



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

22 August 2008

Final Report

Please see Notice about this report on page 1
This report contains 236 pages
A separate appendices document contains 159 pages

Glossary

AHR	Assisted Human Reproduction
ALOS	Average Length Of Stay
AMNCH	Adelaide and Meath incorporating the National Children's Hospital, Tallaght
ANP	Advanced Nurse Practitioner
BAPM	British Association of Perinatal Medicine
BPD	Bronchopulmonary Dysplasia
CABE	Commission for Architecture and the Built Environment, UK
CAHR	Commission on Assisted Human Reproduction
CEMACH	Confidential Enquiry into Maternal and Child Health, UK
CEO	Chief Executive Officer
CGT	Community Gynaecology Team
CHB	Connolly Hospital Blanchardstown
Coombe	See CWIUH
C-section	Caesarean Section
CSO	Central Statistics Office
CT	Computerised Topography
CVS	Chorionic Villus Sampling
CWIUH	Coombe Women and Infants University Hospital
DA	Dublin Area
DNA	Did Not Attend
DCU	Dublin City University

DOHC	Department of Health and Children
EBCOG	European Board and College of Obstetrics and Gynaecology
ERHA	Eastern Regional Health Authority
ETH	Early Transfer Home
EWTD	European Working Time Directive
FET	Frozen embryo transfer
GDA	Greater Dublin Area
GP	General Practitioner
HAI	Hospital Acquired Infection
HDU	High Dependency Unit
HES	Hospital Episode Statistics
HIPE	Hospital In-Patient Enquiry
Holles St	See NMH
HR	Human Resources
HRG	Health Resource Group
HSE	Health Service Executive
ICSI	Intracytoplasmic Sperm Injection
ICU	Intensive Care Unit
IT	Information Technology
ITU	Intensive Treatment Unit
IUI	Intra-uterine Insemination
IVF	In Vitro Fertilisation
IVH	Intra-Ventricular Haemorrhage

JSC	Joint Standing Committee of the Dublin Maternity Service
Level 4 NICU	Neonatal intensive care unit with direct access to specialist surgical and cardiac services which Level 3 NICUs would not have
LOS	Length of Stay
MGS	Maternity and Gynaecology Services
MICS	Mother and Infant Care Scheme
MLU	Midwifery Led Unit
MMH	Mater Misericordiae University Hospital
MOSAIC	Models of Organising Access to Intensive Care
MRI	Magnetic Resonance Imaging
MRSA	Methicillin Resistant Staphylococcus Aureus
NATN	National Association of Theatre Nurses
NCHD	Non Consultant Hospital Doctor
NGH	Naas General Hospital
NICE	National Institute for Health and Clinical Excellence
NICU	Neonatal Intensive Care Unit
NMH	National Maternity Hospital (Holles Street)
NPH	National Paediatric Hospital
OLHN	Our Lady's Hospital Navan
OLHSC	Our Lady's Hospital for Sick Children
OPD	Out-Patient Department
OVN	Oxford Vermont Network
PCCC	Primary, Community and Continuing Care

PCT	Primary Care Team
PDA	Patent Ductus Arteriosus
PICU	Paediatric Intensive Care Unit
PMU	Performance Management Unit
PNM	Peri-Natal Mortality
RCP	Royal College of Physicians
RCSI	Royal College of Surgeons Ireland
RCOG	UK Royal College of Obstetrics and Gynaecology
RH	Rotunda Hospital
Rotunda	See RH
SCBU	Special Care Baby Unit
SCH	St Columcille's Hospital
SHO	Senior House Officer
SJH	St James's Hospital
SLA	Service Location Analysis
SMH	St Michael's Hospital
STEN	Netherlands Home Birth Foundation (Stichting Thuisbevallen Nedeland)
SVUH	St Vincent's University Hospital
Tallaght	See AMNCH
TCD	Trinity College Dublin
TOR	Terms of Reference
TPN	Total Parental Nutrition
TSH	Temple Street Hospital

TVT	Transvaginal tapes
UCD	University College Dublin
Very short gestation	Less than 24/26 weeks gestation (approximately 750grams)
Very pre-term	Less than 32 weeks gestation
VBAC	Vaginal Birth after Caesarean
VLBW	Very Low Birthweight (less than 1500 grams)
VP	Ventriculoperitoneal
VRE	Vancomycin-Resistant Enterococci
WHO	World Health Organisation

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1 **About this report**

KPMG were commissioned in May 2007 by the Health Service Executive to undertake an Independent Review of maternity and gynaecology services in the Greater Dublin Area (GDA). This report, with its supporting appendices, presents:

- Our key findings from the review;
- Our recommendation of the future model of care; and
- The high level implementation actions required.

1.1 **Notice**

This Report has been prepared on the basis set out in our Proposal to the HSE and should be read in conjunction with this.

This Report is for the benefit of the HSE only, as set out in our Proposal and the other parties that we have agreed in writing to treat as addressees of the Report and has been released to the HSE on this basis.

Where possible we have used sourced information from what we believe to be reliable sources and in the context of data provided by the three maternity hospitals, they have confirmed the factual accuracy of the information provided to us. However, given the large number of sources of information referenced internationally within this report, it is not possible in all cases to verify the reliability or accuracy of such information used in the course of our work (see 1.2 below).

This Report is not suitable to be relied on by any party wishing to acquire rights against KPMG for any purpose or in any context. Any party that obtains access to this Report or a copy (under Freedom of Information Act 1997 or otherwise) and chooses to rely on this Report (or any part of it) does so at their own risk. To the fullest extent permitted by law, KPMG does not assume any responsibility and will not accept any responsibility in respect of this Report to any party other than the original addressee.

1.2 **Notice about international literature review**

In order to gain insight into models of care internationally we used a number of sources. We accessed previously published material including documents, reports and articles from the following:

- Departments of Health (or equivalent) in the relevant countries
- Colleges of Obstetricians and Gynaecologists (or equivalent) in the relevant countries
- Colleges of Midwives (or equivalent) in the relevant countries
- Academic, medical and social journals via scientific databases including PubMed, Midirs, Cochrane and BioMed Central
- Relevant international health organisations such as the World Health Organisation (WHO)
- General internet searches / relevant websites for information on maternity and gynaecology provision in the relevant countries.

There are a number of caveats that need to be applied to any interpretation of the data which has made comparisons difficult.

The quantum of reports and documents varied between countries. For example, the UK has undertaken a wide range of reviews and investigations into maternity provision and generally all such findings are published and easily accessible through relevant (usually government related) internet sites, however, other countries may have generally produced less reports and/or tend not to publish their findings or make them accessible to the general public.

In the case of the European countries (the UK excepted), many documents and reports are published in the original language of the country and any English translation versions may be limited to summary articles or specific data sets.

There is no standardised approach or international statistical database for much of the quantitative data pertaining to maternity and gynaecology provision and, in the case of published reports, the dataset(s) or data sources used are not always evident. This can lead to apparent inconsistencies in some of the reported quantitative data.

The issues with data comparability etc naturally restrict our analysis of key healthcare indicators, and in addition, the differences between key indicators (mortality rates, C-

section rates) can only be explained by detailed information on the population cohort and additional contextual information.

Another issue relates to the timeliness and accuracy of reports especially when there is a significant time lag between the time taken to gather data and other relevant information, compile the report and the actual publication date.

In some cases, information gained from reports was no longer valid or truly reflected the current provision. This was most apparent with workforce data and mortality rates which are most susceptible to noteworthy change over a number of years.

Our literature review was supplemented with consultations with key clinical contacts in each of the reviewed countries who provided qualitative information on current models of care, key developments and emerging practices and any associated issues with respect to maternity and gynaecology services in their respective countries. In addition, these key clinical contacts identified relevant documents. Throughout the report we identify full details on all literature sources and key contacts.

This international literature review has been prepared to help determine the optimal configuration of primary, community and hospital services and workforce requirements by taking account of existing and potential best practice models of care.

It is necessary to emphasise that the purpose of this review is not to suggest one country has a stronger model than another has and should be replicated in Dublin, but rather to highlight key learning and opportunities to identify the direction of travel in the GDA.

This international review is only one source of information to assist with making evidence based and valid recommendations for the future configuration of maternity and gynaecology services in Dublin. We firmly believe that in order to develop a preferred model of care for maternity and gynaecology services it needs to be appropriate and relevant to the local health economy.

1.3 Acknowledgements

We would like to thank Conor Teljeur at the Small Health Area Research Unit, Trinity College Dublin, for carrying out the accessibility analysis.

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- Dr Ken Clark, Royal Australia and New Zealand College Society of Obstetricians and Gynaecologists
- Pippa Kyle, Professor Obstetrics and Gynaecology and Head of Department, University of Otago, Christchurch
- André B. Lalonde, MD, FRCSC, Executive Vice-President, The Society of Obstetricians and Gynaecologists of Canada (SOGC)
- Peter Malcus, Assoc. Prof., Department of Obstetrics and Gynaecology, University Hospital, Lund, Sweden.
- J.Milliez, Society of Obstetricians and Gynaecologists of France
- Dr Sven Montan, Head of the Department of Obstetrics and Gynaecology, Sjukhuset i Angelhom, Sweden

2 **Executive summary**

KPMG was commissioned in May 2007 by the Health Service Executive (HSE) to undertake an independent review of maternity and gynaecology services in the Greater Dublin Area (GDA). This report presents our key findings from the review, our view on the preferred model of care and a roadmap for implementation of our recommendations. The appendices contain key support material and data that we used to inform our report and underpin our findings.

In conducting this review, we were asked to focus on four key areas:

1. To build on the strengths of the current service configuration and model of care;
2. To define the optimal configuration of maternity, gynaecology and neonatology services for the GDA;
3. To identify the optimal location of services; and
4. To provide a roadmap for the future, outlining the steps required to get from where the service is now to our vision for the future.

Our review was informed by a detailed analysis of current service delivery, an extensive stakeholder interview programme and a series of major workshops with a wide range of stakeholders. This provided us with an opportunity to meet with those who work in the service, professional bodies, consumer groups and academic organisations. This programme was invaluable as it allowed us to not only hear the views of those involved but also to debate the merits of different models of care and their potential role in service delivery within the GDA.

The review was also informed by an international analysis of maternity and gynaecology service configurations and best practice models of care. Four clinical associates worked with our health advisory team during this review. These are all UK-based practising clinicians with specialist experience and knowledge relevant to this review. They included leaders with national and international recognition for their specialist work and achievements in the areas of gynaecology, midwifery, neonatology and obstetrics. Collaboration with our associates has formed an integral part of our work on this project. Specifically, they have driven the clinical analysis, consulted widely with stakeholders and helped develop the preferred model of care for maternity and gynaecology services in the GDA. In addition, they provided valuable insight to interpret the limited, robust and

inconsistent information that is publicly available for other countries on their configuration of maternity and gynaecology services and clinical outcomes.

2.1 **The current services and service providers**

The three main providers of obstetric, gynaecology and neonatal services for women and infants located within a 5 km radius of the city centre in the GDA are:

- The Coombe Women and Infants University Hospital (CWIUH);
- The National Maternity Hospital (NMH); and
- The Rotunda Hospital (RH).

Each hospital is a stand-alone institution, governed by Charter and led both at an operational and strategic level by a Master. Internationally, the Mastership system is unique to the three hospitals. The Master, generally an obstetrician, essentially acts as both a Chief Executive Officer (CEO) and is also a practising clinician at that institution. All the hospitals have existing links with other acute general adult hospitals in the GDA, including a number of joint appointments at consultant level. The three hospitals have a tertiary role for complex pregnancies and babies requiring intensive care.

In line with the HSE Service Plan, each of the three hospitals was given additional financial allocations in 2007 and 2008 to support the level of demand they were experiencing.

2.2 **Drivers for change**

2.2.1 ***Demand***

The three maternity hospitals are under considerable pressure due to the growth in demand over the past few years. Each hospital delivers over 8,000 babies per annum in obstetric units, which currently accounts for 40% of all babies born in Ireland. The growth projections suggest that there will be a steady rate of growth until 2016, before levelling off.

The capacity of the hospital facilities is no longer sufficient to meet the service needs required by the population growth. The hospitals have started to carry out some of their antenatal activity in the community, but the births still take place in the hospital.

2.2.2 ***Staffing levels***

Based on the current model of care, compared to standards set by BirthRate Plus, BAPM and the RCOG in the UK, the hospitals are understaffed, with an additional 20

obstetricians, 221 midwives^{1a}, 20 neonatal nurses^{1b} and 35 theatre staff required across the GDA to meet the current levels of demand. We acknowledge that to achieve these increments will take time and hospitals in the UK and internationally also experience the challenge of staff recruitment and retention eg the UK do not currently meet 100% of the BAPM minimum requirements. In addition, both the actual workforce numbers required and the skill mix of the additional staffing complement will need to be carefully planned and assessed to ensure that it is appropriate for current circumstances, e.g. the speed of implementation of the recommendations in this report, the level of uptake of MLUs, the relative split of public and private practice, the development of primary care, the popularity of the Early Transfer Home Scheme, etc. As noted below the requirement will change over time as the services are developed and reconfigured with the recommendations herein.

There is an urgent need to increase the levels of staffing of consultants and to make changes to consultant work practices to provide cover dedicated to care on the labour ward. Currently, there is a reliance on consultants, who are delivering private patients out of hours, to provide cover to public patients too. We do not believe that this is a sustainable model. The UK Royal College of Obstetrics and Gynaecology recommend that a unit delivering over 6,000 babies needs to have 24 hour consultant cover, where consultants have no other clinical commitments elsewhere within the system.

There is also a need to increase the number of anaesthetist sessions at the hospitals, as the current level of support is inadequate. In our view based on volumes and UK experience, the number of neonatologists needs to be at least five per unit but this will depend on future patterns of work and potential collaboration between the units. If these are to be staffed independently each unit will need seven neonatologists to comply with EWTD based on current throughput.

In the longer term there is a need to develop a robust workforce plan that addresses both the staffing numbers, skill mix and experience of all staff required to implement a modernised service for women and children in the GDA. The staff numbers outlined above are to meet current demand levels, based on the current model of care but this will need to be reconsidered and a detailed manpower plan developed as and when the future service model is implemented, taking into account workforce needs, demand, configuration with other obstetric/gynaecology units and related acute services staffing

^{1a} This does not take account of public health nurses who undertake postnatal care in the community

^{1b} This would enable compliance with 70% of the UK BAPM standard. A further 78 neonatal nurses would be required to achieve the gold standard of 100% compliance. In addition to more neonatal nurses, there also needs to be a stronger focus on developing the specialist skills required as most of the current neonatal nurses are midwives. A recent OECD report also confirmed that Ireland has difficulties in attracting nurses to specialise as neonatal nurses.

(eg anaesthetics) and primary care services (eg community midwifery) at that point in time.

2.2.3 ***Current model***

The current service model is, by international standards, relatively hospital-focused, with a strong emphasis on medically led (doctor) services. The Mother and Infant Scheme has defined this model, assuming that antenatal care is to be delivered by GPs and Obstetricians. It does not provide an option for midwifery led care. This has resulted in relatively under developed services led by and/or delivered by midwives. The structure of private medical insurance has also played a key role in maintaining doctor-led services. Despite the fact that the current model of care prefers GP involvement to that of midwives, primary care based services are underdeveloped to deliver it. Primary care in Ireland as a whole is underdeveloped and this is evident in a lack of community maternity and gynaecology services. Services that are available tend to be outreach services from the hospital rather than provided by Primary, Community and Continuing Care (PCCC).

The dominance of a medically led, hospital-centred model of care provides effective services for women with non-routine clinical conditions. However, approximately 60% of women experience a normal pregnancy and birth. It does therefore limit the choice for women whose routine clinical needs could be provided for in a wider range of settings.

2.2.4 ***Infrastructure risks***

All three hospitals are delivering their services in a sub-optimal infrastructure, with some variation in the age and condition of the different facilities. The current condition of clinical areas is inadequate for the delivery of health care by today's modern standards - particularly at the NMH. Many of the public wards experience higher than recommended occupancy levels in a Nightingale-style layout. This compromises privacy and dignity for patients whilst also increasing the likelihood of the spread of infections.

The number of delivery suites at the hospitals is well below those needed to deliver the current level of demand. The average for each of the three hospitals is nine; we recommend that there should be one delivery suite for approximately every 500 births, which would equate to 16 delivery suites on each site, in line with UK units delivering similar numbers. In the UK delivery suites are primarily single occupancy clearly to maintain privacy and dignity of the user but also to reduce risk of spread of infection (as per 'Safer Childbirth' 2007). The number of theatres and location of theatres is also suboptimal. A unit delivering 8,000 babies should have two dedicated obstetric theatres in close proximity to the labour suite. This is not the case in the GDA maternity services. Gynaecology and obstetric services compete for the same theatre resource, meaning

elective gynaecology work often gets interrupted for emergency deliveries. It also increases the risk of infection. This must be urgently addressed.

The hospitals are currently achieving adequate levels of performance by international standards. This is a credit to the work and commitment of the staff given the service demands and quality of internal infrastructure. It should be noted though that their concerted efforts to maintain this level of performance in this fashion is not sustainable in the long-term.

2.2.5 ***International evidence***

As part of the review we have considered the evidence available internationally on maternity and gynaecology services and drawn upon the different models available for delivering an optimum service. We have particularly focused on the service models of Australia, Canada, France, Germany, the Netherlands, New Zealand, Sweden and the UK. It is clear from the international review that there is no one model internationally that is suitable for the GDA. As noted in chapter 1.2, it is also difficult to access publicly, robust clinical data that can be analysed consistently across countries and compared to the GDA. However the evidence available and the international trends suggest that Dublin is somewhat out of step with current best practice.

- Models reviewed ranged from strong primary care focus in Canada, New Zealand and particularly the Netherlands to more hospital based care in Australia and Sweden. However, the key conclusion to draw from this is that for the GDA, where hospital care dominates and primary/community care is underdeveloped, at this juncture when change is being contemplated, it is possible to have a different model of care and achieve broadly similar clinical outcomes.
- While ‘the medical model’ prevails in some other countries with most births taking place in hospitals, there is an increasing move to provide antenatal and postnatal care in the community and to provide women with choice in birth facilities, from tertiary hospitals to low interventionist birth units to home births. Canada, New Zealand, Sweden, the Netherlands and the UK all feature strong input from midwives and GPs in antenatal care, which serves to create capacity in obstetric units.
- There is generally a drive to empower midwives and give them greater autonomy in the provision of postnatal care, antenatal care and for low risk deliveries and to provide them with more equity alongside GPs and obstetricians.
- None of the countries reviewed identified an optimal size of maternity unit, although there has been a clear move in many countries to close smaller maternity units (e.g.

those with less than 1,500 deliveries) and consolidate services onto larger maternity hospitals. There is increasing evidence of maternity units in the 6,000+ births range.

- Average length of stay data is inconsistent internationally, making comparisons difficult, but rudimentary analysis suggest for both normal delivery and C-section deliveries that the GDA could reduce ALOS.
- C-section rates are on the rise internationally for a variety of reasons related to workforce pressures, increasing complexity with older mothers as well as the risk of litigation. The GDA at 20%+ is not out of step with most developed countries, but well behind what WHO recommends at 10-15%. Taken together with high ALOS in general (and specifically for C-section rates) and the infrastructure pressures in the three maternity hospitals in the GDA, there is a clear imperative to reduce C-section rates.
- Internationally as prenatal diagnosis has become increasingly sophisticated and technological advances have enhanced the range of capabilities, fetal medicine has been developing as a separate sub-speciality. But this requires critical mass in volumes to maintain skills and outcomes, with developments pointing towards intervention particularly in fetal tachycardia taking place in experienced co-located maternal-fetal medicine centres.

Dublin's model of stand-alone maternity hospitals is not the norm internationally. It is well recognised that for optimal clinical outcome, maternity services should be co-located with adult acute services, or in the case of neonatology and fetal medicine tri-located with adult and paediatric services. The benefits of co-location and tri-location are clear. Co-location allows the mother access to a full range of medical and support services should the need arise, for example, cardiac and vascular surgery, diabetes services, intensive care facilities, haematology services, psychiatric services and many others.

The principle of tri-location in Ireland has been agreed as part of the recent National Paediatric Review. We support tri-location as it provides maternity services with immediate access to paediatric services on-site when fetal or neonatal surgery and other interventions are required. During our consultation with stakeholders there was support for co-location and tri-location. Therefore we have taken this principle as a key driver to underpin the changes to our proposed model of care.

We acknowledge that there are some examples of other stand-alone maternity facilities internationally. However these are in the minority and are no longer recognised as international best practice for future service development, as where other countries have reconfigured services, the move has been, towards co-location and tri-location.

2.2.6 **Choice**

Stakeholders, including service users, gave us a strong clear message that they want more choice in the way service users and their families' access services. At present service user choice is limited in Dublin, although there have been some impressive inroads through the Early Transfer Home and Domino schemes. These are described in more detail later in the report. However, the majority of women mainly access a hospital based, consultant-led model of care for maternity services. The number of home births in Ireland as a whole is absolutely minimal, although we realise that presently only a minority of women wish to deliver at home.

International evidence clearly indicates that women should be offered choice. It is particularly obvious that there is significant potential for midwives to play a more prominent role in obstetrics. Co-located Midwife Led Units (MLUs) are common in the UK and further afield. We believe these are crucial for the development of maternity services and more patient choice in the GDA.

We are proposing greater choice for women and are proposing the creation of MLUs adjacent to hospital based obstetric units in our recommended model of care as well as the option to have a home birth. In addition, primary and community based services should be significantly expanded. We are also proposing a significant education and communication campaign both for service users and service providers on the range of choices available and the risks and benefits related to each.

2.2.7 ***The Report of the Lourdes Hospital Inquiry***

The Report of the Lourdes Hospital Inquiry, chaired by Judge Maureen Harding Clark recommended the need for greater clinical audit, clinical risk management and integrated clinical governance in Ireland. The hospitals already prepare annual reports and have started undertaking clinical audit. However, best practice needs to be applied to these areas for all hospitals and community health professionals engaged in the delivery of obstetrics, gynaecology and neonatology services in the GDA.

2.2.8 ***Working across sectors in health service delivery***

It is increasingly recognised internationally and to a certain extent in Ireland that a collaborative approach is required across the health service to ensure that patients are treated in the most appropriate location, with integrated services, and that the service delivery model is modern, flexible and appropriate for the specialty and for the needs of the patient.

2.2.9 **Performance levels**

The current performance levels at the three maternity hospitals compares relatively well with international comparators in terms of clinical outcomes. However, one must be careful when making international comparisons of service. Data is not collected in a standardised format internationally; therefore it is difficult to judge whether we are comparing like with like. Data is collected for different reasons in different countries, depending on the financial regime (e.g. by Health Resource Group (HRG) for tariff purposes in the UK). There is no standardised way of collecting data internationally which leads to limited transparency. This makes direct comparisons extremely difficult.

However, there are a number of areas where hospitals can improve performance in the short-term and medium-term, which should help to alleviate some of the pressures they are facing. For example, in reducing Average Length of Stay (ALOS), Did Not Attend (DNA) rates, bed management and working as an integrated network.

2.2.9.1 **Obstetrics**

Primary care is generally underdeveloped with a resultant over-reliance on services in the hospital environment. The three hospitals have made some steps towards providing community based care through outreach services, Early Transfer Home and Domino schemes. These need to be expanded throughout the GDA and include *inter alia* the development of more community midwifery and GP shared care.

High volumes of hospital-based antenatal activity could be transferred into primary and community care through development of appropriate protocols and supporting care pathways.

DNA rates at OPD clinics are much higher than those in the UK and this needs to be addressed. ALOS is higher than international benchmarks and this also needs to be addressed, this in part is because of the entitlements that private medical insurance provides women e.g. five days for a c-section, and the underdeveloped community services but it does mean that obstetric beds are being blocked when women/infants are clinically fit to return home. There is also a lack of robust bed management systems.

Socially excluded women would benefit from specialist multi-disciplinary team (e.g. health visitors, access to social care and housing) care and follow-up. Postnatal care is minimal and needs to be expanded.

Improvements in ALOS could be achieved through improved discharge planning, enhanced community based services and a reassessment of the role the private insurance market plays on length of stay performance.

2.2.9.2 *Gynaecology*

There is scope to reduce inpatient admissions (which are higher than we would expect to see by international standards) by increasing day case and outpatient care. Our analysis of the data indicates that the lack of referral criteria into secondary care leads to large volumes of women being inappropriately referred to secondary care.

The implementation of one-stop clinics, which would carry out same day examination, diagnosis and treatment and the development of community gynaecology teams will improve patient throughput and reduce cost. DNA rates are extremely high when compared to the UK (nearly 50% of appointments in some cases in the three hospitals, compared to less than 10% in the UK) – the primary cause being the unstructured referral and the lack of a patient booking system.

Improvements in ALOS could be achieved through improved discharge planning. The possibility of shifting elective gynaecology to adult hospitals in the short-term should be considered if there is sufficient capacity to accommodate it. A feasibility study should be carried out to determine this.

2.2.9.3 *Neonatology*

Clinical outcomes in neonatology are broadly in line with international standards. However, the NMH and the Rotunda have a higher than expected incidence of intraventricular haemorrhage which increases ALOS in what generally tends to be a very expensive part of the maternity service. The PDA (Patent Ductus Arteriosus) ligation service is poor, resulting in an increase of 14 days on the baby's LOS.

The difference in the number of cots between the three hospitals is due to historic allocations. Cots could be managed more effectively through a network approach and we recommend this.

There is a high cot-occupancy in all three Level 3 services and a difficulty in referring babies back to their referring hospital for treatment once they are well enough to be transferred. Variations in post-partum transfers occur because of the lack of a national cot management system. There is an opportunity to improve the collaboration between the three maternity hospitals to deal with peaks in demand for NICU empty cots by delivering services in a network. During the review, there was strong support from clinicians to formalise a network approach to enable more effective management of the neonatology service across the health economy.

The general lack of paediatric surgical skills on the site of the maternity hospitals results in babies being transferred by ambulance across Dublin to a paediatric hospital for

treatment. The lack of surgical skills on-site also delays access to treatment and therefore increases LOS. This reinforces the case for co-location of the maternity service with the paediatric service as the appropriate model of care for very sick neonates.

2.3 **Future model**

Having assessed the current model of service delivery, it is clear that fundamental change is required. The factors making such a change essential, not just desirable, are:

- The current pressure of demand on the hospitals leading to a significant increase in the risk of serious untoward incidents;
- The inadequate physical infrastructure at the three hospitals;
- The fact that the GDA is out of step with the best models of care internationally, especially in terms of the stand-alone nature of the hospitals;
- The emphasis on a hospital-based medical-led model of care;
- The lack of choice for the woman;
- The poor availability of primary and community care services; and
- The need to best use capacity across the GDA in maternity, gynaecology and neonatology services.

2.4 **Number and nature of facilities**

We are recommending that there should be three new facilities developed in the GDA to deliver maternity and gynaecology services. Two of these facilities should be co-located with an adult hospital and one tri-located on the site of the new national paediatric hospital.

We have recommended three facilities having considered the birth-rate projections, which suggest a continued increase to 2016, followed by a levelling-off in demand. We recommend that each obstetric unit should have the capacity to deliver up to 10,000 babies, with up to 8,000 in a standard obstetric unit and 2,000 in an adjacent Midwife Led Unit, with the MLU being used for normal deliveries from the outset. These facilities would have the flexibility to increase capacity to a total of 10,000 if required in the future, as we do not expect demand to exceed 9,000 in the near future. This flexibility needs to be taken into account when planning the future service development.

By ensuring that each service has the capacity to accommodate up to 10,000 births there will be sufficient capacity to provide services to women currently using the HSE-funded

hospitals and subsume any activity from the private hospitals (currently one private maternity provider and a second planned for GDA) should they decide to cease the provision of maternity services. In our view any increase in activity by private hospitals would need to be very substantial to have any influence on the number of units.

The MLUs should be located on the hospital site, adjacent to the obstetric units, so that access to consultant care and clinical support services is immediately available if required. This will greatly enhance the choices available to women whilst providing the maternity services a more cost effective means to provide capacity for increased number of births. Providing that the midwives in the MLU are experienced and adhere to guidelines, MLUs can provide a safe alternative location for low risk mothers to deliver their babies in addition to the main obstetric unit. At present, there is no conclusive evidence on the outcomes achieved by stand-alone MLU units and we do not think at this point in time that the GDA is ready for MLUs on separate stand-alone sites in the community. There is considerable scope for future development, subject to patient demand and the clinical success of the on-site MLUs in the interim.

We have recommended three facilities because we believe that, although the unit size is slightly larger than others internationally, it is essential that the GDA maintains three strong units going forward, each with a Level 3 neonatology unit with one providing Level 4. By building a fourth unit, it would present significant clinical staffing issues at a time when all three maternity hospitals struggle to recruit appropriate staff to support their present service delivery. It would be inappropriate to build a fourth maternity unit without a Level 3 neonatology service and the GDA does not treat enough Level 3 neonates to sustain a fourth unit, nor have sufficient depth of neonatal staffing expertise to warrant a fourth unit. The minimum recommended by Phibbs et al (2007) was 100 VLBW babies as international evidence shows that clinical outcomes are significantly better in higher volume units where clinical staff have developed more experience and at higher volumes are better able to maintain skills. We are therefore recommending maintaining unit size at a level above this minimum. With just over 300 VLBW babies in each year between 2004 and 2007 GDA has enough babies to warrant three units.

We therefore believe that the fourth unit would suffer in terms of quality and risk, with clinical expertise being diluted and best expertise likely to migrate to one of the other three units. Building four units would lead to a real risk that there would be insufficient expertise to deal with the complex cases. Building a fourth unit would also reinforce the hospital-based model of care where the resources would be better utilised in the development of primary and community care.

Decreasing the number of units to two would have major implications for staff rotas. In essence each unit could potentially have to be staffed twice. This would present significant clinical staffing issues at a time when all three maternity hospitals struggle to recruit appropriate staff to support their present service delivery. Whilst this is not impossible, we believe that it would limit accessibility to services across the GDA. We feel it is better to have more services to provide equity of access to women across the GDA.

As stated, each of the units will be co-located with an adult hospital. In addition, one of the units will be located on the site of the new national paediatric hospital. Each of the new facilities will provide the full range of obstetric, neonatology and gynaecology services (with the exception of gynaecology - see 2.5.4). The tri-located unit will provide a Level 4 neonatology unit. During the stakeholder consultation there was agreement that there are insufficient caseload volumes to warrant more than one Level 4 unit.

2.4.1 ***Fetal medicine***

We recommend that fetal medicine operates as a network. All maternity services will need to provide fetal maternal medicine (which involves the management of high risk mothers and the advanced diagnostics relating to the fetus). However, only one unit within the network should do the low volume, highly specialised fetal intervention. Though, it is not a regular occurrence, babies do on occasion need to be delivered during the procedure. On that basis we recommend that this unit be sited at the new National Paediatric Hospital in order for specialist medical and surgical neonatal services to effectively manage any babies delivered during a fetal intervention procedure. This is supported by developments internationally in fetal medical subspecialisation and research recommending intervention be undertaken where there is access to both maternal and neonatal services.

2.4.2 ***Neonatology network***

The demand for neonatology services tends to grow in parallel with the increased birth rate, putting further pressure on the system in Dublin. We have already stated that the Level 4 neonatology unit will be located at the tri-located site. We recommend that the neonatology service be operated as a network, with existing consultants at the other hospitals undertaking sessions at the tri-located site. All neonatologists in the three maternity hospitals have stated their support for this approach. For this to work effectively, we recommend that the financial resources associated with neonatology be centralised for the network, rather than being associated with particular hospitals. This will greatly assist the development and implementation of the neonatology network.

2.4.3 *Gynaecology*

As the population ages, there will be an increase in the number of patients requiring and accessing gynaecology care. Associated with an aging population are medical problems that are more easily cared for in a large multi-disciplinary setting, particularly patients needing HDU/ICU. These patients need to be able to access regional centres for cancer care.

There is a concern that practice in GDA is lagging behind other European countries, particularly in the area of minimal access surgery and outpatient surgical treatment.

There is also a concern over poor facilities and equipment in gynaecology theatres in maternity hospitals compared to general hospitals. There is a lack of urogynaecology facilities, inadequate urodynamics facilities, inadequate outpatient hysteroscopy facilities, poor privacy and inadequate bathroom facilities. Gynaecology theatre sessions also have to compete with obstetrics. Robust service redesign needs to be undertaken in order to ring fence gynaecology sessions.

All gynaecology services in Dublin need to be delivered as part of an integrated, community service for better patient outcome and improved patient experiences. We recommend that gynaecology services should be provided on the site of the maternity hospital to allow consultants easy access to obstetrics and gynaecology and we are recommending that the service be based in the adult co-located hospital, rather than within the maternity unit. We believe that this will optimise theatre utilisation and provide better access to other surgical and medical specialities. It will also to a certain extent ring fence sessions, theatres and beds.

2.5 **Principles of future service development**

Women should be managed by specialist primary care teams for issues that cannot be managed by their GP. The maternity hospitals should provide secondary and tertiary care to the women of the GDA.

Tertiary services should be centralised onto one site, but with all three providing secondary care elements of services – these services are summarised below.

2.5.1 *Urogynaecology*

All hospitals need to be able to provide urogynaecology services but one centre needs to house the expertise required to deliver the more complex aspects of urogynaecology surgery.

2.5.2 *Fertility services*

All hospitals need to be able to provide investigation and low level assisted conception but one unit should do the complex fertility surgery and IVF.

2.5.3 *Minimal access surgery*

All the services providing maternity/gynaecology services need to be able to provide Levels 1-4 in laparoscopic surgery. The remaining two Levels, 5 and 6, are infrequent and are best concentrated in two units. As a subspecialty, this needs to be developed within Dublin as a whole. The centres undertaking gynaecology surgery should be the first to attain levels 5 and 6 as these include procedures such as radical hysterectomy.

2.5.4 *Gynaecology*

Services should be provided in centres that have associated radiotherapy/chemotherapy services in two centralised units. The Cancer Strategy (2007) has recommended four cancer networks, each containing two cancer centres. Two of the networks affect the GDA. The North East Dublin Network has the Mater and the Beaumont Hospital as cancer centres and the Dublin Mid Leinster Network has St James's and St Vincent's. Each network will have one gynaecology centre. Therefore Dublin will have two gynaecology centres. These sites have not yet been designated. It is our view that gynaecology does not have to be located with other gynaecology services. There is evidence particularly in the UK, of gynaecology services being provided where there is proximate access to appropriate oncology, chemotherapy, radiotherapy services and multi-disciplinary teams. The RCOG guidelines and the developments in practise in the UK clearly point to the need for gynaecology to be provided in cancer centres whereby women have access to a multi-disciplinary team, not just gynaecologists, specialising in cancer treatment. Therefore it is clear that gynaecology should not be tied to gynaecology services provided in conjunction with obstetric units where there is not proximate access to a multi-disciplinary team. The gynaecology service needs to be supported by an appropriate cancer referral network.

One unit should undertake all of the uncommon procedures, for example, vulval cancers, surgery for recurrent disease for recurrent cancer that would need exenteration, etc. Both units should do primary surgery on pelvic cancers of the ovary, cervix and uterus.

2.6 **Proposed locations**

One of the other issues we considered was the ease of access to services (currently and in the future) for women. We commissioned an accessibility study by the Small Health Area Research Unit, Trinity College Dublin to further inform our thinking and

understanding of potential service locations. The purpose of this study was to consider access, demographics and catchment areas for potential sites.

In order to determine the optimum site configuration we initially considered a long potential list of the nine acute care providers in the GDA. The long list of sites was:

- Adelaide and Meath incorporating the National Children's Hospital, Tallaght;
- Connolly Hospital, Blanchardstown;
- St Michael's Hospital;
- Mater Misericordiae University Hospital;
- Our Lady's Hospital, Navan;
- Naas General Hospital;
- St Columcille's Hospital Loughlinstown;
- St James's Hospital; and
- St Vincent's University Hospital.

We ruled out the possibility of locating services at a private hospital on the basis that, as a commercial business, there would be no guarantee that the full range of services would be delivered in perpetuity.

We determined that the key benefit of co-location is the provision of access to the full range of medical/surgical specialities and clinical support services in sufficient volume and complexity to provide added value. Those services/facilities are:

- Urological surgeon;
- Colon surgeon;
- Vascular surgeon;
- Diabetologist;
- Cardiologist;
- Endocrinologist;
- Neurologist;
- Genetics service;

- Psychiatrist;
- Interventional radiologist;
- Ultrasound with Doppler and colour flow;
- MRI;
- CT;
- 2-hour biochemistry service;
- Haematology service;
- ITU; and
- HDU.

Additional benefits would be achieved through co-location in the fields of training, education and research, similar to those being achieved at major teaching hospitals in the UK and being sought in the creation of Academic Health Science Centres.

These criteria reduced the possible number of locations to Beaumont, the Mater, St James's, St Vincent's and AMNCH Hospitals. During the DOHC/HSE paediatric hospital location study each of these hospitals had also demonstrated their willingness and potential to accommodate a maternity hospital on site.

The accessibility study considered six combinations of these hospitals, all of which included the Mater as a given, based on the conclusion of the National Paediatric Review that this would be the site of the new NPH and our support of tri-location as an optimal model of care.

The study considered access levels at 30 minutes and 60 minutes intervals based on 2006 data, and extrapolated for demographics and patient flow changes in 2016 and 2026. It also considered the impact of a proposed new hospital in the north-east region.

It is clear from the demographics work that there has been major population growth outside of Dublin city centre, particularly in the north and south-west of the GDA. The current configuration of services does not adequately cater to user access needs, as the three hospitals are based in the city centre.

The accessibility study concludes that with the Mater site as a given, the optimal location of the other two sites would be AMNCH and SVUH. This configuration is similar geographically to the existing configuration and would therefore draw on existing catchment areas and importantly provides best access of services to most users.

However, the new configuration will improve access at the 30 minute interval from 26% of the relevant population currently to 40%.

In this configuration, we therefore recommend that services currently delivered at the Rotunda be moved to the Mater site, services at the Coombe move to AMNCH, Tallaght and services at the NMH move to SVUH.

This configuration will require the organisations to work closely together to achieve the clinical and operational benefits of co-location and tri-location as speedily as possible.

The recommendations contained within this review will clearly require substantial capital investment; the existing hospital estate may be of value in this regard.

2.7 Governance arrangements

The Mastership system is unique to the three maternity hospitals in Dublin. It is a system of great tradition and pride to each of the organisations and has some clear benefits. In particular we believe the clinical leadership and decision making has contributed to the hospitals' maintenance of acceptable performance levels within sub-standard facilities.

From our stakeholder consultations it was clear that there was institutional loyalty to this system, but we question whether it is appropriate as a sustainable model for optimal clinical governance in a 21st century healthcare facility.

We believe the system is out of step with most other healthcare institutions internationally and even within Ireland. The leader of the organisation is not only a practicing clinician but also the chief executive officer, which in today's climate of resource constraints, prudent budgetary management and necessary value for money, coupled with service evaluation and quality control, is an onerous workload which will prove impossible to manage in the future.

We have considered the governance arrangements that would be more appropriate for our proposed three co-located facilities.

In our view, it is important to have an over-arching governance structure for all services on each site and it is up to the HSE to agree the proposed governance structure for the reconfigured services. We note that the new National Paediatric Hospital is to have an independent governance structure during its development and operational phases. In our view we believe that there should be one Chief Executive Officer (CEO) for each of the three co-located sites. The Mastership system should therefore evolve with the establishment of a CEO and Clinical Director role for obstetric services.

Clinical leadership of the new maternity facilities is clearly of paramount importance to maintain standards. We recommend that each of the maternity facilities be led by a Clinical Director, accountable to the CEO but with clear autonomy and budgetary control for the management of their hospital unit. In the UK there is normally one executive director for nursing and midwifery combined. We would recommend that in the short-term a separate director of midwifery should be maintained, but consideration given to one post for the whole site in the future.

2.8 Next steps

In chapter 10 we set out at a high level the steps to be taken over the next 10 years to implement the recommendations of this review. Short, medium and longer term action plans for service reconfiguration for maternity, fetal medicine, neonatology and gynaecology are set out in 5.6.3, 5.8.3, 6.8 and 7.11 respectively.

The measures which could be addressed in the short-term, prior to any significant infrastructure investment as listed below. These would go some way to enhancing the current services. *Inter alia* these include:

- Continue with the already planned HSE short-term capital investment to address significant current infrastructure short-comings;
- Addressing the performance improvement opportunities identified in chapters 5, 6 and 7 around metrics like DNA rates, ALOS, bed/theatre capacity management, C-section rates, day-case rates for gynaecology, workforce numbers etc;
- Develop an education and training programme for midwives and GPs around the various alternatives to giving birth in hospital; this needs to be supported by a public PR campaign and debate around the fact that these represent safe alternatives to hospital birth;
- Develop a network approach to neonatal cot management and service delivery, including a dedicated 24/7 pan-GDA neonatal transport service; appoint a network director;
- Consolidate fetal medicine intervention in NMH until the new NPH is commissioned and appoint a fetal medicine network director;
- Develop a plan for both robust bed management systems in the maternity/gynaecology service and develop and initiate plans for a pan-GDA patient booking system;

- Develop multi-disciplinary teams for socially excluded women for antenatal care and follow-up;
- Start the consolidation of gynaecology surgery. In the first instance cease activity in the many small units (Loughlinstown, Blanchardstown, St. Michael's, Navan and Naas); and
- Develop an education and training programme for GPs aimed at ensuring women are referred from primary into secondary gynaecological care using integrated pathways.

NMH and Rotunda need to formalise their relationship with their partner adult hospital at the earliest opportunity to realise the clinical and financial benefits of co-location.

The HSE will need to act within a facilitative role to support AMNCH and Coombe in building a new relationship.

As the catchment areas are maintained in the new configuration we would recommend that existing outreach services remain in the same location, although they will need significant expansion and strengthening. We also recommend that the new paediatric ambulatory centres be used as maternity outreach centres in order to foster greater collaboration between paediatrics and maternity services.

Clearly reform on this scale within the health service in the GDA needs to be implemented in a rigorous and robust manner, with a clear focus on deliverables and realising the benefits we have outlined. It is also essential that any relevant lessons from the national review of paediatric services are incorporated into the implementation programme.

The developments proposed in this review will clearly require significant capital investment, as well as revenue investment in areas such as staffing both in primary and secondary/tertiary care. The existing maternity hospital estate may be of value in this regard in terms of supporting the major capital outlay.

3 Introduction

3.1 Context to the review

The background to the commissioning of this review results from the review of Tertiary Paediatric Services in Dublin in 2006.

The work of the Joint Task Group (Health Service Executive and Department of Health and Children) 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 in 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 should also accommodate a maternity service.^{1c}

Following on from the publication of the Joint Task Group Report, a joint HSE/DOHC Transition Group has been established to carry out the preparatory work necessary to progress the establishment of the new national paediatric hospital. A sub-group of the Transition Group was established to commission a review of the maternity and gynaecology services considering the current and optimal configuration of services together with proposed locations. This report forms the basis of the review.

Another driver for initiating the review was the Joint Standing Committee's (JSC) commitment to progress the former ERHA Strategy report for Maternity Services in the Eastern Region. The report was published in 2005 at the time of HSE transition. The JSC assisted with the development of the Terms of reference for this review.

3.2 Structure of this report

After this introductory chapter, maternity, neonatology and gynaecology will each be dealt with in turn. Each of these chapters will cover the following:

- Current model of care in the GDA;

^{1c} 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

- Assessment of the GDA model based on professional analysis of the clinical associates informed by developments internationally;
- Performance improvement opportunities for the short-term;
- Recommended model of care and recommendations for configuration of care; and
- High level action plan for the implementation of the recommended model of care.

Following the chapters on the three specialities we will bring together the recommendations on the configuration of care, recommend the locations for services, outline the governance structure and high level steps for implementation and conclude the key findings and recommendations.

The appendices provide a detailed source of supporting information.

3.3 Previous reviews

This review follows various other relevant and complementing reviews, the key findings of which are detailed below, together with a brief overview from a KPMG perspective.

3.3.1 *Report to Chief Executive Officers of the Health Board – Domiciliary Births Group (Domiciliary Birth Expert Group, 2004)*

3.3.1.1 *Key findings*

The report recommends that women should have greater choice of maternity services through the effective utilisation of midwifery skills.

3.3.1.2 *Our analysis*

The report highlights the need for women to be given the option of different locations for birth. In our view, providing women with choice is an important element of a modern maternity service and therefore we support the recommendation made by the Domiciliary Birth Expert Group (2004) to have a number of options for location of birth.

3.3.2 *Maternity Services in the Eastern Region – A Strategy for the Future 2005-2011 (Eastern Regional Health Authority and the Joint Standing Committee, 2005)*

3.3.2.1 *Key findings*

Services need to be provided through a range of service initiatives and a variety of models of care, in order to enhance the quality of care and provide women with choice.

Structures that facilitate the enhancement of team working and allow for the seamless co-ordinated movement of women and/or their babies with different levels of care are required.

3.3.2.2 *Our analysis*

In order to provide user choice and improve user satisfaction levels there should be a range of models of care and the skills of the professionals providing the care should be utilised in the most cost effective manner. Within this report there is limited reference to the use of MLUs, which could be used to assist with the current capacity constraints.

The strategy deals with maternity services only. It identifies issues but offers few solutions. The main strength is that it addresses the need for integration of primary and secondary care.

3.3.3 *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)*

3.3.3.1 *Key findings*

This report identifies the future maternity service requirements for the Eastern Region as of 2004, examining trends which will influence future capacity and activity. It makes recommendations to address short and long-term challenges.

3.3.3.2 *Our analysis*

Requirements for future capacity have been based on the current model of care and do not incorporate new ways of working.

3.3.4 *Report of the Lourdes Hospital Inquiry (Judge Harding Clark, 2006)*

3.3.4.1 *Key findings*

Any isolated institution that fails to have in place a process of outcome review by peers and benchmark comparators can produce failures such as those which occurred in the Lourdes Hospital.

It finds that support systems must be in place to conduct regular and obligatory audit and that there must be mandatory continuing professional development and skills assessment at all levels of healthcare.

Staff also need to attend updating of skills and methods programmes and should be able to recognise that procedures change in accordance with evidence based research.

3.3.4.2 ***Our analysis***

Maternity services expose health care organisations to significant clinical and financial risk. As such, they should have a comprehensive clinical and integrated governance framework. Therefore, we support the recommendations from the Lourdes Enquiry. The key recommendations are the implementation of basic systems in the clinical governance framework.

3.3.5 ***The Future of Maternity and Gynaecology Services in Ireland 2006-2011 (Institute of Obstetricians and Gynaecologists, 2006)***

3.3.5.1 ***Key findings***

This report outlines the requirement for units to have training posts with the Institute of Obstetrics and Gynaecology. It also suggests the number of consultants required to deliver the service, based on both workload and numbers of deliveries.

3.3.5.2 ***Our analysis***

This is a whole of Ireland report that sets standards in training for obstetrics and gynaecology. It focuses on medical staffing, suggesting the appropriate number of consultants and trainees but not midwives. It provides definitions and information on subspecialty and specialist training which is currently underdeveloped in Ireland compared to other international countries, such as the UK or US. The requirement for an increase in consultant numbers is consistent with our findings. However, in addition to more consultant numbers required there is also a need for consultants to embrace new more flexible ways of working as the service modernises.

3.3.6 ***Short Term Action Plan for Maternity Services in the Eastern Region – A strategy for the future (Joint Standing Committee, 2007)***

3.3.6.1 ***Key findings***

The Plan sets out short-term actions to ease capacity issues, primarily focussing on Early Transfer Home schemes and staffing numbers.

3.3.6.2 ***Our analysis***

The actions required in the immediate and short-term should not be allowed to determine the medium to long-term strategy.

These reviews form the backdrop to this review and have been key to the development of the optimal service configuration.

3.4 Translating reviews into action

As part of the stakeholder consultation which we undertook to inform our review, a high degree of frustration was expressed from many different stakeholders over the number of reviews and the relative lack of ensuing action in the local health economy for maternity and gynaecology services.

Maternity and gynaecology services are ready for change and it is imperative that sustainable and effective action follows immediately from this review. Therefore, within the maternity, gynaecology and neonatology chapters we outline the key actions required.

There was an immediate appointment of a DOHC/HSE transition group to progress the establishment of the development board and high level brief for the new hospital following the decision on the location of the National Paediatric Hospital. This is a good recent precedent that should provide stakeholders with confidence regarding implementation.

3.5 Scope of the independent review of maternity and gynaecology services in the Greater Dublin Area

The scope of our review has been wide-ranging, but with a clear focus on providing a robust opinion on an appropriate future configuration of maternity and gynaecology services in the GDA. Central to the review is the underlying philosophy to provide appropriate, safe and cost-effective service for mothers and babies.

The key components of our terms of reference (TOR) were to:

- Define the optimal configuration of services;
- Build on the strengths of the current service configuration;
- Facilitate the effective use of resources;
- Optimise speciality distribution;
- Support clinical advances;
- Promote teaching and training;
- Define governance arrangements;
- Incorporate funding mechanisms;

- Consider the role of the private sector;
- Promote choice;
- Identify the optimal location of services;
- Support demographic trends;
- Promote social inclusion;
- Provide a roadmap for the future; and
- Create an action plan.

The full terms of reference are attached in Appendix J.

3.6 **Review process**

3.6.1 ***Project Plan***

An overview of our approach to the project is illustrated below.

We held weekly project updates with the HSE to discuss progress, where key issues and any major developments or risks were discussed. In addition there were a series of regular formal updates to the Project Group.

The Project Team for Maternity and Gynaecology Independent Review GDA was comprised as follows:

Health Service Executive

Ms. Fionnuala Duffy (Chair)
Assistant National Director
National Hospitals Office

Mr. Paul de Freine
Assistant Chief Architectural Advisor
Estates

Dr. Fenton Howell
Director of Public Health
Population Health Directorate

Mr. Brian Gilroy
National Director of Estates
Estates

Dr. Maria Fleming (Project Manager)
National Planning Specialist
National Hospitals Office

Department of Health and Children

Mr. Denis O'Sullivan
Principal Officer
Acute Hospitals Division

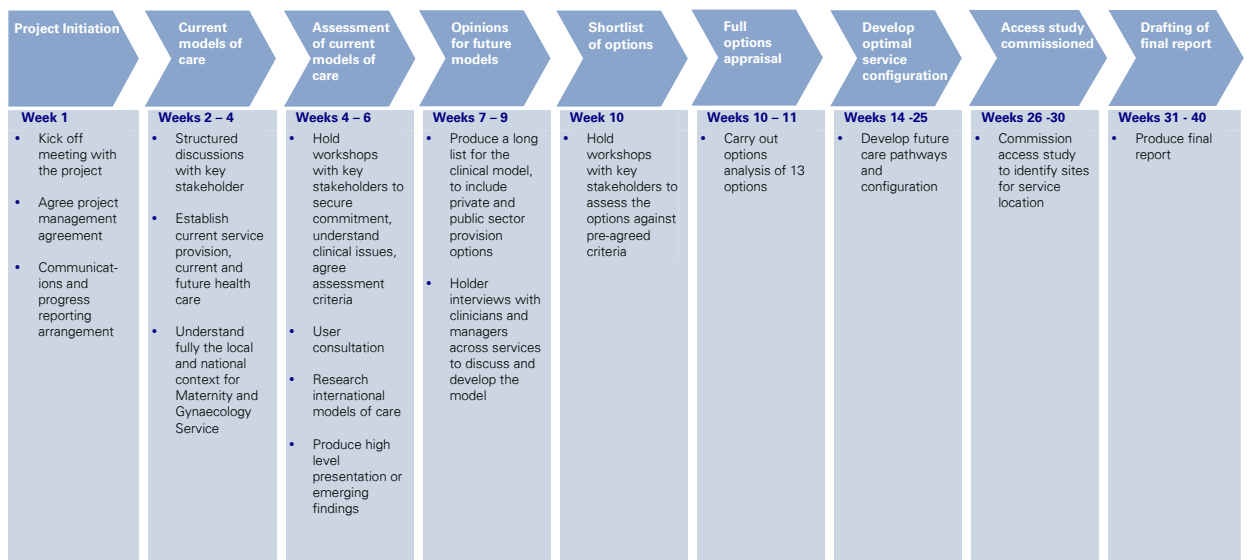
Dr Philip Crowley
Deputy Chief Medical Officer

The first of the updates covered the emerging issues from the initial round of stakeholder discussions. The second update focussed on the development of outline models for new service provision. At the third and fourth meetings we discussed the short-listed options and the final report. A number of subsequent meetings were held to refine and elaborate on the recommendations given in the draft reports.

Extensive stakeholder consultation was at the heart of our approach to capture the broadest possible range of views.

3.6.2 Overview of our approach

Figure 1: Project Plan



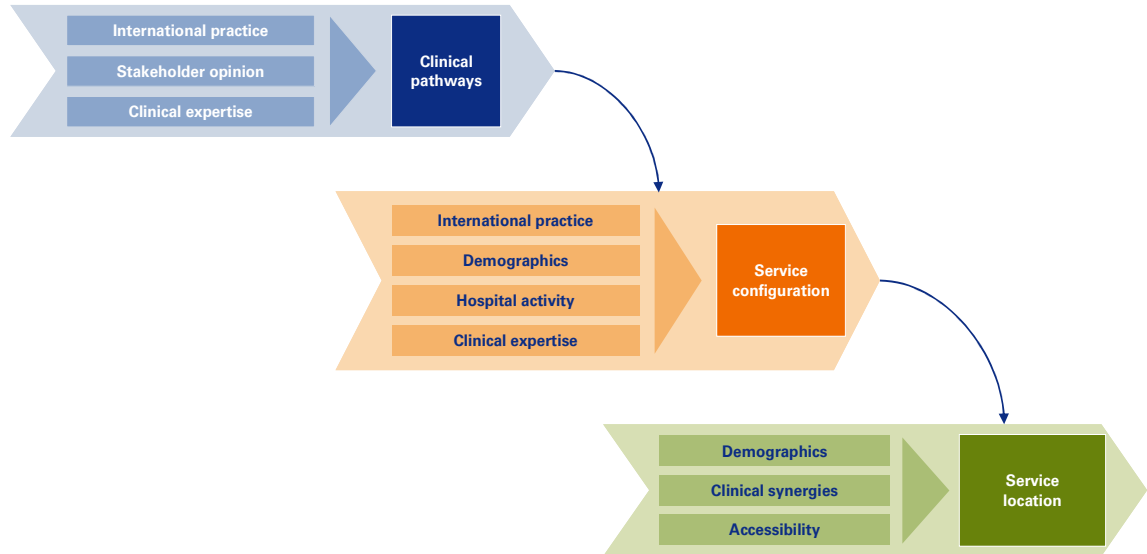
3.6.3 Our methodology

In order to establish an appropriate future configuration of maternity and gynaecology services there were some key drivers that we analysed and assessed, including:

- Clinical principles and the key interdependencies in the clinical pathways between primary/secondary/tertiary services;
- Service configuration including demographic trends, activity patterns, referral practices and clinical standards/expertise; and
- Organisational model also including demographic trends, clinical synergies and infrastructural areas, e.g. transport links to services in the GDA.

3.6.4 *Process undertaken to define optimal service configuration*

Figure 2: Approach to service assessment



As the diagram above indicates, the clinical pathways and service configuration drivers were analysed in parallel to inform the option analysis. Once the model and service configuration issues were assessed we were then able to assess the service location issues.

3.7 Stakeholder consultation

3.7.1 *Extensive consultation programme*

In order to capture representative perspectives from key stakeholders, a broad range of people were invited to take part in the review through a number of methods:

- Structured interviews;
- Workshops; and
- Submissions.

Over the review period we saw in excess of 220 people. The full names and organisations to which they belong are detailed in Appendix A. They include:

- Board members from the three hospitals;
- Consumer groups;
- CEOs from paediatric and adult hospitals in the GDA;

- CEOs from private hospitals;
- Department of Health and Children;
- GPs;
- HSE;
- Management teams of the three hospitals;
- Members of the public;
- Public health nurses;
- Practice nurses;
- Primary and community care service providers;
- Professional bodies;
- Consultants, midwives and staff members in the maternity and gynaecology services;
and
- Universities.

3.7.2 ***Stakeholder discussions***

We ran an extensive stakeholder interview programme, based on an indicative list provided to us by the HSE (Appendix A). We produced a structured discussion guide (Appendix B) for undertaking these interviews and they were held in confidence with the people concerned to help inform the development of the work. Their input features in our analysis of the current model and future service configuration.

3.7.3 ***Workshops***

A key feature of our work was a series of workshops held with a wide range of stakeholders in Dublin during the review which were led and facilitated by our clinical associates:

- Series One (6 and 8 June 2007): Evaluated the benefits and risks of the current service model in the GDA for maternity and gynaecology services and developed the evaluation criteria for assessing the range of options for the future service model;
- Series Two (9 and 12 July 2007): Assessment of the benefits and risks of potential new options;

- Academic Workshop (30 July 2007): Identification of the impact, synergies and capacity needs of future models; and
- Primary Care Workshop (30 July 2007): Identification of how choice and access can be promoted, how to facilitate midwifery led care and interdisciplinary care and changes to financial regime.

3.7.4 **Submissions**

- Advertisements for submissions were placed in the national newspapers, HSE website and www.magicmums.com. (See Appendix C);
- In order to obtain the views of those who are non-English speaking, the advert was translated into Polish, Russian, Romanian and French;
- Submissions were sent to DublinObsandGynae@kpmg.co.uk or to KPMG, 1 Stokes Place, St Stephen's Green; and
- Submissions were received from stakeholder organisations as well as service users across Dublin. We received over 50 submissions from service users and consumer organisations.

3.8 **Comparative international analysis**

In order to gain insight into models of care internationally we used a number of sources. We accessed documents, reports and articles from the following:

- Departments of Health (or equivalent) in the relevant countries;
- Colleges of Obstetricians and Gynaecologists (or equivalent) in the relevant countries;
- Colleges of Midwives (or equivalent) in the relevant countries;
- The Vermont Oxford Network Neonatal Database;
- Academic, medical and social care journals; and
- Relevant international health organisations such as the World Health Organisation (WHO).

In addition, our literature review was supplemented through consultation with key clinical contacts in each of the reviewed countries, and by input from our clinical associates who provided qualitative information on current models of care, key developments and emerging practices and any associated issues with respect to maternity, neonatology and

gynaecology services in their respective countries. Appendix I contains full details on all literature sources and key contacts.

3.9 **Accessibility study**

Our recommendations for the future service configuration have been informed by international developments, professional opinion, stakeholder engagement and review of current performance. Providing the most appropriate model of care to the women in the GDA has been paramount to our recommendations. Equally, when recommending the locations for the services we did not focus on existing institutions but on services that would provide the greatest level of access possible for women in the GDA into the future. In order to achieve this we commissioned a travel time study to assess the accessibility of a number of configurations. The study was commissioned by KPMG, with the Small Area Health Research Unit, Trinity College Dublin undertaking the study. The methodology and findings of the study can be found in brief in chapter 9 and in full in Appendix K.

3.10 **Our working assumptions**

3.10.1 ***Our Team***

The KPMG Team comprised of both advisors from KPMG Ireland and KPMG UK. Arthur O'Brien was the Partner responsible for the engagement and Jason Parker a Director in the UK Health Advisory Practice led the engagement. Hamish Clark managed the project on a day to day basis with support from Anna Burns and Maria McDonnell.

KPMG has been actively supported in undertaking this review by its four highly regarded clinical associates who have driven the clinical analysis. Together we have developed the preferred model of care for maternity and gynaecology services in the GDA.

Our clinical associates are:

- Professor Sir Alan Craft – former President of the Royal College of Paediatrics and Child Health, Consultant Paediatric Oncologist and Professor of Child Health based at the Royal Victoria Infirmary, Newcastle. Professor Craft led the work on neonatology;
- Dr Bairbre Golden – Consultant Anaesthetist at Barts and the London NHS Trust and health industry expert;

- Professor Robert Shaw – former President of the Royal College of Obstetricians and Gynaecology; currently an elected member of the General Medical Council, Consultant Obstetrician/Gynaecologist, Derby City General Hospital and Professor of Obstetrics and Gynaecology, Institute of Clinical Research, The University of Nottingham. Professor Shaw was key to the development of our work in Gynaecology; and
- Professor Suzanne Truttero – Midwifery Officer for London Strategic Health Authority. Professor Truttero co-led the work on maternity services with Professor Shaw.

The whole team was accessible to stakeholders at all times throughout the review process. This was in addition to the numerous site visits, meetings and workshops. During the course of the review the clinical associates facilitated the workshops and held structured discussions with a wide range of stakeholders in order to form a robust opinion on the best model of care. Key activities were as follows:

- A number of visits to the three maternity hospitals in Dublin which provide maternity and gynaecology services in the GDA, to assess facilities and operational arrangements;
- A number of visits to primary and community care services / facilities to observe current performance and capacity;
- A series of structured discussions with a wide range of stakeholders, including those who currently provide clinical services to understand their perceptions and concerns about existing services and views on future pathways of care. Importantly, we also spoke with women who use the service to understand their views on the services they receive and the extent to which these meet their needs and preferences; and
- A series of workshops to discuss current performance challenges with stakeholders and explore the benefits of potential options.

To support this assessment of the current service model, our clinical associates reviewed current performance and capacity through analysis of data held within available GDA clinical audit reports and the Vermont Oxford Network Neonatal Database and compared our findings against international healthcare systems. Relevant outputs are provided in subsequent chapters and in the Appendices.

3.10.2 ***Assumptions communicated to stakeholders***

There are a number of assumptions that have underpinned our work, which we communicated to stakeholders at the workshops:

- In establishing the appropriate future configuration of maternity and gynaecology services, our focus has been on optimal service configuration, rather than institutions;
- The requirement for a stronger focus and investment in primary and community care in order to provide greater choice to women and also to create capacity within secondary care;
- International practice provides a reference point and helps inform our work but can only provide a context. We have not undertaken a benchmarking exercise due to the wide range of structures and systems internationally. Rather we have assessed international trends at a high level to help inform our work. This has then been augmented by the professional analysis and judgement of the clinical associates in making recommendations about what in their view is appropriate for the GDA. We have also used the Oxford – Vermont neonatal database to inform our review in respect of neonatology;
- The evaluation criteria presented in chapter 8 underpins our analysis of the service options;
- The strong input from stakeholders has informed our work; and
- Our work is independent and we have been given a wide ranging remit to provide our objective opinion and insight on the preferred model of care for maternity and gynaecology services in the GDA.

3.11 **Conclusion**

This review is an important opportunity to improve maternity, gynaecology and neonatology services in the GDA for women, infants and the unborn. This is the first review that will consider all three specialities together. Previous reviews provide an important basis for this review. However, now there is an important need for integrated change to the model of care in the GDA.

Through stakeholder engagement, international comparative analysis, professional opinion and the accessibility study we will make recommendations on the optimal model

of care, service configuration and service locations that will deliver an appropriate model of care and access to services for GDA women in the next 10 to 15 years.

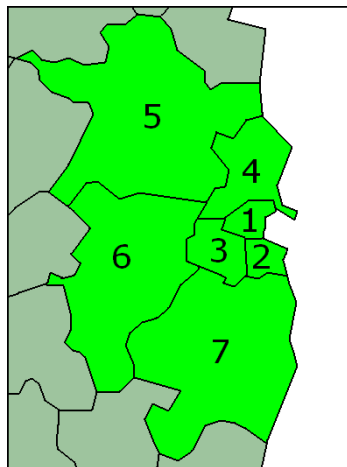
4 Overview of the services in the GDA

The purpose of this chapter is to outline the facts on the current service providers. The services will be dealt with in their respective chapters.

We are grateful to Dr Howard Johnson, Dr Paul Kavanagh and the HSE Health Atlas Team for their help in providing the demographic maps and supporting information which are featured in this report.

4.1 Definition of GDA

Greater Dublin Area (GDA) is the term which is used to describe:



1. Dublin City
2. Dun Laoghaire-Rathdown
3. South Dublin
4. Fingal
6. Kildare
5. Meath
7. Wicklow

For the purposes of this report we shall refer to Dublin City, Dun Laoghaire-Rathdown, South Dublin and Fingal as the Dublin Area (DA). Kildare, Meath and Wicklow will be referred to as individual counties.

4.2 Population in the GDA

4.2.1 *Central Statistic Office Predictions*

Using CSO data based on 2005 data, it is predicted that nationally, the number of births is projected to rise by 8.6% from 58,000 in 2001 to 63,000 in 2021. The 2005 CSO projections may have underestimated the level of growth, as the number of actual births in Ireland in 2007 was 70,053¹.

¹ HSE data

The GDA population is projected to rise from 39.2% of the overall population in Ireland to 40.7% by 2021. This rise is likely to impact the Kildare, Meath and Wicklow areas the most.

When taken with the migration figures discussed in section 4.2.3 below, the population of the GDA is projected to increase by approximately half a million people by 2021.

4.2.2 *Number of Births*

The current number of births is below what was predicted by the CSO in 2005 in the DA but above what was predicted for the Kildare, Meath and Wicklow areas. The observed number of births is shown in the table below for the years 2003 to 2006. The number of births for 2006 is only 300 less than the 2006 CSO projection.

Table 1 : Number of births in the GDA 2003-2006

Year	Dublin Area	Kildare, Meath and Wicklow	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

Source: Trinity College Dublin Accessibility Study(Appendix J)

In order to predict the number of births that future maternity services will need to accommodate a median projected number of births was used (see Appendix J). This projection suggests a slowly increasing number of births peaking in the DA in 2014 and in the Kildare, Meath and Wicklow in 2017. The predicted number of births by region was the following:

Table 2: Number of actual and forecast births in the GDA 2006-2026

Region	Year		
	2006	2016	2026
Dublin Area	17,623	18,271	16,528
Kildare, Meath and Wicklow	8,424	8,886	8,733
Total	26,047	27,157	25,261

Source: Trinity College Dublin Accessibility Study

4.2.3 *Migration*

The HSE Intercultural Health Strategy 2007 stated that the 2006 Census indicated that 420,000 foreign nationals were living in Ireland. By 2030 it is expected that 18% of the population will be originally from outside of Ireland compared to the 10.4% reported in the 2006 census.

The DA is one of the regions projected to experience most of the external migration with an expected additional 232,000 people anticipated to migrate to DA in this period.²

Kildare, Meath and Wicklow will gain most from internal migration; an expected 58,000 persons will migrate to these areas collectively.²

4.2.4 ***Age Profile***

The young population (those aged 0-14 years) will increase across Ireland between 2002 and 2021 with pronounced increases in the Kildare, Meath and Wicklow areas (+43%) and DA (+26%)³. This will impact on maternity services in future years as this age group moves into adulthood and requires maternity and gynaecology services.

Most regions in Ireland will experience a decrease in the numbers of people aged between 15 and 24 years; however, collectively, Kildare, Meath and Wicklow are projected to see an increase of 20% in this population by 2021³.

This will impact on maternity services in future years as this age group moves into adulthood and requires maternity and gynaecology services.

Current population projections are forecasting a significant increase in the number of older persons both within the GDA and nationally in Ireland. For example, persons over 65 are forecast to increase by 75% in the DA by 2021³. This will naturally place a significant increase in demand on acute gynaecological services.

4.2.5 ***Population change from 2002 to 2006 in women aged 15 and over***

Whilst we cannot use the data to accurately predict where population growth will occur by electoral division in the GDA, data on areas of growth between 2002 and 2006 provides an indication of the areas that are experiencing a level of growth that is likely to continue in the short-term.

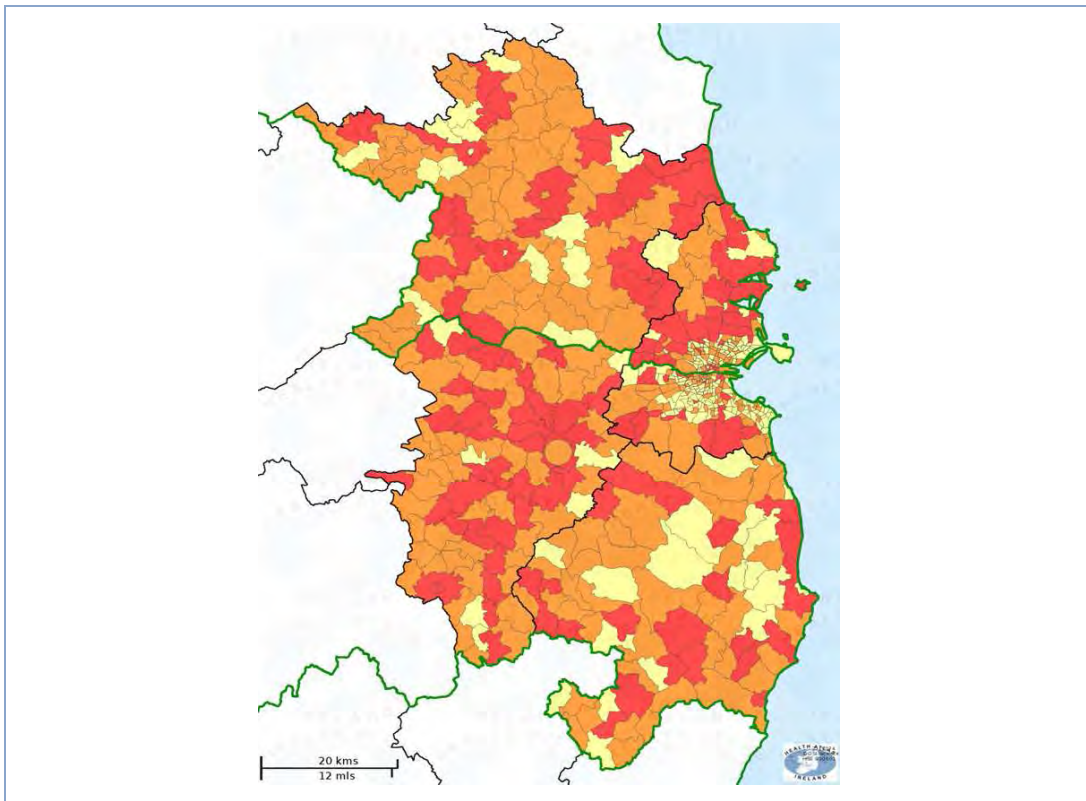
Within the GDA the total numbers of women aged 15 and over increased from 672,645 to 725,775, between 2002 and 2006, representing a 7.9% increase.

The map below demonstrates by electoral division the population change, with those areas highlighted in red being the areas that have experienced the greatest amount of growth between 2002 and 2006.

² HSE Intercultural Health Strategy 2007

³ CSO 2005

Figure 3: Difference in the number of women aged 15 and over between 2002 and 2006 in GDA



Key : ■ Red over 10% increase

■ Amber between 5% and 10% increase

■ Yellow -5% decrease

The map demonstrates that the majority of areas have experienced growth in numbers of women over 15 years old, albeit less marked in the south of the area.

In the DA, the female population in the city centre is decreasing, indicating a population migration from the city to the outskirts of the DA and the surrounding counties of Meath, Kildare and Wicklow.

Population in Kildare shows a huge growth in women aged 15 and over, with the vast majority of the region showing growth of at least 5%.

Wicklow has several growth areas; however a significant proportion of the area has a decreasing population as the map demonstrates.

4.3 Overview of maternity and gynaecology services in the GDA

4.3.1 Service Providers

Figure 4: Service provider locations



AMNCH	Adelaide and Meath incorporating the National Children's Hospital	OLHN	Our Lady's Hospital Navan
BH	Beaumont Hospital	RH	Rotunda Hospital
CWIUH	Coombe Womens and Infants University Hospital	SMH	St Michael's Hospital
MMH	Mater Misericordiae University Hospital	SCH	St Columille's Hospital
NMH	National Maternity Hospital	SVUH	St Vincent's University Hospital
NGH	Naas General Hospital	SJH	St James's Hospital
		CHB	Connolly Hospital Blanchardstown

The map (figure 4) includes only those hospitals that receive a significant part of their income from the HSE and shows the providers of public and semi-private obstetric and gynaecology services in the GDA.

Only three of the hospitals provide maternity care and they are Coombe Women and Infants University Hospital (CWIUH), National Maternity Hospital (NMH) and Rotunda Hospital (RH). All currently deliver approximately 8,000 babies per annum. Combined, the hospitals within the GDA deliver 40% of the babies born in Ireland. The three hospitals are tertiary referral centres for women and babies requiring specialist treatment from across Ireland.⁴ Each hospital provides both public and privately funded services. The three maternity service providers each have a Level 3 neonatal intensive care unit.

The configuration of maternity services in the GDA is unique. Nowhere else in the world have we identified where there are three stand-alone hospitals each delivering over 8,000 babies per annum within a 5km radius.

All of the hospitals and many private providers such as the Blackrock Clinic and Hospital, Hermitage Clinic, Beacon Hospital, Mater Private Hospital and St Vincent's Private Hospital provide gynaecology services. Mount Carmel Hospital provides obstetric services, delivering approximately 1,400 babies per year.⁴ The Beacon Hospital has recently submitted plans to develop its own maternity service.

⁴ *Eastern Region Health Authority Strategy 2005 -2011 (Eastern Region Health Authority and the Joint Standing Committee)*

4.4 Services provided

As the table on the following page demonstrates, the three hospitals offer a broadly similar service to women and infants. The RH is the only hospital to offer IVF to public patients.

Table 3: Range of services provided by the three Maternity Hospitals

	CWUIUH	NMH	RH		CWUIUH	NMH	RH
Anaesthesia	✓	✓	✓	Public IVF			✓
Antenatal Care	✓	✓	✓	Neonatal Intensive Care Unit	✓	✓	✓
Domino		✓	✓	Pathology	✓	✓	✓
Early Pregnancy Assessment Unit	✓	✓	✓	Post Natal Care	✓	✓	✓
Early Transfer Home	✓	✓	✓	Radiology	✓	✓	✓
Fetal Medicine/Intervention	✓	✓	✓	Smears/Colposcopy	✓	✓	✓
Gynaecology	✓	✓	✓	Social Work	✓	✓	✓
Gynaecology	✓	✓	✓	Special Care Baby Unit	✓	✓	✓
Haematology	✓	✓	✓				
Infertility Services	✓	✓	✓				

Source: KPMG Workbook submissions from hospitals

4.5 Financial information

The CWUIUH, NMH and RH receive income from the HSE, private practice and research. The majority of the income is provided by the HSE. The proportion between the three varies from 82% to 89%. HSE funding is based on a yearly allocation and is case-mix adjusted. The three hospitals each predicted a deficit for 2007, (CWUIUH predicted the greatest deficit at €5.6 million, followed by NMH at €4 million, and finally RH at €0.1 million (based on KPMG workbook submissions)), however all three organisations eventually reported a break-even position. Table 4 below shows the combined funding to the three hospitals in the last four years.

Table 4: Combined annual budgets for three Dublin Maternity Hospitals

Year	Recurring	Non-recurrent	Total €
2005	124,519,674	3,933,998	128,453,672
2006	133,044,469	3,028,272	136,072,741
2007	145,155,942	6,322,027	151,477,969
2008	152,876,933	8,187,165	161,064,098

Source: HSE

It is not possible to indicate whether the income received from the HSE is adequate as international comparisons are not possible due to case-mix, funding mechanisms, stand-alone status and workforce differences. However, there are opportunities to reduce cost and maximise private income through a robust cost improvement programme which is underpinned by performance improvement. In each of the following speciality chapters we identify performance improvement opportunities that are not dependent on recommendations on the future model of care, service configuration or location. Many of these opportunities can be addressed in the short-term and we recommend that they should be actioned in 2008.

4.6 Estates

The age and condition of the three hospitals varies, however there are significant estate issues at all three hospitals, with NMH having the most concerning issues. The poor infrastructure in the three hospitals poses risks to both the health and safety of women and infants, within that we include risk of Hospital Acquired Infections (HAI), privacy and dignity. The issues are dealt with in each of the speciality chapters which follow; however, we believe that it is fortunate that there has not been a serious untoward incident due to the mixed quality of facilities. The need to modernise facilities in all three hospitals provides the GDA with a unique opportunity to both improve the environment in which services are delivered and create a new model of care.

4.7 Staffing

The number of consultants, midwives and neonatal nurses employed by the three hospitals is broadly similar (there is currently a total of 35 consultants, 633 midwives and 168 neonatal nurses). The staffing levels are assessed in detail in chapters 5, 6 and 7 of the report. However the current numbers are not adequate to meet RCOG guidelines, BAPM standards or the BirthRate Plus recommendations. On that basis an additional total of 20 obstetricians, 221 midwives, 35 theatre staff and 20⁵ neonatal nurses are

⁵ This would enable compliance with 70% of the UK BAPM standard. A further 78 neonatal nurses would be required to achieve the gold standard of 100% compliance. In addition, to more neonatal nurses, there also needs to be a stronger focus on developing the specialist skills required as most of the current neonatal nurses are midwives.

required in the GDA, the skill-mix of which will require careful consideration to make sure that it is appropriate going forward. Increases in anaesthetists sessions and in the number of neonatologists also need to be considered.

4.8 Partnerships

4.8.1 *Partnerships with acute hospitals*

Whilst CWIUH, NMH and RH are stand-alone hospitals they do have partnerships with other hospitals within the GDA. Typically, this takes the form of joint consultant posts for gynaecology, joint working for women requiring the input of medical or surgical specialities not available in the maternity hospitals and transfer of sick women to the High Dependency Unit (HDU) or Intensive Treatment Unit (ITU). The partners for the three maternity hospitals are as follows:

Table 5: Partnership arrangements for the maternity hospitals and adult services

Maternity/gynaecology Service	Partner adult services
CWIUH	SJH, AMNCH
NMH	SVUH, SMH, SCH
RH	MMH, BH, CHB

The three maternity services have each developed strong links with one of their partner hospitals and have proposals to co-locate. CWIUH has plans to co-locate on the site of SJH, NHM on the site of SVUH and RH with the MMH. We will cover the concept of co-location within the speciality areas in detail later in the report.

4.8.2 *Partnerships with paediatric hospitals*

There are three paediatric services in the GDA these are located at:

- Adelaide and Meath incorporating the National Children’s Hospital (AMNCH);
- Our Lady’s Hospital for Sick Children (OLHSC); and
- Temple Street Hospital (TSH).

The maternity services transfer babies requiring surgical procedures, predominantly to OLHSC and TSH. It is at these sites that the neonatologists have joint posts, working in the paediatric intensive care unit (PICU).

Table 6: Partnership arrangements for the maternity hospitals and paediatric services

Maternity/gynaecology Service	Partner paediatric services
CWIUH	OLHSC
NMH	OLHSC, TSH
RH	TSH

4.8.3 *Partnerships with maternity hospitals*

The Institute for Obstetrics and Gynaecology recommended several networks to support the training of obstetricians and gynaecologists and maintaining expertise in a smaller number of services to ensure that skills and knowledge are maintained. The maternity hospitals are linked with other maternity units, and it is from these units that they tend to receive women requiring tertiary care:

Table 7: Partnership arrangements for the maternity hospitals with other maternity providers

Maternity/gynaecology Service	Partner maternity services
CWIUH	<ul style="list-style-type: none"> • Midland General Hospital, Portlaoise; • Midland Regional Hospital, Mullingar; • Mount Carmel
NMH	<ul style="list-style-type: none"> • Wexford General Hospital; • St Luke’s General Hospital, Kilkenny
RH	<ul style="list-style-type: none"> • Cavan General Hospital; • Our Lady of Lourdes Hospital, Drogheda

4.8.4 **Partnerships with academic institutions**

The three hospitals have partnerships with the three academic institutions in Dublin:

- University College Dublin (UCD);
- Royal College of Surgeons Ireland (RCSI);
- Trinity College Dublin (TCD); and
- Dublin City University (DCU) School of Nursing

Table 8: Partnership arrangements with the maternity hospitals and academic organisations

Maternity/gynaecology service	Partner academic services
CWIUH	RCSI, TCD, UCD, DCU
NMH	RSCI, UCD, DCU
RH	RCSI, TCD, DCU

We note that the Mater Misericordiae, St Vincent’s Healthcare Group and UCD have formed an alliance to create Ireland’s first Academic Health Centre called Dublin Academic Healthcare. It is based on successful international models and its mission is to improve the health of patients and the general population in Ireland by maximising specialist training for healthcare professionals, and by linking the treatment, teaching and research capabilities of the three partner organisations.

Recently there has been a significant development in the relationship between SJH and AMNCH with the proposed assimilation of SJH and AMNCH into an Academic Medical Centre with Trinity College Dublin.

It is anticipated that further such alliances may develop between other healthcare and academic organisations.

The formation of such academic healthcare alliances foster a shared vision to achieve excellence in terms of clinical care, education, training and research. It will enable the consolidation of resources and the development of shared services across the partner organisations in order to improve the access to and the quality of patient care in Ireland.

4.9 Voluntary status

The three maternity hospitals are voluntary hospitals, established between 1745 and 1894.

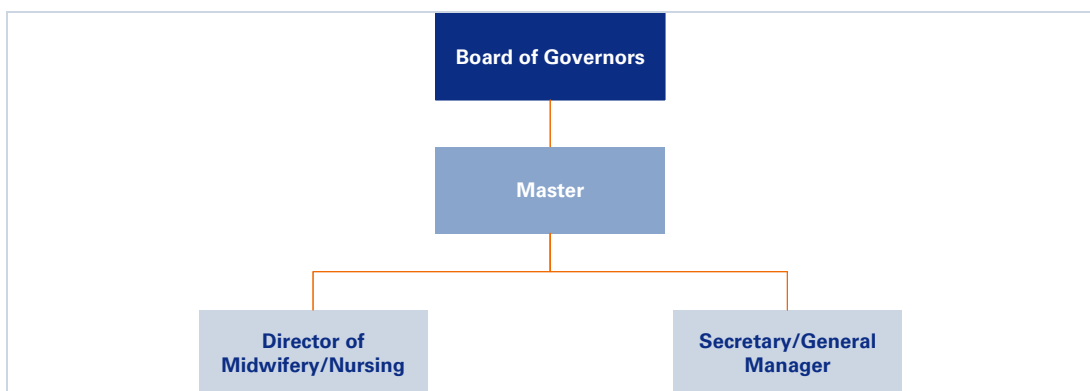
The voluntary hospitals originally operated outside the control of the Health Boards. However, the Health (Eastern Regional Health Authority) Act (1999) provided for the establishment of the Eastern Regional Health Authority on 1st March 2000. Prior to the establishment of the ERHA voluntary hospitals such as the three Dublin maternity hospitals dealt directly with the Department of Health and Children, outside of the then Health Board structures. When the ERHA was established the funding relationship devolved to the ERHA. It commissioned services from the Dublin maternity hospitals by means of agreement as provided for under the 1999 Act.

The maternity hospitals believe their independent status encourages innovation and facilitates timely decision making.

4.10 Governance

The governance framework for the maternity hospitals is based on a Board of Governors and Mastership system. The Board of Governors provide the non executive direction to the hospital (similar to the role of the UK Non-Executive Director). Typically they bring a range of expertise from private and public sectors to the hospitals and *inter alia* scrutinise, constructively challenge and support the organisation and Master. The Master is responsible for the day to day running of the hospital.

Figure 5: Current high level governance framework for each maternity hospital



The Mastership System has been in place since inception (in the case of the RH 250 years ago). Masters of the hospital are both working obstetricians and Chief Executives of the

Hospital. This has the benefit of ensuring primacy of clinical decision-making, but carries with it the risk that general management duties may suffer as a consequence.

The Master is supported by a Director of Midwifery/Nursing who provides the professional leadership for Midwifery/Nursing staff and a Secretary/General Manager who manages the operational and financial issues including Estates, HR and IT.

4.11 Joint Standing Committee of the Dublin Maternity Service

The Joint Standing Committee was established in 1997 and works as a collective body for the three maternity hospitals to facilitate collaboration and to improve the level and quality of care provided to the women and their babies.⁶

It establishes working sub-committees on a disciplinary or inter-disciplinary basis to address specific issues as required e.g. laboratory accreditation, IT development, accreditation of pharmacies etc. It co-operates with other hospitals and agencies, in particular Cork University Hospital and the HSE.⁶

4.12 Neonatal Sub-committee

The neonatologists in the three hospitals have forged an important relationship with each other through the neonatal sub committee of the Royal College of Physicians Ireland. However, there is little co-operation between the three on operational issues and staffing.

4.13 Summary

The population in the GDA is both increasing in number, complexity and age. This will pose significant challenges to the current provision of maternity and gynaecology services both in terms of the number of women it will need to serve, and the types of services that will be required in the future. This will also represent a key challenge to the service in terms of offering choice to more women, to its present infrastructure and workforce. These issues present clear drivers for change.

Within the GDA it will be Kildare, Meath and Wicklow that will experience the greatest growth due to an expansion of the GDA population as a whole and migration of people to the three counties. Trends between 2002 and 2006 show that the city centre has had a decrease in women aged 15 and over and Kildare has seen growth.

⁶ *Joint Standing Committee Terms of Reference*

As the number of foreign nationals increase there will be greater need to provide services that are socially inclusive and target those that are socially excluded.

The current service configuration is unique. The maternity, gynaecology and neonatal services are stand-alone facilities, within a 5km radius, each delivering in excess of 8,000 babies. The close proximity of the hospitals means that access to services for women living outside the city of Dublin is not ideal. The three hospitals have made plans to move away from the stand-alone status and have each developed plans to co-locate on an adult service site. The concept of co-location will be dealt with in the following chapters.

The three maternity and gynaecology services face financial challenges over the coming years if they are to break-even. This review provides an opportunity to identify cost improvements through performance improvement, changes in the model of care and service configuration. These opportunities will be defined in the next three chapters.

Poor infrastructure at the three hospitals means that maintaining the status quo is not an option. The facilities at the three hospitals pose risks to health, safety, privacy and dignity. Short-term measures need to be identified to reduce pressure on the current infrastructure as highlighted in each of the following chapters, but it is our view that service reconfiguration and relocation are the means by which the risks that the services currently face can be most robustly mitigated.

There is a clear case for a reconfiguration of services from a demographic and hospital perspective. The next three chapters will state why change is required from a service level perspective and set out the required changes to improve the quality, efficiency and effectiveness of maternity, neonatal and gynaecology services.

5 Maternity services and fetal medicine

5.1 Introduction

Maternity services in the GDA provided pre, post and peri-natal care for circa 23,254 deliveries in 2006. This chapter assesses the model of care, its capacity and performance against best practice and developments internationally. It also considers the immediate constraints facing the service that affect its current and future sustainability. It concludes with recommendations on how the current provision could be strengthened. This chapter concentrates on the model of care for GDA, the configuration of the services is dealt with in chapter 8 and their locations are dealt with in chapter 9.

The structure of this chapter covers the following steps:

- An outline of the current care pathway;
- An overview of the current stand-alone status of the three hospitals against developments internationally;
- Review of the current and future workforce constraints and requirements; and
- Outline of the proposed future care pathway.

This chapter also outlines the proposed future care pathway for Fetal Medicine.

5.2 Current model of care

Outlined below is a high level diagram of the current care pathway for maternity services with a table summarising the key steps in the pathway.

The predominant pathway followed by the majority of women using maternity services within the GDA is captured in steps 1,4,7,10,12 highlighted in the darker blue in the diagram below (figure 6). As indicated, the hospital based pathway is the model of care that most women receive. This model is out of step with currently recognised best practice models internationally, which promote a primary and community care model managed by midwives, with medical intervention by obstetricians targeted at high risk pregnancies and deliveries.

Figure 6: Diagram of current pathway for maternity services

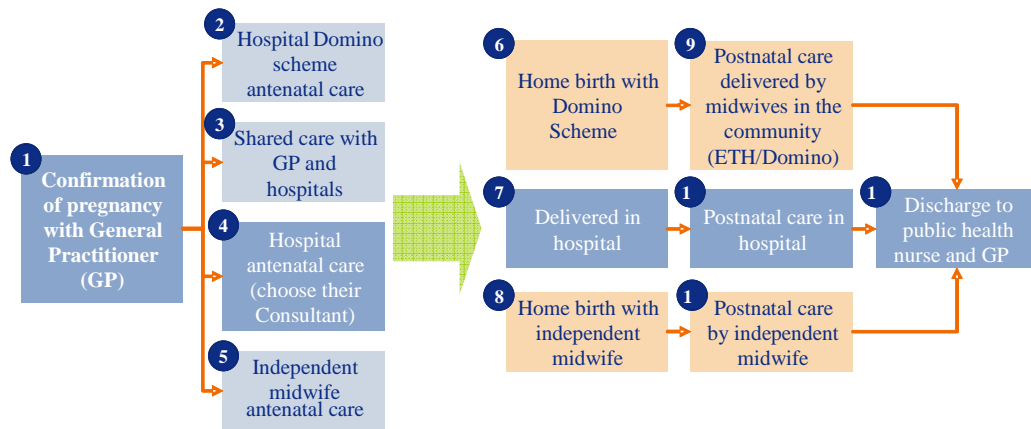


Table 9: Description of key steps in the current pathway

Process step	Description
1. Confirmation of pregnancy with GP	<ul style="list-style-type: none"> Women currently have their pregnancy confirmed by the GP
2. Hospital Domino Scheme antenatal care	<ul style="list-style-type: none"> Women receiving antenatal care through the Domino Scheme have care delivered by community based midwives close to the women's home
3. Shared care with GP and hospitals	<ul style="list-style-type: none"> The Schedule of Visits (Appendix B1) indicates that care is provided by a General Practitioner and the maternity hospital. Conversely the description of the scheme states that care is provided by a General Practitioner and a hospital obstetrician. The Combined Obstetric Card was produced by the Irish College of General Practitioners and the Institute of Obstetricians and Gynaecologists
4. Hospital antenatal care	<ul style="list-style-type: none"> Public patients attend their GP in the first instance for confirmation of pregnancy. Most patients are then referred to one of the three public maternity hospitals. A very small number of mothers may be referred for midwifery-led care at their request Women attending for semi-private care may see a consultant privately or attend the semi-private clinic. This clinic is run by the consultant and his/her team Women who opt for private care are appointed their own consultant who sees them at each visit. Patients usually choose their own consultant either with guidance from their GP or through personal recommendation by family or friends <p>Fetal medicine</p> <ul style="list-style-type: none"> Fetal medicine falls into two categories, fetal maternal medicine and fetal intervention. Fetal maternal medicine deals primarily with the diagnosis of anomalies and the care of mothers who have illnesses that make them high risk, for example diabetes Fetal therapy is only applicable to 50 to 60 cases per year in Ireland and involves interventional procedures. Examples of the procedures undertaken are in-utero transfusions, insertion of shunts, laser ablation of communicating vessels and cardiac interventions Women are transferred into the NMH or the RH to have the procedure; some will continue their care and deliver the baby there or they will transfer back to the hospital where they booked for maternity care
5. Independent midwife antenatal care	<ul style="list-style-type: none"> A small number of women in the GDA access independent midwives for antenatal and home birth services. These midwives are registered with An Bord Altranais and until September 2007 were insured by the Irish Nurses Organisation who have now ceased to provide such insurance
6. Home birth with Hospital Domino schemes	<ul style="list-style-type: none"> NMH and RH provide a home birth service through their Domino scheme; women who are clinically appropriate and choose to do so are delivered at home. The Domino schemes are unable to meet the current demand on the service. Women are booking extremely early (5 weeks) to secure a place on the scheme

Process step	Description
7. Delivered in Hospital	<ul style="list-style-type: none"> The mother and infant scheme presupposes the birth will take place in a consultant-led hospital service since birth at home does not form part of the scheme The GP then sees the baby at two weeks and the mother and baby at six weeks During labour and usually during delivery, public patients are cared for by the hospital midwives. Difficult assisted births or C-sections are carried out by the doctor on duty. The consultant will see the mother six weeks after delivery Patients attending for semi-private care may see a consultant privately or attend the semi-private clinic. This clinic is run by the consultant and his/her team For private patients, it is generally understood that their consultant may not necessarily be available to deliver their baby but there is an expectation that this will be the case. It would be usual for consultants to cover each others' private practice
8. Home birth with independent midwife	<ul style="list-style-type: none"> In 2002, 71 grants were paid to women who used an independent community midwife. The Report of the Maternity and Infant Care Scheme Review Group (1994)(1) included recommendations on home birth services, which enable pregnant women who employ an independent community midwife to receive a domiciliary birth grant, up to €1,270 from the Department of Health and Children The independent midwives delivering babies do not have ready access to hospital services and would have to transfer in an emergency situation. Unlike the Domino home births the hospitals are not aware that the homebirth is taking place and therefore are not prepared for a potential transfer in. The CSO reported 295 home births for 2004 representing 0.47% of total births.
9. Postnatal care delivered by midwives in the community (ETH/Domino)	<ul style="list-style-type: none"> For women availing the Domino or ETH scheme, a low intervention hospital birth is planned, the new mother leaves the hospital three to six hours after birth and is cared for at home by community midwives
10. Postnatal care in hospital	<ul style="list-style-type: none"> For those women who deliver in hospital and are not able to access ETH and Domino schemes, postnatal care is delivered in the hospital setting, with a visit 24 hours after discharge from a public health nurse. Public health nurses are trained as midwives but do not act as midwives in a full time capacity. The role of the public health nurse is likely to evolve as it is no longer necessary for them to have midwifery training
11. Postnatal care by independent midwife	<ul style="list-style-type: none"> For those women who have opted to use an independent midwife, the independent midwife will provide the immediate postnatal care required
12. Discharge to public health nurse and GP	<ul style="list-style-type: none"> Public health nurses are required to visit the mother within the first 24 hours of discharge. However, from our stakeholder engagement both public health nurses and service users reported that this was not what happened in practice

5.3 An assessment of the current service model

We will now review the maternity and fetal medicine model of care against quality standards and trends internationally.

In assessing current services in the GDA, we have considered Royal College guidelines on best practice, reviewed models of provision, service configuration, capacity and performance outcomes against a number of comparator countries.

Whilst we recognise that it is not possible to transpose models in their entirety to the GDA because of a variety of social, geographical and financial influencing factors, it is useful to draw lessons from contemporary practice elsewhere when redesigning services to build in proven effective practice where appropriate.

5.3.1 *International themes on models of care*

There is a wide variety in models of care internationally as summarised below.

Australia – Maternity services are part of a state-funded public health system in Australia, but there is also some private practice, for example, in Victoria approximately 30% of women use private care. Maternity services are predominantly hospital based, but different health care providers⁹ (midwives, obstetricians, GPs) may be involved throughout pregnancy. Specific research in New South Wales shows a drive to provide more shared care to reduce demand for hospital services¹⁰. Midwives play a key role at all births, but with a doctor in attendance, though in some cases, with good collaboration, midwives undertake the delivery without a doctor present¹¹.

Canada – Most maternity care during and after pregnancy occurs outside of the hospital setting, however most babies are born in hospital. Most mothers receive care from family physicians (GPs) 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 beyond¹². Almost two-thirds (64%) of family physicians said that they were involved in some aspect of maternity care in 2001, up from 53% in 1998¹³. Registered nurses provide maternity care in community and hospital settings. There are

⁹ “Who Usually Delivers Whom and Where” Report on Models of Antenatal Care, Perinatal Data Collection Unit, Victoria Government, 1999

¹⁰ Models of Maternity Service Provision across NSW, Progressing implementation of the NSW Framework for Maternity Services, NSW Health, April 2003

¹¹ Multi-disciplinary 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)

¹² Giving Birth in Canada, Providers of Maternity and Infant Care, Canadian Institute for Health Information, 2004

¹³ MIDWIVES, October 2003

13,801 registered nurses whose primary responsibility is maternal-newborn care. However, there are only 400 regulated midwives in Canada.

France – Maternity care is part of a state funded public health system in France. A woman can choose to see a midwife, medical gynaecologist, gynaecologist-obstetrician or can choose to share her care between these and other professionals. However, in reality a woman's choice 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. GPs generally confirm pregnancy and sometimes provide antenatal care. 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 birth¹⁴.

Germany – There has been a long and distinguished tradition of social welfare and health reform, although the American influence in West Germany (as then) and the socialist influence in East Germany (as then) both led to a medicalised model of care. Subsequently maternity services are one of the many health care sectors to be affected by post-unification economic reform. Most postnatal care is provided by obstetricians and both midwives and obstetricians are involved in births and postnatal care. While the majority of care is hospital based, midwives have now established stand-alone birth centres, much akin to midwifery led units (MLUs) to provide a continuum of care throughout pregnancy, childbirth and the postnatal period¹⁵.

Netherlands – Maternity care is part of a state funded public health system in the Netherlands. There is a very strong ethos that pregnancy is a normal physiological condition. Most pregnant women begin their antenatal checkups with midwives who are responsible for managing them throughout pregnancy¹⁶. Home births, which represented 34% of births in 2002 (down from 35.4% in 1997/8), are attended by a midwife or GP (the culture and demographics are such that midwives/GP must be within 20 minutes of a woman who has requested a home birth)¹⁷. Women may also chose a birth as a hospital outpatient (polyclinic) attended by a midwife or GP (akin to a MLU), or hospital birth as an inpatient attended by an obstetrician.

¹⁴ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

¹⁵ *Ibid*

¹⁶ *Ibid*

¹⁷ *Ministry of health, Welfare and Sport, Netherlands*

New Zealand – Maternity care is part of a state funded public health system in New Zealand with some private practice. Women have a choice of GP, midwife or obstetrician to become the lead maternity carer¹⁸. Statistics show that 76.1% of midwives are lead carer at birth (2003), 78.3% when pregnancy is initially confirmed.

Sweden – Maternity care is part of a state funded public health system and is provided by Sweden's 21 county councils. Antenatal care is provided in clinics by midwives, (mostly public, but some private). Some GPs in rural areas have a role but will be affiliated to a maternity clinic. Approximately 99% of births take place in the hospital setting and are delivered by a midwife, except for instrument or operative deliveries¹⁹.

UK – Maternity care is part of a state funded public health system. On confirmation of pregnancy GPs generally make the referral to hospital. Approximately 98% of all births take place in a hospital setting or other type of maternity unit (approximately 3.5% of these are in MLUs based on 2005 statistics)^{20a}, and over 99% are within the NHS. Midwives are generally the lead professionals for normal pregnancies, births and postnatal care. Midwifery services are provided in both the acute and community sectors. Most midwives work in a hospital setting or in community settings 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.

¹⁸ *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*

¹⁹ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

^{20a} *Maternity Matters: Choice, access and continuity of care in a safe service, Department of Health, UK, 2007*

Table 10: International models of care and clinical outcomes

Country	Model of care (note these are generalised)				Outcomes				
	Antenatal care	Delivery Practitioner	Delivery Location	Postnatal care	Maternal mortality rate per 100,000 total births	Infant mortality rate per 1,000 live births	Perinatal mortality rate per 1,000 total births	Neonatal mortality rate per 1,000 live births	C- Section rates %
Australia	GP in the community in conjunction with hospital midwife or obstetrician	Midwife has key role, but doctor must be present	Mainly hospital based	Hospital midwife and GP	6 per 100,000 in 2000 down from 10.9 (1991-93) and 13.0 (1994-6)	9.9 per 1,000 live births in 1985 falling to 5.0 per 1,000 live births in 2005	7.1 (1985) falling to 3.5 (2003)	6.1 per 1,000 live births in 1985 falling to 3.1 per 1,000 live births in 2005	29% (2006), up from 20% (1993); 32.4% in Western Australia in 2006.
Canada	Family physician in the community	Mainly family physician specialising in delivery (some by obstetricians/ midwives)	Mainly in hospital	Family physician	6.1 (excluding Quebec 1997 to 2000)	5.4 in 2002; 6.3 in 1993 falling to 5.5 in 1997	7.1 in 1993, 6.6 in 1993, and 6.3 in 2003	4.2 in 1995 falling to 3.9 in 2003	23.7% in 2005; 22.5% in 2001/2002; 18.7 in 2000
France	GPs midwives or obstetrician	Midwife for normal delivery; obstetrician for complex case	Mainly in hospital	Hospital Doctors until recently – trend toward midwife	17 (2000) to 8 (2004)	4.4 (2000) falling to 3.6 (2005)	7.4 in 1995 and 6.9 in 2001	2.9 in 1995, 2.7 in 2003 and 2.0 in 2004	16% in 2000 and now average 20%
Germany	Obstetrician and/or midwives	Obstetrician and/or midwives	Mainly in hospital	Obstetrician and/or midwives	9 in 2000 falling to 4 in 2005	Falling from 4.4 in 2000 to 3.9 in 2005	n/a	n/a	20% in 2001
Netherlands	Mainly midwives in community facilities	Mainly midwives but obstetrician for high risk	Mainly in midwifery-led polyclinics with 34% (2002) at home	Mainly midwives	16 in 2000 falling to 7 in 2005	4.26 in 2003 rising to 4.88 in 2007	8.0 in 1995 and 6.6 in 2004	3.8 in 1995 and 3.4 in 2004	14% in 2002

Country	Model of care (note these are generalised)				Outcomes				
	Antenatal care	Delivery Practitioner	Delivery Location	Postnatal care	Maternal mortality rate per 100,000 total births	Infant mortality rate per 1,000 live births	Perinatal mortality rate per 1,000 total births	Neonatal mortality rate per 1,000 live births	C- Section rates %
New Zealand	Choice of GP, midwife or obstetrician; 78.3% with midwives (2003)	Mainly midwives; 76.1% of midwives were lead carer at birth (2003)	16% of births in primary maternity care facilities 40% in secondary centre 44% are in tertiary obstetric centres for higher risk cases	Midwife until discharge	5.3 low in 2001 but 14.7 in 2002	3 per 100,000 live births in 2003	6.1 in 1995 and 6.7 in 2002	n/a	11.7 in 1988 to 20% in 1999 to 23% in 2003
Sweden	Mainly midwives in maternity clinics	Mainly midwives except for instrument/operative deliveries	99% take place in hospital	Mainly midwives in maternity clinics	8 (2005)	3.4 (2000) falling to 2.4 (2005)	5.5 (2000) falling to 4 (2005)	2.3 (2000) falling to 1.5 (2005)	14.8 (2000) rising to 17.2 (2005)
United Kingdom	Choice of GP, Midwife in community or midwife/obstetrician in hospital	Mainly midwives with obstetrician for high risk cases	Mainly hospital but about 3.5% (2005) in Midwifery led unit	Mainly midwives in the community	6.13 in 1985-5 and 6.24 in 2003-5	5.4 in 1996 and 5.4 in 2005	7.2 in 1996, 6.9 in 2000 and 6.7 in 2004	4.1 in 1996 falling to 3.4 in 2005	22% in 2001-2 and 22.6% in 2005-6
Ireland	Mainly hospital based consultant with some care provided by GPs/midwives	Mainly midwives with obstetrician for high risk cases	Mainly in hospital	Mainly midwives in hospital	4 in 2000	6.2 in 2000 falling to 4.0 in 2005	9.1 in 2000 falling to 8.5 in 2003	4.3 in 2000 falling to 3.5 in 2004	19 in 2000 rising to 22 in 2002

Taking into account the comments in 1.2 about difficulties with consistency and validation of publicly available data internationally, as the summaries by country above illustrate, the model of care varies from country to country and as the high level analysis in the above table indicates, similar clinical outcomes can be achieved with different models of care. For example, the Netherlands and New Zealand where there is a stronger primary and community care focus, achieve broadly similar outcomes to France, the UK and Sweden where deliveries are mainly hospital based. So while on the face of it the French, Swedish or the UK model of care may appear highly medicalised, they differ from the GDA in that there is strong midwifery involvement in both antenatal care and delivery, which the GDA does not have at present. This supports our view that in the GDA 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.

5.3.1.1 *How does this compare to the GDA?*

The GDA is comparable to a number of developed countries (Sweden, UK, France and Australia) when it comes to delivery of babies in hospital, but is behind the UK and Sweden in regard to antenatal care in terms of the effective use of midwife skills and organisation of care. Compared to Canada, the Netherlands and New Zealand, the GDA is well behind in terms of the uptake of community based care both antenatally and on delivery. The GDA differs to many of these countries in that approximately 50% of patients have private medical insurance. The former ERHA strategy on maternity services^{20b} indicated that the average mix in the three Dublin Maternity hospitals was 58% public, 19% semi-private and 23% private. The main impact of this is the entitlement to consultant care, which may not be the best or necessary solution for all routine births (see further discussion at 5.3.5 on primary care).

Taking account of the limitations of the consistency and validation of data noted earlier, the clinical outcomes for GDA compare relatively well with the countries set out in Table 10.

5.3.1.2 *Conclusion and implications for GDA*

It is not appropriate to “parachute in a model of care” from another country. Each country has unique features, as does the GDA. However, the key conclusion to draw from this is that for the GDA, where hospital care dominates and primary/community care

^{20b} *Maternity Services in the Eastern Region – a strategy for the future 2005-2011*

is underdeveloped, at this juncture when change is being contemplated, it is possible to have a different model of care and achieve broadly similar clinical outcomes. Furthermore our research shows that several countries are moving towards a greater role for midwives in antenatal care and delivery. We explore this in more detail at a later point.

In our view, the trend internationally is to devolve as much care as possible to community services, particularly in relation to antenatal and postnatal care. This is the direction of travel we recommend for the GDA and is consistent with the views of women in the GDA as expressed in the stakeholder consultation (mothers and midwives). It will require significant investment in workforce resources, and/or a reconfiguration of use of existing resource, education and development of community maternity facilities.

5.3.2 *Optimal location: co-location v stand-alone*

Our review indicates that the GDA is relatively unique in maintaining three large tertiary stand-alone maternity hospitals. Most maternity services have evolved and developed over time in each of our reviewed countries but, in the main, large tertiary maternity hospitals tend to be co-located on acute hospital sites.

- Canada has 344 obstetric units, of which five are stand-alone units and are run by midwives, i.e. they are more typical of an MLU. Decisions to regionalise maternity services have also forced rural hospitals to close their obstetric units;
- France has progressively closed its stand-alone maternity units. 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 acute sites where there is access to intensive care facilities;
- New Zealand has re-located its National Women's Hospital in Christchurch (annual deliveries approximately 5,000/annum) onto an acute hospital site. Additionally, five out of New Zealand's six tertiary units providing for complex cases have a NICU and all of the six sites deal with complex cases requiring input from multi-disciplinary teams. All tertiary obstetric units are now located on acute hospital sites, permitting speedy access to the full range of clinical support services;
- Sweden does not have any stand-alone maternity hospitals or paediatric hospitals and all major/tertiary maternity units are co-located on acute hospital sites, ensuring they

are close to all necessary resources. For example, specialist services, laboratory facilities, theatres etc.

- In the UK, a significant number of stand-alone maternity hospitals have been re-located on to acute hospital sites. 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) moved to the Chelsea and Westminster hospital acute site. In Northern Ireland, the majority of maternity facilities are co-located on acute hospital sites.

There are some noteworthy exceptions. For example, Liverpool Women's Hospital in the UK is a large stand-alone facility with similar birth numbers to the Dublin hospitals. In addition, a large stand-alone maternity hospital opened in Singapore in 1997. In Chicago there is also a new large maternity hospital, however, it is closely located to acute facilities and a paediatric hospital is to be built adjacent to the maternity hospital.

The general view amongst midwives, obstetricians and other clinicians is that tertiary maternity facilities should be located on acute hospital sites, thereby providing optimal care for high-risk mothers for both antenatal and delivery services. With the exception of Singapore and Chicago, all large tertiary maternity units built in recent years have been co-located on acute hospital sites.

5.3.2.1 ***Conclusion and implications for GDA***

Our review of international practice would indicate that the three Dublin maternity hospitals' stand-alone status does not facilitate providing optimal care for high-risk mothers. Particularly in relation to prompt access to intensive care and resuscitation facilities to deal with major obstetric haemorrhages, clotting disorders and organ failure. In our view there is a persuasive trend internationally to co-locate maternity units on acute hospitals sites.

5.3.3 ***Tri-location with Paediatric services – the trends internationally***

As previously noted, the international trend has been to centralise maternity units within acute hospitals. This primarily addresses the needs of mothers who become high risk cases either in the antenatal period or during labour and post-partum. In terms of addressing the needs of very sick babies, a similar trend has developed. For example:

- France – the trend has been to locate maternity hospitals with paediatrics and on acute sites where there is access to paediatric intensive care facilities;
- Sweden – there are no stand-alone maternity hospitals or paediatric hospitals. All maternity units are co-located on acute adult and paediatric hospital sites ensuring they are close to all necessary resources;
- Current developments in the UK (previously noted) 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. The ethos that drove 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; and
- Recent research and developments in fetal medicine indicate a need to ensure there is proximate access to neonatal, paediatric and maternal acute services (see 5.8 below for further details).

5.3.3.1 ***Conclusion and implications for the GDA***

In our view, the current developments internationally support the case for tri-location of services to enable access to multi-disciplinary teams for both very sick babies and very sick mothers. We explore this in more detail in the Neonatology chapter (chapter 6).

5.3.4 ***Capacity, facilities and clinical practice as drivers of outcomes***

There were 25,743 deliveries in the GDA in 2007, representing a 9% increase on the 23,610 deliveries of 2006 (which was in turn a 7% increase on the 22,113 deliveries in 2005).

Each of the three hospitals have seen significant increases in deliveries which are currently in excess of 8,000 babies each year and this is expected to continue to increase in the short-term. The number of births in these sites is high compared to other maternity units internationally, which tend not to exceed 6,000 births. There are examples of larger services but they are the exception – two units in Singapore deliver between 12,000 and 13,000²¹ babies each year; Chicago is about to open a unit of 13,500²². In the UK,

²¹ www.kkh.com

²² prentice.nmh.org/prentice/main.htm

Nottingham University Hospital has 12,000 deliveries, but the unit is split across two sites (each delivering 6,000 babies).²³

The size of maternity units in the UK ranges from less than 1,000 deliveries to just under 9,000 births. As the table shows 12 units had in excess of 5,000 births in 2003, a significant change from 1996. However the greatest concentration of units was in the range of 2,000-3,999 births. A number of smaller units have consolidated into larger units in recent years; the UK has undertaken a deliberate policy to centralise maternity services into larger units with a greater proportion of births taking place in these larger units²⁴.

Table 11: Size of Units in the UK

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

In most large cities, maternity hospitals tend to be large scale. In Paris, the leading maternity hospital has approximately 6,000 deliveries per annum; Mount Sinai Hospital in Toronto, Canada has approximately 6,500 deliveries per annum, while Karolinska University Hospital in Sweden has approximately 5,500 deliveries per annum. In New Zealand the largest tertiary unit takes 7,700 births.

In addition, Canada, New Zealand and Sweden have all closed smaller units and centralised services onto larger sites where population demographics have allowed this. However, these countries have been to some extent restricted in closing smaller rural units due to geography, demographics and local needs. Maintaining these smaller potentially unviable units has presented challenges in terms of workforce, but as yet has not seen any deterioration in clinical outcome.

None of the countries reviewed indicated an optimal size of maternity unit and the size of unit tended in part to be determined by population demographics.

²³ www.nuh.nhs.uk

²⁴ *Maternity services in the NHS, Professor Nick Bosanquet, Jen Ferry, Christoph Lees, Professor Jim Thornton, Reform, 2005*

International evidence does not suggest that Dublin is necessarily out of line and there is no evidence to suggest that the number of deliveries per se in Dublin's three maternity hospitals is a significant issue. However, it is important that each maternity hospital has the facilities and necessary resources as well as protocols and governance arrangements in place to ensure safe, effective and successful service provision.

Optimal unit size to manage risk and deliver high quality care is best defined by staff: delivery ratios and delivery: theatre capacity ratios. On the following pages we discuss:

- Obstetric, anaesthetic and midwifery staffing levels;
- Bed and delivery suite capacity;
- Theatre and intensive care capacity;
- Performance and efficiency opportunities; and
- Clinical outcomes.

Conclusion and implications for the GDA

There is no 'one size fits all' solution in terms of recommending the optimum delivery size for an obstetric unit in the GDA. International best practice leads us to acknowledge that exceptionally large and small units are being phased out in most countries. It is more appropriate to focus on adequate staffing levels and facilities, combined with performance measurement and acceptable clinical outcomes. The introduction of MLUs would expand service diversity, meet the demands of patient choice and shift some low risk care out of the acute hospital setting.

5.3.4.2 *Infrastructure Capacity*

The table below provides details of the number of obstetric beds, delivery rooms and theatres available across the GDA. A discussion on compliance with best practice guidance and the impact of this capacity and configuration on service delivery and women's experience in the GDA follows.

Table 12: Infrastructure table 2006

	CWIUH	NMH	RH	Total
Beds	251	198	191	640
Delivery rooms	8	9	9	26
Theatres	3	2	2	7

Source: Workbook submissions

5.3.4.3 Theatres

Safer Childbirth, UK²⁵, Minimum Standards for Organisation and Delivery of Care in Labour, October 2007 recommends dedicated operating theatres for obstetrics located close to the delivery suite or preferably within it. It suggests a ratio of 1:4,000 births is “probably sufficient”. Birth rates above this level will require further theatres for simultaneous procedures and handling infected cases, such as hepatitis, HIV and sepsis. It also recommends that dedicated obstetric theatres should be located in close proximity to the labour ward, with one theatre dedicated to emergencies.

- At face value all three hospitals in the GDA comply with recommended theatre numbers – numbers for each unit are provided in the table above. CWIUH has over 25% more bed capacity and 50% more theatre capacity than NMH and RH for a similar birth rate;
- However, theatre capacity and configuration is not appropriate in the GDA because these theatres are not dedicated to obstetrics – they also provide gynaecology surgery. Obstetric theatres must be dedicated for obstetric activity only; two are required in each unit that are completely separate to gynaecology theatres. The current arrangement compromises the standard of care for both obstetric and gynaecology patients, increasing risk through delay in access and interrupted surgery:
 - When compared to hospitals of a similar size internationally, capacity is low. In the UK, NHS Trusts delivering 5,000 – 6,000 babies per year would typically have two dedicated theatres on the labour suite. Gynaecology surgery is also conducted in the main theatre suite;
 - CABE, which sets out best practice hospital design to manage clinical risk, recommends location of theatres adjacent to high risk/intensivist units such as labour suites. In the NMH and Coombe hospitals, theatres are located on a

²⁵ Safer Childbirth – Minimum standards for organisation and delivery of care in labour

different floor, accessed via a lift, increasing risk to women requiring an emergency c-section; and

- The quality of theatres across the three sites is variable, with particular significant investment required at NMH to upgrade towards modern facilities and an acceptable environment for both women and staff. There is also a requirement for a separate room for induction and recovery of patients.

Reconfiguration of services must include dedicated obstetric theatres, in or in close proximity to the labour suite.

As a minimum, existing facilities should be refurbished to address concerns about quality, safety and environment.

5.3.4.4 *Delivery Rooms*

All three maternity units have a relatively low number of delivery rooms when compared to other hospitals of a similar size. In our opinion, a high level ratio of 1 delivery room per 500 deliveries booked per annum should be an appropriate target for the GDA to aim for. Currently the three maternity hospitals have eight to nine rooms each for 8,000 deliveries which when compared with 1:500²⁶ deliveries booked ratio per annum would indicate the need for another eight more delivery rooms in each maternity hospital. However, it is not just the actual number of delivery rooms that need to be considered but also the service culture for woman giving birth. Safer Childbirth²⁷ recommends rooms should be 'home-like' and large enough for woman and their support to move around, promote mobility and use of a range of birth positions. It also recommends single occupancy not only to maintain privacy and dignity but also to minimise rate of infection.

The impact of the comparatively smaller capacity in the GDA contributes to the continued use of active management of labour, albeit to varying degrees across the three sites. Active management, pioneered in 1969 in NMH, is a means of reducing the length of active labour to less than 12 hours. The current number of deliveries at the hospitals could not be provided without using active management; however that does not mean that it represents best practice²⁸.

²⁶ Based on UK experience

²⁷ Safer Childbirth – Minimum standards for organisation and delivery of care in labour

²⁸ : www.patient.co.uk

The views of women collected as part of this review emphasised their preference for a broader choice of services, and a more socially integrated, midwife-led model. This model of care, if well practiced by experienced midwives, is known to reduce intervention rates in labour, particularly for first time mothers and all uncomplicated pregnancies and labours.

Insufficient capacity in delivery suites across all GDA sites is driving a medicalised model of care through a greater dependency on active management of labour, contributing to higher instrumental deliveries and caesarean rates (see table 14) and associated increased ALOS, which in turn puts more pressure on bed management. In order to address this, delivery suite capacity needs to be expanded significantly to manage levels of deliveries without the need for active management of labour.

Our stakeholder consultations clearly indicate that women are asking for alternative care models that promote a more supportive, less interventionist approach to childbirth. To support this, progressive changes to the management of delivery are required, with greater midwifery leadership of non-complex pregnancies and labour, with clear escalation policy where complications arise. In addition, changes to both the nature and number of delivery rooms are necessary.

5.3.4.5 *Intensive care*

Towards Safer Childbirth recommends that prompt access for the mother to a high-dependency unit, intensive care and/or resuscitation facilities is essential. As a minimum, all obstetric units should provide staff skilled in high dependency care on the labour suite, including cardiovascular monitoring, pulse oximetry and rapid fluid/blood transfusion.

Intensive care, if required, should be accessible and start as soon as needed. Tertiary centres should have immediate access to:

- Intensive care facilities to reflect case-mix and referral patterns; and
- Skilled obstetric, midwifery and anaesthetic staff.

The three units in the GDA are tertiary referrals centres for Ireland. As stand-alone facilities, they fail to meet this standard. Women and their neonates are transferred by ambulance to an acute facility if required – delay in immediate access to intensive care facilities, equipment and skills will increase the risk of higher morbidity and mortality.

Co-location of maternity services within acute hospital sites will enable greater access to intensivist support reducing the risk of morbidity and mortality for both the mother and neonate.

5.3.5 **Primary and Community Care**

Primary care in general, including maternity and gynaecology services, is underdeveloped in Ireland in terms of access, choice, equity and information. The Government is aiming to address the imbalance of care that currently exists in secondary care, through several policy documents, such as “Primary Care - A New Direction Quality and Fairness – A Health System for You.”²⁹

5.3.5.1 **Current challenges**

Delivering sustainable improvements in primary and community care in Ireland will present a challenge:

- The mother and infant scheme clearly states that care will be provided by the hospital obstetrician and GP;
- The role of and provision of care by the midwife or any other health professional is not defined;
- Expectations by women of services and their control over their care are low. They have not contributed to service design. As a result, primary and community services to support women in their home are inadequate; and
- Private insured care and private practice use the same consultant capacity and facilities, influencing the quality of services, contributing to capacity constraints and putting pressure on clinical practice.

5.3.5.2 **Plans to transform services**

The principal inadequacies in existing services are detailed in the DOHC’s ‘Primary Care Strategy’³⁰. In summary they include:

- Poorly developed primary care infrastructure and capacity;
- Limited opportunities for user participation in planning and delivery;

²⁹ *Quality and Fairness – A Health System for you*

³⁰ *Primary care – A new direction*

- Secondary care providing many services which are more appropriate to primary care, with the system oriented around limitations of providers rather than the needs of users;
- Professional isolation and limited team working; and
- Lack of formal quality assurance structures.

The HSE recognises the importance of primary care and community services in delivering good quality health care. The HSE Transformation Programme 2007-2010 sets out the direction and speed of change that will fundamentally change how health care is delivered, including maternity services. In addition, the HSE has recognised the need to provide for the urgent interim infrastructural requirements at the three maternity hospitals and has made a multi annual provision for this in the HSE capital programme. Formal approval has been issued to the hospitals for urgent infrastructural works identified in recognition of the need to improve the facilities, irrespective of our review. Specifically the improvements in infrastructure include:

- Rotunda: front entrance/emergency room project
- NMH: interim works, upgrade of lab, wards, theatre and NICU
- Coombe: theatre upgrade, fire upgrade work, NICU and upgrade of sanitary facilities

5.3.5.3 *Performance Framework for Maternity Services*

The HSE is also in the process of developing a comprehensive Performance Monitoring Framework for Acute Maternity Services through the Performance Management Unit, (PMU) National Hospitals Office. Work is ongoing for developing a set of performance indicators/monitoring information that will be of value from both clinical and management perspectives. The Framework will be used to enable performance monitoring over time and to make valid comparisons across maternity hospital services. It will also be used to inform the performance process improvement support work. Dublin Midlands Network is the pilot site for the development of this Performance Monitoring Framework. It is expected that the pilot Network Performance Framework will be available in 2008 and will assist in monitoring and performance management of issues in maternity services in 2009.

5.3.5.4 *International perspective on primary and community care*

From our review of research and publications internationally we have been able to explore some developments in patient choice. Increased choice for mothers is a clear

trend from provision of antenatal care, to place of delivery, to postnatal care and examples from other health systems internationally have shown that when greater choice is provided, women will use the services.

Primary care provision for women in the GDA is underdeveloped in our view as almost all maternity care takes place in the three maternity hospitals. Most antenatal care and postpartum care for women in the GDA is provided within the three maternity hospitals and our review of other countries indicates that this is clearly out of step.

Most hospitals in New South Wales, Australia, now offer women the option of having their pregnancy care shared between a GP and a hospital³¹. Three hospitals in association with several divisions of general practice in Victoria, Australia 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 involved³². Research in Ireland indicates that women would prefer their GP to be involved in their antenatal care. 74% of women in Dublin visited their GP for care in pregnancy, although only 48% were officially registered for the Mother and Infant Care Scheme.^{32a} The discrepancy may be because some GPs are not registered for the scheme or because women are unaware of the existence of these services free of charge if registered with an approved GP.

In Canada, most antenatal care occurs outside of hospitals and most women are cared for by their family physician (88%), while 3% received their antenatal care from midwives³³(Midwifery is underdeveloped in Canada). 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. Of women, 31% said they would be willing to go to a birthing centre rather than a hospital to have a baby and 21% were receptive to the idea of having a nurse or midwife deliver their baby instead of a doctor. As mentioned previously, decisions to regionalise maternity care have forced rural hospitals to close obstetric units with some innovative responses, such as the emergence of formal shared-care services and the growing number of community birthing centres.

³¹ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

³² *Victorian Maternity Services Performance Indicators, Complete set for 2005–06, March 2007*

^{32a} *Women's Health Council, 2004a*

³³ *Giving Birth in Canada, Providers of Maternity and Infant Care, Canadian Institute for Health Information, 2004*

In the Netherlands, most pregnant women begin their antenatal checkups with midwives who are responsible for normal, physiological pregnancy, birth and postnatal period and for low risk women the midwife or GP are the first and only point of professional contact throughout pregnancy³⁴.

In the UK the majority of antenatal care takes place in the community by GPs and/or midwives, yet the majority of births take place in hospital. However, this is changing with the phased introduction of co-located and stand-alone MLUs³⁵.

There are exceptions, notably Germany, Australia and France, where there are a wide range of models of care, and antenatal services can be predominantly hospital-based or consultant-led.

While the majority of births in all countries take place in hospitals, most countries now offer women some degree of choice in facility type, from hospital facilities which can offer highly interventional secondary care services where required, through to MLUs, primary care maternity units and/or birth centres which do not have 24 hour obstetrician availability.

Australia has a range of birth centres in addition to hospital maternity units³⁶ and midwives in Germany have developed a series of 'birth centres' as an alternative to a hospital setting³⁷.

Approximately one third of births in the Netherlands are home births while other low risk births take place in low-interventionist polyclinics. The percentage of births attended by GPs has fallen from 46% in 1983 to 10% in 1999 as more women have chosen midwifery care^{37a}. 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. 34% (2002) of women are supported at home by

³⁴ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

³⁵ *Maternity Matters: Choice, access and continuity of care in a safe service, Department of Health, UK 2007*

³⁶ *Australian Institute of Health and Welfare, www.aihw.gov.au*

³⁷ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

^{37a} *MIDWIVES, October 2003*

midwives and 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 an obstetrician.

The Netherlands Home Birth Foundation (STBN) is establishing birthing centres in order to safeguard home births; these provide so-called 're-located home births' and provide an alternative to births in hospital.³⁸

In New Zealand, 76.1% of midwives continue to be the lead carer at birth (2003). Approximately 16% of births take place in primary maternity care facilities with no obstetric or paediatric support; 40% are in secondary care facilities which can do C-sections and the remaining 44% are in tertiary obstetric centres which deal mainly with higher risk cases³⁹.

In Sweden the majority of births take place in hospital under the care of a midwife but Sweden has now developed two MLUs, both located in Stockholm⁴⁰, offering choice to mothers in this area. The majority of antenatal care is provided by midwives in maternity clinics⁴¹.

In the UK, low risk women can choose an MLU; in some cases, the MLU is located alongside an obstetric unit⁴². Approximately 2% of births are home births but this is expected to increase to 5% within the next few years. *Maternity Matters: Choice, access and continuity of care in a safe service*, sets out the UK Department of Health's vision for the future of maternity services. It sets out national choice guarantees on how to access maternity care; 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; and 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.

³⁸ *Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport.*

³⁹ *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*

⁴⁰ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

⁴¹ *ibid*

⁴² *Maternity Matters: Choice, access and continuity of care in a safe service, DoH*

Postnatal care can be provided in a hospital setting or at home and there is no consistent approach in any country. However as the average length of stay decreases, more postnatal care is moving into the community. Canada, the Netherlands, Sweden and the UK are notable for providing the majority of postnatal care by midwives or nurse practitioners visiting mothers in the home.

5.3.5.5 *Experience of Midwifery Led Units internationally*

In the UK and elsewhere, MLUs are used by mothers with low risk pregnancies, who are delivered by midwives without intervention from consultants. These facilities operate either as stand-alone facilities or as co-located facilities on an acute adult site with immediate access to clinical support services should the need arise.

As MLUs are a more recent development internationally the outcome evidence is limited and we suggest a regular qualitative review of MLUs and homebirths in GDA and of the developments internationally to ensure strict adherence to practice standards and the selection criteria for low risk pregnancies. However, outcomes in the Netherlands and New Zealand where there are high rates of home births or primary care birthing compare very favourably internationally.

Pilot co-located MLUs were established in July 2004 in the North East area in Cavan General Hospital and Our Lady of Lourdes Hospital in Drogheda and are still ongoing. These units are currently being evaluated by the School of Nursing and Midwifery, Trinity College Dublin, and early indications are that they are popular with women. The formal evaluation is expected to be published in September 2008.

From our research into publicly available material and discussions with clinicians internationally, there is considerable evidence for the development of midwifery led units internationally. For the countries review we set out below what developments have been taking place.

- Australia has a range of birth centres in addition to hospital maternity units although there has been a closure of small hospitals and mergers between hospitals. Most of the birth centres are attached to adult hospitals, with some exceptions in the outback.
- In Canada as noted above in 1994, 31% of women said they would be willing to go to a birthing centre rather than a hospital to have a baby. Decisions to regionalise

maternity care have forced rural hospitals to close obstetric units and as a result, there are a growing number of community birthing centres.

- In the Netherlands, the majority of births take place at home or in maternity clinics (called polyclinics) staffed by midwives. The midwife on call in her midwifery practice will be present at the birth either at home or in the polyclinic. In order to safeguard home births, the Netherlands Home Birth Foundation (STBN) has also been developing birth centres as an alternative to births in hospitals.
- New Zealand – about 16% of births take place in 64 primary care facilities which include birthing centres. 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. The size of units range from 13 to 1,100 births.^{42a}
- France – MLUs tend not to be well developed. There is one such unit in Paris at present, but cultural issues and concerns over litigation, together with reluctance on the part of midwives, have restricted the development of such units.
- Sweden – there are two MLUs both located within hospitals in Stockholm for low-risk pregnancies.
- UK - about 3.5% of births are in MLUs based on 2005 statistics. Some consultant units offer midwifery-led care, such as team midwifery or Domino schemes, examples include Newham Hospital. These give continuity of care, allowing women to get to know their midwives before the birth. 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 and Craigavon Area Hospital. There are approximately 24 birth centres in the UK.

^{42a} Report on Maternity - Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

As the evidence above indicates MLUs are an increasing feature of maternity services in a number of the developed countries researched. MLUs offer a “low-tech” option for women who want to give birth with little or no medical intervention. Where they are co-located with an obstetric unit, women can easily be transferred to the consultant unit if there are complications. In terms of addressing the views raised in the stakeholder consultation, expressed by women in GDA to have more choice and by midwives who wish to make labour and birth as normal an experience for mother, in our view MLUs which are co-located with obstetric units offer women with low risk a safe alternative.

Conclusion and implications for the GDA

The GDA is clearly out of step in being able to offer a woman-centred service, providing choice and access to services and, during the consultation for this review, the lack of choice was consistently raised by both the women and the professional groups. The majority of antenatal care is provided through the three maternity hospitals in the GDA while other developed countries (New Zealand, Canada, Sweden, UK, and the Netherlands) provide much more community based care. However, any such moves to develop primary and community care provision and offer greater choices to women in the GDA will need to be supported by appropriate assessment processes, especially risk assessments, protocols and governance arrangements to ensure that services are provided in a safe and effective manner.

In our view the GDA needs to place much more emphasis on community based maternity services. As well as offering women a much more accessible degree of choice in the GDA it will have the added benefit of releasing workforce and infrastructure capacity in maternity units but it will require complementary investment in workforce and infrastructure in the community as well as education for midwives, GPs and mothers.

5.3.5.6 *Community antenatal services*

Community services in the GDA are fragmented with each hospital providing some form of community provision as described in Table 13 below. They are primarily outreach antenatal clinics and Domino and Early Transfer Home Schemes. Many are consultant-led and tend to reinforce the centralised model, with women still needing to attend the hospital for antenatal scans.

Table 13: Maternity outreach clinics table

Out Reach Clinics	
Hospital	Services
Coombe	<ul style="list-style-type: none"> • Antenatal booking clinics in Dublin 22 and Dublin 24, Naas, Co. Kildare; • Antenatal midwife managed clinics in Dublin 12, 22 and Dublin 24, Naas; • Antenatal Parent Education in Dublin 24 and 22, refresher parent craft education in Dublin 22, 24 and Naas; • Midwife Support to community-based consultant clinics in Naas; and • Trim clinic – Consultant led in association with public health nurses from HSE in the North East.
National Maternity Hospital	<ul style="list-style-type: none"> • Midwifery-led clinics in Bray, Greystones, Ballinteer and Dun Laoghaire; • Consultant led Clinics at Loughlinstown, Arklow and Wicklow.
Rotunda	<ul style="list-style-type: none"> • Outreach obstetric clinics in Finglas, Swords and Blanchardstown; • Midwifery outreach clinics in Finglas, Swords and Blanchardstown.

Sources: Maternity hospital workbook submission and maternity hospital annual reports, 2005

- The UK National Institute for Clinical Excellence (NICE)⁴³ guidelines on antenatal care state that care by GP or community midwife potentially halves the number of hospital visits. The guideline currently recommends ten visits for *primigravidas* and seven for *multigravidas* in total. Within those visits it recommends, respectively, that five and three of the visits be at the hospital;
- The antenatal appointment rate for GDA is 1:5. While not out of line with the UK, only a small proportion of the 119,000 (CWIUH 11%, NMH 10% and RH 4%) antenatal appointments delivered in the GDA in 2006 were delivered in community facilities – there is variation in the services these encompass, with inequity in access, quality and effectiveness across the city. Details of each hospital’s community provision are provided in the table above; and
- Women who have used the Domino Scheme at NMH and the Rotunda, based on our stakeholder consultation, evaluated the services very well, primarily because they provide community based antenatal and postnatal care. However, because of the geographical limitations of the schemes, only a small proportion of women can use them. There are plans to expand these services.

⁴³ NICE – Antenatal care guideline

Conclusion

There is a requirement to establish equitable consistency and common protocols to avoid potential confusion for GPs when referring into the maternity services and for women accessing the services.

Expanded primary and community care capacity and resources will allow the majority of antenatal and postnatal activity to be delivered more effectively through these services. We estimate that approximately 70% of first time mothers and 85% of 'second-time' mothers who experience uncomplicated pregnancies and delivery would benefit from community antenatal and postnatal care. This would bring services in GDA in line with international practice in UK, Australia and New Zealand.

Existing plans to expand the Domino Schemes should be actively pursued.

A short-term solution to this would be to implement a 24 hour helpline that women across the GDA could access⁴⁴. Staffed by experienced midwives, calls could be managed in a similar way to calls made to NHS Direct in the UK. In Sterling, Scotland, the evidence suggests that telephone triage in maternity has reduced the demand for face-to-face appointments by up to 39%.

5.3.5.7 Homebirths

The provision of midwifery led home deliveries is a generally accepted practice internationally. The Cochrane Review 'Home versus hospital birth' assessed the effects of planned homebirth compared to hospital birth on the rates of interventions, complication and morbidity. It concluded that there is no evidence to discourage planned homebirth for selected pregnant women⁴⁵. However, it is essential that home birth services are appropriately resourced with suitably qualified professionals and an effective network established with the maternity hospitals to provide support where necessary.

While the majority of births in all countries take place in hospitals, most countries now offer women some degree of choice in the facility type, from hospital facilities, which can offer highly interventional secondary care services where required, through to MLUs, primary care maternity units and/or birth centres which do not have 24 hour obstetrician availability.

⁴⁴ Kennedy, S (2007) Telephone triage in maternity care, RCM Midwives Journal, Volume 10

⁴⁵ Olsen and Jewell, 2003

The average home birth rate in the UK is approximately 2% of overall deliveries and forecast to increase to 3-5% over the next few years⁴⁶. In the GDA

- Choice to women in accordance with Government policy on Community Care⁴⁷ does include midwife-led home delivery;
- NMH has started to provide a service for home births and is the only maternity hospital in the GDA to do so. In 2006 it had 32 home births (0.4%);
- Expansion of this service requires the support of GPs, which is not yet unanimous in support of home births. One woman's experience is quoted below:

"This was my third baby and opting for a home birth was my personal option. My GP said she could no longer see me if that was the way I wanted to go. I had to tell lies to the hospital just to get my bloods checked⁴⁸".

Conclusion

To meet women's expectation and to be in line with international practice, investment in capacity, midwifery skills and clinical governance arrangements need to be developed across the GDA.

Proactive marketing and development of the role of GPs and community and independent midwives is also essential.

5.3.5.8 Postnatal Care

The Confidential Enquiry into Maternal and Child Health (CEMACH) in the UK advocates the role of postnatal services, especially for socially excluded women. It states that specialist prenatal mental health teams with knowledge, skills and experience to provide care for women at risk or are suffering from serious postpartum mental illness should be available to every woman.

CEMACH also recommends that women who have had complex pregnancies or problems with mental illness, violence or substance misuse, and their babies, require close multi-disciplinary follow-up in the postnatal period. The current system of postnatal care does not facilitate this level of follow-up.

⁴⁶ www.dh.gov.uk

⁴⁷ Women Health Council Submission

⁴⁸ Service user submission

According to the Women's Health Council in Ireland, women found that after delivery, the focus of care justifiably shifted to the baby. This resulted in their own needs being neglected in this process, both within the hospital as well as after discharge home.

Within the GDA, postnatal care is provided through three routes:

- The Domino and ETH schemes are available, but as previously discussed access is severely limited;
- The majority of care is delivered in the hospital setting, with a visit 24 hours after discharge from a public health nurse:
 - extended postnatal care is typically provided for those women whose babies require neonatal care. This service is increasingly limited, possibly due to a change in case-mix or pressure on capacity and staff as antenatal appointments increase;
- Women are particularly critical of the postnatal services that are currently provided, especially with regards to breastfeeding. As an example of the many submissions we received, one woman commented that *“the over stretched public health nurse may get out once if you are lucky. Women need and should have access to better postnatal support. There should be better postnatal community support with community midwives or other alternatives.”*⁴⁹

5.4 Performance improvement opportunities for maternity and fetal medicine

In this section we discuss clinical outcomes and compare them with outcomes achieved internationally. The outcome of labour and delivery is associated with a number of factors – culture and expectations, economic and social status, models and standards of care, clinical skills, and experience.

Safer Childbirth⁵⁰ 2007 acknowledges the central role of the midwife as the expert autonomous practitioner in the care of women in labour, as well as the need for increased involvement and capacity of consultant obstetricians in the labour wards in the care of women with complex needs.

⁴⁹ Service user submission

⁵⁰ Safer childbirth – Minimum standards for organisation and delivery of care in labour.

5.4.1 *Mode of delivery*

The level of clinical capacity and skills is associated with intervention rates and outcomes of delivery. Often linked to levels of support, skills and preferences of clinical expertise and the adopted model of care, there is an international shift away from normal delivery towards assisted and surgical delivery.

C-section rates have risen in most developed countries (see Table 15 below) over the last ten years to around 21-25% due to a number of factors.

The table below compares delivery modes between the GDA and comparable hospitals in the UK.

Table 14: Maternity outcomes in the GDA compared with UK benchmarks

Maternity outcomes in the GDA compared with UK benchmarks								
%	CWIUH	NMH	RH	St Mary's College, Manchester	Kings college, London	Liverpool Women's Hospital	St James, Leeds	Royal Victoria, Newcastle
Vaginal	61.8	67.7	63.8	67.8	61.8	56.3	67.7	61.5
Forceps	6.2	4.0	2.8	5.8	2.8	7.2	6.5	7.7
Ventouse	10.3	9.4	14	7.0	8.6	4.6	5.2	8
Elective C-section	9.1	6.8	12.4	6.9	9.5	12.9	12.5	7
Emergency C-section	12.8	12.0	15.4	12.5	17.3	19.0	8.1	15.8
Total C-section Rate	21.9	18.8	27.8	19.4	26.8	31.9	20.6	22.8

Source: UK data from DR Foster, maternity hospital workbook submission

Key points to note are:

- There is significant variation in C-section rates between the GDA providers – but they are not out of step with rates in benchmarked providers in the UK. The three GDA hospitals manage a similar case-mix, suggesting perhaps a variation in clinical practice.
- The Rotunda has a comparatively higher number of assisted deliveries – and when compared with the UK benchmarks, all three GDA hospitals demonstrate higher levels of ventouse instrumental delivery. This may be a reflection of the practice of active management of labour, clinical training and expertise.

- C-section rates from 1999-2005 at the three maternity hospitals have seen a steady increase overall, with the greatest increases at the Coombe and NMH hospitals. All hospitals referred to in the table above are centres for high risk pregnancies. The overall C-section rate is comparable with the international increase. However:
 - The majority of c-sections are first time mothers – and within this cohort the largest group are those who have been induced (actively managed).
 - This is a significant driver of an escalating C-section rate – a history of C-section is a major criterion for subsequent C-section^{50a}. C-section is also major abdominal surgery, and as such brings inherent risk to both the mother and baby, with high surgical risk, prolonged post-operative hospital stay, increased use of neonatology and post-delivery complications. These factors drive increased demand for capacity, staff and postnatal support. The cost of C-section is typically three times more costly than a normal spontaneous delivery.

5.4.2 *C-section rates - the trend internationally*

As the table below shows, as in the three maternity services in GDA, the trends internationally have shown an increase in C-section rates over time.

Table 15: International C-section Rates

Country	C-section Rates %
Australia	29% (2006), up from 20% (1993); 32.4% in Western Australia in 2006
Canada	23.7% in 2005; 22.5% in 2001/2002; 18.7% in 2000
France	16% in 2000 and now average 20%
Germany	22% (2005)
Netherlands	14% in 2002
New Zealand	11.7% in 1988 to 20% in 1999 to 23% in 2003
Sweden	14.8% (2000) to 17.2% (2005)
United Kingdom	22% in 2001-2 and 22.6% in 2005-6

Source: WHO Information 2007

As the table shows, the GDA is not out of step with other developed countries where current C-section rates are both on the increase and above 20% in many cases, with the Netherlands, Sweden and France being exceptions. A review of C-section rates indicates that all are invariably higher than that recommended by WHO (10-15%) and all are on the

^{50a} Source: Saving Mothers Lives 2007

increase. In the context of the GDA, where ALOS is high and much longer for C-section than normal delivery, it is imperative that the GDA reduce C-section rates to reduce pressure on bed capacity.

Redesign of the model of care, towards a midwifery-led, less medicalised model should contribute to an increased rate of normal deliveries with fewer instrumental and C-section deliveries.

This should also lead to a reduction in overall ALOS which should free up bed capacity with less need for active management of labour.

In addition, any service model redesign should be considered in conjunction with delivery suite capacity to ensure a sustainable solution that achieves improvements in delivery modes and the experience and expectations of women who use the services.

The NHS Institute of Innovation and Improvement provides a toolkit for auditing and managing C-section rates. Consideration should be given to adopting its recommendations across the GDA.

5.4.3 *Efficiency performance*

The following table compares key operational performance data across the three hospitals.

Table 16: Maternity performance table 2005-2006⁵¹

Key facts										
	NMH			RH			CWIUH			
	2005	2006	2007	2005	2006	2007	2005	2006	2007	
Number of deliveries	7,493	8,112	8,692	6,695	7,371	8,502	7,925	8,127	8,549	
Number of antenatal outpatient appointments	39,119	40,180	40,056	27,165	31,106	29,036	43,046	47,661	51,810	
DNA rate	13%	14%	14%	17%	21%	19.2%	14.74%	16%	13.47	
Overall average length of stay	2.4 days	2.6 days	2.6 days	3 days	3 days	3 days	3.7 days	3.4 days	3.4 days	
ALOS for elective CS	o/s	o/s	o/s	5	5.3	5.5	5.05	4.8	4.67	
ALOS for emergency CS	o/s	o/s	-o/s	5.4	5.4	5.8	5.82	6.92	4.92	
Number of home births	26	32	27	-	-	-	-	-	-	
postnatal appointments	138	59	-	651	441	479	757	618	-523	

⁵¹ Source : KPMG Workbook submissions

5.4.3.1 *DNA Rates*

The overall (both antenatal and postnatal) DNA rates are significantly higher than UK comparators. Rates vary between 13% - 21% in the three hospitals, compared to 5% in the NHS and 1% in the private sector in the UK.

- Typical drivers of high DNA rates include inefficient scheduling, a lack of choice of appointment, dates that do not meet individual need, or appointments that are no longer required by women;
- Recent performance improvement opportunities in the UK NHS flagship, University College Hospitals in London delivered a one third reduction in capacity requirements through better scheduling, liaison with patients and management of appointments; and
- This represents a significant opportunity to reduce pressure on overstretched capacity and redeploy professional staff and administrative support staff to inpatient and community based services.

Conclusion

An immediate review of outpatient management, including capacity requirements and staffing will identify the drivers of high DNA rates, excess resources and opportunities to redeploy scarce staffing towards peri-natal and intra-partum care. In addition we recommend the urgent introduction of a patient booking system across GDA to improve outpatient and inpatient management.

5.4.3.2 *Average Length of Stay (ALOS)*

From our research internationally we have been able to obtain some basic data about the average length of stay. But as previously stated the data available is not presented in a consistent form by each country. However, it does allow us to draw some general conclusions when compared to GDA. A summary of what is available for each country reviewed follows.

- Australia – ALOS ranges from two to seven days in hospital with trends towards earlier discharge with more support at home. In one publication, it was reported that ALOS was 3.1 for public patients and five days for private patients⁵²;
- Canada – healthy mothers and their infants are typically discharged 24 to 48 hours after delivery⁵³. The ALOS for C-section is 3.9 days⁵⁴;
- France – Average length of stay tends to be approximately three days for a normal delivery and 5 days for a C-section delivery⁵⁵;
- Netherlands – After birth in secondary care, most women go home as soon as possible. Generally, women stay in hospital for at least four hours but no more than 24 hours⁵⁶;
- New Zealand – ALOS is 0.5 days in a primary facility, and averages 1.4 days in secondary and tertiary facilities⁵⁷; and
- In the UK there is much more data available as the tables indicate. ALOS has reduced consistently over the last five years, with 66% to 72% of mothers staying two days or less.

Table 17: UK 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

Source: Hospital Inpatient Enquiry (HIPE)/Hospital Episode Statistics (HES) 2002/2003: *percentages have been rounded

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 of birth.

⁵² Health Sociology Review Volume 15 Issue 4 Childbirth, Politics and the Culture of Risk Cover October 2006

⁵³ Giving Birth in Canada- Providers of Maternity and Infant Care

⁵⁴ www.ghc.on.ca

⁵⁵ Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study

⁵⁶ *ibid*

⁵⁷ Report on Maternity, Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

Table 18: Delivery Method and Days from Delivery to end of Episode, 2002/2003

Method of Onset of Labour	Method of Delivery	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: HIPE/HES, 2002/2003: *percentages have been rounded

The table above shows that births by C-section result in longer length of stay.

Implications for the GDA

There is significant variation across the countries, but generally normal delivery ALOS is approximately two days and 4-5 days for C-section. In the GDA for the three hospitals overall, ALOS is closer to three days and 5/6 days for C-section. Irrespective of the trend internationally to reduce ALOS, the GDA urgently needs to reduce ALOS because of the added pressure this puts on beds.

The UK NHS Institute for Improvement and Innovation recommends:

- Uncomplicated Vaginal Delivery – stay of less than 24 hours; and
- C-section – stay of less than 56 hours;

We would also comment that:

- Drivers of LOS in the GDA include the limited availability of community-based postnatal support, including the Domino Scheme. The private insurance market, which covers 5 – 7 days post delivery care for C-section, and 2 – 3 days for normal delivery encourages women to stay the full time in hospital; and
- Development of the Domino Scheme, greater community postnatal care and a change of location for postnatal care and incentive mechanisms to shorten postnatal stays in hospital for insured confinements would help release hospital beds. The latter needs to be addressed by the HSE and Department of Health and Children.

Conclusion

The length of time women spend in hospital can be reduced by focusing on three key areas:

- Reduction of C-section and instrumental delivery rates through better use/expansion of bed and labour suite capacity, reduced active management and improved management to promote normal vaginal deliveries;
- Lobbying of insurance providers of private care by the HSE to review insurance policy arrangements to promote post-operative care out of hospital as best practice; or development of agreed practice standards with the insurance industry on length of stay. This should lead to a reduction in cost for insurers as well as freeing capacity in maternity services; and
- Investment in community based postnatal care that delivers the standard of care and support needed to encourage women to leave hospital.

5.4.3.3 Bed occupancy

International best practice in bed management recommends an occupancy rate of between 80% and 85%. This accommodates peaks and troughs in activity, as well as hygiene and facilities maintenance issues.

There is variation in bed management across the three sites as shown in Table 19 below.

- The CWIUH has the lowest level of bed: delivery rate but its occupancy rate is close to best practice recommendations;
- The Rotunda has a comparatively good bed to delivery ratio and also reasonable occupancy rates. Patient flow however is poor, with women in labour occasionally waiting at the reception area for a bed;
- NMH, which has a better bed to delivery ratio appears to have significant capacity pressures with almost full occupancy. Some wards report occupancy over 100%. This represents a significant risk to women and babies and is unsustainable;
- Furthermore, additional beds opened on Nightingale style wards, compromised the space available for individual women affecting privacy, dignity and control of infection; and

- High bed occupancy sustains the need for active management of labour and the associated clinical risks to women and their babies.

Table 19: Bed occupancy and utilisation (based on 2007 data)

	CWIUH	NMH	RH
Deliveries	8,549	8,692	8,502
Beds	251	198	191
Bed: Delivery Ratio	34	44	45
Maternity Occupancy Rates	79.94	94.4	84.7

Source: KPMG Workbook

All sites are facing bed management and patient flow challenges of different severity, which affect the quality of care, women’s experience of childbirth and the outcomes of delivery. Bed management across the GDA needs to be strengthened and demand for services, capacity and clinical expertise planned, managed and delivered on a pan-GDA basis.

5.4.3.4 Conclusion on performance

Maternity services in the GDA can significantly improve to benefit woman and babies receiving care. The key summary findings from our performance improvement review have highlighted that:

- The three maternity hospitals all have high levels of activity, with high birth rates operating in unsustainable and sub-optimal infrastructure, clinical adjacencies and staff resources to support these levels of clinical activity;
- There is a need to broaden the choice available for women in accessing maternity services; and
- Primary and community care services are significantly under-developed and need to be strengthened to support the choice agenda and reduce the pressure on the current infrastructure.

This case for change helps inform the future model of care which is outlined in the section 5.6.

5.5 Workforce

Workforce issues are common to many of the countries reviewed.

- Australia is experiencing workforce shortages similar to those reported in other western countries;
- In Canada there is an acute shortage of midwives and the role of midwife was not regulated until relatively recently;
- The Netherlands lacks sufficient midwives to provide home births to all who request this option, forcing some women to attend hospital/polyclinics;
- In the UK and New Zealand, there are concerns about the age profile of the workforce and staff shortages; and
- The UK has expressed concerns on its levels of midwifery vacancies and a recent Healthcare Commission report highlights that midwifery staffing levels are often lower than that recommended.

In the GDA, both medical and midwifery levels are significantly below recommended levels as the following analysis shows.

5.5.1 *Consultant staffing*

The data set (as shown in the table below) from a 2006 Institute of Obstetricians and Gynaecologists report (sourced from a 2005 Comhairle report) and from HSE for date post 2005 suggests underinvestment in consultant Obstetricians and Gynaecologists in Ireland, which we agree with. Any future investment in consultant numbers should be considered in conjunction with the middle grade doctors and the balance in workload between the medical staff and models of care.

Table 20: National Consultant staffing table 1975 to 2008

Consultant Staffing											
	1 May 1975	1 May 1978	1 May 1981	1 May 1985	1 May 1988	1 May 1992	1 Jan 1995	1 Jan 2001	23 Nov 2005	23 Mar 2008	% increase 1975-2008
Anaesthesia	134	137	167	160	163	178	192	241	294	317	137
Emergency Medicine	-	-	-	-	-	11	13	21	52	53	-
Medicine	145	176	198	188	186	199	212	284	397	451	211
Obstetrics & Gynaecology	93	90	103	96	85	82	83	89	105	116	25
Paediatrics	33	41	50	54	56	59	64	84	112	128	288
Pathology	85	82	94	90	86	92	95	140	183	198	133
Psychiatry	187	166	182	201	185	189	199	246	306	343	83
Radiology	71	75	88	95	93	97	99	147	186	210	196
Surgery	239	249	267	266	245	251	259	308	371	387	62
Total	987	1,016	1,149	1,150	1,099	1,158	1,216	1,560	2,006	2,203	123

Sources: *The Future of maternity and gynaecology Services in Ireland 2006-2011 (Institute of Obstetricians and Gynaecologists, 2006 and HSE data post 2005)*

Nationally, there has been an increase in just 23 Obstetric consultant posts from 93 in 1975 to 116 in 2008. In the same period there has been an almost fourfold increase in the number of Paediatrician consultant posts, increasing from 33 in 1975 to 128 in 2008, whilst Anaesthesia more than doubled their consultant posts, increasing from 134 in 1975 to 317 in 2008.

Recommended minimum standards agreed by the RCOG are one WTE per 500 births (with consultants also undertaking gynaecology work):

When assessed against this standard a total of 48 consultants are required for GDA, representing an increase of 20.11 posts, as shown in the table below. There is also a shortfall against the current establishment numbers. This does not take into consideration additional requirements to meet an increasing level of activity forecast up to the peak fertility period of 2014/16, nor does it take account of the impact of the other developments proposed in this report in terms of de-hospitalisation of services, reduction in ALOS and C-section rates. The number of Non Consultant Hospital Doctors (NCHD) should also be considered when making additional appointments. Some of these factors will increase consultant workload and others will reduce it; clearly there will be a need to model and monitor requirements over time to ensure appropriate numbers are brought through training to meet variations in demand over that period. The current specific consultant shortfall by hospital is provided in table 21 below.

Table 21: Consultant numbers at the three maternity hospitals table

WTE Obstetricians	CWUIH	NMH	RH	Total
Current numbers	9.99	9.36	8.54	27.89
Current establishment	11.86	9.45	9.86	31.17
Recommended numbers	16	16	16	48
Deficit	6.01	6.64	7.46	20.11

Source: KPMG Workbook

Furthermore, the RCOG standard in the UK is now considered inadequate to meet changes in workload, expectations/role and workforce. The “Future Role of the Consultant” suggests labour wards supporting more than 6,000 births and complex cases should be moving towards a 24/7 consultant-based service by 2008. It recommends senior presence for the totality of 24 hours (which we would recommend for all units, not just those exceeding 6,000 births), as activity levels vary little across a working day and are therefore largely uncontrollable. According to the UK National Patient Safety Agency, there is a suggestion that a higher percentage of severe incidents occur between 20:00 and 04:00, times at which it is less likely that a consultant will be present.^{57a} In addition in France for example units with 1,500+ deliveries are required to have dedicated obstetricians on a 24/7 basis. Consultant support should be available for all labours if required, and to train junior staff in the unit.

The European Working Time Directive (EWTD) states that medical staff in maternity services cannot work more than an average of 48 hours per week, which needs to be in place by August 2009. The trial introduction of the EWTD was piloted at NMH from April 2005 and will inform more specific recommendations for EWTD implementation at the Rotunda and Coombe Women’s hospital. The pilot, supported by both a National Implementation Group and a Nursing and Midwifery Expert Group, will evaluate and advise on proposals for EWTD and to conform to EWTD requirements.

5.5.1.1 **Anaesthetists**

Anaesthetists are integral to the team and provision of 24 hour cover. While much of obstetric anaesthetic provision is planned, such as elective caesarean activity, cover does also need to be available to respond to requests for elective epidurals during labour and emergency work, both of which routinely occur outside the traditional working day. The recommendation in ‘Towards Safer Childbirth’ of a minimum of one fixed consultant

^{57a} Safer Childbirth – Minimum Standards for the organisation and delivery of care in labour

session per 500 births is no longer adequate because of changes in workload and workforce. Guidelines in Safer Childbirth (Autumn 2007) clearly recommend:

- For any obstetric unit there should be 10 consultant sessions per week to allow for full cover;
- There should be a separate consultant anaesthetist for each elective C-section list;
- Tertiary referral units with women requiring high dependency care should have extra consultant time;
- There must be a duty anaesthetist immediately available 24 hours a day for the obstetric unit; and
- Units with more than 5,000 births, a c-section rate above 25% and tertiary referrals will require additional cover.

Table 22a shows the current numbers of WTE consultant anaesthetists in the three maternity hospitals.

Table 22a: Consultant Anaesthetists

Consultant Anaesthetists	CWIUH	NMH	RH
Current numbers	4.18	2.55	2.73

The guidelines are not sufficiently specific in order to calculate the exact requirement for consultant anaesthetists, however 2.55 at NMH and 2.73 at RH are clearly inadequate to meet the standards.

5.5.1.2 Impact of Public/Private Spilt

Table 22b: Private Caseload Activity of the three maternity hospitals in 2005

Hospital	% of Inpatient Beds Designated as Private/Semi-Private	Private as % of Total Elective inpatients	Private as % of Total Emergency Inpatients	Private as % of Total Elective Day Cases
Coombe	31	46	31	56
Holles St	34	50	37	23
Rotunda	29	39	29	31

Source: HSE Medical Consultants' Contract, C&AG Special Report, March 2007

Figures are based on HIPE data received to end of October 2006. The figures upon which this table is based are numbers of discharges. In HIPE Public/private status refers to the patient status on discharge and not to the type of bed occupied. Emergency is any patient needing immediate care and treatment as a result of severe, life threatening or potentially disabling condition. Generally the patient is admitted through A&E. Elective is when the patient's condition permits adequate time to schedule the availability of suitable accommodation. An elective admission can be delayed without substantial risk to the health of the individual. This data does not include any private hospitals

For outpatient treatment, private patients are more likely to be treated personally by the consultant, while public patients are more likely to be treated by non-consultant hospital doctors (NCHDs). Most public in-patients will be reviewed by a consultant on a daily basis. This is essential to ensure capacity in the three maternity hospitals. All private in-patients would expect a daily consultant review in addition to the consultant delivering their baby.

It would appear that bed designation alone is not adequate to control private activity and protect public patient access within the public hospitals. All three maternity hospitals exceeded their designated proportion of private patients as shown on table 22b above.

The Brennan Report of the Commission on Financial Management and Control Systems in the Health Service^{57b} stated that:

“The existing arrangements for mixing public and private treatments are inherently unsatisfactory from a management and control perspective. They result in a conflict of interest for Consultants between meeting clinical obligations to public patients on the one hand and, on the other, the prioritisation, treatment and the use of publicly provided infrastructure and resources in public hospitals for private patients. They also raise issues of fair competition with private hospitals in that the resources used are not charged for fully. They severely limit the time the majority of clinicians have to pursue resource management. Ultimately, these issues can only be resolved fully by completely separating public and private practices”

Brennan recommended that

“all new public consultant appointments be on the basis of a commitment to work exclusively in the public sector “

and asserted that such a move would

“be consistent with Government policy, as reflected in the health strategy, to target public resources toward public patients. In particular in the health strategy, the

^{57b} Commission on Financial Management and Control Systems in the Health Service (the Brennan Report), January 2003

Government has decided that there will be a progressive reduction in the proportion of private to public beds in the public hospital setting”.

We recognise and acknowledge that the co-existence of private and public care in the maternity hospitals has beneficial effects for the public service when consultants attend their private patients; out of hours they regularly become involved in care of public patients either through offering an expert opinion or by offering their services as extra personnel. In our view, this undocumented result would be lost if private care was removed from the public site.

What is clear though is that the level of private care clearly influences the level of consultant staffing and will also have consequential impact on the level of midwifery staffing.

5.5.1.3 Conclusion

In the opinion of our clinical experts and on the basis of RCOG standards and current developments we recommend the recruitment of an additional 20.11 consultant obstetricians is required to meet “Future Role of the Consultant”/minimum RCOG guidelines. Additional consultant anaesthetists are also required as noted above. In respect of haematologists we recommend that they should provide a sessional commitment of one session per 1,000 deliveries. All of these resourcing needs will require both significant investment in consultant capacity as an immediate priority, plus a workforce development and training programme with the specific aim of sustaining consultant obstetrician and anaesthetic capacity in the long-term.

A five year investment plan is required to work towards the required number of consultants as it will not be possible to meet these levels immediately.

Co-location with acute provision would enhance anaesthetic cover, with greater opportunities to develop rotational cover from a larger consultant pool.

5.5.2 Midwifery Staffing

There is an international drive to empower midwives and give them greater autonomy in the provision of postnatal and antenatal care and for low risk deliveries which reduces the medicalisation of pregnancy care and delivery. Many countries have developed, regulated and empowered their midwives to be the lead professionals for normal pregnancies, births and post natal care. However, a key learning point has been the need

to establish effective processes to identify low risk mothers during pregnancy at booking and to offer midwife led care.

Empowering midwives to care for low risk deliveries has allowed the consultant to focus on the more complex cases and to ensure a high standard of care for women and their babies with complex medical or obstetric needs and to be available for the acute, severe and often unpredictable emergencies.

In the Netherlands, Sweden, New Zealand and the UK, midwives play a key role in pregnancy. Indeed in Sweden, midwives also play a key role in primary health care in ancillary services⁵⁸. For example, reproductive health, contraception, abortion counselling etc. In the Netherlands, the percentage of births attended by GPs has fallen from 46% in 1983 to 10% in 1999 as more women have chosen midwifery care⁵⁹. 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.

This empowerment is supported by the introduction of regulation in countries such as Canada, New Zealand, France and the UK. Until recently the role of the midwife in France was limited to normal pregnancy and delivery; a physician is required to take over in cases of pathology during pregnancy or birth⁶⁰. However, increasingly, midwives are undertaking tasks previously undertaken 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 in France was changed allowing midwives to write out pregnancy declarations and perform postnatal checkups for women with an uncomplicated pregnancy and birth.

Midwife led care and/or GP led care generally is recommended by Obstetric Colleges 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. However, the increased role of midwives has corresponded with a decline in the role and involvement of primary care physicians e.g. Canada and Netherlands.

BirthRate Plus, the only internationally recognised workforce planning tool used in Australia and Europe recommends midwife to maternity ratios based on case-mix and

⁵⁸ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

⁵⁹ *MIDWIVES, October 2003.*

skill requirement. One to one midwifery care is recommended by Safer Childbirth 2007 throughout labour. The minimum midwife to maternity ratio is 1:28 for a safe level of service, to ensure capacity to achieve one-to-one care in labour.^{61a}

The total midwifery requirement for maternity hospitals in the GDA, based on the Birthrate Plus tool is 844.5 WTE. Current levels are 633.25 WTE, presenting a shortfall of 221.25 WTE. Staffing levels and shortfalls for each unit are provided in the Table below.

Table 23: Midwifery numbers in the three maternity hospitals

Midwives	CWIUH	NMH	RH	Total
Current numbers	212.5	229	191.75	633.25
Recommended numbers	281.5	267	296	844.5
Deficit	69	38	114.25	221.25

Source: KPMG Workbook submissions

The numbers recommended in table 23 are required to meet current service levels. However there is an important caveat in respect of these numbers. This analysis does not take account of the number of public health nurses practising in the community in GDA who have a midwifery qualification. In a recent UK Health Commission Report^{61b} which looked at the application of Birthrate Plus in England it is made explicit that the 35 midwives per 1000 births (1:28) is based on the following organisation (reorganisation in the case of GDA)of the midwifery resource:

- 32% in the community;
- 32% on Labour ward; and
- 36 % on the antenatal & post natal wards.

As about only 40% of the maternity units in Ireland have undertaken Birthrate Plus this analysis is not available for Ireland and this skews the data presented reflecting GDA's ratio of midwives to 1,000 maternities as presented in table 24.

To help bridge this gap, in part, the role of the maternity care assistant could be developed.

⁶⁰ Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study

^{61a} Safer Childbirth – Minimum standards for organisation and delivery of care in Labour

^{61b} Towards better births – A review of maternity services in England, Healthcare Commission, July 2008

The staffing levels will need to be reconsidered and a detailed manpower plan developed when the future service model is implemented, to take into account workforce needs, demand, configuration with other services, development of primary care etc. In addition, as noted above in 5.5.1.2, it will also be influenced by the development in the public/private split of care where women opting for private care will receive antenatal and postnatal care directly from a consultant obstetrician. This will also have a consequential impact on the level of midwifery staffing and needs to be taken account of when considering the application of Birthrate Plus.

In the UK, the Royal College of Obstetricians and Gynaecologists and the Royal College of Midwives recommend a ratio of 36 midwives per 1,000 deliveries to enable one to one care⁶². In terms of experience with other countries, the following table illustrates what is happening internationally, for those countries where we have been able to obtain data.

Table 24: Ratio of Midwives to 1,000 Maternities

Country	Australia	France	New Zealand	Netherlands	Sweden	UK	GDA
Midwives per 1,000 maternities	44.8	21.9	38	9.9 (2003); 10.3 (2004)	65	32.3 (2002); 31.2 (2005)	23

Source: Derived from various sources HSE, WHO, OECD and the Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study

WHO puts midwives at 4.27 persons per 1,000 of population in Ireland and this appears highly inaccurate. This may be because An Bord Altranais does not maintain an accurate register of practising midwives. The GDA currently has a ratio of 23 midwives per 1,000 (1:43 midwives to births), well below many of the other countries reviewed, and therefore needs to recruit greater numbers of midwives to align with the RGOG recommendation of 1:28 midwives to births. We therefore recommend that the maternity workforce is increased to accord with the 1:28 RCOG guidelines for obstetric units and that further midwives are recruited to build a community midwifery team in the GDA. The skill mix of the workforce, when the future service model is being implemented, also needs careful planning to ensure that it is appropriate, e.g. the use of maternity care assistants and appropriate levels of support for the increasingly popular ETH scheme.

Some countries have introduced or developed new roles to support midwives.

⁶² Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. *Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards*

- New developments in the UK include the creation of Consultant Midwife posts (with responsibilities for education and service development), maternity support workers who work in the acute hospital or community setting, and help free up midwives to concentrate on midwifery tasks⁶³.
- The Netherlands has maternity home care assistants (kraamverzorgster) who are specially trained to assist a midwife or GP in a primary care setting or for short-stay hospital births⁶⁴.

Specific countries such as the UK and the Netherlands have made increased investment in midwives by increasing the numbers of training places, although this will take time to have an impact.

5.5.2.1 *Conclusion on staffing levels*

Recruitment of an additional 221.25 WTE midwives is required to meet BirthRate Plus recommendations. This will require a rigorous workforce planning assessment to establish the right skill mix and levels to deliver maternity and gynaecology services. But clearly where major changes in community care are required in the next 5 to 10 years it is important that workforce numbers entering into training are reviewed to ensure there are adequate numbers to support primary and secondary care into the future. This will require both significant investment in midwifery capacity as an immediate priority, plus a workforce development and training programme with the specific aim of increasing the midwifery capacity, scope of practice and leadership role with maternity services. This does not take into consideration additional requirements to meet an increasing level of activity forecast up to the peak fertility period of 2014-16, nor does it take account of the impact of the other mitigating developments proposed herein in terms of de-hospitalisation of services, reduction in ALOS and C-section rates etc or the need to build a community midwifery team in the GDA. The developments in demand for private care will also need to be factored in to both midwifery and obstetric staffing. Clearly there will be a need to model and monitor requirements over time to ensure appropriate numbers are brought through training to meet variations in demand over that period, and the opportunity to redeploy staff and develop new roles and skills for existing staff which could impact on the overall numbers required.

⁶³ *Maternity Matters Maternity Matters: Choice, access and continuity of care in a safe service, Department of Health, 2007*

⁶⁴ *Multi-disciplinary Collaborative Primary Maternity Care Project – Summary of Current Practice in Europe and Australia: A Descriptive Study*

5.5.2.2 *Midwifery Regulation and Practice*

The philosophy of midwifery practice should view childbirth as a normal healthy event as part of the life cycle and that the focus should be delivering women-centred maternity services. The role of the midwife is recognised as central to achieving this. An Bord Altranais produced guidelines for midwives⁶⁵ and has adopted the international definition of the midwife⁶⁶ in its publication; it states that a registered midwife is accountable for her own practice, setting him/her as an independent practitioner. Midwives may practise in hospitals, clinics, health units and domiciliary conditions. The EEC Directive of 1980⁶⁷ which is supported by the An Bord Altranais permits a midwife to diagnose and monitor normal pregnancies.

Whilst welcomed, there are a number of challenges this development presents that will need early consideration by An Bord Altranais.

- **Regulation of practising midwives** - the term “registered” and “practising” midwife is used in its publication without a definition of a practising midwife;
- **Ensuring skills compliance** - it is recommended the Regulator establish a Return to Midwifery Practice Course or refresher course following an absence of five years from midwifery practice as a legal requirement;
- **Extension of the MICS to all midwives who notify their Intention to Practice** - midwives who are not employed by the HSE, hospital authority or maternity home are required to notify their intention to practise on an annual basis. This includes practice nurses who may provide any aspect of midwifery care including home birth but the MICS does not recognise this particular group of practitioners in the provision of ante/postnatal care or in the provision of home birth;
- **Establishing a register of Practicing Midwives** – the Midwives Division of An Bord Altranais maintains a register but it includes all individuals who qualified as a midwife and does not identify practising midwives. The 1985 Nurses Act is currently undergoing review and we would strongly recommend that there is regulation of midwives that interfaces with the clinical governance framework within the healthcare environment to ensure that practising midwives maintain clinical

⁶⁵ 3rd Edition September 2001

⁶⁶ A midwife is a person who, having been regularly admitted to a midwifery educational programme, duly recognised in the country in which it is located, has successfully completed the prescribed course of studies in midwifery and has acquired the requisite qualifications to be registered and/or legally licensed to practise midwifery

⁶⁷ 80/155/EEC

competence and are confident to respond to the strategic direction of maternity services;

- **Developing autonomy of the midwifery profession** to provide the type of service sought by women and to come in line with international best practice, the midwifery profession needs to develop autonomous practice in which midwives are seen as the lead profession for women with uncomplicated practice. By providing greater choice for women through reform and restructuring of maternity services, this will help to empower the midwifery workforce and help improve confidence;
- **Developing Midwifery skills** - BirthRate Plus⁶⁸, the only internationally recognised workforce planning tool and used in Australia and Europe, models the level of midwifery skills and capacity to safely meet case-mix demands; and
- By developing the role of midwives and the breadth of skills to manage uncomplicated pregnancies and confinements, the experience of women and job satisfaction of midwives can be enhanced, whilst releasing consultants to focus on care of the high risk mothers.

5.5.2.3 **Conclusion on midwifery regulation and practise**

We recommend the following actions to address the current capacity and skills shortage:

- Strategic Workforce Development Programme to ensure the breadth and scope of practice of midwives is developed to deliver the future service model required to deliver internationally acceptable standards of care in maternity services;
- A Midwifery Skills Review to understand the current clinical skills and roles of midwifery staff across GDA;
- A review of support staff such as maternity support workers, nurses, ward clerks, house keepers and data-input clerks to ensure that the role of the midwife is focused on clinical management of women;
- A review of the voluntary and lay support for mothers, for example to support breastfeeding, should be considered and form a key component of the future model of care in maternity services; and

⁶⁸ BirthRate Plus is a framework for Workforce Planning and Decision-making for Midwifery Services. The methodology calculates the midwifery and non-midwifery staff required to provide the care required by a specific group of women and their babies. It does not address the skill mix or staffing requirements for Gynaecology services, Neonatology or Operating Theatres.

- This work should be closely aligned to regulation and registration requirements and recruitment programmes.

5.6 Future model of care and service configuration

Given the constraints and deficiencies identified in the previous section on the current service model, any future model needs to ensure that:

- Women have access to a wider range of choice in terms of how they access and receive services. This broadening of choice for women is not intended to diminish or dilute the influential and appropriate role the consultant body currently plays in delivering obstetric and gynaecology services, but rather enhance it by ensuring they focus on the complex clinical services requiring their intervention;
- Primary and community care is significantly strengthened and developed to modern standards by progressively transferring appropriate activity out of the acute hospital setting and closer to women's homes;
- Sub-speciality services are provided in the most appropriate healthcare setting where women have access to the best clinical expertise in a safe and appropriate environment; and
- The infrastructure is modernised to bring the service up to the required standard and improve the user experience.

5.6.1 Pathway of care

The future service model for maternity services in the GDA needs to be established on the basis of one consistent pathway of care, with women and infants at the centre of that pathway, influencing how they access services.

Outlined in the diagram below is a high level overview of the proposed pathway. Supporting this pathway should be:

- A consistent and clear set of standardised clinical protocols to avoid duplication and promote equitable service provision;
- Strong multi-disciplinary working across the primary, secondary and tertiary interface;
- Robust IT infrastructure and performance management information to support maternity services;

- Agreed criteria for the identification of women of low risk or those of moderate or high risk for appropriate choice of ante- natal care model; and
- Acceptance that women of low risk may chose to be delivered and cared for by either a consultant or midwifery-led team.

Figure 7: Proposed new pathway of care for maternity services in the GDA

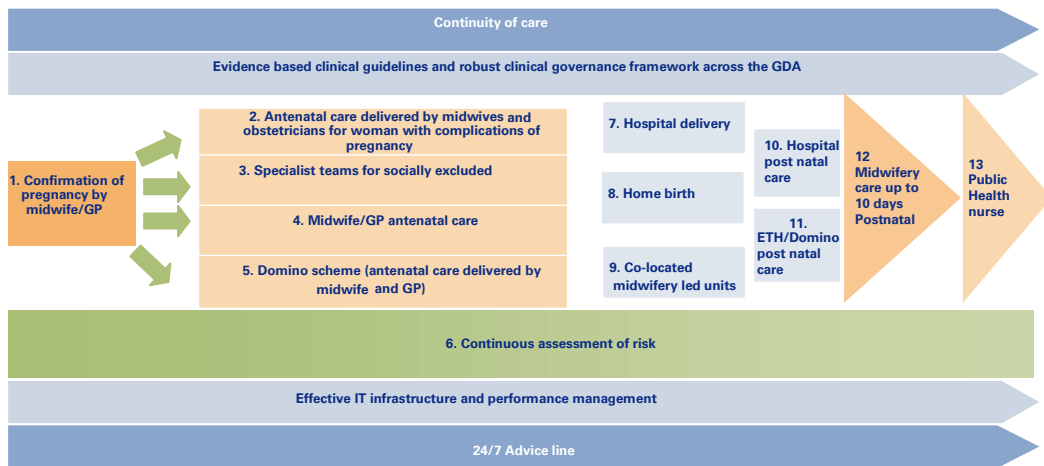


Table 25 : Description of the new care pathway

Step in care pathway	Description	Supporting evidence and insight
<p>1. Confirmation of pregnancy by GP or midwife</p>	<ul style="list-style-type: none"> • GPs or community based midwives to provide confirmation of pregnancy • Women should be able to approach both GPs and midwives for confirmation of pregnancy as it ensures that women have direct access to maternity services. This is especially important for socially excluded women 	<ul style="list-style-type: none"> • International examples, and particularly in the UK and other European countries, demonstrate that confirmation of pregnancy can be effectively undertaken by midwives • Enabling and supporting midwives to provide confirmation of pregnancy will help influence a wider availability of choice to women in terms of how their pregnancy is managed
<p>2. Antenatal care delivered by midwives and medical specialists for women with complications</p>	<ul style="list-style-type: none"> • This step in the clinical pathway focuses on changing the location of where antenatal care is provided • Ante/postnatal care does not have to be in health establishments. It could for example be the local community centre, where mothers gather with children • Specialist antenatal care should remain within the three hospitals for women who require the expertise of the wider team 	<ul style="list-style-type: none"> • Transferring antenatal care for women who are identified as normal or low risk out of the hospital is a key proposed change in the care pathway and supported by strong international examples • The NHS Institute for Innovation and Improvement⁶⁹ in the UK recommends that all pregnant women should have access to a midwife, but women who have high risk pregnancies benefit from a team approach which would include an obstetrician and any other specialist that is required in order to achieve the optimal outcome for the mother and baby • Those requiring support for complex pregnancies still require a midwife and the UK mantra of “all women need a midwife and some need an obstetrician too” should be the underpinning philosophy of the service. This therefore drives a requirement for effective clinical protocols and appropriate delegation of services between the consultant body and the midwives • In New Zealand, Sweden and the Netherlands, midwives are the primary antenatal carer.

⁶⁹ NHS Institute for Innovation and Improvement – Focus on Caesarean section

Step in care pathway	Description	Supporting evidence and insight
<p>3. Specialist teams for socially excluded women</p>	<ul style="list-style-type: none"> • Development of specialist teams for socially excluded women and those who are known to have poorer clinical outcomes. For example, women with diabetes, cardiac conditions or mental health issues. Teenagers, victims of domestic violence and women whose first language is not Irish or English • Obstetric care for women with complications of pregnancy and/or chronic medical conditions. The alternative care will be shared with medical specialists and the mother will have the support of a midwife who is a member of the team • Multi-disciplinary teams of midwives, social services and allied health professionals to provide appropriate care for socially excluded women • The supporting evidence in the Confidential Enquiry into Maternal Deaths provides a helpful context to the challenges facing healthcare systems in addressing issues of social exclusion and how to prevent them through effective commissioning and provision of services 	<ul style="list-style-type: none"> • Demographic trends in the GDA indicate a higher incidence of socially excluded women • There is a strong preventive element to dealing effectively with socially excluded women to prevent further complications in later stages of pregnancy as outlined in “Saving Mothers Lives” (2007). For example, women living in families where both partners were unemployed (many of whom had features of social exclusion) were up to 20 times more likely to die than women in the more advantaged groups. In addition, single mothers were three times more likely to die than those in stable relationships. Also women living in the most deprived areas of England had a 45% higher death rate compared to women living in more affluent areas • Additional supporting evidence from the Department of Health’s Confidential Enquiry into Maternal Deaths in the UK in 2004 identified that: <ul style="list-style-type: none"> – Women from ethnic groups other than white were, on average, three times more likely to die – Black African women including asylum seekers and newly arrived refugees had a mortality rate seven times higher than white women and had major problems in accessing maternal health care – 20% of the women who died from direct or indirect causes booked for maternity care after 22 weeks of gestation or had missed over four routine antenatal visits – 35% of all the women who died were obese; 50% more than in the general population – 14% of all the women who died self-declared that they were subject to violence in the home – 8% of all the women who died were substance abusers
<p>4. Midwife/GP antenatal care</p>	<ul style="list-style-type: none"> • A more equitable role for midwives in conjunction with the GPs to provide women with greater choice in antenatal care. Women who are assessed as low risk at booking may develop problems in pregnancy and require quick and effective transfer to specialist/consultant services 	<ul style="list-style-type: none"> • This will require legislative change to the Mother and Infant Care Scheme (MICS) and the funding flows but the service change can be implemented with new ways of working for community based midwives • In Canada, family physicians are the primary antenatal care provider

Step in care pathway	Description	Supporting evidence and insight
<p>5.Domino Scheme</p>	<ul style="list-style-type: none"> • The Domino scheme is where antenatal care is provided in the community by the midwife and/or GP. The mother is escorted to the hospital and delivered by a midwife she knows then transferred home to the care of the midwife/GP • Significantly strengthen the current Domino scheme that is provided and extend to all three maternity hospitals to ensure a consistent and integrated service is provided with equitable access for women across the whole of the GDA • A consistent standard of service should be provided with one clear and simple protocol that applies to all three maternity hospitals to avoid duplication and potential inconsistency in care/application 	<ul style="list-style-type: none"> • Very well received service by women in Dublin • Will require significant investment in resources/community based midwives to support this change
<p>6.Continuous assessment of risk</p>	<ul style="list-style-type: none"> • Effective clinical risk assessment of women is undertaken throughout each step in the clinical pathway 	<ul style="list-style-type: none"> • Dependent on strong communication between health professionals and supported by effective IT • The UK NHS Institute for Innovation and Improvement found that those trusts achieving a c-section rate of 20% or below were consistent in the application of evidence-based good practice and innovative models of care

Step in care pathway	Description	Supporting evidence and insight
<p>7. Hospital delivery</p>	<ul style="list-style-type: none"> • Birth undertaken at maternity hospital co-located on an acute general hospital site • One-to-one midwifery care required during established labour • 24/7 consultant cover provided in the labour ward • Some women delivered in a hospital environment will require the expertise of an obstetrician. Women access to an obstetrician 24 hours a day • Recommendations from the RCOG highlighted the need for increased consultant presence on the larger and more complex labour wards. As the three maternity hospitals have approximately 8,000 births they should have a system of 24 hour consultant cover in order to improve care and reduce intervention. This will have a significant impact on consultant numbers • Haematologists should provide a sessional commitment of one session per 1,000 deliveries. With appropriate haematology cover of all obstetric units shared clinical protocols would be possible to ensure safe practice in those units with off site cover 	<ul style="list-style-type: none"> • Co-located principles are well supported by international evidence and clinical expertise and are summarised in this report • Royal College of Midwives and Royal College of Obstetricians and Gynaecologists guidelines for consultant care is requiring consultancy cover for 60 hours on the labour ward by 2008 and 98 hours on a labour ward by 2009 • There are resource implications both in terms of midwives and consultants to deliver this standard of service

Step in care pathway	Description	Supporting evidence and insight
<p>8.Home birth</p>	<ul style="list-style-type: none"> • Increase the provision of home birth services in a controlled and effective way on the basis of agreed, clear and consistent clinical protocols 	<ul style="list-style-type: none"> • NMH currently provide for a small number of home births so there is an established precedent • International rates for home birth in other industrialised countries are significantly higher than in the GDA. For example, forecast trends in London are expected to increase to 6-9% • There is evidence of demand for this service as long as care is provided in a safe and effective way with clear supporting clinical protocols • In the Netherlands, 34% of births are home births
<p>9.Co-located midwifery led units</p>	<ul style="list-style-type: none"> • “Midwifery led” refers to care where midwives are in partnership with the woman, they are the lead professional and responsible for assessment of care needs, planning the care with the mother, referring to other health professionals as appropriate, and for ensuring provision of maternity services • Co-located midwife-led units within the maternity hospital where mothers with low risk pregnancies are delivered by midwives and return home as soon as is clinically indicated. Care will have been provided in the community environment by GPs and midwives and/or midwives based at the midwife-led unit • Women should be escorted by a known midwife into the maternity service for delivery and transferred home within six hours when it is clinically indicated • Introduction of MLUs co-located on the maternity hospital campus (which will be co-located on the acute general hospital site) • Co-located MLUs will provide a more relaxed and less hospitalised environment for those women expecting to deliver without complication – however there will be easy access to specialist consultant cover if required 	<ul style="list-style-type: none"> • This is a fundamental change to the current service model and will require progressive implementation to manage the service transition effectively and help build midwives confidence to deliver the service against appropriate clinical governance protocols • Within Ireland, a pilot of co-located midwifery led units commenced in July 2005 in the North East. The two MLUs in the NE (Cavan and Drogheda) are currently being evaluated with early indications that they have proved popular with women⁷⁰ • Extensive experience in the UK of effective MLUs delivering excellent user outcomes • There will be a need to mentor midwives to instil and encourage confidence, supported by appropriate transfer arrangements between the co-located MLU and the obstetric service on the maternity hospital campus • Midwives are skilled in maximising the potential for normal birth. The NHS Institute for Innovation and Improvement has demonstrated to NHS Trusts that midwifery care for all women was critical to the reduction of c-section rates and other forms of clinical intervention • Midwifery led care is not dependent on physical structures – the focus should be on developing a conducive service culture that encourages these services to develop in safe and appropriate environments, befitting modern day healthcare and women’s choice • Strong evidence internationally of a move towards MLUs as another choice for mothers

⁷⁰ Stakeholder interviews

Step in care pathway	Description	Supporting evidence and insight
<p>10. Integrated Hospital/postnatal care</p>	<ul style="list-style-type: none"> • The hospitals need to continue to improve the efficiency and effectiveness of care • Early transfer home where the mother receives both ante/postnatal care in the community by a midwife/GP and attends the hospital for the birth of her baby delivered by the hospital based maternity team and returns after six hours into the care of the midwife/GP • The overall ethos should be continuity of care. This will be achieved through evidence-based clinical guidelines shared throughout the GDA. If a mother is assessed as low risk her ante/postnatal care should be provided in the community setting close to her home. Postnatal clinics can be established locally where mothers and their baby can be seen by a midwife. If the mother is unable to attend the postnatal clinic a midwife will assess whether it is appropriate to attend the mother at home • There needs to be a mother and baby unit for severe postnatal psychosis and depression cases. In the UK these are typically a specially developed psychiatric wing of a psychiatric hospital to allow the baby to be housed with the mother. One to two beds only would be required for Dublin as a whole • The midwife hands over the care to the public health nurse on the tenth postnatal day 	<ul style="list-style-type: none"> • The National Institute for Health and Clinical Excellence (NICE): Routine Postnatal Care of Women and their Babies, July 2006. advocated postnatal care for the following reasons: <ul style="list-style-type: none"> - successful infant feeding - monitor wellbeing of mother and baby - identify problems and intervene e.g. postpartum haemorrhage, pulmonary embolism, deep vein thrombosis, assessment of mental wellbeing, infection etc. - health problems in babies e.g. jaundice, infection, colic, child protection issues etc. • NICE recommends that the midwife provide care for mother and baby up to day 10 thereafter the public health nurse provides care for the baby.

Step in care pathway	Description	Supporting evidence and insight
11. Early Transfer Home and Domino	<ul style="list-style-type: none"> Strengthen the provision of ETH and Domino services to ensure full and equitable access across the GDA One consistent protocol should be applied across the GDA for the ETH/Domino services as this will help in commissioning the services and performance managing the delivery against a clear and agreed standard 	<ul style="list-style-type: none"> Already in place, now a case of significantly increasing the uptake of ETH services. However, the service would benefit from the development of community based midwifery and a 24 hour helpline Resourcing requirements are addressed later in the chapter The provision of the ETH and Domino schemes have already proved to be popular with women using the service. NMH for example quoted a 95% satisfaction rate and, from the submissions we received the schemes have gained a great deal of support: <ul style="list-style-type: none"> <i>“I would like to recommend them [community midwives] to anyone and I believe that they should be available through any maternity hospital”</i> <i>“Most particularly what appealed to me at the time was the fact that I would be able to go home on the day of delivery and I would receive care after the birth in my home... I have no hesitation in recommending the scheme”</i>⁷¹
12. Midwifery care up to 10 days postnatal	<ul style="list-style-type: none"> Provision of midwifery care to women in the community up to the 10th postnatal day 	<ul style="list-style-type: none"> This is another fundamental change in the current service model and designed to provide greater support to women in an important period following birth Resourcing issues covered later in this chapter NICE recommends that the midwife provide care for mother and baby up to day 10; thereafter the public health nurse provides care for the baby (see step 10 above).
13. Public health nurse	<ul style="list-style-type: none"> Provide a health visitor service to mother and infant including immunisations 	<ul style="list-style-type: none"> Public health nurses we consulted with wanted to continue to play an active role in postnatal care and they would potentially be part of a wider multi-disciplinary team for woman in the GDA

5.6.1.1 *Other factors*

Continuity of care – Clinical criteria and evidence-based protocols should underpin the preferred model of care for maternity services to ensure optimum outcomes for both mother and baby. The most important protocol will be the necessity to transfer from the co-located MLU to obstetric-led care during labour if clinically indicated. All models should be subject to clinical audit which is an integral part of clinical governance.

⁷¹ Devane, D et al (2007) *Midwifery* 23, 92-101

Evidence based guidelines and working as a clinical network – All maternity services within GDA should establish shared, evidence-based clinical guidelines and function as a clinical network in order to provide a seamless service to mothers.

Information – A GDA publication should be developed to be given to the mother when pregnancy is confirmed so that mothers can make an informed choice about maternity care. It should be developed in the first instance in the six most common languages of mothers currently assessing maternity services. A 24/7 helpline should be established where mothers can telephone to obtain the advice of a midwife. This will reduce unnecessary admission to the hospitals. The need to also develop a full elective booking system has been previously commented on earlier in the report.

Leadership – To support effective implementation of the new preferred model of care for maternity services in the GDA, there will need to be strong leadership at all levels. The advisory and midwifery profession will need to proactively embrace the change and work effectively with other clinical leaders across the service to ensure the full benefits are realised.

5.6.2 ***Benefits***

Outlined in the table below are some of the key benefits that should result from effective implementation of the new maternity model and pathway of care. These are categorised based on the evaluation criteria agreed with users as part of the stakeholder workshops.

Table 26: High level benefits for the new model/pathway of care for maternity services

Step in care pathway	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
1. Confirmation of pregnancy in the community	<ul style="list-style-type: none"> Confirmation currently done by urine test 	<ul style="list-style-type: none"> Provides women with a greater choice of professionals from whom she can decide to see 	<ul style="list-style-type: none"> Socially excluded women are able to access community based services in locations that they are more comfortable; this will encourage earlier booking 	<ul style="list-style-type: none"> Provides women with more locations and professionals 	<ul style="list-style-type: none"> Multi-disciplinary team working Mother and infant care scheme to reflect this new role for midwives 	<ul style="list-style-type: none"> Use of GP time on task that can be completed by another health professional in an inappropriate use of resources. Midwives offer better value for money 	<ul style="list-style-type: none"> Requirement to up-skill midwives to undertake this task in conjunction with GP 	<ul style="list-style-type: none"> Community based midwives more involved Reduced demand on hospitals workforce
2. Antenatal care delivered by midwives, medical specialists involved in care of women who have complex pregnancies	<ul style="list-style-type: none"> Services provided by the most appropriate clinical professional Reduce burden on hospital infrastructure Services provided closer to home 	<ul style="list-style-type: none"> Mothers with known or identified medical problems benefit from joint care by consultant obstetrician and other relevant specialist 	<ul style="list-style-type: none"> Ensure all women who are eligible can receive this service 	<ul style="list-style-type: none"> Improved access through greater service provision in the community 	<ul style="list-style-type: none"> Clinical protocols will ensure there is clear accountability for effective and safe provision of antenatal care 	<ul style="list-style-type: none"> Re-balances the resource profile and improves value for money 	<ul style="list-style-type: none"> Opportunities for midwives to specialise in complex pregnancies 	<ul style="list-style-type: none"> Reduced demand on hospital workforce Midwives to manage care of low risk women and trainee obstetricians spend more time seeing women with complicated pregnancies
3. 24 hour consultant ward cover	<ul style="list-style-type: none"> Problems can occur at any time during labour and delivery which require consultant decision making or intervention 	<ul style="list-style-type: none"> Improves the safety and effectiveness of clinical services and enables women to have access to senior clinical experience when required 	<ul style="list-style-type: none"> Not effected by this change 	<ul style="list-style-type: none"> Not effected by this change 	<ul style="list-style-type: none"> In a large unit of 6,000 deliveries, increased 24hr consultant presence is valuable and cost effective 	<ul style="list-style-type: none"> Consultant presence can reduce need for one registrar resident at night 	<ul style="list-style-type: none"> Enhances training opportunities for consultants and staff through 24/7 cover 	<ul style="list-style-type: none"> Increase in the number of consultants Need for fundamental change in consultant working practices
4. Co-located midwifery led unit	<ul style="list-style-type: none"> Clear clinical protocols for early transfer to hospital established and supported by strong leadership and effective assessment 	<ul style="list-style-type: none"> Provides greater choice for women in the GDA and a different environment for labour that is potentially less interventional 	<ul style="list-style-type: none"> Should underpin the new system and ensure equity is improved 	<ul style="list-style-type: none"> Improved access for women in the GDA through introduction of MLUs 	<ul style="list-style-type: none"> Midwifery professionals clearly accountable for the safe and effective provision of the service 	<ul style="list-style-type: none"> More cost effective provision of midwifery services 	<ul style="list-style-type: none"> Improved training of midwives in the GDA to improve their confidence to run the MLUs effectively 	<ul style="list-style-type: none"> More empowered workforce Greater job satisfaction
5. Home Birth	<ul style="list-style-type: none"> Safety dependent on robust clinical protocols, experienced midwives and effective transfer to hospital procedures in place 	<ul style="list-style-type: none"> Clear benefit through improving choice for women in the GDA 	<ul style="list-style-type: none"> Home birth services should be provided on a basis of a network to ensure equity for women is achieved 	<ul style="list-style-type: none"> Access is to be determined by outcome of clinical assessment 	<ul style="list-style-type: none"> Midwives empowered to provide a safe and effective home birth service with clear accountability 	<ul style="list-style-type: none"> Improved value for money as increasing proportion of births outside of high cost hospital setting 	<ul style="list-style-type: none"> Clear training programme established to ensure safe and effective service 	<ul style="list-style-type: none"> Working in multi-disciplinary teams

Step in care pathway	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
6. Integrated hospital and community postnatal care	<ul style="list-style-type: none"> Provides a smooth transition for women in accessing services between community/ primary and secondary services, dependant on need 	<ul style="list-style-type: none"> Provides choice for women in the services they access in the GDA 	<ul style="list-style-type: none"> Care pathway will need to be available for all women in the GDA 	<ul style="list-style-type: none"> Should significantly enhance access for women 	<ul style="list-style-type: none"> Clear clinical protocol is established with clear accountability 	<ul style="list-style-type: none"> Improved value for money through direction of resources across an integrated pathway of care 	<ul style="list-style-type: none"> Midwives have greater variety of personal development opportunity. Training of more community midwives 	<ul style="list-style-type: none"> More empowered workforce
7. Early transfer home	<ul style="list-style-type: none"> Protocol driven assessment to ensure women are discharged appropriately 	<ul style="list-style-type: none"> Enables women to get home quicker and reduces the risk of infection 	<ul style="list-style-type: none"> Should be applied across the whole health economy 	<ul style="list-style-type: none"> Available to all women unless clinically indicated 	<ul style="list-style-type: none"> Clinical teams within the hospitals 	<ul style="list-style-type: none"> Frees up hospital beds and reduces the number of postnatal beds required 	<ul style="list-style-type: none"> Not affected by this change 	<ul style="list-style-type: none"> Equity of workloads
8. 10 days of postnatal care	<ul style="list-style-type: none"> Improved follow up for women in their homes after they have been discharged from hospital 	<ul style="list-style-type: none"> Provides improved resources for women to meet their needs more effectively 	<ul style="list-style-type: none"> To be applied across the whole health economy 	<ul style="list-style-type: none"> Focus on women with identified need 	<ul style="list-style-type: none"> Ensuring that families are coping with parenting 	<ul style="list-style-type: none"> Greater provision of care outside the hospital environment 	<ul style="list-style-type: none"> Provides greater opportunity for mentoring and development of midwives 	<ul style="list-style-type: none"> Increase required
9. Specialist teams for excluded women	<ul style="list-style-type: none"> Enhanced choice of services provided to women in need 	<ul style="list-style-type: none"> Women get access to enhanced service provision 	<ul style="list-style-type: none"> To be provided to all women in the GDA 	<ul style="list-style-type: none"> Improved access to service 	<ul style="list-style-type: none"> Addressing social / demographic demand 	<ul style="list-style-type: none"> Improving value for money through a preventative focus for excluded women 	<ul style="list-style-type: none"> Improved training and research opportunities for staff 	<ul style="list-style-type: none"> Not affected by this change
10. Continuous assessment of risk	<ul style="list-style-type: none"> Improved safety through a protocol driven change to underpin the service model 	<ul style="list-style-type: none"> Risk can change at any time during pregnancy with need to refer into hospital or special clinics 	<ul style="list-style-type: none"> Not affected by this change 	<ul style="list-style-type: none"> Changes can be made quickly where required 	<ul style="list-style-type: none"> Improving accountability by clear and continuous assessment of risk 	<ul style="list-style-type: none"> Resources allocated where required 	<ul style="list-style-type: none"> Strengthen training opportunities for staff 	<ul style="list-style-type: none"> Not affected by this change

5.6.3 High Level Action Plan

In this section we identify the key high level actions for improving maternity services in the future. For each of the actions we indicate whether it is to be achieved in the following timescales:

- Short-term – 0 - 1 years;
- Medium-term – 2 - 5 years; and
- Long-term 6 – 10 years.

We provide key metrics that should be used by the work streams (we recommend five work streams – service redesign, workforce, clinical governance, teaching and training and co-location) to ensure benefits realisation. We recommend that baseline audits be undertaken prior to any change of programme be undertaken.

The work streams, overseen by a programme board, will need to undertake highly detailed planning, accounting for all the interdependencies, the GDA development control plan and funding available.

Table 27: Action plan

Pathway step	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
1. Confirmation of pregnancy	<ul style="list-style-type: none"> Should be able to access confirmation of pregnancy in the community 	<ul style="list-style-type: none"> Identify locations where service can be provided Communication to GPs and midwives Communication to women through local press, mother and toddler groups, local community settings 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service re-design 	<ul style="list-style-type: none"> Number of women that have their pregnancy confirmed by a midwife Women booking earlier in their pregnancy
2. Antenatal Care delivered by midwives and medical specialists for woman with complications	<ul style="list-style-type: none"> Women with high risk pregnancies should be managed by a multi-disciplinary team 	<ul style="list-style-type: none"> Develop risk assessment tool that is to be used throughout a woman's pregnancy to identify level of risk Develop GDA wide condition specific guidelines to ensure consistent approach to the management of high risk pregnancies between organisations and health professionals 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Clinical governance 	<ul style="list-style-type: none"> Number of women managed on condition specific guideline Birth weight of babies born to mothers with high risk pregnancies Maternal mortality and morbidity Perinatal mortality
3. Specialist teams for socially excluded woman	<ul style="list-style-type: none"> Develop Specialist teams for socially excluded woman There needs to be established a mother and baby unit within one of the psychiatric hospitals for mothers with severe postnatal depression or psychosis 	<ul style="list-style-type: none"> Based on clinical need of the women in the GDA, identify teams to be developed Identify team composition/ skill mix required Recruit to the teams Training for team members Develop guidelines and referral criteria to the team Communication to maternity services, GPs and other stakeholders such as Diabetes nurses, community psychiatric teams Identify location for psychiatric mother and baby unit 	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Workforce Service design 	<ul style="list-style-type: none"> Number of women managed by specialist teams Birth weight of babies born to mothers from socially excluded groups Maternal mortality and morbidity Perinatal mortality Number of women from socially excluded teams with postnatal depression Number of women treated in specialist psychiatric unit

Pathway step	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
4. Midwife / GP antenatal care	<ul style="list-style-type: none"> • Create a more equitable role for midwives and the GPs to provide woman with greater choice 	<ul style="list-style-type: none"> • Will require legislative change to the Mother and Infant Care Scheme • Expand Domino schemes to ensure woman have increased access to midwives in the antenatal period. • This will need to be supported through area expansion number training for midwives currently based in hospitals 	<ul style="list-style-type: none"> • Long-term • Medium-term 	<ul style="list-style-type: none"> • Service re-design 	<ul style="list-style-type: none"> • Number of women with a named midwife/midwifery team • Number of women declined from ETH schemes because of geographical location • Service user satisfaction
5. Domino scheme and 11. Early Transfer Home and Domino	<ul style="list-style-type: none"> • Extend the service and develop a consistent protocol to be applied across the GDA • Ensure a consistency and integrated service is provided with equitable access for women across the whole of the GDA 	<ul style="list-style-type: none"> • Identify additional number of midwives and support staff required and provide the service • Design a programme for midwives in collaboration with the academic organisation • Provide training placements for student midwives in community settings • Communication and education on role of midwife for women and GPs 	<ul style="list-style-type: none"> • Medium-term 	<ul style="list-style-type: none"> • Service re-design • Teaching and training 	<ul style="list-style-type: none"> • Number of women declined from Domino schemes because of geographical location • Service user satisfaction
6. Continuous Assessment of risk	<ul style="list-style-type: none"> • Effective clinical risk assessment of women undertaken at each step of the clinical pathway 	<ul style="list-style-type: none"> • Develop risk assessment tool • Provide maternity team, including GPs training in its application 	<ul style="list-style-type: none"> • Short-term 	<ul style="list-style-type: none"> • Clinical Governance 	<ul style="list-style-type: none"> • Number of women that have a change in management due to the risk assessment tool
7. Hospital delivery	<ul style="list-style-type: none"> • One to One midwifery care • 24 hour consultant cover • Increase delivery room capacity 	<ul style="list-style-type: none"> • Undertake a skill mix review of current workforce • Introduce roles such as ward clerk, maternity assistant, nurse to carry out non-midwifery duties. By doing so this will allow midwives to provide 1:1 midwifery care to women • Undertake a review of consultant job plans • Build requirement to undertake labour ward cover into consultant job plans • Build more delivery rooms and monitor requirement based on uptake in MLUs 	<ul style="list-style-type: none"> • Medium-term 	<ul style="list-style-type: none"> • Service re-design • Workforce 	<ul style="list-style-type: none"> • C-section Rate • Maternal mortality and morbidity • Number of Perinatal deaths • Number of Birth injuries • Service user satisfaction • Women transferred antenatally and in labour • Bed ratio of 1:500 for single delivery rooms

Pathway step	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
8.Home Birth	<ul style="list-style-type: none"> Increase the provision of home birth services 	<ul style="list-style-type: none"> Training of midwives (both new and existing) will be incorporated in actions required for expansion and Domino schemes Development of protocols and guidelines Communication with GPs, women and emergency services 	<ul style="list-style-type: none"> Long-term 	<ul style="list-style-type: none"> Workforce 	<ul style="list-style-type: none"> Number of home births
9.Co-located midwifery led units	<ul style="list-style-type: none"> Mothers with low risk pregnancies are delivered by midwives in units co-located to the obstetric unit 	<ul style="list-style-type: none"> Design, procure, build and commission MLUs on site of new maternity services Develop training programmes for midwives Establish protocols and guidelines Communication to woman and GPs Evaluate the success of the service 	<ul style="list-style-type: none"> Long-term 	<ul style="list-style-type: none"> Co-location 	<ul style="list-style-type: none"> Number of women receiving midwifery led care Number of transfers into obstetric unit Service user satisfaction Staff satisfaction Transfer rates
10. Integrated hospital postnatal care	<ul style="list-style-type: none"> Increase the continuity of care that is currently provided to women postnatally through the provision of postnatal care in the community through community clinics 	<ul style="list-style-type: none"> Identify location for postnatal clinics Develop guidelines and protocols Identify training issues and address through refresher programme and degree programme Communication to maternity services GP and women 	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Workforce 	<ul style="list-style-type: none"> Number of women receiving ante/postnatal care in the community
12. Midwifery care up to 10 days postnatal	<ul style="list-style-type: none"> Provision of midwifery care to women in the community up to the 10th postnatal day 	<ul style="list-style-type: none"> Identify the additional amount of midwifery time this will require If required, additional midwives to support the provision of postnatal services Develop guidelines to support provision of care 10 days postnatally 	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Workforce 	<ul style="list-style-type: none"> Number of readmissions for both mother and baby Number of cases of postnatal depression Service user satisfaction

Pathway step	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
13. Public health nurse	<ul style="list-style-type: none"> Provide health visitor service to mother and infant 	<ul style="list-style-type: none"> Develop guidelines to support the transfer of care to public health nurse at day 10 Establish training to ensure continuing professional development for those public health nurse providing health visitor services 	<ul style="list-style-type: none"> Long-term 	<ul style="list-style-type: none"> Workforce 	<ul style="list-style-type: none"> Service user satisfaction

5.7 Maternity conclusion

Having assessed the current model of service delivery, it is clear that fundamental change is required. The factors making such a change essential, not just desirable, are:

- The current pressure of demand on the hospitals leading to a significant increase in the risk of serious untoward incidents;
- The inadequate physical infrastructure at the three hospitals;
- The fact that the GDA is out of step with the best models of care internationally, especially in terms of the stand-alone nature of the hospitals;
- The emphasis on a hospital-based medical-led model of care;
- The lack of choice for the woman;
- The poor availability of primary and community care services; and
- The need to improve performance within the service.

Demand – The three maternity hospitals are under considerable pressure due to the growth in demand over the past few years. Each hospital delivers approximately 8,000 babies per annum in obstetric units, which accounts for 40% of all babies born in Ireland. The growth projections suggest that there will be a steady rate of growth until 2016, before levelling off.

The infrastructure of the hospital facilities are no longer sufficient to meet the service needs required by the population growth. The hospitals have started to carry out some of

their antenatal activity in the community but the births still take place in the hospital. Therefore, maternity service needs increased capacity in GDA.

Infrastructure risks – All three hospitals are delivering their services in a sub-optimal infrastructure, with some variation in the age and condition of the different facilities. The current condition of clinical areas is inadequate for the delivery of health care by today's modern standards – particularly at the NMH. Many of the wards experience higher than recommended occupancy levels in a Nightingale-style layout. This compromises privacy and dignity for patients whilst also increasing the likelihood of the spread of infections such as MRSA.

The number of delivery suites at the hospitals is well below those needed to deliver the current level of demand; the average for each of the three hospitals is nine, however in the UK units delivering similar numbers, albeit across two sites would have in the region of 20. The number of theatres and location of theatres is also inadequate. A unit delivering 8,000 babies should have two dedicated obstetric theatres in close proximity to the labour suite. This is not the case in the GDA maternity services. Gynaecology and obstetric services compete for the same theatre resource, meaning elective gynaecology work gets interrupted for emergency deliveries. It also increases the risk to infection. This must be urgently addressed.

The hospitals are currently achieving adequate levels of performance. This is a credit to the work and commitment of the staff given the service demands and quality of internal infrastructure. It should be noted though that their efforts to sustain performance in this fashion are not sustainable in the long-term.

It is to the credit of both the clinical leadership and the commitment and dedication of staff working within the maternity hospitals that we recognise the number of major clinical incidents has been relatively low in these difficult circumstances. However, the continued increase in demand, the poor quality of facilities and the inadequate staffing levels combine to pose a significant risk of one or more serious untoward clinical incidents as well as increasing the risk of staff 'burn-out'. These facilities are in need of urgent replacement. We are therefore recommending new facilities are constructed.

Current model – The current service model is, by international standards, relatively hospital-focused, with a strong emphasis on medically led (doctor) services. The Mother and Infant Scheme has driven this model, assuming that antenatal care is to be delivered

by GPs and Obstetricians. It does not provide an option for midwifery led care. The result being an under development of services led by and/or delivered by midwives. Primary care based services are also underdeveloped. The private medical insurance market has also played a key role in maintaining doctor-led services. Primary care in Ireland as a whole is underdeveloped and this is evident in a lack of community maternity and gynaecology services. Services that are available tend to be outreach services from the hospital rather than provided by Primary and Community Care.

The dominance of a medically led, hospital centred model of care provides effective services for women with non-routine clinical conditions; however 60% of women experience a normal birth. It does therefore, limit the choice for women whose routine clinical needs could be provided for in a wider range of settings.

We are therefore recommending that primary and community care is greatly enhanced.

International evidence – As part of the review we have considered the evidence available internationally on maternity services and drawn upon the different models available for delivering an optimum service. We have particularly focused on the service models of Australia, Canada, France, the Netherlands, New Zealand, Sweden and the UK. It is clear from the international review that there is no one model internationally that is suitable for the GDA. It is also difficult to publicly access robust clinical data that can be analysed consistently across countries and compared to GDA. Despite this, the trends suggest that Dublin is somewhat out of step with current best practice.

Dublin's model of stand-alone maternity hospitals is very much in the minority internationally. It is well recognised that for optimal clinical outcome, maternity services should be co-located with adult acute services or tri-located with adult and paediatric services. The benefits of co-location and tri-location are clear. Co-location allows the mother access to a full range of medical and support services should the need arise, e.g. cardiac and vascular surgery, diabetes services, intensive care facilities, haematology services, psychiatric services and many others.

The principle of tri-location has been agreed as part of the recent Paediatric Review. Our team support tri-location as it provides maternity services with immediate access to paediatric services on-site when fetal or neonatal surgery and other interventions are required. During the review, clinicians in GDA were unanimous in their support for co-location and tri-location.

We have taken this principle as a key driver to underpin the changes to our proposed model of care.

We acknowledge that there are some examples of other stand-alone maternity facilities internationally. However, these are in the minority and are no longer recognised as international best practice for future service development.

We are therefore recommending co-location of obstetric services with acute adult sites, with one unit to be tri-located with the paediatric service.

Choice – Stakeholders, including service users, gave us the strong clear message that they want more choice in the way service users and their families access services. At present service user choice is limited in GDA as primary care is generally underdeveloped with a resultant over-reliance on services in the hospital environment. However, there have been some impressive inroads through outreach services, the Early Transfer Home and Domino schemes. The number of home births in Ireland as a whole is minimal although we realise that presently only a minority of women wish to deliver at home. We are therefore recommending that these services need to be expanded throughout the GDA.

International evidence clearly indicates that women should be offered choice. It is particularly obvious that there is significant potential for midwives to play a more prominent role in obstetrics. MLUs are common in the UK and further afield. We believe these are crucial for the development of maternity services and more patient choice in the GDA.

We are proposing greater choice for women and are proposing the creation of MLUs adjacent to hospital based obstetric units in our recommended model of care as well as the option to have a home birth. We are also proposing a significant education and communication campaign both for service users and service providers on the range of choices available and the risks related to each.

Staffing levels – Compared to standards set by BirthRate Plus and the RCOG in the UK the hospitals are understaffed with an additional 20 obstetricians and 221 midwives required across the GDA. (This does not take account of the role of public health nurses with midwifery qualification, nor the impact of private practise.)

There is also a need to increase the number of anaesthetist sessions at the hospitals, as the current level of support is inadequate.

Performance levels – The level of performance at the three hospitals is adequate at present, broadly in line with international comparators in terms of clinical outcomes. However, one must be careful when making international comparisons of service. Data is not collected in a standardised format internationally; therefore it is difficult to judge whether we are comparing like with like. Data is collected for different reasons in different countries, depending on the financial regime. There is no standardised way of collecting data internationally which leads to limited transparency. This makes direct comparisons extremely difficult.

However, there are a number of areas where hospitals can improve performance in the short-term, which should help to alleviate some of the pressures they are facing.

- High volumes of hospital based antenatal activity could be transferred into primary and community care through development of appropriate protocols and supporting care pathways;
- DNA rates (Did Not Arrive – refers to patients who fail to attend for appointments) are much higher than those in the UK and this needs to be addressed;
- LOS (Length Of Stay) is higher than international benchmarks and this also needs to be addressed, this in part is because of the entitlements that private medical insurance provides women. e.g. five days for a C-section, but it does mean that obstetric beds are being blocked when women/infant are clinically fit to return home. Improvements in LOS could be achieved through improved discharge planning and a reassessment of the role the private insurance market plays on LOS performance;
- There is also a lack of robust bed management systems; and
- Socially excluded women would benefit from specialist multi-disciplinary teams, care and follow-up. Postnatal care is minimal and needs to be expanded.

We have therefore set out in this chapter a new model of care for GDA, together with the evidence supporting change (summarised above). We have also explored, based on the evaluation criteria agreed with the HSE and stakeholders, what the benefits will be for service users in GDA and set out a short, medium and longer term plan as to how that change should be implemented.

5.8 Fetal Medicine

5.8.1 *Introduction*

There are two elements to fetal medicine – Maternal Fetal Medicine and Fetal Intervention where the Fetal Medicine Specialist conducts a procedure on the unborn baby in-utero. All maternity hospitals need to do maternal fetal medicine. However, only one fetal intervention unit will be required given the estimated number of cases for GDA.

5.8.2 *International evidence*

The literature on fetal medicine demonstrates there are a growing number of women embarking on pregnancy in the context of complex medical disorders e.g. heart disease, autoimmune disease bowel disorders, haematological disorders, epilepsy, cystic fibrosis etc. In addition, maternal fetal medicine is a rapidly expanding discipline as the increasing ability to evaluate and diagnose structural and genetic anomalies within the fetus is forever increasing. As prenatal diagnosis has become increasingly sophisticated and as technological advances have enhanced the range of diagnostic capabilities, invasive therapies have developed from the expanded understanding of the natural history and pathophysiology of structural anomalies.

Despite this, there is little published and agreed material on standards of care and the organization of care and research papers can present conflicting findings⁷². However, there are a number of core themes emerging which have relevance to the GDA. These are:

- multi-disciplinary approach;
- sub-specialisation;
- co-location; and
- regionalisation.

It is increasingly agreed that a multi-disciplinary approach from consultants in the relevant specialties is required to assure both fetal and maternal welfare. For example, antenatal diagnosis increasingly requires a multi-disciplinary approach; in some cases, it will require the involvement of an individual who has had special training in foeto-maternal and neonatal physiology and pathology as well as genetics, embryology, fetal and maternal screening and diagnostic procedures and perinatal care and counselling.

⁷² *Fetal Medicine Foundation*

The rapid expansion of maternal Fetal Medicine and Fetal Intervention is characterised by a wide range of therapeutic strategies from percutaneous to open invasive techniques and this has led to a complex list of different procedures for different diseases⁷³.

The numbers of actual cases are small and complex, therefore, requiring special skills and knowledge that only a few sub specialist feto-maternal consultants could develop, maintain and provide. Indeed, training programs exist for subspecialisation in fetal-maternal medicine in the USA, UK, Australia and Canada. Also, the European Board and College of Obstetrics and Gynaecology (EBCOG) notes with approval the development of subspecialty practices in a number of countries and considers that feto-maternal medicine should be recognised as a subspecialty in Europe⁷⁴.

With regard to fetal interventions, maternal safety is paramount. Short-term maternal morbidities include increased rates of caesarean birth, treatment in intensive care, prolonged hospitalisation, and blood transfusions. These short-term maternal morbidities are directly related to the invasiveness of the technique so a decision to perform a fetal intervention requires a multi-disciplinary centre that is dedicated to the surgical care of the fetus and the mother⁷⁵. This would suggest that fetal intervention units should be co-located on acute hospital sites in order to provide optimal care for high-risk mothers including prompt access to intensive care and resuscitation facilities to deal with major obstetric haemorrhages, clotting disorders and organ failure and adequate facilities to deal with babies which are born prematurely because of the procedure.

The development of fetal-maternal interventions across Europe, North America and Australia has been to centralise these specialist services and provide easier access to what should be better care from a limited number of appropriately trained fetal-maternal subspecialists. For example, European research suggests that the treatment of fetal tachycardia should be executed in experienced maternal-fetal medicine centres⁷⁶.

5.8.3 **Conclusion and implications for GDA**

It is clear that GDA needs to ensure fetal-maternal intervention is centralised in one location where there is the necessary range of multi-disciplinary staff in the appropriate

⁷³ *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*

⁷⁴ *European Association of Perinatal Medicine*

⁷⁵ *Schwartz's Principles of Surgery, 8th Ed*

⁷⁶ *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)*

subspecialties and where there is access to both acute medical facilities and, in case of interventions conducted post 22 weeks resulting in the premature delivery of the baby, timely access to a Level 4 NICU. This provides a clear rationale for locating fetal medicine at the new National Paediatric Hospital. However, the service should be planned and managed on a city-wide basis and managed as a network, with staff across GDA providing services to the fetal intervention centre.

Therefore women requiring fetal intervention should have this undertaken in one place; the fetal intervention unit should be located with the new National Paediatric Hospital where there is access to specialist NICU and paediatric surgery. Prior to this hospital opening, the procedures should be carried out in the centre that is undertaking the most activity and is accredited (NMH).

Any fetal intervention undertaken before 22 weeks e.g. chorionic villus sampling (CVS), amniocentesis, intra-uterine transfusion, cordocentesis should be undertaken in the maternity hospital. Any fetal intervention undertaken over 22 weeks would be done in the National Paediatric Hospital in order to facilitate timely transfer into the Level 4 NICU. Given that many of these procedures are single one-off interventions that require no further intervention, patients can be transferred back to their referring hospital to continue antenatal care and delivery.

All consultants undertaking fetal intervention should be properly trained and accredited to do so. By way of example, clinicians in the UK need to be undertaking at least ten CVS procedures a year to maintain their skills⁷⁷. The GDA fetal maternal medicine network should seek accreditation for training and it is likely that only one centre would have the throughput to provide such training.

Ultrasonographers should be used more for the routine diagnosis of fetal abnormalities to free up consultant obstetricians for more specialised ultrasound scanning and counselling of women found to have anomalies.

In order to achieve continuity of care for patients who move from diagnostic to procedure:

- Clinicians from the existing three fetal maternal medicine units should undertake the procedures in the single unit working as part of the fetal intervention network;

⁷⁷ UK Royal College of Obstetrics and Gynaecologists Guideline No 8. Revised January 2005

- Information will be consistent and women and their families will be provided with access to geneticists and counselling. These services should be provided on a network basis with the staff moving to where their service is required on sessional basis allowing a 52 week service; and
- The network will work to agreed common guidelines and clinical governance arrangements.

5.8.4 *Fetal medicine – Future Pathway of Care*

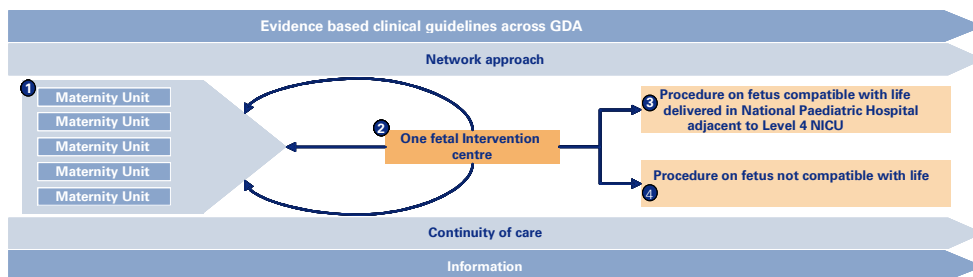
The future service model of care for fetal medicine in the GDA also needs to be established on the basis of one consistent pathway of care.

Outlined below is a high level overview of the proposed pathway. Supporting this pathway should be:

- A consistent and clear set of standardised clinical guidelines to avoid duplications and promote equitable service provision;
- Strong multi-disciplinarily working across the primary, secondary, tertiary interface; and
- Robust IT infrastructure and performance management information.

Each main component of the care pathway presented above is described in detail below

Figure 8: Clinical Pathway Diagram for Fetal Medicine in the GDA



The four key steps in the fetal medicine pathway are described in more detail below.

Table 28: Fetal medicine pathway

Step in care pathway	Description	Supporting evidence and insight
1. Maternity unit	<ul style="list-style-type: none"> Maternity units across Ireland will have the ability to identify congenital defects in the antenatal period If these units identify an abnormality requiring an intervention they will transfer the women to the fetal intervention centre 	<ul style="list-style-type: none"> The Institute of Obstetricians and Gynaecology proposed that all units across Ireland have the facilities to identify abnormalities; these facilities include ultrasound, surgery, diagnosis and amniocentesis
2. Fetal intervention centre	<ul style="list-style-type: none"> The fetal centre will be staffed with clinicians who work across Dublin and have recognised qualifications in fetal therapy The clinicians will conduct fetal intervention procedure in one centre The fetal medical departments in Dublin will work within a network. The network will be accredited for training This centre will be appropriately supported with genetics, pathology and counselling services 	<ul style="list-style-type: none"> Only 50-60 cases occur nationally, these need to be undertaken in one unit to maintain levels of expertise e.g. cordocentesis, intra-uterine transfusion, shunt insertion CVS and amniocentesis can be done at all centres within the networks; these are diagnostic procedures In the case of CVS clinicians need to do 10 per year
3. Procedure on fetus compatible with life delivered in National Paediatric Hospital adjacent to Level 4 NICU	<ul style="list-style-type: none"> All fetal interventions should be carried out on site. Procedures performed on fetus that are compatible with life (i.e. more than 22 weeks), should be done in a facility that is adjacent to a Level 4 NICU, so that if the baby has to be delivered there is immediate transfer to the NICU. The unit as part of the network has to be accredited for fetal intervention 	<ul style="list-style-type: none"> The majority of procedures will be successful, with the mother returning home without any negative impact on the fetus. However, in a small number of cases the baby does need to be delivered during the procedure. Babies that are delivered at more than 22 weeks gestation can survive. Their survival will be aided by prompt access to NICU
4. Procedure on fetus not compatible with life	<ul style="list-style-type: none"> All fetal intervention should be carried out on one site. Procedures performed on fetus that are not compatible with life i.e. less than 22 weeks, should also be done at the fetal intervention site as all procedures need to be done on one site. The unit as part of the network has to be accredited for fetal intervention 	<ul style="list-style-type: none"> The majority of procedures will be successful, with the mother returning home without any negative impact on the fetus. However, in a small number of cases the procedure does induce delivery. Fetus less than 22 weeks gestation are incompatible with life and therefore there is no benefit to being adjacent to the Level 4 NICU. However, this is the best location for the service as the majority of cases are successful and there is benefit to those over 22 weeks. As per above, there are only enough cases to sustain one unit to maintain levels of expertise

5.8.5 *Fetal medicine – Benefits*

Outlined in the table below are some of the key high level benefits that should be secured if the fetal medicine pathway of care is implemented effectively. These are categorised based on the evaluation criteria agreed with users as part of the stakeholder workshops.

Table 29: High level benefits assessment

Step in care pathway	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
1. Maternity units have the facility to detect birth defects	<ul style="list-style-type: none"> Defects identified early and appropriate pathway of care established 	<ul style="list-style-type: none"> Focusing on women by designing service around their requirements 	<ul style="list-style-type: none"> To be applied across the GDA 	<ul style="list-style-type: none"> Improved access to the right expertise at the right time through the network approach 	<ul style="list-style-type: none"> Strengthened accountability through improved service offering 	<ul style="list-style-type: none"> Improved value for money through improved focus 	<ul style="list-style-type: none"> Improved training and accreditation opportunities for consultant staff 	<ul style="list-style-type: none">
2. Fetal intervention to be done in one unit	<ul style="list-style-type: none"> Safety improved by centralisation of expertise 	<ul style="list-style-type: none"> Improved clinical outcomes for women and babies 	<ul style="list-style-type: none"> To be applied across GDA 	<ul style="list-style-type: none"> Improved access to the right expertise at the right time through the networked approach 	<ul style="list-style-type: none"> Strengthened accountability through improved service offering 	<ul style="list-style-type: none"> Concentrated and matched more effectively to activity levels to improve value for money 	<ul style="list-style-type: none"> Training programme in fetal interventions and research is enhanced 	<ul style="list-style-type: none"> Increased sub-specialisation
3. Fetal medicine to operate as a network	<ul style="list-style-type: none"> Ensures common protocols 	<ul style="list-style-type: none"> Service provided to women on basis of need, not institutionally driven but service driven 	<ul style="list-style-type: none"> To be applied across GDA 	<ul style="list-style-type: none"> Improved access to the right expertise at the right time through the networked approach 	<ul style="list-style-type: none"> Strengthened accountability through improved service offering 	<ul style="list-style-type: none"> Improved management of resources 	<ul style="list-style-type: none"> Stronger cross-fertilisation of expertise. The network will be accredited for training 	<ul style="list-style-type: none">

5.8.6 *Fetal Medicine High Level Action Plan for Maternity Services*

In this section we identify the key high level actions for improving fetal medicine in the future. For each of the actions we indicate whether it is to be achieved in the following timescales:

- Short-term – 0-1 years;
- Medium-term – 2-5 years; and
- Long-term – 6-10 years.

We provide key metrics that should be used by the work streams (we recommend 5 work streams – service redesign, workforce, clinical governance, teaching and training and co-location) to ensure benefits realisation. We recommend that baseline audits be undertaken prior to any change of programme.

The work streams, overseen by the programme board, will need to undertake highly detailed planning, accounting for all the interdependencies, the GDA development control plan and funding available.

Table 30: New Fetal medicine pathway

Pathway step	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
1. Maternity unit	<ul style="list-style-type: none"> Maternity units across Ireland will have the ability to identify birth defects in the antenatal period and will refer to the fetal intervention centre if required 	<ul style="list-style-type: none"> Establish guidelines for transfer units fetal maternal medicine and/or fetal intervention centre 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service re-design 	<ul style="list-style-type: none"> Number of women who have babies with a birth defect that are managed on an agreed and appropriate pathway
2. Fetal intervention centre	<ul style="list-style-type: none"> The fetal intervention centre will be staffed with clinicians who work across Dublin and have recognised qualifications in fetal therapy 	<ul style="list-style-type: none"> Appoint Fetal Medicine Network Director Make amendments to the consultants contracts in order to allow them to work across sites within the network Agree funding for network Agree guidelines Communicate to stakeholders 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service re-design 	<ul style="list-style-type: none"> Number of consultants undertaking fetal therapy
3/4. Procedure on fetus	<ul style="list-style-type: none"> All procedures whether compatible with life or not should be done in the one fetal intervention unit 	<ul style="list-style-type: none"> During the design phase of the hospital, provision should be made at one co-located maternity services and the site of the National Paediatric Hospital for a facility that would be used for fetal intervention 	<ul style="list-style-type: none"> Long-term 	<ul style="list-style-type: none"> Co-location 	<ul style="list-style-type: none"> Time taken to assess NICU for babies that need to be delivered

6 Neonatology

In this chapter we focus on neonatology services. We will assess the following areas:

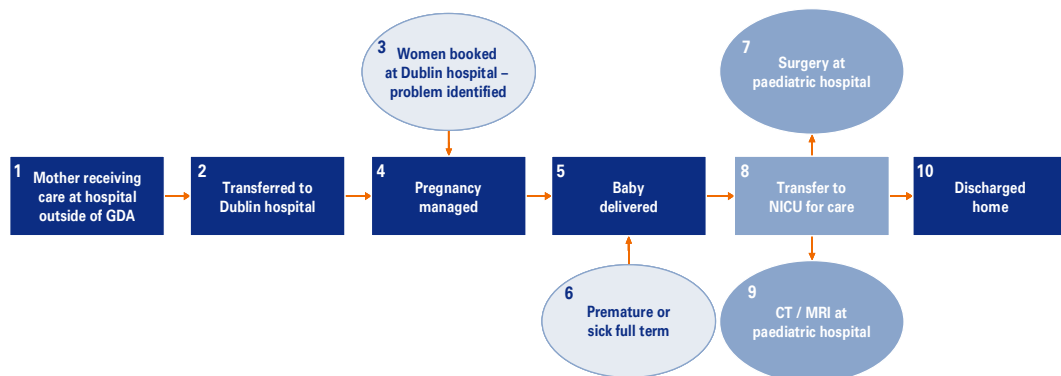
- Current model of care;
- Performance improvement opportunities in neonatology;
- Workforce;
- Future model of care; and
- High level actions to assist in implementation of the future model of care.

6.1 Current Model of Care

6.1.1 The Clinical Pathway

Outlined in the diagram below is an overview of the current care pathway for neonatology services in the GDA with a narrative description supporting it:

Figure 9: Current pathway



Source: Short-term Action Plan for Maternity Services in the Eastern Region – A strategy for the future (Joint Standing Committee, 2007)

Table 31: Neonatal care pathway description

<p>1. Mother receiving antenatal care at hospital outside of GDA</p>	<ul style="list-style-type: none"> Mothers book at units across Ireland. Where a problem is identified with the mother or the baby that cannot be managed by the hospital with whom the woman has booked, the care is transferred to a tertiary centre. The three GDA maternity hospitals act as national tertiary referral centres in this regard.
<p>2. Transferred to Dublin hospital</p>	<ul style="list-style-type: none"> When a baby is identified as requiring Level 3 or Level 4 NICU after delivery, the mother is transferred to one of the three GDA maternity hospitals for antenatal care and delivery
<p>3. Women booked at Dublin hospital – problem identified</p>	<ul style="list-style-type: none"> Women booked at the Dublin hospitals are managed by the hospital throughout their pregnancy
<p>4. Pregnancy managed</p>	<ul style="list-style-type: none"> Where appropriate, the three maternity hospitals will take over the antenatal care from the unit where the woman originally booked
<p>5. Baby delivered</p>	<ul style="list-style-type: none"> The baby is delivered in one of the three maternity hospitals
<p>6. Premature or sick full term</p>	<ul style="list-style-type: none"> Babies that are not identified as requiring Level 3/4 NICU in the antenatal period, but following birth are identified as requiring such care, are transferred into the GDA maternity hospitals if the unit in which they were born does not have this level of neonatal care or has no free cots. The referring hospital has to call each hospital individually as there is no cot management network. The babies are transferred by ambulance. The national neonatal retrieval service is not a 24/7 service which creates delays in transferring babies
<p>7. Surgery at paediatric hospital</p>	<ul style="list-style-type: none"> If the baby requires surgical intervention, then the baby is transferred to the paediatric hospitals for surgery. The paediatric hospitals (Temple Street, Crumlin and AMNCH) do not have neonatal care facilities. The babies are cared for in paediatric intensive care by intensivists, surgeons and neonatologists from the maternity hospitals. Once the baby is stable, they are returned to the maternity service NICU
<p>8. Transfer to NICU for care</p>	<ul style="list-style-type: none"> Any baby requiring intensive care needs to be transferred to a NICU wherever they happen to be born. Whether babies are born on or off site, they are transferred to the NICU.
<p>9. CT / MRI at paediatric hospital</p>	<ul style="list-style-type: none"> If the babies require CT or MRI they are transferred to one of the three paediatric hospitals
<p>10. Discharged home/Repatriated</p>	<ul style="list-style-type: none"> Baby transferred home or to the admitting hospital

6.2 An assessment of the current service model

We will now compare the neonatology model of care from an international perspective.

There are considerable variations in the pattern and structure of maternity and neonatal services around the world. Even in economically well-developed countries the size of maternity units varies considerably. However, there is a general agreement that the prognosis for very pre-term babies (before 32 weeks of gestation) is better if they are delivered on the site of a Level 3 neonatal unit⁷⁸.

⁷⁸ refs 1-11 from Paediatrics 2007 815-825.

A Level 3 neonatal unit is internationally recognised as the highest level of medical neonatal care.

A Level 4 neonatal unit is unique to Dublin – in the context of this report it is defined as a Level 3 unit plus neonatal surgery and cardiac surgery.

The American Academy of Paediatrics recommends that all babies born before 32 weeks gestation must be delivered in a specialised unit capable of delivering Level 3 care⁷⁹.

Most European countries have recommended a similar practice and some have legislated to this effect⁸⁰. The optimal size of such maternity and Level 3 units has not been fully agreed but investigations are underway to try and determine this. Across Europe there is wide variation in the size of units and an EU-funded project “Models of Organising Access to Intensive Care for very pre-term Births – MOSAIC” is attempting to address the issue. MOSAIC collected data on all births in 2003, born before 32 weeks gestation in 10 European regions (including parts of Belgium, Denmark, France, Germany, Italy, Netherlands, Poland, Portugal, UK).

The data on the structure of the units involved was published in Paediatrics in 2007⁸¹. The study covered 545,000 births in 320 neonatal units. Of these units, 65 were designated as Level 3. There was wide variation in the size and structure of the units surveyed. The main purpose of the study is to look at outcomes, but unfortunately the papers describing this are not yet published. However, preliminary findings were presented to the European Society for Paediatric Research in Sienna in 2006. The conclusion was that there was a clear association between the size of a neonatal unit and the outcome for the babies born there⁸².

Although the final results of the MOSAIC study will not be known until sometime later in 2008, it is likely that they will reflect the results published in the New England Journal of Medicine in 2007⁸³. This reviewed all Very Low Birthweight (VLBW) babies (under 1,500gms) born in California hospitals over a 10 year period from 1991 to 2000. The study concluded that mortality amongst VLBW babies was lowest for deliveries that

⁷⁹ ref 11 from Paediatrics 2007 815-825

⁸⁰ refs 13 -14 from Paediatrics 2007 815-825

⁸¹ Paediatrics 2007;120;815-825

⁸² Milligan, Consultant Paediatrician and Director of the Neonatal Unit at the Newcastle Hospitals NHS Trust at the Royal Victoria Infirmary and MOSAIC lead investigator Level and Volume of Neonatal Intensive care

⁸³ Level and Volume of Neonatal Intensive care and mortality in Very Low Birthweight Infants. NEJM :2007;356:2165-2175

occurred in hospitals that had a high volume of such babies delivered on site. Those with 100 or more VLBW babies each year produced significantly better outcomes than smaller units. The implication is that in higher volume units, clinical staff have developed more experience and at higher volumes are better able to maintain skills. Whilst there is no real maximum baby number for neonatal units, we believe that 10,000 births in each obstetric unit would be very large but not unprecedented.

The Oxford Vermont continuous data collection process across many units worldwide also shows an association between volume and outcome for VLBW babies although this is not as striking as the California data⁸⁴.

Australia has a similar network of neonatal care as the UK with most VLBW babies centralised into large units. However, because of the large geographical spread of the population with very isolated areas, their neonatal transport system has been developed to a high level. Networks of care for newborn babies are now internationally recognised as the best way to provide such care in the future. The National Audit Office in the UK have recently published their review of the establishment of such networks in England⁸⁵ which also confirmed this.

What is the available evidence on current outcomes for Dublin born babies? The table below (table 32) is drawn up from the annual reports of the three current maternity hospitals and the Neonatal unit in Newcastle upon Tyne, England. The data relates to 2005. There are many difficulties in comparing outcomes. The main issue is around the inclusion or exclusion of babies with lethal congenital abnormalities and the inclusion or exclusion of babies born outside of the main unit and transferred in (which are included in the numbers). This may explain some of the variations in table 32. The only real way to look at this is to compare population-based mortality. Figures from a recent UNICEF report relating to under five mortality are set out in table 33a. WHO recommend the use of perinatal mortality as the key indicator in looking at mortality rates in this regards. Those for infant, neonatal and perinatal mortality from OECD data (2006) are set out in table 33b.

In regard to the UNICEF data overall Ireland has an under five mortality comparable to many other developed countries but not as good as Sweden. There are many reasons why

⁸⁴ Rogowski et al JAMA 2004;291;202-209

⁸⁵ NAO; Dec 11 2007. *Caring for Vulnerable Babies: The reorganisation of neonatal services in England*

Sweden is better, not least of which has been the lack of a significant immigrant population up to now in that country.

In table 33b, there are clearly some anomalies eg Australia reports a lower perinatal mortality rate than infant or neonatal rates when, as might be expected, the other countries listed show a higher rate. The OECD data has been averaged for the last 10 years using the data which is available. All countries listed, apart from a few year on year anomalies, are showing a steady fall in rates for each indicator. Setting the anomalies aside, as is the case with under five UNICEF data, Ireland compares very favourably with the other countries listed, except Sweden, for both infant and neonatal mortality rates. In respect of the perinatal indicator, Ireland is out of step with the other countries listed, this may be related to the fact that in other countries, fetus with congenital abnormalities and malformations are more likely to be aborted. Garne (2001)^{85b}, cited this as a reason as to why the value of perinatal mortality as a comparative health indicator has declined. Abortion is currently illegal in Ireland.

Table 32: Comparison of 2005 PNM rates table

	CWIUH	RH	NMH	Newcastle
No. of Births	7,651	6,694	7,493	5,177
Number of births <1500gm	103	105	96	154
PNM rate	7.82	9.8	6.4	7.7

Source: Maternity Hospital's Annual Reports

UNICEF ranks countries in descending order, from 185 to 1, where 185 indicates the highest ranking. Due to the number of countries tied in the scoring rankings, in this case 172 represents the second highest level of performance and 162 the third highest.

^{85b} 'Perinatal mortality rates can no longer be used for comparing quality of perinatal health services between countries'; Ester Garne(2001), Denmark

Table 33a: World rankings for under five deaths

	Rank in world	Rate<5 deaths per 1,000 live births
Australia	162	6
Canada	162	6
France	172	5
Netherlands	162	6
New Zealand	162	6
Sweden	185	4
United Kingdom	162	6
United States	152	8
Ireland	162	6

Source: *Excluded and Invisible - The State of the World's Children 2006*; UNICEF New York 2006

Table 33b: Infant, neonatal and perinatal mortality of selected countries

Average between 1997-2006 of available years	Ireland	USA	U.K.	Sweden	New Zealand	Netherlands	France	Canada	Australia
Infant mortality per 1000 live births	5.6	7.0	5.5	3.4	6.0	5.0	4.3	5.3	5.1
Neonatal mortality per 1000 live births	3.9	4.7	3.7	2.3	N/A	3.8	2.8	3.8	3.5
Perinatal mortality per 1000 total births	9.1	7.1	6.8	5.4	6.6	7.6	6.8	6.3	4.0

Source: OECD data (2006)

Conclusion

There is clear evidence internationally, particularly in terms of developments in neonatology and paediatrics which:

- Supports the case that very low birth weight (under 1,500gms) and very pre-term babies (less than 32 weeks gestation) need to be delivered in units in close proximity to a Level 3 NICU. Also because of the risk of birth with *in utero* fetal interventions these also need to co-locate with a Level 3 NICU. Clearly where paediatric intervention is required this unit needs to be co-located with paediatric services and a Level 4 NICU; and
- Supports the trend towards larger units, where the evidence suggests that neonatal outcomes are improved in units with larger volumes of births.

Interpreting this for GDA, there are enough VLBW babies to safely have three maternity units in the GDA, each of which needs a Level 3 NICU. There are currently not enough volumes of VLBW in GDA to sustain a fourth unit. Where paediatric intervention is required, these babies need to be in close proximity to a paediatric hospital, requiring that:

- A good neonatology network is developed, building on the strong team working that is already in evidence in the three maternity hospitals; and
- One of the Level 3 units be co-located with a paediatric hospital.

Other recent reports which support this direction include the “Guidelines for Perinatal care, American Academy of paediatrics 2007” and “Intrapartum care, NICE Guidelines 2007”.

6.3 Performance improvement opportunities in neonatology

In this section we outline actions that can be undertaken in the short-term to address the performance of the neonatal units.

6.3.1 Length of Stay

Length of stay for neonates is shown in table 34 below could be reduced through several routes:

- Reduction of intraventricular haemorrhage (IVH);
- Improved infection control management;
- Better management of Patent Ductus Arteriosus (PDA); and
- Repatriation to the referring hospital.

Table 34: Neonatal statistics 2005-2007

Key Neonatal performance statistics 2005-2007 table									
	NMH			RH			CWIUH		
	2005	2006	2007	2005	2006	2007	2005	2006	2007
ALOS (days)	9.9	8.5	8.7	11	11.7	11.1	9	9	11.08
No of post partum transfers into NICU	156	151	134	n/a	n/a	n/a	85	108	52

Source: Maternity hospitals workbook submissions

6.3.1.1 IVH

From our visits to the three maternity hospitals, review of their own analyses of information provided on the OVN data and discussions with consultants, the incidence of IVH is higher at the NMH whilst the Rotunda has a higher than expected incidence compared to OVN benchmarks. In the case of the NMH, one of the possible reasons might be the reluctance of the obstetricians to use tocolysis (tocolytic agents are used to

slow down labour in order to improve the circumstances for the baby, either by giving time to move the mother to a more appropriate setting or to give 48 hours of steroids), therefore babies sometimes do not have the extra 48 hours in utero which would otherwise allow them to have the full course of antenatal steroids. An audit undertaken by NMH has shown that the number of small babies which have completed a course of antenatal steroids is lower than it should be, which should be improved on. However, the cause of the higher than expected IVH rates at the Rotunda are unexplained as over 80% of eligible babies receive a full course of steroids.

The CWIUH has a relatively low IVH rate even though only 55% of eligible patients receive a full course of antenatal steroids.

In the short-term, IVH results in an increased length of neonatal stay. The long-term consequences of the increased IVH rate are an increase in disability, a life long dependency on health and social care and more neurosurgery due to the necessity for ventriculoperitoneal (VP) shunts (a procedure to remove excess fluid in the brain).

6.3.1.2 *Infection control*

Using OVN data, the CWIUH has a high staphylococcus epidermidis infection rate compared to the other two hospitals. The increased infection rate is almost certainly due to infrastructural issues with a poor and outdated environment. For example, the sinks are of poor condition and need replacing with appropriate temperature control taps.

At the CWIUH, there is an opportunity to improve the management of waste which should be considered in relation to improving infection control rates. In addition, the NICU is overcrowded and there are poor ancillary rooms. For example, Total Parenteral Nutrition (TPN) has to be prepared on the ward.

At the NMH, the physical conditions (not least that the NICU and SCBU are accessed by patients through the staff canteen) and associated overcrowding contributes to a high hospital acquired infection rate of MRSA and VRE. For example, the MRSA rates in NICU at NMH for the years 2005-2007 were 47, 53 and 22 compared to no reported cases at CWIUH and RH. The high infection rate leads to increases in neonatal morbidity and mortality rates.

There are also no real effective facilities for 'cohorting' infected babies to minimise the spread of infection. Related to this, benefit would be gained from having a 'holding area' for babies born outside the NMH to give time for bacteriological screening. A

concentrated campaign to improve hand washing compliance would also help facilitate improvement in this area.

6.3.1.3 *PDA*

There are opportunities to improve the service that is provided for PDA. There is usually a delay of up to 14 days in getting these babies into the Crumlin Hospital for PDA ligation, which is unacceptable. This occurs because there is no spare capacity in the children’s hospital and it is a poor use of surgeon time for the surgeon and their team to travel from the paediatric hospital to the baby’s hospital unit to perform the procedure there, as it can take half a day. In units where the NICU is on the site of paediatric surgery, such delays are minimal. This not only impacts on LOS but it increases the use of TPN and creates more damage to the babies’ heart and lungs. At the Coombe, the poor PDA ligation service may be the cause of their higher incidence of bronchopulmonary dysplasia (BPD). This results in babies spending up to 14 days longer on a ventilator than they should.

In the short-term, better bed management and liaison between the paediatric and maternity hospitals might help, but co-location of a NICU at the national paediatric hospital would lead to a much more timely intervention.

A big challenge for all three Dublin NICUs is the repatriation of babies back to their initial referring hospital outside the GDA. There needs to be more co-ordination of hospitals in the existing networks to facilitate timely transfer of care back to the referring hospitals.

6.3.2 *Cot Occupancy*

Outlined in the table below is the number of NICU and Special Care Baby Unit (SCBU) cots at the three maternity hospitals.

Table 35: Number of cots

Current number of cots at the three maternity hospitals		
Hospital	ITU/HDU Cots	SCBU Cots
CWIUH	14	19
NMH	21	14
RH	22	20

Source: 3 Maternity hospitals workbook submission

The difference in the number of cots is historic. The three hospitals would benefit from working as a network; managing the cots as a system would allow the three to manage capacity more effectively during periods of high activity.

In 2006/2007 the three maternity hospitals had the following occupancy levels in ITU/HDU and SCBU cots:

Table 36: Cot occupancy

Cot occupancy table 2006-2007 percentages			
Hospital	2006	2007	Variance
CWIUH	91	80	(11)
NMH	82	89	7
RH	88	91	3

Source: 3 Maternity hospitals workbook submission

Overall, cot occupancy is high, particularly at NMH and the Rotunda in 2007. Ideally, cot occupancy should be no greater than 80 percent in order to provide a safe and effective service for sick babies.

6.3.3 *Post partum transfers*

The number of post partum transfers will vary depending on the availability of cots and how many newborns require the cots. Variation in post partum transfers for particular hospitals is likely to be the result of there being no national network and cot management policy or system. Variance could be reduced by the three neonatal units working as a network with a clear link to a national system.

6.3.4 *Conclusions*

We conclude that in order to manage the existing capacity within the short-term and to improve the service for neonates and their families, the neonatal services in the GDA should:

- Operate as a network with clear and robust governance arrangements, including joint central funding and resourcing; and
- Establish referral and repatriation criteria to manage the repatriation of babies more effectively.

6.4 **Workforce**

In this section we outline the current workforce and its future requirements.

6.4.1 *Neonatologists*

Currently there are twelve consultant neonatologists in the GDA, four in each of the three maternity hospitals, all sharing various sessional commitments with TSH and Crumlin.

With the imminent changes to working practices resulting from the European Working Time Directive, 2009 and the move towards a consultant delivered service, there needs to be a gradual increase in consultants. In our view based on volumes and UK experience, the number of neonatologists needs to be at least five per unit but this will depend on future patterns of work and potential collaboration between the units. If these are to be staffed independently each unit will need seven neonatologists to comply with EWTD based on current throughput.

These figures are based on the general recommendations for consultant delivered services in intensive hands-on specialties. The best work on this has been done by the Royal College of Physicians of London by Prof Roy Pounder. The RCP and BAPM do not have published recommendations on numbers of consultant staff.

6.4.2 *Neonatology Nursing*

The rising demand for Neonatal Intensive Care has also highlighted the shortage of skilled neonatal trained nurses to provide the highly technological and skilled care required. Similar to the experience in the UK, neonatal units have experienced difficulties in recruiting and retaining trained neonatal nurses.

There are no national standards for neonatal staffing levels in Ireland. The British Association of Perinatal Medicine (BAPM, 2001) in the UK provides guidelines for the staffing of neonatal units, based on a large evidenced based research project, covering aspects of clinical management and neonatal staffing. This is the recognised gold standard for European best practice. Their recommended staffing levels reflect changes in therapies and clinical technological advances, thus providing a tool for allocating workload that accurately reflects the complexity of the case load versus patient needs. A recent OECD report also confirmed that in Ireland there are difficulties in attracting interest from nurses to train in some specialist areas such as neo-natal nursing.^{85c}

In addition to the neonatal nursing/midwifery complement for direct patient care, it is recommended that an adequate number of additional support staff, namely physiotherapists, administrative staff and care assistants are put in place. This is

^{85c} *OECD Public Management Reviews – Ireland – Towards an integrated public service (2008)*

supported by the BAPM (2001) who recommend that each neonatal unit should have trained support staff to minimise non-nursing duties that would be undertaken by nursing/midwifery staff.

An initial goal would be to bring nursing levels in all three hospitals up to 70% based on the BAPM minimum requirements. To achieve the recommended levels, staffing requirements for the current hospitals are as follows:

Table 37: Neonatal WTE staffing requirement based on BAPM standards

Neonatal Nurses				
	CWIUH	NMH	RH	Total
Current numbers WTE	64.6	58.0	59.08	181.68
Recommended numbers at 70%	58.8	73.85	63.0	195.65
Deficit at 70%	0	15.85	3.92	19.77
Recommended numbers at 90%	75.6	94.95	81.0	251.55
Deficit at 90%	11.0	36.95	21.92	69.87
Recommended numbers at 100%	84.0	105.5	90.0	279.5
Deficit at 100%	19.4	47.5	30.92	97.82

Source: BAPM standards

The CWIUH has already achieved 70% of the recommended BAPM levels; they are however some way from the 100% levels. To achieve this they would need 84 WTE in total. The NMH and RH do not meet the 70% target and require an additional 47.5 and 30.92 WTE respectively to achieve 100% compliance. However, many hospitals in the UK do not meet the gold standard and the staffing requirements should be considered within the context of developing a networked service for GDA which may enable the current imbalance to be addressed. As noted previously, it is important that all the workforce requirements should be considered within a long-term plan to develop the service and the roles and skills required.

6.4.2.1 *Nurse Education and Professional Development*

Almost 50 percent of nursing staff employed in the neonatal units in GDA are recruited from abroad, many of whom are not qualified in the speciality. No existing undergraduate programmes provide neonatal nursing education at the level needed to

develop the level of expertise that is required. The Dublin Maternity Hospitals, in partnership with the Royal College of Surgeons of Ireland (RCSI), continue to provide opportunities for staff to undertake specialist courses in neonatal care, currently at postgraduate diploma level with the planned introduction of a certificate programme. The appointment of clinical skills facilitators in each of the neonatal units to support newly employed staff and those undertaking these programmes is seen as pivotal and will contribute to strengthening the level of knowledge and skills among nurses/midwives providing neonatal intensive care and in recruitment and staff retention.

The development of the role of Advanced Nurse Practitioner (ANP) continues with a third post approved in the region. As a clinically based leader who exercises high levels of judgement and decision-making in the clinical area, the ANP is capable of producing positive effects at micro and macro levels by ensuring the application of best evidence to clinical practice⁸⁶. A recent OECD report stated that the number of Advanced Nurse Practitioners (ANPs) in Ireland remains low.^{86b}

6.4.2.2 **Workforce Conclusion**

Our key conclusion in relation to the neonatology workforce is the need to ensure both the Rotunda and NMH increase neonatology nurses to 70 percent of the BAPM standard and there is a continued focus on nurse education and professional development to help improve the overall effectiveness of the workforce.

⁸⁶ Bissell 2004

^{86b} OECD Public Management Reviews – Ireland – Towards an integrated public service (2008)

6.5 Future model of care for neonatology in the GDA

In this section we outline the model of care for neonatology in the future, describe the benefits that will be achieved through our recommendations and recommend the number and size of units required to deliver neonatal care in the GDA.

6.5.1 *Service Principles*

Each of the recommended maternity services needs a full Level 3 neonatal service. At present, there are enough neonates to support three maternity units. Any more than three units could potentially lead to reduced patient safety and clinical effectiveness if there was insufficient throughput to maintain expertise.

One of the maternity services should be co-located with the new national paediatric hospital. On this site there would be a Level 3 NICU plus a NICU for general and cardiac surgery. Locally (and uniquely to Dublin), this has been termed a Level 4 unit. Ideally, all babies who are antenatally identified as requiring immediate postnatal surgical care should be transferred *in utero* to the maternity service co-located with the national paediatric hospital. This maternity service will then be responsible for the management of the antenatal care.

We do not recommend the centralisation of care of all VLBW babies (less than 1,500 grams) or indeed very short gestation (e.g. less than 26 weeks gestation or less than 750gms) on one site. Each of the NICUs will have sufficient numbers of these babies to maintain their skills (see size of unit in section 6.6).

All units should have transitional care arrangements built into their planning. There also need to be clear protocols to repatriate babies back to their referral hospitals as soon as their need to be in one of the Dublin NICUs has been fulfilled.

Some of the babies surviving the newborn period will have long-term disability. There needs to be a strengthening of the community paediatric service across Dublin to provide the best and most appropriate service for them.

As outlined earlier, neonatal services for Dublin need to be planned and managed as a city-wide network with common standards and protocols for care. The cots should be managed as a whole with sufficient cots across the city to cope with peaks and troughs. We were very impressed with the neonatologists' desire to do this and the progress that had been made to date through the neonatal subcommittee.

There should be an overall Clinical Director of the neonatal network. This post could be aligned with the post of Director of Neonatology at the new national paediatric hospital and the role should be supported by a GDA cot management office for the network located at the NPH.

The NICU at the NPH would be geographically situated next to the surgical NICUs. We recommend that an overall Director of Neonatology should manage these units.

There also needs to be sufficient capacity within Dublin to meet the demand for referrals from elsewhere in Ireland.

If there are to be, in governance terms, three separate hospitals on the site of the new NPH i.e. maternity, paediatrics and general adult service, we recommend that Level 3 and Level 4 NICU should be part of the paediatric service.

There should be appropriate staffing of all three NICUs to BAPM standards including both medical and nursing staff.

The specialty of neonatal nursing should be developed separately from midwifery. This will take considerable planning and time for implementation.

6.5.2 *Pathway of care*

A robust pathway of care for neonatology is outlined in the diagram below. The same requirements supporting the care pathways for maternity and gynaecology apply for neonatology, namely:

- A consistent and clear set of standardised clinical protocols that avoid duplication and promote equitable service provision;
- Strong multi-disciplinary working across the primary, secondary and tertiary interface; and
- Robust IT infrastructure and performance management information to support the monitoring and management of the networked service.

Figure 10: Future Neonatology Care Pathway Diagram

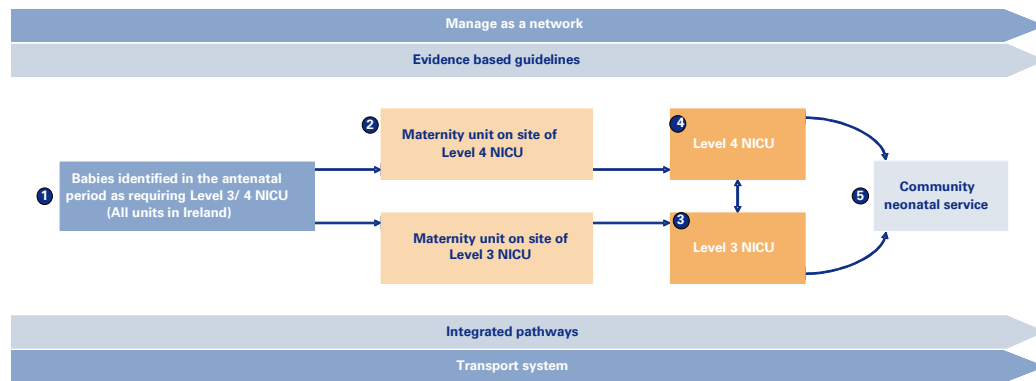


Table 38: Proposed neonatology care pathway description

Step in care pathway	Description	Supporting evidence and insight
1. Babies identified in the antenatal period as requiring Level 3/ 4 NICU	<ul style="list-style-type: none"> Maternity units in Ireland including the GDA, that identify mothers in the antenatal period who are going to deliver babies that will require surgical intervention post-natally should transfer the mother in the antenatal period to the maternity service that is located on the site of the new National Paediatric Hospital and the Level 4 NICU Maternity units across Ireland, excluding units with Level 3 NICU that identify mothers in the antenatal period who are going to deliver babies that will require Level 3 NICU should be transferred to a maternity unit with a Level 3 NICU in the antenatal period 	<ul style="list-style-type: none"> This will provide continuity of care for those babies requiring long-term treatment and follow-up as they will be born on the site where they will continue their care For babies requiring input from the multi-disciplinary team, being born on the site of paediatric services will be advantageous as the neonatologists will be able to effectively coordinate the input of the paediatricians, cardiologists, surgeons, infectious disease specialists, nephrologists, haematologists, neurologists, ophthalmologists and gastroenterologists
2. Maternity unit on site of Level 4 NICU	<ul style="list-style-type: none"> In order for babies to be delivered on the site of the Level 4 NICU, there needs to be a maternity unit on that site that can support at least 6,000 births annually 	<ul style="list-style-type: none"> The provision of a Level 4 NICU was advocated by the Eastern Region Strategy 2005-2011 which was further endorsed by the Joint Task Group for paediatrics. The Joint Task Group stated that a maternity unit on the site of the level NICU was required. Having a Level 4 NICU co-located with paediatrics and maternity will allow the integration of antenatal and postnatal care through the linking of perinatologists, obstetricians and paediatric sub specialists. In the case of complex conditions, there needs to be multi-disciplinary involvement of neonatology, obstetrics, perinatologist and paediatric services (i.e. cardiology, genetics, neurology, paediatric surgery and cardiac surgery)
3. Level 3 NICU	<ul style="list-style-type: none"> A neonatal network will have a cot management centre located at the Level 4 unit. Babies requiring NICU, but not Level 4 care, will be found a cot at Level 3 	<ul style="list-style-type: none"> Very small babies who are cared for in units with high volumes of very small babies have decreased mortality⁸⁷

⁸⁷ Level and volume of neonatal/intensive care and mortality in very low birth weight infants. Phibbs et al, 2007. New England Journal of Medicine.

Step in care pathway	Description	Supporting evidence and insight
	<p>units</p> <ul style="list-style-type: none"> The Level 3 units within Dublin will all look after very small babies (less than 750g) Transport will be carried out by a dedicated consultant delivered 24/7 neonatal transport service Once the need for Level 3 NICU has been resolved, the baby should be repatriated to the unit in which it was delivered 	
<p>4. Level 4 NICU</p>	<ul style="list-style-type: none"> The Level 4 NICU will care for babies requiring general or cardiac surgery post delivery Very small babies e.g. less than 750g will not be centralised in this or any other unit Babies born in Ireland who are identified as requiring surgery after the delivery will be transferred to the Level 4 NICU as soon as they are stable Once the need for Level 4 NICU has been resolved, the baby should be repatriated to the unit in which it was delivered 	<ul style="list-style-type: none"> There is a high volume of very low birth weight infants (more than 300 in a year) in the GDA. Therefore, there is enough activity across Dublin to maintain skills of the three units Between 2004 and 2007 the three maternity units in GDA had somewhat over 300 VLBW babies in each year
<p>5. Community neonatal services</p>	<ul style="list-style-type: none"> To free capacity in the NICUs and facilitate an earlier transfer of care to the family and community, neonatal outreach teams should support the transition into the community. Once the baby no longer requires neonatal services the case should be then taken up by the community paediatric service 	<ul style="list-style-type: none">

6.5.3 *Benefits of the future model of care*

We have outlined the benefits of our recommendations on the model of care for neonatology in line with the evaluation criteria agreed with stakeholders and the HSE.

Table 39a: Benefits of proposed pathway

Step in care pathway	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
1. Babies who have an identified need for Level 3/4 NICU should be transferred in-utero. The maternity service at this site will take over the antenatal care	<ul style="list-style-type: none"> • Much safer to transfer in-utero than once the baby is born 	<ul style="list-style-type: none"> • Designed around the needs of the mother and her baby. Will improve their experience of the service 	<ul style="list-style-type: none"> • Referral criteria will ensure equitable access to the service based on clinical need 	<ul style="list-style-type: none"> • Improved access to services through referral criteria 	<ul style="list-style-type: none"> • Clear accountability for care resides with the consultant responsible for the mother and then the baby 	<ul style="list-style-type: none"> • More efficient use of resources if baby is transferred in-utero 	<ul style="list-style-type: none"> • High risk cases will be centralised 	<ul style="list-style-type: none"> • Staff will be able to build relationships with women prior to delivery. Will attract staff who want to work with high risk pregnancies
2. At least 6,000 babies delivered on site of Level 4 NICU	<ul style="list-style-type: none"> • Safer to have a fully fledged maternity service than an understaffed small unit 	<ul style="list-style-type: none"> • Designed around the needs of the mother and her baby. Will improve their experience of the service 	<ul style="list-style-type: none"> • Sufficient capacity for all women who need to deliver on the site of Level 4 to access the service 	<ul style="list-style-type: none"> • Improved access to services through referral criteria 	<ul style="list-style-type: none"> • Important that robust governance arrangements are established 	<ul style="list-style-type: none"> • Will achieve economies of scale 	<ul style="list-style-type: none"> • Sufficient numbers to allow training and research 	<ul style="list-style-type: none"> • Will provide variety of work and case-mix
3. Level 3 NICU in the GDA will provide care for very small babies	<ul style="list-style-type: none"> • Maintains skills in all Level 3 units to safely care for small babies 	<ul style="list-style-type: none"> • Designed around the needs of the mother and her baby. Will improve their experience of the service 	<ul style="list-style-type: none"> • All babies born in the Dublin hospitals will have access to a Level 3 NICU if required without transfer 	<ul style="list-style-type: none"> • Improved access to services through referral criteria 	<ul style="list-style-type: none"> • All will have accountability and commitment to the network to take very small babies 	<ul style="list-style-type: none"> • No impact 	<ul style="list-style-type: none"> • Allow all units to carry out training and research in relation to very small babies 	<ul style="list-style-type: none"> • Staff in the Level 3 NICUs will maintain their skills in managing very small babies
4. 24/7 consultant led transport service	<ul style="list-style-type: none"> • Having a consultant led transport service will enhance the safety of the transport service 	<ul style="list-style-type: none"> • Designed around the needs of the mother and her baby. Will improve the experience of the service 	<ul style="list-style-type: none"> • No impact 	<ul style="list-style-type: none"> • Improved access to services through referral criteria 	<ul style="list-style-type: none"> • Will provide clear guidance on who is responsible for the care of the baby during transit 	<ul style="list-style-type: none"> • Dedicated resource will facilitate an improved utilisation of medical staff 	<ul style="list-style-type: none"> • No impact 	<ul style="list-style-type: none"> • Allow junior staff to spend time on the ward and undertake training

6.6 **Service configuration – size and number of units**

This section links to chapter 8 on future service configuration.

The number of Level 3 neonatal units will depend largely on the number of maternity units. On the basis of the recommendation made by the maternity services in the Eastern Region – A Strategy for the Future 2005-2011 there should be 0.4 to 1.5 intensive care cots per 1,000 births. As the GDA neonatal network will receive referrals from across Ireland, the upper limit to this ratio should be applied. On the basis of a maximum number of GDA births reaching a peak of 27,000 we recommend that the current 57 ITU/HDU cots be retained to provide neonatal care across the GDA network. Babies requiring surgery and care in a Level 4 NICU should be managed within this complement of cots.

We recommend that the distribution of resources in the neonatal network is based on the population needs of the service users. Maternity services providing care for women and infants in more deprived areas of Dublin will, as the international evidence shows, have greater requirement for neonatal services.

Therefore, whilst the number of maternity units provides a strong driver for the number of neonatal units, we believe that any more than three units would weaken the skills and experience in one or more units within the network, particularly with the very small (less than 750 grams) or short gestation (less than 26 weeks) babies. It is our recommendation that all of the units provide care for these very small babies. Our rationale for this recommendation is based on international evidence which shows that:

- It is difficult to predict where the very small babies are born. In most cases premature birth is not anticipated so all maternity services need to be able to manage with this group of babies;
- If one unit deals only with the very small babies (less than 750gms) it will have a high mortality rate. Working in such an environment is stressful and leads to low staff morale and potentially high turnover with the result that experience and skills become dissipated; and
- Having relatively equal units with one being Level 4 would be in keeping with international best practice and should allow Dublin to become a world leader in neonatal care.

It was concluded by Phibbs et al, 2007 that outcomes are better in units with more than 100 VLBW or very pre-term babies in each year. The table below (table 39b) of VLBW babies indicates that GDA has somewhat over 300 per annum and on this basis there is sufficient activity to maintain three units at Level 3 with one unit also providing a Level 4

service. This will mean that the very small babies (less than 750 gram) or short gestation (less than 26 weeks) where mortality is higher will not be concentrated in one unit and also that with the size at 100+ for VLBW babies, that skills will be adequately maintained to ensure they get the appropriate level of care.

Table 39b; Levels of VLBW babies in GDA

Birth weight grams	NMH			RH			CWIUH		
	2004/5	2005/6	2006/7	2004/5	2005/6	2006/7	2004/5	2005/6	2006/7
500-999	42	44	33	54	36	56	35	53	50
1,000-1,499	61	52	55	58	69	67	63	50	61
Total <1,500	103	96	88	112	105	123	98	103	111

Source: KPMG workbook submissions

By tri-locating maternity, adult and paediatric services on one site, there will be clear benefits as supported by international evidence for mothers and neonates requiring surgery in the immediate postnatal period.

The Bristol Inquiry (2001) concluded that “*Children’s acute hospital services should ideally be located in a children’s hospital which should be physically as close as possible to an acute general hospital*”.

Furthermore the Scottish Review of Paediatric Services (2003) specified that “*Children’s specialist acute services should be co-located with adult, maternity and neonatal services*”.

A number of internationally renowned hospitals referenced in “Children’s Health First” were consulted by members of the Joint Task Group. All emphasised the clinical, research and operational benefits of tri-location of paediatric, adult and maternity services. The Joint Task Group also noted the recent decision in Greater Glasgow to tri-locate paediatric, adult and maternity services.

Tri-location can have benefits for the following areas:

- Babies and their families will benefit from continuity of care if they are born at the unit where they will receive their surgery. Both in the short and long-term, tri-location will facilitate enhanced care for children with chronic care conditions which traverse into adulthood. Examples include patients with cardiac disease, cystic fibrosis or diabetes; and

- In cases where neonates would require the highly specialised care only available in the tertiary paediatric hospital, the location of the tertiary paediatric hospital adjacent to the obstetric delivery unit would reduce the need to transfer neonates by ambulance.

Fetal medicine and surgery is a developing clinical area and likely to experience growth in the future. This would be most appropriately developed in the context of location of maternity, paediatric and adult services.

6.7 Neonatology conclusion

The key conclusions on neonatology services are that:

- International evidence shows that whilst there are considerable variations in the pattern and structure of maternity and neonatal services around the world, there is general agreement that the clinical outcome for very pre-term babies (less than 32 weeks gestation or VLBW babies) is better if they are delivered on the site of a Level 3 neonatal unit. Where paediatric intervention is required this unit needs to be co-located with paediatric services;
- Ireland has a mortality rate which is comparable to many other developed countries, but not as good as Sweden;
- Within Dublin there are enough VLBW babies to safely have three maternity units, each with a Level 3 NICU. However, there are currently neither enough volumes to warrant a fourth unit, nor the level of expertise available to staff one;
- Operational improvements should be addressed/secured in the short-term, particularly in reduction of the incidence of intraventricular haemorrhage (IVH), infection control and better surgical management of PDA;
- There should be an increase in the number of neonatology nurses, particularly at the Rotunda and NMH to 70 percent of the BAPM standard to help improve overall service provision;
- The speciality of neonatal nursing should be developed separately from midwifery which will take considerable planning and time for implementation; and
- A new model of care needs to be introduced in Dublin for neonatology services underpinned by a robust network, sound governance arrangements, central funding, an effective 24/7 transport service and supported by the appointment of a neonatology

Director to drive change. This post could be aligned with the post of Director of Neonatology at the new NPH. In addition, there should be a GDA cot management office for the network, located at the new NPH.

6.8 High level action plan – neonatology

In this section we identify the key high level actions at each stage of the maternity, fetal medicine, gynaecology and neonatology pathways. For each of the actions we indicate whether it is to be achieved in the following timescales:

- Short-term – 0-1 years
- Medium-term – 2-5 years
- Long-term – 6-10 years

We provide key metrics that should be used by the work streams to ensure benefits realisation. We recommend that baseline audits be undertaken prior to any change of programme being undertaken.

The work streams and the programme board will need to undertake detailed planning, accounting for all the interdependencies, the GDA development control plan and funding available.

Table 40: High level action plan

Step in Care pathway	Recommendation	Actions required	Timescale	Key metrics for benefits realisation
1. Babies identified in the antenatal period as requiring Level 3/4 NICU	<ul style="list-style-type: none"> • Maternity units identify women who will have babies requiring Level 3 NICU or general/neonatal paediatric or cardiac surgery in the antenatal period • Transferred to the maternity unit on the site of the Level 3/4 NICU 	<ul style="list-style-type: none"> • Establish referral criteria for Level 3/4 NICU • Establish integrated pathway for those transferred 	<ul style="list-style-type: none"> • Long-term 	<ul style="list-style-type: none"> • Number of babies that are transferred for surgery postnatally
2. Maternity unit on site of Level 4 NICU	<ul style="list-style-type: none"> • Maternity unit on site of Level 4 NICU that can support at least 6,000 deliveries 	<ul style="list-style-type: none"> • Write / review business case • Agree funding design, procure build and commission 	<ul style="list-style-type: none"> • Long-term 	<ul style="list-style-type: none"> • Number of births on site of Level 4 NICU
3. Level 3 NICU	<ul style="list-style-type: none"> • A neonatal network will have a cot management centre • Babies born in other units will be transferred as soon as possible • Transport will be consultant delivered 24/7 • Repatriation to referring unit when clinically indicated 	<ul style="list-style-type: none"> • Identity network funding • Appoint network director • Agree transfer criteria and approach for transfer into Level 3 unit • Identity staffing requirements for 24/7 consultant delivered service • Recruit to posts • Establish repatriation criteria / guidelines 	<ul style="list-style-type: none"> • Short/Medium-term 	<ul style="list-style-type: none"> • Number of calls referring hospitals made before identifying cot • Time taken from decision to transfer to actual transfer • LOS for babies referred into unit
4. Level 4 NICU	<ul style="list-style-type: none"> • For babies requiring general cardiac surgery 	<ul style="list-style-type: none"> • Establish referral criteria and approach for both in and out of utero transfers • Build Level 4 NICU 	<ul style="list-style-type: none"> • Long-term 	<ul style="list-style-type: none"> • Number of babies requiring surgery not on the Level 4 NICU site
5. Community neonatal services	<ul style="list-style-type: none"> • Facilitate earlier transfer of care back to the family 	<ul style="list-style-type: none"> • Identify skill mix of group • Commission any training that may be required 	<ul style="list-style-type: none"> • Medium-term 	<ul style="list-style-type: none"> • Number of babies receiving care in the community • LOS in NICU units

7 Gynaecology

7.1 Introduction

This chapter focuses on gynaecology and gynaeconcology services.

In recent years the provision of gynaecology services internationally has changed immensely, partly because of the increased spectrum of women's health services from a preventive aspect (hormone replacement therapy in menopause, screening for pre cancer conditions, particularly diseases of the cervix, breast or ovary) and the increasing age of the population which is increasing demand in the field of incontinence management and incidence of many gynaecological cancers (ovary and endometrium).

In Dublin gynaecology services have followed the more traditional format of generalist clinics and consultants providing a general clinic service covering all aspects of benign gynaecological disease management. In addition, these consultants have had to also provide a full obstetric service and on-call commitment. It is recognised that to move ahead and improve service delivery within gynaecology requires a greater move toward special interest and sub-specialty service provision.

7.1.1 *Structure*

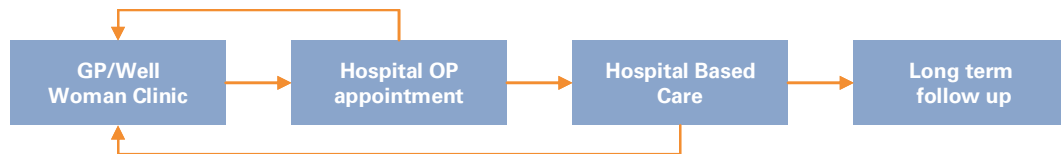
After this brief introduction we assess the following areas:

- Current model of care;
- Performance improvement opportunities in gynaecology;
- Workforce;
- Future model of care; and
- High level actions to assist in implementation of the future model of care.

7.2 Current model of care

7.2.1 Introduction

In this section we present the key features of gynaecology and fertility medicine services in the GDA and a high level overview of the current care pathway which is presented in the diagram below with accompanying narrative on the key steps.



7.2.2 Description of the key steps in the gynaecology care pathway

Table 41: Current care pathway

Stage	Description
1. GP / Well Women clinic	Women visit their GP or a doctor at a well woman clinic who, if they decide it is appropriate, refer the patient to the gynaecologist at a secondary care centre for complex medical treatment or surgical intervention.
2. Hospital OP appointment	All women are seen by the consultant team on their first visit. Women with private medical insurance may self refer to some gynaecologists in their private rooms without a GP letter (although this is not recognised good practice as referrals should come via a GP).
3. Hospital based care	Gynaecology treatment is provided by gynaecologists including complex medical treatment and surgery.
4. Long-term follow-up	Most women continue to receive their care with hospital consultants.

7.2.3 Current service location

Gynaecology services within the GDA are predominantly provided within a hospital setting. There are currently 13 public hospitals providing gynaecology services:

- Adelaide and Meath incorporating the National Children’s Hospital (AMNCH);
- Beaumont Hospital; (BH)
- Connolly Hospital Blanchardstown; (CHB)
- Coombe Women and Infants University Hospital;
- Mater Misericordiae University Hospital;
- Naas General Hospital;

- National Maternity Hospital;
- Our Lady's Hospital, Navan;
- Rotunda Hospital;
- St Columcille's Hospital, Loughlinstown;
- St James's Hospital;
- St Michael's Hospital, Dun Laoghaire; and
- St Vincent's University Hospital.

The services in some of the acute or general adult hospitals are linked to one of the maternity hospitals through patient referral and some joint consultancy posts as follows:

- CWIUH
 - St James' Hospital (SJH); and
 - Adelaide and Meath, Incorporating the National Children's Hospital (AMNCH).
- NMH
 - St Vincent's University Hospital (SVUH);
 - St Michaels Hospital (SMH); and
 - St Columcille's Hospital (SCH).
- RH
 - Mater Misericordiae Hospital (MMH);
 - Beaumont Hospital (BH); and
 - James Connolly Hospital (JCH).

The cancer strategy "A Strategy for Cancer Control in Ireland 2006" has advocated the need for the establishment of large specialist centres for the diagnosis and treatment of cancer.

The HSE has recently announced its cancer care strategy, which stated that there will be four cancer networks nationally, with each network having a designated gynaecology centre. Two networks will be organised within the GDA, with two designated cancer centres in each network as follows:

Dublin North East, which will have the MMH and BH as the two cancer centres; and

Dublin Mid Leinster, which will have SJH and SVUH as the two cancer centres.

The decision regarding which centre in each network will be the designated gynaecology centre has not been announced yet.

7.3 Public/private split

Outlined in the table below is a breakdown of public v private activity volumes provided in the three maternity hospitals between 2004 and 2007.

Table 42: Public/Private Gynaecology activity 2004

Gynaecology	2004						
	Elective In-patient		Non-elective In-patient		Total	Public %	Elective %
	Public	Private	Public	Private			
CWIUH	527	535	-	-	1,062	49.6	100.0
NMH	652	412	-	-	1,064	61.3	100.0
RH	490	733	-	-	1,223	40.1	100.0

Source : KPMG Workbooks

Table 43: Public/Private Gynaecology activity 2007

Gynaecology	January – October 2007						
	Elective in Patient		Non-elective in Patient		Total	Public %	Elective %
	Public	Private	Public	Private			
CWIUH	273	491	67	18	849	40.0	90.0
NMH	487	271	26	6	790	64.9	95.9
RH	295	503	33	29	860	38.1	92.8

Source : KPMG Workbooks

Both CWIUH and RH have shown a decline in the percentage of public patients between 2004 and 2007. Both CWIUH and RH are now carrying out significantly more private work than public gynaecology work, with obvious pressure on public beds.

It should be noted that the fall in absolute numbers of private patients is mirrored by a similar fall in absolute numbers of public patients in general. This could be due to an increase in gynaecology workload elsewhere, in either public or private organisations.

7.4 **An assessment of the current service model**

7.4.1 ***Introduction***

Gynaecology services have seen many changes over the past decades. What were once called Gynaecology Clinics are now sub divided into number of sub specialty clinics – such as:

- Fertility and Endocrinology;
- Urogynaecology;
- Gynaeconcology;
- Colposcopy;
- Sexually transmitted diseases;
- Pelvic Pain;
- Family Planning;
- Hormone replacement; and
- Well – woman services.

In addition there have been major changes in the types and indications for surgical intervention in many of the benign gynaecological diseases (menstrual disorders, incontinence, infertility). This means that medical (non-surgical) interventions are more frequently utilised and indeed surgery, when required, may now more readily be performed in an outpatient or day case setting (or performed laparoscopically, rather than by open surgery). Canada, France, New Zealand and the UK all have increased their day case rates and have greater rates of laparoscopic surgery.

7.4.2 ***Comparative international analysis on Gynaecology***

Outlined below are some high level international trends in gynaecology services with an assessment on how these can positively inform and influence change in the GDA.

Australia

In Australia, a recent report has made a number of recommendations on gynaecology cancer. Key amongst these has been the call for initial funding from the Commonwealth Government for the establishment of a stand-alone Centre for Gynaecological Cancers within the auspices of Cancer Australia to provide a 'national voice' for gynaecological cancer issues⁸⁸.

In Australia a significant percentage of routine gynaecology procedures are carried out as day procedures and this is consistent across the public and private sectors. For example, 67% of hospitalisations for gynaecological procedures were day cases in public hospitals in Australia 2001-02, with a similar rate of 71.3% for private hospitals⁸⁹.

France

In France, although there is no significant body of research or data available, our enquiries indicate that gynaecological practice has changed over recent years. Now greater numbers of routine gynaecology procedures are treated as day cases with frequently less hospitalisation of patients. There is also a major trend towards more laparoscopic surgery, with the establishment of national centres of excellence in this field. For example, the excellent laparoscopic centre in the Polyclinique Hotel-Dieu in Clermont-Ferrand, Auvergne, France.

Sweden

Similar to obstetrics, gynaecology services have been centralised and hospitals tend to specialise in specific services. For example, in southern Sweden, surgery for gynaecological tumours take place in Lund, while infertility treatment is centralised in Malmo with post operative 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 also been a move to increase the numbers of treatments by day procedure, advanced laparoscopic surgery and robotic laparoscopic surgery. This has contributed to reducing ALOS and reducing the number of gynaecology beds required.

⁸⁸ *Breaking the silence: a national voice for gynaecological cancers reports, Commonwealth of Australia, 2006*

⁸⁹ *AIHW National Hospital Morbidity Database, Australia's Health 2004, AIHW*

New Zealand

In New Zealand, gynaecology services are provided by hospital-based or private practice gynaecologists. Routine gynaecology services are provided in secondary hospitals with an increasing trend towards day case surgery. 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 gynaecology are located on acute hospital sites permitting proximate access to oncology units where a multi-disciplinary team is utilised for best outcomes.

United Kingdom⁹⁰

Within the UK, gynaecological practice has changed significantly over recent years. Therapeutic options for many common gynaecological conditions no longer include major surgery, which is increasingly coming under the auspices of the sub-specialist. This means that the number of major surgical procedures is decreasing and those that remain are often complex, while more routine procedures are being carried out as day surgery or day cases⁹¹. There is also a clear trend for greater percentages of routine gynaecological procedures to be undertaken as day cases, thereby avoiding hospitalisation. The tables below indicate that a large volume of female gynaecological procedures are performed as day cases with this trend increasing year on year.

Table 44: UK All Female Reproductive Episodes and Day Case Information, 2002/03-2006/07

Year	Total Episodes	No of Inpatients	No of Day Cases	Day Case Rate %
2002/03	456,304	155,917	298,990	65.8
2003/04	450,843	157,032	292,557	65.1
2004/05	431,653	149,503	280,830	65.3
2005/06	459,478	150,430	307,567	67.2
2006/07	450,463	143,747	305,035	68

Source: Dr Foster

⁹⁰ In the UK there is noticeably more data available than the other countries reviewed.

⁹¹ *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*

Table 45: % Day Cases for Specific Gynaecology Procedures, UK 2002/03-2006/07

Year	Excision of Cervix Uterine %	D&C %	Laparoscopic %
2002/03	88.4	78	70.5
2003/04	87.7	78.2	69.1
2004/05	88.2	79.2	69.1
2005/06	88.3	81	68.9
2006/07	89.8	81.9	69.5

Source: Dr Foster

There has been an appreciable trend towards the medical management of many gynaecological conditions. This is illustrated by the considerable impact that the medical management of menorrhagia has had on the number of women undergoing hysterectomy. UK Department of Health (DoH) Hospital Episode Statistics (HES) show a 20% reduction in hysterectomy rate from 1996 to 2002 and information from individual units suggests that the fall in the numbers of hysterectomies may be as high as 52%. The trend towards medical management means there will be an increasing need for gynaecological services in the community with a wider multi-disciplinary team involved in the provision of care.

Such changes have implications for working practices in the future:

- Consultants need to lead a multi-disciplinary approach to ensure that health provision is woman-centred and appropriate;
- Major surgery becomes a sub-specialist area and most major surgery will be undertaken by a smaller number of consultants who are able to maintain their skills despite the overall reduction in surgical workload (increased sub-specialisation);
- Many hospitals will work within managed clinical networks to provide the necessary major gynaecological surgical cover.

The DoH has set up the “Care Closer to Home Demonstration Project”⁹² to consider how care can be shifted and delivered in innovative ways to make it more convenient for patients. Providing more convenient and accessible services was one of the key messages that came out of a public consultation exercise. The project is evaluating care pathways and models of care in six specialties - dermatology, orthopaedics, gynaecology, urology, ENT and general surgery.

⁹² www.dh.gov.uk

Specific gynaecology projects include:

- At Guy's and St Thomas's a predominantly nurse-led Emergency Gynaecology Unit opened in 2003 giving the local female population 24-hour access to emergency gynaecology and early pregnancy problems;
- Bradford Teaching Hospitals, NHS Foundation Trust – Westwood Park Diagnostic and Treatment Centre offers a gynaecology service to patients as an alternative to being treated in hospital. Treatments include fitting Mirena coils, hysteroscopies or ablations;
- Newcastle's Community Gynaecology Service was established in 1997 to improve access to both primary and secondary gynaecology care for socially disadvantaged groups in the city. Hysterectomy rates have fallen by 50 per cent in the last 10 years and female sterilisation by 75 per cent in Newcastle as the sterilization counselling service is now led by the community gynaecologist who offers all long-acting contraceptive methods.

The RCOG has developed a set of key clinical standards covering the practice of obstetrics and gynaecology⁹³, and these are currently being updated for re-issue in Autumn 2008. The gynaecology standards include:

- Colposcopy;
- Urogynaecology Services;
- Menorrhagia;
- Gynaecological Examination;
- Outpatient Times.

Conclusion and implications for GDA

The evidence internationally shows a clear trend in increasing outpatient care and day case surgery through the use of laparoscopic surgery and the medical management of conditions which presents a major opportunity for improvement in the GDA.

⁹³ *Advice on Planning the Service in Obstetrics and Gynaecology, July 2002, Royal College of Obstetricians and Gynaecologists*

7.4.3 **Comparative international analysis on gynaecology**

Outlined below are some high level international trends in gynaecology services with an assessment on how these can also positively inform and influence change in the GDA.

Canada

- In Canada gynaecology is seen as a subspecialty and is provided within an oncology setting. A recent evidence-based review concluded that patients receiving initial surgical management for ovarian epithelial cancer should be operated on by gynaecologic oncologists⁹⁴.

Sweden

- In Sweden gynaecology is similar to obstetrics with gynaecology treatments concentrated in larger obstetric/gynaecology departments (whilst maintaining strong collaboration with oncology units). Hospitals tend to specialise in specific services. For example, surgery for gynaecological tumours takes place in Lund.

United Kingdom

- Over the course of the last decade there has been large-scale development and reconfiguration of gynaecological cancer services in the UK. Supporting infrastructure, manpower, expertise, processes and clinical governance have been established to ensure equitable, high-quality care for all women, regardless of location. Clinical care is administered by multi-disciplinary teams working within cancer centres (specialty teams) and cancer units (locality teams), and all but low-risk endometrial and micro invasive stage 1a cervical cancers are referred to these centres for treatment. Referral guidelines and patient pathways are agreed across cancer networks, and assessed against rigorous measures via the peer review process. In Belfast for example, gynaecology is located at the new cancer unit in Belfast City Hospital, while the maternity services are located at the Royal Victoria Hospital and the Ulster Hospital.
- The RCOG in the UK has set standards for gynaecology⁹⁵ summarised as follows:
 - Women with gynaecological cancer should receive their care in cancer centres and be managed by the relevant multi-disciplinary team, and
 - There should be an agreed urgent referral pathway to the local gynaecological department with a stated maximum time to hospital appointment.

⁹⁴ *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

In addition, other studies support centralisation of gynaecology services into cancer services. For example, Bristow et al in a study on ovarian cancer concluded that ‘centres for primary surgery may be the best means currently available for improving overall survival’.⁹⁶ This was supported by a further study which concluded that centralisation of primary ovarian cancer surgery in one health region in Norway has improved survival for patients with advanced disease.⁹⁷

Conclusion and implications for GDA

There is evidence particularly in the UK, of gynaecology services being provided where there is proximate access to appropriate oncology, chemotherapy, radiotherapy services and multi-disciplinary teams. The RCOG guidelines and the developments in practise in the UK clearly point to the need for gynaecology to be provided in cancer centres whereby women have access to a multi-disciplinary team, not just gynaecologists, specialising in cancer treatment. Therefore, it is clear that gynaecology should not be tied to gynaecology services provided in conjunction with obstetric units where there is not proximate access to a multi-disciplinary team. The gynaecology service needs to be supported by an appropriate cancer referral network.

In the respect of GDA this international development has been recognised through the recent national cancer announcements which demonstrate the need to centralise and specialise cancer services. However, it is clear from developments in the UK that this is not a driver for co-locating obstetric services with gynaecology services.

⁹⁵ *Advice on Planning the Service in Obstetrics and Gynaecology*, July 2002, Royal College of Obstetricians and Gynaecologists

⁹⁶ *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

⁹⁷ *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 and Gynecology* 2003;102:499-505

7.4.4 Gynaecology activity analysis

Outlined in the table below is a profile of the main gynaecology activity in hospitals in the GDA with a high level reference to overall gynaecology activity Ireland in 2005.

Table 46: Gynaecology activity analysis in 2005

Gynaecology activity in 2005									
	Hospital days			Discharges			Patients		
	No.	% (hospital listed)	% (all Ireland hospitals)	No.	% (hospital listed)	% (all Ireland hospitals)	No.	% (hospital listed)	% (all Ireland hospitals)
Beaumont Hospital	4,986	9.0	3.6	1,014	7.4	2.6	685	6.4	2.4
St James's Hospital	9,730	17.6	7.0	2,352	17.2	5.9	852	8.0	3.0
St Columcille's Hospital, Loughlinstown	650	1.2	0.5	96	0.7	0.2	92	0.9	0.3
Mater Misericordiae (Public and Private combined)	8,729	15.8	6.3	1,331	9.7	3.4	925	8.7	3.2
St Vincent's University Hospital (Public and Private combined)	8,854	16.0	6.4	853	6.2	2.1	631	5.9	2.2
Adelaide and Meath incorporating the National Children's Hospital	5,489	9.9	3.9	1,022	7.5	2.6	897	8.4	3.1
Connolly Hospital Blanchardstown	1,668	3.0	1.2	320	2.3	0.8	288	2.7	1.0
National Maternity Hospital	3,720	6.7	2.7	1,826	13.4	4.6	1,727	16.2	6.0
Coombe Women and Infants University Hospital	5,568	10.1	4.0	2,467	18.0	6.2	2,308	21.6	8.0
Rotunda Hospital	4,188	7.6	3.0	1,964	14.4	4.9	1,851	17.3	6.4
St Michael's Hospital, Dun Laoghaire	302	0.5	0.2	143	1.0	0.4	142	1.3	0.5
Naas General Hospital	418	0.8	0.3	78	0.6	0.2	76	0.7	0.23
Our Lady's Hospital, Navan	864	1.6	0.6	208	1.5	0.5	199	1.9	0.7
Total (hospital listed above)	55,166	100.0	39.7	13,674	100.0	34.4	10,673	100.0	37.0

Source : Health Atlas based on HIPE 2005 data

Gynaecology activity in the GDA accounts for some 40% of all gynaecology activity in Ireland. It is clear that there are too many hospitals in the GDA delivering small volumes of activity and these are not sufficiently viable in the long-term. This in conjunction with international developments, provides a need to consolidate services more and rationalise inpatient gynaecology provision in the future down to three co-located maternity and acute general hospital sites (discussed later in this chapter). The need to develop outpatient and community based care in conjunction with this is also discussed below.

7.4.5 *Gynaecology activity analysis*

Outlined in the table below is a profile of the main gynaecology activity in hospitals in the GDA with a high level reference to overall gynaecology activity Ireland in 2005.

Table 47: Gynaecology discharges in 2005

Output by hospital (2005, Gynaecology discharges)									
	Hospital days			No. discharges			No. patients		
	No.	% (hospitals listed)	% (all Ireland Hospitals)	No.	% (hospitals listed)	% (all Ireland Hospitals)	No.	% (hospitals listed)	% (all Ireland Hospitals)
St James's Hospital	6,756	31.8	12.4	1,778	37.8	12.7	339	14.5	5.8
Adelaide and Meath incorporating the National Children's Hospital	1,851	8.7	3.4	246	5.2	1.8	173	7.4	3.0
Mater Misericordiae (Public and Private combined)	3,605	17.0	6.6	595	12.6	4.2	279	11.9	4.8
St Vincent's University Hospital (Public and Private combined)	2,451	11.5	4.5	324	6.9	2.3	152	6.5	2.6
St Columcille's Hospital, Loughlinstown	190	0.9	0.4	10	0.2	0.1	10	0.4	0.2
Beaumont Hospital	1,667	7.9	3.1	402	8.5	2.9	119	5.1	2.0
Connolly Hospital Blanchardstown	242	1.1	0.4	34	0.7	0.2	30	1.3	0.5
National Maternity Hospital	1,523	7.2	2.8	553	11.8	3.9	520	22.3	8.9
Coombe Women and Infants University Hospital	1,399	6.6	2.6	391	8.3	2.8	362	15.5	6.2
Rotunda Hospital	1,177	5.5	2.2	311	6.6	2.2	297	12.7	5.1
St Michael's Hospital, Dun Laoghaire	32	0.2	0.1	14	0.3	0.1	14	0.6	0.6
Naas General Hospital	104	0.5	0.2	13	0.3	0.1	13	0.6	0.6
Our Lady's Hospital, Navan	233	1.1	0.4	33	0.7	0.2	27	1.2	1.2
Total (HOSPITALS LISTED ABOVE)	21,230	100.0	39.1	4,704	100.0	33.5	2,335	100.0	41.5

Source : Health Atlas based on HIPE 2005 data

This table also demonstrates that there are too many small units (Loughlinstown, Blanchardstown, St. Michael’s, Navan and Naas) undertaking gynaecology services. The current activity levels do not provide sufficient critical mass for staff (medical and nursing) to maintain the levels of expertise present within larger units and should be rationalised to the two designated gynaecology sites.

7.5 Performance improvement opportunities in gynaecology⁹⁸

Outlined in the table below is the core operational information for gynaecology in the three maternity hospitals in 2005-06 to help inform the assessment of potential opportunities to improve performance.

Table 48: Gynaecology activity information table 2005 and 2006

Key facts									
	NMH			Rotunda			Coombe		
	2005	2006	% variance	2005	2006	% variance	2005	2006	% variance
Number of inpatient episodes	1,110	975	(12.5%)	974	974	0	994	1,023	2.9%
Number of day cases	863	790	(8.5%)	1,150	1,055	(8.2%)	1,800	1,904	5.7%
Imputed day case rate	44%	45%	1%	54%	52%	(2%)	64%	65%	1%
Number of outpatients	9,305	9,551	2.6%	8,681	8,339	(3.9%)	10,033	10,233	2%
DNA rate	23%	23%	0	38.5%	46.3%	20%	28.2%	24.2%	(14%)
ALOS days	3.3	3.19	(3.3%)	3.1	2.7	(12.9%)	4.39	4.45	1.4%

Source: Three maternity hospitals workbook submissions

7.5.1 Inpatients and daycases

The important issue in relation to inpatient activity in the three maternity hospitals is the scope to reduce the number of inpatient admissions by increasing gynaecological day case activity particularly at the NMH and Rotunda. Coombe compares favourably to the UK daycase rates in table 44. This would align with international developments in gynaecology.

Specifically, there are opportunities to increase the numbers of procedures done as day cases, including all hysteroscopies⁹⁹, diagnostic and Level 1 and Level 2 laparoscopies.

⁹⁸ Urogynaecology is not really an established sub-speciality within the GDA at present. There is therefore a lack of current information to enable full analysis within this report.

Within the GDA, outpatient hysteroscopy services should be developed for women with post menopausal bleeding and menstrual disorders – incorporating them into one-stop clinics with ultrasound. Outpatient endometrial ablation service for menorrhagia should be developed. In order to redress the overall imbalance between inpatient and daycase activity, the service could also undertake a greater amount of laparoscopic surgery. From our analysis of the data submitted to us, many of the procedures that could be carried out macroscopically are being undertaken through open abdominal surgery and therefore there is an opportunity to change this form of intervention and the associated clinical outcomes. Such a trend will require the appropriate provision of equipment and staff training programmes. In addition to these initiatives, some gynaecology and gynaecology activity could be transferred to other acute general hospitals in the GDA to help alleviate the pressure in managing the obstetric service. However, this needs to be carefully assessed and considered in partnership with the relevant acute general hospitals and has not been a major area of focus in this review.

7.5.2 *Outpatients*

Within the GDA, gynaecology referrals into secondary care are currently unmanaged. There are no GP referral criteria to facilitate access of service. The provision of private insurance means that women can, and do on occasion, go directly to the consultant gynaecologist. This results in some inappropriate consultant referrals of cases which could be better managed by other members of a multi disciplinary team (particularly nurses or physiotherapists).

The plan to reduce the number of inpatient episodes within gynaecology presents an opportunity to increase outpatient activity and performance within the GDA. For example, menstrual dysfunction (i.e. heavy bleeding), is very common in women of reproductive age and recent advances in medical treatment (e.g. mirena coil and second generation endometrial ablation, investigation and definitive management) can be performed in outpatients, thereby decreasing inpatient and/or day case activity and improving clinical outcomes. These services could be developed as one stop clinics with ultrasound facilities to facilitate this improved performance and could be provided over time within the community (dependent on necessary improvements in overall community care provision).

⁹⁹ *Hysteroscopy is used to investigate abnormal bleeding in pre-menstrual women and women with post menopausal bleeding. In many units, such as Leicester and Derby in the UK, this is done after a trans-vaginal scan in a one-stop clinic for suitable patients.*

7.5.3 *DNA rates*

As outlined in the gynaecology activity analysis at table 48 above, the DNA rates are too high relative to best international practice for all three maternity hospitals in 2005/06. The Rotunda recorded a particularly high DNA rate of 46.3% in gynaecology outpatients. In the UK gynaecology services on average have a DNA rate of 9%¹⁰⁰ (with best practice at 5%). We believe a major contributing factor to the high DNA rates in the GDA is the lack of a robust appointment and booking system. Currently, women have to arrive for their appointment without a specified time to be seen, which is a practice commonly applied to all three maternity hospitals.

This creates a high volume of patients needing to wait, and could be significantly improved through the introduction of a full booking system. Where this has been introduced in the UK, it has greatly improved DNA rates and patient satisfaction.

Within the overall context of outpatients, GPs can also play a significant role by helping avoid the need for a referral to hospital by treating more effectively initial gynaecological problems at the outset. For example, pelvic pain, menorrhagia.

7.5.4 *Average length of stay*

As outlined in the activity analysis at table 48 above the Coombe's average length of stay at 4.45 days for inpatient gynaecology procedures is significantly higher than at the other two hospitals where it stands at 3.19 in the NMH and 2.7 days in the RH respectively in 2006 (with no discernible differences in case-mix between the three hospitals). What could be driving these ALOS rates is different socio-economic factors within the health economy and relatively underdeveloped community services. It may also be the case that the Coombe with a higher day case rate may be undertaking the most serious cases as inpatients with an obvious consequence of a higher ALOS.

ALOS could be reduced through more effective discharge planning, providing women with expected dates of discharge prior to admission, daily multi-disciplinary team meetings to ensure progress against planned date of discharge and other service redesign initiatives (including access to diagnostics, daily consultant ward rounds etc).

Given the high demand being placed on the maternity hospital infrastructure, it is essential that reducing length of stay is a high priority in order to release capacity wherever possible. This should apply to patients in both the public and private sectors. Reducing ALOS in combination with the drive to undertake more gynaecological work in

an outpatient setting (and potentially at other acute general hospitals in Dublin), will help release inpatient capacity for more appropriate or urgent cases.

7.5.5 *Screening*

Colposcopy services are currently provided at:

- Beaumont Hospital;
- Coombe Women and Infants University Hospital;
- National Maternity Hospital;
- Rotunda Hospital;
- St James's Hospital; and
- Adelaide and Meath incorporating the National Children's Hospital.

Colposcopy services should be established in each of the three main gynaecological hospitals which we discuss later in this chapter. The level of need will determine whether it is sensible to provide colposcopy in six hospitals as currently occurs or whether rationalisation of services can be achieved.

Whilst there is at present no national cervical screening programme in Ireland, one is to be established during 2008. The advent of this cervical screening programme is likely to result in an increased demand in colposcopy services beyond the three main units. Therefore, the three maternity hospitals should be actively assessing how they could address this forecast increase in demand. For example, in order to maintain the skills and competencies required, an individual needs to undertake a minimum of approximately 50 colposcopies per annum¹⁰¹.

¹⁰⁰ Note: (1) Dr Foster benchmarking dataset 2007

¹⁰¹ Source: BSCCP guidance

7.5.6 Fertility services

Currently eight units provide fertility services across Ireland as shown in the table below:

Table 49: Fertility activity analysis table 2005

	Number of first consultations	Ovulation induction cycles	IUI	IVF and ICSI	FET
Clane General Hospital	324	300	300	216	63
Cork Fertility Centre	590	410	616	487	58
Galway Fertility Clinic	670	2,030	190	428	45
HARI (RH)	Not available	216	167	716	231
Kilkenny Clinic	-	-	67	44	15
Merrion Fertility Clinic (NMH)	507	61	269	129	40
Morehampton Clinic, Donnybrook	49	0	48	0	0
Sims Clinic, Rathgar	752	312	264	660	212

IVF and ICSI: Invitro fertilisation and intracytoplasmic sperm injection , FET: Frozen embryo transfer

Source : *The Future of Maternity and Gynaecology Services in Ireland 2006-2011 (Institute of Obstetricians and Gynaecologists, 2006)*

The current national policy in relation to fertility services is that assisted reproduction services are to be provided on a private basis only. The RH has made the decision that assisted reproduction services will be made available to medical card holders at no charge, in addition to their private patients. The Board of the RH has committed itself to meeting the cost of these services for public patients from within their existing budget. It is most likely that private provision will continue to be the main stay of these services.

In May 2005 the Commission on Assisted Human Reproduction (CAHR) produced a report on the regulation aspects of assisted human reproduction. This was the first step in determining a policy response to Assisted Human Reproduction and it made 40 recommendations on AHR Services in Ireland. The Government decided to refer the report to the Joint Oireachtas Committee on Health and Children so that the Committee could consider and report in due course on its views of the recommendations of the Commission. Meanwhile, the Minister instructed the DOHC on the development of an appropriate regulatory framework.

We cannot anticipate the outcome of their report but can expect that there may be some recommendation around licensing of these units within a recognised government (or government agency) regulatory framework. Guidelines on audit of the outcomes of these units should be developed if they wish to retain their licence. If the government decides

to provide a public service, separate work will be required to determine the optimum number of such units.

It should be noted that IUI can be performed in most units with a fertility special interest consultant. IVF, ICSI and FET need to be provided only in units with a recognised sub-specialist trained reproductive medicine specialist.

7.6 Workforce

7.6.1 *Operating Departments /Theatre Nursing*

The Operating Departments in the three maternity hospitals in Dublin are under increasing pressure. In addition to the planned minor and major gynaecological surgery undertaken in the units, emergency surgery for c-sections, evacuation of retained products of conception and ectopic pregnancies are a regular occurrence throughout any 24hr period. The projected increase in demand on maternity services clearly outlined in the Maternity Services in the Eastern Region – A Strategy for the Future 2005 -2011¹⁰², will no doubt have an impact on the activity in the operating departments in the future. The three units need to ensure that they have the right numbers of staff with the right knowledge and skill to meet this demand.

The development of the following staffing levels was based on examining resources within the operating department in relation to the following variables:

- Planned/elective sessions;
- Emergency service demands – over the 24hr period;
- Co-ordination of service demands;
- Decontamination/preparation of theatre for next case;
- Patient transfers;
- Other activity performed in theatre (e.g. sterilisation of equipment);
- Continued professional education of staff; and
- Procurement and other equipment management.

Following calculation of recommended staffing levels using the National Association of Theatre Nurses (NATN) guidelines and professional judgement, a comparative exercise was undertaken with several other operating departments throughout the country and

proposed numbers were also benchmarked against recommended staffing levels by the Irish Nurses Organisation and against those published from other countries. This analysis is outlined in the table below.

Table 50: Theatre workforce requirements

Theatre Nurse workforce requirements				
	CWIUH	NMH	RH	Total
Current numbers	20	20	18	58
Recommended numbers	34.5	27.45	26	87.95
Deficit	14.5	7.45	8	29.95

Source: HSE Short-term Action Plan 2007 (unpublished)

In order to ensure consistency with our other workforce recommendations, it is important that a robust plan is established to progressively address this deficit in theatre nurse staffing. However, this plan should be developed on the basis of also improving productivity of theatres through full service redesign to include active use of KPIs, improvements to change over times, early starts/late finishes, anaesthetic rotas, management of consumables and other workforce initiatives. This should have a positive impact on the overall numbers required and be incorporated into the plan.

We have highlighted the theatre nursing analysis within this report as it is an area of acute shortage within the three maternity hospitals. In the future model of care there will also be a need to strengthen and develop other roles, particularly within community gynaecology that we discuss in the next section. Overall the future workforce requirements will need to be subject to a detailed workforce review as part of future model implementation (and considered within the overall workforce requirements of the acute general hospitals that the three maternity hospitals will be co-located with).

7.7 Future model of care for gynaecology services in the GDA

7.7.1 Introduction

In this next section we present the preferred model of care for gynaecology services. We start this section with the care service principles required to underpin such changes and then assess subspecialty services.

These recommendations are also captured in chapter 8 of the report, which brings together the overall recommendations for future service configuration.

¹⁰² Refer HSE for access to the full document.

7.7.2 *Service principles*

Women should be managed by multi-disciplinary teams consisting of:

- Physiotherapists;
- Continence advisors;
- Specialist nurses;
- GPs; and
- Community gynaecologists.

The chosen hospitals with co-located obstetrics will provide secondary and tertiary care to the women of Dublin but there needs to be proactive development of community gynaecology services in the form of specialist primary care teams (see proposed future pathways of care) which aligns with international trends in gynaecology.

Gynaecology services should be provided on the same site as obstetrics but delivered within the adult hospital on the co-located site. We believe that this will maximise theatre utilisation in gynaecology sessions, provide better access to other surgical specialities such as general surgery and urology for emergency and elective patients; and other specialists such as geriatricians and cardiologists for those women with co-morbidities.

7.7.3 *Urogynaecology*

The maternity hospitals need to be able to provide urogynaecology services of investigation and essential first line surgical interventions. This is a subspecialty which needs to be developed further in Dublin. They should be able to provide routine surgical services such as trans-vaginal tapes, obturator tapes etc. However, one centre does need to house the expertise required to deliver the more complex aspects of urogynaecology surgery such as sacrospinous fixation, sling procedures implant incontinence pumps etc.

7.7.4 *Fertility services*

The maternity hospitals need to be able to provide investigation and low level assisted conception such as Inter-Uterine Insemination and ovulation induction. One unit should be established to do the IVF and ICSI procedures. This service does not necessarily need to be on the co-located children's hospital site.

It is most likely that private provision will continue to be the main stay of these services.

7.7.5 **Minimal access surgery**

All the hospitals providing maternity/gynaecology services need to be able to provide Levels 1-4 in laparoscopic surgery:

- Level 1: Diagnostic laparoscopic procedures;
- Level 2: Simple operative procedures such as tubal ligation and simple cyst aspiration;
- Level 3: Laparoscopic ovarian cystectomy and oophorectomy when there is normal anatomy; and
- Level 4: Laparoscopic assisted vaginal hysterectomy and excisional surgery for endometriosis.

The remaining two levels of laparoscopic surgery are infrequent and best concentrated in one unit

- Level 5: Advanced level including laparoscopic hysterectomy and advanced endometriosis surgery; and
- Level 6: Laparoscopic pelvic floor repair. Laparoscopic oncology procedures.

As a subspecialty this needs to be developed within GDA as a whole. In the short-term all three centres undertaking inpatient gynaecology surgery should develop laparoscopic surgery Levels 1 to 4 and one needs to attain Level 6 status which includes laparoscopic pelvic lymph nodes, para-aortic lymph node dissection and radical hysterectomy.

7.7.6 **Gynaeconcology**

Gynaeconcology services should be provided in centres where access can be provided to radiotherapy/chemotherapy services. It is recognised that the process for selection of centres for the delivery of cancer services other than breast is being advanced by the HSE Cancer Control Programme.

One of the designated gynaeconcology centres should undertake all of the uncommon procedures for the GDA. For example, vulval cancers, surgery for recurrent disease or advanced cancer that would need exenteration.

Both units should do primary surgery on pelvic cancers of the ovary, cervix and uterus.

There should be one network of gynaecology cancer services servicing the GDA. The Consultant Gynaecologist should have the specific skills and training required to meet the

demands of this subspecialty which, from emerging international trends, appears to be evolving into a speciality in its own right. All consultant gynaecologists within the GDA should work collaboratively as a single networked unit to share their skills and expertise at multi-disciplinary team meetings and intra-operatively ensuring the best care for patients and improving outcome rates for women with gynaecology cancer.

7.8 Proposed pathway of care for gynaecology

A simple and robust pathway of care for gynaecology is outlined in the diagram below. The same requirements supporting the other care pathways apply for gynaecology, namely:

- A consistent and clear set of standardised clinical protocols to avoid duplication and promote equitable service process;
- Strong multi-disciplinary team working across the primary, secondary and tertiary interface; and
- Robust IT infrastructure and performance management information.

Figure 11: Proposed pathway for Gynaecology

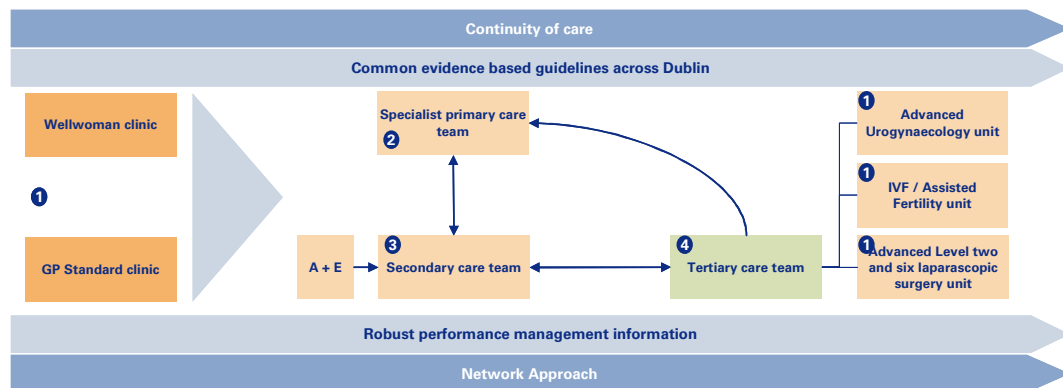


Table 51: Proposed pathway description for Gynaecology

Step in care pathway	Description	Supporting evidence and insight
<p>1. GP/Well women clinic</p>	<ul style="list-style-type: none"> Well women clinics and GPs should manage women as far as possible. They will follow integrated care pathways and when the management of their patient reaches a stage where additional support is required the woman should be referred, using agreed referral patterns, to a specialist primary care team or secondary care 	<ul style="list-style-type: none"> Integrated care pathways are underpinned by the concepts of: <ul style="list-style-type: none"> patient continuances safety and quality effectiveness timeliness efficiency equity Using the integrated care pathway approach will provide gynaecology patients with a continuity of care and ensure the efficient use of resources within the GDA
<p>2. Specialist primary care team</p>	<ul style="list-style-type: none"> Specialist primary care teams will include professionals that are able to manage a range of conditions in the community such as incontinence. Team members will have joint posts with hospitals in order to maintain skills and teams will typically include physiotherapists, dieticians, continence advisors, specialist nurses and community gynaecologists Community gynaecologists provide well women services such as contraception, hormone replacement therapy, psychosexual services and sexual disease medicine. They have the potential to manage menstrual dysfunction through the insertion of hormone releasing coils and endometrial ablation 	<ul style="list-style-type: none"> By providing services in the community it will create capacity within the hospital, both from a physical and consultant time perspective. This will be particularly beneficial in outpatient services. By transferring the care of women who can be managed by other doctors, nurses, allied health professionals, consultant time will be freed up to see more complex urgent patients, thereby reduce waiting times and / or releasing time to provide labour ward cover
<p>3. Secondary care team</p>	<ul style="list-style-type: none"> Secondary care should provide the investigation and treatment of referrals of primary care patients who require complex medical or surgical care Secondary care teams will be based in hospitals and will provide diagnostic, acute and routine benign gynaecology services, including patients requiring fertility and urogynaecology services Surgeons will carry out a larger proportion of their surgical activity in outpatients and day case over the next few years 	<ul style="list-style-type: none"> Community gynaecologists (practising outside the hospital structure entirely in community based premises) have proved successful in the UK, with over 120 practicing through the facility of family planning. Community gynaecologists in the UK have tended to be recruited from two main sources (1) family planning doctors who provide family planning advice, well woman screening, breast examinations, cervical smears, HRT and (2) Gynaecology trained doctors who perhaps want to practice part-time. These doctors do all of the above plus if trained can do Colposcopy clinics - for initial diagnosis and follow-up of abnormal smears, initial work-up of infertility couples, fit Mirena coils for heavy bleeding, and some are developing under a hospital consultant, supervision day endometrial ablation clinicians for idiopathic menorrhagia. These doctors are usually individuals who have completed obstetric and gynaecology training but don't want to work in secondary care.

Step in care pathway	Description	Supporting evidence and insight
<p>3. Secondary care team</p> <p>(continued)</p>		<ul style="list-style-type: none"> • Prolapse and incontinence is a significant proportion of workload in post menopausal women. Therefore, any gynaecology service should be able to provide services for these women. • All gynaecology services should be integrated across primary and secondary care and be provided by a multi-disciplinary continence team. The team should be comprised of: <ul style="list-style-type: none"> - physiotherapists - continence advisors - specialist nurses - GPs • Community gynaecologists
<p>4. Tertiary care team</p>	<ul style="list-style-type: none"> • Tertiary care is sub-speciality care. Patients requiring this level of care have complex conditions that are best managed by those who have sub-speciality training • Tertiary elements of a gynaecology service will include: IVF, gynaecology, advanced urogynaecological surgery and Levels 5 and 6 laparoscopic surgery. 	<ul style="list-style-type: none"> • With decreased surgical management of gynaecological conditions not all gynaecologists will continue to train as specialists in major abdominal and pelvic surgery. In order to maintain the high level skills there will need to be a move to a smaller number of consultants who are able to maintain their skills despite the overall reduction in surgical workload. This will be achieved most effectively by reducing the number of units delivering the highly specialised services (Source: UK RCOG Future Role of the Consultant) • It has been on this basis that the decision has been made by the HSE to reduce the number of centres carrying out gynaecology. • As the table on the next page demonstrates the activity levels for IVF, advanced urogynaecology surgery and Levels 5 and 6 laparoscopic surgery do not provide sufficient critical mass to maintain the skills of gynaecologists in more than one centre.

7.8.1 *Proposed model of care for gynaecology*

The optimal model of care needs to be able to effectively deliver the care pathways that are underpinned by the service principles outlined in the ‘service principles’ section. Key to determining the optimal model was the decision around the number and capacity of units, and what clinical synergies were required within the service provided to optimise care of women and infants in the GDA.

Key drivers to this are the population it needs to serve, best practice guidelines and optimal clinical synergies.

In order for us to determine the model of care it was important that we considered the optimal size and number of sites where the service would be provided.

Table 52: Optimal size

	Population it needs to serve	Best practice/guidelines	Optimal clinical synergies	Our recommendation
Number of gynaecology units	<ul style="list-style-type: none"> Women aged 15 and over 	<ul style="list-style-type: none"> Gynaecology sub-specialists require adequate throughput of specific cases to maintain competence and training ability 	<ul style="list-style-type: none"> Gynaecologists need to share access to endocrinologists, haematologists, pathology, immunology, critical care, anaesthesia, dietician, physiotherapy, elderly medicine 	<ul style="list-style-type: none"> Reduce the number of sites providing gynaecology from 13 to three sites in order to effectively provide consultant cover and develop centres for specialist care
Number of urogynaecology units	<ul style="list-style-type: none"> Women aged 15 and over 	<ul style="list-style-type: none"> Specialist unit needs a population of 200,000 to 300,000 women. Age of population is also increasing The number of complex urogynaecology procedures is small, and only offers enough work for just one full-time urogynaecologist (only four colposuspensions and 66 TVT procedures done in 2005) 	<ul style="list-style-type: none"> Urogynaecology services would benefit from location with urology, medicine for the elderly, physiotherapy, continence advisors and psychologists 	<ul style="list-style-type: none"> All gynaecology units deliver a urogynaecology service but only one is required to do advanced surgery such as pelvic floor repair. This central unit would be networked with all three units throughout the city and provide clinical leadership in this area
Number of IVF units	<ul style="list-style-type: none"> Women aged 15 and over (only privately funded, except Rotunda) 	<ul style="list-style-type: none"> 1 unit for 1.3 million, based on the number of couples presenting per annum for IVF treatment 	<ul style="list-style-type: none"> Endocrinology, genetics, pathology, cytology 	<ul style="list-style-type: none"> All units providing gynaecology services need to be able to provide diagnostic services for sub-fertility but only one unit in Dublin is required for IVF and fertility surgery. This would allow sub-specialty training for assisted reproduction to be established
Number of gynaecology oncology units	<ul style="list-style-type: none"> Women aged 15 and over 1,697,272 	<ul style="list-style-type: none"> The Cancer Strategy has outlined four cancer networks in Ireland, two of which affect Dublin. HSE Dublin North East (Beaumont and Mater) and HSE Dublin mid Leinster (St James's and St Vincent's) The Cancer Strategy states that each of the networks will have one gynaecology cancer centre, which means that Dublin will have two gynaecology centres 	<ul style="list-style-type: none"> Oncology, haematology, immunology, histopathology and obstetrics 	<ul style="list-style-type: none"> Two units; one to do exenterations and vulval cancers as these are very small in number. This would need to be located on one of the cancer hospital sites. Both units to carry out surgery for cervical, uterine and ovarian cancer
Number of minimal access units	<ul style="list-style-type: none"> Women aged 15 and over 1,697,272 	<ul style="list-style-type: none"> Techniques in gynaecology surgery are expanding and more cases will be done macroscopically in the future 	<ul style="list-style-type: none"> Day case facilities Training facilities 	<ul style="list-style-type: none"> All units doing gynaecology need to be able to carry out minimal access surgery to Level 4 as defined by the Institute of Obstetrics and Gynaecology. One unit would need to develop Levels 5 and 6

Note:(a)Takes into account of current birth levels in Dublin, likely increase (b) Eastern Health Region Strategy

7.9 Gynaecology services – Benefits

Gynaecology benefits of the new pathway of care

Table 53: Gynaecology benefits

Step in care pathway	Safety	Women and infant centred care	Equity	Access	Accountability	Value for money	Training and research	Workforce
Women will be managed primarily by GPs and Well Women Clinics	<ul style="list-style-type: none"> • Early diagnosis to help woman's clinical outcome 	<ul style="list-style-type: none"> • Designed around women's needs, closer to their home 	<ul style="list-style-type: none"> • To be applied across the whole health economy 	<ul style="list-style-type: none"> • Improved access and choice for women 	<ul style="list-style-type: none"> • Strengthening accountability by bringing services closer to the woman's home 	<ul style="list-style-type: none"> • Redirecting resources to multi-disciplinary teams out of hospital setting 	<ul style="list-style-type: none"> • Increased opportunities for training and research in Primary Care 	<ul style="list-style-type: none"> • Improved opportunities for staff through new roles
Specialist primary care teams will manage women requiring low level gynaecology input	<ul style="list-style-type: none"> • Multi-disciplinary teams to help improve the clinical outcomes for women 	<ul style="list-style-type: none"> • Designed around women's needs. Closer to their home 	<ul style="list-style-type: none"> • To be applied across the whole health economy 	<ul style="list-style-type: none"> • Improved access and choice for women 	<ul style="list-style-type: none"> • Strengthening accountability by bringing services closer to the woman's home 	<ul style="list-style-type: none"> • Redirecting resources to multi-disciplinary teams out of hospital setting 	<ul style="list-style-type: none"> • Increased opportunities for training and research in Primary Care 	<ul style="list-style-type: none"> • Improved opportunities for staff through new roles
Secondary care will provide fertility, and urogynaecology services as part of the general gynaecology service	<ul style="list-style-type: none"> • Strengthened secondary care provision 	<ul style="list-style-type: none"> • Increased choice of services for women 	<ul style="list-style-type: none"> • To be applied across the whole health economy 	<ul style="list-style-type: none"> • Improved access and choice for women 	<ul style="list-style-type: none"> • Strengthening accountability by bringing services closer to woman's home 	<ul style="list-style-type: none"> • Refocusing of service and resource costs 	<ul style="list-style-type: none"> • Improved training and research opportunities for staff 	<ul style="list-style-type: none"> • Improved opportunities for staff through new roles
IVF, Gynaecology and complex urogynaecology will be managed by sub-specialists	<ul style="list-style-type: none"> • Clear benefit of sub-speciality to improve patient safety and care 	<ul style="list-style-type: none"> • Improved choice of services for women, provided by subspecialty experts 	<ul style="list-style-type: none"> • To be applied across the whole health economy 	<ul style="list-style-type: none"> • Improved access and choice for women 	<ul style="list-style-type: none"> • Improved accountability with sub-speciality experts 	<ul style="list-style-type: none"> • Concentration of resources 	<ul style="list-style-type: none"> • Improved training and research opportunities for staff 	<ul style="list-style-type: none"> • Improved opportunities for staff through new roles

7.10 Gynaecology conclusion

In summarising this section, our key conclusions are:

- Women with many gynaecological conditions should be managed by multi-disciplinary teams. The maternity/women's hospitals will provide secondary and tertiary gynaecological care to the women of Dublin. Tertiary services should be centralised onto one site, with all three organisations continuing to provide the secondary care elements of the service as discussed below.
- Within the GDA, gynaecology referrals into secondary care are currently unmanaged. There are no GP referral criteria to facilitate access of service and these should be developed to facilitate changes required.
- The advent of the National Cervical Screening Programme is likely to result in an increased demand in colposcopy services beyond the three main gynaecology units. The three maternity/women's hospitals should be actively assessing how they could address this forecast increase in demand.
- The DNA rates are too high for all three maternity hospitals against comparable international standards. We believe a major contributing factor to these high DNA rates in the GDA is the lack of a robust appointment and booking system.
- Average LOS could be reduced through more effective discharge planning, providing women with expected dates of discharge prior to admission, daily multi-disciplinary team meetings to ensure progress against planned date of discharge and daily consultant ward rounds.
- Gynaecology surgery is currently undertaken on too many different sites across the GDA and should be rationalised to three hospitals. There are also too many small units (Loughlinstown, Blanchardstown, St. Michael's, Navan and Naas) undertaking gynaecology services.
- Gynaecology services should be provided in centres that have associated radiotherapy/chemotherapy services in two centralised units. One unit should undertake all of the uncommon procedures for example, vulval cancers, surgery for recurrent disease for recurrent cancer that would need exenteration, etc. There should be one network of gynaecology cancer services servicing the GDA.
- All the hospitals providing maternity/gynaecology services need to be able to provide Levels 1-4 in Laparoscopic surgery. The remaining two levels of laparoscopic

surgery are infrequent and best concentrated in one unit. As a subspecialty this needs to be developed within Dublin as a whole.

- The maternity/women's hospitals need to be able to provide urogynaecology services of investigation and essential first line surgical interventions. This is a subspecialty which needs to be developed further in Dublin.
- Gynaecology services should be provided on the same site as obstetrics but delivered within the adult hospital on the co-located site.
- The maternity/women's hospitals need to be able to provide investigation and low level assisted conception such as inter-uterine insemination and ovulation induction. One unit should be established to do the IVF and ICSI procedures. This service does not need to be on the co-located NPH site.
- IVF, ICSI and FET need to be provided only in units with a recognised sub-specialist trained reproductive medicine specialist.
- One of the main implications of these recommended changes in provision of care is that more gynaecologists and special interest and subspecialty consultants will be needed (the exact numbers required need to be subject to a detailed workforce review). It is no longer appropriate that a gynaecologist should provide a service across the whole of the gynaecological spectrum. Cross-referral to sub-specialists within a unit or to another unit is the accepted practice now to allow women access to the individual who can provide the best care for them.
- In order to ensure consistency with other workforce recommendations, it is important that a robust plan is established to progressively address deficits in theatre nurse staffing.

7.11 High level action plan – gynaecology

In this section we identify the key high level actions at each stage of the gynaecology pathways. For each of the actions we indicate whether it is to be achieved in the following timescale:

- Short-term – 0 - 1 years
- Medium-term – 2 - 5 years
- Long-term – 6 - 10 years

We provide key metrics that should be used by the work streams to ensure benefits realisation. We recommend that baseline audits be undertaken prior to any change of programme being undertaken.

The work streams and programme board that should be established to oversee this will need to undertake detailed planning, accounting for all the interdependencies, the GDA development control plan and funding available.

Table 54: High level action plan

Step in Care pathway	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
1. GP / Well Woman Clinic	<ul style="list-style-type: none"> Women should be referred from primary into secondary care using integrated pathways. 	<ul style="list-style-type: none"> Develop integrated care pathways. This should involve stakeholders from primary care 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Number of women referred into secondary care Waiting times Number of women managed on an integrated pathway
2. Specialist primary care team	<ul style="list-style-type: none"> Specialist primary care teams will comprise of physiotherapists, dieticians to combat obesity, continence advisors, specialist nurses and community gynaecologists and will manage women with a range of conditions such as incontinence and menstrual dysfunction in the community 	<ul style="list-style-type: none"> Identify skill mix, roles and responsibilities of specialist primary care team, including community gynaecologist Identify potential training needs Commission training /education Recruit to training programmes Recruit to teams Communication to GPs and women 	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Number of women with incontinence and menstrual dysfunction managed in the community Service user satisfaction
3. Secondary care team	<ul style="list-style-type: none"> Will be based in hospitals and will provide diagnostic, acute and routine benign gynaecology 	<ul style="list-style-type: none"> Defined roles for gynaecology need to be created to ensure sufficient time is allocated to gynaecology 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Waiting time to see gynaecology professionals
4. Workforce	<ul style="list-style-type: none"> Develop a robust workforce plan 	<ul style="list-style-type: none"> Review staffing requirements against current and forecast activity levels and review opportunities to improve productivity 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Workforce 	<ul style="list-style-type: none"> Addressed performance improvement opportunities
5. Colposcopy screening	<ul style="list-style-type: none"> Review colposcopy screening requirements 	<ul style="list-style-type: none"> Projected activity analysis and the demands on the maternity hospitals 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Forecast activity levels
6. DNA rates	<ul style="list-style-type: none"> Redesign outpatient services to improve DNA rates 	<ul style="list-style-type: none"> Develop a robust performance improvement plan to redesign outpatient services including introduction of effective booking system 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Reduced DNA rates

Step in Care pathway	Recommendation	Actions required	Timescale	Workstream	Key metrics for benefits realisation
7. Reduce ALOS	<ul style="list-style-type: none"> Redesign clinical pathways to reduce ALOS 	<ul style="list-style-type: none"> Develop a robust performance improvement plan to redesign care pathway including clinical support services, admission/discharge processes 	<ul style="list-style-type: none"> Short-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Reduced ALOS
8. Tertiary care team	<ul style="list-style-type: none"> The management of patients with complex conditions should be with sub-speciality teams. Centralisation of subspecialty care in <ul style="list-style-type: none"> Gynaecology Urogynaecology IVF 	<ul style="list-style-type: none"> Plan to transfer tertiary services to designated host site Ensure the level of support in the host site from specialities such as haematology, histopathology and HDU/ITU are sufficient to support the sub-speciality care Amendments to contracts to allow health care professionals to work across organisations Develop integrated care pathways for the transfer to and from tertiary care 	<ul style="list-style-type: none"> Medium-term 	<ul style="list-style-type: none"> Service redesign 	<ul style="list-style-type: none"> Number of centres doing tertiary gynaecology Success rates of treatment

8 **Service configuration**

8.1 **Introduction**

In the previous three chapters we have assessed the current service model based on the expert opinion of the clinical associates and developing of international trends. We have identified performance improvement opportunities, workforce developments, the future model of care and high level actions required to implement new models of maternity, neonatology and gynaecology services in the GDA.

In this chapter we outline how the overall service should be configured. Within this context it is important to stress that this is not about institutions but the delivery of improved services to women and infants in the GDA. It was this aspect of the future service configuration on which we carried out much of our stakeholder engagement in order to arrive at our recommendations.

This chapter includes:

- The evaluation process which we undertook;
- Brings together recommendations to strengthen service provision in maternity, neonatology and gynaecology that were analysed in the previous three chapters, and
- A summary of the overall proposed configuration of services.

Chapter 9 presents site specific recommendations based on the principles we have outlined in this chapter.

8.2 **Options evaluation process**

8.2.1 **Criteria**

During the first round of workshops with stakeholders, we discussed and agreed the following evaluation criteria with both the workshop groups and the HSE. These underpinned our option analysis. These were:

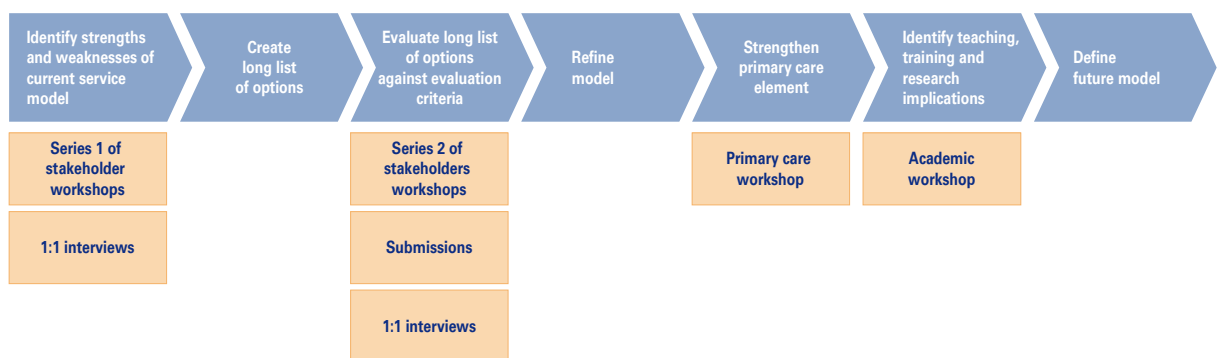
- Safety;
- Women and Infant Centred Care;

- Equity;
- Access;
- Accountability;
- Value for Money;
- Training and Research; and
- Workforce.

8.2.2 Stakeholder engagement

In order to develop the optimal service configuration we consulted widely with stakeholders through interviews, workshops and receipt and analysis of submissions. These are outlined in the process below.

Figure 12: Process undertaken to develop service model



The final model was developed through extensive stakeholder consultation, combined with our professional opinion based on the input of our clinical associates. The model evolved as the consultation process developed. Thirteen options were developed for initial exploration with stakeholders. None of the thirteen were retained in their original format but instead a combination of the elements that would optimise care were developed into an overall service delivery model which is appropriate for the GDA.

8.2.3 Options appraisal

Following an initial assessment of the thirteen options by the KPMG team, eight were ruled out as they did not sufficiently address the evaluation criteria, particularly in terms of broadening choice, improving access and performance improvement opportunities. The remaining five options were taken to the stakeholder workshops for further

assessment against the evaluation criteria that were agreed at the first round of stakeholder workshops¹⁰³.

8.3 Maternity service recommendations

8.3.1 *Primary/Community Care*

As outlined by the UK NICE guidelines for antenatal care, 60 percent of pregnancies are low risk and can be managed in the community. We therefore recommend that the current Domino, Outreach and ETH schemes are significantly expanded to provide antenatal care in the community for all women that are assessed as low risk. This will require a clear and consistent clinical assessment process to be established across the GDA.

These services should be provided by the GP, Midwife, Practice Nurses who are also midwives or Public Health Nurses who are also practicing midwives, with obstetric consultants focusing on the higher risk cases.

We support the continuation of home birth services provided by the NMH and would recommend that CWIUH and RH consider developing such a service. However, based on the submissions we received and our consultations with stakeholders, we do not anticipate that the number of home births will increase beyond two to three percent in the GDA in the next 10 years. Increasing the option for home births is important but should not distract from the more fundamental changes required in the health economy to improve maternity services.

All women should have access to efficient and effective community based, midwife provided postnatal care. Staff who work within the outreach clinics should be employed by the hospital from which they are outreached. In addition to mothers, this also provides a level of assurance to those within the hospital that the staff in the community are adequately trained and covered by their clinical governance framework.

8.3.2 *Secondary care*

Given the current and projected demand for maternity services we have concluded that there should continue to be three maternity hospitals providing the broad range of obstetric and gynaecology services. Each hospital should be able to accommodate 10,000

¹⁰³ See Appendix H for a full list of the options assessed

births by 2016, when the birth rate is likely to have a maximum peak at 27,000, based on current projections¹⁰⁴.

We believe that three maternity hospitals is the right number of services for the GDA because:

- Any less than three would in our view create units that are too large, requiring extensive step changes in resourcing, centralising services and further reduce access to women across the GDA. Internationally, units of this size are an exception;
- The circumstances that could trigger the requirement for a fourth unit would be when deliveries consistently exceed 8,000 births in the consultant led unit as this would require two teams of obstetricians on duty at the same time. However, any more than three hospitals would entrench a focus on secondary care when one of our key drivers is the need to develop and expand primary care. It is our recommendation that the investment required to build any additional hospitals would be better utilised in providing community services;
- Due to staffing shortages and the requirement to have critical mass in neonatology, any additional services would be unable to support additional neonatology services for sick and preterm babies. Whilst there are sufficient volumes in the GDA to sustain three Level 3 NICUs, having a fourth obstetric unit without this would lead to that unit having a less comprehensive service. Staff and resources would naturally be attracted to the other units with more sub-specialisation and would therefore create an imbalance in the service provided at that fourth unit, relative to the other three; and
- Finally, the birth projections show a peak at 2016, after which births are likely to plateau and therefore decisions on investment in infrastructure should focus on modernising current infrastructure and developing primary and secondary care.

We recommend that each hospital provide capacity for up to 10,000 births in the following way:

- 8,000 in a consultant/midwife unit;
- 2,000 in a co-located MLU;

¹⁰⁴ Refer Trinity accessibility study data in chapter 4 of this report.

Each hospital should deliver approximately 8,000 births per annum through effective joint consultant/midwifery teams. This should be in addition to the 2,000 births per annum in co-located MLUs. However, it is important to stress the need for flexibility between the co-located MLU and obstetric unit to ensure that activity is managed in the most appropriate setting. We recognise that the choice of the MLUs by mothers will take some time to pick up, as it is a largely new option. Therefore, initially the units will have to plan for full capacity at 8,000 with the flexibility to potentially reduce throughput as the MLUs become more popular.

As outlined in the maternity chapter, there is no definitive answer internationally on the optimal number of births in a unit, with different countries having different maximum number of births. The differences tend to be historical and dependent on the demography and geography of the country. The markers for success are less tangible than size of unit. The UK NHS Institute for Innovation and Improvement defined the following characteristics as being a marker for good clinical outcomes and efficient services:

- a focus on keeping pregnancy and birth normal;
- respect and understanding for others team members roles;
- visible and vocal leaders;
- up to date, evidence based guidelines;
- adherence by all team members to guidelines;
- the preparation of women for labour, and the management of women's expectations;
- proactive approach to Vaginal Birth after Caesarean (VBAC);
- efficient process for elective C-section; and
- accurate and timely performance information.

On this basis, and as the services are currently achieving generally good clinical outcomes, we recommend that each consultant/midwife unit continues to deliver up to 8,000 births per annum as part of the future hospitals' overall 10,000 birth per annum capacity. Ideally each MLU will reach 2,000 deliveries quickly, with the balance of activity being delivered in the obstetric unit.

In the maternity chapter it was demonstrated that there is an international trend away from the stand-alone maternity services and towards co-location with adult services or tri-location with adult and paediatric services.

Co-location provides many clinical, operational and financial benefits to both maternity and adult services in terms of access to surgical capacity, other specialist services, including imaging, pathology and wider consultant opinion. We have therefore recommended that the maternity and gynaecology hospitals should be co-located with an appropriate acute general hospital. Within the maternity and gynaecology chapters we describe in detail the benefits that will be achieved through the recommendation to co-locate. In summary these are:

- For women who have complex medical conditions (congenital or acquired) co-location will facilitate a multi-disciplinary approach to antenatal care leading to improved outcomes. The multi-disciplinary team should consist of diabetologists, endocrinologists, haematologists, cardiologists, neurologists, psychiatrists and genetic services;
- During delivery and the postnatal period, access to advanced imaging, biochemistry, HDU/ITU and interventional radiology will enhance the speed, efficiency of treatment and clinical outcomes for very sick women;
- For gynaecology and obstetric patients, the availability of colon, urology and vascular surgeons will be of benefit in the case of major haemorrhage. These surgeons will also be able to assist the obstetric and gynaecology surgeons; and
- As the number of older gynaecology patients is likely to increase there will be greater need for specialities such as elderly medicine, cardiology, haematology and ITU/HDU. Co-location with adult services will facilitate improved access to such services and provide greater continuity of care.

Tri-location was agreed as a principle when the new National Paediatric Hospital was proposed for Dublin. We support tri-location for the reasons outlined in the neonatology chapter. The benefits of tri-location over and above those associated with co-location are primarily based on further benefits for fetal intervention and neonates. Specifically:

- If a baby identified during the antenatal period requires surgery in the post natal period, neonates will be delivered on the site of the neonatal surgical service. This will reduce the number of transfers of sick babies;
- Mothers and babies would not be separated if the baby requires surgery in the postnatal period. Mothers would continue to have the support of midwives; and
- Although in most cases fetal intervention procedures do not induce labour, in the cases where the baby has to be delivered, they need to be delivered on a site that can provide rapid surgical or medical intervention to the neonate.

8.3.3 *Co-located MLUs*

As outlined in chapter 5, the evidence on stand-alone MLUs is still inconclusive. However, we do recommend that each of the maternity services has a co-located MLU on the site of the co-located maternity and acute general hospital, potentially delivering up to 2,000 babies per annum. The benefits of having a co-located MLU are that if the labour, delivery or immediate postnatal period becomes high risk, then there is immediate access to obstetric and other specialist support such as interventional radiology and advanced diagnostics.

Establishing co-located MLUs is an important step in providing women in the GDA with wider choice which was an important issue consistently raised with us during the stakeholder consultation exercise.

Having MLUs on the co-located maternity and acute general hospital site will provide appropriate support to the midwifery workforce. As we outlined in the maternity chapter, midwives have not been working as autonomous practitioners, therefore a move to stand-alone MLUs in the short to medium-term is unrealistic.

We also recommend that the clinical guidelines for accessing an MLU for low risk pregnancies are clearly laid down and those clinical outcomes of co-located MLUs are rigorously and independently evaluated from the outset. If they evaluate positively and international evidence over the next five years indicates stronger support for stand-alone MLUs, then stand-alone MLUs could be considered in the longer term, i.e. five to ten years.

8.3.4 ***Fetal Medicine***

There should be one fetal medicine service within the GDA which is established on the basis of a network, with funding and resources allocated to the network rather than specific sites. The network should be led by a clinical director for fetal medicine and clinical network manager with appropriate support. The network will need to be accredited for training.

The three new proposed maternity hospitals will each host fetal medicine services, underpinned by sound clinical governance arrangements, with overall management provided by the clinical director for fetal medicine. However, given the relatively small number of procedures performed each year, only one unit should carry out the highly specialised fetal intervention procedures. This unit should be located on the site of the new National Paediatric Hospital because if exceptionally, a fetus needs to be delivered as a result of the procedure there will be immediate access to medical and surgical neonatal services. Prior to the new National Paediatric Hospital being built, we recommend that the site that is currently doing the greatest amount of activity (NMH) be the host for the fetal intervention unit in the interim period.

8.4 **Neonatology service recommendations**

As the international evidence showed, neonatal services are largely dependent on location with maternity services. Therefore, there should be three viable neonatal units in the GDA. As with fetal medicine, neonatology should work in a networked approach, underpinned by a sound clinical governance framework. Funding and resources should be allocated to the network rather than specific sites. The network should be led by a clinical director for neonatology and clinical network manager with appropriate support.

8.4.1 ***Level 2 Care***

The neonatal network should ensure that there is sufficient capacity across the network to provide Level 2 care in special care baby facilities for each of the three GDA maternity hospitals, including any tertiary referrals from other maternity services in Ireland.

8.4.2 ***Level 3 NICU***

There should be three viable Level 3 NICUs in the GDA. These units should care for all babies that require intensive care, apart from those who require surgery. This means that all three units within the network will look after the very small (less than 750g) and very

short gestation babies (under 26 weeks). In order to maintain skills in caring for this group of neonates a unit should have more than 100 VLBW babies. VLBW babies are less than 1,500grams, but as explained at 6.6, it is preferable to have a mix of very small (less than 750g) and very short gestation babies (under 26 weeks). They should not be cohorted in one unit because of higher mortality which would have a demoralising impact on staff and can lead to staff turnover. If the unit has more than 100 VLBW babies then skills will be maintained to ensure that the very small/short gestation babies can be treated safely and appropriately. Between 2004 and 2007 the three maternity units GDA had in each year somewhat over 300 VLBW babies which demonstrates that there is sufficient activity for three viable units.

8.4.3 *Level 4 NICU*

One Level 4¹⁰⁵ NICU should provide neonatal intensive care to those babies requiring surgery in the postnatal period. These babies are currently accommodated within the Level 3 NICU and are transferred to an acute paediatric hospital. This unit should operate as part of the neonatal network and be sited within the new National Paediatric Hospital to enable direct access to the specialist services required for these babies.

8.5 **Gynaecology service recommendations**

8.5.1 *Specialist Primary Care Teams*

Our recommendations outlined in chapter 7 on the future model for gynaecology are aligned to the model of primary care set out by the DOHC. Women will, in the first instance access services via their GP. The GP will manage the condition, with the support of practice nurses as far as possible. Unless it is clinically indicated that the woman requires urgent secondary care treatment, the GP should refer the woman on the basis of agreed referral criteria to a specialist primary care team, otherwise known as a Community Gynaecology Team (CGT).

This multi-disciplinary CGT should include community gynaecologists, continence advisors, physiotherapists and specialist nurses. These CGTs should provide services to women with incontinence, heavy or irregular bleeding, sexually transmitted diseases and those requiring contraception and HRT. The community gynaecology team should be able to provide a one-stop clinic to women, enabling them to have a consultation,

¹⁰⁵ Level 4 NICU in this instance would be neonatal intensive care with direct access to specialist surgical and cardiac services which Level 3NICUs would not have.

examination and care plan created in one visit. This will reduce the number of visits required by the woman, provide an improved level of service and as it will be community based, in a location that is easily accessible.

The CGTs should help reduce the number of referrals to secondary care services. However, it is recognised that secondary care services have an important role in managing the more complex cases requiring medical management and surgery. In these cases women should be referred on the basis of agreed referral criteria into secondary care.

8.5.2 *Secondary Care Teams*

Secondary care gynaecology teams should provide the investigation and treatment of referrals from primary care or emergency admissions that require complex medical and surgical care. They will provide services to women with benign and acute gynaecological conditions.

As outlined in the gynaecology chapter (chapter 7) there are several developments in the services provided that have informed our recommendation on the configuration of gynaecology services:

- There is an increase in the number of services provided in the community (as the science has evolved to permit safe alternatives to hospital based procedures). We have already outlined our recommendations for this, which will help decrease levels of activity carried out by the gynaecology service in the hospital setting;
- A move towards less surgical management of gynaecological conditions. This will mean a reduction in the number of inpatient beds and theatre capacity required by gynaecology services; and
- Patients that do require surgical management can be managed in the day case setting.

The overall conclusion is that in the future there will be a reduced requirement to have inpatient gynaecology services. As described in the gynaecology chapter there is a need to reduce the number of gynaecology services in the GDA. Thirteen providers are too many in order to provide a viable and consistently safe service. We therefore recommend that the number of gynaecology services currently provided be reduced from thirteen to three. The reduction should be achieved in a staged approach. Those hospitals that currently see less than 500 patients each year should cease to provide gynaecology

services as soon as possible. In order to accommodate inpatient services on three sites, sufficient activity needs to be transferred into the community and increased day case capacity before any further consolidation.

Inpatient gynaecology services should be provided in the acute general hospital. This will ensure that there are sufficient obstetric consultants on site to provide 24 hour consultant cover on the labour ward and will enable registrars to have access to both obstetric and gynaecology patients.

8.5.3 ***Fertility***

Routine fertility services, as outlined in the fertility part of the gynaecology chapter (chapter 7) forms an integral part of any comprehensive gynaecology services – therefore the three gynaecology units should provide investigation for sub-fertile couples and basic assisted conception.

We recommend that the IVF service funded by the Rotunda to public patients continues, but recognise that they are not obliged to do so and if it becomes financially unviable then they do have the option to cease the service. This assumes there is no change in the current national policy on IVF funding.

The private clinics and hospitals should continue to provide services to couples able to fund their own treatment.

8.5.4 ***Urogynaecology***

Urogynaecology services need to be developed across the GDA. All three maternity hospitals should provide an effective multi-disciplinary continence service. This service should operate as an outreach service with routine urogynaecology service being undertaken in outreach day case facilities, in addition to the inpatient site.

Based on current activity (only four colposuspensions and 66 transvaginal tapes carried out in 2005) there is only enough activity for one WTE urogynaecologist in GDA. Therefore we recommend that there be one unit within the GDA that carries out the complex urogynaecology surgery.

8.5.5 **Minimal Access Surgery**

All gynaecology services need to be able to provide Levels 1-4 in laparoscopic surgery. The centres undertaking gynaecology surgery will need to develop the remaining two Levels (5 and 6).

8.5.6 **Gynaecology**

The report on the National Cancer Control Programme published in autumn 2007 outlined the strategy for gynaecology. It concluded that there is a need for four gynaecology centres nationally, one within each of the cancer networks, for the curative surgical treatment of primary gynaecology cancers. As there will be two networks that cover Dublin, there will be two gynaecology centres.

There is a move in the UK, driven by changes in clinical practice, towards a system whereby, not all gynaecologists in the future will train as specialists in major abdominal and pelvic surgery. Major surgery will be undertaken by a smaller number of consultants who will be able to maintain their skills. Equally within gynaecology, sub specialists such as gynaecologists will work within a tertiary referral unit. They will not contribute to the mainstream obstetric and gynaecology services.

Currently in the GDA, the gynaecology surgeons act as experienced gynaecology surgeons and assist the obstetricians and gynaecologists in the surgical management of major haemorrhage. However, they are not the only surgeons who can do this. As the obstetric and gynaecology service should be on the same site as adult services the obstetricians and gynaecologists will have access to interventional radiologists, vascular, colon and urological surgeons.

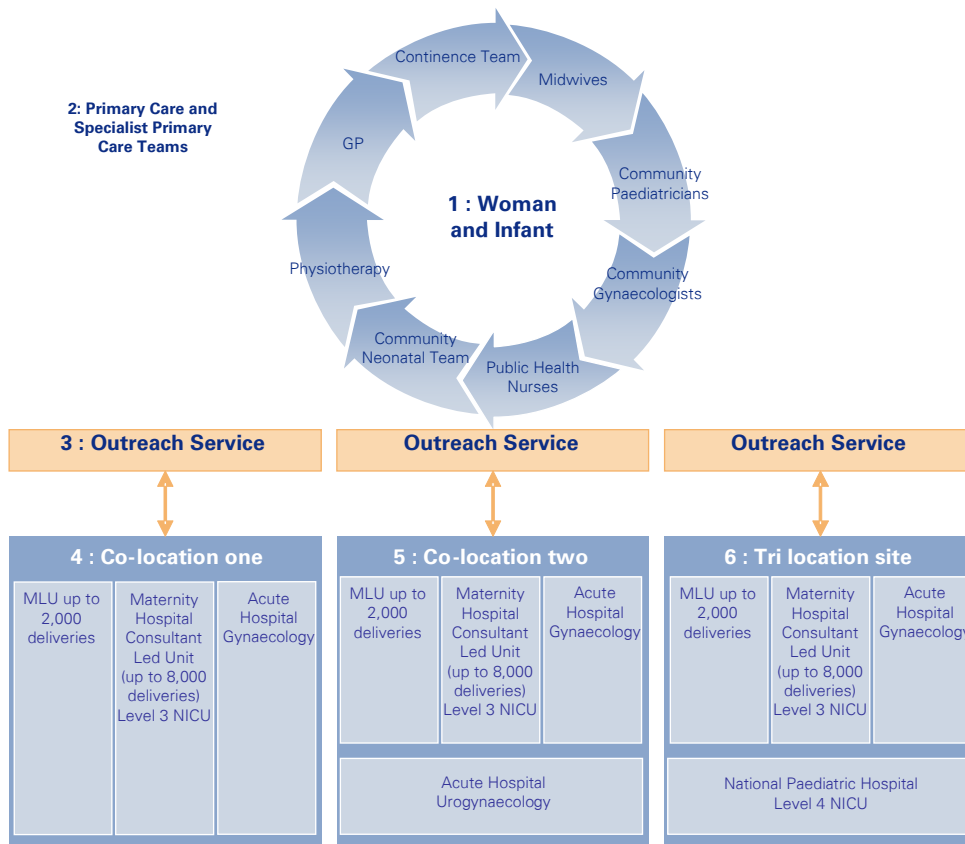
These surgeons are more than able to provide this assistance to the obstetric and gynaecology service.

Therefore, the gynaecology service for GDA will be provided in the two new cancer centres for Dublin and does not need to be co-located with the maternity/gynaecology service.

8.6 **Overall proposed configuration of services**

Below is a diagrammatical illustration of the services and how they should interact with each other.

Figure 13: Proposed service configuration diagram



Each of the key components of the above is discussed in the table below.

Table 55: Configuration of services description

Configuration Element	Description
1. Women and Infant Centred Care	<ul style="list-style-type: none"> Women and infants should be at the centre of the model of care. Their care will be supported with integrated pathways and sound clinical governance frameworks.
2. Primary Care and Specialist Primary Care Teams	<ul style="list-style-type: none"> GPs will manage gynaecology patients in the community with the support of specialist primary care teams.
3. Outreach Services	<ul style="list-style-type: none"> Gynaecology outpatient appointments/day case procedures and maternity ante/postnatal appointments should be provided in outreach clinics across the GDA. This will reduce pressure on the hospital infrastructure whilst providing women with care closer to their home. Outreach services should be developed in addition to the outreach services that are already provided by the hospitals. These will include both consultant led and midwife/nursing led clinics. Staff in these clinics will have a commitment to deliver services there in order to achieve continuity of care the same staff should visit that location.

<p>4. Co-location One</p>	<ul style="list-style-type: none"> • Co-location One will have a full maternity and gynaecology service. • The maternity hospital should have capacity for 10,000 births per annum. This should consist of 8,000 births per annum in the Consultant/Midwife Unit and up to 2,000 births per annum in the co-located MLU. The maternity hospital should use outreach facilities in order to deliver 60 percent of its antenatal activity in the community. • The gynaecology service should be sited in the acute general hospital. It should provide services for benign and acute gynaecology conditions. This should include routine fertility and urogynaecology services. The service will have an inpatient base at the co-location site but will deliver its services in a variety of settings. • The neonatal network should have a Level 3 NICU on this site. • The fetal medicine network will provide fetal maternal medicine on this site.
<p>5. Co-location Two</p>	<ul style="list-style-type: none"> • Co-location Two will have a full maternity and gynaecology service. • The maternity hospital should have capacity for 10,000 births per annum. This should consist of 8,000 births per annum in the consultant/midwife unit and up to 2,000 births per annum in the co-located MLU. The maternity hospital should use outreach facilities in order to deliver 60 percent of its antenatal activity in the community. • The gynaecology service will be sited in the acute general hospital. It should provide services for benign and acute gynaecology conditions. This should include routine fertility and urogynaecology services. • This site should provide specialist urogynaecology surgical services. • The service should have an inpatient base at the co-location site but should deliver its services in a variety of settings. • The neonatal network should have a Level 3 NICU on this site. • The fetal medicine network should provide fetal maternal medicine on this site.
<p>6. Tri-location Site</p>	<ul style="list-style-type: none"> • The Tri-location site should include co-located maternity and gynaecology services. • The maternity hospital should have capacity for 10,000 births per annum. This should consist of 8,000 births per annum in the consultant/midwife unit and up to 2,000 births per annum in the co-located MLU. The maternity hospital should use outreach facilities in order to deliver 60 percent of its antenatal activity in the community. • The gynaecology service should be sited on the adult services of the co-location site. It will provide services for benign and acute gynaecology conditions. This includes routine fertility and urogynaecology services. • This site should provide IVF. • The gynaecology service should have an inpatient base at the co-location site and also deliver its services in a variety of settings. • The neonatal network should have a Level 3 NICU on this site. • The neonatal network should have a Level 4 NICU on this site. • The fetal medicine network should provide fetal maternal medicine on this site. • The fetal medicine network should carry out the specialised fetal intervention procedures on this site in the future. In the interim the work should be carried at the unit that undertakes the most activity (NMH).

8.7 **Summary**

Through extensive stakeholder engagement and the international literature review we have identified the optimal service configuration to support the pathways of care described in the maternity, neonatology and gynaecology chapters of this report.

We have emphasised in this chapter that it is the service rather than institution that is moving to a different site and that the service isn't constrained by the physical site on which it has its inpatient facilities. In the future the maternity and gynaecology services should deliver a far greater proportion of their activity away from the main hospital site and deliver increased activity in the community. This will require major investment.

The configuration that we have proposed should ensure that the benefits of co-location and tri-location are delivered whilst enabling greater access to services in the community. Most importantly this will provide women with greater choice, which was a consistent theme raised with us during the consultation.

In the next chapter, we identify which sites will maximise the benefits of co/tri-location and accessibility of services in the GDA.

9 Service locations

9.1 Introduction

In this chapter, having determined the optimum model of care and number of maternity and gynaecology sites, we outline the locations for the future service model.

9.1.1 *Structure*

After this introduction we structure this chapter on:

- Approach
 - the decision tree will explain our methodology and logic for identifying the sites on which services will be located;
- Potential sites
 - we outline our rationale for the proposed sites based on the clinical services required to deliver the benefits of co-location. It was assumed from the work already carried out by the Joint HSE/DOHC Task Group for the New National Paediatric Hospital that the sites have sufficient space to accommodate a maternity and gynaecology service;
- Accessibility analysis
 - using an accessibility study commissioned from the Small Health Area Health Research Unit, Trinity College Dublin we compare six scenarios. The analysis will focus on the potential attraction of the sites within potential configurations and the proportion of the population that would be able to access a maternity service within 30 and 60 minutes by public and private transport. The analysis is based on a number of service configuration scenarios,
 - we would like to thank Conor Teljeur at the Small Health Area Research Unit for carrying out the accessibility analysis;

- Demographics
 - the accessibility study reduces the number of potential scenarios from six to three. We then undertake demographic analysis of where the women aged 15-49 were living in 2006 to further refine the options;
- Catchment Areas
 - for the remaining two scenarios we consider the catchment areas of the remaining options and compare with those of the existing service configuration;
- Recommended site
 - following an analysis of all the above we recommend the sites for the main obstetric and gynaecology services, the implications for partnership working and outreach services.

9.2 Approach

9.2.1 Introduction

The decision tree below diagrammatically shows the methodology and logic that we applied to determine the location of services.

Figure 14: Decision Tree

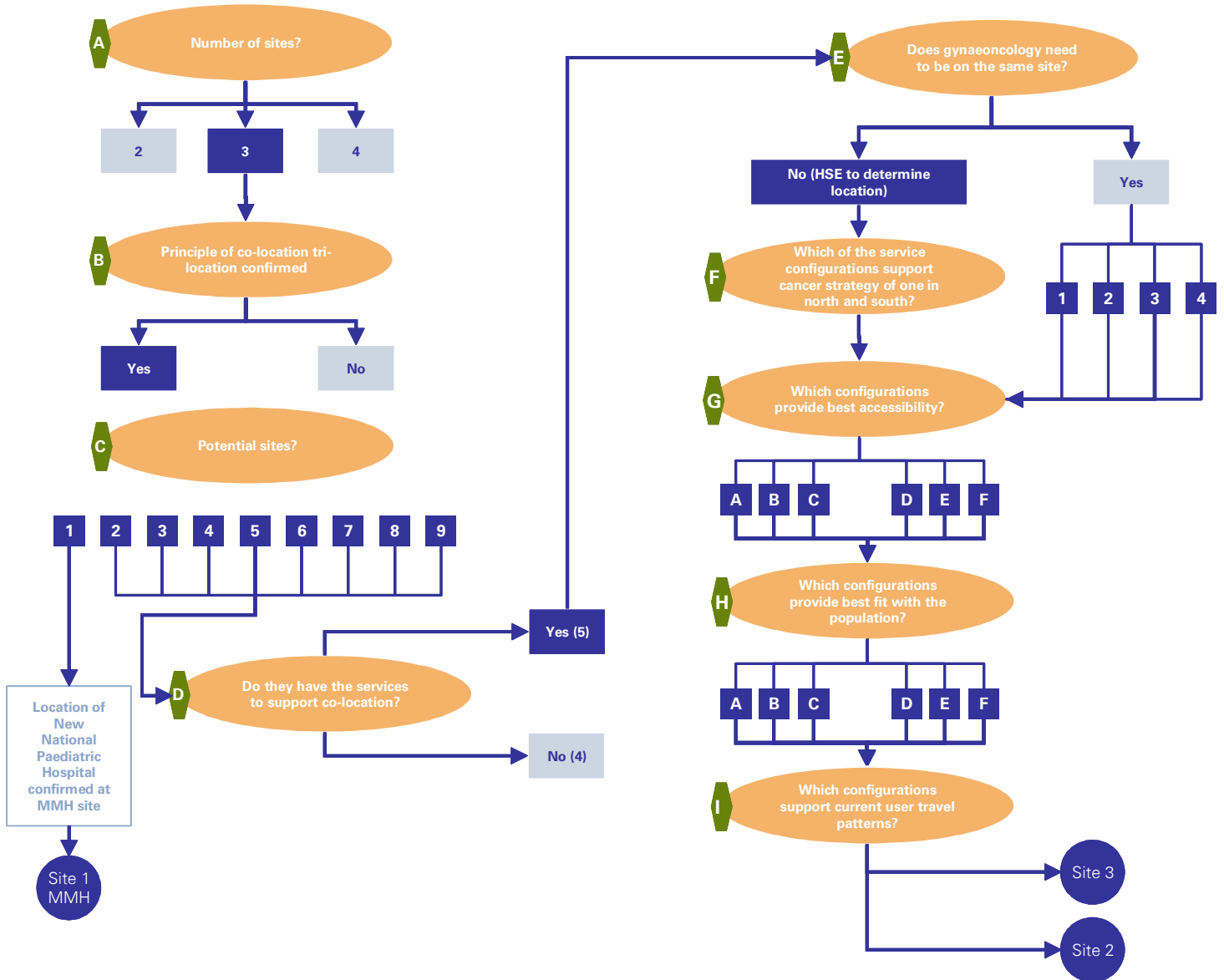


Table 56: Decision tree description

Decision point		Description
A	Number of Sites?	<ul style="list-style-type: none"> As outlined in chapter 8, after considering a number of options, the optimal number of sites is three
B	Principle of co-location/tri-location confirmed?	<ul style="list-style-type: none"> In previous chapters, we outlined the case for co-location and tri-location. These principles are key to the proposed model of care. The location of the services will therefore be governed by the location of adult and paediatric hospitals within the GDA. It was assumed from the work already carried out by the Joint HSE/DOHC Task Group for the New National Paediatric Hospital that the sites have sufficient space to accommodate a maternity and gynaecology service
C	Potential Sites?	<ul style="list-style-type: none"> Potential sites within the GDA were identified. The list of nine sites represents the nine publicly funded adult hospitals in the GDA. Private hospitals were not considered as co-location sites as the services they provide are subject to market forces. There are no guarantees that existing services would continue into the future, which would therefore pose a risk to public sector investment
D	Do they have the services to support co-location?	<ul style="list-style-type: none"> In order to maximise the benefits of co-location and tri-location the potential sites must have certain clinical services. An assessment of each of the potential sites will be made against criteria critical to co-location
	Site 1 MMH	<ul style="list-style-type: none"> As we support the concept of tri-location, the first site within any configuration will be the MMH site
E	Does Gynaecology need to be on the same site as obstetrics and gynaecology?	<ul style="list-style-type: none"> The cancer strategy states that within each cancer network there will be one gynaecology centre. In the north of Dublin this will be either the MMH or BH and in the south it will be SJH or SVUH If gynaecology does need to be on the site of obstetrics and gynaecology then this will restrict the choice of configurations. We undertake an assessment of current and emerging practice internationally and make a judgement about whether gynaecology needs to be located with the main obstetric and gynaecology service If it does not need to be on the same site as maternity then the designation of gynaecology will not influence our recommendation on the location of maternity and gynaecology services
F	Which of the service configurations support the cancer strategy of one in the north and one in the south	<ul style="list-style-type: none"> If gynaecology does need to be on the same site we will identify only the configurations that support the cancer strategy
G	Which configurations provide best accessibility	<ul style="list-style-type: none"> On the basis of D (and potentially H below), we will make an assessment of the accessibility that different configurations provide. The analysis will be supported by the accessibility study commissioned for this project by KPMG from the Small Area Health Research Unit at Trinity College, Dublin
H	Which configuration corresponds with the location of the population	<ul style="list-style-type: none"> In addition to the accessibility study we will assess the configurations on the basis of the female population aged 15-49 in the GDA in 2006. This is based on the Trinity College Study above
I	Which configuration supports current user travel plans	<ul style="list-style-type: none"> Finally, we consider the compatibility of existing catchment areas and the related patient flows that will be required to support the proposed new catchment areas following the a reconfiguration of services. This is again based on the Trinity College Study above

9.3 Potential sites

9.3.1 Introduction

Patients’ needs are best met by co-locating each of the three maternity and gynaecology hospitals with an adult acute hospital. This is in line with best practice across Europe, USA, Canada and Australia. In order to realise the benefits of co-location, there needs to be the availability, volume and complexity of services that will facilitate the improved clinical outcomes for women and infants. The principle of co-location was also overwhelmingly supported during the stakeholder consultation.

The private hospitals were not identified as potential co-location sites because whilst they may provide some of the services required for co-location at present, there is no assurance that the services will be provided in the future. As a private provider they are subject to market forces and as the HSE cannot enforce the provision of the services required for co-location of obstetric and gynaecology service at the Beacon site, the co-location benefits are not guaranteed for the future.

Each of the potential sites in the GDA was assessed against a number of key criteria.

Table 57: Criteria evaluation

		AMNCH	Beaumont Hospital	Connolly Hospital, Blanchardstown	St Michael’s, Dun Laoghaire	St Columille’s Loughlinstown	Mater Misericordiae University Hospital	Naas General Hospital	St James’s Hospital	St Vincent’s University Hospital
Gynaecology Obstetrics	Urological surgeon	✓	✓	✓	✓	✓	✓	✗	✓	✓
	Colon surgeon	✓	✓	✓	✗	✗	✓	✓	✓	✓
	Vascular surgeon	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Diabetologist	✓	✓	✓	✓	✗	✓	✗	✓	✓
	Cardiologist	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Endocrinologist	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Neurologist	✓	✓	✓	✗	✗	✓	✗	✓	✓
	Genetics service	✗	✓	✗	✗	✗	✓	✗	✓	✓
	Psychiatrist	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Interventional radiologist	✓	✓	✗	✓	✗	✓	✗	✓	✓
	Ultrasound with Doppler and colour flow	✓	✓	✓	✓	✓	✓	✓	✓	✓
	MRI	✓	✓	✗	✗	✗	✓	✓	✓	✓
	CT	✓	✓	✓	✗	✓	✓	✓	✓	✓
	Two hour biochemistry service	✗	✓	✗	✓	✗	✓	✓	✓	✓

		AMNCH	Beaumont Hospital	Connolly Hospital, Blanchardstown	St Michael's, Dun Laoghaire	St Columcille's Loughlinstown	Mater Misericordiae University Hospital	Naas General Hospital	St James's Hospital	St Vincent's University Hospital
	Full haematological service	✓	✓	✓	✗	✗	✓	✓	✓	✓
	ITU	✓	✓	✓	✗	✓	✓	✗	✓	✓
	HDU	✗	✓	✗	✓	✗	✓	✗	✓	✓

Source: (1) Information provided by Network Managers

Following the assessment of the nine potential sites in our view, only five are eligible for co-location with an obstetrics and gynaecology service. We also feel that those five hospitals provide the appropriate teaching/training support given their academic links including the proposed development of academic medical centres, which was also supported in our discussions with the academic institutions. The five sites are:

- AMNCH;
- BH;
- MMH;
- SJH; and
- SVUH.

9.4 Gynaecology

9.4.1 *Introduction*

The report on the National Cancer Control Programme published in Autumn 2007 outlined the strategy for gynaecology.

Designated Cancer Centres will deliver diagnostic, surgical, medical (systematic) and radiation oncology services.

Cancer centres will be located and networked within each of the four HSE administration regions. Each network will have two centres.

Table 58: Gynaecology network centres

HSE Dublin North East	<ul style="list-style-type: none"> • BH • MMH
HSE Dublin Mid Leinster	<ul style="list-style-type: none"> • SJH • SVUH
HSE South	<ul style="list-style-type: none"> • Cork University Hospital • Waterford Regional Hospital
HSE West	<ul style="list-style-type: none"> • University College Hospital Galway • Limerick Regional Hospital

It was concluded that there is a need for four gynaecology centres nationally (one within each of the cancer networks, for the curative surgical treatment of primary gynaecology cancers).

As there will be two networks that cover Dublin, there will be two gynaecology centres, though the locations for these are as yet unannounced.

In determining the locations for the services the key issue to be addressed was whether gynaecology needs to be located with mainstream obstetrics and gynaecology.

We will examine trends in the UK in sub specialist training to determine whether the location of gynaecology will influence the location of obstetric and gynaecology services.

9.4.2 **Current practice**

In Ireland, as in other countries, gynaecologists contribute to the gynaecology and obstetric rotas.

In the past the consultant obstetrician and gynaecologist worked as a generalist. Currently the consultant has no defined time within the labour ward, other than that required for private patients. We have already concluded that this is not a sustainable model and that 24 hour consultant cover should be implemented.

As has already been experienced in the UK, there is increasing pressure on the consultant to balance time between obstetrics and gynaecology. This is in addition to any sub-speciality services that they may provide. The changes proposed in the new models of care recommended in chapters 5 and 7 will require a change in how consultant obstetricians and gynaecologists work in the GDA.

9.4.3 *Emerging Trends*

The advent of the EWTD and the associated reduction in hours worked by trainees will increase the workload on consultants. In recognition of the need to address the changing and increasing demands on consultant time, the UK Royal College of Obstetricians and Gynaecologists established a working party to look at the Future Role of the Consultant¹⁰⁶.

Underpinning the review undertaken by the working party was acknowledgement of the significant change in gynaecological practices over recent years. Whilst surgical intervention still continues to be an important element of treatment options, there has been a trend towards the medical management of gynaecological conditions.

The result of this change in management is that not all gynaecologists in the future will train as specialists in major abdominal and pelvic surgery. However, the provision of acute care requires the majority of those training in obstetrics and gynaecology to have competency in emergency surgery.

Major surgery will be undertaken by a smaller number of consultants who will be able to maintain their skills.

In obstetrics there will also be a gradual movement away from generalist roles. In the UK in large centres such as Liverpool, this has already happened with many of the consultants working entirely as obstetricians.

Equally within gynaecology, sub specialists will work within a tertiary referral unit. These doctors will have completed core training and sub speciality training.

In the future, consultants with subspecialty training in gynaecology will only provide gynaecology services. They will not be contributing towards the general obstetric and gynaecology service.

There is therefore no requirement to have gynaecologists on the same site as general obstetric and gynaecology services.

¹⁰⁶ UK Royal College of Obstetricians and Gynaecologists
"Future Role of the Consultant"

Currently in the GDA, the gynaecology surgeons act as experienced gynaecology surgeons and assist the obstetricians and gynaecologists in the surgical management of major haemorrhage. This will not be possible when gynaecology is separated from the main service. However, as the obstetric and gynaecology services will be located on an adult site they will have access to interventional radiologists, vascular, colon and urological surgeons. These surgeons are more than able to provide this assistance to the obstetric and gynaecology service. These specialities have been key co-location criteria because of their role in dealing with gynaecology and obstetric emergencies.

It is important to reiterate the point made in the gynaecology chapter regarding mainstream gynaecology services. We recommend that gynaecology be provided on the same site as obstetrics but delivered within the adult hospital on the co-located site. We believe that this will maximise theatre utilisation in gynaecology sessions, provide better access to other surgical specialities such as general surgery and urology for emergency and elective patients; and other specialists such as geriatricians and cardiologists for those women with co-morbidities.

9.4.4 **Conclusion**

There is a clear movement away from generalist services and instead a move towards sub-specialism. This has mainly arisen from changes in clinical practice which have led to increasing separation of the sub specialists in mainstream gynaecology.

We recommend that gynaecology does not therefore need to be located with the main obstetric and gynaecology service.

The designation of gynaecology will be determined by the HSE as part of its implementation of the cancer strategy and therefore does not form a part of this review. The location of gynaecology does not need to determine our recommendation on the future location of obstetric and gynaecology services. The five potential sites still remain as possible locations for obstetric and gynaecology services.

9.5 **Accessibility analysis**

9.5.1 **Introduction**

As per the decision tree, having reduced the number of potential sites down from nine to five, we commissioned an accessibility study from the Small Area Health Research Unit, Trinity College Dublin in order to determine which configuration of sites provides the optimal access to maternity services in the GDA.

As the MMH site is the site of the New National Paediatric Hospital and we are in support of the concept for tri-location, the MMH site was taken as given as the first site.

The study was based on the current population and the projected population in the GDA in 2016 and 2026.

Based on the five sites identified as potential locations for maternity services with the MMH as a given, six scenarios were analysed to identify options for two further sites:

- Scenario A: MMH, SVUH and SJH;
- Scenario B: MMH, SVUH and AMNCH;
- Scenario C: MMH, SVUH and BH;
- Scenario D: MMH, BH and SJH;
- Scenario E: MMH, AMNCH and SJH; and
- Scenario F: MMH, BH and AMNCH.

In order to carry out the analysis certain assumptions were made on:

- Birth projections;
- Travel times; and
- Patient flow.

A description of these assumptions are outlined below.

9.5.2 ***Births projection assumptions***

Median birth projections are a suitable indicator of future birth numbers.

Population increases will occur predominantly in towns and their environs rather than rural areas, with some increases in Dublin city suburbs.

The numbers of births in rural areas will remain relatively unchanged from 2006 until 2026.

9.5.3 ***Travel time assumptions***

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

Public transport coverage and travel times in 2016 will be the same as observed in 2006.

Speeds are those actually achieved by traffic over a 24 hour period. The relative speeds were based on attained speeds as measured and published by the National Roads Authority. As these speeds are not indicative of speeds achieved during normal hours (7am-7pm) the values were further calibrated using Dublin Transport Office and AA Ireland.

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.

It was decided that travel time intervals at 30 and 60 minutes would be appropriate for maternity services.

9.5.4 ***Patient flow assumptions***

Based on HIPE 2005 hospital activity data the following assumptions were made:

- 96.5% of births in the three current hospitals originate from within the Greater Dublin Area – the birth figures quoted in subsequent tables includes births from outside the Greater Dublin Area;
- 5% of mothers in the north (as defined by the Dublin North postal area) may travel to the new hospital planned in the North East Region;
- 12% and 2% of Kildare mothers will travel to the Portlaoise and Mullingar hospitals respectively;
- 54% of Meath mothers may travel to the new hospital in the North East Region, 5% to Mullingar, 4% to Cavan and the remaining 41% would travel to the three Dublin based hospitals;
- 10% of Wicklow patients will travel to Wexford Regional Hospital; and
- No hospital would will have greater that 10,000 births.

Table 59: Service access scenario analysis

Scenario	Sites	Births ⁽¹⁾	% of Population that can access a service in the configuration within a certain time ⁽²⁾						KPMG/TCD Perspective	
			2006		2016		2026			
			30 mins	60 mins	30 mins	60 mins	30 mins	60 mins		
Current Status	Coombe	7,254	26.3	82.6	-	-	-	-	<ul style="list-style-type: none"> The National Maternity Hospital currently has a disproportionate attraction for residents of Dun Laoghaire due to its location. It is less attractive than anticipated for residents of Dublin 20 and Dublin 24, with these women more likely to use the Coombe 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 one hour of each site is very similar. The location of the three sites effectively minimises the coverage of the services All three are in the city centre and are therefore not currently serving the women in the wider GDA, a factor which will increase over time 	
	NMH	8,078								
	Rotunda	8,088								
A	MMH	8,499	30.9	83.3	30.2	83.1	28.0	82.0		<ul style="list-style-type: none"> 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 at the MMH 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 SVUH site. The catchment at the SVUH 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 SJH site is quite central and therefore will share a lot of the city centre catchment with the MMHsite which to a certain extent replicates the overlapping catchments of the current configuration All three sites are still in the city. As a consequence the improvement in access is moderate
	SVUH	5,504								
	SJH	9,296								

Sources: (1) Estimated number of births in 2006. In the current status the births are based on data provided to Trinity College Dublin. In scenarios A-F the estimated number of births were generated by the model

(2) By private travel

Table 60: Service access scenario analysis (continued)

Scenario	Sites	Births ⁽¹⁾	% of Population that can access a service in the configuration within a certain time ⁽²⁾						KPMG/TCD Perspective
			2006		2016		2026		
			30 mins	60 mins	30 mins	60 mins	30 mins	60 mins	
B	MMH	9,304	40.6	85.7	40.0	85.6	38.0	84.8	<ul style="list-style-type: none"> As two of the sites are drawn out of the city centre this further increases the catchment at the MMH as it now draws patients from the south inner city 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 maintenance of existing catchment areas would minimise disruption during the implementation of the new models of care and whilst the new hospitals were being built The number of births at the MMH site increases as fewer north Dublin patients would travel to south-side locations that are both quite far from the MMH. In this scenario nearly 90% of Kildare patients would travel to the AMNCH site The access within 30 and 60 minutes is good in this scenario due to the increased distance between the three sites. Nearly 76% of patients travel to their nearest site in this configuration of services This offers significant improvement on the existing configuration
	SVUH	5,500							
	AMNCH	8,495							
C	MMH	9,913	29.8	82.7	29.1	82.5	27.0	81.3	<ul style="list-style-type: none"> As a result of this scenario the MMH 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 MMH service With the majority of Kildare and Meath patients travelling to the MMH location, that site will be heavily over-subscribed The SVUH 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 BH site will come mainly from north Dublin although it will also attract some from the south inner city This scenario does not offer significant benefit beyond relocating the maternity services to co-located sites. It will not improve access or demand at each site This scenario does not provide reasonable access to the population in the southwest of the GDA, which is a high population and growth area
	SVUH	8,097							
	BH	5,290							

Source: (1) Estimated number of births in 2006. In the current status the births are based on data provided to Trinity College Dublin. In scenarios A-F the estimated number of births were generated by the model

(2) By private travel

Table 61: Service access scenario analysis (continued)

Scenario	Sites	Births ⁽¹⁾	% of Population that can access a service in the configuration within a certain time ⁽²⁾						KPMG/TCD Perspective
			2006		2016		2026		
			30 mins	60 mins	30 mins	60 mins	30 mins	60 mins	
D	MMH	8,842	32.4	82.3	29.1	82.1	29.3	80.9	<ul style="list-style-type: none"> Services at the SJH site will be oversubscribed in this scenario. By capping capacity at 10,000 most of the surplus will transfer to the MMH site. Nearly 48% of births at the MMH site will originate south of the Liffey in Wicklow and south Dublin. From an access point of view this is quite inefficient, particularly given the notional barrier that the Liffey presents. As such, capping capacity at SJH may be difficult to enforce in practice The BH site serves an almost exclusively north Dublin catchment while the SJH site draws mainly from south Dublin and Kildare Other than at the 30 minute catchment, this scenario does not offer any advantages over the existing locations
	BH	4,482							
	SJH	9,976							
E	MMH	9,006	39.1	85.7	38.5	85.6	37.1	84.9	<ul style="list-style-type: none"> As the SJH site is between the other two sites its catchment is greatly reduced. Geographically this configuration places all three maternity hospitals along the main corridor from south-west Kildare to Dublin city centre By placing services between AMNCH and the MMH at the SJH site, there is poor demand at the SJH location The majority of Kildare and Wicklow patients will travel to AMNCH along with 45% of south Dublin patients. The MMH site will draw most of its patients from north Dublin Most of the SJH patients will come from south Dublin but the general overlap with the AMNCH catchment make this scenario an inefficient configuration of services. It would be unpopular with residents in the south east of Dublin However, in terms of access this scenario offers a reasonable improvement on the existing distribution of services
	AMNCH	7,948							
	SJH	6,344							

Source: (1) Estimated number of births in 2006. In the current status the births are based on data provide to Trinity College Dublin. In scenarios A-F the estimated number of births were generated by the model

(2) By private travel

Table 62: Service access scenario analysis (continued)

Scenario	Sites	Births ⁽¹⁾	% of Population that can access a service in the configuration within a certain time ⁽²⁾						KPMG/TCD Perspective
			2006		2016		2026		
			30 mins	60 mins	30 mins	60 mins	30 mins	60 mins	
F	MMH BH AMNCH	8,591 4,763 9,945	43.3	85.9	42.8	85.9	40.3	84.8	<ul style="list-style-type: none"> As before, the catchment of the BH site is restricted due to its proximity to the MMH site so it primarily draws patients from North County Dublin The new hospital planned in the North East Region will create an imbalance of services in the north of the GDA Due to two services being based north of the Liffey, the MMH draws over a third of its patients from south of the Liffey. Most Kildare and Wicklow patients travel to AMNCH As in previous scenarios, the BH site draws almost exclusively from north Dublin. Based on 2006 and 2016 populations the AMNCH site would be oversubscribed. As there is no alternative on the south side it would mean many of the diverted patients would have to cross the Liffey to the MMH site This scenario results in the best access although it is only marginally better than scenarios C and E in that respect. The location of the services do however create an imbalance between the north and south of the GDA. Currently 60% of the births occur in the south. <p><i>For further details see Appendix F</i></p>

Source: (1) Estimated number of births in 2006. In the current status the births are based on data provided to Trinity College Dublin. In scenarios A-F the estimated number of births were generated by the model

(2) By private travel

9.5.5 Comparing scenarios

Table 63: Comparing Scenarios

Sites	2006			2016			2026		
	Rank at 60 mins	30 mins	60 mins	Rank at 60 mins	30 mins	60 mins	Rank at 60 mins	30 mins	60 mins
Current Status CWH, NMH, RH		26.3	82.9		-	-		-	-
Scenario A MMH, SJH, SVUH	4	30.9	83.3	4	30.2	83.1	4	28.0	82.0
Scenario B MMH, SVUH, AMNCH	=2	40.6	85.7	=2	40.0	85.6	=2	38.0	84.8
Scenario C MMH, SVUH, BH	5	29.8	82.7	5	29.1	82.5	5	27.0	81.3
Scenario D MMH, BH, SJH	6	32.4	82.3	6	31.6	82.1	6	29.3	80.9
Scenario E MMH, AMNCH, SJH	=2	39.1	85.7	=2	38.5	85.6	1	37.1	84.9
Scenario F MMH, BH, AMNCH	1	43.3	85.9	1	42.8	85.9	=2	40.3	84.8

9.5.5.1 *Comparing the scenarios in 2006*

All but one of the scenarios © offers an improvement in accessibility to the current configuration of services. The range is small between the six, with MMH, BH and SJH scenario providing accessibility to a maternity service within 60 minutes for 82.3% of the female population aged over 15 within the GDA and MMH, BH and AMNCH providing the best at 85.9%.

On the basis of accessibility at 60 minutes the top three scenarios are:

- Scenario F - MMH, BH, AMNCH;
- Scenario B - MMH, SVUH, AMNCH; and
- Scenario E - MMH, AMNCH, SJH.

9.5.5.2 *Comparing scenarios in 2016*

The scenarios in 2016 compare identically to those for 2006, with no rank changes at the 60 minute interval.

9.5.5.3 *Comparing scenarios in 2026*

In 2026 the scenarios change order but the top three remain the same. On the basis of the 60 minute interval the top three are;

- Scenario E - MMH, AMNCH, SJH;
- Scenario B - MMH, SVUH, AMNCH; and
- Scenario F - MMH, BH, AMNCH.

Scenario A provides some improvement in access, but by moving NMH services to SVUH it loses some of its attraction to residents in the north and will therefore have fewer births than at present. At the 60 minute interval this option performs well against the top three. However, at the 30 minute interval it is significantly poorer with 10% less women being able to access the service within 30 minutes compared to the top three at the 30 minute interval. Having considered the option, on the basis of providing services to women close to their homes we therefore will eliminate this option.

Scenario B effectively retains the present configuration whilst improving access by maximising coverage; we will consider this option further.

Scenario C does not offer any additional benefits apart from those that would be achieved through co-location. We will not consider this option any further.

Scenario D from an access perspective is inefficient particularly given the notional barrier that the Liffey represents. Other than at 30 minute intervals, this scenario does not offer any advantages over the existing location. We will not consider this option any further.

Scenario E offers an improvement in the existing distribution of services however there would be poor demand on the SJH site. It does however provide good access at 60 and 30 minutes. We will consider this option further.

Scenario F provides the best access although it is only marginally better than scenario two and five respectively but the MMH and BH will be relatively close. The south side where 60% of the births occur would have only one service. It does however provide good access at 60 and 30 minutes. We will consider this option further.

9.5.6 *Summary*

We have reduced the potential number of scenarios from six to three on the basis of accessibility at 30 and 60 minutes. The remaining three scenarios are:

- Scenario B: MMH, AMNCH, SVUH;
- Scenario E: MMH , AMNCH, SJH; and
- Scenario F: MMH, BH, AMNCH.

We will now give further consideration to these three scenarios in terms of their best fit with the location of women aged 15-49 and existing travel patterns of women.

9.6 **Demographics**

9.6.1 *Introduction*

The accessibility analysis reduced the number of scenarios down from six to three. The three are:

- Scenario B: MMH, AMNCH, SVUH;
- Scenario E: MMH , AMNCH, SJH; and
- Scenario F: MMH, BH, AMNCH.

The MMH, BH, AMNCH scenario (scenario F) places two services relatively close to each other in the north of the city. This places the service in the South under pressure. The likely impact for women in the South would be that they would not all be able to

access their closest service and some would have to travel to their second choice that is probably further away than their first choice.

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.

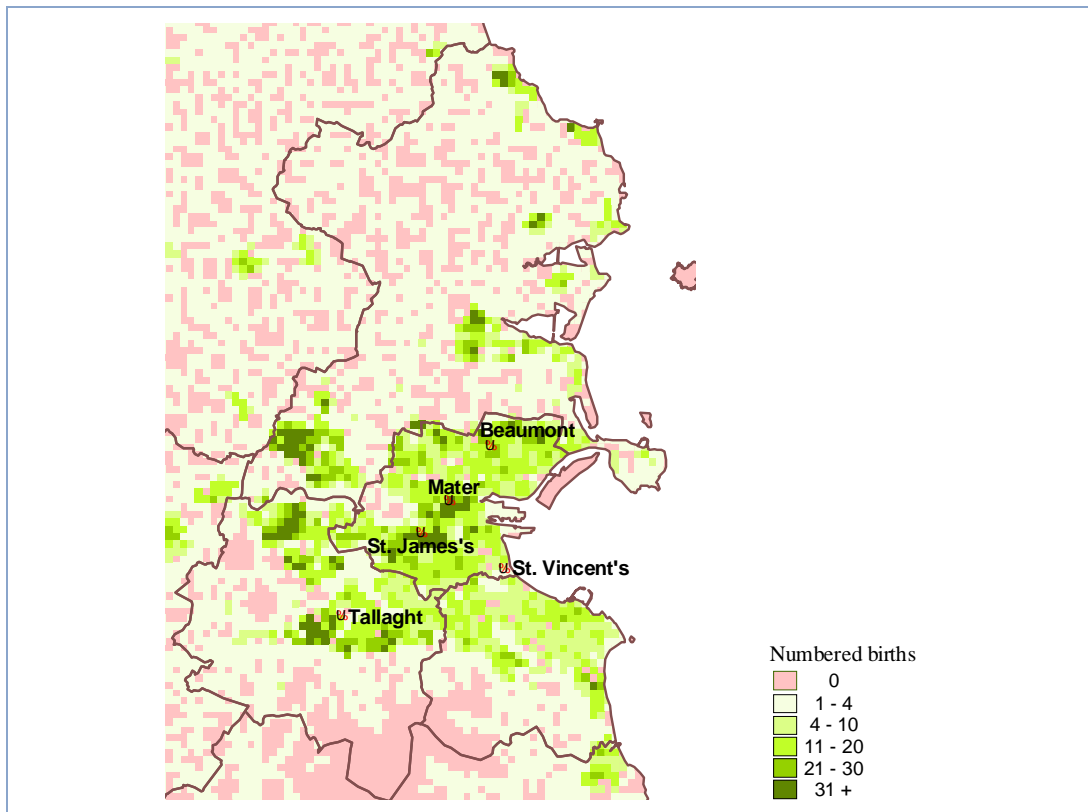
The areas of greatest growth in the GDA are the main N7/M7 corridor through Kildare (which makes AMNCH an ideal location), various towns in Meath, the North East coast of Dublin and to a lesser extent along the East coast of Wicklow.

The remaining 9,220 births originating in Meath and north Dublin 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 should still be appropriate in 2026.

The development of a major new hospital in the North-East has some potential to draw more patients from Meath and north Dublin than is currently the case. However, the number of patients cannot be estimated with any degree of certainty at this stage. When the physical development takes place the catchment for a north-side site may be further reduced. Having two large maternity units in the Dublin North East network (MMH and new North East Hospital) and two in the Dublin Mid Leinster network would make access to services more equitable within these networks.

Figure 15: The number of births per 500m grid square and the location of the five potential sites in 2006



9.6.2 **Summary**

The MMH, BH, AMNCH scenario (scenario F) places two services relatively close to each other in the north of the city and this places the service in the South under pressure. The MMH, BH, AMNCH configuration would disrupt current patient flows because women in the south of Dublin County and Wicklow would have to travel to the north of Dublin or south west.

Currently women in the Wicklow either access NMH, as the south side service or travel to Wexford. In this scenario the absence of a service on the south side would push activity to either the south west service or to the north. For those women in Wicklow travelling into Dublin does not provide them with the accessibility to services that the current service configuration does.

As 60% of the births occur in the south of the GDA and the advent of a major new hospital in the North East, having two maternity services in the north of the GDA does not make logical sense. Therefore, the MMH, BH, AMNCH configuration will be eliminated at this stage.

9.7 Catchment areas

9.7.1 *Introduction*

Following the consideration of where the women are located in the GDA and the advent of the new regional hospital in the North East, one of the three scenarios identified through the accessibility study was eliminated.

This now leaves two scenarios

- Scenario B - MMH, AMNCH, SVUH and
- Scenario E - MMH, AMNCH, SJH.

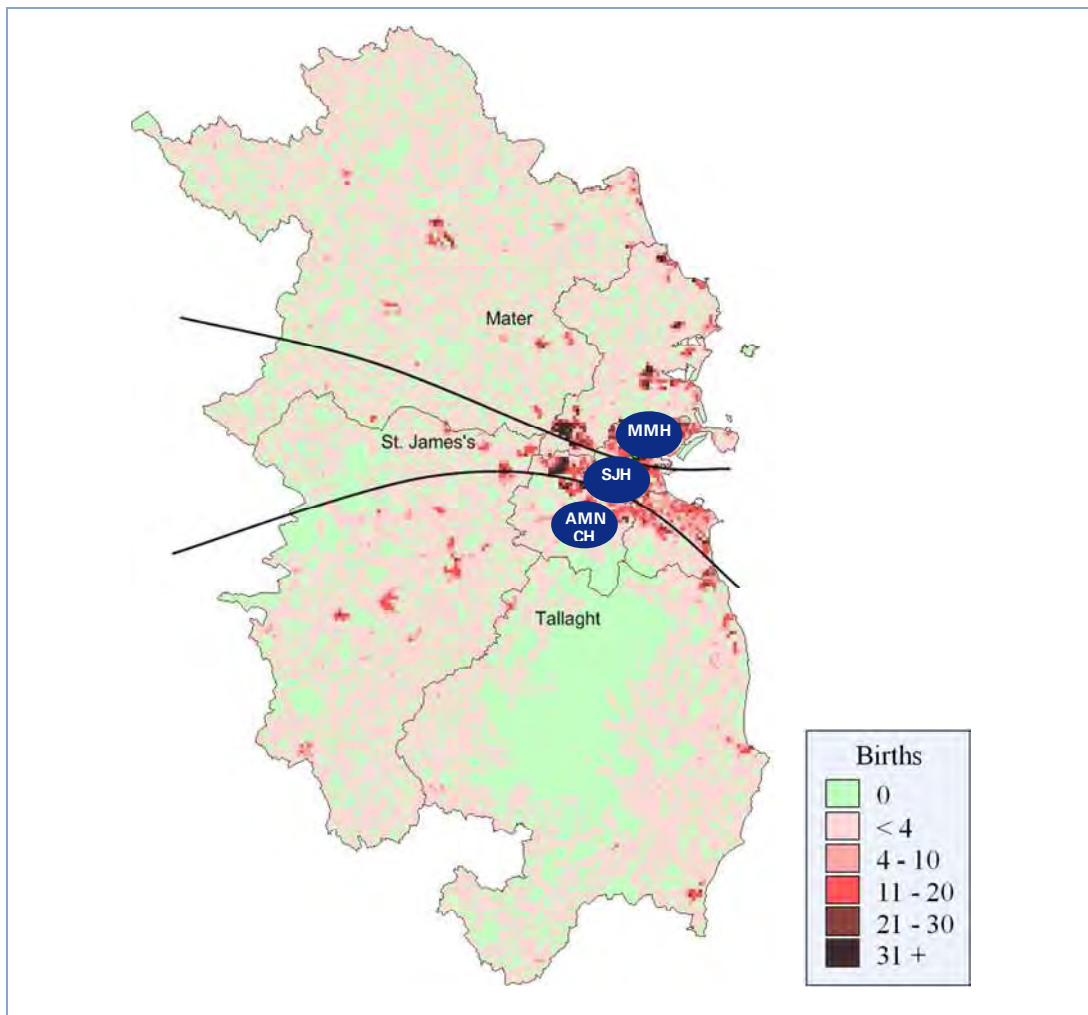
We will now consider the two scenarios in terms of the proposed new catchment areas that would need to be created and the impact on the current travel patterns of women in the GDA.

The combination of MMH/SVUH/AMNCH maximises access within 30 minutes and is identical at 60 minutes to the MMH/AMNCH/SJH solution.

9.7.2 *Scenario E - MMH, AMNCH, SJH*

In this scenario, as the map below shows, the service located at the SJH site would have a catchment area that is between those of AMNCH and MMH. Geographically this configuration places all three maternity hospitals along the main corridor from south west Kildare to Dublin city centre. In comparison, the catchment area for SJH site would be small and the number of births on this site would be fewer.

This scenario would require substantial changes to patient flow. This could be addressed through the strategic placement of community midwives to draw women into specific services but the general overlap with the AMNCH and SJH catchment makes this scenario inefficient.

Figure 16: Proposed catchment areas for the MMH, SJH and AMNCH Scenario

9.7.3 Scenario B - MMH, AMNCH and SVUH

The Rotunda has a catchment area that encompasses the north of Dublin and Meath. The Coombe's catchment area includes the south west of Dublin and Kildare. The NMH draws women from across the GDA but the south and Wicklow are important areas.

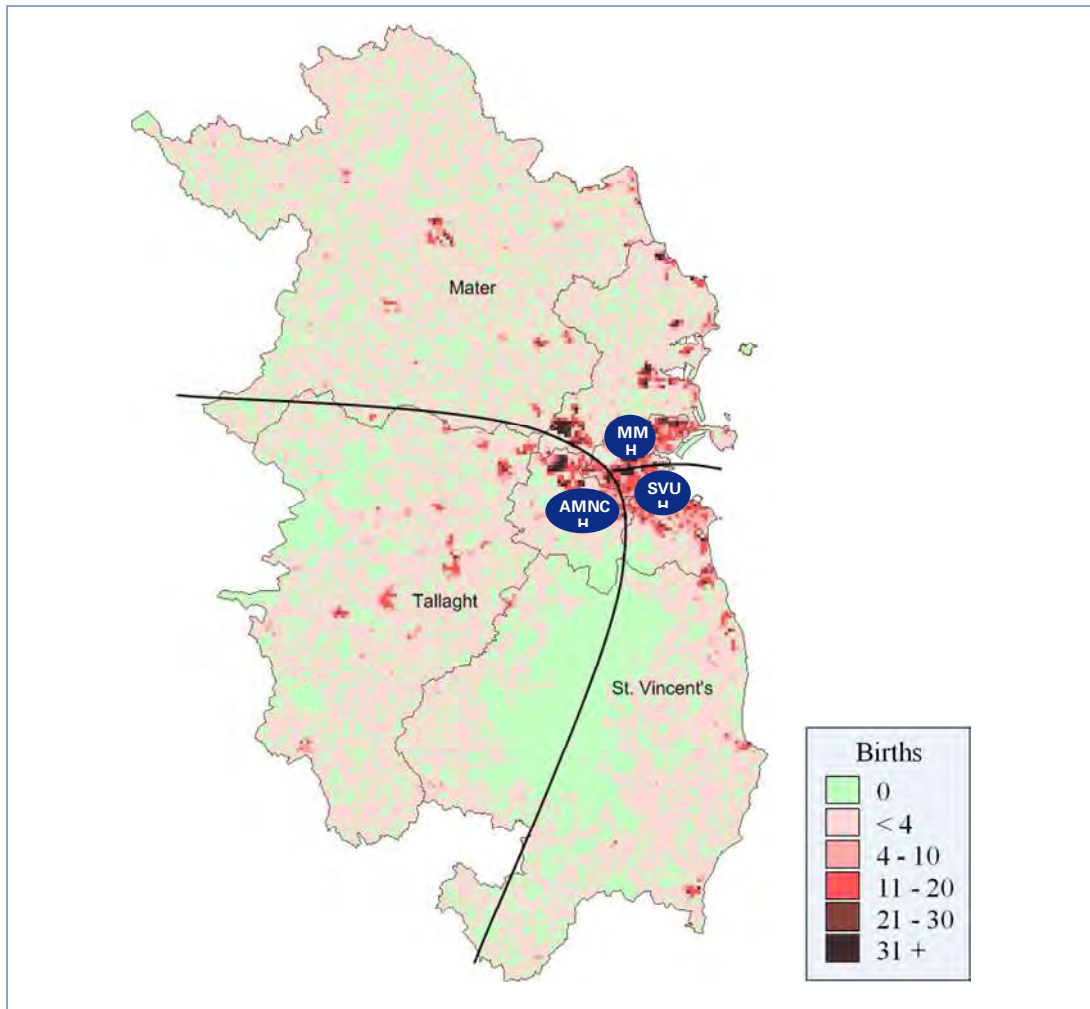
As the map below shows, the combination of the MMH, AMNCH, SVUH will result in the existing catchments being retained and enhanced. This new configuration will lead to improved accessibility with an increase from 65% to 75% of women accessing the service that is closest to them.

Retention of these catchments would be desirable particularly as the three new hospitals are unlikely to be 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.

If there were not a service at SVUH then the women in south-east of Dublin and east Wicklow would have to go to AMNCH or Wexford which is to the south of Wicklow.

Figure 17: Proposed catchment areas for the MMH, AMNCH and SVUH Scenario



9.7.4 **Summary**

The combination of MMH, SVUH, AMNCH maximises access within 30 minutes and it is identical at 60 minutes to the MMH, AMNCH, SJH situation. The two scenarios cannot be adequately distinguished on grounds of accessibility at 60 minutes alone.

We have therefore considered the two scenarios in terms of the resulting catchment areas.

The MMH, AMNCH, SJH configuration would cause significant disruption to the existing catchment areas of the three maternity services. During the transitional phase of building new facilities and introducing new models of care the level of disruption would

make it difficult to predict patient travel patterns and demand on the different services and sites.

The difficulties that arise from this configuration are due to all three sites being in the main corridor from south west Kildare to Dublin city centre.

The proximity of SJH and AMNCH make this configuration less efficient as the catchment areas for the two sites overlap.

Our conclusion of this analysis is that the combination of MMH, SJH and AMNCH is less efficient due to the substantially different catchment areas that are likely to cause significant disruption to women and be a less efficient configuration than our recommended scenario.

The MMH, AMNCH, SVUH configuration would maintain the existing patient flows and therefore would provide the least disruption to women as current travel patterns would be minimised.

This option would maximise the ability to predict demand at the various stages of transition to the new hospital sites.

We recommend that the best location for maternity and gynaecology services will be at the MMH, AMNCH and SVUH. This configuration will maintain existing catchment areas, offer best access to services and optimise the prediction of demand at the various stages of transition.

9.8 **Recommended sites**

9.8.1 **Introduction**

Using the structure of the decision tree outlined at the beginning of this chapter we have established that the services will be located on the MMH, AMNCH and SVUH sites.

The decision to move services to these locations was based on the needs of the population rather than institutional partnerships. We feel these locations best support the optimal model of care.

We will now consider the impact of these sites on:

- Existing Partnership;

- Governance Arrangements; and
- Outreach Services.

9.8.2 ***Partnership Arrangements***

On the basis of current catchment areas and the new catchment areas we recommend that the current services move to the following sites:

- CWIUH services will move to AMNCH and form Co-location 2 as per chapter 8.5;
- NMH services will move to SVUH and form Co-location 1 as per chapter 8.5; and
- RH services will be tri-located at MMH.

The three maternity services have over recent years developed close relationships with adult hospitals. Examples of such include joint consultant appointments etc. For the NMH and RH their relationship with their partner adult hospital will require strengthening. They need to start working in a partnership arrangement.

We would recommend that at the earliest opportunity that the governance arrangements be agreed and that robust plans are developed to maximise the clinical and financial benefits of co-location.

The identification of opportunities to improve the clinical and financial performance of the hospitals should not be dependent on co-location. Space for the new build should be identified and a business case for the new build developed. Opportunities to improve performance as set out in chapters 5 to 7 should commence immediately.

Although there are existing shared posts between the CWIUH and AMNCH, the move will require the two hospitals to further develop their relationship at all levels of the organisation.

For maternity, the demographics clearly support the development of a maternity service at AMNCH. Almost 20% of the CWIUH's activity originated from Kildare. This area is predicted to grow and therefore a service in AMNCH is the best option for women from this area.

We recommend that the HSE play a key role in facilitating the integration of CWIUH and AMNCH.

Recognising that this partnership is less developed than the other two we would expect that opportunities to improve clinical and operational performance be implemented in 2009.

9.8.3 **Governance Arrangements**

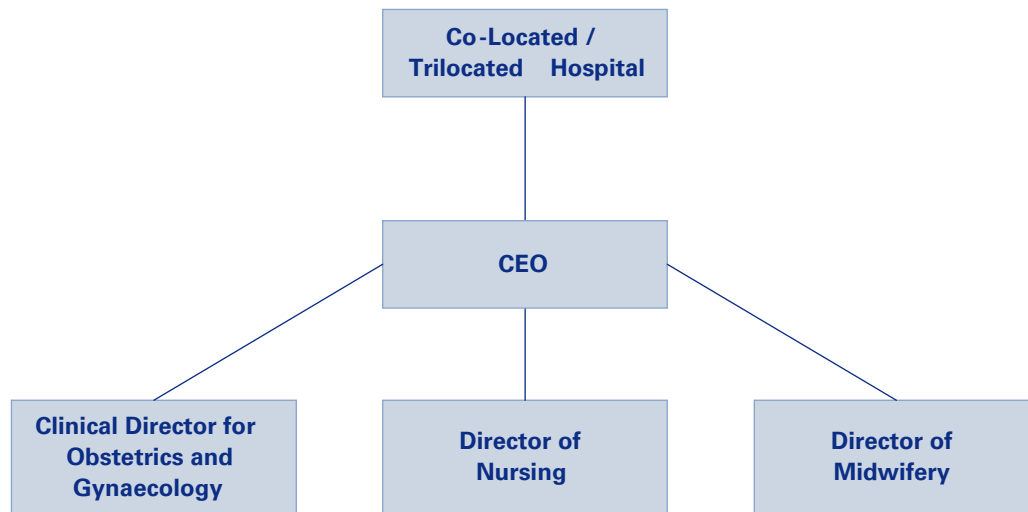
We recommend that there is one Chief Executive Officer (CEO) for the adult and maternity services¹⁰⁷. The CEO may be a clinician but they would not undertake clinical duties whilst in the CEO post. We believe that this will be the most effective way to integrate the maternity and gynaecology service with adult services and for the financial and clinical benefits of co-location to be achieved.

The Mastership system is unique and we have commented earlier on some of its clinical benefits. However, we believe there is a need to modernise the role, in conjunction with modernising the service to enable sufficient focus on organisational change and development and financial and operational management in the way that a full time executive CEO could. We therefore recommend that the Mastership system evolve into clinical directorships. This would involve establishing a clinical director for obstetrics and gynaecology on each site, working to the overall CEO of the co-located/tri-located site. Each hospital site would have one overall Board to ensure central corporate governance.

Being part of the adult hospitals' governance structure would enable the clinical director to focus on clinical leadership and clinical outcomes. The post holder will be supported by an executive team that would manage the HR, finance, ICT, estates and operations functions of the maternity and gynaecology service.

The Hospital Charters would need to be changed in order to facilitate a move to the adult site and for the necessary changes to governance structures to occur, including any necessary changes to the Board structures.

¹⁰⁷ see chapter 9.9.1 for further comment here regarding predetermined governance arrangements for new NPH

Figure 18: Potential future governance framework

9.8.4 *Outreach Services*

As the new catchment areas are relatively similar to existing catchments we recommend that outreach catchments remain the same. Services will, however, need to be developed and modernised as outlined in chapters 5 to 7.

For community midwifery we would recommend establishing community midwifery for the following:

- AMNCH/CWIUH: the South West of the City and Kildare;
- MMH/RH: the North of Dublin City and Meath; and
- SVUH/NMH: the South East of the City and Wicklow.

Residents in the South of the city are likely to be drawn towards the only city centre service, the MMH. To ensure that the MMH does not have unmanageable demand and that the SVUH service is fully utilised we recommend that community midwifery services from NMH are located in the south of the city. This will ensure that women in the south of the city are drawn into the SVUH service and not the MMH service.

There will be a paediatric ambulatory centre at AMNCH and potentially at SCH and CHB in the future. We recommend that these be used as outreach services for midwives. Antenatal, postnatal and parent education classes should be provided in these centres.

A similar model in the UK has been developed in the form of Children's Trusts. The centres have promoted the integration of health and social care services, providing one-stop services. Whilst the evidence for the Children Trusts has been inconclusive they

have provided a useful mechanism to deliver maternity services in the community as an alternative to GP surgeries.

Adoption of this model in the GDA will promote greater integration of both acute and community, paediatric and maternity services across the GDA.

9.9 Summary

9.9.1 Introduction

In this section we summarise the process of how the sites were identified and the impact of the new configuration of sites.

Figure 19: Decision Tree

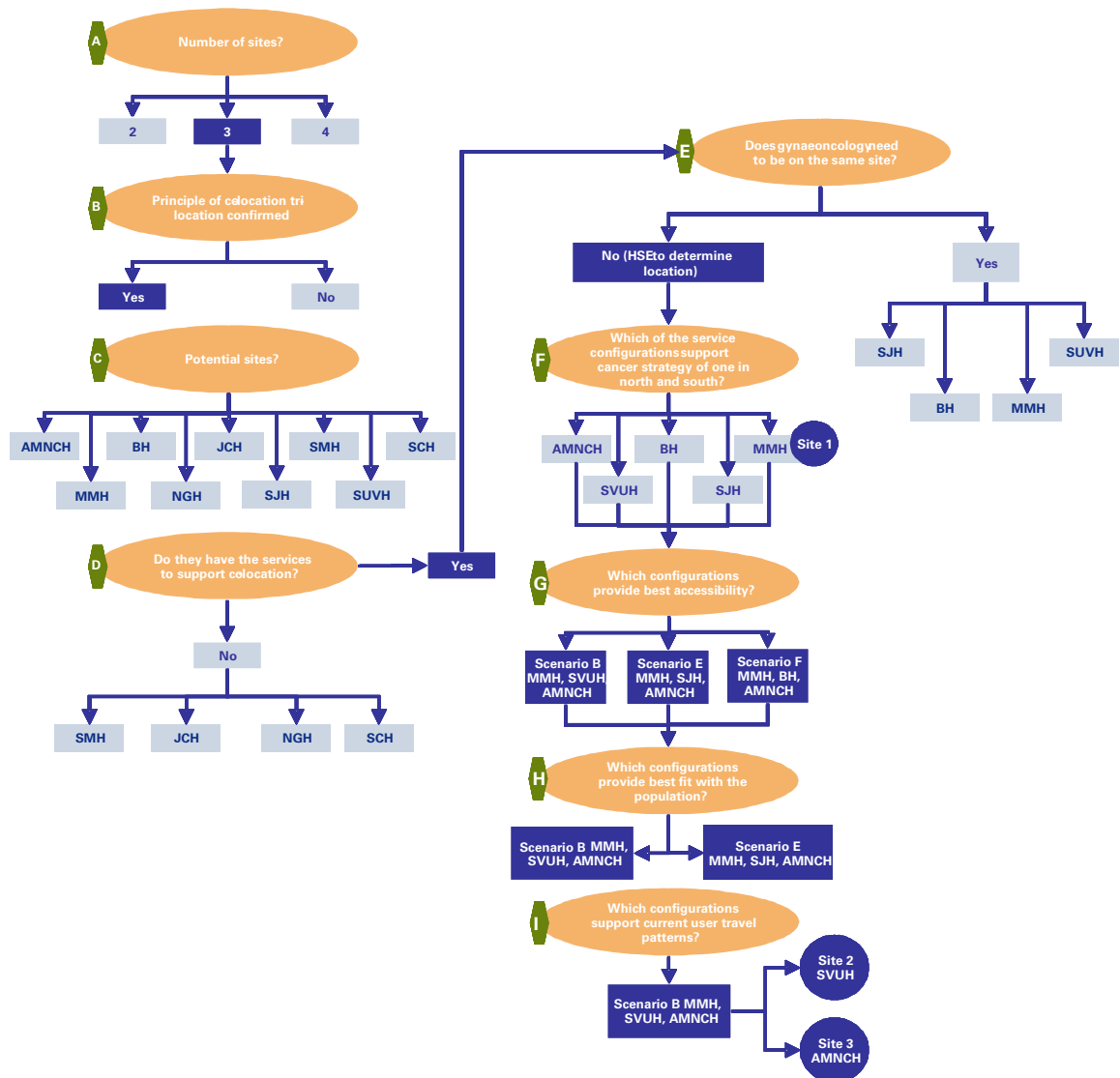


Table 64: Decision tree description

Decision point		Description
A	Number of Sites?	<ul style="list-style-type: none"> As outlined in chapter 8.3.2, after considering a number of options, the optimal number of sites is three
B	Principle of co-location/tri-location confirmed?	<ul style="list-style-type: none"> In chapter 8.3.2, we also outlined the case for co-location and tri-location. These principle are key to our model of care. The location of the services will therefore be governed by the location of adult and paediatric hospitals within the GDA
C	Potential Sites?	<ul style="list-style-type: none"> Potential sites within the GDA were identified. The list of nine sites represents the nine publicly funded adult hospitals in the GDA. The Beacon was not considered as a co-location site as the services it provides are subject to market forces. There are no guarantees that its existing services will continue into the future
D	Do they have the services to support co-location?	<ul style="list-style-type: none"> We assessed nine sites against the criteria required to deliver the benefits of co-location. Five of the nine sites are suitable for co-location <ul style="list-style-type: none"> – AMNCH – BH – MMH – SJH – SVUH
	Site 1 MMH	<ul style="list-style-type: none"> As we support the concept of tri-location, the first site within any configuration will be the MMH site which has already been selected as the site of the National Paediatric Hospital
E	Does Gynaecology need to be on the same site as obstetrics and gynaecology?	<ul style="list-style-type: none"> There is a clear trend away from consultants providing generalist services, and within gynaecology changes in clinical practice will lead to increasing separation of the sub specialists in mainstream gynaecology We recommend that gynaecology does not need to be located with the main obstetric and gynaecology service
F	Which configurations provides best accessibility?	<ul style="list-style-type: none"> On the basis of accessibility at 60 minutes the top three scenarios were <ul style="list-style-type: none"> – MMH, BH, AMNCH – MMH, AMNCH, SVUH – MMH, AMNCH, SJH
G	Which configuration corresponds with the location of the population?	<ul style="list-style-type: none"> The MMH, BH, AMNCH configuration would disrupt current patient flows. At present women in Wicklow tend to use the NMH and Kildare women the Coombe. In this configuration AMNCH would need to take the Coombe and NMH activity Of the three hospitals NMH has the least specific catchment area As 60% of the births occur in the south of the GDA and with the advent of a major new hospital in the north east, having two maternity services in the North of the GDA does not make logical sense. Therefore, the MMH, BH, AMNCH configuration was eliminated at this stage
H	Which configuration will provide greatest coverage through outreach and existing referral patterns?	<ul style="list-style-type: none"> We recommend that the best location for obstetric and gynaecology services will be at the MMH AMNCH and SVUH. This configuration will maintain existing catchment areas and optimise the prediction of demand at the various stages of transition On the basis that the MMH AMNCH, SVUH configuration would allow women to continue with their existing travel flows and therefore would provide the least disruption to women as current travel patterns would be minimised This option would maximise the ability to predict demand at the various stages of transition to the new hospital sites 75% of women will be able to access their nearest service

On the basis of current catchment areas and the new catchment areas we recommend that the current maternity and gynaecology services move to the following sites:

- Services currently based at CWIUH will move to AMNCH;
- Services currently based at NMH will move to SVUH; and
- Services currently based at RH will move to MMH.

We recommend that there be one CEO for the two co-located sites to ensure the benefits of co-location are fully optimised. For the trilocated site the Joint Task Group is proposing an independent status for both the development and operational phases of the new National Paediatric Hospital. The Joint Task Group recommends that the new National Paediatric Hospital has its own Board of Management, separate budget and identity but acknowledge the need to ensure coordination between the adult and maternity hospitals at management and clinical board level to ensure the co-location benefits are fully optimised.

We recommend that the maternity and gynaecology services be incorporated into this structure with the Mastership system evolving into a clinical directorship system. There should be one clinical director for obstetrics and gynaecology for each site. There should also be an overall director of the neonatal network. This post could be aligned with the post of director of neonatology at the new National Paediatric Hospital and the role should be supported by a GDA cot management office for the network located at the National Paediatric Hospital.

NMH and Rotunda need to formalise their relationship with their partner adult hospital at the earliest opportunity to realise the clinical and financial benefits of co-location in 2008.

The HSE will need to act within a facilitative role to support AMNCH and Coombe in building a new relationship.

As the catchment areas are maintained in this configuration we would recommend that existing outreach services remain in the same location, although they will need significant expansion and strengthening. We also recommend that the new paediatric ambulatory centres be used as maternity outreach centres in order to foster greater collaboration between paediatrics and maternity services in a similar way to what has been achieved through Children's Trusts in the UK.

10 Conclusions and implementation

10.1 Introduction

In this chapter we briefly summarise the key findings and recommendations made throughout the report. We have already outlined the short, medium and long-term actions required to modernise the service in the previous chapter and have not repeated these within this chapter. However, one of the important key steps to support implementation will be the development of a detailed project and implementation plan that establishes a clear, integrated timeline for undertaking all the necessary actions.

10.1.1 Overview

The current picture of the provision of maternity and gynaecology services in the GDA is of a service that is delivering good clinical outcomes in over-stretched, sub-standard infrastructure which is facing increasing pressures and demands. It is to the immense credit of the individual service providers that these standards are being achieved and that serious adverse clinical incidents have been so few.

It has been apparent throughout the course of the review that there is a passion for the service, pride in individual organisations and overwhelming willingness for change to happen. This is balanced to some degree by a feeling of ‘review fatigue’ – it is therefore vital that immediate and positive change takes place following this review. The HSE must make sure that the positive aspects of the current service are maintained and that the new model of care is implemented in a robust and effective manner.

We have made recommendations for the co-location and tri-location of hospitals and the creation of co-located Midwife Led Units in locations that offer improved access and choice to women, an issue that featured strongly in our stakeholder consultation.

For this to work effectively, it is about much more than the development of new buildings. Of equal importance is the investment required in primary and community care; we have developed a preferred model of care that offers mothers choice and continuity of care. The current provision of primary and community care in the GDA is in need of significant advancement. This will take time and resource, but is at the heart of the service model and hence must be driven immediately. The changes we are proposing

will take time to develop from estates, infrastructure and cultural perspectives. It is however, important to demonstrate a commitment to the changes and to continue to actively involve all the key stakeholders who have shown commitment to this process.

Safety and quality of services must be maintained throughout the transition period. To this end, we recommend that the future staffing and skills levels required are planned for now, so that they are firmly in place prior to co-location. The training and development of midwives will also need addressing so that they have the sufficient depth of skills to practice autonomously in the co-located Midwife Led Units.

We also believe that governance arrangements should evolve. The Mastership system has undoubtedly driven clinical productivity and kept adverse incidents to a minimum, however we believe that it does not allow sufficient focus on strategic and operational issues. To that end we recommend that this role should evolve into a Clinical Director role, accountable to the overall CEO of the co-located/tri-located sites.

10.2 Future service configuration

In this section we provide an overview of the key changes to the configuration of maternity and gynaecology services in the GDA.

10.2.1 **Overview of the current and future configuration of maternity services in the GDA**

Figure 20: Maternity Services

	Current Model	Future Model
Maternity Services (including Fetal Medicine)	<ul style="list-style-type: none"> • Three providers of obstetric care (CWIUH, NMH, RH) 	<ul style="list-style-type: none"> • Three providers of obstetric care
	<ul style="list-style-type: none"> • Units are stand-alone 	<ul style="list-style-type: none"> • Units are co-located on an adult site (CWIUH at AMNCH, NMH at St Vincent's and Rotunda at the Mater)
	<ul style="list-style-type: none"> • Each unit delivering approximately 8,000 babies per annum 	<ul style="list-style-type: none"> • Each delivering 6,000 per annum in the main obstetric unit (with capacity to increase to 8,000) and up to 2,000 in the midwifery-led unit adjacent to the obstetric unit
	<ul style="list-style-type: none"> • Antenatal care predominately provided by GPs and Obstetricians 	<ul style="list-style-type: none"> • Antenatal care will be provided in the community, with a minimum of 40% of women receiving their care by midwives in the community. Outreach services should be developed in current locations but also include the new paediatric ambulatory centres
	<ul style="list-style-type: none"> • Less than 10% of women receive antenatal care by midwives in the community 	<ul style="list-style-type: none"> • The Mother and Infant Care Scheme will be amended to facilitate midwifery care
	<ul style="list-style-type: none"> • Antenatal care is hospital based 	<ul style="list-style-type: none"> • Only those women with high risk pregnancies will require an obstetrician
	<ul style="list-style-type: none"> • Fetal medicine is carried out across three units, with little co-ordination of the three services and a lack of centralisation of the fetal intervention 	<ul style="list-style-type: none"> • There will be specialist midwifery teams for socially excluded women • Fetal medicine will operate as a network, with only one site carrying out fetal intervention. In the short-term this will be at NMH as they have the expertise, but the service should be located to the Mater site when the maternity and paediatric services are open on that site
	<ul style="list-style-type: none"> • No 24 hour consultant cover on the labour ward 	<ul style="list-style-type: none"> • The new builds will have sufficient labour suite and theatre capacity
	<ul style="list-style-type: none"> • Inadequate number of theatres 	<ul style="list-style-type: none"> • In the short-term the services should if possible identify and allocate space within current capacity to establish midwifery-led units
	<ul style="list-style-type: none"> • Inadequate number of delivery rooms 	<ul style="list-style-type: none"> • Consultants will provide formal 24 hour consultant cover to the labour suite

The difference in the number of cots is historic. The three hospitals would benefit from working as a network; managing the cots as a system would allow the three to manage capacity more effectively during periods of high activity

	<ul style="list-style-type: none"> • Less than 1% of births are home births • Limited choice for women 	<ul style="list-style-type: none"> • On the site of the Mater, AMNCH and St Vincent's site there will be co-located midwifery led units providing choice for women • Expansion of home birth services through the community midwives will provide the choice of home birth to up to 5% of women
	<ul style="list-style-type: none"> • Long length of stay (2-3 days for normal delivery, 5-6 days for c-section) 	<ul style="list-style-type: none"> • Length of stay will be reduced through proactive discharge planning and provision of postnatal care up to the 10th post natal day in the community by midwives to all women. The evidence for this is the "National Institute for Health and Clinical Excellence – Routine postnatal care of women and their babies – 2006". Unless clinically contraindicated women who had normal deliveries should be transferred into the community at 24 hours post delivery and those who delivered with c-section should be transferred within 56 hours
	<ul style="list-style-type: none"> • ETH and Domino schemes provide postnatal care in the community for up to 10% of women 	<ul style="list-style-type: none"> • ETH and Domino schemes should be extended to provide postnatal care for up to 20% of women in the medium-term
	<ul style="list-style-type: none"> • Postnatal care provided by public health nurses 	<ul style="list-style-type: none"> • Public Health Nurses will assume a health visitor role after the 10th post natal day
	<ul style="list-style-type: none"> • No psychiatric unit for mothers and babies 	<ul style="list-style-type: none"> • There needs to be established a mother and baby unit within one of the psychiatric hospitals for the severe postnatal depressives and psychosis mothers

10.2.2 **Overview of the current and future configuration of neonatology services in the GDA**

Figure 21: Neonatology Service

	Current Model	Future Model
Neonatology Services	<ul style="list-style-type: none"> Level 3 NICU is provided at each of the three maternity hospitals Babies requiring surgical procedures are transferred by ambulance to one of the children’s hospitals 	<ul style="list-style-type: none"> Level 3 NICU units will be managed as part of a neonatal network The Level 4 NICU will be included in the neonatal network and sited at the Mater Hospital. Babies that are identified as requiring surgery in the post natal period will be delivered on the Mater site Babies requiring transfer within the GDA or from other units in Ireland will be transferred by a consultant led, 24/7, transport service
	<ul style="list-style-type: none"> The Level 3 NICUs are staffed with midwives with neonatal training High length of stay Lack of repatriation policies No neonatal outreach services 	<ul style="list-style-type: none"> The Level 3 NICUs will be staffed with neonatal nurses Length of stay will be reduced through the tri-location model as babies will be able to have their surgical procedures within a short time of the decision to operate Neonatal outreach teams will facilitate the earlier transfer of care at home Repatriation guidelines will ensure that babies are transferred back to the referring unit once the clinical requirement to be in the Level 3 or 4 unit has ceased

10.2.3 **Overview of the current and future configuration of gynaecology services in the GDA**

Figure 22: Gynaecology Services

	Current Model	Future Model
Gynaecology Services	<ul style="list-style-type: none"> • Little provision of services for gynaecology in the community • No referral criteria into secondary care • No community gynaecologists 	<ul style="list-style-type: none"> • Development of outreach services in the community • Appointment of community gynaecologists to treat incontinence, menstrual dysfunction, contraceptive and HRT services
	<ul style="list-style-type: none"> • High level of DNAs in the three women's hospitals • 15 services providing gynaecological care with varying amounts of activity • Activity is being undertaken in the wrong environment • Underdevelopment of urogynaecology 	<ul style="list-style-type: none"> • Implement an outpatient booking system to give women choice of time and date of appointment • Reduce the number of gynaecology services to three and co-locate with acute adult sites as part of adult hospital not maternity service • Urogynaecology services will be part of secondary care services • Appropriate transfer of activity for inpatient beds to day case and outpatients will reduce length of stay • Increased used of laparoscopic surgical techniques will facilitate the transfer of activity into day case
	<ul style="list-style-type: none"> • Sub-speciality care is being undertaken in all centres, there is a lack of centralisation of speciality care • Sub-speciality services are in general underdeveloped 	<ul style="list-style-type: none"> • Sub-speciality care will be centralised on one site but will operate as part of a network • Laparoscopic surgery should be developed in all three services but should be developed to level 6 at the gynaecology centres • On the basis of where expertise already exists IVF will be centralised onto the Mater Site • Urogynaecology will be centralised on the Tallaght site • Gynaecology will be centralised onto two sites as suggested by the Cancer Strategy

10.3 **Implementation**

In the maternity, gynaecology and neonatology chapters we have outlined a series of key actions that need to be undertaken to support implementation. Clearly reform on this scale within the health service in Dublin needs to be implemented in a rigorous and robust manner, with a clear focus on deliverables and realising the benefits we have outlined. It

is also essential that any relevant lessons from the national review of paediatric services are incorporated into the implementation programme.

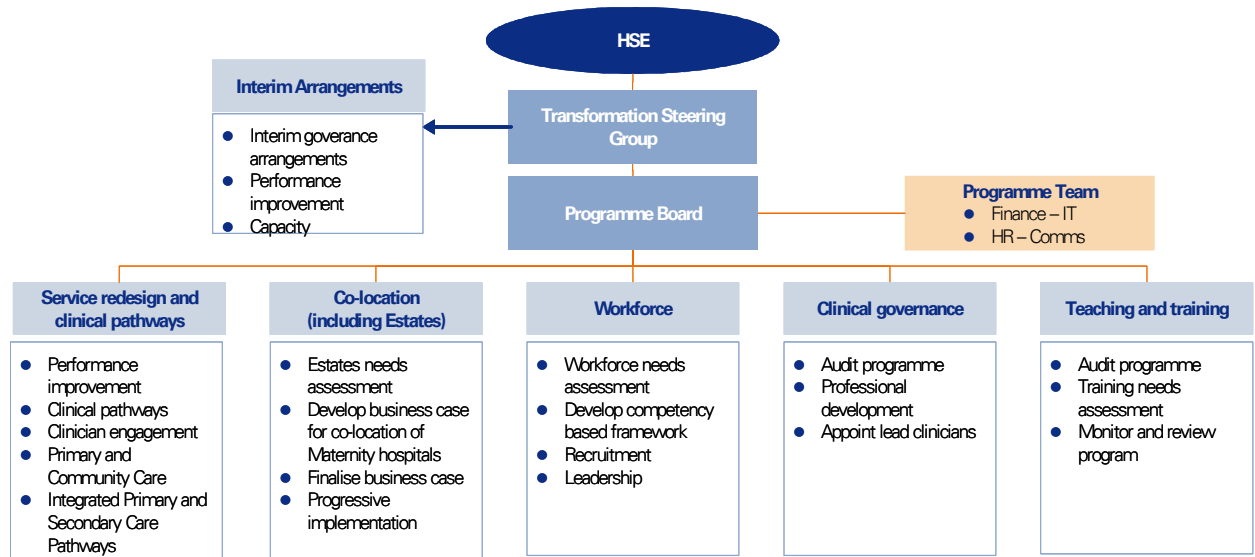
The developments proposed in this review will clearly require significant capital investment, as well as revenue investment in areas such as staffing both in primary and secondary/tertiary care. The existing maternity hospital estate may be of value in this regard in terms of supporting the major capital outlay.

We have proposed in the diagram (figure 23) below a high level governance structure to support implementation. This will need to be tailored to the overall requirements of the programme and be informed by the specific timeframes for co-location of each maternity hospital and the redevelopment of primary and community care services.

We believe the programme could be grouped into five main work streams which include:

- Service redesign and clinical pathways to ensure consistency in implementation and a common approach to service change
- Co-location to include estates reconfiguration and development of robust business cases to undertake the major redevelopments of the acute general hospital sites to accommodate the three maternity hospitals
- Workforce which will need to focus on developing detailed resource requirements to support the new model of care, taking into account the overall resource requirements within the co-located sites
- Clinical governance to ensure both the transition to the new model of care and the actual changes in service provision are managed in a safe and effective manner
- Teaching and training to ensure the workforce is skilled and capable to deliver the new model of care and standards of service are improved.

Figure 23: Governance Structure required to support implementation



10.3.1 **Programme Management**

Clear terms of reference for the Steering Group and Programme Board should be established with clear roles and responsibilities for key stakeholders. An experienced programme manager should be appointed who has extensive experience in the major reconfiguration of services to drive the implementation.

The HSE should consider how to utilise the Expert Advisory Group for Maternity Services to help inform the implementation programme and ensure there is proactive stakeholder management.

10.3.2 **Communication plan**

A robust communication plan should be established as part of the implementation programme to ensure that stakeholders are well informed on the changes in the service model and the roles they can plan to support implementation.

10.3.3 **Benefits Realisation**

A robust benefits realisation framework should also be established to track progress in implementation and ensure the benefits identified are realised. In chapters 5 to 7 we have outlined the key benefits which we believe will be delivered through the recommended models of care. We have also provided high level metrics to measure the benefits in those chapters.

10.3.4 **Risk management**

In undertaking reform to modernise maternity and gynaecology services in the GDA on the scale that this report advocates places a heavy emphasis on the need for an extremely robust approach to risk management and mitigation. It will be essential that as the HSE moves into the next phases of the review that all risks are appropriately identified and managed to ensure all the key criteria that are important to woman and children and other stakeholders are delivered on. Specifically, maintaining safety, quality, access and effectiveness will be of paramount importance as the service, infrastructure and supporting systems are modernised and improved.

One of the key risks to manage will be stakeholder engagement. Throughout this review we have had extensive engagement with stakeholders including large interactive workshops, site visits and smaller group meetings with staff, service users and key clinical leaders. We believe strong stakeholder engagement is the best way to deliver results within the GDA and should be a high priority.

There are many other risks that need to be managed including inter alia:

- Clinician leadership and buy-in;
- IT (management information and patient care) systems;
- HR processes;
- Benefits realisation;
- Programme and project management; and
- Capital funding

All these major risks will need to be incorporated into a robust risk management plan to monitor and mitigate risks during implementation.

10.4 **Summary**

The models of care that we have outlined in this chapter and in detail in chapters 5-7 represent a fundamental change in how maternity, gynaecology and neonatology services will be delivered in the GDA.

It is our belief that the right model of care for the mothers and babies of the GDA should be the basis of the service configuration; we have therefore concentrated on service models for the future rather than existing institutions.

We have based our recommendations on our observations of the best clinical models internationally, the potential benefits and synergies of joint working and our assessment of what is currently working well in the GDA.

The implementation of the model of care in the GDA has the potential to cause inequitable access to services in the rest of Ireland, particularly on the borders with the GDA. To that end, we recommend that there should be serious consideration to implementing the models of care across Ireland.

We would like to thank all of the stakeholders we have engaged with throughout this process; we have found them to be welcoming, passionate about the service and above all committed to the improvement of their service, which provides a springboard for success.