupture of membranes

- (O41.1) Infection of amniotic sac and membranes

Chorioamnionitis

- (O42.) Premature rupture of membranes
- (O43.) Placental disorders
- (O44.) Placenta praevia
- (O45.) Premature separation of placenta (abruptio placentae)
- (O46.) Antepartum haemorrhage, not elsewhere classified
- (O47.) False labour
- (O48.) Prolonged pregnancy
- (O60-O75) Complications of labour and delivery
- (O60.) Preterm delivery
- (O61.) Failed induction of labour
- (O62.) Abnormalities of forces of labour
- (O63.) Long labour
- (O64.) Obstructed labour due to malposition and malpresentation of fetus
- (O65.) Obstructed labour due to maternal pelvic abnormality
- (O66.) Other obstructed labour
- (O67.) Labour and delivery complicated by intrapartum haemorrhage, not elsewhere classified
- (O68.) Labour and delivery complicated by fetal stress (distress)
- (O69.) Labour and delivery complicated by umbilical cord complications

- (O70.) Perineal laceration during delivery
- (O71.) Other obstetric trauma
- (O72.) Postpartum haemorrhage
- (O73.) Retained placenta and membranes, without haemorrhage
- (O74.) Complications of anaesthesia during labour and delivery
- (O75.) Other complications of labour and delivery, not elsewhere classified
- (O80-O84) Delivery
- (O80.) Single spontaneous delivery
- (O81.) Single delivery by forceps and vacuum extractor
- (O82.) Single delivery by caesarean section
- (O83.) Other assisted single delivery
- (O84.) Multiple delivery
- (O85-O92) Complications predominantly related to the puerperium
- (O85.) Puerperal sepsis
- (O86.) Other puerperal infections
- (O87.) Venous complications in the puerperium
- (O88.) Obstetric embolism
- (O89.) Complications of anaesthesia during the puerperium
- (O90.) Complications of the puerperium, not elsewhere classified
- (O91.) Infections of breast associated with childbirth
- (O92.) Other disorders of breast and lactation associated with childbirth
- (O95-O99) Other obstetric conditions, not elsewhere classified
- (O95.) Obstetric death of unspecified cause
- (O96.) Death from any obstetric cause occurring more than 42 days but less than one year after delivery
- (O97.) Death from sequelae of direct obstetric causes
- (O98.) Maternal infectious and parasitic diseases classifiable elsewhere but complicating pregnancy, childbirth and the puerperium
- (O99.) Other maternal diseases classifiable elsewhere but complicating pregnancy, childbirth and the puerperium

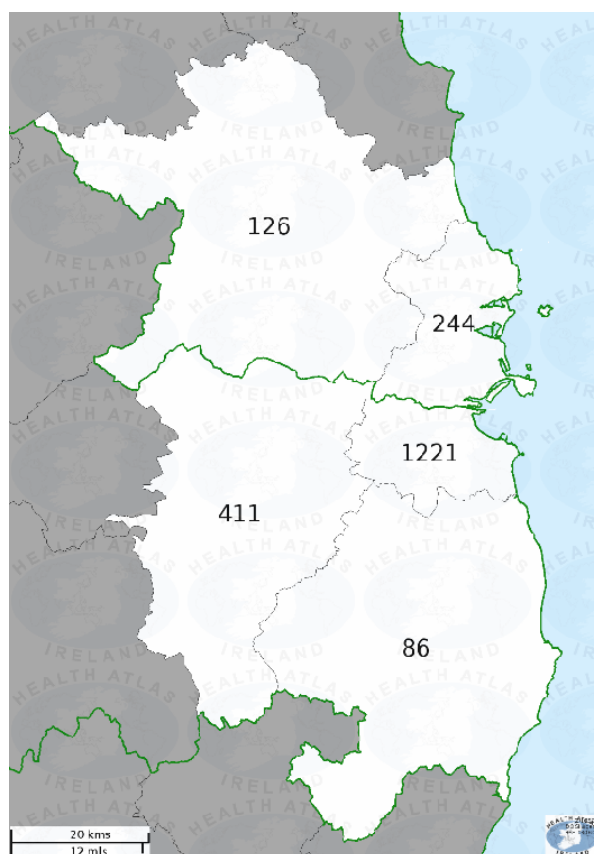
Appendix F: Gynaecology Discharge Information

Gynaecology

*Number of Gynaecology Discharges by county
- CWH in 2005*

*Number of Gynaecology Discharges map by County
for the CWH in 2005 in GDA*

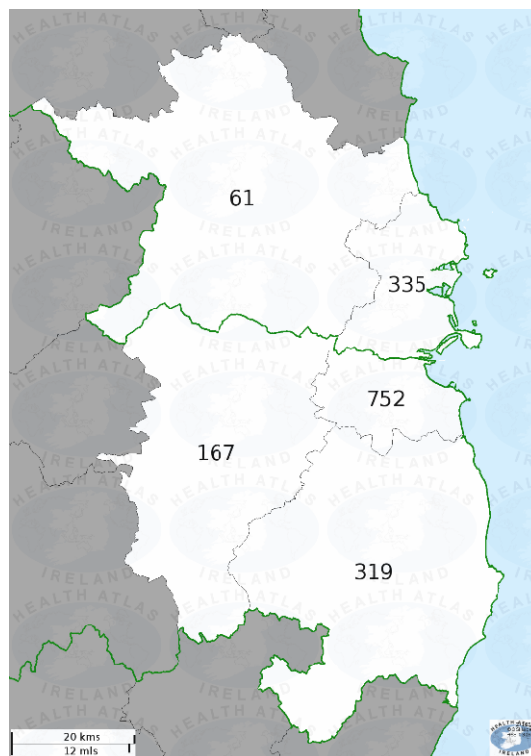
CWH Women's Hospital	Number	% of activity
Carlow	65	2.6
Cavan	29	1.2
Clare	7	0.3
Cork	10	0.4
Donegal	9	0.4
Dublin North	244	9.9
Dublin South	1221	49.5
Galway	12	0.5
Kerry	4	0.2
Kildare	411	16.7
Kilkenny	24	1
Laois	46	1.9
Leitrim	10	0.4
Limerick	6	0.2
Longford	11	0.4
Louth	27	1.1
Mayo	7	0.3
Meath	126	5.1
Monaghan	8	0.3
Offaly	20	0.8
Roscommon	6	0.2
Sligo	7	0.3
Tipperary North	8	0.3
Tipperary South	11	0.4
Waterford	8	0.3
Westmeath	26	1.1
Wexford	18	0.7
Wicklow	86	3.5
Total	2467	100



*Number of Gynaecology
Discharges table for the NMH in 2005*

CWH Women's Hospital	Number	% of activity
Carlow	12	0.7
Cavan	20	1.1
Clare	4	0.2
Cork	5	0.3
Donegal	4	0.2
Dublin North	335	18.3
Dublin South	752	41.2
Galway	5	0.3
Kerry	1	0.1
Kildare	167	9.1
Kilkenny	12	0.7
Laois	18	1
Leitrim	5	0.3
Limerick	1	0.1
Longford	6	0.3
Louth	21	1.2
Mayo	3	0.2
Meath	61	3.3
Monaghan	11	0.6
Offaly	5	0.3
Roscommon	6	0.3
Sligo	7	0.4
Tipperary North	4	0.2
Tipperary South	3	0.2
Waterford	3	0.2
Westmeath	17	0.9
Wexford	19	1
Wicklow	319	17.5
Total	1826	100

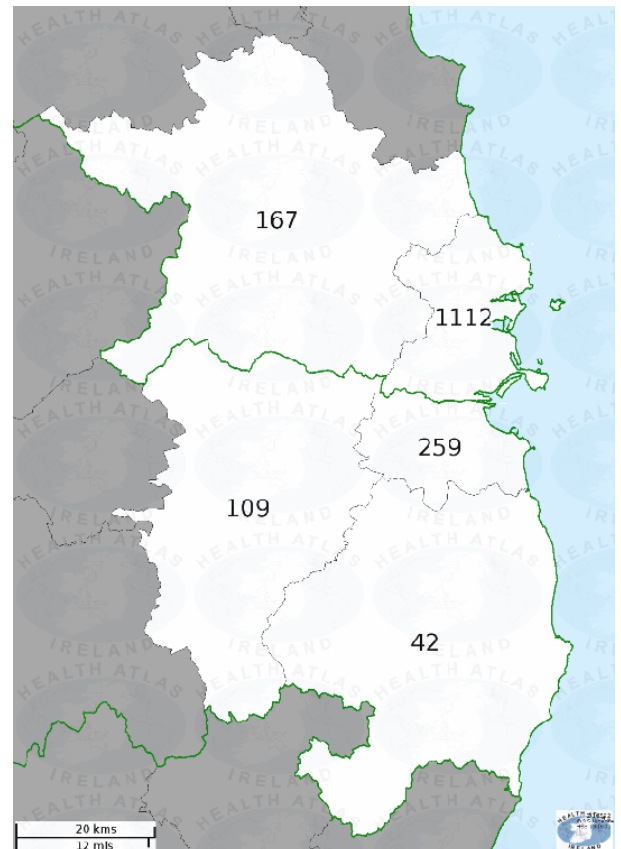
*Number of Gynaecology Discharges map by County
for the NMH in 2005 in GDA*



*Number of Gynaecology Discharges
table by County for the Rotunda in 2005*

CWH Women's Hospital	Number	% of activity
Carlow	20	1
Cavan	18	0.9
Clare	3	0.2
Cork	9	0.5
Donegal	10	0.5
Dublin North	1112	56.6
Dublin South	259	13.2
Galway	6	0.3
Kerry	3	0.2
Kildare	109	5.5
Kilkenny	16	0.8
Laois	6	0.3
Leitrim	5	0.3
Limerick	4	0.2
Longford	11	0.6
Louth	38	1.9
Mayo	5	0.3
Meath	167	8.5
Monaghan	23	1.2
Offaly	13	0.7
Roscommon	5	0.3
Sligo	9	0.5
Tipperary North	10	0.5
Tipperary South	6	0.3
Waterford	11	0.6
Westmeath	22	1.1
Wexford	22	1.1
Wicklow	42	2.1
Total	1964	100

*Number of Gynaecology Discharges map by County
for the Rotunda in 2005 in GDA*



Gynaecology ICD 10 Codes

N7*; N8*; N9*

N70-N77 Inflammatory diseases of female pelvic organs

N80-N98 Non-inflammatory disorders of female genital tract

N99 Other disorders of genitourinary tract

C51*; C52*; C53*; C54*; C55*; C56*; C57*; C58

C51-C58 Malignant neoplasms Female genital organs

D06*

D06 Carcinoma in situ of cervix uteri

D070*; D071*; D072*; D073*

D07 Carcinoma in situ of other and unspecified genital organs

D07.0 Endometrium

D07.1 Vulva

D07.2 Vagina

D07.3 Other and unspecified female genital organs

D25*; D26*; D27*; D28*

D25 Leiomyoma of uterus

D25.0 Submucous leiomyoma of uterus

D25.1 Intramural leiomyoma of uterus

D25.2 Subserosal leiomyoma of uterus **D25.9** Leiomyoma of uterus, unspecified

D26 Other benign neoplasms of uterus

D26.0 Cervix uteri

D26.1 Corpus uteri

D26.7 Other parts of uterus

D26.9 Uterus, unspecified

D27 Benign neoplasm of ovary

D28 Benign neoplasm of other and unspecified female genital organs

D28.0 Vulva

D28.1 Vagina

D28.2 Uterine tubes and ligaments

D28.7 Other specified female genital organs

D28.9 Female genital organ, unspecified

Where = any codes below this level on the ICD hierarchy*

Appendix G: Comparative International Review

G1: Maternity Provision in Australia

General Overview

- There are no official guidelines that apply to maternity care provision throughout Australia.
- The majority of births take place in hospitals staffed by approximately 13,800 registered midwives and nurses working in maternity units with medical care available either 'on call' or 'onsite'.
- High standards of maternity care are based on the assumption that there is, and will be, the availability of qualified midwives for all women during labour, birth and the initial postnatal period. This is not necessarily the case with Australia experiencing workforce shortages similar to those reported in other western countries.
- Currently, maternity services in the Australian public health sector are predominantly hospital-based and provided by a range of different health professionals. Most women see a number of different health care providers (midwives, obstetricians, GPs) through their pregnancy and are attended by different caregivers during labour and birth and again during the postnatal period.
- In country towns or cities, midwives take care of women throughout the intrapartum period in hospital. In most cases, they are required to call a doctor to attend the birth. In some hospitals, where there is good trust and collaboration, midwives undertake deliveries on their own, in accordance with local protocols. The doctor maintains medicolegal responsibility for the birth.
- In a small number of cases in Western Australia, care is also provided by Aboriginal Health Workers or by midwives as part of a home visiting program (Straton, 2006).
- General Practitioners may provide care at all parts of the pregnancy, but are most frequently consulted for antenatal care and often in conjunction with another care provider such as a midwife or obstetrician.
- Over the past 15 to 20 years, various models of maternity care have been developed through local or historical patterns. These are generally based on demand for services and availability of an appropriately skilled workforce. It is not uncommon for a woman

to see as many as thirty different health professionals through the course of her pregnancy and childbearing experience in the public health system.

- The following is a summary of the different types of models of care available to women:

- Private Maternity Care
- Public Hospital Clinic Care
- Public Hospital Midwives' Clinic
- Birth Centre Care
- Combined Maternity Care
- Team Midwifery Care
- Caseload Midwifery Care
- GP/Midwife Public Care
- Outreach Midwifery Care
- Planned Home Births

- Shared Maternity Care.

Most hospitals in New South Wales (NSW) now offer women the option of having their pregnancy care shared between a GP and a hospital. Three hospitals in association with several divisions of general practice in Victoria developed Guidelines for Shared Maternity Care Affiliates. Shared Maternity Care has increased over the last 10-15 years. In 2002, it accounted for over 50% of maternity care at the three hospitals involved.

- The report "Who usually delivers whom and where?" reported more than 18 different models of care in 1997/1998 in Victoria.
 - Five models of care were used by the majority of women (87%) at 20 weeks gestation. 28% of pregnant women had specialist private obstetric care.
 - The model of 'shifted' care (where antenatal care is provided by a GP or specialist obstetrician with standard public hospital intrapartum care) was used by 24% of women and shared care by another 14%.
 - Standard public hospital care was provided to 16% of women.
 - At birth 29% of women received specialist private obstetric care, 24% 'shifted' care, 20% standard public hospital care and 14% shared care.
- The Alternative Birthing Services Program was established by the then Commonwealth Department of Human Services in 1995 to provide incentive funding to the states and territories to promote greater choice in birthing for women in the public health system

and to encourage the establishment of low intervention birthing services managed primarily by midwives.

- Hospital care for the mother and baby is provided for between 2 and 7 days. There has been a trend for people to leave hospital earlier, increasing the need for support services at home.

Workforce

Number and Ratio of Obstetricians and Midwives to Maternities

Profession	Numbers	Ratio / 1,000 Births
Obstetricians /Gynaecologists	1,245	4.7
Midwives (2002)	11,985	44.8
General Practitioners	2,500	9.6

Source: MCPMCP

- The UK Royal Colleges recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour, while Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) which recommends midwife:woman ratios based on case mix and skill requirement, recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour.
- Australia has clearly made an investment in its midwifery workforce hence it is able to offer a wide variety of models of care and choice to mothers.

Clinical Outcomes

- New South Wales women enjoy a high standard of maternity care with perinatal outcomes that rank among the best in the world.
- In 2006, the rate of Caesarean sections was 29% of all live births. This rate is increasing (it was less than 20% in 1993). It also masks territory variations. For example, Western Australia's Caesarean section rate is 32.4% and is expected to rise further (Maternal and Child Health Unit, 2006).

Caesarean Section Rates, 1991-1993, 1994-1996

Year	Caesarean Section Rates
1991 - 1993	18.4%
1994 - 1996	19.4%

Source: MJA 2002

- Maternal Mortality (per 100,000 live births) was 6 in 2000 and has improved in the last 10 years.

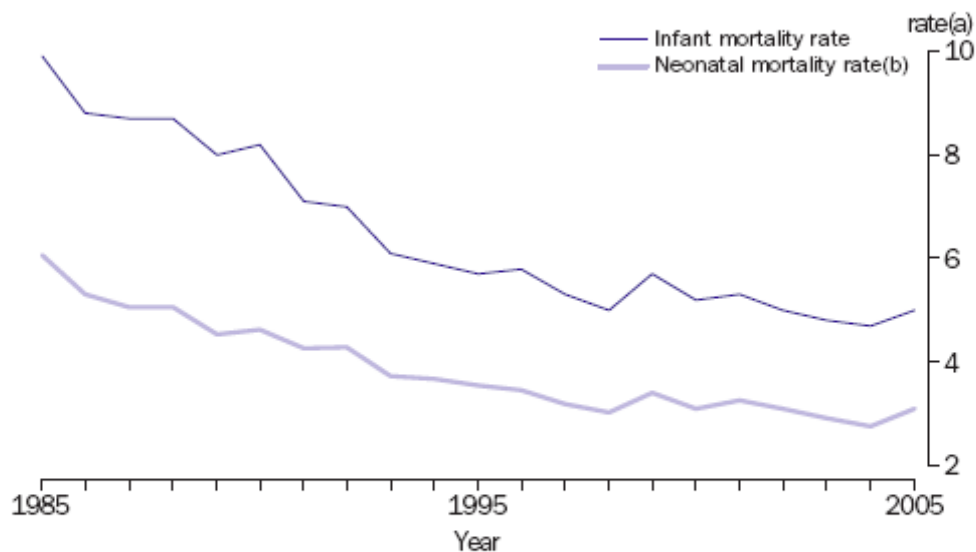
Maternal Death Rate, 1991-1993, 1994-1996

Year	Maternal Death Rate (per 100,000 confinements)	Total Number of Deaths
1991 - 1993	10.9	84
1994 - 1996	13.0	100

Source: MJA 2002

- The infant mortality rate has halved from 9.9 deaths per 1,000 live births in 1985 to 5.0 in 2005.
- The neonatal mortality rate (the death of a child during their first 28 days of life, per 1,000 live births) has also halved during this period, from 6.1 in 1985 to 3.1 in 2005.

Infant and neonatal mortality rates(a)(b)



(a) Deaths per 1,000 live births.

(b) The neonatal mortality rate measures the number of deaths for infants within the first 28 days of life (that weigh at least 400 grams or have a gestational age of 20 weeks or more) per 1,000 live births.

Source: ABS Births collection, ABS Deaths collection.

Summary and Conclusions

- The majority of births in Australia take place in hospitals, and maternity services in the public health sector are predominantly hospital-based.
- Most women see a number of different health care providers (midwives, obstetricians, GPs) through their pregnancy and are attended by different caregivers during labour and birth and again during the postnatal period.
- Incentive funding has been provided to promote greater choice in birthing for women in the public health system and to encourage the establishment of low intervention birthing services managed primarily by midwives. This has led to a range of different models of care.
- Australia, like many countries is struggling with a shortage of qualified midwives for all women during labour, birth and the initial postnatal period. There is a national shortage of appropriately general practitioners and specialist obstetricians.
- Midwifery autonomy is not recognised or supported. A primary reason for this is funding as the public health system recognises only specialist obstetricians and general practitioners as providers of primary maternity care.
- Obstacles standing in the way of greater continuity of midwife care in the Australian setting mostly relate to the historic organisation of maternity care into separate teams of people providing antenatal, intrapartum and postnatal care.
- ALOS hospital care for the mother and baby is provided for between 2 and 7 days
- Caesarean section rates are very high compared to other European countries and have been increasing. .
- Clinical outcomes compare favourably against international standards for neonatal, infant and maternal mortality rates.

Relevance to Dublin

- ALOS figures indicate that GDA performance in this area is far superior to Australia.
- Staff shortages in addition to restricted funding have resulted in a strong GP-based model versus midwifery autonomy.
- Studies indicate that there appears to be an increasing need to increase on midwife-led maternity care and drive towards more community based care both in the antenatal and

postnatal periods. However similar GDA, funding, in the public health system recognises only specialist obstetricians and general practitioners as providers of primary maternity care. However in Victoria, NSW, three hospitals in association with several divisions of general practice in Victoria developed Guidelines for Shared Maternity Care Affiliates. Shared Maternity Care has increased over the last 10-15 years. In 2002 it accounted for over 50% of maternity care at the three hospitals involved. So recent developments have been to move care out of hospitals to some extent.

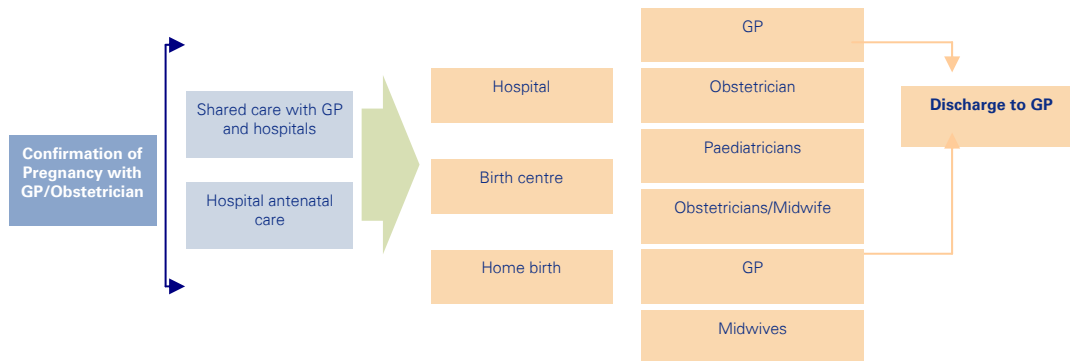
- Like GDA where hospital based care predominates, clinical outcomes are very good for neonatal, infant and maternal mortality rates.
- Caesarean section rates are very high compared internationally and have been increasing. GDA rates are lower. The fact that hospital based care predominates, with a stretched workforce, may be a factor in Australia's high C-section rates.
- In our view, Australia, while having very good outcomes is at a similar stage of development in provision of maternity care as GDA.

G2: Maternity Provision in Canada

General Overview

- The first port of call for almost all pregnant women is with their GP for confirmation of pregnancy. GPs generally make the referral to hospital although some women go directly to an obstetrician in the first instance.
- It is significant to note that midwifery in Canada was only regulated relatively recently and is not yet regulated throughout Canada. As recently as 2003–2004 only six Regional Health Authorities (RHAs) employed midwives, although this has now risen to 11 RHAs. (Canada Health Act, Annual Report, 2005 – 2006).
- The implementation of the Midwifery Profession Act introduced midwifery as a regulated profession and insured service. Under this act, midwives are autonomous primary health care providers whom clients may choose as their first point of entry to the maternity care system, allowing some women the option of delivering closer to their home communities. (Canada Health Act, Annual Report, 2005 – 2006)
- In Canada, the numbers of midwives remain low and provincial direction has focused the service on priority populations, which represent over 65% of midwifery clients; including those at high social risk such as substance abusers. This targeted community-based care approach has been successful and has resulted in significantly lower rates of pre-term birth, high and low birth weights. (Canada Health Act, Annual Report, 2005 – 2006)
- The late regulation of midwives and their low numbers has given rise to a strong GP/physician based model of care. Most mothers receive care from family physicians before, during, and/or after childbirth.
- Family physicians can be involved in all stages of maternity and infant care from preconception to prenatal to postpartum and beyond. Almost two-thirds (64%) of family physicians said that they were involved in some aspect of maternity care in 2001, up from 53% in 1998.
- Most antenatal care occurs outside of hospitals, although pregnancy and childbirth are the leading causes of hospitalisation among Canadian women, accounting for 24% of acute care stays in 2001-2002.
- The continuum of care includes prenatal care and education, screening and diagnostics, home deliveries, postpartum home support, and newborn and infant care during the first weeks of life.

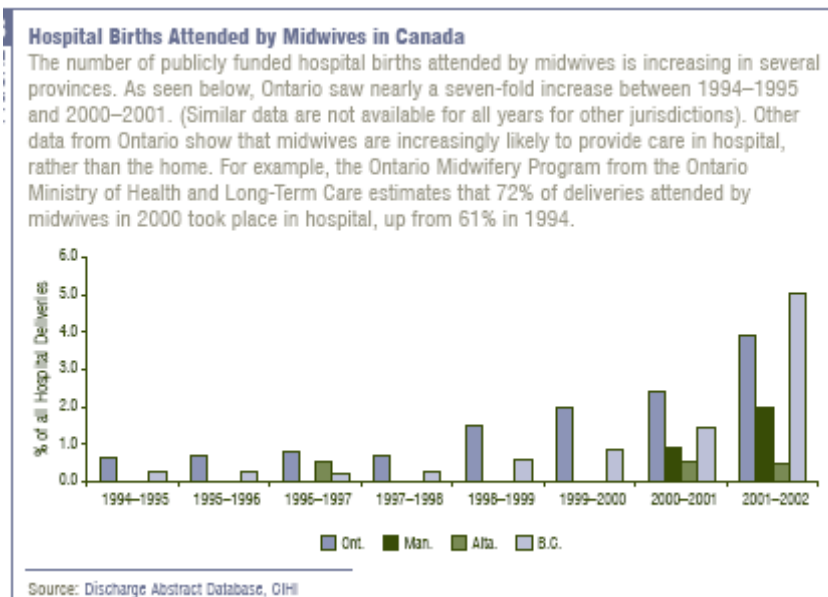
Current Model of Maternity Care in Canada



- While a higher percentage of family doctors than in the mid-1990s report providing maternity care, almost two-thirds (64%) said that they were involved in some aspect of maternity care in 2001, up from 53% in 1998), fewer are attending births (in 2000, they attended 39% of vaginal births, down from 44% in 1996).
- According to CIHI (2004) more family physicians (not quantified) are sharing care with other providers, providing maternity care for up to 32 weeks before transferring care to other family physicians (who perform deliveries), obstetricians, or midwives for the rest of the pregnancy and delivery.
- According to Statistics Canada's 2000/2001 National Longitudinal Survey of Children and Youth, 97% of new mothers had prenatal care. The vast majority (88%) saw a physician. However, 3% received their prenatal care from midwives.
- Prenatal education classes, which provide information about various aspects of pregnancy, birth, and early parenting, are often offered in hospitals with maternity services or in the community. Prenatal educators come from a variety of backgrounds, including nursing. No universal certification standards for prenatal educators currently exist in Canada, but a few organizations have established their own certification requirements.
- According to the CIHI (2004), most Canadian babies are born in hospital with a physician as the attending clinical professional. Obstetricians are performing an increasing proportion of both vaginal and caesarean births. In 2000, they attended 61% of vaginal births and 95% of all caesarean sections, up from 56% and 93% in 1996, respectively. The majority of obstetricians (64%) attended between 101 and 300 deliveries in 1999, whereas family physicians attended, on average, 41 births in 2000.
- The total number of births attended by obstetricians has been relatively stable since the mid-1990s. With birth rates falling, this means that they are attending a larger share of

deliveries, including: 61% of vaginal births in Canada's provinces in 2000, up from 56% in 1996; 95% of all caesarean sections in 2000, up from 93% in 1996; and 96% of all multiple births in Canada in 2000, up from almost 92% in 1994. This reflects the lack of midwives, GPs decreasing role in attending births.

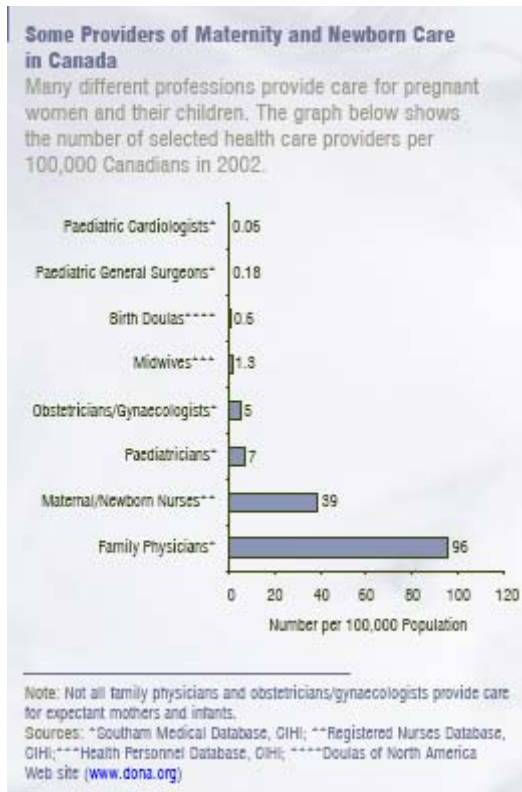
- Results from surveys indicate that women are open to other patterns of birth and postpartum care. In 1994, Statistics Canada asked Canadian women about their willingness to receive care from health professionals other than doctors during their pregnancy and delivery, and postpartum. 31% of women said they would be willing to go to a birthing centre rather than a hospital to have a baby; 21% were receptive to the idea of having a nurse or midwife deliver their baby instead of a doctor; and 85% would accept postpartum care from a nurse or midwife instead of a doctor.
- The number of jurisdictions regulating and funding midwifery services is increasing. So too is the number of trained midwives, and more expecting mothers are choosing midwives to deliver their babies either in hospital or at home. Midwives attend 5% of the births in provinces where midwifery is regulated and 2% nationwide (British Columbia Centre of Excellence, 2003).
- As can be seen from the table below, the numbers of midwives attending hospital births is increasing over time, suggesting that the role and influence of the midwife in Canada is increasing.



- According to CIHI (2004), the number of publicly funded hospital births attended by midwives is increasing in several provinces. Ontario saw nearly a seven-fold increase between 1994/1995 and 2000/2001 (similar data are not available for all years for other

jurisdictions). Other data from Ontario shows that midwives are increasingly likely to provide care in hospital, rather than the home. For example, the Ontario Midwifery Program from the Ontario Ministry of Health and Long-Term Care estimates that 72% of deliveries attended by midwives in 2000 took place in hospital, up from 61% in 1994.

- A Quebec study found that, overall, obstetrical technologies were used less often when women were cared for by midwives. Women cared for by midwives were also less likely to be hospitalised prenatally, to undergo a caesarean section, and to give birth to preterm babies. However, the babies born into the hands of midwives were more likely to need assisted ventilation at five minutes of life.
- Doulas provide non-medical emotional support for expecting mothers and their families during birth and postpartum periods, but do not perform clinical tasks. There are two types of doulas: birth doulas and postpartum doulas. As of January 2004, there were about 200 birth doulas in Canada certified by the Doulas of North America. Doulas are not regulated or certified in Canada, although several organisations offer certification in the U.S. and in some European countries.
- The table below shows the various providers of maternity and newborn care in Canada per 100,000 Canadians in 2002. Family physicians provide for 96 per 100,000 population and maternal/newborn nurses provide for 39.



Maternity Units

- According to the Canadian Institute of Health Research (CIHR), there are 29 hospitals with tertiary neonatal intensive care units across Canada.
- Many hospitals have specialized clinics for women experiencing high-risk pregnancies, but these tend to be located in major urban centres. This is also true for hospitals with specialized intensive care units to care for high-risk infants. Can you explore this point a bit –are you saying, particularly in cities that maternity units are co-located and can you find out if these NICUs are level III and if they are co-located with paediatric services.
- Childbirth in rural and remote areas of Canada presents unique challenges for both women needing care and for care providers. Examples include: distances from facilities and specialized equipment; the lack of peer support for providers and coverage for their practice; and the need for providers to have expanded or specialized skills.

- Specific challenges to the sustainability of rural maternity practice include: the limited number of physicians available for on-call services; the lack of caesarean section capability; the lack of available anaesthesia services; and the small number of births in rural areas.
- As a result, decisions to regionalise maternity care have forced rural hospitals to close obstetrical units. This has had a serious impact on the viability of small communities and their ability to safely provide appropriate primary health care services, including maternity care. As a result, shortages are felt most acutely in rural and remote communities, requiring mothers to make different care choices. Some innovative responses, such as formal shared-care services and the growing number of community birthing centres, have emerged.
- It has been suggested by CIHI (2004) that collaboration among the various providers of maternity care is a way to address some of the issues relating to access to care, especially in rural and remote areas. Shared care may also be a way to ensure that providers are making the most of their various skill sets.
- Maria – is there anything about MLUs or is all care hospital based – if so say so in here and then in conclusion draw this out and what it means for Dublin – i.e. good outcomes from medicalised care model as per Dublin but drive towards different model or are we saying that GPs play a bigger role in pregnancy which is different again, but it's changing.

Workforce

- In 2002, there were 1,592 obstetricians/gynaecologists practising in Canada, an average of 4.5 per 1,000 maternities.
- In 2002, there were 30,258 family physicians in Canada, although not all are involved in obstetrics and their involvement in attending births is decreasing.
- Between 1993 and 2002, the number of regulated midwives practicing in Canada grew from 96 to 413, a 330% increase. Some of this increase reflects regulatory changes, such as registration requirements, rather than actual growth in the number of midwives. Nevertheless, with the increase in the actual number of midwives and in the number of provinces who train and regulate them, more expecting mothers are choosing these health care professionals to deliver their babies.
- Although the demand for midwifery care across Canada is high, only 413 midwives are registered to practice.

- Registered nurses provide maternity care in community and hospital settings. There are 13,801 registered nurses whose primary responsibility is maternal-newborn care (Workforce Trends of Registered Nurses in Canada, 2005: Registered Nurses Database, CIHI.) These registered nurses may provide one or all of the following: prenatal, intrapartum, post partum and/or neonatal care for expectant families.

Developments Impacting on Maternity Services

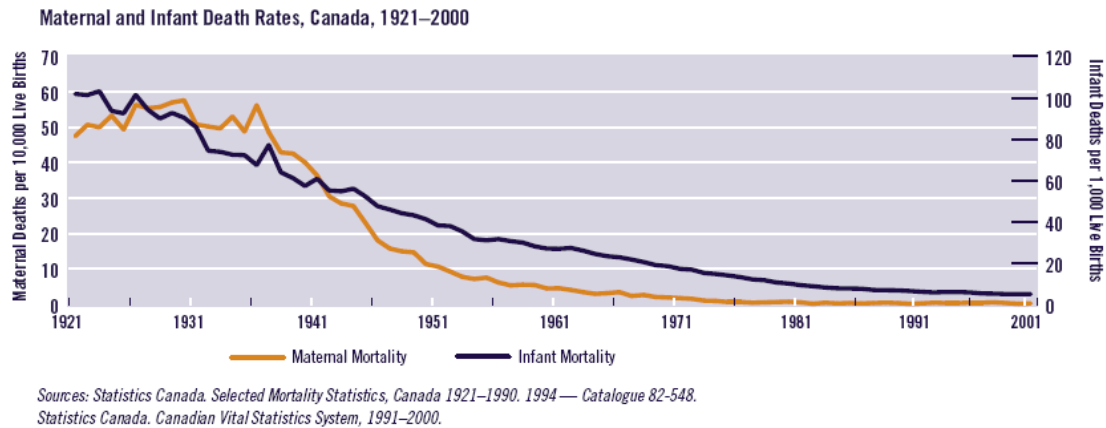
- Twenty years ago, women often stayed in hospital for close to five days with an uncomplicated birth, and even longer if there were complications. According to CIHI, today, healthy mothers and their infants are typically discharged 24 to 48 hours after delivery. This is as a slightly shorter ALOS than the three Dublin Maternity Hospitals LOS, with vaginal delivery having an ALOS of 2-3 days.
- Except for a dip in the early 1990s, Canada's caesarean section rate has increased in the last two decades. It reached an all-time high of 22.5% of in-hospital deliveries in 2001/2002.

Caesarean Section Rates, 2000 - 2005

Year	C-Section Rate (per 100 deliveries)
2000	18.7
2001	19.2
2002	19.9
2003	21.4
2004	22.5
2005*	23.7

Source: CIHI – Health Indicators June 2000; *Data is incomplete for this year

- According to research by Chaillet and Dumont, 2007 (Evidence-Based Strategies for Reducing Caesarean Section Rates), clinical practice guidelines represent an appropriate mean for reducing caesarean section rates. This research concluded that the caesarean section rate can be safely reduced by interventions that involve health workers in analyzing and modifying their practice. Results suggested that multifaceted strategies, based on audit and detailed feedback, are advised to improve clinical practice and effectively reduce caesarean section rates. Moreover, these findings support the assumption that identification of barriers to change is a major key to success.
- In Canada, there has been a major decline in maternal and infant death rates since the early 20th century.



- Canada's Maternal Mortality Rate (MMR) for the period from 1997 to 2000 (excluding Quebec) was 6.1 per 100,000 live births, one of the lowest rates in the world (Public Health Agency of Canada, 2005). By 2007, this had increased to 7 per 100,000. The actual number of maternal deaths for 2007 was 13 (UNICEF, 2007).
- In 2002, the Canadian infant mortality rate was 5.4 infant deaths per 1,000 live births.

Fetal Mortality and Infant Mortality, 1993 - 2005

Year	Fetal mortality (rate per 1,000 total births)	Infant mortality (rate per 1,000 live births) in Canada (1993 – 1997)
1993	6.0	6.3
1994	5.9	6.3
1995	6.1	6.1
1996	5.8	5.6
1997	6.1	5.5

Source: *Prenatal Health Indicators for Canada*

- Infant Mortality had dropped to 4.6 by 2007 (Source: www.infoplease.com).
- Each year, graduating medical students choose specialties. According to the Canadian Resident Matching Service, the number of positions offered in obstetrics and gynaecology has been greater than the number of positions filled in the past seven years.
- Wider use of nurse practitioners (NPs) is part of many primary health care renewal visions. NPs are registered nurses who have received additional education, including training to provide certain services formerly performed only by physicians, such as ordering tests, diagnosing illnesses, and prescribing drugs. NPs work in most parts of the country, but Canadians in rural and remote areas are more likely to receive care

from these professionals. Although the particular tasks may vary, most parts of Canada have passed legislation that allows NPs to practice autonomously.

- In 2005, Health Canada funded a comparative review of six European countries in order to 'reduce barriers and facilitate the implementation of national multidisciplinary collaborative strategies as a means of increasing the availability and quality of maternity services for all Canadian women. A report was produced in 2005 by the Multidisciplinary Collaborative Primary Maternity Care Project – International Confederation of Midwives, which contained the following recommendations:
 - Commitment to a National Multidisciplinary Collaborative Primary Maternity Care Committee as an advisory body to governments and other key stakeholders.
 - Models of multidisciplinary collaborative primary maternal / newborn care developed with teams in rural, remote and urban locations across Canada.
 - Recognizing the unique value and importance of each professional provider, federal / provincial / territorial governments and health authorities ensure that women and newborns have opportunities to access all appropriate maternal / newborn care services brought about.
 - All governments ensure regulators and legislators work collaboratively with maternal / newborn care providers to develop regulations and legislation that allow collaborative maternal / newborn care practice to work effectively.
 - Reviews of legislation in each province and territory to harmonize maternal / newborn care terminology and scopes of practice that respect the unique value each maternal / newborn care provider brings to care through their education, training and experience.
 - The appropriate recognition, regulation and remuneration of midwives and nurse practitioners as providers of maternal / newborn care services in all jurisdictions throughout Canada.

Summary and Conclusions

- Canada's model of maternity care, while medicalised, is very different from almost all other countries and reflects the lack of regulation of midwives until quite recently, and their low numbers.
- This means that most antenatal and postnatal care is provided by family physicians and almost all deliveries take place in hospitals, attended by obstetricians.
- More family physicians provide maternity care but fewer are attending births, with care being shared with obstetricians and midwives.
- The number and size of maternity units varies across the country depending on geographical and demographical variables.

- Strong sustainability challenges facing rural and remote maternity practice throughout Canada have resulted in a regionalised maternity care, forcing rural hospitals to close obstetric units.
- It is anticipated that collaboration among the various maternity providers may address these access to care issues.
- Clinical outcomes are very good for neonatal mortality and maternal mortality rates
- Caesarean section rates are however on the increase.
- The ALOS is 1 - 2 days for normal delivery which compares favourably internationally.
- There are 29 hospitals with tertiary neonatal intensive care units across Canada
- Women are more open to other patterns of birth and postpartum care i.e. 31% of women said they would be willing to go to a birthing centre rather than a hospital to have a baby; 21% were receptive to the idea of having a nurse or midwife deliver their baby instead of a doctor; and 85% would accept postpartum care from a nurse or midwife instead of a doctor.

Relevance to Dublin

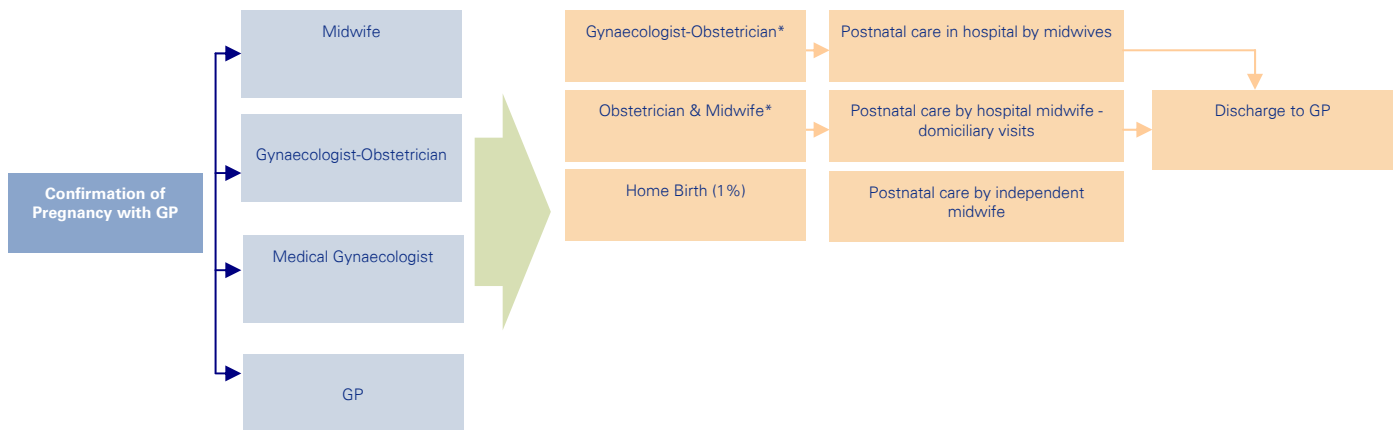
- Canada made the decision to close some smaller community based units due to issues of sustainability and access to care. This supports the case to centralise births in larger rather than smaller units on the grounds of clinical safety and workforce availability.
- There is a significant reliance on family physicians (GPs) with regard to intrapartum and postpartum maternity care in Canada, although this is moving towards a more collaborative approach to shared-care. However, obstetricians are becoming more involved in actual deliveries as family physicians' involvement declines. Canada is very out of step in terms of obstetricians' involvement in births irrespective of the complexity and risk.
- Patient choice views are being taken into account through the provision of access to birthing centres, midwife deliveries and postpartum midwife care. Broadening of choice is a key driver for change in GDA.
- ALOS indicates that there could be improvements within GDA.

G3: Maternity Provision in France

Model of Maternity Care

- French midwifery and obstetric care is characterised by a wide variety of models with a number of health care providers.
- A woman can choose to see a midwife, medical gynaecologist, or gynaecologist-obstetrician or can choose to share her care between professionals. All three are medically trained and are regulated to provide antenatal care.
- GPs generally confirm pregnancy and sometimes provide antenatal care, especially in more rural areas, while the midwife and/or the gynaecologist-obstetrician provide intrapartum care.
- GPs and medical gynaecologists refer women to a gynaecologist-obstetrician in private practice or to a public hospital for delivery. Most intrapartum care, however, is provided by gynaecologist-obstetricians in public hospitals. Seventy percent of deliveries take place in public hospitals.
- The role of the midwife in France is limited to normal pregnancy and delivery; a physician is required to take over in cases of pathology during pregnancy or birth.
- In many cases, both a midwife and an obstetrician are present during a birth in public hospital. In private facilities, obstetricians are always present at the birth.
- MLUs tend not to be well developed. There is one such unit in Paris?? but cultural issues and concerns over litigation, together with reluctance on the part of midwives, have restricted the development of such units.
- In France, less than 1% of women give birth at home, including the unsupervised unexpected births and there are less than 50 midwives, spread over the country, attending home births.
- The majority of postnatal care takes place in hospital. Some women will also receive postnatal home visits by an independent midwife or a midwife employed by the hospital who carries out domiciliary visits.

Current Model of Maternity Care in France



Maternity Units

In reality, women do not always have a choice over their maternity care providers. This depends on the area in which the woman lives, the availability of care providers in the facility in which she plans to have her baby and on her own health. Most women attend their nearest hospital.

- Maternity hospitals are divided into three levels. There are approximately 20 level 3 maternity hospitals with Level III neonatology facilities capable of caring for very premature babies under 32 weeks gestation and approximately 40 level 2 maternity hospitals with neonatal units but no intensive care provision. (See below regarding trends in collocation). There are a large number of level 1 maternity units which can provide basic paediatric care but have no neonatal units.
- If necessary, women and babies are transferred in utero although high-risk pregnancies and deliveries are generally planned for level 2/3 units. Decentralization in health care has resulted in the implementation of antenatal and perinatal networks throughout France. These networks are partnerships made up of different maternity facilities (all levels of hospitals, private clinics and practices) working collaboratively to provide women and their babies with the care they need. The partners use the same protocols and records and strive to ensure care to each other's clients. These networks of maternity services are designed to ensure that women and babies receive the appropriate level of care according to their obstetrical or perinatal risk. For example, a woman in premature labour is referred to a hospital with an appropriate neonatal care unit.
- The average maternity unit has between 2,000-3,000 deliveries annually. There are a few maternity units with 5,000-6,000 deliveries annually, concentrated in large urban

cities. Private maternity units tend to have <1,500 deliveries annually. Units with 1,500+ deliveries require dedicated obstetricians on a 24/7 basis.

- In France, there are few stand-alone maternity hospitals as most have been closed progressively. Likewise, some general hospitals incorporated maternity units and these have also been closed. The trend has been to locate maternity hospitals with paediatrics and/or on hospital sites where there is access to intensive care facilities.
- Similarly, there has been a progressive move to close maternity units with <600 deliveries on the grounds of safety, clinical practice and workforce.

Workforce

- The medical professions in France, including obstetrician-gynaecologists and midwives, are regulated through various legislation: the Public Health Code (Code de la Santé Publique), the Code of Professional Conduct (Code de Déontologie) and professional statutes.
- Midwives are considered part of the medical rather than nursing profession and their independence and autonomy is set out in legislation. Increasingly, midwives are undertaking tasks previously done by physicians including interpreting blood/urine samples, ultrasounds etc.
- Until 2004, only doctors were regulated to write pregnancy declarations and perform postnatal check-ups. In 2004, the Public Health Act was changed allowing midwives to write out pregnancy declarations and perform postnatal checkups for women with an uncomplicated pregnancy and birth.

Workforce Statistics and Sector, 2003

	Number	% In Private Practice	% In Public Practice	% In independent Practice
Midwives*	16,134	18	47	11
Gynaecologists / Obstetricians	5,207	99	-	-
Medical gynaecologists**	1,850	60	32	-

Source: MCPMCP

*Details are not available on all midwives; *A small proportion of gynaecologists work in contracted or non-contracted private hospitals, health centres or in preventive care.

- Increasingly GPs are not involved in maternity care and there are some concerns over the decreasing numbers of young physicians specialising in obstetrics and gynaecology. Reasons for the decrease in numbers include legal/litigation issues as well as quality of life issues – more women are entering the medical profession and prefer to specialise in

gynaecology rather than obstetrics as the former, offering elective surgery options is more family friendly than obstetrics which requires on-call provision.

Clinical Outcomes

Mortality Rates, 2000-2005

Year	2000	2001	2002	2003	2004	2005
Infant Mortality rate / 1,000 live births	4.4	4.5	4.1	4	3.9	3.6
Neonatal mortality rate / 1,000 live births	-	-	-	-	2	-
Maternal mortality rate / 100,000 births	17	-	-	-	8	-

Source: OECD – Health Status (Mortality); WHO: Maternal Mortality in 2005

- As can be seen from the table, infant mortality rates in France are good and neonatal mortality rates are amongst the lowest in Europe although France does not undertake audits of neonatal deaths.
- However, maternal mortality rates were, until fairly recently, amongst the highest in Europe (ratio of 17 / 100,000 deaths in 2000) and the reasons are not well documented, although the large numbers of small maternity units were considered a contributing factor. Rates have now decreased and may be reflective of the trend to close smaller units as discussed above. Currently the Ministry of Health is developing a series of recommendations to help improve maternal mortality.
- C-Section rates are increasing and have risen from 16% in 2000 and now average 20%. Rates tend to be higher in private hospitals; for example, it rises to 40% in the American Hospital in Paris. The reasons for this rise are unclear although medical, legal and patient choice will all have an influence.
- Average length of stay tends to be approximately 3 days for a normal delivery and 5 days for a Caesarean section delivery.

Gynaecology

- Although there are no large datasets available, it is recognised that gynaecological practice has changed over recent years with greater numbers of routine gynaecology procedures treated as day cases and there is less hospitalisation for patients. There is also a trend towards laparoscopic surgery. Unlike other countries, gynaecology is not seen as a subspecialty and is provided within an obstetrics/gynaecology setting, rather than within cancer centres.

Summary and Conclusions

In France, antenatal care may be provided by a GP, midwife or obstetrician, deliveries take place in hospitals and are usually attended by obstetricians while postnatal is provided by midwives in a hospital setting or some may be provided by midwives undertaking domiciliary visits.

Midwifery is a long recognised medical profession and their independence and autonomy is set out in legislation. Increasingly, midwives are undertaking tasks previously done by physicians.

France's clinical outcomes are good for perinatal mortality and have improved in recent years for maternal mortality. Similar to other developed countries, its Caesarean section rate is increasing and there are wide variations between different hospitals and between private and public hospitals. The increasing role played by midwives has not resulted in adverse clinical outcomes.

France has consolidated maternity services to some extent, relocating/closing stand-alone units and closing very small units (births <600/annum) on the grounds of safety. Units now on average deliver 2000-3000 births with units of up to 5000-6000 births in urban centres. Larger maternity units will provide a level 2 or level 3 NICU with proximate access to paediatric services and may be co-located on acute sites to access intensive care services.

Relevance to Dublin

France has moved away from standalone maternity units on the grounds of safety and provides evidence to support co-location in GDA. It has consolidated births on larger site in large urban cities.

France has legislated to increase the role of midwives in maternity provision while maintaining good clinical outcomes for perinatal and maternal mortality. This has implications for GDA seeks to empower its midwives and increase their role without compromising clinical outcomes.

In France, there are well developed antenatal and perinatal networks with maternity units working collaboratively to provide the care needed. This model of collaboration is relevant to GDA as it seeks to develop neonatal networks.

G4: Maternity Provision in Germany

Model of Maternity Care

Antenatal care in Germany is provided predominately by obstetricians in private practice.

Midwives working in independent practice also provide antenatal care to women with low-risk pregnancies; however, women are not always aware of this option.

Over the past 10 years, more women have begun to prefer midwifery care during pregnancy. Some will see a private midwife exclusively and others will receive shared care between the midwife and obstetrician in private practice.

Some midwives now provide continuity of care from the antenatal period, through childbirth and the postnatal period, but this group is still very small.

Midwives are present at all births, usually with the obstetrician present as well.

Postnatal care in hospital is provided by hospital employed midwives, obstetricians and nurses except when the woman is cared for by a midwife or obstetrician with hospital privileges.

Postnatal home care has traditionally been the domain of midwives in private practice, who will also see women who have had prenatal care with the obstetrician.

A six-week postnatal check-up is generally conducted by the obstetrician. Midwives are not regulated for this.

In Germany, women may receive fragmented maternity care, involving different care providers in the different phases of pregnancy, childbirth and puerperium. This does not necessarily mean that the collaboration between the care providers is structured or uniform.

In some parts of Germany, midwives have set up 'Birth Centres' to provide a continuum of care throughout pregnancy, childbirth and the postnatal period. There are approximately 100 birth centres throughout Germany and the teams of midwives working in birth centres collaborate with each other.

Workforce

Workforce Data, 2003

Profession	Numbers	Ratio / 1,000 Maternities (Births - 646,000)
Gynaecologist-obstetricians	15,234	23.5
Midwives	15,000	23

Source: MCPMCP

There is almost an equal ratio of obstetricians to midwives reflecting the former's role in antenatal and interpartum care.

Germany's midwives to maternities ratio does not meet international recommendations to provide one-to-one care in labour.

10,911 gynaecologist-obstetricians had a permit to establish a private practice.

It is estimated that a third of midwives work independently, a third are hospital employed and a third work both independently and in hospital employment.

Obstetricians are ethically, legally and financially obligated to provide maternity care according to the *Mutterschaftsrichtlinien* (German maternal health guidelines). A major concern of the midwives in Germany is that the role of the midwife in maternity care is not explicitly outlined through these guidelines.

Both midwives and gynaecologists are accountable for their own practices.

Statistics

Similar to other countries, Germany's Caesarean Section rate is increasing and was 20% in 2001.

Its maternal mortality ratio / 100,000 live births in 2000 was 9 but improved to 4 in 2005 (WHO), placing it amongst the best in Europe, and similar to GDA.

In Germany, a registration system exists *Perinatalerhebung* in which the delivery ward staff have to register maternal and foetal outcomes of hospital births.

Germany's infant mortality rates compare favourably with other European countries.

Infant Mortality Rates, 2000-2005

Infant mortality rate (deaths per 1 000 live births)					
2000	2001	2002	2003	2004	2005
4.4	4.3	4.2	4.2	4.1	3.9

Source: OECD – Health Status (Mortality)

Summary and Conclusions

Both midwives and obstetricians can provide antenatal and interpartum care for women while midwives tend to provide postnatal care.

There is evidence that midwives are beginning to have more autonomy in Germany with the development of birth centres which increases the choice for women.

Similar to many other developed countries, Caesarean section rates are on the increase and clinical outcomes are good for neonatal and maternal mortality.

Relevance to Dublin

Germany is beginning to develop alternative models of care based on midwifery autonomy and giving choice to women. This has relevance for GDA as it demonstrates that very conservative countries, with a highly medical model of maternity care, are considering alternative care models which provide greater autonomy for midwives and greater choice for mothers. At the same time, there has been no deterioration in mortality statistics suggesting that giving greater choice and increasing the role of midwives does not negatively impact on clinical outcomes.

G5: Maternity Provision in the Netherlands

General Overview

The Netherlands is known for its unique system of obstetrics and midwifery, which historically and culturally is based on the concept of birth being a normal physiological process. The focus of maternity care in the Netherlands is 'normality' and the care is based on a 'graded' risk assessment. The midwife usually undertakes this.

There is a clear division of tasks and responsibilities in primary and secondary care including midwifery and obstetric care and collaborative working. Clear guidelines exist for interaction between professions and service providers

In the Netherlands, most pregnant women begin their antenatal checkups with midwives who are responsible for normal, physiological pregnancy, birth and postnatal support.

For low risk women, the midwife or GP are the first and only point of professional contact throughout pregnancy.

Primary level maternity care is provided by midwives and GPs who work primarily in private practice and have hospital privileges. Midwives working in primary care are generally independent practitioners working in private practices. They care for the cases of normal pregnancy and birth and are charged with prevention and risk assessment.

In the Netherlands, a healthy pregnant women can choose the following options:

- Home birth attended by a midwife or GP (although the culture and demographics are such that midwives/GP must be within 20 minutes of a woman who has requested a home birth).
- A birth as a hospital outpatient (policlinic) attended by a midwife or GP (akin to an MLU).
- A hospital birth as an inpatient attended by an obstetrician.

Home Births as a % of All Births

Year	Home Birth % of all Births
1997/1998	35.4
2000/2001	30.7
2002	34

Source: Ministry of Health, Welfare and Sport

It has been suggested that 70% of women in the Netherlands would prefer to give birth at home but there is a shortage of midwifery capacity in some areas and women have to opt for an outpatient delivery or may have to go to a hospital under the responsibility of a obstetrician (Ministry of Health, Welfare and Sport).

The midwife on call in her midwifery practice will be present at the birth either at home or in the polyclinic. After the birth, the midwives will visit a woman at home a few times during the first 8-10 days to check how the mother and baby are doing. Most women have a final six week postnatal checkup with the midwife, which ends the period of care.

In the case of a pregnancy or birth with an increased risk or problems, the midwife consults and/or refers to the specialist (usually an obstetrician or paediatrician) employed in secondary health care. In such cases, these women will generally remain in secondary level care, although in some cases care can be shared by a series of consultations between primary and secondary care.

Most midwives practice independently in the communities, either solo, in two-person or in group practices. Over the last 20 years, there has been a reversal in the numbers of midwives practicing solo versus those in group practice, indicating again the rationale for consolidation of practises. Working in a group practice offers midwives more flexible working arrangements e.g. part-time etc.

Profile of Midwifery Practices in the Netherlands, 1983-2003

Practice Form	1983 (%)	1989 (%)	2003 (%)
Solo practice	66	39	9
Two-person practice	27	40	18
Group practice (3 or more independently associated midwives)	7	41	73

Source: *Primary Health Care in the Netherlands*, Ministry of Health, Welfare and Sport

Midwives either have their own offices where they carry out antenatal checkups or they hold clinics in community health care centres. In most practices, a pregnant woman will see the same midwife or a team of midwives during her pregnancy. In 2001, 80% or more of all women received autonomous midwifery care in one way or another (MIDWIVES, October 2003).

GPs who are active in midwifery are known as verloskundig actieve huisartsen. Some may provide the whole range of antenatal, natal and post natal care while others only provide antenatal and/or postnatal care. Like midwives, GPs work in private practices and they also have hospital privileges. The percentage of GPs attending births has fallen as has the percentage of births attended by GPs as more women have chosen midwifery care (MIDWIVES, October 2003). This trend, together with the high level of involvement by midwives, supports the widely held view in the Netherlands that pregnancy is a normal activity.

GPs Attending Births and Births Attended by GPs

Year	% GPs Attending Births	Year	% of Births Attended by GPs
1983	43	1960	46
1999	26	1980	16
1999	16	1999	10

Source: Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport

Secondary level maternity care is provided by hospital-based obstetricians and hospital employed midwives.

Obstetricians can also see women referred by the midwife during the antenatal period or intrapartum.

Klinisch verloskundigen are midwives employed in hospitals who work predominantly in the labour and delivery wards but may also work in hospital based antenatal clinics and in the antenatal and postnatal wards.

Not all hospitals employ klinisch verloskundigen (hospital based midwives). In these cases, maternity services are provided by obstetricians and nurses and, as nurses cannot deliver, an obstetrician is always required during the birth.

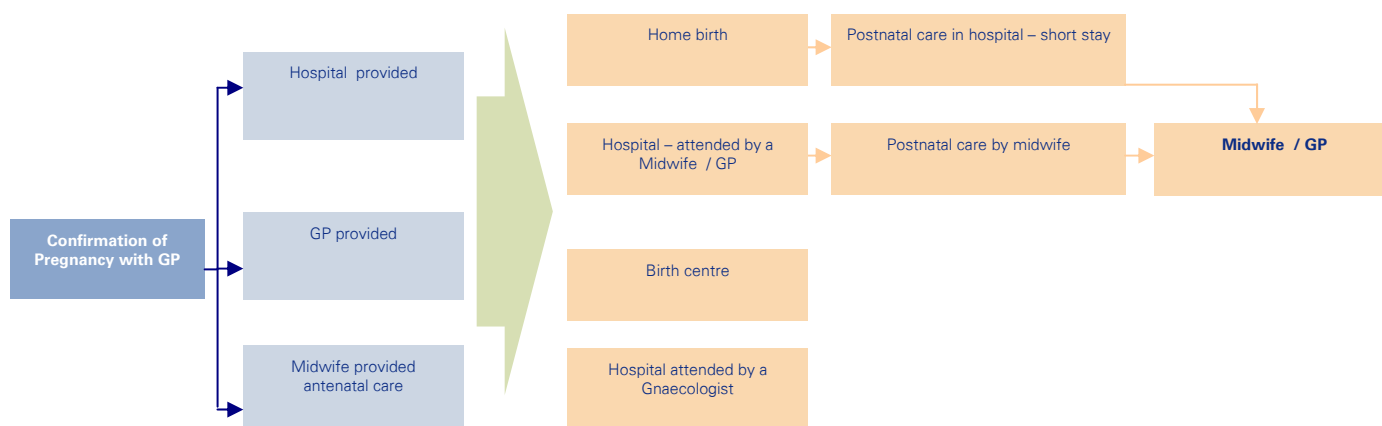
After birth in secondary care, most women go home as soon as possible afterwards - generally, women stay in hospital for at least four hours but no more than 24 hours - and they usually receive postnatal home care by the midwife and maternity home care assistant. . This is known as 'polikinische bevalling' and is the most popular choice of hospital birth, given the short length of stay in hospital.

Women who remain in hospital receive postnatal care by the hospital staff in the maternity ward. These staff can include midwives, nurses, physicians, obstetricians and maternity assistants.

The Netherlands' model gives rise to a contrast between a high level of technical medical sophistication in the field of obstetrics and a high rate of home birth with little reliance on this technology combined within one health care system.

Christiaens et al (BMC Health Services Research, 2007) examined if a referral from home to hospital affected satisfaction with childbirth and found that in the Dutch maternity care system home births lead to higher satisfaction, but once a referral to the hospital is necessary satisfaction drops and ends up lower than satisfaction with hospital births that were planned in advance.

Current Model of Maternity Care in the Netherlands



Types of Maternity Units and Locations

- Birth centres – in order to safeguard home births, the Netherlands Home Birth Foundation (STBN) set up five temporary birth centres for so called re-located home births although these have since closed. STBN is developing birth centres as an alternative to births in hospitals. (Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport)

Workforce

- Under Netherlands legislation covering the practice of medicine, midwives are considered to be autonomous health care providers with their own strengths and responsibilities, equal to those of family doctors who provide care to pregnant women.
- The Royal Dutch Organisation of Midwives (Koninklijke Nederlandse Organisatie van Verloskundigen, KNOV) developed a scope of practice for the midwifery profession in 1990 which sets out that midwifery is a specialist field in obstetrics and midwives have their own special knowledge and skills, which allows them to work effectively and with very few medical procedures. Their main objective is to “prevent complications and to ensure that there is no unnecessary medical intervention”.
- The Netherlands has an additional professional group, Maternity Home Care Assistants (kraamverzorgster), who are educated to diploma standard and who are specially trained to assist a midwife or GP in a primary care setting or for short-stay hospital births.

- These assistants also provide postnatal care at home during the first week after birth. The care they provide involves:
 - monitoring mother and newborn,
 - recognising the first signs of illness or problems in both mother and baby,
 - contacting the supervising midwife or GP when necessary,
 - basic (nursing) care for the mother and newborn, health education for the mother and other family members,
 - caring for other children in the family
 - basic housekeeping and domestic tasks.
- This is similar to a new UK initiative which has introduced Maternity Support Workers (MSWs) who can work in the acute hospital or community setting, always under midwifery supervision. MSWs undertake postnatal support visits, clerical duties, help women with baby care and breastfeeding, and can attend in the home.
- Current challenges for the Netherlands are on empowering midwifery by strengthening midwives role as primary care gate-keepers and co-operation with other health professionals. There is currently discussions on broadening of midwives' role to include prenatal screening, external cephalic version and pre-conceptional consultations.

Workforce Information 2003-2004

Year	No of Births	MHCA WHAT IS THIS	Midwives				Obstetrics gynaecology consultants /		GPs
			Registered	Active	In Training	Active / 1,000 Births	Head count	Per 1,000 Births	Practising Obstetrics
2003	184,599*	7,600	2,674	1,825	697 (240**)	9.9	-	-	-
2004	187,910***		2,835	1,940	-	10.3	806	4.2	594

Source: MCPMCCP; Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport

*estimated on birth rate 11.3/1,000

**admissions in one academic year

***CBS Netherlands 2005

- The ratio of midwives to maternities suggests New Zealand fails to meet the recommendation of Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) which recommends midwife : woman ratios based on case mix and skill requirement, recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour.

Mortality Rates

- There is no strong evidence to either favour planned hospital or planned home births for low risk women.
- Indeed perinatal mortality is low in the Netherlands and perinatal audits have recently been introduced.
- Maternal mortality has improved since 2000.

Infant, Neonatal and Maternal Mortality Rates

Year	Infant Mortality Rate / 1,000 Live Births *	Neonatal Mortality Rate / 1,000 Live Births **	Maternal Mortality (per 100,000 live births)**
2000		-	16
2003	4.26	-	-
2004	5.04	3	-
2005	5.04	-	7
2006	4.96	-	-
2007	4.88	-	-

Source: * CIA World Factbook; **WHO, 2007

Summary and Conclusions

- Maternity care in the home is one of the cornerstones of midwifery in the Netherlands with a focus on risk selection and low rates of clinical intervention. The basic assumption is that giving birth is a healthy process involving no illness or disease.
- Home births are approximately 34% and have remained at this level since the mid 1990s.
- Much maternity care is provided in the community by midwives and increasingly GPs are not involved in births.
- Low risk women can choose from a number of options including home birth, as an outpatient at a polyclinic or in a hospital while women with high-risk pregnancies may be referred to an obstetrician in secondary care, or may share care between the midwife and obstetrician.

- Our data suggests that the ratio of midwives to maternities is disconcertingly low at approximately 11 midwives per 1,000 births and similar to other countries, there is a shortage of midwives.
- Similar to many other developed countries, Caesarean section rates are on the increase and clinical outcomes are good for neonatal and maternal mortality.

Relevance to Dublin

- Midwives are the lead professionals for normal pregnancies, births and postnatal care and significant amounts are delivered in the community setting. Mothers have a choice of birth settings including home, polyclinic or hospital. 34% of births are home births. Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.
- The Netherlands' clinical outcomes compare favourably with other European countries suggesting that safe, effective and women focused maternity care can be delivered in a primary care setting and be provided predominantly by midwives.
- The Netherlands has achieved this in part by having a clear division of tasks and responsibilities in primary and secondary care including midwifery and obstetric care underpinned by collaborative working. Dublin could achieve greater collaborative working but must ensure that the necessary protocols, government arrangements and guidelines are developed and agreed by all professions.

G6: Maternity Provision in the New Zealand

General Overview

- Maternity care is free. The National Health Service funds all elements of maternity care, although there is some obstetric managed private care; the Ministry of Health funds Lead Maternity Carers (LMCs) while Health Boards fund primary maternity facilities, secondary maternity services and tertiary care and specialist neonatal services.
- New Zealand is acknowledged internationally as a leader in its model of maternity services.

Model of Care

- The past 17 years has seen changes in legislation and in how maternity care is provided in New Zealand. In 1990, a change in the law brought about a system whereby pregnant women can choose a midwife, a GP with a diploma in obstetrics or an obstetrician to lead her maternity care (LMCs).
- LMCs take responsibility for the care provided to women throughout pregnancy and the postpartum period including the management of labour and birth. One LMC is expected to take responsibility for all modules of care (registration, second trimester, third trimester, labour and birth, services following birth) so that each woman receives continuity of care.

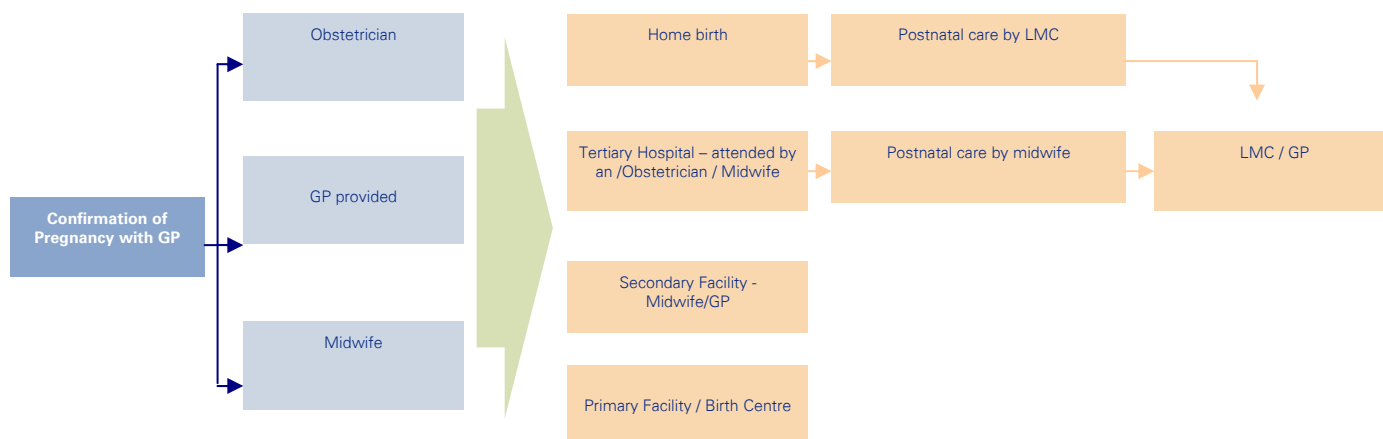
Percentage of LMCs by First Registration and At Birth, 2003

Profession	First Registration (%)	At Birth (%)
GP	7.9	9.0
Midwives (caseload and facility)	78.1	76.1
Obstetricians /Gynaecologists	7.8	8.1
Other	6.2	6.8

Source: Report on Maternity - Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

- The table shows that most mothers register with a midwife with almost equal numbers registering with an obstetrician or GP.
- All women must have access to a maternity care facility which, in conjunction with the (usually) midwife, provides inpatient services during labour and birth and in the immediate postnatal period until discharge home. A professional consensus by all disciplines on referral guidelines has been agreed.
- New Zealand is currently undertaking a review of maternity provision and will report in 2008.

Current Model of Maternity Care in New Zealand



Maternity Units

Type and Numbers of Facility, Capacity and ALOS

Type	Facilities Available	Number	% Births Occurring	Capacity	ALOS
Tertiary	Neonatal	6	44	1,600-7,700	1.4
Secondary	Provides C-Sections	18	40	400-3,200	1.4
Primary	Includes Birth Centres	64	16	13-1,100	0.5
Total		88	100		

Source: Report on Maternity - Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

- Women in New Zealand can give birth at home, in primary maternity facilities or birthing centres, or in secondary maternity hospitals (which have the capability of performing caesarean sections) or tertiary facilities which can provide neonatal intensive care units.
 - Primary Maternity Facilities have no inpatient secondary maternity service and do not have 24-hour on-site availability of Specialist Obstetricians, Paediatricians and Anaesthetists. Primary facilities are often in rural settings although there is a move to establish more primary facilities in urban centres so that women have more options for normal birth.
 - There are many birth centres for low risk women in primary care. Geography, population numbers and demographics determine the location and size of these units and in some cases, the capacity of these units outstrips demand resulting in some women having to access secondary units.
 - Secondary facilities have caesarean section capabilities and provide additional care, from twenty weeks gestation to six weeks following a birth, for women and babies

who experience complications and who, in reference to the Referral Guidelines, have a clinical need for referral to the Secondary Maternity Service for either consultation or transfer on a planned or emergency basis.

- Tertiary Maternity Facilities provide services on a regional basis for women with complex needs who require access to a multidisciplinary specialist team. Women accessing Tertiary Maternity Services will continue to have access to LMC services and Maternity Facility Services. Five of the six tertiary maternity facilities in New Zealand also provide tertiary neonatal intensive care units.
- There are 7 Level 3 neonatal units, 5 Level 2+, and 10 Level 3 neonatal units.
- Paediatric units are almost universally co-located in acute hospitals although there are a few exceptions – Auckland has a stand-alone paediatrics unit.
- In the last five years, New Zealand has moved to relocate any stand-alone tertiary unit onto an acute hospital site. For example, the National Women's Hospital in Christchurch, with >4,000 births per annum, has recently relocated onto an acute hospital site.
- Networks between maternity facilities for sick mothers are not well developed and reflect the Health Board funding model.

Clinical Outcomes

- New Zealand has favourable clinical outcomes for maternal and perinatal mortality.
- The table below shows a maternal mortality ratio of 5 in 2003 but, as can be seen, its maternal mortality rate fluctuates markedly from year to year although this marked fluctuation is due to the small number of maternal deaths.

Table Maternal Mortality

Year	Direct		Indirect		Total	
	Number	Rate	Number	Rate	Number	Rate
2000	2	1.8	3	5.3	5	8.8
2001	0	0	3	5.3	3	5.3
2002	4	7.3	4	7.3	8	14.7
2003	3	5.3	1	1.8	4	7.1

Source: Report on Maternity - Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

- The neonatal mortality rate was 3 per 1,000 live births in 2003.
- The caesarean section rate has increased steadily, from 11.7 in 1988 to 20% in 1999 to 23% in 2003 and there is currently no consensus in New Zealand regarding the optimal caesarean section rate in which to maximise health outcomes.
- New Zealand has been criticised that it failed to develop / implement a rigorous clinical performance database to help map the progress of its new model. Although there have been improvements in capturing performance data, this has remained a weakness. In June 2005, New Zealand established a Perinatal and Maternal Mortality Review Committee (PMMRC), an independent committee to advise the Minister of Health on how to reduce the number of deaths of babies and mothers in New Zealand.

Workforce

Profession	Numbers	Ratio / 1,000 Maternities [55,000]
Obstetricians /Gynaecologists*	170	3
Midwives (caseload and facility)**	2,116	38

Source: *New Zealand Medical Council, 2003;**Nursing Council of New Zealand, 2004

- It is clear that New Zealand has invested in its midwifery workforce. The ratio of midwives to maternities demonstrates that New Zealand meets international and UK based guidelines on optimal midwifery resources. For example, the recommendations set by Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) recommends midwife:woman ratios based on case mix and skill requirement, and recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour. The Royal Colleges in the UK further recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour.
- Current issues with the obstetric workforce are the decreasing numbers of GPs becoming involved and the increasing age profile of midwives (where the average age is 50-55 years old).
- There are issues in sustaining a specialist workforce in provincial / rural areas and New Zealand is looking to 'cluster' 2-3 locations to form a sub-regional model of secondary care.

Gynaecology Services

- Gynaecology services may be provided by hospital based or private practice gynaecologists.
- Routine gynaecology services are performed at secondary hospitals and there has been a move to day case surgery.
- Gynaecology services are linked to obstetrics and gynaecology.

Summary and Conclusions

- New Zealand's system of LMC offers a unique model of maternity care offering women choice in terms of lead carer and location of birth.
- Midwives are the preferred choice for LMC and New Zealand is one of the few countries able to demonstrate it can meet international guidelines on the ratio of midwives:mothers to ensure a safe level of service and to achieve one-to-one care in labour.
- Midwives are now the lead professionals for normal pregnancies, births and postnatal care demonstrating that not all care needs to be delivered by a consultant. There is no evidence that midwifery autonomy has increased the risk of perinatal or maternal mortality as outcomes in general are very good. 16 % of births take place in primary care facilities and birth centres.
- Caesarean section rates are climbing as with other developed countries. However average length of stay is very good at 1.4 days for secondary and tertiary sites and 0.5 days for primary sites
- New Zealand recognises the importance of maternity hospitals having access to other clinical resources and has moved to re-locate stand alone tertiary facilities onto acute hospital sites. Paediatric services are also located on acute sites.
- The capacity of units and numbers of births are determined by local demographics and population needs. However there are some units accommodating 7,000+ births.
- Routine gynaecology services are performed at secondary hospitals and there has been a move to day case surgery.
- Gynaecology services are linked to obstetrics and gynaecology.

Relevance to Dublin

- New Zealand provides clear support for co-location of maternity units on acute hospital sites and the location of paediatric services with acute hospital services and it provides support for units with a high volume of deliveries. The National Women's Hospital in

Auckland with <8,000 births, is similar to the Dublin hospitals while Christchurch Women's Hospital, <5,000 births, has recently relocated onto an acute hospital site.

- The LMC system has increased the role and autonomy of midwives and there is no evidence that clinical outcomes have deteriorated as care has moved from GPs and obstetricians to midwives. This would suggest that similar clinical outcomes could be achieved in Dublin by giving more autonomy to midwives although this would need to be supported by partnerships and collaborative working arrangements. Outcomes in New Zealand are very strong when you consider that 16% of births take place in primary care facilities. This strongly supports the case in GDA for providing MLUs, where care is provided by the midwife but, as we are proposing that they be co-located with the obstetric service, there will be proximate access to emergency care if required.
- Women in New Zealand have a choice of birth settings including primary maternity facilities or birthing centres, or in secondary maternity hospitals (which have the capability of performing caesarean sections) or tertiary facilities which can provide neonatal intensive care units. Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.
- The LMC model clearly offers an opportunity to provide antenatal and some postnatal care in a community setting thus freeing up capacity and resources in obstetric units and providing more accessible services to mothers.
- Caesarean -section rate like GDA have been increasing and are running at 23% in 2003, similar to GDA.
- Average length of stay at 1.4 days in tertiary obstetric units is low compared to the three maternity units in Dublin, suggesting there is a significant opportunity for improvement in GDA.
- Gynaecology provision provides clear support to move more services into the community and/or day surgery thus making more effective use of hospital facilities.
- Gynaecology provision is linked to the gynaecology/obstetric services, but tertiary services are located on acute hospital sites permitting proximate access to multidisciplinary teams. This is not inconsistent with our recommendations for gynaecology for GDA. Gynaecology should be provided where the multidisciplinary teams are, and New Zealand supports this. Therefore, for GDA in the future this will be in the new cancer centres.

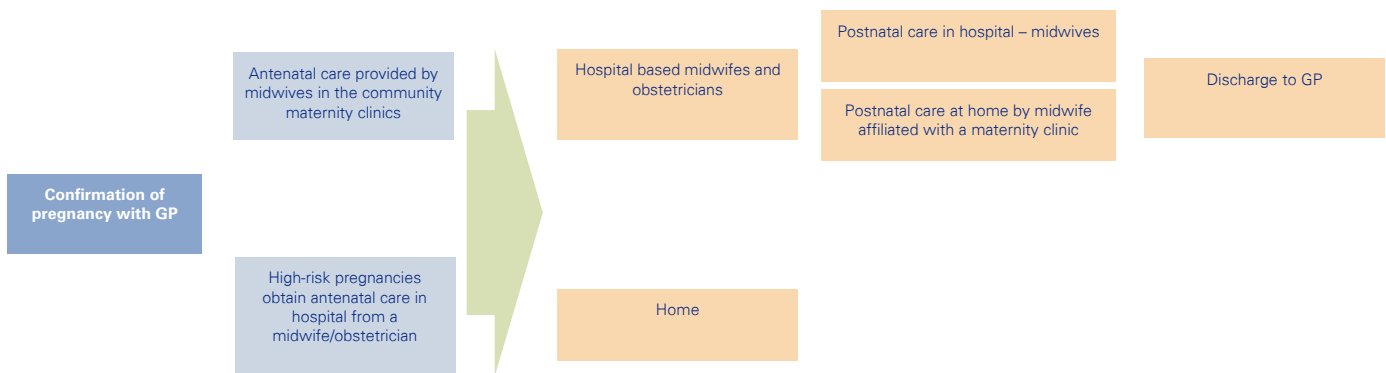
G7: Maternity Provision in Sweden

Model of Maternity Care

- In Sweden, collaborative models of care exist between midwives and obstetricians and some collaboration occurs between midwives and GPs who are involved in obstetric care.
- All women in Sweden are entitled to antenatal care, childbirth in hospital and postnatal care.
- In Sweden antenatal care is provided mainly by midwives working in maternity clinics (also called antenatal clinics). These are predominately community based and employ from one to 12 midwives depending on the size. Many of these clinics are part of a primary care centre. For example, a Family Centre, where different healthcare professionals work closely together.
- The majority of the clinics are government-run, but there are additional privately run clinics that are also covered by national health insurance.
- Midwives, working in primary health care and at maternity hospitals, are responsible for a wide range of reproductive health services, including antenatal and postpartum care, contraceptive services, abortion counselling, and hospital deliveries.
- GPs are sometimes involved in maternity care, mainly in rural areas as compared to urban areas. GPs are affiliated with a community maternity clinic and hold consultation office hours where they can see pregnant women referred by the midwife for mainly non-pregnancy related complications.
- A routine prenatal visit to the (hospital-based) obstetrician is recommended in Sweden. However, the majority of midwives working in maternity clinics do not adhere to this.
- Women at obstetrical risk or those who develop complications during pregnancy are referred to the obstetrician. Although obstetricians are responsible for deliveries with obstetrical risk, midwives generally conduct these deliveries with the exception of instrumental and operative deliveries.
- More than 99% of births take place in hospital.
- Hospital employed midwives care for normal births.
- Postnatal care in the delivery ward is provided by hospital-based midwives.
- When a woman goes home within 72 hours after birth, she is entitled to postnatal care at home provided by midwives affiliated with a maternity clinic.

- A postnatal check-up, 6-10 weeks after delivery, is also performed by a midwife from the maternity clinic. In some hospital, antenatal care is provided by paediatric nurses.
- A qualitative study based on responses of 827 pregnant women suggested a range of areas for improvement and that a patient-centered and individualized approach, with women and their partners as the subjects rather than the objects of care, would increase satisfaction and the overall quality of maternity services in Sweden. (Women's Perspectives on Maternity Services in Sweden: Processes, Problems, and Solutions, Ingegerd Hildingsson and Jan E Thomas, Journal of Midwifery and Women's Health, Volume 52, Issue 2, Pages 126-133 (March 2007)).

Current Model of Maternity Care in Sweden



Maternity Units

- In Sweden, there are eight regional hospitals, some 70 county hospitals and just over 1,000 health centres.
- In the whole country, there are approximately 42 hospitals with maternity wards and departments of gynaecology and obstetrics. Previously, there were 57 obstetric/gynaecology units but there has been a trend to centralise healthcare provision including maternity provision resulting in the closure of some maternity units in specific locations, including some units in large cities. Some smaller maternity units have closed although small units do remain reflecting population densities and local needs in rural areas.
- There are no stand alone maternity hospitals or paediatric hospitals in Sweden. All maternity units are co-located on acute hospital sites ensuring they are close to all necessary resources e.g. laboratory facilities, theatres etc.
- There are two MLUs in Sweden, both co-located within hospitals in Stockholm for low-risk pregnancies.
- Maternity units range from 1,500 – 4,500 and the largest unit is 6,000 reflecting population needs.

Workforce

Number and Ratio of Obstetricians and Midwives to Maternities

Profession	Numbers	Ratio / 1,000 Births (95,815*)
Obstetricians /Gynaecologists (2005)	1,202	12.5
Midwives (2002)	6,400	66.8

Source: MCPMCP; *Births in 2002, Statistics Sweden

- In the UK, the Royal College of Obstetricians and Gynaecologist and the Royal College of Midwives recommend a ratio of 36 midwives per 1,000 deliveries to enable one to one care. Sweden's midwifery workforce greatly exceeds this level and is significantly higher than the ratio in the GDA. Sweden's midwifery ratios reflect their involvement in primary, community and secondary care and for all aspects of pregnancy.
- Approximately 99% of midwives work in the public sector.
- Midwives also provide advice and information on a range of related issues including abortion counselling, sexually transmitted disease (STD) prevention, contraceptive advice etc.
- 57% of Obstetricians /Gynaecologists are female.

Clinical Outcomes

Clinical Outcomes 2000-2005, Sweden

Year	2000	2001	2002	2003	2004	2005
Caesarean section %*	14.8	16	16.1	16.3	16.8	17.2
Neonatal mortality / 1,000 live births*	2.3	2.5	2.1	2.2	2.1	1.5
Perinatal mortality / 1,000 live births*	5.5	5.6	5.2	5	4.8	4
Infant mortality / 1,000 live births**	3.4	3.7	3.3	3.1	3.1	2.4
Maternal mortality**	-	-	-	-	-	8

Source: *The Health and Welfare Statistical Databases; **OECD – Health Status (Mortality)

- The Swedish health care system is heavily decentralised. Sweden's 21 county councils are responsible for providing health and medical care services across large geographical areas. The county councils, in turn, are grouped into six regions. One of the purposes of the regions is to facilitate cooperation in highly specialised care.
- Compared with other countries at a similar development level, the system performs well. For example, neonatal and perinatal mortality are amongst the lowest in Europe and continue to decrease.
- Part of Sweden's clinical success is attributed to its strong welfare system. For example, maternity provision is trusted and is free of charge (including follow-up care), the role of midwives and the significant collaboration between them and other health professionals.
- In 2003, the BJOG (British Journal of Obstetrics and Gynaecology) published research showing that Sweden (and Finland) had better levels of maternal and perinatal care than other European countries.
 - The EuroNatal Working Group investigated the differences in background to 1,619 perinatal deaths in selected regions of ten European countries. The regions were identified as having characteristics representative of their country as a whole. The audit looked at deaths between 1993 and 1998 and assessors examined the presence of suboptimal care factors that had possibly or probably contributed to the death of the baby.
 - The study found that 46% of the deaths examined had suboptimal factors that possibly or probably contributed to the death of the baby. The percentage of cases with suboptimal care factors was significantly lower in the Finnish (31.9%) and Swedish (35.7%) regions when compared to the regions of Norway (39.6%), Spain (44.1%), the Netherlands (48.4%), Scotland (50.6%), Belgium (51.1%), Denmark (51.2%), Greece (51.4%) and England (53.5%).

- The authors conclude that the findings of this audit suggest differences exist between the regions in the quality of antenatal, intrapartum and neonatal care, and that these differences contribute to the explanation of differences in perinatal mortality between these countries.

(Dr Jan Hendrik Richardus, Department of Public Health, Erasmus Medical Centre, Rotterdam, the Netherlands)

- Similar to other European countries, Sweden's Caesarean section rate is steadily increasing although is lower than many other European countries. Over 90% of breech births are delivered by Caesarean section and 56% of multiple birth deliveries. Sweden has introduced a specific programme to educate and inform mothers to choose a vaginal delivery.
- The average length of stay (ALOS) for normal delivery has decreased from 6 days in 1973 to 2 days in 2005 while ALOS for Caesarean section deliveries has fallen from 9 days to 2 days in the same period (The Swedish Medical Birth Register 1973-2005, Summary).
- Sweden is currently extending its prenatal diagnosis services but recognises the resource implications – workforce, equipment and costs.

Neonatology

- Neonatology is very centralised. For example, neonatal heart surgery is now centralised in two units. Most maternity units have neonatal facilities although only larger units have level 3 facilities – there are 7 such facilities in Sweden. Formal arrangements and networks between hospitals are well established although there are some transportation issues.

Gynaecology

- GPs generally make the referral to an acute hospital.
- Similar to obstetrics, gynaecology services have been centralised particularly gynaecology treatments and are concentrated in the larger obstetric/gynaecology departments although there is great collaboration with oncology units.
- Hospitals tend to specialise in specific services. For example, surgery for gynaecological tumours take place in Lund while infertility treatment is centralised in Malva with postoperative care and follow-up provided locally.
- Sweden has a national quality assurance system for gynaecology services but not all gynaecology departments are involved as yet.
- There has been a move to increase the numbers of treatments by day procedure, advanced laparoscopic surgery and robotic laparoscopic surgery and the time spent in hospital has been steadily reduced, as has the number of gynaecology beds.

- Sweden is developing programmes for treatments for different types of tumour and a series of national guidelines.

Summary and Conclusions

- In Sweden most antenatal and postnatal care are provided by a midwife in a community clinic.
- Almost all deliveries take place in hospitals and are usually attended by midwives with support from obstetricians where clinically necessary. There are two hospital based MLUs.
- Clinical outcomes are very good for perinatal and neonatal mortality, maternal mortality and Caesarean section rates and amongst the best in Europe although, similar to many other countries, Caesarean section rates are on the increase.
- All maternity units are located at/on acute hospitals. There are no stand alone maternity units or paediatric units.
- Sweden has closed several maternity units in order to centralise services although its geography and demographics dictate the size and location of units outside major cities. Larger units deliver about 6,000 babies.
- Neonatology networks are well developed and all infants requiring heart surgery are brought to one of two specialist centres.
- There is a greater focus on day procedures for routine gynaecology treatments while gynaecology is concentrated in larger obstetric and gynaecology units, although with strong collaboration with oncology services.

Relevance to Dublin

- Sweden has made a clear decision not to build stand-alone facilities and provides clear evidence for co-location on acute hospital sites where there is ready access to all necessary specialists and clinical support services. Infants requiring heart surgery are treated in specialist centres providing Level 3 NICU and paediatric services. This is in addition to the development of very strong neonatology networks. This clearly supports the case for co-location of one of the obstetric units and Level 3 NICUs in GDA with the new paediatric hospital. The larger obstetric units deliver 6,000 births which is consistent with our recommendations for GDA.
- Almost all antenatal care is provided by midwives in a community setting supporting the view that further investment in community based care is necessary in GDA and should free up hospital capacity.
- Almost all deliveries take place in hospitals with midwives working collaboratively with obstetricians and Sweden maintains good clinical outcomes. However, there is

evidence of change here with the development of two hospital based MLUs offering women more choice.

- Clinical outcomes are very good, and are amongst the best in Europe and this can be attributed in part to the close collaboration between professions as well as the quality of care provided. Sweden's clinical outcomes are especially noteworthy given that the majority of deliveries, even in higher risk cases, are undertaken by midwives. So while on the face of it, the Sweden model of care may appear highly medicalised, it differs from GDA in that there is strong midwifery involvement in both antenatal care and delivery. This supports our view that in Dublin very good outcomes can be achieved by transferring more antenatal care to community-based midwives and increasing the role of midwives in obstetric units, but with clear collaboration with other professions.
- Major gynaecology surgical services have been centralised in gynaecology units but with close links to oncology. This is a feature of the structures of services in Sweden where hospitals tend to specialise in specific services and does not run contrary to our view that gynaecology can be separated from gynaecology/obstetric units, because of increasing sub-specialisation and the needs for cancer patients to be treated by multi-disciplinary teams. Sweden has recognised strong collaboration between gynaecology and cancer units.
- There is an increase in routine surgery being performed as day surgery and increased use of laparoscopic surgery and robotic laparoscopic surgery. This has relevance to GDA, where there is a high level of inpatient activity and high numbers of procedures done through open abdominal surgery. The evidence from Sweden would support the view that GDA needs to reduce its inpatient admissions and increase day surgery rates.

G8: Maternity Provision in the UK (England and Wales)

General Overview

- Maternity provision is covered by various frameworks and strategies. The National Service Framework (NSF) for Children, Young People and Maternity Services sets out the need for flexible services with a focus on the needs of the individual, especially those who are disadvantaged or vulnerable. Specifically, NSF emphasises the need for all women to be supported and encouraged to have as normal a pregnancy and birth as possible. (Source: Maternity Matters, DoH, UK)
- Maternity Matters: Choice, access and continuity of care in a safe service sets out the UK DoH's vision for the future of maternity services. It sets out national choice guarantees on how to access maternity care. This includes choice on type of antenatal care, choice of place of birth (home, local facility under the care of a midwife or in a hospital) supported by a multi-disciplinary midwifery team including consultant obstetricians. It also includes choice of postnatal care.
- The Royal College of Midwives' policy document Vision 2000 sets out a vision for maternity services which is responsive to individual needs and preferences, and which promotes partnership working between midwives, obstetricians, paediatricians, GPs,

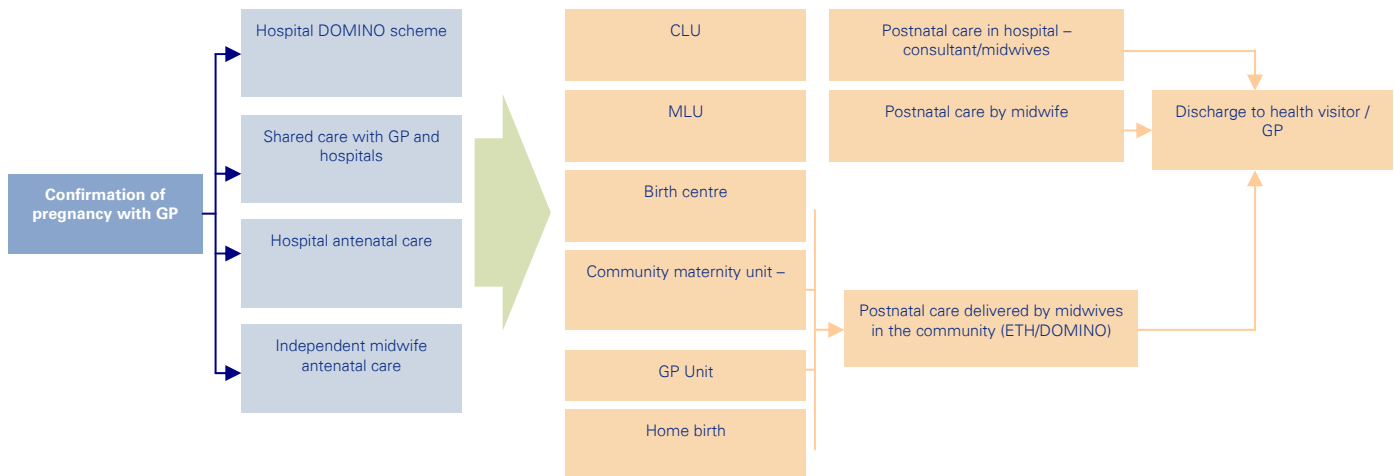
health visitors, maternity care assistants, social care professionals and the voluntary sector.

- The first port of call for almost all pregnant women in the UK is with their GP for confirmation of pregnancy.
- GPs generally make the referral to hospital – and 98% of all births take place in a hospital setting or other type of maternity unit (about 3.5% of these are in MLUs based on 2005 statistics), and over 99% are within the NHS.
- Midwives are the lead professionals for normal pregnancies, births and postnatal care.
- Generally, GPs are not very involved in maternity services as this is delegated to community midwives. The exception is in Scotland where there is a ‘shared care’ model, but increasingly GPs are not involved.
- Medical staff, such as obstetricians, anaesthetists and paediatricians in partnership with midwives, are involved in complicated or high-risk pregnancies.
- Midwife led care and/or GP led care is recommended for all women with uncomplicated pregnancies and the routine involvement of obstetricians in the care of women with uncomplicated pregnancies is not recommended as it does not improve perinatal outcomes compared with involving obstetricians when complications arise.
- Midwifery services are provided in both the acute and community sectors. Most midwives work in a hospital setting or in the community which are usually attached to GP surgeries. Very few midwives work in independent or private practice.
- Community based midwives tend to be involved in antenatal care, home or short stay hospital births, and post natal care.
- The majority of antenatal care takes place in the community.
- The Healthcare Commission has conducted a review of maternity services to focus on whether hospital trusts provide a high quality, value for money maternity service.
 - In recent years maternity services have become a cause for concern as the Commission have investigated potentially serious issues affecting maternity services at three separate trusts and found worrying similarities in the problems identified – mainly relating to poor staffing practices and shortages of staff.
 - This review, which is the most comprehensive assessment ever of maternity services in England, has found significant variations in the quality of care across the country.
 - The Commission found that Trusts in the north of England performed relatively well, while Trusts in London performed most poorly. In the north, 33 out of 44

trusts were 'better performing' or 'best performing' (75%), while 19 out of 27 London trusts were 'least well performing' (70%).

- The Commission deliberately made the experience of women central to this review. The Commission also conducted its biggest ever survey which found that mothers have praised the good quality of care provided by NHS maternity services but also highlighted specific areas of concern and wide variations between hospital trusts in responses to questions about postnatal care, communication, food and cleanliness.

Current Model of Maternity Care in the UK



Maternity Units

Women in the UK have a choice of place of birth including home, hospital and/or local facility.

Consultant Led Units

- A Consultant Led Unit (CLU) is usually part of a general hospital, staffed by obstetricians (specialists in birth where there are complications) and midwives (specialists in normal birth).
- A woman is usually booked under the care of a particular consultant, but may only see them rarely throughout her pregnancy. Midwives will give most of her care. If complications arise during pregnancy or labour, the doctors will become more involved. Interventions such as epidurals and Caesarean operations are usually available in the

unit. Each consultant in the maternity unit will have their own policies for the management of labour.

- Some consultant units offer midwifery-led care, such as team midwifery or DOMINO schemes. These give continuity of care, allowing women to get to know their midwives before the birth. Some consultant units include a midwifery-led unit (see below) – examples include Newham Hospital, Watford General Hospital, Royal Berkshire Hospital in Reading.

Other Maternity Units

- Midwifery-led units, GP units and birth centre types of maternity units provide maternity care for women who have chosen a "low-tech" birth environment. They provide friendly, personal care from midwives. They can be grouped according to whether they are at a hospital which also has a consultant unit, or if they are situated away from a main obstetric hospital (community units). There are approximately 24 birth centres in the UK.
- Recent research shows that childbirth in such centres is as safe as in consultant-led units, provided that a) admission is restricted to low-risk women or b) if the midwife unit is not located near a consultant unit, there are efficient escalation protocols for transferring the woman to an acute hospital. R. Campbell et al, "Evaluation of midwife-led care provided at the Royal Bournemouth Hospital" *Midwifery* (1999) 15 183–193.

Hospital Midwifery-Led Units

- Midwifery-led units have been opening up next to some consultant units. They are a "low-tech" option for women who want to give birth with little or no medical intervention although women can easily be transferred to the consultant unit if there are complications. Examples include Central Middlesex Hospital, Kent and Canterbury Hospital, Wrekin Maternity Unit in Telford. Most MLUs tend to have low birth numbers.

Community Units

- Community units are another birth option for women who do not want a home birth but do not feel comfortable with a hospital environment, or live a long way from their nearest hospital. They tend to have a "home-from-home" atmosphere giving many of the benefits of home birth.
- In some places, they are near a hospital so that women with complications can be transferred quickly. In rural areas, community units are a place for women to give birth without travelling a long way to the nearest consultant unit. Because epidurals and Caesarean sections are not usually available at these units, they tend to be suitable for women expected to have a good chance of having a straightforward birth ("low-risk" women). This can include first-time mothers.

- In GP units (GPU), a GP specialising in birth is available for interventions such as forceps deliveries. In some community units, a doctor may be available to carry out Caesarean operations in an emergency. Increasingly, GPs are not involved in maternity care.
- All but one of these community units are owned by the NHS. There is currently only one birth centre in England which is run privately by independent midwives, which is in South-West London.

There are examples of innovative practice and initiatives in the UK, particularly in low intervention care for low risk women. For example, Albany Midwifery Practice is part of King's College Hospital Trust and is bucking the trend for medical childbirth for low risk women. The Practice offers continuous care throughout pregnancy, birth and postnatal period and women work with one midwife throughout. The Practice is a partnership of seven midwives who each work for nine months of the year, during which time they live with a pager. Their results are impressive:

- C-Section rate 15%
- 47% of women gave birth at home
- 93% of women gave birth without pain relief
- 78% of women were breastfeeding 28 days after giving birth.

The Albany model has been replicated at St Thomas's Hospital in London, covering three deprived areas of Southwark and has already seen improvements in breastfeeding rates and a drop in DNA antenatal appointments from 18% to 1%.

Type of Unit and Numbers¹

Type of Maternity Unit in the UK

Type of Unit	Number	%
Consultant Led Unit	161	59.9
Midwife Led Unit	65	24.2
Consultant Led Unit with Midwife Led Unit	36	13.3
General Practitioner Unit	6	2.2
Consultant Led Unit with General Practitioner Unit	1	0.4

¹ There are minor discrepancies in the numbers and sizes of maternity units reported by different sources possibly reflecting ongoing changes and developments in maternity provision across different years.

Type of Unit	Number	%
Total Number of Units	269	100

Source: BirthChoiceUK, 2006

- The above table shows that CLUs tend to dominate maternity services although these have dropped to 60% from 73% of units in recent years (2003/2004) and reflect the rise of MLUs.
- Liverpool Women's Hospital's MLU has seen a sharp rise in the numbers of women delivered, from 991 in 2000 to almost 2,000 in 2004, and in 2004 there were less than 3% instrumental deliveries due to its concept as a non-interventional, low risk delivery area.

Capacity

Operational Information on Births, Beds and Midwives

Type Unit England 2005	of – No of units	No Births of	Av Birth / Unit/ Annum	Births Bed / Annum	Total WTE Midwives	Midwives / 1,000 births	WTE Bed /
MLU	67	19,844	296	86	854	43	3.7
HOSPITAL	181	561,576	3,103	275	15,780	28	7.7

Source: Maternity Care: Births in England, 2005 (Hannah, J)

- As previously noted, the vast majority of births take place in a hospital setting, generally in a CLU. MLUs tend to be small, averaging 300 births per unit but this masks a wide range; for example, in 2006 Gilchrist Maternity Unit's MLU reported 27 births while Kent and Canterbury Hospital reported 1,932 births. MLUs provide substantially greater midwife to 1,000 maternities² ratio (1:43 in an MLU compared with 1:28 in a CLU) and midwife to bed ratio (3.7 to 7.7).

Size of Units

- Within the UK, there is no optimal size of maternity service although, in recent years, there has been a deliberate move to centralise maternity services into larger units and a larger proportion of births are taking place in larger units.

² Maternities – the total number of women who give birth to live or stillborn babies.

Size of Units in the UK, 1973-2003

No of Births / year	1,000 - 1,999	2,000 - 2,999	3,000 - 3,999	4,000 - 4,999	5,000 - 5,999	6,000 - 6,999	7,000 - 7,999	8,000 - 8,999
1973	121	58	25	13	0	0	0	0
1996	104	63	28	31	0	0	0	0
2003	27	56	50	27	9	2	0	1

Source: *Maternity Services in the NHS, Reform, 2005*

- However, as can be seen from the table, maternity units in excess of 5,000 births are the exception and the average birth per unit per annum tends to be approx 3,000.

Workforce

- In October 2007, the Royal Colleges combined to produce a joint report of recommendations for safer maternity care. The report, *Safer Childbirth*, sets out the minimum staffing level for a labour ward as follows:
 - consultant led wards with +2,500 deliveries / annum should have at least 40 hrs of consultant presence during the working week
 - all consultant led wards with +6,000 deliveries / annum should have at least 60 hrs of consultant presence during the working week
- In 2005, only half of all consultant led units of the relevant size had 40 hrs of consultant time during the working week. The Royal Colleges recognise that this level of consultant cover can only be achieved with considerable expansion of consultant numbers.
- The Royal Colleges further recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour.
- Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) which recommends midwife : woman ratios based on case mix and skill requirement, recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour.

Workforce Information 2002-2005

Year	No of Maternities	Midwives				Obstetrics / Gynaecology Consultants				Obstetrics / Gynaecology Registrars			
		Head count	Full Time Equivalent	% Variance	FTE/1,000 maternities	Head count	FTE	% Variance	FTE/1,000 maternities	Head count	FTE	% Variance	FTE/1,000 maternities
2002	560,332	23,249	18,119	-	32.3	1,308	1,211	-	2.2	1,014	901	-	1.6
2003	584,450	23,941	18,444	2	31.6	1,353	1,253	3	2.1	973	940	4	1.6
2004	601,467	24,844	18,854	2	31.3	1,413	1,306	4	2.2	1,099	1,062	13	1.8
2005	607,090	24,808	18,949	0.01	31.2	1,458	1,370	5	2.3	1,290	1,254	18	2.1
				4.6					13				39

Source: The Safety of Maternity Services in England, Kings Fund, 2007

- The table indicates that there has been a marginal increase in the numbers of midwives and more significant increases in the numbers of consultants and registrars but these staff increases have occurred at a time of increases in the numbers of maternities.
- There has been marginal improvement in the ratio of midwives and consultants to maternities but hospitals are struggling to maintain the minimum staffing levels as recommended by the Royal Colleges.
- More recently, the Healthcare Commission found that, on average, the level of midwife staffing in maternity units is 31 midwives per 1,000 deliveries and that nine trusts had only 26 midwives per 1,000 deliveries or fewer. Two thirds of trusts reviewed scored weak, suggesting that very low staffing levels may be associated with poor overall performance.
- Additional key issues with the midwife workforce in the UK include the age profile (almost one third registered to practice are over 50 years of age) and the numbers of midwife vacancies – 78% of maternity units in England were experiencing vacancies and 59% had been unfilled for more than three months. There are however over 1,000 additional midwifery students due to qualify leading up to 2009.
- A key initiative to providing a skilled workforce has been to focus on ensuring that maternity services have staff at appropriate levels, with appropriate skill sets, undertaking appropriate tasks.
- A new development in the UK has been the creation of Consultant Midwife posts which are clinical leadership posts with responsibilities for education and service development and at least 50% of their time spent on clinical practice. There are currently approximately 20 such posts and they are seen as key change agents and an important resource for the local health organisations responsible for managing health services in a local area.
- The last few years have seen the development of Maternity Support Workers (MSWs) who can work in the acute hospital or community setting, always under midwifery supervision. MSWs undertake postnatal support visits, clerical duties, help women with baby care and breastfeeding, can attend home births and generally assist with post-delivery care. They help free up midwives to concentrate on midwifery tasks. For example, Derby Hospital NHS Foundation Trust reported that the use of MSWs helped:
 - reduce midwives' non-midwifery tasks by 30%
 - reduced waiting times in community antenatal clinics
 - saw MSWs undertake 18% of post-natal home visits.

(Source: Maternity Matters, DoH, UK).

- Specialist midwives such as lecturer practitioners and antenatal screening coordinators are seen to contribute positively to local maternity teams and to drive forward enhancements to services.

Centralisation

- The idea behind centralisation was that larger units are better able to provide better quality neonatal and maternal intensive care without the need to transfer sick babies or mothers around the country. As can be seen from the following tables, perinatal or maternity mortality figures have not improved significantly in the last 10 years and there is little evidence that the UK achieves better perinatal or maternal mortality figures than comparable countries. However, such figures mask improvements in specific areas such as improved survival rates for very low birth babies and the increase in multiple births because of In Vitro Fertilisation (IVF).

Stillbirths, Early Neonatal and Neonatal Deaths per 1,000 Live Births, 1996, 2001-2005

Year	Still Births per 1,000 total births	Early neonatal deaths per 1,000 live births	Neonatal deaths per 1,000 live births
1996	5.4	3.2	4.1
2001	5.3	2.7	3.6
2002	5.6	2.7	3.6
2003	5.8	2.8	3.6
2004	5.7	2.7	3.5
2005	5.4	2.6	3.4

Source: National Statistics - Mortality Statistics; childhood, infant and perinatal

Direct and Indirect maternal deaths and mortality rates per 100,000 maternities* as reported to the Enquiry; United Kingdom: 1985-2005.

Triennium	Direct deaths known to the Enquiry			Indirect deaths known to the Enquiry				Total Direct and Indirect deaths known to the Enquiry			
	Number	Rate	95 per cent Confidence Interval (CI)	Number	Rate	95 per cent CI		Number	Rate	95 per cent CI	
1985-1987	139	6.13	5.19 7.23	84	3.70	2.99 4.58		223	9.83	8.62 11.21	
1988-1990	145	6.14	5.22 7.23	93	3.94	3.22 4.83		238	10.08	8.88 11.45	
1991-1993	128	5.53	4.65 6.57	100	4.32	3.55 5.25		228	9.85	8.65 11.21	
1994-1996	134	6.10	5.15 7.22	134	6.10	5.15 7.22		268	12.19	10.82 13.74	
1997-1999	106	4.99	4.13 6.04	136	6.4	5.41 7.57		242	11.4	10.05 12.92	
2000-2002	106	5.31	4.39 6.42	155	7.76	6.63 9.08		261	13.07	11.57 14.75	
2003-2005	132	6.24	5.27 7.40	163	7.71	6.61 8.99		295	13.95	12.45 15.64	

Source: Confidential Enquiry into Maternal and Child Health, Saving Mothers Lives, 2003-05

- The above table shows that the maternal mortality rate calculated from all maternal deaths directly due to pregnancy identified by the Confidential Enquiry into Maternal and Child Health (CEMACH) has not changed significantly in the last 10 years. While the data in table shows an increase in the numbers of maternal deaths indirectly due to pregnancy, this is due to improved reporting rather than increased numbers.
- There is no evidence to directly link maternal deaths to model of maternity care. CEMACH reports that many possible factors lie behind the lack of decline in the maternal mortality rate. They include rising numbers of older or obese mothers, women whose lifestyles put them at risk of poorer health and a growing proportion of women

with medically complex pregnancies. Because of the rising numbers of births to women born outside the UK, the rate may also be influenced by the increasing number of deaths of migrant women. These mothers often have more complicated pregnancies, more serious underlying medical conditions or may be in poorer general health. They can also experience difficulties in accessing maternity care.

- An investigation into 10 maternal deaths which occurred between 2002 and 2005 at Northwick Park Hospital identified a number of underlying factors - these were a failure of staff to recognise deviation of progress from the norm, delays in seeking medical advice and a lack of a management plan for high-risk women. The investigation also identified issues around communication and team working and a lack of learning lessons from any internal reviews. (Confidential Enquiry into Maternal and Child Health, Saving Mothers Lives, 2003-05)

Location

- Most hospital CLUs tend to be co-located on acute hospital sites. There are a few notable exceptions including Liverpool Women's Hospital which is the largest maternity hospital in Europe (>8,000 deliveries / annum) and is a stand-alone hospital. However, current developments in the UK are away from stand-alone sites and indeed several London stand-alone maternity hospitals have moved onto acute hospital sites to improve service delivery and service effectiveness, particularly for high-risk women as acute hospitals can provide access to a range of specialities, especially in emergencies. Glasgow is soon to transfer its stand alone maternity site. These include:
 - Queen Charlotte's Hospital that moved from a stand-alone site in Chiswick to the Hammersmith hospital acute hospital site
 - the Mother's hospital in Hackney (stand-alone) moved to the Homerton hospital acute site
 - West London hospital (stand-alone) which moved to the Chelsea and Westminster hospital acute site.

Developments impacting on Maternity Services

- The current focus in the UK is on improving the experience of pregnancy and childbirth e.g. through provision of 24 hr anaesthetic cover, development of birth plans, water births, aromatherapy services etc.
- It has also been recognised that clinical outcomes for the more vulnerable and disadvantaged give cause for concern and maternal mortality outcomes tend to be worse for women from disadvantaged communities, in families where both partners are unemployed or where women are single; and infant mortality outcomes tend to be worse for babies born to women in manual socio economic groups, teenage mothers, black and ethnic minority groups women and those in deprived communities. Generally this is because of a failure to access care early or consistently. (Saving Mothers Lives: Reviewing maternal deaths to make motherhood safer, 2003-2005 – Confidential Enquiry into Children and Maternal Death, December 2007).

- In the UK, reviews of local maternity services have been seen as a means to reshape maternity services and have provided opportunities to improve what is being done for the health and wellbeing of the most vulnerable and excluded families in society i.e. one of the simplest solutions to helping these families is taking services to them by providing greater maternity care in the community. (Making It Better: For Mother and Baby; Clinical case for change, Report by Sheila Shribman, National Clinical Director for Children, Young People and Maternity Services, Department of Health, 2007)

Clinical Efficiencies

- There have also been various initiatives and action plans to improve service effectiveness and efficiency especially in relation to Average Length of Stay (ALOS) and clinical procedures such as Caesarean Sections.
- ALOS has reduced consistently over the last five years, from 66% of mothers staying 2 days or less in 2002 to 72% in 2006.

Average Length of Stay, 2002-2006

Year	Average Length of Stay (percentage)						
	Same Day	1 day	2 days	3 days	4 days	5 days	6 days
2002	13	33	20	15	9	4	2
2003	14	35	20	14	8	4	2
2004	15	35	20	15	8	3	2
2005	16	35	21	15	7	3	2
2006	16	35	21	15	6	3	1
Average	14.8	34.6	20.4	14.8	7.6	3.4	1.8
% Point Variance 2002-2006	3	2	1	0	-3	-0.6	-0.2

Source: HPE/HES

- As can be seen from the table there has been a consistent move to discharge some mothers on the same day or within one day.

Delivery Method and Days from Delivery to end of Episode, 2002/2003

Method Onset Labour	of of	Method Delivery	of	Days from delivery to end of episode (percentage)*					
				0-3 day total	same day	1	2	3	4-6 days
Spontaneous		Spontaneous		93	22	45	20	7	5
		Instrumental		86	7	35	31	14	11
		Caesarean		53	2	2	13	35	41
Induced		Spontaneous		91	13	44	24	10	7
		Instrumental		83	5	30	31	16	14
		Caesarean		49	1	1	11	35	45
Caesarean		Caesarean		56	1	2	15	38	38

Source: HES, 2002/03; *percentages have been rounded, thus 0-3 reflects rounding error

- The table shows that births by Caesarean Section result in longer lengths of stay. C-Section rates are also rising (and have risen from 11.3% in 1989/90) although it is unclear if this is due to practice, demography (increases in high risk mothers referred to above) or patient choice. Some of this increase will be due to new clinical guidelines. For example, all breech births tend to be delivered by Caesarean section.

Number of Deliveries and Delivery Method, 2001/02 – 2005/06

Year	No Deliveries	% Spontaneous		% Forceps		Ventouse	Breech	Breech Extraction	% C-Section			Other
		Vertex	Other	Low	Other				Total	Elective	Emergency	
2001-02	541,700	65.6	0.9	2.0	1.5	7.2	0.3	0.1	22.0	9.3	12.7	0.3
2002-03	548,000	65.9	1.0	1.9	1.5	7.1	0.3	0.1	22.0	9.3	12.7	0.2
2003-04	575,900	65.5	1.0	1.7	1.6	7.0	0.3	0.1	22.7	9.6	13.1	0.2
2004-05	584,100	65.0	0.8	1.8	1.7	7.2	0.3	0.1	22.9	9.4	13.6	0.2
2005-06	593,400	64.2	0.7	2.0	1.9	7.2	0.3	0.1	23.5	9.3	14.1	0.2
Average	568620	65.2	0.9	1.9	1.6	7.2	0.3	0.1	22.6	9.4	13.2	0.2

Source: Hospital In-Patient Enquiry (HIPE) /Hospital Episode Statistics

- The table shows that the delivery method has not changed significantly over the last five years.

Payment by Results

- Payment by Results (PbR), remuneration of a service provider for the number of patients treated based on the type of care and treatments received has been introduced in the UK. This is a tariff-based system based on mandatory national prices that are paid for providing services. PbR should support the choices women make during their pregnancy as it offers flexibility to introduce locally agreed prices for activity such as home births. PbR has had a major impact in the UK, focusing providers on delivering efficient and effective services.

Summary and Conclusions

- Midwives are the lead professionals for normal pregnancies, births and postnatal care demonstrating that not all care needs to be delivered by a consultant.
- For high-risk mothers or where there are complications, midwives work in partnership with obstetricians and other clinicians.
- Community midwifery services are very well developed including antenatal and postnatal services and most antenatal care takes place in the community.
- Women have a choice where to give birth including hospitals, MLUs, birth centre or home. The numbers and range of MLUs has increased steadily and there is evidence that women are increasingly choosing this option. MLUs tend to have much lower birth numbers and offer a greater midwife to mother ratio. There is no evidence to suggest that, for low risk women, any of these settings is more or less safe than another.
- In the UK, the numbers of maternity hospitals have reduced as services have been centralised into larger units on the grounds of workforce considerations, safety and clinical effectiveness. There is no optimal size of unit and the UK has several units in excess of 5,000 births per annum.
- The ratio of midwives to maternities is approximately 31 midwives per 1,000 births but, as stated, MLUs offer a higher midwife to maternity ratio.
- Similar to many other developed countries, Caesarean section rates are on the increase and clinical outcomes are good for neonatal and maternal mortality.

Relevance to Dublin

- Midwives are the lead professionals for normal pregnancies, births and postnatal care demonstrating that not all care needs to be delivered by a consultant. However, it is important that there are appropriate processes to identify low risk mothers at booking and to offer midwife led care. This has major implications for the midwifery workforce in the GDA in terms of helping to empower midwives and strengthen accountability

- Mothers have a choice of birth settings including home, hospital or co-located MLU. The latter offers a non-interventional, low risk delivery option. Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.
- Almost all antenatal and some postnatal care takes place in the community thereby freeing up capacity and resources in the maternity hospitals and providing more accessible services to mothers diverting appropriate antenatal and postnatal activity out of the maternity hospitals and into the community is a major opportunity for the GDA.
- There has been a move to relocate stand-alone maternity facilities onto acute sites where there is ready access to all necessary support services. Our recommendation for service reconfiguration in the GDA is underpinned by the need to co-locate or tri-locate maternity hospitals with acute general hospitals in the GDA.
- Within the UK, there is no optimal size of maternity service although, in recent years, there has been a deliberate move to centralise maternity services into larger units and a larger proportion of births are taking place in larger units.

Reference List

AUSTRALIA

- 1 Future directions for Victoria's maternity services, Published by Programs Branch, Metropolitan Health and Aged Care Services, Victorian Government Department of Human Services, Melbourne Victoria, 2002.
- 2 Victorian Maternity Services Performance Indicators, Complete set for 2005–06, March 2007
- 3 Dept of Health and Ageing website – www.health.gov.au
- 4 Implementing the National Maternity Action Plan In Western Australia A call for the introduction of caseload midwifery care options within the WA public health sector.
- 5 Maternal and Child Health Service © Copyright Department of Human Services, 2005. Authorised by the Victorian Government, 555 Collins Street, Melbourne. Printed by Print In Vision, 28 Laser Drive, Rowville. (0040105) September 2005
- 6 Models of Maternity Service Provision across NSW, Progressing implementation of the NSW Framework for Maternity Services, NSW Health, April 2003
- 7 Multidisciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study, Authors: Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives
- 8 Current Practice in Europe and Australia A Descriptive Study Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives
- 9 Excellence in Women's Health, Annual Report 2006, The Royal Australian and New Zealand College of Obstetricians and Gynaecologists
- 10 Australian health & Ageing system: The concise factbook, April 2007, Department of Health and Ageing
- 11 Elective caesarean sections at maternal request , Obstetricians find themselves somewhere between a rock and a fairly indurated place, O&G, Vol. 6, No. 3, September 2004
- 12 New South Wales Population Health Survey, 2006 Report on adult health
- 13 O&G Magazine, Vol 9 No Winter 007
- 14 Charting the Safety and Quality of Health Care in Australia, This publication was developed under the auspices of the Australian Council for Safety and Quality in Health Care and the National Institute of Clinical Studies, July 2004

15 The Royal Women's Hospital Melbourne

CANADA

16 Canada Health Act, Annual Report, 2005 – 2006

17 Canadian Perinatal Health Report, 2003, Canadian Perinatal Surveillance System

18 Suggested citation: Health Canada. Canadian Perinatal Health Report, 2003, Ottawa: Minister of Public Works and Government Services Canada, 2003. Published by authority of the Minister of Health

19 Make Every Mother and Child Count, Report on Maternal and Child Health in Canada, Public Health Agency of Canada

20 Giving Birth in Canada, Providers of Maternity and Infant Care, Canadian Institute for Health Information, 2004

21 Maternity Care Now, Ontario Maternity Care Expert Panel (OMCEP)

22 Perinatal Care in Canada, Women's Health Surveillance Report

23 Special Report on Maternal Mortality and Severe Morbidity in Canada Enhanced Surveillance: The Path to Prevention

24 UNSW Embryology, Normal Development- Birth - Stillbirth and Perinatal Death, Dr Mark Hill, 2007

25 What is the Optimal C/S Rate? D. Farine, Mount Sinai Hospital/University of Toronto, Canada

FRANCE/GERMANY

26 Multidisciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study, Authors: Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives, 2005

27 Current Practice in Europe and Australia A Descriptive Study Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives

NETHERLANDS

28 Health Care Systems in Transition, Netherlands, 2004 Written by André den Exter, Herbert Hermans, Milena Dosljak, and Reinhard Busse, The European Observatory on Health Systems and Policies

- 29 HiT Summary, Netherland 2005, The European Observatory on Health Systems and Policies
- 30 Healthcare in the Netherlands, 2004, ESTEC Medical and Social Service
- 31 Women`s Health Network: State of Affairs, Concepts, Approaches, Organizations
- 32 in the Health Movement Country Report The Netherlands, September 2000
- 33 Netherlands Official Statistics, Volume 15, Summer 2000, Special issue Integrating administrative registers and household surveys, Statistics Netherlands
- 34 Developments in the Dutch model of midwifery care, Christina Oudshoorn, Vol 6 No 10, Midwives, 2003
- 35 *OECD Health Data 2007*, How Does the Netherlands Compare, OECD
- 36 Statistical Yearbook of the Netherlands, 2007, Statistics Netherlands
- 37 Primary Health Care in the Netherlands, The nature, structure, financing, regulation, supply of, and training and demand for primary health care in the Netherlands, International Publication Series Health, Welfare and Sport no. 20, Ministry of Health, Welfare and Sport

NEW ZEALAND

- 38 Choices for Childbirth, Maternity Services Consumer Council
- 39 Home births in New Zealand: Perspectives of a Fellow and a Midwife, O&G, Vol. 6, No. 3, September 2004
- 40 Maternity Service Strategic Plan, 2005 – 2010, Southland District Health Board, New Zealand
- 41 Midwifery Workforce, Summary Results from the 2006 Health Workforce Annual Survey, Ministry of Health, New Zealand
- 42 New Zealand College of Midwives, Journal 33, October 2005
- 43 New Zealand College of Midwives, Journal 34, April 2006
- 44 New Zealand Medical Practitioners, 2000, New Zealand Health Information Service, April 2001, Ministry of Health, New Zealand

- 45 Perinatal and Maternal Mortality Review Committee. 2007. First Report to the Minister of Health: June 2005 to June 2007. Wellington: Perinatal and Maternal Mortality Review Committee. Published in October 2007 by the Perinatal and Maternal Mortality Review Committee
- 46 Report on Maternity, Maternal and Newborn Information, 2003, Review of Maternity Services in New Zealand, New Zealand Health Information Service – 2006, Ministry of Health, New Zealand
- 47 Review of Maternity Services in New Zealand, The National Health Committee, September 1999
- 48 The few: new Zealand's diminishing number of rural GPs providing maternity services. Journal of the New Zealand Medical Association, Vol 119, No 1241, September 2006
- 49 UTS:Nursing, Midwifery & Health Research for Health, December 2006, University of Technology, Sydney
- 50 Multidisciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study, Authors: Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives, 2005
- 51 Current Practice in Europe and Australia A Descriptive Study Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives

SWEDEN

- 52 This is The National Board of Health and Welfare, The National Board of Health and Welfare, 2006
- 53 Women's Health Network: State of Affairs, Concepts, Approaches, Organizations in the Women's Health Movement Country Report Sweden, 1999
- 54 How the NHS could learn from Sweden, bbc.co.uk

UK

- 55 Audit of Acute Maternity Services, Department of Health, Social Services & Public Safety, 2006
- 56 Royal College of Obstetricians and Gynaecologists, Setting standards to improve women's health
- 57 The Future Role of the Consultant A Working Party Report, 2005

- 58 Royal College of Obstetricians and Gynaecologists, CLINICAL STANDARDS Advice on Planning the Service in Obstetrics and Gynaecology, 2002
- 59 Maternity services in the NHS, Professor Nick Bosanquet, Jen Ferry, Christoph Lees, Professor Jim Thornton, Reform, 2005
- 60 Expert Group on Acute Maternity Services, Reference Report, Scottish Executive, 2002
- 61 Implementing A Framework for Maternity Services in Scotland, Overview Report of the Expert Group on Acute Maternity Services, NHS Scotland
- 62 Review of Maternity Services 2007, Healthcare Commission, 2008
- 63 Maternity Matters: Choice, access and continuity of care in a safe service, Department of Health, 2007
- 64 Improving Patient Safety: Risk Management for Maternity and Gynaecology, Clinical Governance Advice No. 2, Revised October 2005, Royal College of Gynaecologists and Obstetricians
- 65 'Where now for Midwives?' Improving Maternity Services, Anna Walker CB, Chief Executive, 10 May 2006, Royal College of Midwives Annual Conference, Healthcare Commission
- 66 Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. *Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards*. London: RCOG/RCM; 1999.
- 67 Safer Childbirth: Minimum Standards for Service Provision and Care in Labour, Royal Colleges of Midwives, Obstetricians and Gynaecologists, Anaesthetists, and Paediatrics and Child Health
- 68 Royal College of Obstetricians and Gynaecologists. The Future Role of the Consultant – a working party report. London: RCOG; 2005
- 69 The Configuring Hospitals Evidence File: Part One, Department of Health, 2004
- 70 R. Campbell et al, "Evaluation of midwife-led care provided at the Royal Bournemouth Hospital" *Midwifery* (1999) 15 183–193.
- 71 National Service Framework for Children, Young People and Maternity Services, Maternity Services, Department of Health, 2005
- 72 Making It Better: For Mother and Baby; Clinical case for change, Report by Sheila Shribman, National Clinical Director for Children, Young People and Maternity Services, Department of Health, 2007

- 73 Department of Health. *National Service Framework for Children, Young People and Maternity Services: Standard 11, Maternity Services*. London: Department of Health; 2004.
- 74 Healthcare Commission. *Review of maternity services provided by North West London Hospitals NHS Trust*. London: Healthcare Commission; 2005.
- 75 Commission for Health Improvement. *Investigation into Maternity Services provided by Ashford and St Peter's Hospitals NHS Trust Report*. CHI: London; 2003.
- 76 Healthcare Commission. *Investigation of the maternity service provided by the Royal Wolverhampton Hospitals NHS Trust at New Cross Hospital*. London: Healthcare Commission; 2004.
- 77 27 Healthcare Commission. *Investigation into 10 maternal deaths at, or following delivery at, Northwick Park Hospital, North West London Hospitals NHS Trust, between April 2002 and April 2005*. London: Healthcare Commission; 2006.
- 78 Royal College of Midwives. *Vision 2000 into Practice: Birth Centres – Auditable Standards of Care*. No. 6. London: RCM; 2000.
- 79 National Collaborating Centre for Women's and Children's Health guideline. *Caesarean Section: Clinical Guideline*. London: NICE; 2004.
- 80 Royal College of Midwives Position Paper 26 and Guidance paper 26a . *Refocusing the role of the midwife*. London: RCM; 2006.
- 81 Royal College of Midwives Position Paper 5a. *Support workers in the maternity services*. London: RCM; 1999.
- 82 NHS Employers. *Maternity support workers: enhancing the work of the maternity team*. London: NHS Employers; 2005.
- 83 Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. *Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards*. London: RCOG/RCM;
- 84 Annual Clinical Report 2004, Professor Zarko Alfirovic and Janet Newall, Liverpool Women's Hospital NHS Foundation Trust
- 85 Provision of Maternity Services, House of Commons Health Committee Fourth Report of Session 2002–03, Volume I
- 86 Choice in Maternity Services House of Commons Health Committee, , Ninth Report of Session 2002–03, Volume I
- 87 Barking, Havering and Redbridge Hospitals NHS Trust, Annual Report, 2006-07

- 88 The Safety of Maternity Services in England Alex Smith and Anna Dixon, Kings Fund, 2007
- 90 Delivering the Best, Midwives Contribution to the NHS Plan, Department of Health, 2003

GENERAL

- 91 The State of the World's Children, Excluded and Invisible, UNICEF, 2006
- 92 WHO Recommended Interventions for Improving Maternal and Newborn Health, WHO, 2007
- 93 Beyond the Numbers, Reviewing maternal deaths and complications to make pregnancy safer, WHO, 2004
- 94 The World Health Report, Make every mother and child count, WHO, 2005
- 95 World Health Statistics, WHO, 2005

Appendix H: Long Listed Options

Introduction

- The following pages represent the initial options that were assessed by the KPMG team. These options were evaluated against the agreed criteria and short listed to five main options which were extensively consulted on with several hundred stakeholders during a series of workshops in Dublin.
- The section begins with an outline of the approach that we took to options development and the issues we considered. After this we profile each of the long listed options.
- A fundamental premise for all the long listed options we considered was the need to place woman and infant at the centre of the decision making process with a strong emphasis on primary and community care support they could access, in addition to modernised secondary care services.

Service configuration – Approach to defining the recommended service configuration

International health economy (where appropriate)	Option	KPMG view	Short List
Birmingham Women's Hospital in the UK is co-located on the site of an adult hospital, University Hospital Birmingham	<ul style="list-style-type: none"> Three hospitals co-locate with an Acute Adult hospital Three hospitals have full range of obstetric and gynaecology services 	<ul style="list-style-type: none"> This option would provide the benefits associated with co-location whilst maintaining choice of hospital for women needing to access tertiary level of care. An option that should be considered 	✓
A combination of Birmingham Women's Hospital in the UK and Royal Hospital for Women (RHW) in New south Wales, Australia. RHW centralises gynaecology, paediatric and adolescent gynaecology, maternal fetal medicine, new born intensive care and reproductive medicine. It is a dedicated centre of excellence providing sub speciality expertise	<ul style="list-style-type: none"> Three hospitals co-locate with an Acute Adult Hospital Each hospital has either Fetal Medicine, IVF/Fertility/gynaecology as centralised service in Dublin 	<ul style="list-style-type: none"> Benefits of co-location and sub specialisation. As the Hanley Report demonstrates, outcomes are improved for the low volume, high complex cases when they are centralised 	✓
Principle of co-location/tri-location embedded at many UK hospitals	<ul style="list-style-type: none"> Two hospitals co-locate with an Acute Adult Hospital One hospital tri-locates with paediatric hospital and has all fetal medicine All gynaecology is transferred into Acute Adult Hospital, with services being centralised 	<ul style="list-style-type: none"> Tri-location offers benefits to mother and infant. Whilst not all pregnancies involve sick mothers and babies, where this is the case tri-location offers the best model of care. Moving Gynaecology into the adult hospital will improve integration with other specialities such as general surgery and urology. All units having fetal medicine will ensure that women have access to intervention and provide continuity of care for those who do not require the highly complex fetal intervention which will be located on the site of the Level 4 paediatric unit 	✓

International health economy	Option	KPMG view	Short List
London has more than 4 providers in one city	<ul style="list-style-type: none"> • Increase the number of providers to four • Three of the hospitals have obstetrics and routine gynaecology services and either Fetal Medicine, IVF/Fertility/gynaecology • Fourth hospital has low risk obstetrics and ambulatory gynaecology 	<ul style="list-style-type: none"> • Increasing the number of units to four will reduce the number of births in each of the units and provide low risk women additional choice for birth 	✓
	<ul style="list-style-type: none"> • Two hospitals • One providing full range of obstetric services, IVF/Fertility and Fetal Medicine • One providing medium/low risk obstetrics and all gynaecology services 	<ul style="list-style-type: none"> • Two hospitals would provide economies of scale and allow one unit to become experts in high risk and the other an expert in low risk births. This would effectively stream the two groups of patients away from each other, and operational policy could be designed to meet the different needs of the patient. The risk to this model would be when the low risk turned to high risk and the potential deskilling of staff in high risk units. This option is worth exploring in more depth before a decision is made in whether it is desirable for the GDA 	✓
Liverpool Women's Hospital is a standalone hospital, but delivery has outreach services into the community and has Midwife Led Units	<ul style="list-style-type: none"> • Status quo with performance improvement 	<ul style="list-style-type: none"> • This is not a viable option, as this would not facilitate co-location, (a principle which we consider essential) 	✗
Dublin configuration unique and therefore no international example	<ul style="list-style-type: none"> • Status quo with performance improvement but rebuild hospitals 	<ul style="list-style-type: none"> • Not viable as this would not facilitate co-location as a principle which we will consider essential 	✗

International health economy	Option	KPMG view	Short List
London has more than 4 providers in one city	<ul style="list-style-type: none"> • Increase the number of providers to four • Three of the hospitals have obstetrics and routine gynaecology services and either IVF/Fertility, Foetal medicine or gynaecology • Fourth hospital has high risk obstetrics, fetal medicine and is tri-located with an acute adult hospital and paediatric hospital 	<ul style="list-style-type: none"> • This would involve the creation of a high risk unit on the site of the paediatric hospital. In order for a unit to have economies of scale in terms of staffing and to ensure staff remain skilled in low risk activity in a larger unit, a minimum of 6,000 births would be needed on the site. Building a fourth unit would also endorse a hospitalised model which would negatively impact on the philosophy of the model of care putting the woman at the centre and for care to be delivered in the community 	X
Mount Sinai Hospitals Toronto, Nottingham University Hospital, McGill University Health Centre Montreal, all operate on a split site basis. A single governance structure, but with multiple sites	<ul style="list-style-type: none"> • One hospital, three sites 	<ul style="list-style-type: none"> • The concept of the three working together as a network would assist the variation in activity at the different sites. However, one hospital over three sites would be difficult to manage, as the three sites would be co-located with adult hospitals which would make it a complex model to manage 	X
Keandagn Kerbau maternity Hospital (KKMH) in Singapore became the regional tertiary referral centre in obstetrics and gynaecology, following the transfer of services from two other hospitals at its peak it delivered 39,83 babies in a year in the 1960's, this has since declined but still provides a model for a large single hospital	<ul style="list-style-type: none"> • One super hospital 	<ul style="list-style-type: none"> • One large hospital would not be a viable option. Whilst it would provide economies of scale we do not believe that it will provide personal care. It will also enforce the idea of a centralised hospital service which would undermine our philosophy of care 	X

International Health Economy	Option	KPMG view	Short List
London has more than 4 providers in one city	<ul style="list-style-type: none"> Increase providers on outskirts of Dublin and maintain three hospitals within Dublin 	<ul style="list-style-type: none"> Additional hospitals on the outskirts of Dublin would again promote the centralised hospital model. Hospitals on the outskirts such as Naas, Loughlinstown and Blanchardstown do not have the services that would maximise the benefits of co-location 	X
Singapore has numerous private providers from which women can choose to have their babies	<ul style="list-style-type: none"> Increase the number of private sector providers and maintain three hospitals in Dublin 	<ul style="list-style-type: none"> Private hospitals are dependant on market demand; even though up to 50% of women have private insurance, there is no guarantee that they would attend private hospitals if they were to increase in number. If private hospitals open and draw activity from the public hospitals it will reduce pressure on the public system but it cannot be an engineered process 	X
In the Netherlands low risk women have care delivered in the community by the GP or midwife and not the hospital	<ul style="list-style-type: none"> Hub and spoke model with the hospitals being the main providers of community care 	<ul style="list-style-type: none"> A substantial investment is required in primary and community care alongside the investment in maternity hospitals. There should be clear links between hospital-based and community care, however the hospitals are not equipped to take full responsibility 	X

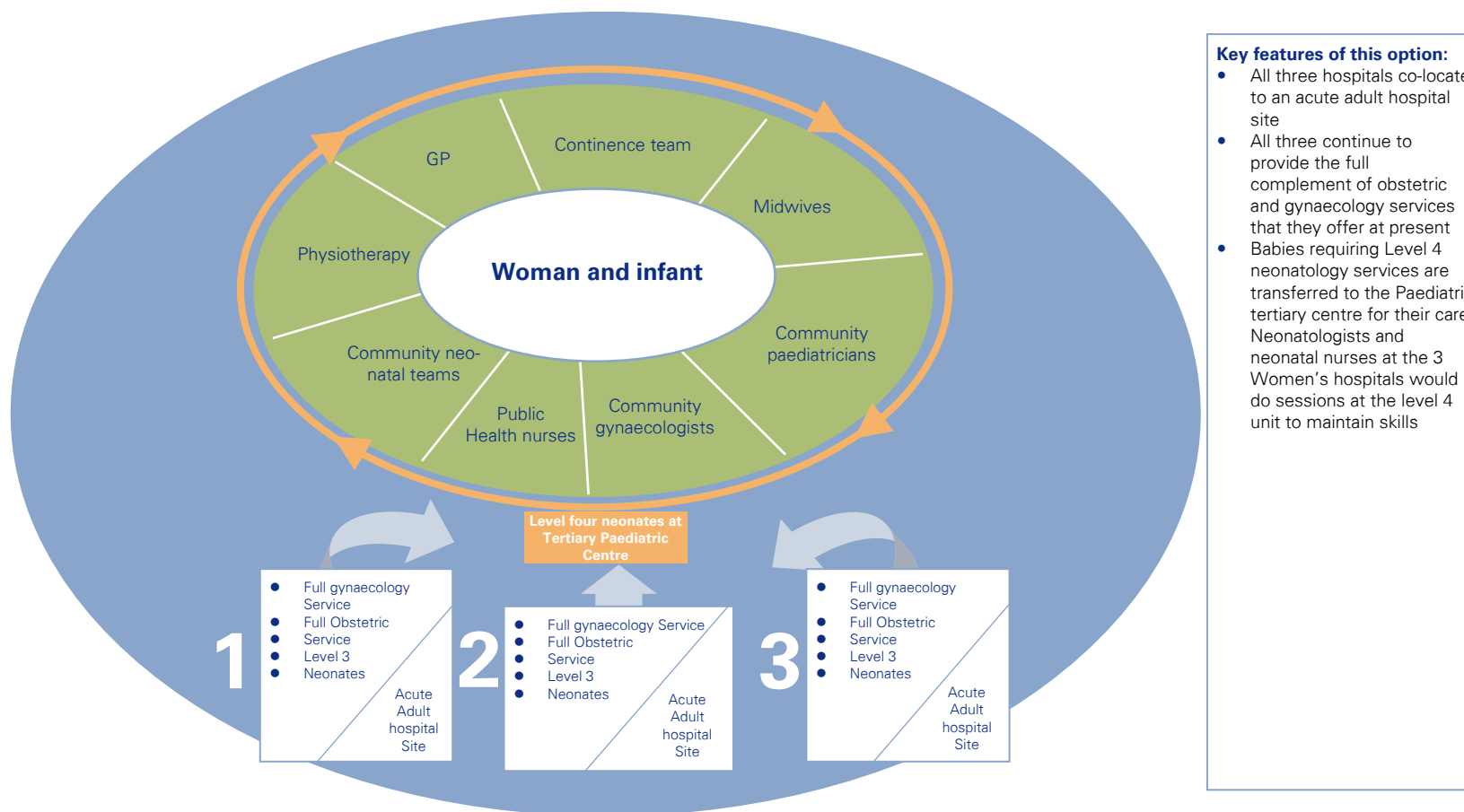
Option	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
<p>Two hospitals co-locate with an acute adult hospital. One hospital tri-locates with neonatal medicine and has fetal intervention. All gynaeoncology is transferred into an acute adult hospital with services being centralised</p>	<ul style="list-style-type: none"> Two large hospitals would offer increased safety if co-located. There would be opportunity to increase labour ward cover with greater number of consultants on the one site which would improve outcomes for women This option provides enhanced safety and quality of care for babies requiring Level 4 neonatal care as they do not require to be transferred in this model 	<ul style="list-style-type: none"> Sub specialisation will require women to go to specific units rather than choose the centre for complex care 	<ul style="list-style-type: none"> Transfer of babies in utero identified as requiring Level 4 NICU will reduce the need for babies to be transferred and other babies to be separated if surgery is required 	<ul style="list-style-type: none"> Access to an integrated maternity and gynaecology service will be impeded if the gynaecologist are employed by a different hospital. Many women require the input of both obstetric and gynaecology services 	<ul style="list-style-type: none"> No issues 	<ul style="list-style-type: none"> Sub specialisation will be better value for money, but the split of gynaecology from obstetrics will require additional obstetrician and gynaecologists 	<ul style="list-style-type: none"> Will provide improved opportunities for sub speciality training programmes 	<ul style="list-style-type: none"> The fourth NICU will be on the site of a Level 3 NICU, staff can therefore be on call for both, thus reducing need for double rotas

Option	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
Three hospitals co-locate with an acute adult hospital. All three have the full range of obstetric and gynaecology services	<ul style="list-style-type: none"> Co-location will ensure that the full spectrum of services are available to women in the case of complex obstetric and gynaecology cases and in critical or emergency situations 	<ul style="list-style-type: none"> Women still have the opportunity, as they do in the current model to choose from a number of providers for all aspects of their obstetric and maternity care. If the Level 4 NICU remains on a different site therefore the mothers and babies would need to be separated 	<ul style="list-style-type: none"> Equity of access would be assured 	<ul style="list-style-type: none"> Allows women from across the GDA to access services in different geographical areas i.e. complex uro-gynaecology would be available at all three and women wouldn't need to travel 	<ul style="list-style-type: none"> No issues 	<ul style="list-style-type: none"> The duplication of expertise across the three centres would not offer value for money 	<ul style="list-style-type: none"> There would be the dilution of expertise of specialist services are provided over three sites 	<ul style="list-style-type: none"> It would enable each organisation to provide the full spectrum of training it would however require double neonatology on-calls
Three hospitals co-locate with an acute adult hospital. Each hospital has either fetal medicine, IVF/Fertility or gynaecology as a centralised service in Dublin	<ul style="list-style-type: none"> Provides the clinical benefit to maternal outcomes for mothers but babies requiring Level 4 NICU would need to be moved 	<ul style="list-style-type: none"> Would restrict the number of choices available to women for sub speciality care 	<ul style="list-style-type: none"> Would not provide equitable access to sub speciality services across the GDA as only one of the units would have any one of the sub speciality services 	<ul style="list-style-type: none"> Access would be fair 	<ul style="list-style-type: none"> No issues 	<ul style="list-style-type: none"> Centralisation of sub speciality services would provide better value for money as specialist staff would not be deployed in different centres 	<ul style="list-style-type: none"> Centralisation of sub speciality services would allow the individual centres to develop as centres of excellence 	<ul style="list-style-type: none"> Would attract staff they would be working in centres of excellence for the centres particularly sub speciality
Increase the number of	<ul style="list-style-type: none"> The three obstetric units 	<ul style="list-style-type: none"> The provision of a fourth low risk 	<ul style="list-style-type: none"> As there would only be one 	<ul style="list-style-type: none"> There would be reduced 	<ul style="list-style-type: none"> There would be issues over 	<ul style="list-style-type: none"> Low risk units need to be 	<ul style="list-style-type: none"> If training was undertaken at 	<ul style="list-style-type: none"> Provide midwives with

Option	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
providers to four and three of the hospitals have obstetrics and routine gynaecology services and either IVF/Fertility, fetal medicine or gynaecology	will have the benefit of co-location. The low risk unit would need robust transfer guidelines to ensure safety of mothers who move from low to high risk	unit allows women with high risk pregnancies to choose an alternative to the typically high risk obstetric led maternity units	low risk unit it would provide an equitable choice for women, as geographically it would not be an option for some women in the GDA <ul style="list-style-type: none"> Babies requiring NICU would need to be transferred 	access to obstetricians and other professionals in the case of obstetric emergencies for women opting to deliver in the low risk unit. Women in the other three obstetrics nits may not be able to access the same level of midwifery care	who was alternatively accountable for women in a low risk unit, especially if there were no consultants presence	fully utilised to ensure the utilisation of resources	the fourth unit, then steps would need to be taken to ensure that it incorporated a full and appropriate programme	the opportunity to practice independently
Two hospitals, one providing a full range of obstetrics services, IVF/Fertility and fetal medicine. The other provides medium to low risk obstetrics and routine gynaecology	<ul style="list-style-type: none"> Two hospitals would benefit from co-location. The larger number of consultants on site would facilitate the move to 24 hour consultant cover 	<ul style="list-style-type: none"> Would reduce choice for women not only from a sub speciality perspective but also for mainstream services. It is also felt that two large hospitals are likely to decrease to personal approach 	<ul style="list-style-type: none"> A reduction in the number of units may damage equity of services 	<ul style="list-style-type: none"> By centralising services into two sites services will be centralised into two geographical areas which will decrease the access that already exists for women 	<ul style="list-style-type: none"> Two large hospitals with sub specialisation will create economies of scale 	<ul style="list-style-type: none"> There would be some efficiency gains by reducing the number of providers, however stand alone units in the UK are becoming difficult to justify financially 	<ul style="list-style-type: none"> Provide opportunities for training and research, large volumes of activity will facilitate research 	<ul style="list-style-type: none"> Two units would be extremely busy and staff would not benefit from quiet times that occur in the three units due to concentration of activity

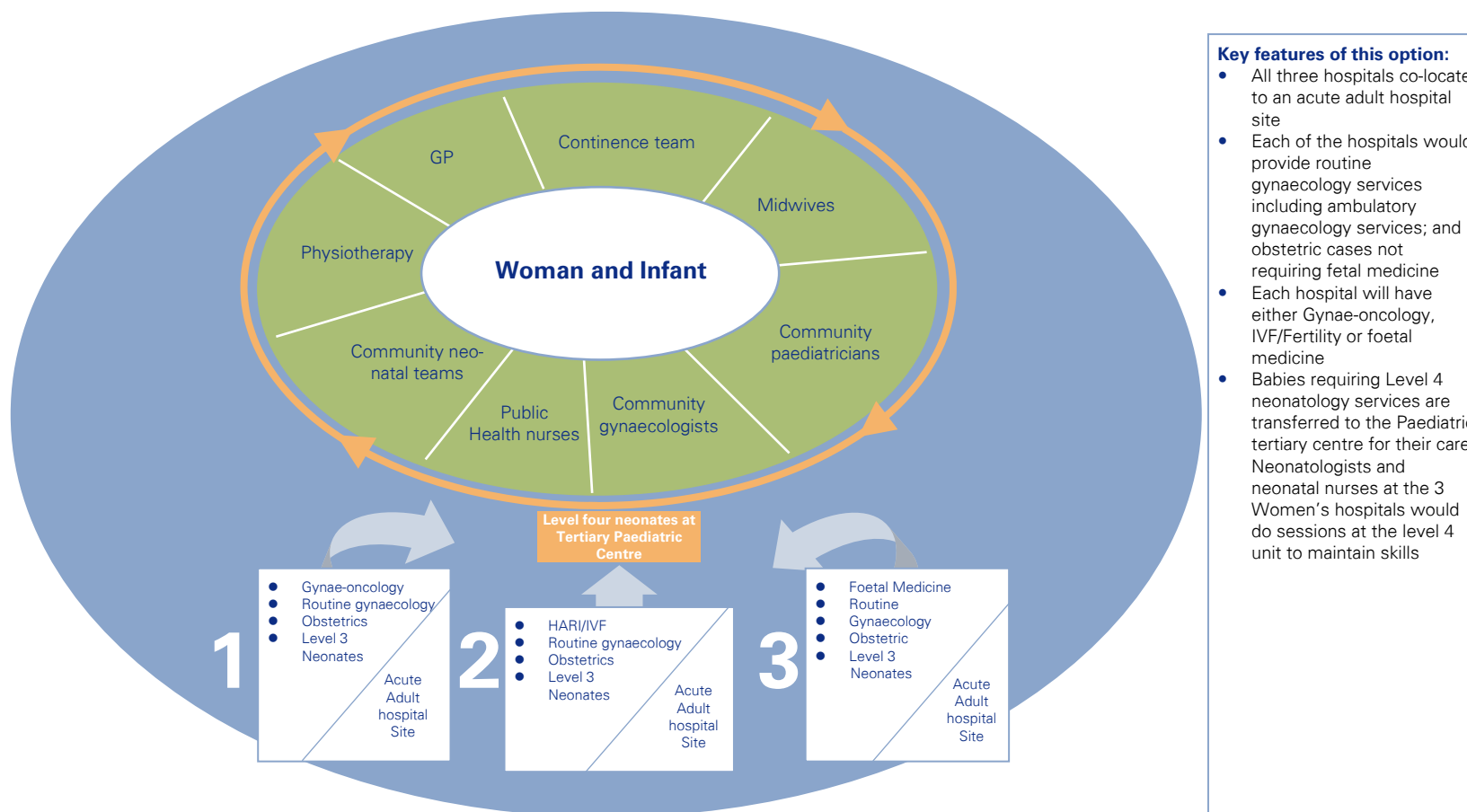
Option 1 - All co-locate with acute adult hospital

All maintain full range of obstetric and gynaecology services

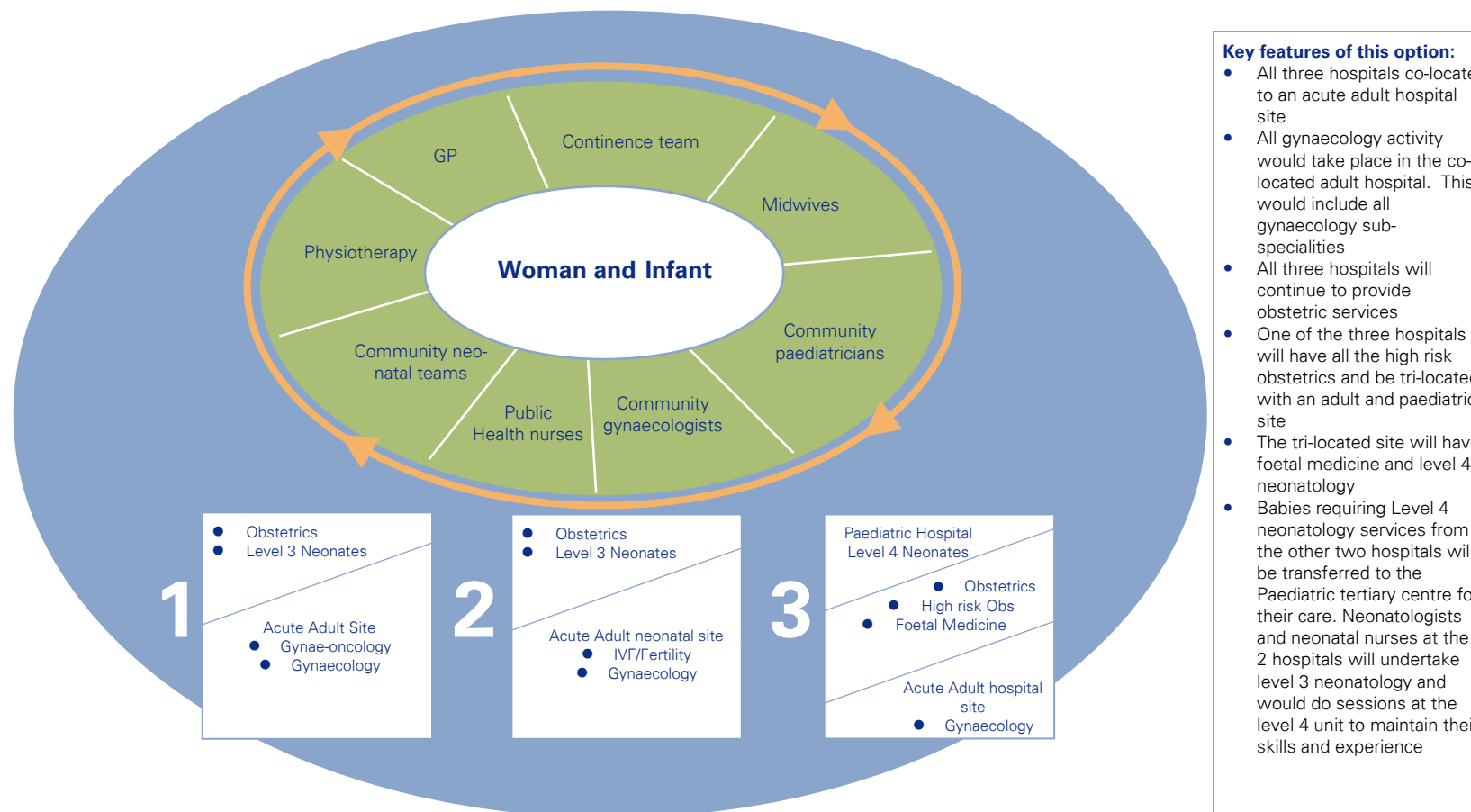


Option 2 - All co-locate with acute adult hospital

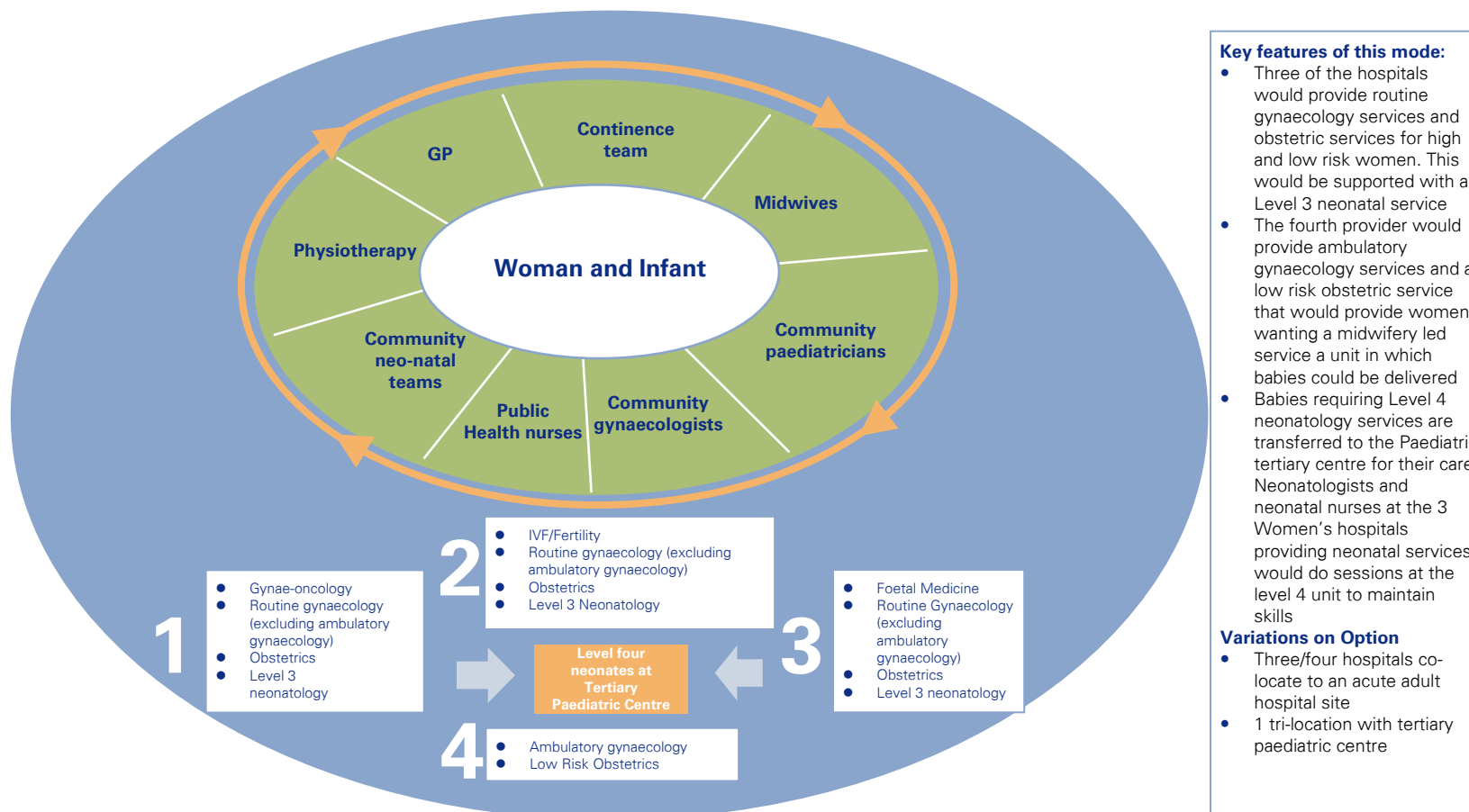
Centralisation of specialist services in obstetrics and gynaecology



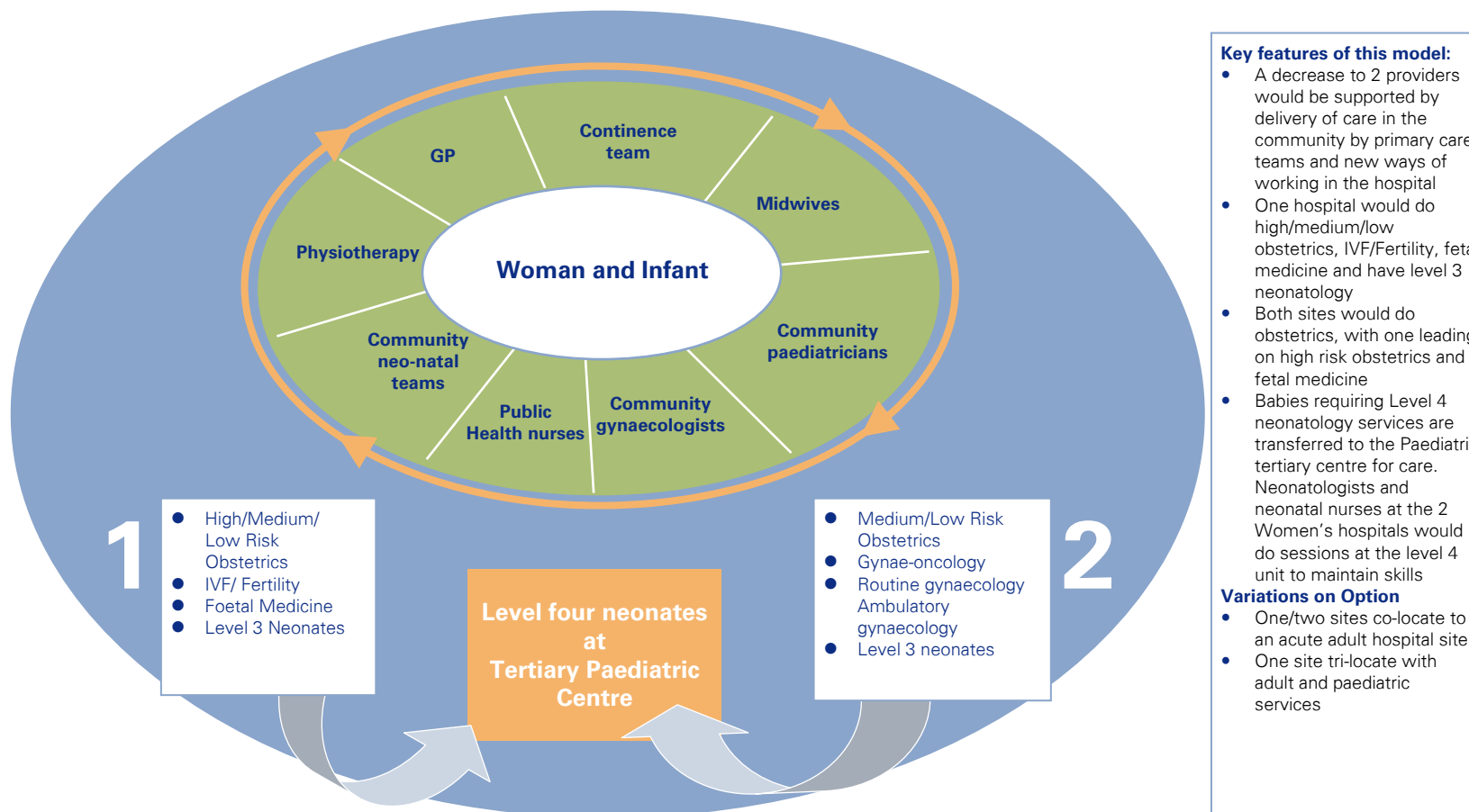
Option 3 - Two co-locate with acute adult hospital, one tri-locates with adult hospital and paediatric hospital. Centralisation of specialist services in obstetrics, gynaecology transferred to acute adult hospital



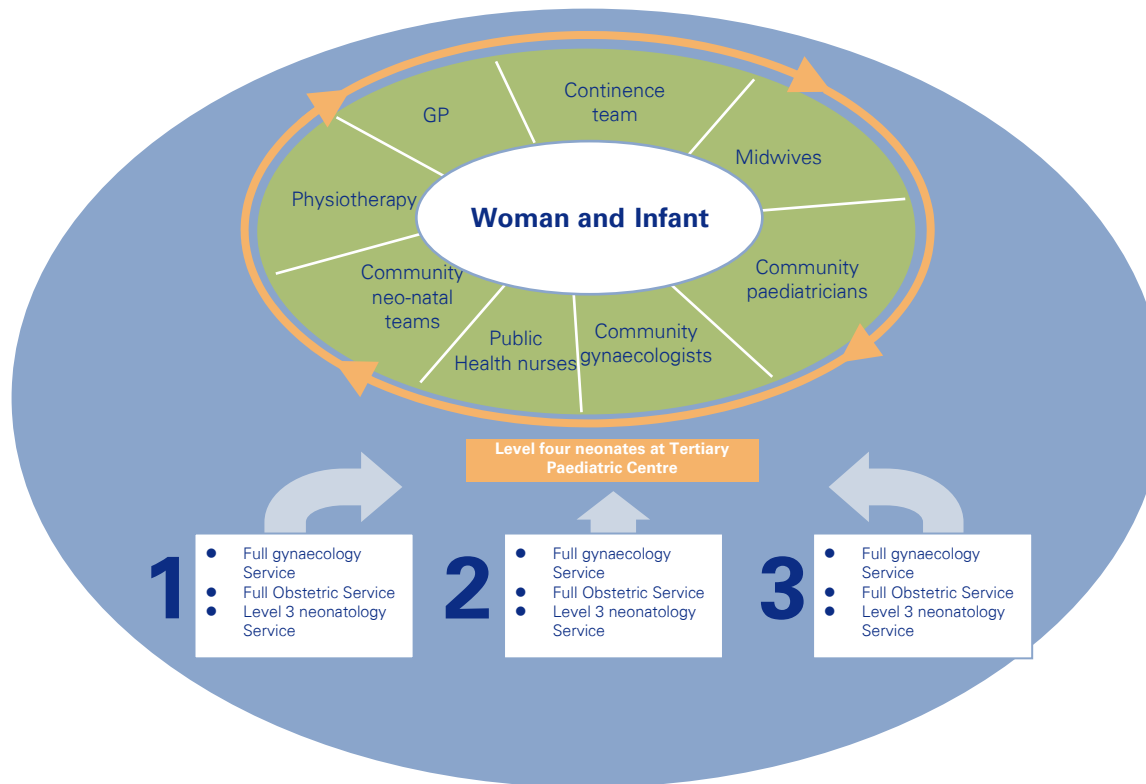
Option 4 - Increase the number of providers to four



Option 5 - Centralise services down to two hospitals



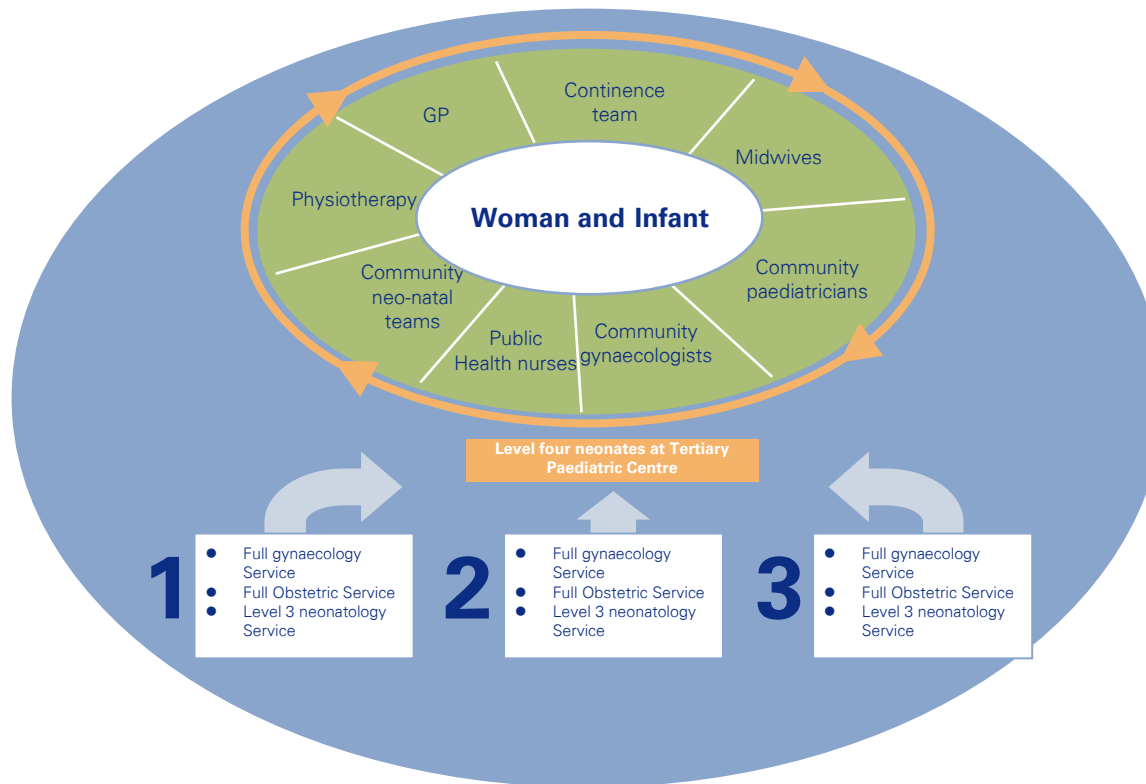
Option 6 - Status quo with performance improvement



Key features of option:

- Status quo with performance improvement to increase choice for women and reduce pressure on infrastructure
- All three hospitals maintain stand alone status and continue to work with the acute adult hospitals with whom they have relationships
- All three hospitals continue to provide the full compliment of obstetric and gynaecology services that they offer at present

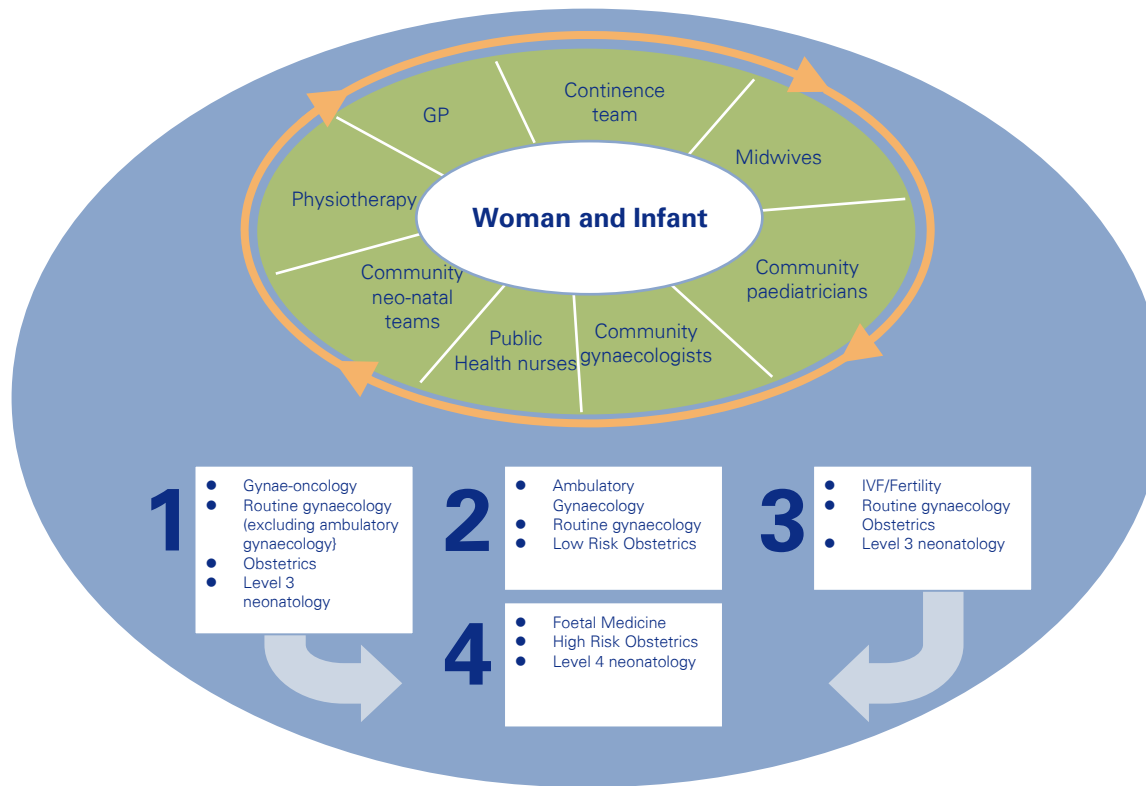
Option 7 - Rebuild on current sites



Key features of option:

- Status quo but in new buildings on current sites. Performance improvement to increase choice for women and reduce pressure on infrastructure
- All three hospitals maintain stand alone status and continue to work with the acute adult hospitals with whom they have relationships
- All three continue to provide the full compliment of obstetric and gynaecology services that they offer at present
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for their care. Neonatologists and neonatal nurses at the 3 Women's hospitals would do sessions at the level 4 unit to maintain skills

Option 8 - Increase the number of providers to four centralise high risk obstetrics and Level 4 neonatology on one site



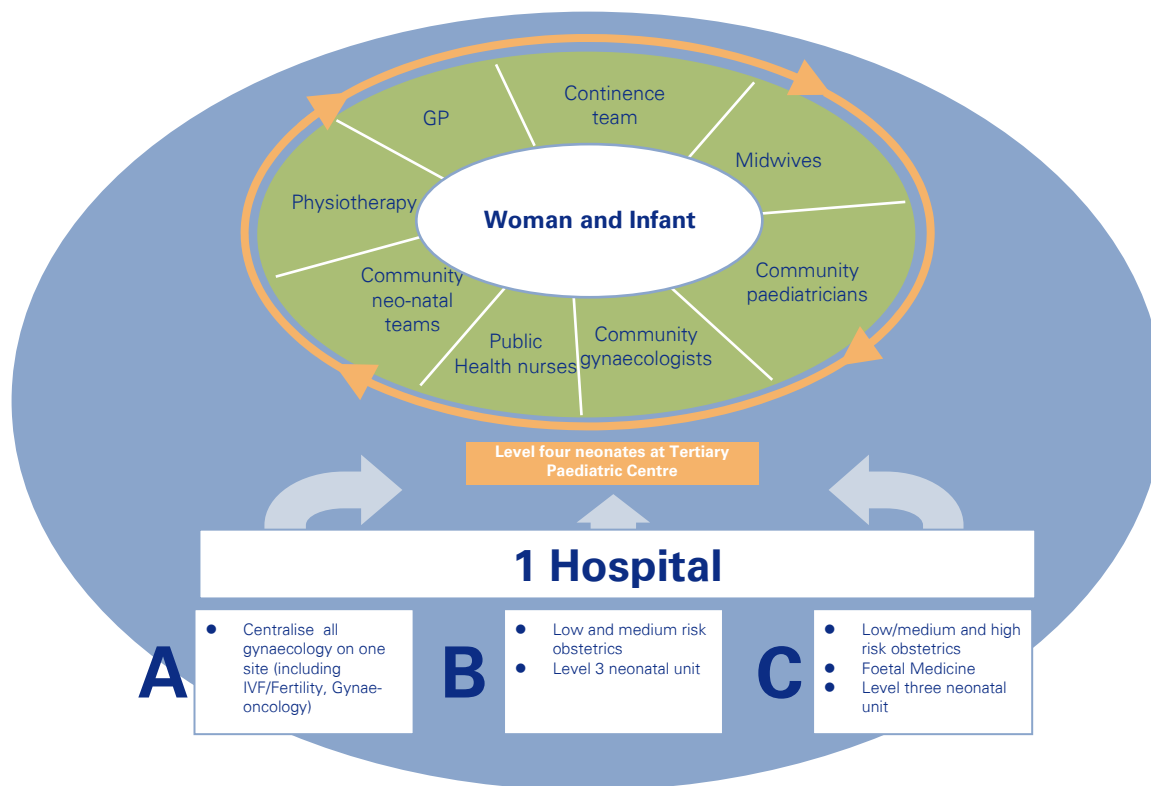
Key features of this option:

- Two of the hospitals would provide routine gynaecology services and obstetric services for medium and low risk women. These would be supported with level 3 neonatology services
- Each hospital will have either Gynae-oncology, IVF/Fertility or foetal medicine
- One of the hospitals would provide ambulatory and routine gynaecology services. They would also provide a low risk obstetric service that would provide women wanting a midwifery led service a unit in which that care could be delivered
- One unit would have high risk obstetrics, fetal medicine and level 4 neonatology

Variations on Option

- Two/three hospitals co-locate to an acute adult hospital site
- One tri-locate with adult and paediatric services

Option 9 - Merge three hospitals into one with three sites



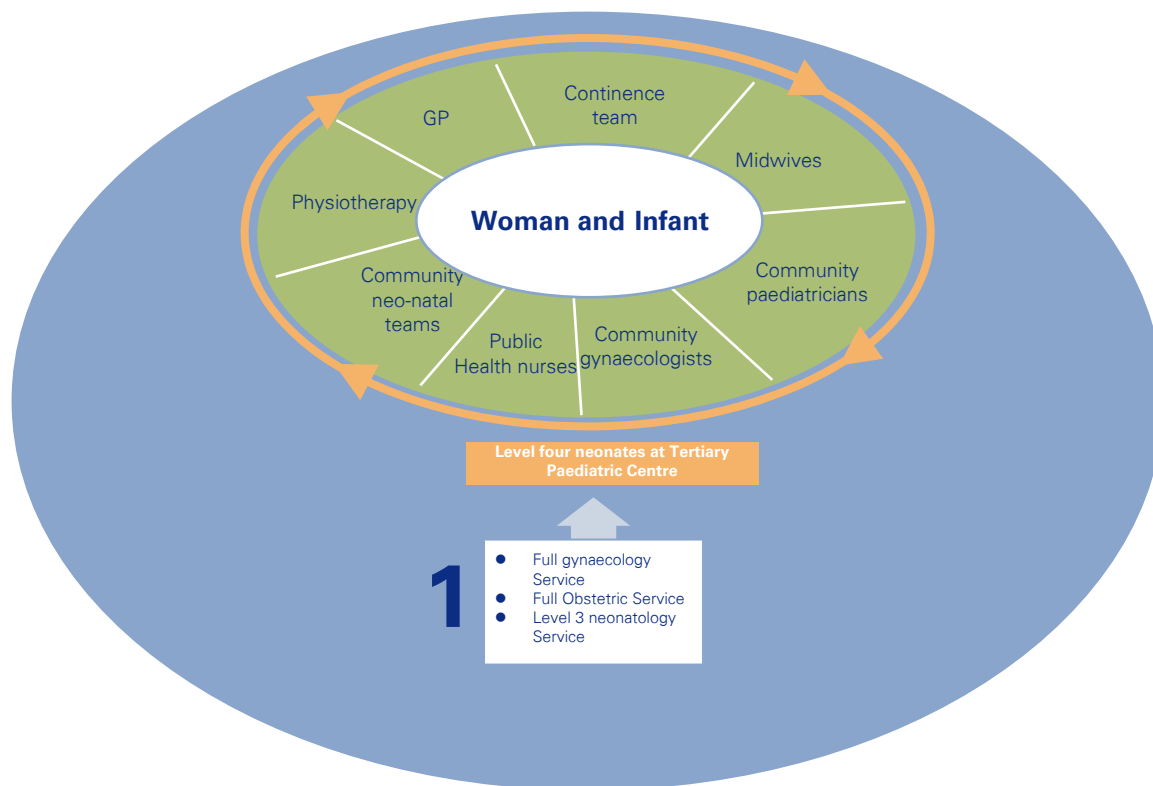
Key features of this option:

- One hospital, split over three sites
- Each site would have either Gynaecology, IVF/Fertility or fetal medicine services
- One site would do all gynaecology activity
- Two sites would do obstetrics, with one leading on high risk obstetrics and foetal medicine
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for their care. Neonatologists and neonatal nurses at the Women's hospitals would do sessions at the level 4 unit to maintain skills

Variations on Option

- Two/three sites co-locate to an acute adult hospital site
- One site tri-locate with adult and paediatric services

Option 10 - Centralise into one super hospital



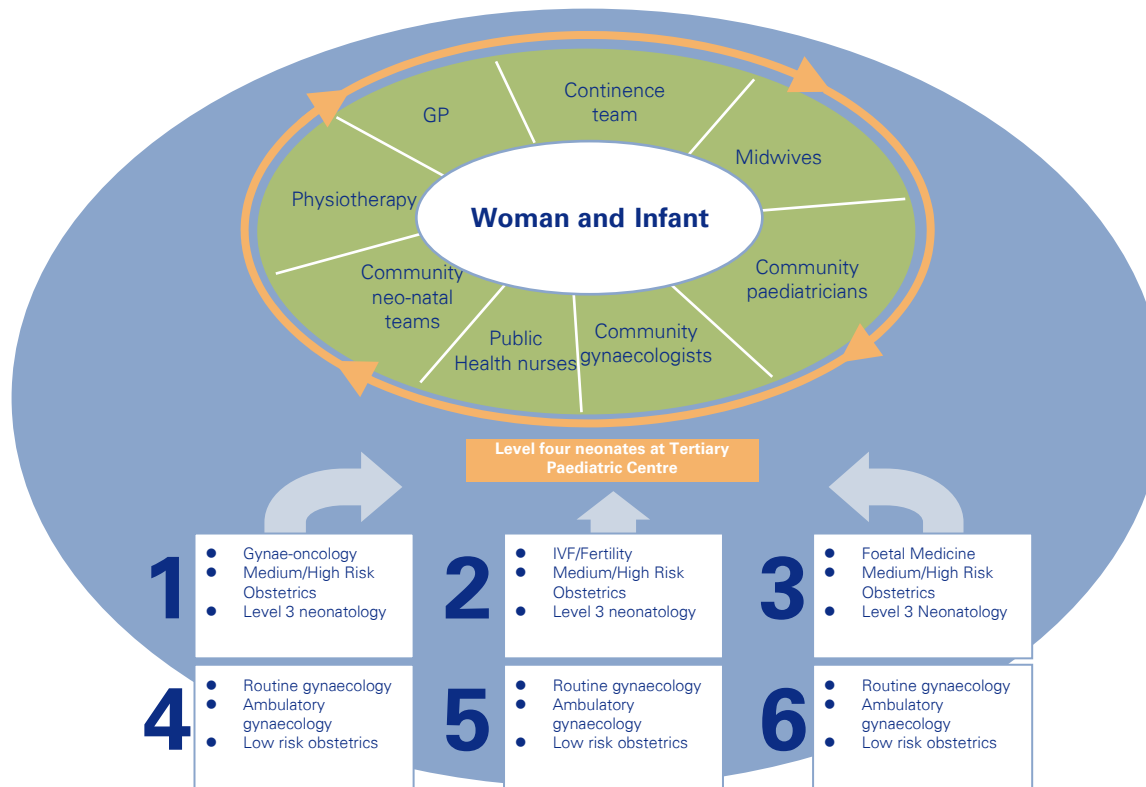
Key features of this option

- A decrease to 1 provider would be supported by delivery of care in the community by primary care teams and new ways of working in the hospital
- The hospital would provide a full complement of obstetric and gynaecology services
- Three delivery suites
- high risk
- medium risk (low risk requiring epidurals, instrumental delivery)
- low risk
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for care. Neonatologists and neonatal nurses at the Women's hospitals would do sessions at the level 4 unit to maintain skills

Variations on Option

- Co-locate with acute adult site
- Tri-locate with tertiary paediatric site

Option 11 - Increase number of providers outside Dublin



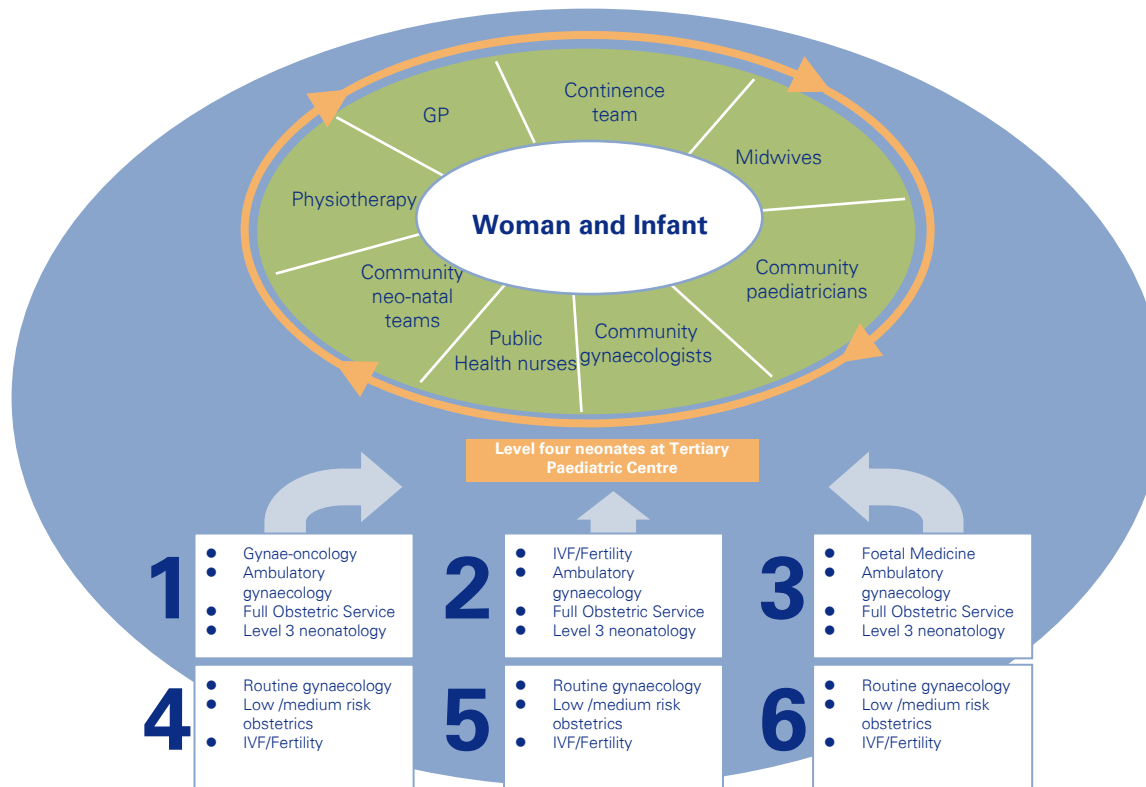
Key features of this option

- An increase to 6 or more secondary care providers would be supported by delivery of care in the community by primary care teams and new ways of working in the hospital
- Gynae-oncology, IVF/Fertility and foetal medicine will be centralised into one hospital
- Low risk obstetrics, routine gynaecology and ambulatory gynaecology would be done in hospitals outside of Dublin
- The hospitals in Dublin would focus on medium to high risk obstetrics and specialist services
- Consultant staff could have sessions in the hospitals outside of Dublin. Midwifery staff would rotate to maintain skills
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for care. Neonatologists and neonatal nurses at the 3 Women's hospitals would do sessions at the level 4 unit to maintain skills

Variations on Option

- Dublin hospitals are co-located with acute adult hospitals
- One of the Dublin hospitals tri-locate with tertiary paediatric provider
- Hospitals outside of Dublin are co-located with general hospitals
- Hospitals outside of Dublin are units within general hospitals

Option 12 - Increase of plurality in private sector



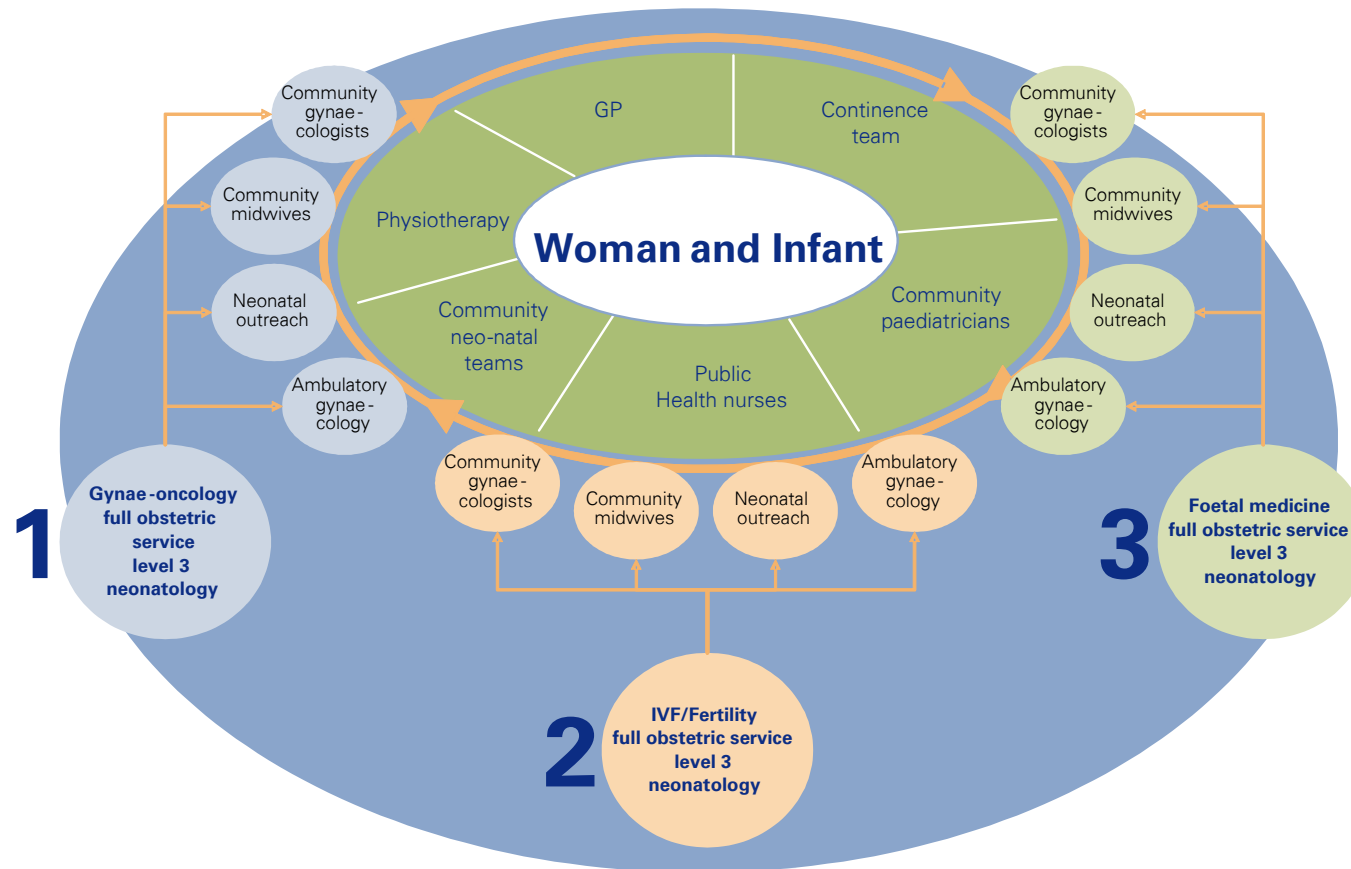
Key features of this option

- An increase in private providers would be supported by delivery of care in the community by primary care teams and new ways of working in the hospital
- Private hospitals would provide low/medium risk obstetrics, routine gynaecology procedures and IVF/Fertility services
- The women's hospitals would continue to provide a full range of services with gynae-oncology, IVF/Fertility and foetal medicine centralised into one of the hospitals
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for care. Neonatologists and neonatal nurses at the 3 Women's hospitals would do sessions at the level 4 unit to maintain skills

Variations on Option

- Private hospitals are co-located with acute adult hospitals
- Private hospitals are co-located with women's hospitals
- 1 or more Women's hospitals, private hospital and acute adult hospital located on one site

Option 13 - Three networked/franchised hospitals providing community model



Key features of this option:

- Hospitals provide primary care services through franchised community providers
- Staff providing the services in the community are employed by the hospitals and work within the same governance structures as hospital staff
- The three hospitals will each have a full obstetric service, level 3 neonatology
- Each hospital will have either Gynaecology, IVF/Fertility or fetal medicine
- Babies requiring Level 4 neonatology services are transferred to the Paediatric tertiary centre for care. Neonatologists and neonatal nurses at the 3 Women's hospitals would do sessions at the level 4 unit to maintain skills

Variations on option

- One/two sites co-locate to an acute adult hospital site
- One site tri-locate with adult and paediatric services
- Primary care services are provided on site of hospitals outside of Dublin

Appendix I: Bibliography/References

Outlined below is a list of the references that have contributed to our work. A full list of references on the international literature review is separately set out in Appendix G on page 79.

- Advisory Council: for Science Technology/Innovation (2006) Towards Better Health: Advancing a Step Change in Health Research in Ireland.
- AIHW National Hospital Morbidity Database, Australia's Health 2004, AIHW
- Australian Institute of Health and Welfare, www.aihw.gov.au
- Bissell 2004
- Breaking the silence: a national voice for gynaecological cancers reports, Commonwealth of Australia, 2006
- British Association of Prenatal medicine guidelines (2001)
- Central statistics office (C50)
- Chung JW, Jeong HJ, Joh JH, Park JS, Kim SH (2003)
- Comhairle na nOspideal, (2003), Report of the Committee Reviewing Maternity and Related Services in North Eastern Health Board Area
- Commission on Financial Management and Control Systems in the Health Service (the Brennan Report), January 2003
- Comptroller and Auditor General, Special Report, Health Service Executive, Medical Consultants' Contract, March 2007
- Confidential Enquiry into Maternal and Child Health (2004)
- Coombe Women's Hospital, (2005) Annual Clinical Report
- Crawford SM Brunskill, P (2007) Centralisation of services for the management for the management of ovarian cancer; arguments against, British Journal of Obstetrics and Gynaecology 114, 183-1187
- Davane, (2007) Childbirth policies and practices in Ireland and the journey towards midwifery-led care
- Davane, (2007) Evaluating Maternity Care – A core set of outcome measures
- Dept of Community Health and General Practice, Trinity College, Dublin (2002) People Living in Finglas and their Health, The health needs of people living in Finglas area
- Dept of Community Health and General Practice, Trinity College, Dublin (2002) People Living in Tallaght and their Health, A community based cross-sectional survey
- Dept of Community Health and General Practice, Trinity College, Dublin (2002) People Living in the Dublin Docklands and their Health; The health needs of people living in the Pearse Street area, Ringsend and Irishtown
- Dept. of Health & Children (DOHC) (2001) report of the National Advisory Committee on Palliative care
- Dept. of Health & Children (DOHC) (2003) The Development of Radiation Oncology Services in Ireland

- Dept. of Health & Children (DOHC) (2006) a Strategy for cancer Control in Ireland, National Cancer Forum
- Dept. of Health & Children (DOHC), (2002), The Nursing & Midwifery Resource, Final Report of the Steering Group towards Workforce Planning
- Dept. of Health & Children (DoHC), (2006), The Lourdes Hospital Inquiry (An Inquiry into peripartum hysterectomy at Our Lady of Lourdes Hospital, Drogheda.) Report of Judge Maureen Harding Clark S.C.
- Devane, D et al (2007) Midwifery 23, 92-101
- Domiciliary Births Group, (2004) Report to the Chief Executive Officers of the Health Boards (PDF)
- Dr Foster
- Eastern Region Health Authority Strategy 2005 -2011 (Eastern Region Health Authority and the Joint Standing Committee)
- Eastern Regional Health Authority, (ERHA) (2004), Report of the Steering Group factors that influence the Recruitment and Retention of Midwives and Nurses in the Dublin Maternity Hospitals
- Elective caesarean sections at maternal request
- European Foundation for the Improvement of Living and Working Conditions, (2006), Fertility and family issues in an enlarged Europe
- Faculty of Family Planning and Reproductive Health Care of the RCOG Updated January 2006
- Fetal Tachyarrhythmia - Part II: Treatment, Indian Pacing and Electrophysiology Journal (ISSN 0972-6292), 4(4): 185-194 (2004) Martijn A. Oudijk, MD, PhD*, Gerard H.A. Visser, MD, PhD* and Erik J. Meijboom, MD, PhD† (*Department of Obstetrics and Gynecology, University Medical Center Utrecht, The Netherlands; †Division of Pediatric Cardiology, Central Hospital University of Vaud, Lausanne, Switzerland)
- Giving Birth in Canada, Providers of Maternity and Infant Care, Canadian Institute for Health Information, 2004
- Health Service Executive (HSE), (2005), Maternity Services in the Eastern Region - A Strategy for the Future 2005-2011
- Health Service Executive (HSE), (2006), Changing Models of Health Service Delivery A Public Health Nursing Service Response Health Service Executive
- Health Service Executive (HSE), (2006), Children's Health First International best practice in tertiary paediatric services: implications for the strategic organisation of tertiary paediatric services in Ireland
- Health Service Executive (HSE), (2004) Needs Assessment for Women's Health in the Context of Maternity Services in the Eastern Region
- Health Service Executive (HSE)/ Dept. of Health & Children (DOHC), (2006), Report of the Joint Health Service Executive/Dept. of Health & Children Task Group to advise on the National Paediatric Hospital
- Health Service Executive, (2007) Final Draft Short Term Action plan for Maternity Services based on Maternity Services in the Eastern Region – A strategy for the Future 2005-2011 (Unpublished)
- Health Sociology Review Volume 15 Issue 4 Childbirth, Politics & the Culture of Risk Cover October 2006

- HIPE (Hospital Inpatient Enquiry) data collected by HIPE and National Perinatal Reporting System (NPRS) Unit of the Economic and Social Research Institute
- Hong TM, Tseng HS, Lee RC, Wang JH, Chang CY (2004) Uterine artery embolism; an effective treatment for intractable obstetric haemorrhage, *Clinical radiology* V59 96-107
- HSE Intercultural Health Strategy 2007
- Improving Patient Safety: Risk Management for Maternity and Gynaecology
- Institute of Obstetricians & Gynaecologists (2006) The Future of Maternity & Gynaecology Service in Ireland 2006 -2016, Report from Institute Subgroup.
- Intrapartum Care: Management and Delivery of Care to Women in Labour
- Kennedy, S (2007) Telephone triage in maternity care, *RCM Midwives Journal*, Volume 10
- M. McCormack, (2007) *British Journal of Obstetrics and Gynaecology* 114, 118-1190
- Maternity Matters: Choice, access and continuity of care in a safe service, Department of Health, 2007
- Maternity Services in the Eastern Region – A Strategy for the Future 2005-2011 (Eastern Regional Health Authority and the Joint Standing Committee, 2005)
- Maternity services in the NHS, Professor Nick Bosanquet, Jen Ferry, Christoph Lees, Professor Jim Thornton, Reform, 2005
- MIDWIVES, October 2003.
- Models of Maternity Service Provision across NSW, Progressing implementation of the NSW Framework for Maternity Services, NSW Health, April 2003
- Multidisciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study, Authors: Kathy Herschderfer and Hanneke Kateman, International Confederation of Midwives (MCPMCP)
- NAO;Dec 11 2007. Caring for Vulnerable Babies: The reorganisation of neonatal services in England
- National Council for the Professional Development of Nursing & Midwifery (2006) Improving the Patient Journey: Understanding Integrated Care Pathways
- Needs Assessment for Woman's Health in the Context of Maternity Services in the Eastern Region 2004 (Eastern Regional Health Authority and the Joint Standing Committee, 2005)
- NHS Institute for Innovation and Implementation Delivering Quality and Value - Success; A self improvement toolkit - focus on normal birth and reducing caesarean section rates
- NICE – Antenatal care guideline
- NICE 2003 Guidelines for the Routine Care for the healthy Women
- NICE 2007, Intrapartum Care; Management and delivery of care to women in labour
- North Eastern Health Board, (2001), Report of the Maternity Services Review Group to the North Eastern Health Board (Kinder Report)
- Northern Sydney central Coast Health, (2007)
- O&G, Vol. 6, No. 3, September 2004, pg 186-189
- OECD Public Management Reviews – Ireland – Toward an integrated public service (2008)
- Olaiton, A, McCormack m, Centralisation of services for the management of ovarian cancer; arguments for, *British Journal of Obstetrics and Gynaecology* 114, 1188-1190
- Olsen and Jewell, 2003
- Paediatrics 2007 815-825

- Paediatrics 2007;120;815-825
- Phibbs, (2007) Level and volume of neonatal intensive care and mortality in very low birth weight infants, New England Journal of medicine 356; 2165-2175
- Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport.
- Quality and Fairness – A Health System for you.
- Quality Review of Primary Level Maternity Service at Ryde Hospital
- RANCOG - Intrapartum Fetal Surveillance, Clinical Guidelines, 2nd Ed
- RANCOG College Statement - Obstetricians and childbirth: responsibilities: Home Births
- RCOG - Clinical Governance Advice No. 2 Revised October 2005
- RCOG Clinical Standards: Advice on Planning the Service in Obstetrics and Gynaecology, July 2002
- RCOG Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards
- RCOG, Dec 2005 The Future of Obstetrics and Gynaecology in Scotland – Service Provision and Workforce Planning
- Recent advances in fetal surgery Raul A. Cortes* and Diana L. Farmer, * Division of Pediatric Surgery, The Fetal Treatment Center, University of California, San Francisco, CA, USA
- Report of a joint Health Service Executive/Department of Health and Children Task Group to advise on the optimal location of the new national paediatric hospital, May 2006
- Report of the Lourdes Hospital Inquiry (Judge Harding Clark, 2006)
- Report on Maternity, Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006
- Report to Chief Executive Officers of the Health Board – Domiciliary Births Group (Domiciliary Birth Expert Group, 2004)
- Rogowski et al JAMA 2004;291;202-209
- Rotunda Hospital Dublin, (2005) Clinical Report
- Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards
- Safer Childbirth – Minimum standards for organisation and delivery of care in labour
- Safety of maternity led services - British medical journal 2005 v1 pg 16
- Saving Mothers Lives 2007
- Schwartz's Principles of Surgery, 8th Ed
- Service Standards for Sexual Health Services
- Short Term Action Plan for Maternity Services in the Eastern Region – A strategy for the future (Joint Standing Committee, 2007)
- Survival Effect of Maximal Cytoreductive Surgery for Advanced Ovarian Carcinoma During the Platinum Era: A Meta-Analysis, By Robert E. Bristow, Rafael S. Tomacruz, Deborah K. Armstrong, Edward L. Trimble, F. J. Montz, Journal of Clinical Oncology, Vol 20, Issue 5 (March), 2002: 1248-1259
- The Effect of Centralization of Primary Surgery on Survival in Ovarian Cancer Patients, Solveig Tingulstad, MD, Finn Egil Skjeldestad, MD, PhD and Bjørn Hagen, MD, PhD, Obstetrics & Gynecology 2003;102:499-505
- The Future of Maternity and Gynaecology Services in Ireland 2006-2011 (Institute of Obstetricians and Gynaecologists, 2006)

- The Future Role of the Consultant , Setting standards to improve women’s health, A Working Party Report, the Royal College of Obstetricians and Gynaecologists, 2005
- The National Maternity Hospital, Holles Street, (2005) Annual Report
- The Women’s Health Council, (2004), Consultation on Maternity Services for Strategy (Unpublished)
- Towards better births – A review of maternity services in England, Healthcare Commission, July 2008
- UK Royal College of Obstetricians and Gynaecologists Guidelines No 8 Revised January 2005
- Victorian Maternity Services Performance Indicators, Complete set for 2005–06, March 2007
- Who should operate on patients with ovarian cancer? An evidence-based review, Kurt Christopher Giede, Katharina Kieser, Jason Dodge and Barry Rosen University of Toronto, Canada Received 5 June 2005. Gynecologic Oncology, Volume 99, Issue 2, November 2005, Pages 447-461
- “Who Usually Delivers Whom and Where” Report on Models of Antenatal Care, Perinatal Data Collection Unit, Victoria Government, 1999
- Women Health Council Submission
- Women’s Health Council, 2004a
- www.comh-n-osp.ie/pdf/maternity.pdf
- www.coombe.ie/intro/repintro.html
- www.cso.ie
- www.dh.gov.uk
- www.dohc.ie/publications
- www.dohc.ie/publications Report of the Expert Working Group on...
- www.dohc.ie/publications/CancerControlStrategy
- www.drfooster.co.uk
- www.erofound.eu/publications
- www.ghc.on.ca
- www.hse.ie/en/Publications New National Children’s Health First
- www.hse.ie/en/Publications New National Children’s Hospital Report
- www.kkh.com
- www.medicine.tcd.ie/public_health_primary_care/research/reports/finglas
- www.medicine.tcd.ie/public_health_primary_care/research/reports/irishtown
- www.medicine.tcd.ie/public_health_primary_care/research/reports/tallaght
- www.nehb.ie/nehb/publications/reports/Maternity.pdf
- www.nuh.nhs.uk
- www.patient.co.uk
- 80/155/EEC

Appendix J: Original terms of reference

Introduction

The Health Service Executive (HSE) acquired full operational responsibility for the management of the country's health and personal social services on 1 January 2005. The HSE is established as the first body charged with managing the health service as a single national entity.

Our mission is to *'enable people live healthier and more fulfilled lives' by 'providing easy and equal access to high quality care and services that the public has confidence in and staff are proud to provide'.*

The HSE is the largest purchaser in the state spending in excess of €13 billion annually on a diverse range of goods, services and works projects.

The health services are managed by a number of national directorates/programmes. HSE Procurement is managing the award of the contract on behalf of the Health Service Executive.

Further general information about the HSE is available on the website www.hse.ie

Background & Context

Care surrounding pregnancy and childbirth takes place in circumstances that distinguish it from many other areas of clinical practice. Pregnancy is not an illness and maternity and gynaecology services are available to provide care and support for a predominantly healthy population through a normal health event. The majority of pregnancies end with a healthy mother and baby and without complication. A significant minority of women may be at risk of, or may develop, clinical problems during pregnancy or labour for which additional, more specialist help is required.

An Independent Review of Maternity and Gynaecology Care Services is now required to consider the best configuration of hospital, primary and community maternity and gynaecology services in the Greater Dublin Area that ensures consistency and choice of care to all groups of women.

The three Dublin maternity hospitals, The Rotunda Hospital, National Maternity Hospital and Coombe's Women's Hospital, provide obstetric, gynaecology and neonatology services. All three hospitals act as tertiary referral centres for women and babies in need of specialist treatment.

The three hospitals provide education and training on a national basis in collaboration with the universities and the Royal College of Surgeons. They carry out collaborative research with each other, with other hospitals and with universities and research bodies on a national and international basis.

Local models of maternity and gynaecology care services within Dublin and beyond have evolved in response to a combination of factors related to local circumstances and requirements, the advice of health professionals and both national and international guidance.

The work of obstetricians, midwives, GPs, practice nurses and public health nurses is fundamental to high quality maternity and gynaecology care.

The three Dublin Maternity Hospitals have guided and developed local/regional/national models of maternity and gynaecology care in co-operation with the relevant health authorities.

The voluntary governance and Mastership system has been in existence since the Dublin Maternity Hospitals inception extending 260 years ago. The system has served all three hospitals well and is considered an effective example of clinicians in management working and has proven to be highly effective in terms of both clinical and administrative governance. Each Master as Chief Executive together with his Management team is responsible to his respective Board for the day to day running of the hospital, strategic planning and the formulation of plans/initiatives to maintain and develop a quality driven service for women, babies their partners and families.

Approximately 40% of births nationally per annum take place in the three maternity hospitals in Dublin i.e.:

- Coombe Women's Hospital
- National Maternity Hospital
- The Rotunda Hospital

In addition to the three public maternity hospitals, a private maternity unit in Dublin is based in Mount Carmel Hospital, with delivery of approx 1400 babies per year (6% of births in the Greater Dublin Area).

The Health Services Executive acknowledge the partnership working performed to date with the Maternity Service Providers in working towards developing flexible models for maternity and gynaecology care services.

Neonatal Care Services

The neonatal period is considered the most vulnerable time for babies and is associated with the highest mortality rate. The development of neonatology services is closely linked with maternity services. Higher survival rate of premature babies and babies of low birth rate requiring complex care are placing higher demands on neonatal units. Technology has enabled premature babies to live from a much earlier age (24-26 weeks) and this increases the demand for neonatal care

The growing requirement for neonatal care is placing pressure on service delivery in neonatology and needs to be considered as part of this review.

Development of National Paediatric Hospital

The work of the Joint Task Group in advising on the optimum location of the paediatric hospital concluded that the location of the new national paediatric hospital on the Mater Misericordiae Hospital campus will have significant implications for the development of paediatric, adult and maternity services in Dublin and highlighted the need to begin a process of looking at how maternity services will be developed into the future. In particular the Task Group's analysis of the evidence led the Group to recommend that the site selected for the new national paediatric hospital to also accommodate a full Maternity Hospital.

Following on from the publication of the Joint Task Group Report, a Joint HSE/Department of Health & Children Transition Group has been established to carry out the preparatory work necessary to progress the establishment of the new National Paediatric Hospital. The group will also advance considerations on the tri-location of a Maternity Hospital with the new National Paediatric Hospital. The Transition Group is securing external expert support for certain aspects of its work.

Project Brief

The Health Service Executive wish to invite suitably qualified suppliers to submit a tender to carry out an independent review of the current provision of maternity and gynaecology care services in the Greater Dublin Area. The review will consider the best configuration of hospital, primary and community maternity and gynaecology services.

The consultancy will prepare an **independent report** for the HSE that is robust and that the consultancy will defend and stand over. The report will make recommendations and provide an action plan to facilitate the optimal configuration of primary, community and hospital services for the geographic area and population of the Greater Dublin Area, in making available safe, sustainable, cost effective and high quality maternity and gynaecology care services ensuring consistency of care to all groups of women.

The review will build on the comprehensive work that has already been undertaken whilst focusing on the need to provide effective evidence based care and value for money.

Major Deliverables

The major deliverable in support of the project objective is a detailed **report** that will include the following key components:

- Determine with reference to current National, European and international best practice the optimal configuration of primary, community and hospital services and workforce requirements for the geographic area and population of the Greater Dublin Area that will provide safe, sustainable, cost effective and high quality maternity and gynaecology care services. It must take account of existing and potential best practice models of care and the tertiary role of the Dublin maternity service providers
- Evaluate the benefits and risks associated with current provision of hospital and primary/community maternity and gynaecology care service provision in the Greater Dublin Area;
- Update/revise and evaluate the current capacity, usage and deployment of consultants, midwives, beds, neonatal care, theatres, outreach clinics, home care, emergency facilities, diagnostics, gynaecology and other services provided;
- Evaluate speciality strengths in current maternity and gynaecology service organisations & propose optimal speciality distribution e.g. foetal monitoring, prenatal care, gynaecology cancer;
- Assess the impact of additional emerging clinical trends and technologies;
- Identify the best way to ensure high standard training and educational (undergraduate/postgraduate) models for the future needs of the health service as well as optimising the capacity for research;

- Advise on the optimal governance arrangements for maternity and gynaecology care services in Dublin.
- Consider the current public and private mix when making recommendations for future model configuration;
- Be cognisant of and make reference to the private sector's current & potential role in the delivery of maternity and gynaecology care services;
- Consider the current and potential contribution of primary & community services to enhancing choice. This includes reviewing the effectiveness and appropriateness of the current GP Mother & Infant Contract in the provision of maternity interdisciplinary primary, community and hospital care through integrated team working;
- Advise on the elements of current hospital maternity and gynaecology care service provision that would be more appropriately provided in other settings i.e. evidence on specific synergies with primary & community care & general acute hospital service providers;
- Take account of current and projected demographic trends and the infrastructure, workforce and capacity deficiencies of the Dublin Hospitals affecting maternity and gynaecology service planning, provision and delivery in the Greater Dublin Area;
- Consider the multinational dimension of maternity and gynaecology care services and the ensuing cultural /language challenges;
- Make recommendations to the HSE, on the all of the above aspects, including short, medium and long term recommendations on the future configuration of maternity and gynaecology care services that support and strengthen universal access; whilst at the same time, finding new ways of providing accessible and appropriate services for women, their partners and babies;
- Provide an Action Plan setting out the next steps to progress implementation of the recommendations.

Project Methodology:

In preparing the report for the Transition Group the consultancy will:

- Ensure that the report is informed by international best practice in the area of development of maternity and gynaecology care services and the Irish national model of paediatric care;
- Review the relevant national reports regarding the development of maternity services as a starting point;
- Consult with relevant stakeholders (e.g. Governing Boards of the three Dublin Maternity Hospitals, obstetricians/gynaecologists, midwives, neonatologists, anaesthetists, General Practitioners, Practice Nurses, Public Health Nurses, Service Users) under the aegis of the project group;
- Ensure that the document produced is informed by the DoHC & HSE maternity, and gynaecology care service provider work undertaken in this area to date;

- Incorporate the appropriate requirement to expand and accommodate future needs;
- Ensure that value for money and efficiency requirements are considered from both capital and revenue perspectives;

This exercise will take account of existing relevant national strategy and health policy documents - such as the Department of Health and Children's, "Quality and Fairness - A Health System for You", "The Primary Care Strategy", "The Health Service Executive Corporate Plan" and Population Health Model of Care.

As stated in Major Deliverables Section, the review will take account of and build on the extensive work already undertaken and relevant to the development of maternity services. The publications are included in Appendix 1.

International Best Practice

The consultancy will need to base the report on international best practice and an understanding of latest thinking and current trends in relation to maternity and gynaecology care services and the application of this to the proposed service configuration for Dublin services.

It is essential that the information provided in the report is backed up with evidence of international appropriate best practice and that the conclusions and recommendations are fully supported by such references.

In submitting tender documents, consultancies must clearly outline to the HSE the range and scope of international expertise that they plan to utilise in meeting the project objectives. In addition, the consultancies will need to identify to the HSE international clinical leaders in obstetric, neonatal, gynaecology and midwifery practice who will be deployed in this project.

Appendix K: Accessibility Study

K1: Executive summary

Based on five sites identified as potential locations for co-located maternity services with a service fixed at the Mater, six scenarios were defined:

1. Mater, St. Vincent's & St. James's
2. Mater, St. Vincent's & Tallaght
3. Mater, St. Vincent's & Beaumont
4. Mater, Beaumont & St. James's
5. Mater, Tallaght & St. James's
6. Mater, Beaumont & Tallaght

Methods

Patient travel behaviour was modelled using historical hospital admission data. Travel times were estimated by private car, public transport and a mix of public and private transport. Numbers of births were projected for 2016 and 2026.

Findings

The likely demand at each site and percentage population with travel times for each scenario based on **2006** population figures are as follows:

2006 births at each site for each scenario

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,499	5,504	9,296
Mater	St Vincent's	Tallaght	9,304	5,500	8,495
Mater	St Vincent's	Beaumont	9,913	8,097	5,290
Mater	Beaumont	St James's	8,842	4,482	9,976
Mater	Tallaght	St James's	9,006	7,948	6,344
Mater	Beaumont	Tallaght	8,591	4,763	9,945
Rotunda	Holles St	Coombe	7,325	8,078	8,088

Percentage 2006 births by private travel time band for each scenario

Site 1	Site 2	Site 3	% population within travel time			
			<30mins	<60mins	<90mins	<120mins
Mater	Beaumont	Tallaght	43.3	85.9	96.5	99.4
Mater	St Vincent's	Tallaght	40.6	85.7	96.3	99.2
Mater	Tallaght	St James's	39.1	85.7	96.2	99.3
Mater	St Vincent's	St James's	30.9	83.3	95.4	98.9
Mater	St Vincent's	Beaumont	29.8	82.7	93.4	98.7
Mater	Beaumont	St James's	32.4	82.3	94.6	98.4
Rotunda	Holles St	Coombe	26.3	82.6	94.0	98.4

The likely demand at each site and percentage population with travel times for each scenario based on **2016** population figures are as follows:

2016 births at each site for each scenario

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,856	5,689	9,704
Mater	St Vincent's	Tallaght	9,670	5,663	8,916
Mater	St Vincent's	Beaumont	9,948	8,571	5,731
Mater	Beaumont	St James's	9,556	4,695	9,998
Mater	Tallaght	St James's	9,348	8,340	6,560
Mater	Beaumont	Tallaght	9,346	4,984	9,919

Percentage 2016 births by private travel time band for each scenario

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Beaumont	Tallaght	42.8	85.9	96.5	99.4
Mater	St Vincent's	Tallaght	40.0	85.6	96.4	99.2
Mater	Tallaght	St James's	38.5	85.6	96.3	99.3

Mater	St Vincent's	St James's	30.2	83.1	95.4	98.9
Mater	St Vincent's	Beaumont	29.1	82.5	93.5	98.7
Mater	Beaumont	St James's	31.6	82.1	94.7	98.4

The likely demand at each site and percentage population with travel times for each scenario based on **2026** population figures are as follows:

2026 births at each site for each scenario

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,128	5,169	9,032
Mater	St Vincent's	Tallaght	8,818	5,095	8,416
Mater	St Vincent's	Beaumont	9,933	7,508	4,888
Mater	Beaumont	St James's	8,286	4,110	9,934
Mater	Tallaght	St James's	8,909	8,342	5,079
Mater	Beaumont	Tallaght	8,068	4,389	9,872

Percentage 2026 births by private travel time band for each scenario

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Tallaght	St James's	37.1	84.9	96.2	99.3
Mater	St Vincent's	Tallaght	38.0	84.8	96.2	99.2
Mater	Beaumont	Tallaght	40.3	84.8	96.3	99.4
Mater	St Vincent's	St James's	28.0	82.0	95.3	98.9
Mater	St Vincent's	Beaumont	27.0	81.3	93.2	98.7
Mater	Beaumont	St James's	29.3	80.9	94.5	98.3

Key findings

- The spatial distribution of births will not change radically between 2006 and 2026.
- All of the scenarios result in improved access for patients over the existing service distribution.
- Nearly 60% of births in the Greater Dublin Area originate south of the Liffey - it is therefore preferable to place two of the hospitals south of the Liffey.
- The scenarios cannot be adequately distinguished based on accessibility.
- The relative merits of solutions are consistent to 2026 and based on extreme population projections.
- The combination of Mater, St. Vincent's and either St. James's or Tallaght maximises continuation of the existing catchment areas.
- The selection involving Mater, St. Vincent's and Tallaght minimises the number of patients travelling to the city centre.

K2: Scope of work

The scope of work was to provide advisory support on an access review into the Maternity review. This should take Mater as one given site and then considering accessibility to other potential sites – St Vincent's, St James', Beaumont, Tallaght, Connolly and Naas. This should be for relevant populations at both 10 year and 20 year intervals. It would also be important to consider access to current sites for reference. The assignment will span a period of approximately four weeks during November 2007.

On foot of further discussions, the potential sites for maternity hospitals was reduced to include the Mater site along with any two sites from St Vincent's, St James', Beaumont and Tallaght. As such, travel patterns would have to be analysed for each of six possible combinations of those sites.

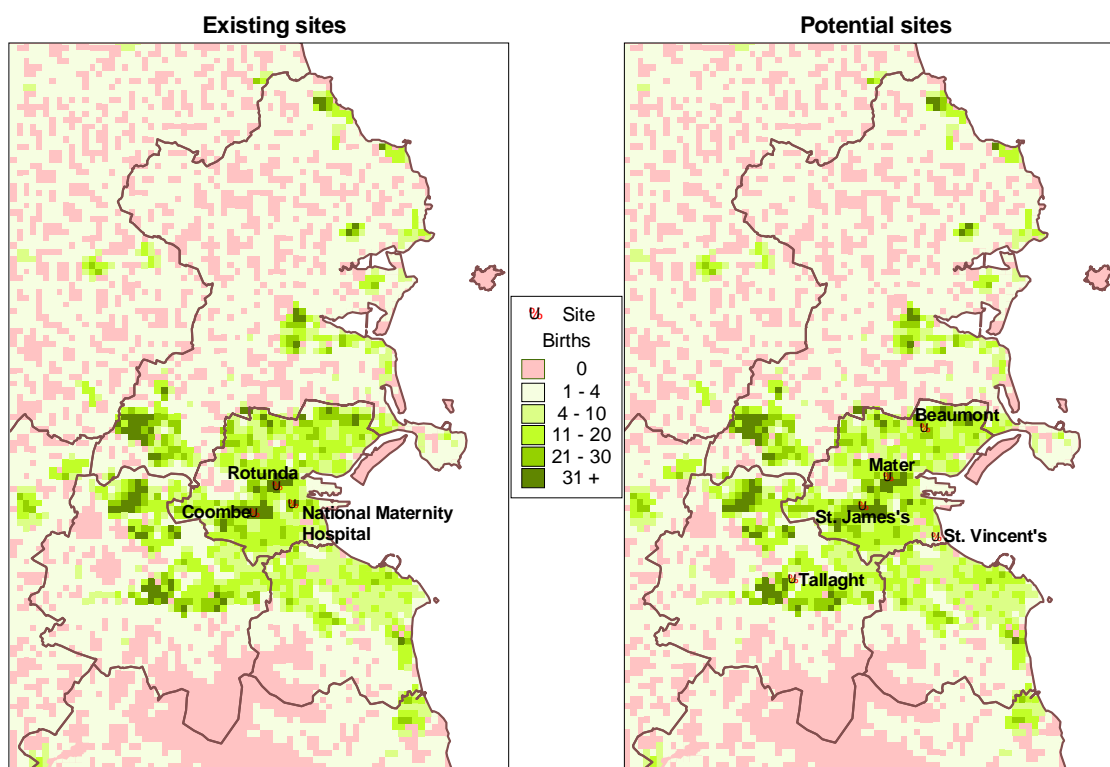
K3: Methodology & data

Scenarios

Based on the five sites identified as potential locations for maternity services with a service fixed at the Mater, six scenarios were defined as follows:

1. Mater, St. Vincent's & St. James's
2. Mater, St. Vincent's & Tallaght
3. Mater, St. Vincent's & Beaumont
4. Mater, Beaumont & St. James's
5. Mater, Tallaght & St. James's
6. Mater, Beaumont & Tallaght

The maps below indicate the locations of the current maternity hospitals and the five potential sites included in the analysis.



Birth projections

As part of this study it was necessary to estimate the numbers of births in 2006, 2016 and 2026. For a comprehensive analysis of travel times it was also necessary to have numbers of births in each small area as post code or county level would not provide sufficient detail for an effective model.

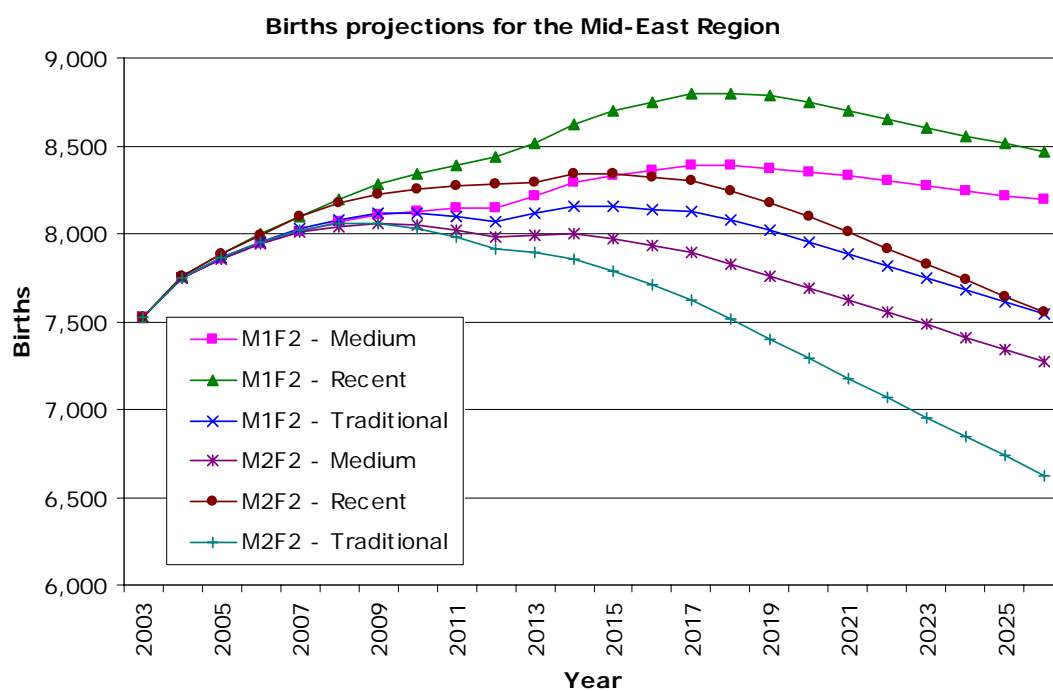
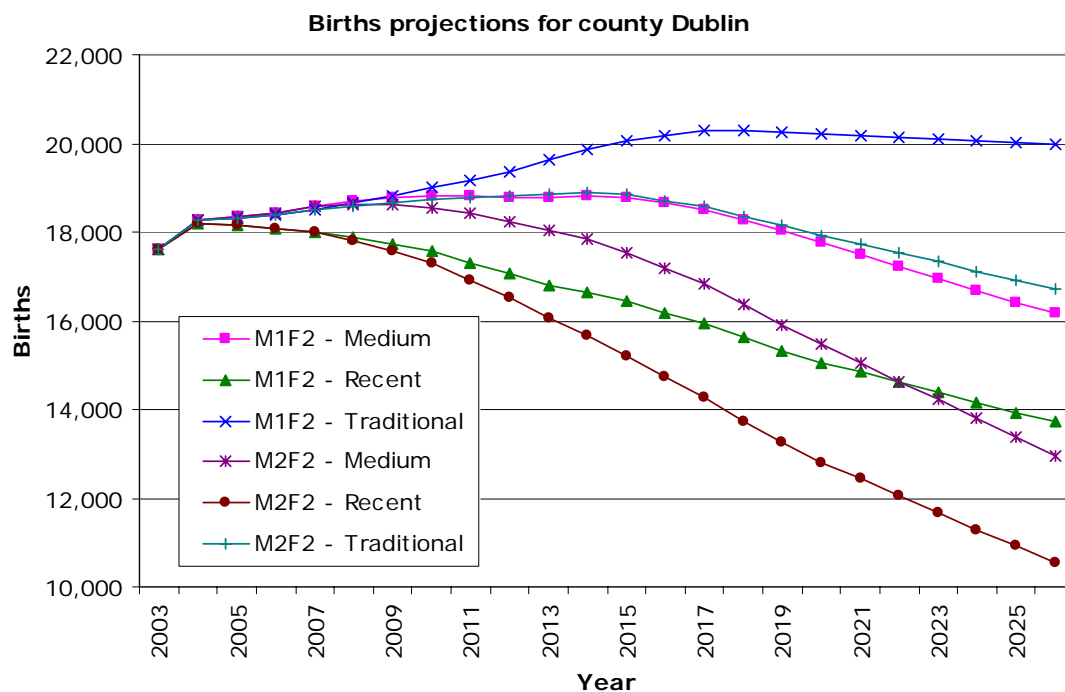
Rather than estimate female population in the 15 to 49 age range and then apply fertility rates it was decided to utilise all information on the likely current and future distribution of births.

The Central Statistics Office (CSO) publish information on the annual number of registered births. The 2006 Vital Statistics report details 17,623 births in Dublin and a further 8,424 in the Mid-East region (counties Kildare, Meath and Wicklow). A source for small area data, the CSO's 2006 census, provides the number of under 1's by electoral division (ED). In theory this gives the number of children born in each ED the previous 12 months. The census data underestimates the number of births in the Greater Dublin Area by 7%. Without any basis to believe the undercount to be systematic it is presumed that the undercount is uniform across all EDs in a county. The undercounts are shown in the table below.

Local Authority	Census births	Registered births
Dublin City	5,723	6,446
South Dublin	3,951	4,305
Fingal	4,330	4,612
Dun Laoghaire - Rathdown	2,276	2,260
Kildare	3,129	3,405
Meath	2,843	2,907
Wicklow	1,973	2,112

A correction factor was applied to ED births in each local authority based on the percentage undercount.

With regard to births projections, CSO births projections were last published in 2005 and are available by region for each up to 2021. They are computed using 6 different scenarios based on assumptions with respect to how fertility and migration patterns will change over time. A simple linear extrapolation was used to extend the projections to 2026. The following two graphs show the range of projected births by year for the Dublin and Mid-East regions, respectively.



The current number of births is below what was predicted by the CSO in 2005 in the Dublin region but above what was predicted for the Mid-East region. The observed number of births by regions is shown in the table below for the years 2003 to 2006. There is no clear pattern although there has been an increase in the Mid-East region with a net gain of nearly 1,000 births in 4 years.

Year	Dublin	Mid-East	Total
2003	17,595	7,528	25,123
2004	17,708	7,953	25,661
2005	17,174	7,780	24,954
2006	17,623	8,424	26,047

A median projected number of births was used which suggested a slowly increasing number of births peaking in Dublin in 2014 and in the Mid-East in 2017. The predicted number of births by region was the following:

Region	Year		
	2006	2016	2026
Dublin	17,623	18,271	16,528
Mid-East	8,424	8,886	8,733

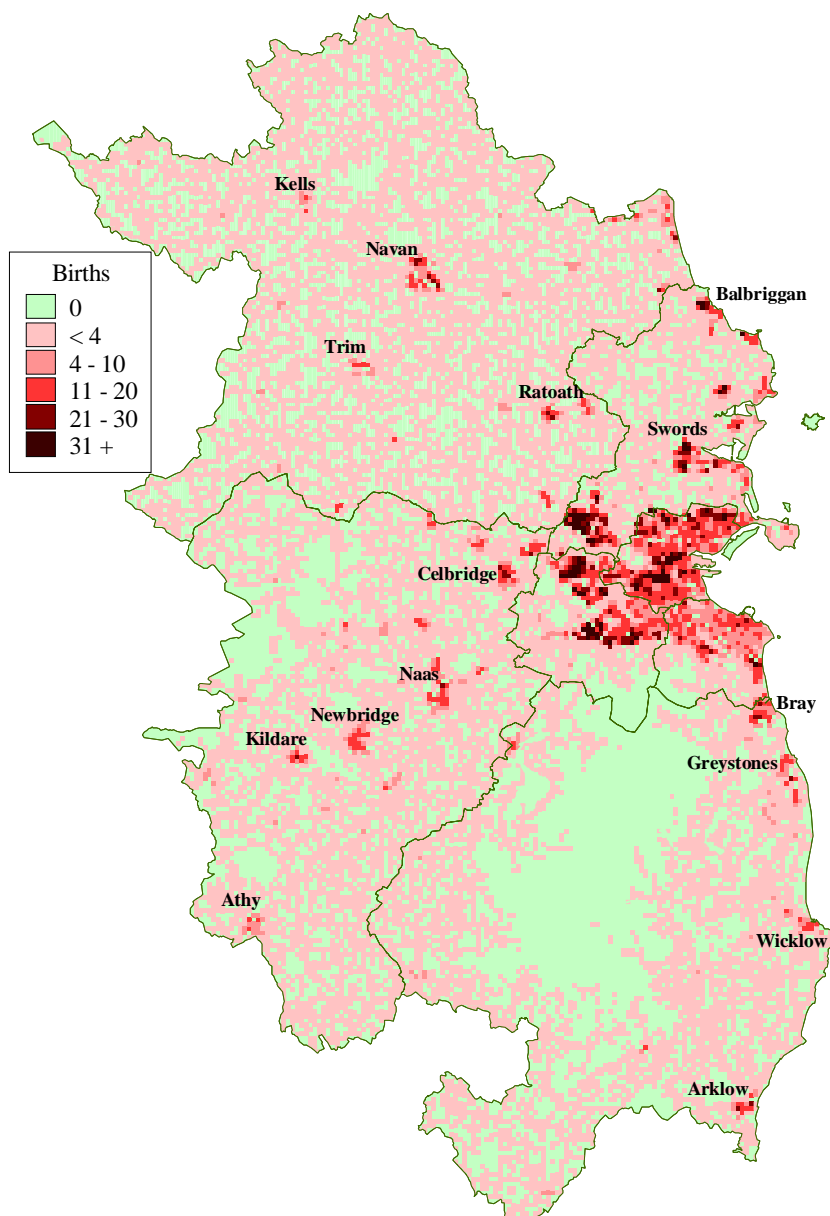
To allocate changes in births numbers to small areas EDs were assigned to one of three categories: increasing, static or decreasing. All EDs outside of Dublin city and towns of 1,500 or more persons were labelled 'static'. This decision was supported by the small changes in births observed over the preceding 10 years. All of the towns and their environs were labelled 'increasing'. Many of these towns have increased in size and attracted young families and couples no longer able to afford housing in Dublin city. Most Dublin city EDs were labelled 'decreasing' as evidence suggests an aging population. This is not uniformly the case and EDs in peripheral suburbs were labelled 'increasing' again based on evidence from census figures. Where there was a net decrease across a region that loss was primarily allocated to 'decreasing' EDs and then to a lesser extent to 'static' EDs with 'increasing' EDs staying unchanged or increasing only marginally, depending on the magnitude of the overall decrease.

Births were then allocated to each house-point in an ED and then those house-points were aggregated to 500m grid squares. The benefit of grid squares is that they provide a finer level of detail than EDs which tend to be geographically quite large, particularly in rural areas.

Births projections assumptions

- Median births projections are a suitable indicator of future births numbers.
- Population increases will occur predominantly in towns and their environs with some increases in Dublin city suburbs.
- Numbers of births outside towns and Dublin city will remain relatively unchanged from 2006 until 2026.

The following map shows the 2006 births by 500m grid square.
2006 births by 500m grid square



Travel times

Travel times were computed from the centres of 500m grid squares to hospital sites using both public and private transport.

Private transport

The definition of private transport is travel by private car where the patient travels directly from home to the hospital site. Travel times and distances were computed along the road network. The attainable speed along each road segment was determined for road type (e.g. motorway, regional road) and location (i.e. city, town or rural). Speeds were lowest in city areas and highest in rural areas. The relative speeds were based on attained speeds as measured and published by the National Roads Authority (NRA, www.nra.ie). These speeds are those actually achieved by traffic over a 24 hour period. As these speeds are not necessarily indicative of speeds achieved during normal hours (i.e. 7am to 7pm) the values were further calibrated using Dublin Transport Office (DTO, www.dto.ie) and AA Ireland (AA, www.aaireland.ie) data.

Public transport

A number of public transport options are available in the Dublin region: Luas, DART, Dublin Bus, Bus Eireann and Iarnrod Eireann are the main services. It was presumed that individuals would not use more than one form of public transport to reach a destination.

Initially grid squares were allocated to public transport stations within walking distance. For this study it was assumed that a patient could walk 1,200m in under 15 minutes and that this was acceptable walking distance. For those outside walking distance it was presumed that a taxi or lift from a friend or relative would have to be used to get to the nearest stop.

Scheduled times were used for Bus Eireann, Luas, DART and Iarnrod Eireann services. It was assumed that a person would have to wait 10 minutes for the service to arrive. If possible the person would alight the service within walking distance of the destination hospital, otherwise a taxi would be used from the nearest convenient stop to the final destination.

For Dublin Bus services the average scheduled time equates to an average speed of 18kmph. This was moderated to an average speed of 15kmph as schedules do not tend to take heavier traffic volumes into account.

Public/private transport mix

It is unlikely that all patients will use private transport so it was required to determine a probable proportion of public transport users in each small area. Two sources of census data were used for this purpose: the percentage households with no car and the percentage population using public transport. For each ED the lesser of these two values was taken as the potential proportion of patients who would not travel by their own car. Of those not travelling in their own car it was presumed that half of these would use public transport and the other half would rely on lift from a friend or relative to reach the hospital. Travelling in another person's car was given an added time penalty of 15 minutes over and above travel by private car from home to hospital.

Travel time assumptions

- Public transport coverage and travel times in 2016 will be the same as observed in 2006
- The proportion of the population in each small area using public transport will remain unchanged between 2006 and 2016
- Private transport travel times will remain unchanged between 2006 and 2026
- Although travel times by public transport are provided it is expected that nearly all patients will travel by private car

Patient flows

To adequately predict the movement of patients from small areas to hospitals it was necessary to develop a spatial interaction model of patient flows. Data from the 2004 Hospital Inpatient Enquiry (HIPE) system was used to calibrate the model. Cases are coded to post code within Dublin and to county for the Mid-Eastern region (i.e. Kildare, Meath and Wicklow). There are 24 Dublin post code areas used in the HIPE coding. Repeat visits were excluded so that records would be a proxy for births.

The travel times and distances were computed from each grid square to each of the three maternity hospitals. A spatial interaction model (SIM) was developed that took into inter- and intra-county flows and the effect of the Liffey on travel behaviour within Dublin. This impact appears to extend to Kildare and Wicklow and, to a lesser extent, Meath. Hospital region was defined as Dublin North or Dublin South. Kildare and Wicklow were considered to be part of Dublin South and Meath as part of Dublin North.

The SIM is used to predict the flow of patients from post codes to hospitals taking into account travel distance and the impedance of the Liffey. By applying the SIM to proposed site combinations it is possible to predict the catchments for the new sites and the travel times of the patients. The model correctly predicts over 90% ($R^2 = 0.913$) of patient movement in the existing service configuration. It appears that there is a substantial undercount of Dun Laoghaire maternity cases in the HIPE database which may be due to some Dun Laoghaire patients being recorded as 'Dublin South' post code. As census births numbers were used as a basis for this study a significant undercount in Dun Laoghaire is avoided although the undercount will have impacted on the observed fit of the model.

Nearly 65% of patients travel to their nearest hospital in the present configuration. Clearly the inconvenience of travelling to a more distant hospital is sufficiently small that 35% opt for that choice. The distance between the hospitals is small – the furthest being 3.5km from the Coombe to the Rotunda. If the distances were increased to 10 or 15km then it is likely that people would be less inclined to utilise the more distant facilities. The distance decay function used in the SIM accounts for this relationship and thus is a suitable method of determining likely flows in a changed configuration of maternity services.

Patient flow assumptions

- 96.5% of births in the three hospitals originate from within the Greater Dublin Area – **the births figures quoted in subsequent tables include births from outside the Greater Dublin Area.**
- 5% of mothers in the Dublin North postal area will travel to the North East.
- 12% and 2% of Kildare mothers will travel to the Portlaoise and Mullingar hospitals, respectively.
- 50% of Meath mothers will travel to the North East and a further 4% will travel to Cavan and 5% to Mullingar.
- 10% of Wicklow patients will travel to Wexford Regional Hospital.
- Approximately 1,400 births will take place in Mount Carmel hospital.

K4: Current scenario (Rotunda, Holles St. & Coombe)

As an aide to assessing proposed new locations for the maternity services, it was decided to analyse the existing scenario. These are three city centre sites.

Births at each site

Site	Births
Rotunda	7,254
National Maternity Hospital	8,078
Coombe Women's Hospital	8,088

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Rotunda	National Maternity Hospital	Coombe Women's Hospital	Total
< 30	29.1	17.8	32.4	26.3
< 60	88.4	78.4	81.6	82.6
< 90	96.2	90.1	95.9	94.0
<120	99.5	96.6	99.1	98.4

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Rotunda	National Maternity Hospital	Coombe Women's Hospital	Total
< 30	6.3	2.0	4.7	4.3
< 60	31.9	15.3	25.1	23.8
< 90	82.5	76.3	69.3	75.8
<120	94.0	92.7	93.0	93.2

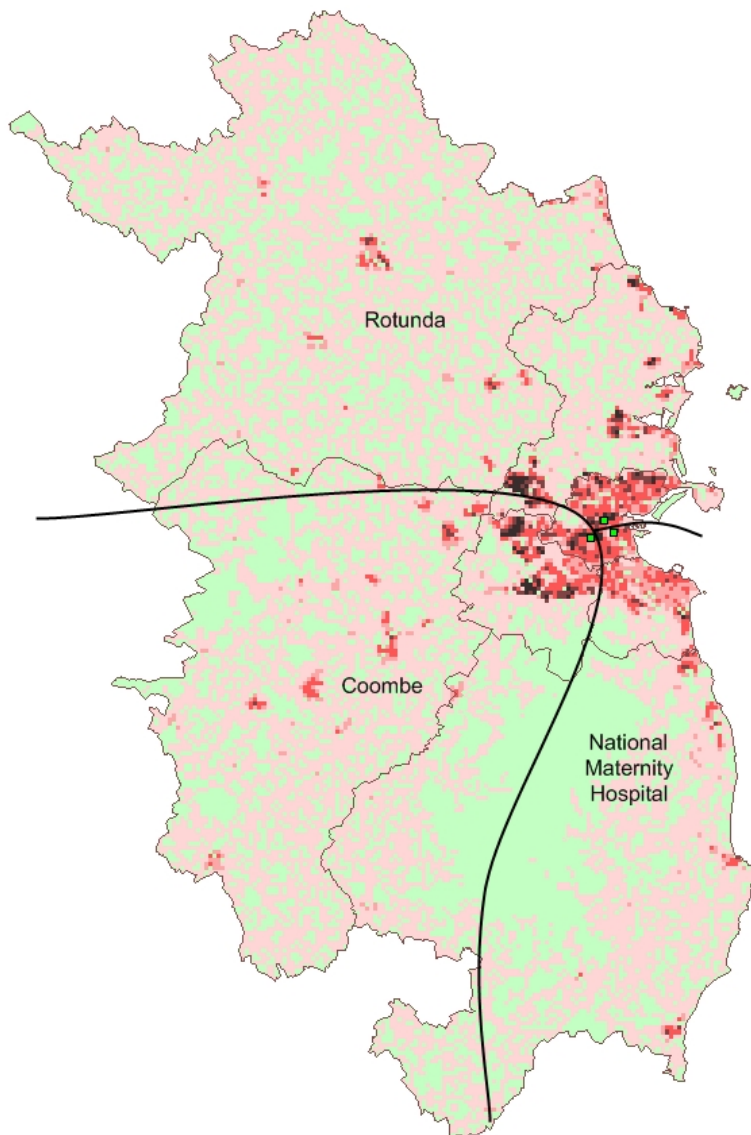
Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Rotunda	National Maternity Hospital	Coombe Women's Hospital	Total
< 30	15.2	8.8	18.9	14.2
< 60	86.5	76.9	81.0	81.3
< 90	95.4	89.7	95.4	93.4
<120	99.3	96.6	99.0	98.3

Comments

The National Maternity Hospital has a disproportionate attraction for residents of Dun Laoghaire. It is less attractive than anticipated for residents of Dublin 20 and Dublin 24. Overall, due to the close proximity of the three sites, each hospital attracts patients from every part of the Greater Dublin Area although 65% of patients attend their closest hospital. The main effect of the close proximity of the sites is that the population within 1 hour of each site is very similar. The location of the three sites effectively minimises the coverage of the services.

Approximate primary catchments for current service configuration



K5: Scenario 1 – Mater, St Vincent’s & St. James’s

In this scenario, as in all subsequent scenarios, the Rotunda hospital is relocated to the Mater site. The National Maternity Hospital is relocated to the St. Vincent’s site and the Coombe is relocated to the St. James’s site. The St. James’s site is quite central so the effect of this scenario is to draw the NMH out from the city centre. The move results in a much reduced catchment for the NMH and increased births at St. James’s.

2006

Births at each site in 2006

Site	Births
Mater	8,499
St. Vincent’s Hospital	5,504
St. James’s Hospital	9,296

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	St. Vincent’s	St. James’s	Total
< 30	32.7	28.5	30.8	30.9
< 60	90.0	77.2	80.6	83.3
< 90	97.0	91.3	96.3	95.4
<120	99.7	97.1	99.3	98.9

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	St. Vincent’s	St. James’s	Total
< 30	5.8	1.8	7.6	5.6
< 60	45.9	34.7	31.2	37.4
< 90	86.8	81.3	73.5	80.2
<120	94.2	93.2	94.0	93.9

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent’s	St. James’s	Total
< 30	19.8	19.8	17.5	18.9
< 60	88.4	75.7	80.1	82.1
< 90	96.2	90.4	95.7	94.6
<120	99.6	96.0	99.2	98.6

2016

Births at each site in 2016

Site	Births
Mater	8,856
St. Vincent's Hospital	5,689
St. James's Hospital	9,704

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	St. Vincent's	St. James's	Total
< 30	31.8	28.1	30.0	30.2
< 60	89.9	76.8	80.5	83.1
< 90	97.1	91.2	96.4	95.4
<120	99.7	97.1	99.4	98.9

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent's	St. James's	Total
< 30	19.4	19.5	17.1	18.5
< 60	88.3	75.4	79.9	81.9
< 90	96.2	90.4	95.8	94.7
<120	99.6	95.9	99.3	98.6

2026

Births at each site in 2026

Site	Births
Mater	8,128
St. Vincent's Hospital	5,169
St. James's Hospital	9,032

Cumulative percentage 2026 births within travel times by private car

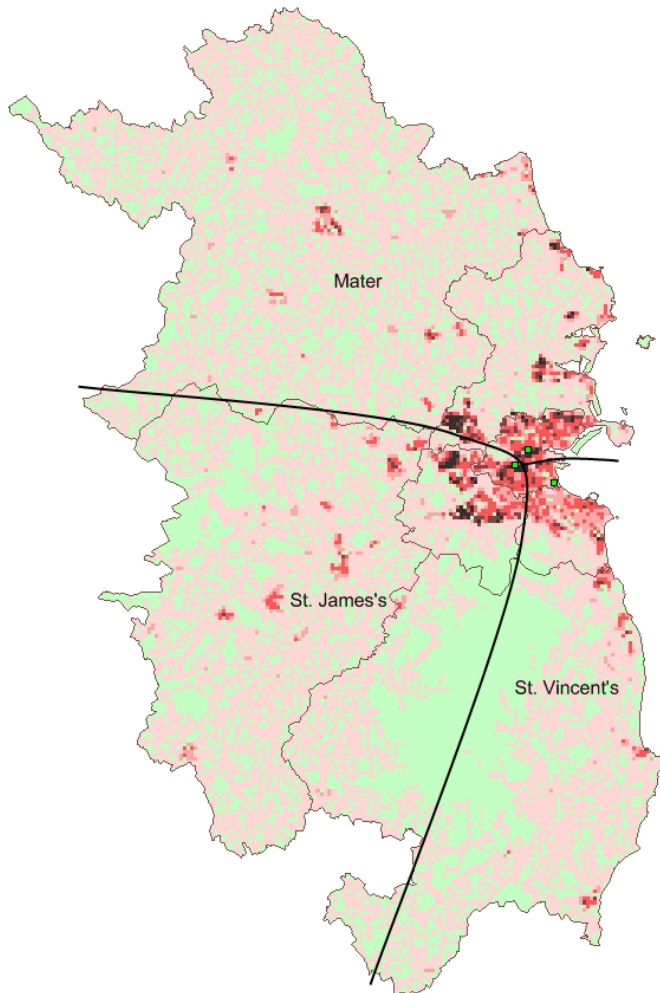
Time band (minutes)	Mater	St. Vincent's	St. James's	Total
< 30	28.9	26.7	27.8	28.0
< 60	89.3	75.1	79.4	82.0
< 90	96.9	90.7	96.4	95.3
<120	99.7	96.9	99.4	98.9

Comments

By bringing the two sites south of the Liffey further south, this scenario reduces the number of births from South Dublin, Dun Laoghaire–Rathdown, Kildare and Wicklow that use the north Dublin hospital. However, it also increases the number of north Dublin and Meath births no longer crossing the Liffey. The net change is to increase the number of births at the north-side site. The most substantial changes to the existing configurations are the reductions in Kildare, Meath and Dublin 15 patients travelling to the new St. Vincent's site.

The catchment at the St. Vincent's site is composed mostly of the south-east coast of Dublin and Wicklow. In losing its attraction to residents of north Dublin the site will have fewer births than at the current city centre location. The St. James's site is quite central and therefore will share a lot of the city centre catchment with the Mater site which to a certain extent replicates the overlapping catchments of the current configuration. As a consequence the improvement in access is moderate.

Approximate primary catchments for scenario 1 configuration



K6: Scenario 2 – Mater, St. Vincent's & Tallaght

For this scenario the National Maternity Hospital and the Coombe are relocated to the St. Vincent's and Tallaght sites, respectively. As two of the sites are drawn out of the city centre this further increases the catchment at the Mater as it now draws a patients from the south inner city.

2006

Births at each site in 2006

Site	Births
Mater	9,304
St. Vincent's Hospital	5,500
Tallaght Hospital	8,495

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	38.5	35.0	46.5	40.6
< 60	92.3	81.3	81.2	85.7
< 90	97.8	93.6	96.4	96.3
<120	99.8	98.1	99.3	99.2

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	6.7	2.0	3.1	4.3
< 60	51.5	38.9	16.9	35.9
< 90	88.9	88.3	38.7	70.4
<120	95.1	95.4	64.3	83.9

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	23.3	21.6	30.4	25.5
< 60	90.9	79.8	77.3	83.3
< 90	97.1	92.9	95.7	95.6
<120	99.8	97.2	99.0	98.9

2016

Births at each site in 2016

Site	Births
Mater	9,670
St. Vincent's Hospital	5,663
Tallaght Hospital	8,916

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	37.5	34.6	46.1	40.0
< 60	92.3	80.8	81.4	85.6
< 90	97.8	93.5	96.6	96.4
<120	99.8	98.1	99.4	99.2

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	22.9	21.4	30.2	25.3
< 60	90.8	79.4	77.4	83.2
< 90	97.1	92.8	95.8	95.6
<120	99.8	97.1	99.0	98.9

2026

Births at each site in 2026

Site	Births
Mater	8,818
St. Vincent's Hospital	5,095
Tallaght Hospital	8,416

Cumulative percentage 2026 births within travel times by private car

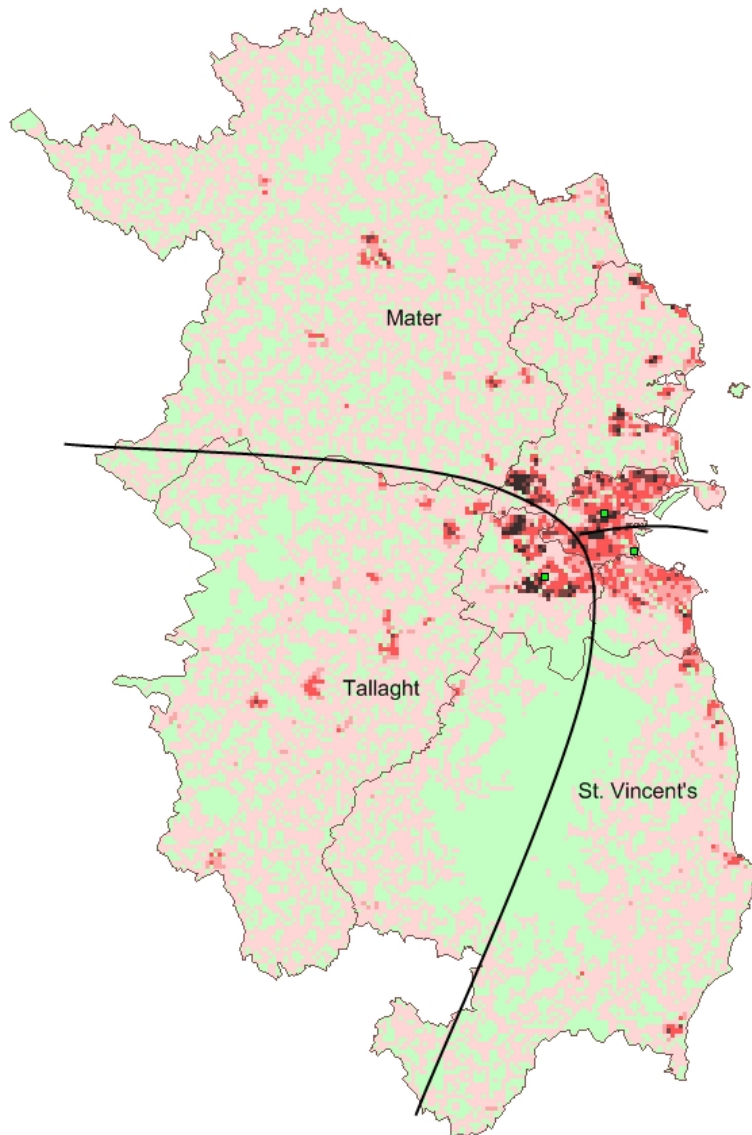
Time band (minutes)	Mater	St. Vincent's	Tallaght	Total
< 30	34.6	33.4	44.4	38.0
< 60	91.8	79.1	80.9	84.8
< 90	97.7	93.0	96.6	96.2
<120	99.8	97.9	99.4	99.2

Comments

This scenario effectively retains the layout of the present configuration while also improving access by maximising coverage. This is achieved by bringing the three sites into more central locations within their respective existing catchments. The number of births at the Mater site increases as fewer north Dublin patients will travel to south-side locations that are both quite far from the Mater. In this scenario nearly 90% of Kildare patients will travel to the Tallaght site.

The access within 30 and 60 minutes is good in this scenario due to the increased distance between sites. Nearly 76% of patients travel to their nearest site in this configuration of services.

Approximate primary catchments for scenario 2 configuration



K7: Scenario 3 – Mater, St. Vincent's & Beaumont

For this scenario the National Maternity Hospital and the Coombe are relocated to the St. Vincent's and Beaumont sites, respectively. As a result of this scenario the Mater catchment now draws in much of Kildare, Meath, west and central Dublin. This entails small catchments for the other two maternity sites and a large burden on the Mater service.

2006

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	10,608	9,913
St. Vincent's Hospital	7,761	8,097
Beaumont Hospital	4,931	5,290

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	24.3	27	44.4	29.8
< 60	77.8	80.6	95.0	82.7
< 90	92.3	91.3	98.9	93.5
<120	99.3	97.3	99.9	98.7

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	5.5	1.4	2.5	3.5
< 60	39.5	27.7	21.3	31.7
< 90	78.3	76.7	46.1	70.9
<120	93.8	93.0	86.0	91.9

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	15.9	16.6	24.7	18.0
< 60	76.7	79.9	93.0	81.2
< 90	91.6	90.5	98.3	92.6
<120	99.2	96.3	99.9	98.4

2016

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	11,119	9,948
St. Vincent's Hospital	8,011	8,571
Beaumont Hospital	5,119	5,731

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	23.4	26.3	42.8	29.0
< 60	77.3	80.4	94.7	82.5
< 90	92.3	91.3	98.9	93.5
<120	99.3	97.3	99.9	98.8

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	15.5	16.4	24.0	17.6
< 60	76.5	79.6	92.9	81.0
< 90	91.6	90.4	98.3	92.6
<120	99.2	96.3	99.9	98.4

2026

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	10,435	9,933
St. Vincent's Hospital	7,269	7,508
Beaumont Hospital	4,625	4,888

Cumulative percentage 2026 births within travel times by private car

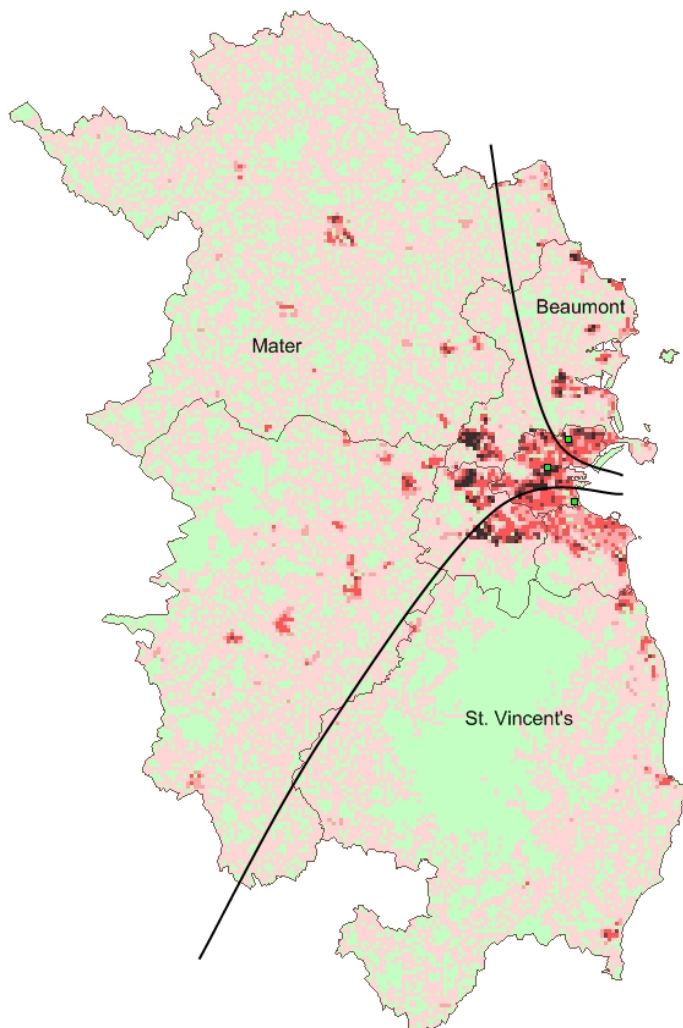
Time band (minutes)	Mater	St. Vincent's	Beaumont	Total
< 30	21.5	25.4	40.6	27.0
< 60	76.7	78.9	94.6	81.4
< 90	92.2	90.7	98.9	93.2
<120	99.3	97.1	99.9	98.7

Comments

In this scenario the north Dublin patients are split evenly between the two north-side sites. With the majority of Kildare and Meath patients travelling to the Mater location, that site will be heavily over-subscribed. Capping capacity at 10,000 will result in the extra patients being divided relatively evenly between the remaining two sites. The St. Vincent's site will draw almost all of its patients from Wicklow and south Dublin attracting virtually none from Kildare, Meath or north Dublin. The patients utilising the Beaumont site will come mainly from north Dublin although it will also attract some from the south inner city.

This scenario does not offer any clear advantage over the current configuration of services beyond relocating the maternity services to co-located sites. It will not improve access or demand at each site.

Approximate primary catchments for scenario 3 configuration



K8: Scenario 4 – Mater, Beaumont & St. James's

For this scenario the National Maternity Hospital and the Coombe are relocated to the Beaumont and St. James's sites, respectively. This scenario reduces the burden on the Mater site but entails a small catchment for the Beaumont site.

2006

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	7,808	8,842
Beaumont Hospital	4,301	4,482
St. James's Hospital	11,190	9,976

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	24.8	50.0	30.2	32.0
< 60	78.0	95.6	79.5	82.0
< 90	92.6	99.3	94.0	94.5
<120	97.9	99.9	98.0	98.3

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	6.8	2.9	6.6	6.0
< 60	37.8	24.2	27.8	30.5
< 90	82.4	51.3	71.9	71.6
<120	93.6	86.9	93.2	92.2

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	17.9	28.2	15.8	18.8
< 60	76.5	93.5	79.0	80.8
< 90	92.3	98.7	93.5	94.1
<120	98.0	99.9	97.9	98.3

2016

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	8,145	9,556
Beaumont Hospital	4,451	4,695
St. James's Hospital	11,653	9,998

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	23.9	48.6	29.7	31.1
< 60	77.7	95.5	79.2	81.8
< 90	92.6	99.3	94.1	94.5
<120	97.9	99.9	98.0	98.3

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	17.5	27.6	15.4	18.3
< 60	76.2	93.5	78.8	80.6
< 90	92.3	98.7	93.6	94.1
<120	98.0	99.9	97.9	98.3

2026

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	7,552	8,286
Beaumont Hospital	3,981	4,110
St. James's Hospital	10,795	9,934

Cumulative percentage 2026 births within travel times by private car

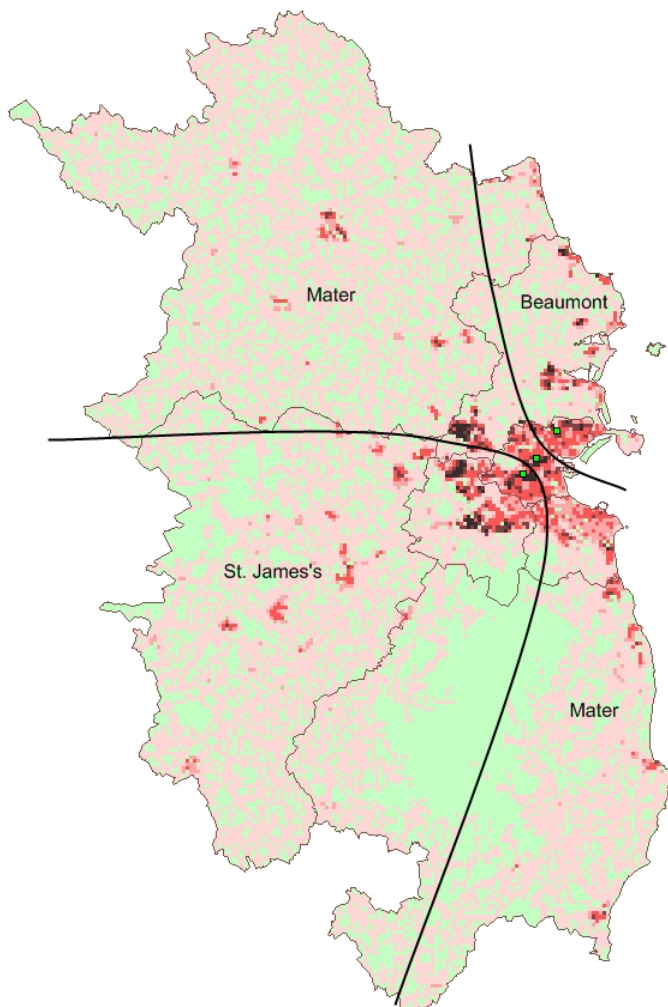
Time band (minutes)	Mater	Beaumont	St. James's	Total
< 30	22.4	46.6	27.4	29.1
< 60	76.6	95.4	78.1	80.7
< 90	92.5	99.2	94.0	94.4
<120	97.8	99.9	97.9	98.2

Comments

Services at the St. James's site will be oversubscribed in this scenario. By capping capacity at 10,000 most of the surplus will transfer to the Mater site. Nearly 48% of births at the Mater site will originate south of the Liffey in Wicklow and south Dublin. As can be seen from the map, the Mater catchment runs diagonally from the north-west to the south-east of the Greater Dublin Area. From an access point of view this is quite inefficient, particularly given the notional barrier that the Liffey presents. As such, capping capacity at St. James's may be difficult to enforce in practice. The Beaumont site serves an almost exclusively north Dublin catchment while the St. James's site draws mainly from south-west Dublin and Kildare.

Other than at the 30 minute catchment, this scenario does not offer any advantages over the existing locations.

Approximate primary catchments for scenario 4 configuration



K9: Scenario 5 – Mater, Tallaght & St. James's

In this scenario the National Maternity Hospital and the Coombe are relocated to the Tallaght and St. James's sites, respectively. As the St. James's site is between the other two sites its catchment is greatly reduced.

2006

Births at each site in 2006

Site	Births
Mater	9,006
Tallaght Hospital	7,948
St. James's Hospital	6,344

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	33.8	42.4	42.5	39.1
< 60	90.3	77.2	89.9	85.7
< 90	97.3	93.9	97.6	96.2
<120	99.6	99.0	99.4	99.3

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	6.3	2.2	10.9	6.2
< 60	46.9	14.8	36.1	33.0
< 90	88.4	32.9	78.0	66.6
<120	94.9	59.2	97.0	83.3

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	20.2	29.3	24.2	24.4
< 60	88.5	72.9	89.1	83.4
< 90	96.6	92.6	97.3	95.4
<120	99.6	97.6	99.4	98.8

2016

Births at each site in 2016

Site	Births
Mater	9,348
Tallaght Hospital	8,340
St. James's Hospital	6,560

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	33.0	42.2	41.8	38.5
< 60	90.1	77.3	89.7	85.6
< 90	97.3	94.0	97.7	96.3
<120	99.6	99.0	99.4	99.3

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	19.9	29.2	23.8	24.1
< 60	88.3	72.9	89.0	83.2
< 90	96.6	92.8	97.3	95.5
<120	99.5	97.6	99.4	98.8

2026

Births at each site in 2026

Site	Births
Mater	8,909
Tallaght Hospital	8,324
St. James's Hospital	5,079

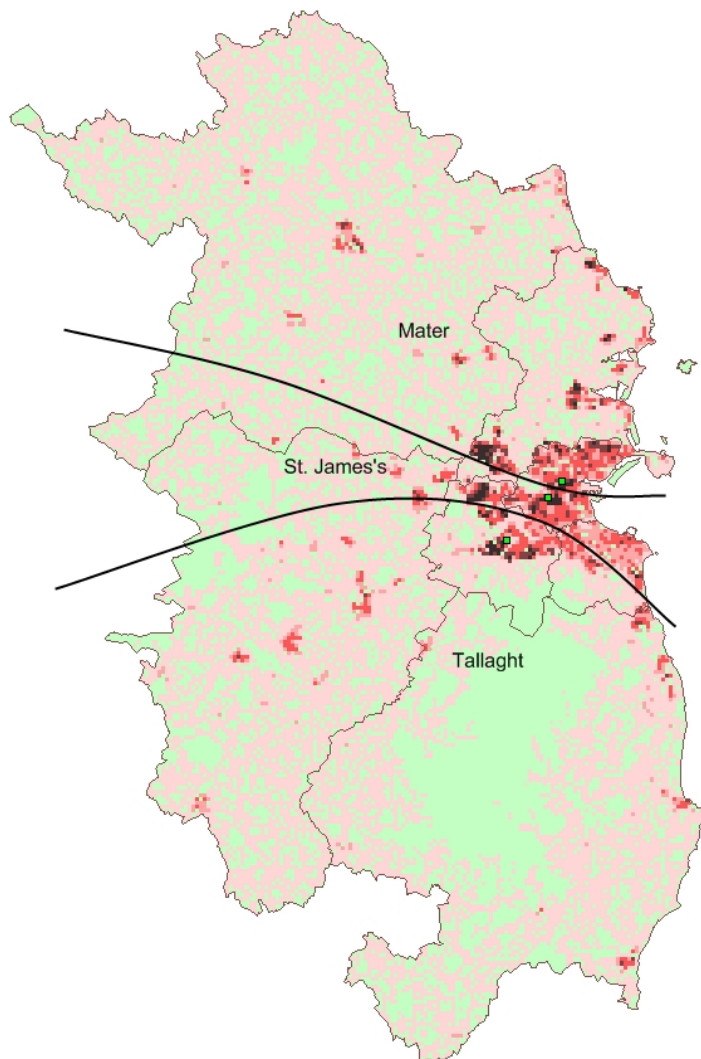
Cumulative percentage 2026 births within travel times by private car

Time band (minutes)	Mater	Tallaght	St. James's	Total
< 30	30.6	40.8	42.4	37.1
< 60	89.5	77.0	89.6	84.9
< 90	97.2	94.1	97.7	96.2
<120	99.6	99.0	99.4	99.3

Comments

Geographically this configuration places all three maternity hospitals along the main corridor from south-west Kildare to Dublin city centre. By placing services between Tallaght and the Mater at the St. James's site, there is poor demand at the St. James's location. The majority of Kildare and Wicklow patients will travel to Tallaght along with 45% of south Dublin patients. The Mater site will draw most of its patients from north Dublin. Most of the St. James's patients will come from south Dublin but the general overlap with the Tallaght catchment make this scenario an inefficient configuration of services. However, in terms of access this scenario offers a good improvement on the existing distribution of services.

Approximate primary catchments for scenario 5 configuration



K10: Scenario 6 – Mater, Beaumont & Tallaght

The National Maternity Hospital is relocated to the Beaumont site and the Coombe is relocated to the Tallaght site. As before, the catchment of the Beaumont site is restricted due to its proximity to the Mater site so it primarily draws patients from north County Dublin.

2006

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	7,921	8,591
Beaumont Hospital	4,663	4,763
Tallaght Hospital	10,715	9,945

Cumulative percentage 2006 births within travel times by private car

Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	37.3	48.0	45.1	42.8
< 60	87.6	95.7	79.1	85.6
< 90	96.7	99.3	94.7	96.4
<120	99.4	99.9	99.1	99.4

Cumulative percentage 2006 births within travel times by public transport

Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	9.9	2.7	2.8	5.2
< 60	52.2	22.8	14.5	29.0
< 90	88.5	51.5	34.1	56.1
<120	95.8	87.9	62.1	78.7

Cumulative percentage 2006 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	25.4	26.6	26.5	26.1
< 60	87.1	93.4	75.9	83.2
< 90	96.3	98.8	93.7	95.6
<120	99.5	99.9	98.0	98.9

2016

Births at each site in 2006

Site	Births	
	Uncapped	Capped
Mater	8,224	9,346
Beaumont Hospital	4,821	4,984
Tallaght Hospital	11,204	9,919

Cumulative percentage 2016 births within travel times by private car

Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	35.4	46.7	45.4	41.8
< 60	86.9	95.6	78.8	85.4
< 90	96.5	99.3	94.6	96.3
<120	99.4	99.9	99.1	99.4

Cumulative percentage 2016 births within travel times by mixed public/private transport

Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	24.0	24.2	25.8	24.9
< 60	86.2	93.1	74.9	82.2
< 90	96.1	98.7	93.8	95.5
<120	99.5	99.9	97.9	98.8

2026

Births at each site in 2026

Site	Births
Mater	8,068
Beaumont Hospital	4,389
Tallaght Hospital	9,872

Cumulative percentage 2026 births within travel times by private car

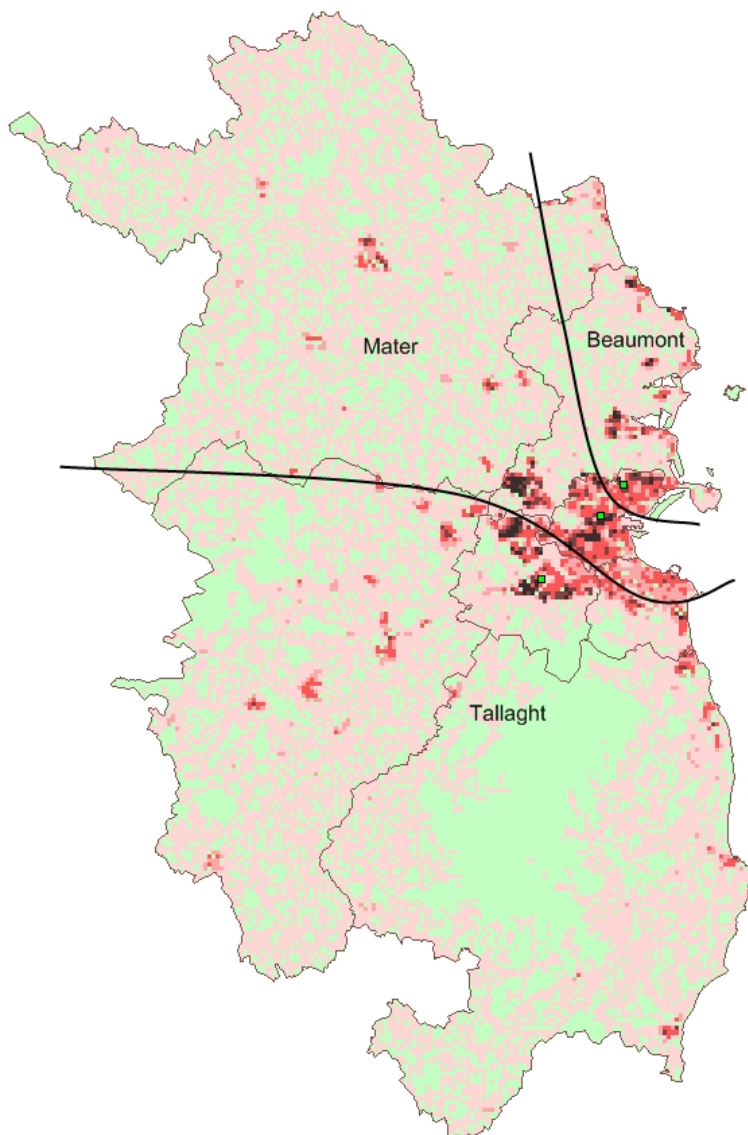
Time band (minutes)	Mater	Beaumont	Tallaght	Total
< 30	34.6	44.6	43.1	40.3
< 60	86.8	95.4	78.5	84.8
< 90	96.6	99.3	94.7	96.3
<120	99.4	99.9	99.1	99.4

Comments

Due to two services being based north of the Liffey, the Mater draws over a third of its patients from south of the Liffey. Most Kildare and Wicklow patients travel to Tallaght. As in previous scenarios, the Beaumont site draws almost exclusively from north Dublin. Based on 2006 and 2016 populations the Tallaght site will be oversubscribed. As there is no alternative on the south-side it will mean many of the diverted patients will have to cross to the Mater site.

This scenario results in the best access although it is only marginally better than scenarios 2 and 5 in that respect.

Approximate primary catchments for scenario 6 configuration



K11: Extreme population projections

The population projections used in the previous analyses are based on the median projection at each point in time. It is also pertinent to examine the impact of the extreme high and low projections on the numbers likely to attend each location. The following tables are based on capacity being capped at a maximum 10,000 births and minimum 4,000 births per annum.

High projection

The highest forecast projection for the three time points of interest occurs in 2016. As was stated previously, the peaks in Dublin and the Mid-East are projected to occur in 2014 and 2017, respectively. The highest value predicted for 2016 is 29,974 births. A marginally higher births projection occurs in 2017 but the difference is of the order of 0.5% so the 2016 projection is used for consistency with the previous analyses. The following two tables give the anticipated number of births per site and percentage births within travel times for each scenario (ranked by percentage births within 60 minutes) based on the high projection.

Births at each site for each scenario (high projection)

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	9,978	6,879	9,947
Mater	St Vincent's	Tallaght	9,964	6,854	9,986
Mater	St Vincent's	Beaumont	9,995	9,913	6,897
Mater	Beaumont	St James's	9,964	6,841	9,999
Mater	Tallaght	St James's	9,990	9,287	7,528
Mater	Beaumont	Tallaght	9,928	6,884	9,993

Percentage births within each travel time band for each scenario (high projection)

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Tallaght	St James's	39.1	85.8	96.3	99.3
Mater	St Vincent's	Tallaght	40.3	85.5	96.3	99.2
Mater	Beaumont	Tallaght	41.3	85.0	96.2	99.3
Mater	St Vincent's	St James's	30.8	83.1	95.3	98.9
Mater	St Vincent's	Beaumont	29.6	82.7	93.5	98.7
Mater	Beaumont	St James's	31.4	81.7	94.4	98.3

All of the scenarios result in one site experiencing demand for more than 10,000 births with the surplus having to be redirected to the two other hospitals. Scenarios involving Beaumont hospital result in the single south-side hospital having demand for more than 12,000 births.

Note: as a percentage of GDA births are attributed to hospitals outside the GDA and Mount Carmel, only 26,804 of the 29,974 GDA births will occur in the proposed three Dublin maternity hospitals. In a worst case scenario with all 29,974 births going to the three maternity hospitals and a cap of 10,000 births per site it is clear that each site would have to accommodate close to the maximum 10,000 births in a year.

Low projection

The lowest population projection occurs in 2026 when only 21,588 births are expected. The 2026 projections are based on a linear extrapolation from 2021. The following two tables give the anticipated number of births per site and percentage population within travel times for each scenario based on the low projection.

Births at each site for each scenario (low projection)

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	6,916	4,309	7,734
Mater	St Vincent's	Tallaght	7,454	4,207	7,298
Mater	St Vincent's	Beaumont	8,901	6,023	4,035
Mater	Beaumont	St James's	5,935	4,040	8,985
Mater	Tallaght	St James's	7,145	6,843	4,971
Mater	Beaumont	Tallaght	5,944	4,075	8,940

Percentage births within each travel time band for each scenario (low projection)

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Beaumont	Tallaght	39.0	84.8	96.4	99.4
Mater	St Vincent's	Tallaght	36.4	84.5	96.3	99.2
Mater	Tallaght	St James's	35.1	84.4	96.2	99.3
Mater	St Vincent's	St James's	26.0	81.4	95.4	98.9
Mater	St Vincent's	Beaumont	25.2	80.7	93.2	98.7
Mater	Beaumont	St James's	27.4	80.3	94.6	98.3

The demand for maternity services at the Beaumont site is below 4,000 births under the low births projection. Capping maximum capacity is more readily achievable than minimum capacity as it requires redirecting patients from hospitals that are not over-burdened.

K12: Potential outreach clinics

This is a brief assessment of potential outreach clinics based at each of the five co-located sites assessed previously along with a number of additional sites. The nine sites under consideration are:

- Beaumont
- James Connolly Memorial Hospital
- Mater
- Naas
- St. Columcille's (Loughlinstown)
- St. James's
- St. Michael's (Dun Laoghaire)
- St. Vincent's
- Tallaght

The analysis is based on all sites having an outreach clinic. Patient travel is based on private car travel only. It is assumed that each site is equally attractive although in reality it is probable that the three maternity hospital sites will attract more patients than the stand-alone outreach clinics.

Patients at each potential outreach clinic

Site	Births		
	2006	2016	2026
Beaumont	3,476	3,586	3,158
James Connolly	3,980	4,247	4,169
Mater	2,653	2,720	2,384
Naas	2,104	2,208	2,160
St. Columcille's	2,265	2,364	2,235
St. James's	2,524	2,568	2,238
St. Michael's	766	778	660
St. Vincent's	1,272	1,302	1,149
Tallaght	3,445	3,625	3,394

It is evident from the above table that the St. Michael's site in Dun Laoghaire has a small catchment due to its position between Loughlinstown (which will draw many of the Wicklow patients) and St. Vincent's (which will take a portion of the south inner city patients). Again it must be stressed that numbers of births in Dun Laoghaire – Rathdown are relatively low.

A proper analysis of potential outreach clinic sites would require a decision on the locations of the three maternity hospitals. On foot of such a decision it would be possible to use a sensitivity analysis to test the impact of varying preference for maternity hospital sites over stand-alone

clinics. Furthermore, an assessment of public transport access would be pertinent given the non-emergency nature of visits to an outreach clinic. In a situation where not all nine sites are used, it is not advisable to select locations by merely ranking based on catchment size and excluding the smallest sites. A proper analysis of different site selections is required to give a clearer indication of the impact of excluding one or more sites.

K13: Discussion & comments

Comparing scenarios: 2006

The following table summarises the number of births at each site for each scenario.

Births at each site for each scenario (2006)

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,499	5,504	9,296
Mater	St Vincent's	Tallaght	9,304	5,500	8,495
Mater	St Vincent's	Beaumont	9,913	8,097	5,290
Mater	Beaumont	St James's	8,842	4,482	9,976
Mater	Tallaght	St James's	9,006	7,948	6,344
Mater	Beaumont	Tallaght	8,591	4,763	9,945
Rotunda	Holles St	Coombe	7,325	8,078	8,088

In the following table, each scenario has been ranked by the percentage population within 1 hour.

Percentage births by private travel time band for each scenario (2006)

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Beaumont	Tallaght	43.3	85.9	96.5	99.4
Mater	St Vincent's	Tallaght	40.6	85.7	96.3	99.2
Mater	Tallaght	St James's	39.1	85.7	96.2	99.3
Mater	St Vincent's	St James's	30.9	83.3	95.4	98.9
Mater	St Vincent's	Beaumont	29.8	82.7	93.4	98.7
Mater	Beaumont	St James's	32.4	82.3	94.6	98.4
Rotunda	Holles St	Coombe	26.3	82.6	94.0	98.4

Comparing scenarios: 2016

The following table summarises the number of births at each site for each scenario.

Births at each site for each scenario (2016)

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,856	5,689	9,704
Mater	St Vincent's	Tallaght	9,670	5,663	8,916
Mater	St Vincent's	Beaumont	9,948	8,571	5,731
Mater	Beaumont	St James's	9,556	4,695	9,998
Mater	Tallaght	St James's	9,348	8,340	6,560
Mater	Beaumont	Tallaght	9,346	4,984	9,919

In the following table, each scenario has been ranked by the percentage population within 1 hour.

Percentage births by private travel time band for each scenario (2016)

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Beaumont	Tallaght	42.8	85.9	96.5	99.4
Mater	St Vincent's	Tallaght	40.0	85.6	96.4	99.2
Mater	Tallaght	St James's	38.5	85.6	96.3	99.3
Mater	St Vincent's	St James's	30.2	83.1	95.4	98.9
Mater	St Vincent's	Beaumont	29.1	82.5	93.5	98.7
Mater	Beaumont	St James's	31.6	82.1	94.7	98.4

Comparing scenarios: 2026

The following table summarises the number of births at each site for each scenario.

Births at each site for each scenario (2026)

Site 1	Site 2	Site 3	Births		
			Site 1	Site 2	Site 3
Mater	St Vincent's	St James's	8,128	5,169	9,032
Mater	St Vincent's	Tallaght	8,818	5,095	8,416
Mater	St Vincent's	Beaumont	9,933	7,508	4,888
Mater	Beaumont	St James's	8,286	4,110	9,934
Mater	Tallaght	St James's	8,909	8,342	5,079
Mater	Beaumont	Tallaght	8,068	4,389	9,872

In the following table, each scenario has been ranked by the percentage population within 1 hour.

Percentage births by private travel time band for each scenario (2026)

Site 1	Site 2	Site 3	% population within travel time			
			<30	<60	<90	<120
Mater	Tallaght	St James's	37.1	84.9	96.2	99.3
Mater	St Vincent's	Tallaght	38.0	84.8	96.2	99.2
Mater	Beaumont	Tallaght	40.3	84.8	96.3	99.4
Mater	St Vincent's	St James's	28.0	82.0	95.3	98.9
Mater	St Vincent's	Beaumont	27.0	81.3	93.2	98.7
Mater	Beaumont	St James's	29.3	80.9	94.5	98.3

K14: General comments

Almost 60% of births originate in Kildare, Wicklow and south Dublin. This represents approximately 13,440 births in 2006. Clearly this is too large a number to be accommodated at a single site. The remaining 9,220 births originating in Meath and north Dublin, however, can be accommodated at a single site. As a simple matter of balancing supply and demand it would seem appropriate to place two services in south Dublin and one in north Dublin. As the ratio of north-side to south-side births is unlikely to change significantly in the next 20 years, such a balance of services will still be appropriate in 2026. The balance of demand is evident in that the three scenarios involving two north-side sites lead to one of the sites being oversubscribed. Such a situation is problematic as it requires patients to travel to a second choice site that is also probably further away than the first choice site.

The main areas of population growth in the Greater Dublin area are along the main N7/M7 corridor through Kildare, in various towns in Meath, the north-east coast of Dublin and to a lesser extent along the east coast of Wicklow. The development of a major new hospital in the North-East has to potential to draw more patients from Meath and north Dublin than is currently the case. In that event the catchment for a north-side site will be further reduced.

If it is accepted that it is more practical to place two services south of the Liffey then it remains to compare three scenarios:

- Mater/St. Vincent's/St. James's
- Mater/St. Vincent's/Tallaght
- Mater/Tallaght/St. James's

The combination of Mater/St. Vincent's/Tallaght maximises access within 30 minutes and it is identical at 60 minutes to the Mater/Tallaght/St. James's solution. However, while those two solutions are superior at 30 minutes the advantage at 60 minutes is minor. As such these two scenarios cannot be adequately distinguished on grounds of accessibility.

The combination of the Mater with St. Vincent's and either St. James's or Tallaght will result in catchments that most closely mimic the catchments of the existing hospitals. Retention of these catchments would be desirable, particularly if the three new hospitals are not constructed simultaneously. Maintaining a similar service distribution will minimise disruption to patient

travel patterns and will maximise the ability to predict demand at the various stages of transition to the new hospital sites. Thus the combination of Mater with St. James's and Tallaght is not preferable as it will lead to substantially altered catchments.

Finally, comparing scenarios 1 and 2, due to the reliance on private transport it is preferable to minimise the number of patients making trips to the city centre. The combination of the Mater and St. James's sites will bring over 17,500 births to the city centre. While that is an improvement on the existing situation where all births take place in the city centre, the use of the Tallaght site in preference to St. James's would further reduce the number of city centre trips.

The optimal locations for the three co-located maternity hospitals, given that the Mater site is pre-selected, are as follows:

- Mater
- St. Vincent's
- Tallaght

The projected changes in births are relatively small with a gain of just over 1,100 births between 2006 and 2016 and then a drop of just under 2,000 births between 2016 and 2026. It is apparent that even with the shifts in births the relative benefits of the scenarios remain the largely unchanged. Assuming that changes to the road network will not advantage city centre sites, the locations of Mater/St. Vincent's/Tallaght will still be optimal in 2026. Similarly, based on the extreme high and low population projections, the Mater/St. Vincent's/Tallaght scenario offers the best solution for retaining the existing catchments, maximising access and minimising travel to the city centre.