Appendix G: Comparative International Review

G1: Maternity Provision in Australia

General Overview

- There are no official guidelines that apply to maternity care provision throughout Australia.

- The majority of births take place in hospitals staffed by approximately 13,800 registered midwives and nurses working in maternity units with medical care available either 'on call' or 'onsite'.

- High standards of maternity care are based on the assumption that there is, and will be, the availability of qualified midwives for all women during labour, birth and the initial postnatal period. This is not necessarily the case with Australia experiencing workforce shortages similar to those reported in other western countries.

- Currently, maternity services in the Australian public health sector are predominantly hospital-based and provided by a range of different health professionals. Most women see a number of different health care providers (midwives, obstetricians, GPs) through their pregnancy and are attended by different caregivers during labour and birth and again during the postnatal period.

- In country towns or cities, midwives take care of women throughout the intrapartum period in hospital. In most cases, they are required to call a doctor to attend the birth. In some hospitals, where there is good trust and collaboration, midwives undertake deliveries on their own, in accordance with local protocols. The doctor maintains medicolegal responsibility for the birth.

- In a small number of cases in Western Australia, care is also provided by Aboriginal Health Workers or by midwives as part of a home visiting program (Straton, 2006).

- General Practitioners may provide care at all parts of the pregnancy, but are most frequently consulted for antenatal care and often in conjunction with another care provider such as a midwife or obstetrician.

- Over the past 15 to 20 years, various models of maternity care have been developed through local or historical patterns. These are generally based on demand for services and availability of an appropriately skilled workforce. It is not uncommon for a woman

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

- The following is a summary of the different types of models of care available to women:
  - Private Maternity Care
  - Public Hospital Clinic Care
  - Public Hospital Midwives' Clinic
  - Birth Centre Care
  - Combined Maternity Care
  - Team Midwifery Care
  - Caseload Midwifery Care
  - GP/Midwife Public Care
  - Outreach Midwifery Care
  - Planned Home Births
  - Shared Maternity Care.
    Most hospitals in New South Wales (NSW) now offer women the option of having their pregnancy care shared between a GP and a hospital. Three hospitals in association with several divisions of general practice in Victoria developed Guidelines for Shared Maternity Care Affiliates. Shared Maternity Care has increased over the last 10-15 years. In 2002, it accounted for over 50% of maternity care at the three hospitals involved.

- The report "Who usually delivers whom and where?" reported more than 18 different models of care in 1997/1998 in Victoria.
  - Five models of care were used by the majority of women (87%) at 20 weeks gestation. 28% of pregnant women had specialist private obstetric care.
  - The model of 'shifted' care (where antenatal care is provided by a GP or specialist obstetrician with standard public hospital intrapartum care) was used by 24% of women and shared care by another 14%.
  - Standard public hospital care was provided to 16% of women.
  - At birth 29% of women received specialist private obstetric care, 24% 'shifted' care, 20% standard public hospital care and 14% shared care.

- The Alternative Birthing Services Program was established by the then Commonwealth Department of Human Services in 1995 to provide incentive funding to the states and territories to promote greater choice in birthing for women in the public health system

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

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

Workforce

Number and Ratio of Obstetricians and Midwifes to Maternities

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

Source: MCPMCP

- The UK Royal Colleges recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour, while Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) which recommends midwife:woman ratios based on case mix and skill requirement, recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour.

- Australia has clearly made an investment in its midwifery workforce hence it is able to offer a wide variety of models of care and choice to mothers.

Clinical Outcomes

- New South Wales women enjoy a high standard of maternity care with perinatal outcomes that rank among the best in the world.

- In 2006, the rate of Caesarean sections was 29% of all live births. This rate is increasing (it was less than 20% in 1993). It also masks territory variations. For example, Western Australia's Caesarean section rate is 32.4% and is expected to rise further (Maternal and Child Health Unit, 2006).

Caesarean Section Rates, 1991-1993, 1994-1996

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

Source: MJA 2002

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

Maternal Death Rate, 1991-1993, 1994-1996

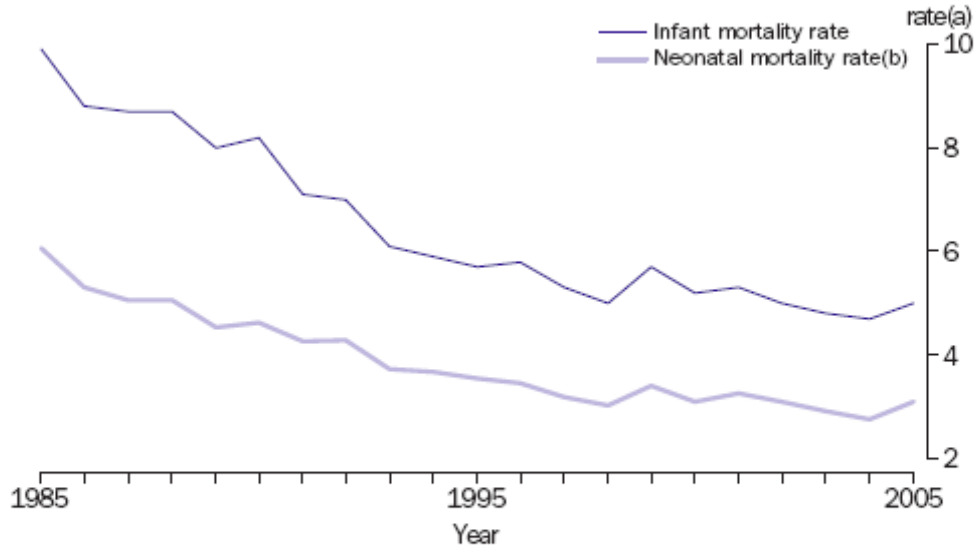
Year	Maternal Death Rate (per 100,000 confinements)	Total Number of Deaths
1991 - 1993	10.9	84
1994 - 1996	13.0	100

Source: MJA 2002

- The infant mortality rate has halved from 9.9 deaths per 1,000 live births in 1985 to 5.0 in 2005.

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

Infant and neonatal mortality rates(a)(b)



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

Source: ABS Births collection, ABS Deaths collection.

Summary and Conclusions

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

Relevance to Dublin

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

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

- Like GDA where hospital based care predominates, clinical outcomes are very good for neonatal, infant and maternal mortality rates.

- Caesarean section rates are very high compared internationally and have been increasing. GDA rates are lower. The fact that hospital based care predominates, with a stretched workforce, may be a factor in Australia's high C-section rates.

- In our view, Australia, while having very good outcomes is at a similar stage of development in provision of maternity care as GDA.

G2: Maternity Provision in Canada

General Overview

- The first port of call for almost all pregnant women is with their GP for confirmation of pregnancy. GPs generally make the referral to hospital although some women go directly to an obstetrician in the first instance.

- It is significant to note that midwifery in Canada was only regulated relatively recently and is not yet regulated throughout Canada. As recently as 2003–2004 only six Regional Health Authorities (RHAs) employed midwives, although this has now risen to 11 RHAs. (Canada Health Act, Annual Report, 2005 – 2006).

- The implementation of the Midwifery Profession Act introduced midwifery as a regulated profession and insured service. Under this act, midwives are autonomous primary health care providers whom clients may choose as their first point of entry to the maternity care system, allowing some women the option of delivering closer to their home communities. (Canada Health Act, Annual Report, 2005 – 2006)

- In Canada, the numbers of midwifes remain low and provincial direction has focused the service on priority populations, which represent over 65% of midwifery clients; including those at high social risk such as substance abusers. This targeted community-based care approach has been successful and has resulted in significantly lower rates of pre-term birth, high and low birth weights. (Canada Health Act, Annual Report, 2005 – 2006)

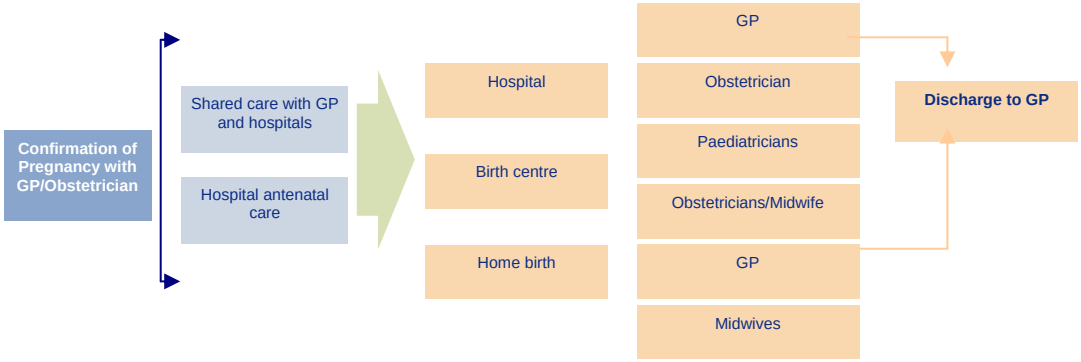
- The late regulation of midwifes and their low numbers has given rise to a strong GP/physician based model of care. Most mothers receive care from family physicians before, during, and/or after childbirth.

- Family physicians can be involved in all stages of maternity and infant care from preconception to prenatal to postpartum and beyond. Almost two-thirds (64%) of family physicians said that they were involved in some aspect of maternity care in 2001, up from 53% in 1998.

- Most antenatal care occurs outside of hospitals, although pregnancy and childbirth are the leading causes of hospitalisation among Canadian women, accounting for 24% of acute care stays in 2001-2002.

- The continuum of care includes prenatal care and education, screening and diagnostics, home deliveries, postpartum home support, and newborn and infant care during the first weeks of life.

Current Model of Maternity Care in Canada



- While a higher percentage of family doctors than in the mid-1990s report providing maternity care, almost two-thirds (64%) said that they were involved in some aspect of maternity care in 2001, up from 53% in 1998), fewer are attending births (in 2000, they attended 39% of vaginal births, down from 44% in 1996).

- According to CIHI (2004) more family physicians (not quantified) are sharing care with other providers, providing maternity care for up to 32 weeks before transferring care to other family physicians (who perform deliveries), obstetricians, or midwives for the rest of the pregnancy and delivery.

- According to Statistics Canada's 2000/2001 National Longitudinal Survey of Children and Youth, 97% of new mothers had prenatal care. The vast majority (88%) saw a physician. However, 3% received their prenatal care from midwives.

- Prenatal education classes, which provide information about various aspects of pregnancy, birth, and early parenting, are often offered in hospitals with maternity services or in the community. Prenatal educators come from a variety of backgrounds, including nursing. No universal certification standards for prenatal educators currently exist in Canada, but a few organizations have established their own certification requirements.

- According to the CIHI (2004), most Canadian babies are born in hospital with a physician as the attending clinical professional. Obstetricians are performing an increasing proportion of both vaginal and caesarean births. In 2000, they attended 61% of vaginal births and 95% of all caesarean sections, up from 56% and 93% in 1996, respectively. The majority of obstetricians (64%) attended between 101 and 300 deliveries in 1999, whereas family physicians attended, on average, 41 births in 2000.

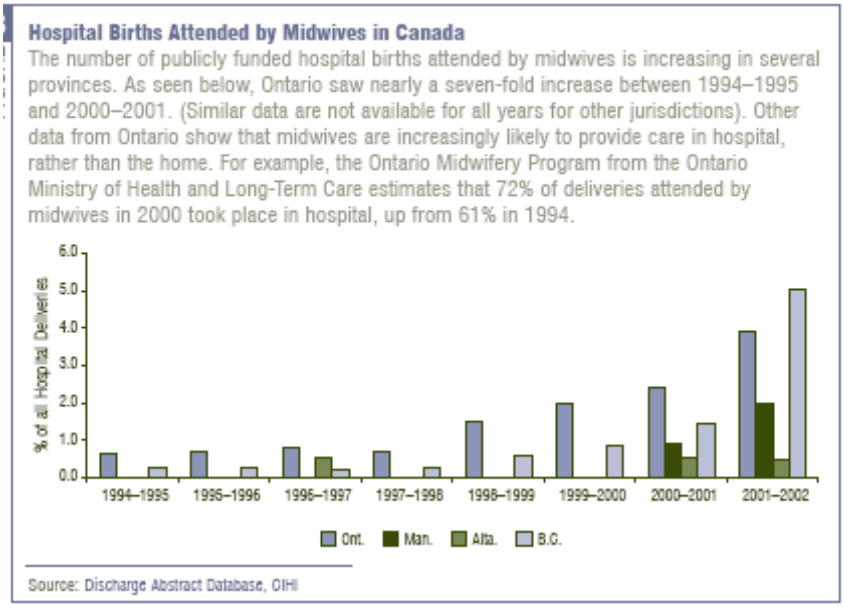
- The total number of births attended by obstetricians has been relatively stable since the mid-1990s. With birth rates falling, this means that they are attending a larger share of

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

- Results from surveys indicate that women are open to other patterns of birth and postpartum care. In 1994, Statistics Canada asked Canadian women about their willingness to receive care from health professionals other than doctors during their pregnancy and delivery, and postpartum. 31% of women said they would be willing to go to a birthing centre rather than a hospital to have a baby; 21% were receptive to the idea of having a nurse or midwife deliver their baby instead of a doctor; and 85% would accept postpartum care from a nurse or midwife instead of a doctor.

- The number of jurisdictions regulating and funding midwifery services is increasing. So too is the number of trained midwives, and more expecting mothers are choosing midwives to deliver their babies either in hospital or at home. Midwives attend 5% of the births in provinces where midwifery is regulated and 2% nationwide (British Columbia Centre of Excellence, 2003).

- As can be seen from the table below, the numbers of midwives attending hospital births is increasing over time, suggesting that the role and influence of the midwife in Canada is increasing.



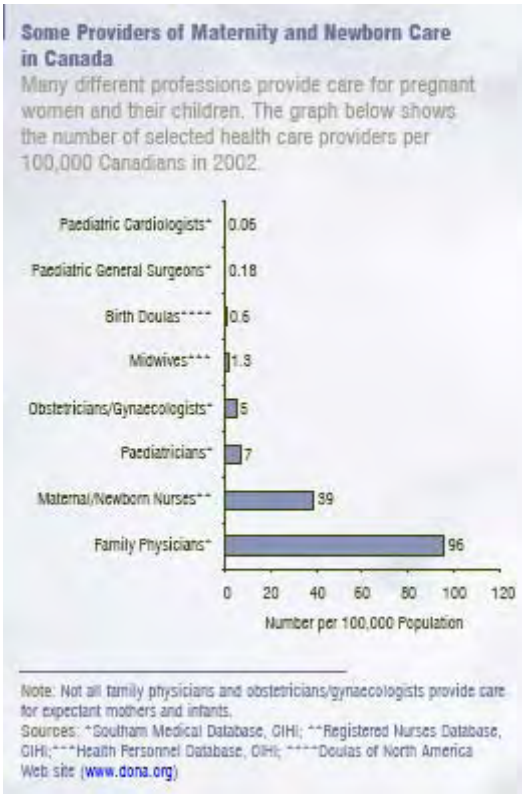
- According to CIHI (2004), the number of publicly funded hospital births attended by midwives is increasing in several provinces. Ontario saw nearly a seven-fold increase between 1994/1995 and 2000/2001 (similar data are not available for all years for other

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

- A Quebec study found that, overall, obstetrical technologies were used less often when women were cared for by midwives. Women cared for by midwives were also less likely to be hospitalised prenatally, to undergo a caesarean section, and to give birth to preterm babies. However, the babies born into the hands of midwives were more likely to need assisted ventilation at five minutes of life.

- Doulas provide non-medical emotional support for expecting mothers and their families during birth and postpartum periods, but do not perform clinical tasks. There are two types of doulas: birth doulas and postpartum doulas. As of January 2004, there were about 200 birth doulas in Canada certified by the Doulas of North America. Doulas are not regulated or certified in Canada, although several organisations offer certification in the U.S. and in some European countries.

- The table below shows the various providers of maternity and newborn care in Canada per 100,000 Canadians in 2002. Family physicians provide for 96 per 100,000 population and maternal/newborn nurses provide for 39.



Maternity Units

- According to the Canadian Institute of Health Research (CIHR), there are 29 hospitals with tertiary neonatal intensive care units across Canada.

- Many hospitals have specialized clinics for women experiencing high-risk pregnancies, but these tend to be located in major urban centres. This is also true for hospitals with specialized intensive care units to care for high-risk infants. Can you explore this point a bit –are you saying, particularly in cities that maternity units are co-located and can you find out if these NICUs are level III and if they are co-located with paediatric services.

- Childbirth in rural and remote areas of Canada presents unique challenges for both women needing care and for care providers. Examples include: distances from facilities and specialized equipment; the lack of peer support for providers and coverage for their practice; and the need for providers to have expanded or specialized skills.

- Specific challenges to the sustainability of rural maternity practice include: the limited number of physicians available for on-call services; the lack of caesarean section capability; the lack of available anaesthesia services; and the small number of births in rural areas.

- As a result, decisions to regionalise maternity care have forced rural hospitals to close obstetrical units. has had a serious impact on the viability of small communities and their ability to safely provide appropriate primary health care services, including maternity care. As a result, shortages are felt most acutely in rural and remote communities, requiring mothers to make different care choices. Some innovative responses, such as formal shared-care services and the growing number of community birthing centres, have emerged.

- It has been suggested by CIHI (2004) that collaboration among the various providers of maternity care is a way to address some of the issues relating to access to care, especially in rural and remote areas. Shared care may also be a way to ensure that providers are making the most of their various skill sets.

- Maria – is there anything about MLUs or is all care hospital based – if so say so in here and then in conclusion draw this out and what it means for Dublin – i.e. good outcomes from medicalised care model as per Dublin but drive towards different model or are we saying that GPs play a bigger role in pregnancy which is different again, but its changing.

Workforce

- In 2002, there were 1,592 obstetricians/gynaecologists practising in Canada, an average of 4.5 per 1,000 maternities.

- In 2002, there were 30,258 family physicians in Canada, although not all are involved in obstetrics and their involvement in attending births is decreasing.

- Between 1993 and 2002, the number of regulated midwives practicing in Canada grew from 96 to 413, a 330% increase. Some of this increase reflects regulatory changes, such as registration requirements, rather than actual growth in the number of midwives. Nevertheless, with the increase in the actual number of midwives and in the number of provinces who train and regulate them, more expecting mothers are choosing these health care professionals to deliver their babies.

- Although the demand for midwifery care across Canada is high, only 413 midwives are registered to practice.

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

Developments Impacting on Maternity Services

- Twenty years ago, women often stayed in hospital for close to five days with an uncomplicated birth, and even longer if there were complications. According to CIHI, today, healthy mothers and their infants are typically discharged 24 to 48 hours after delivery. This is as a slightly shorter ALOS than the three Dublin Maternity Hospitals LOS, with vaginal delivery having an ALOS of 2-3 days.

- Except for a dip in the early 1990s, Canada's caesarean section rate has increased in the last two decades. It reached an all-time high of 22.5% of in-hospital deliveries in 2001/2002.

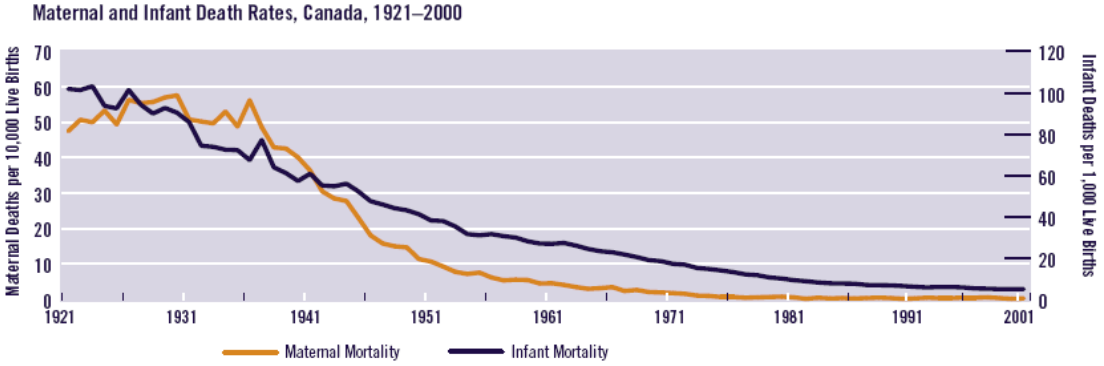
Caesarean Section Rates, 2000 - 2005

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

*Source: CIHI – Health Indicators June 200; *Data is incomplete for this year*

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

- In Canada, there has been a major decline in maternal and infant death rates since the early 20th century.



Sources: Statistics Canada. Selected Mortality Statistics, Canada 1921–1990. 1994 — Catalogue 82-548. Statistics Canada. Canadian Vital Statistics System, 1991–2000.

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

- In 2002, the Canadian infant mortality rate was 5.4 infant deaths per 1,000 live births.

Fetal Mortality and Infant Mortality, 1993 - 2005

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

Source: Prenatal Health Indicators for Canada

- Infant Mortality had dropped to 4.6 by 2007 (Source: www.infoplease.com).

- Each year, graduating medical students choose specialties. According to the Canadian Resident Matching Service, the number of positions offered in obstetrics and gynaecology has been greater than the number of positions filled in the past seven years.

- Wider use of nurse practitioners (NPs) is part of many primary health care renewal visions. NPs are registered nurses who have received additional education, including training to provide certain services formerly performed only by physicians, such as ordering tests, diagnosing illnesses, and prescribing drugs. NPs work in most parts of the country, but Canadians in rural and remote areas are more likely to receive care

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

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

Summary and Conclusions

- Canada's model of maternity care, while medicalised, is very different from almost all other countries and reflects the lack of regulation of midwives until quite recently, and their low numbers.

- This means that most antenatal and postnatal care is provided by family physicians and almost all deliveries take place in hospitals, attended by obstetricians.

- More family physicians provide maternity care but fewer are attending births, with care being shared with obstetricians and midwives.

- The number and size of maternity units varies across the country depending on geographical and demographical variables.

- Strong sustainability challenges facing rural and remote maternity practice throughout Canada have resulted in a regionalised maternity care, forcing rural hospitals to close obstetric units.

- It is anticipated that collaboration among the various maternity providers may address these access to care issues.

- Clinical outcomes are very good for neonatal mortality and maternal mortality rates

- Caesarean section rates are however on the increase.

- The ALOS is 1 - 2 days for normal delivery which compares favourably internationally.

- There are 29 hospitals with tertiary neonatal intensive care units across Canada

- Women are more open to other patterns of birth and postpartum care i.e.31% of women said they would be willing to go to a birthing centre rather than a hospital to have a baby; 21% were receptive to the idea of having a nurse or midwife deliver their baby instead of a doctor; and 85% would accept postpartum care from a nurse or midwife instead of a doctor.

Relevance to Dublin

- Canada made the decision to close some smaller community based units due to issues of sustainability and access to care. This supports the case to centralise births in larger rather than smaller units on the grounds of clinical safety and workforce availability.

- There is a significant reliance on family physicians (GPs) with regard to intrapartum and postpartum maternity care in Canada, although this is moving towards a more collaborative approach to shared-care. However, obstetricians are becoming more involved in actual deliveries as family physicians' involvement declines. Canada is very out of step in terms of obstetricians' involvement in births irrespective of the complexity and risk.

- Patient choice views are being taken into account through the provision of access to birthing centres, midwife deliveries and postpartum midwife care. Broadening of choice is a key driver for change in GDA.

- ALOS indicates that there could be improvements within GDA.

G3: Maternity Provision in France

Model of Maternity Care

- French midwifery and obstetric care is characterised by a wide variety of models with a number of health care providers.

- A woman can choose to see a midwife, medical gynaecologist, or gynaecologist-obstetrician or can choose to share her care between professionals. All three are medically trained and are regulated to provide antenatal care.

- GPs generally confirm pregnancy and sometimes provide antenatal care, especially in more rural areas, while the midwife and/or the gynaecologist-obstetrician provide intrapartum care.

- GPs and medical gynaecologists refer women to a gynaecologist-obstetrician in private practice or to a public hospital for delivery. Most intrapartum care, however, is provided by gynaecologist-obstetricians in public hospitals. Seventy percent of deliveries take place in public hospitals.

- The role of the midwife in France is limited to normal pregnancy and delivery; a physician is required to take over in cases of pathology during pregnancy or birth.

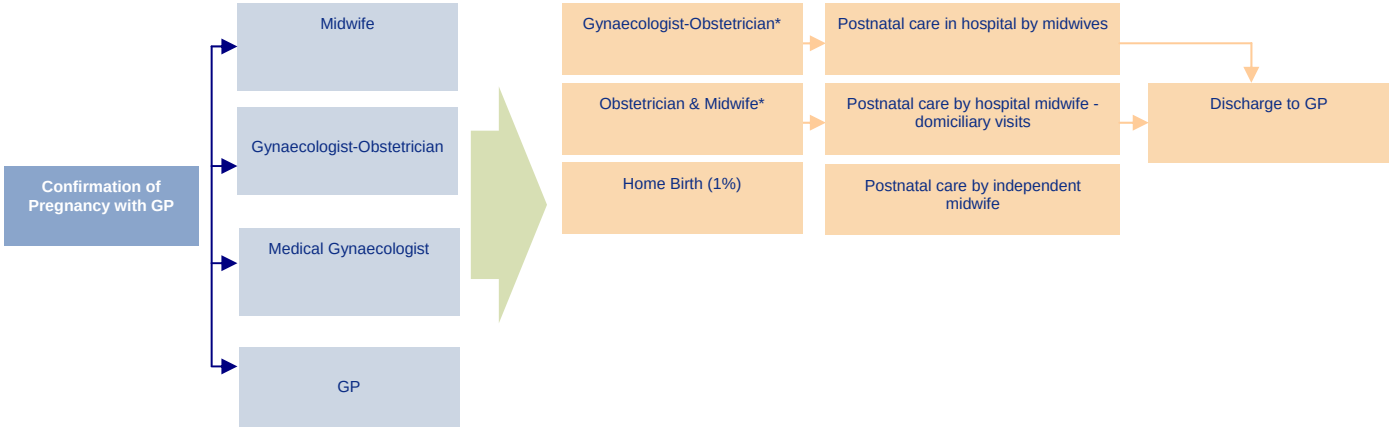
- In many cases, both a midwife and an obstetrician are present during a birth in public hospital. In private facilities, obstetricians are always present at the birth.

- MLUs tend not to be well developed. There is one such unit in Paris?? but cultural issues and concerns over litigation, together with reluctance on the part of midwives, have restricted the development of such units.

- In France, less than 1% of women give birth at home, including the unsupervised unexpected births and there are less than 50 midwives, spread over the country, attending home births.

- The majority of postnatal care takes place in hospital. Some women will also receive postnatal home visits by an independent midwife or a midwife employed by the hospital who carries out domiciliary visits.

Current Model of Maternity Care in France



Maternity Units

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

- Maternity hospitals are divided into three levels. There are approximately 20 level 3 maternity hospitals with Level III neonatology facilities capable of caring for very premature babies under 32 weeks gestation and approximately 40 level 2 maternity hospitals with neonatal units but no intensive care provision. (See below regarding trends in collocation). There are a large number of level 1 maternity units which can provide basic paediatric care but have no neonatal units.

- If necessary, women and babies are transferred in utero although high-risk pregnancies and deliveries are generally planned for level 2/3 units. Decentralization in health care has resulted in the implementation of antenatal and perinatal networks throughout France. These networks are partnerships made up of different maternity facilities (all levels of hospitals, private clinics and practices) working collaboratively to provide women and their babies with the care they need. The partners use the same protocols and records and strive to ensure care to each other's clients. These networks of maternity services are designed to ensure that women and babies receive the appropriate level of care according to their obstetrical or perinatal risk. For example, a woman in premature labour is referred to a hospital with an appropriate neonatal care unit.

- The average maternity unit has between 2,000-3,000 deliveries annually. There are a few maternity units with 5,000-6,000 deliveries annually, concentrated in large urban

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

- In France, there are few stand-alone maternity hospitals as most have been closed progressively. Likewise, some general hospitals incorporated maternity units and these have also been closed. The trend has been to locate maternity hospitals with paediatrics and/or on hospital sites where there is access to intensive care facilities.

- Similarly, there has been a progressive move to close maternity units with <600 deliveries on the grounds of safety, clinical practice and workforce.

Workforce

- The medical professions in France, including obstetrician-gynaecologists and midwives, are regulated through various legislation: the Public Health Code (Code de la Santé Publique), the Code of Professional Conduct (Code de Déontologie) and professional statutes.

- Midwives are considered part of the medical rather than nursing profession and their independence and autonomy is set out in legislation. Increasingly, midwives are undertaking tasks previously done by physicians including interpreting blood/urine samples, ultrasounds etc.

- Until 2004, only doctors were regulated to write pregnancy declarations and perform postnatal check-ups. In 2004, the Public Health Act was changed allowing midwives to write out pregnancy declarations and perform postnatal checkups for women with an uncomplicated pregnancy and birth.

Workforce Statistics and Sector, 2003

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

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

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

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

Clinical Outcomes

Mortality Rates, 2000-2005

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

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

- As can be seen from the table, infant mortality rates in France are good and neonatal mortality rates are amongst the lowest in Europe although France does not undertake audits of neonatal deaths.

- However, maternal mortality rates were, until fairly recently, amongst the highest in Europe (ratio of 17 / 100,000 deaths in 2000) and the reasons are not well documented, although the large numbers of small maternity units were considered a contributing factor. Rates have now decreased and may be reflective of the trend to close smaller units as discussed above. Currently the Ministry of Health is developing a series of recommendations to help improve maternal mortality.

- C-Section rates are increasing and have risen from 16% in 2000 and now average 20%. Rates tend to be higher in private hospitals; for example, it rises to 40% in the American Hospital in Paris. The reasons for this rise are unclear although medical, legal and patient choice will all have an influence.

- Average length of stay tends to be approximately 3 days for a normal delivery and 5 days for a Caesarean section delivery.

Gynaecology

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

Summary and Conclusions

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

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

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

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

Relevance to Dublin

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

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

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

G4: Maternity Provision in Germany

Model of Maternity Care

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

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

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

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

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

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

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

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

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

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

Workforce

Workforce Data, 2003

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

Source: MCPMCP

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

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

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

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

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

Both midwives and gynaecologists are accountable for their own practices.

Statistics

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

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

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

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

Infant Mortality Rates, 2000-2005

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

Source: OECD – Health Status (Mortality)

Summary and Conclusions

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

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

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

Relevance to Dublin

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

G5: Maternity Provision in the Netherlands

General Overview

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

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

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

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

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

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

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

Home Births as a % of All Births

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

Source: Ministry of Health, Welfare and Sport

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

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

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

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

Profile of Midwifery Practices in the Netherlands, 1983-2003

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

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

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

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

GPs Attending Births and Births Attended by GPs

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

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

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

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

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

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

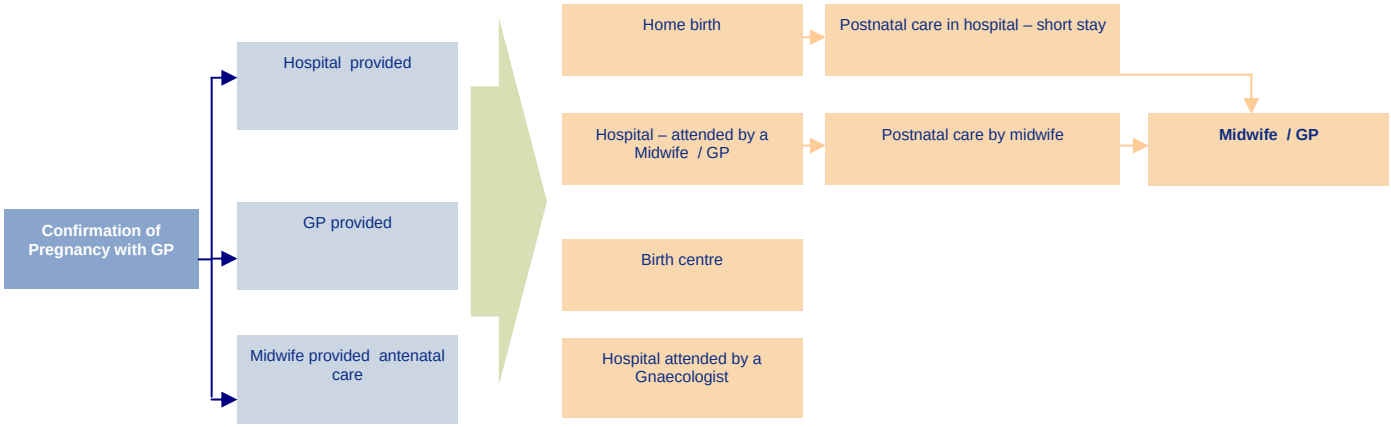
After birth in secondary care, most women go home as soon as possible afterwards - generally, women stay in hospital for at least four hours but no more than 24 hours - and they usually receive postnatal home care by the midwife and maternity home care assistant. . This is known as 'polikinische bevalling'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

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

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

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

Current Model of Maternity Care in the Netherlands



Types of Maternity Units and Locations

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

Workforce

- Under Netherlands legislation covering the practice of medicine, midwives are considered to be autonomous health care providers with their own strengths and responsibilities, equal to those of family doctors who provide care to pregnant women.

- The Royal Dutch Organisation of Midwives (Koninklijke Nederlandse Organisatie van Verloskundigen, KNOV) developed a scope of practice for the midwifery profession in 1990 which sets out that midwifery is a specialist field in obstetrics and midwives have their own special knowledge and skills, which allows them to work effectively and with very few medical procedures. Their main objective is to "prevent complications and to ensure that there is no unnecessary medical intervention".

- The Netherlands has an additional professional group, Maternity Home Care Assistants (kraamverzorgster), who are educated to diploma standard and who are specially trained to assist a midwife or GP in a primary care setting or for short-stay hospital births.

- These assistants also provide postnatal care at home during the first week after birth. The care they provide involves:
  - monitoring mother and newborn,
  - recognising the first signs of illness or problems in both mother and baby,
  - contacting the supervising midwife or GP when necessary,
  - basic (nursing) care for the mother and newborn, health education for the mother and other family members,
  - caring for other children in the family
  - basic housekeeping and domestic tasks.

- This is similar to a new UK initiative which has introduced Maternity Support Workers (MSWs) who can work in the acute hospital or community setting, always under midwifery supervision. MSWs undertake postnatal support visits, clerical duties, help women with baby care and breastfeeding, and can attend in the home.

- Current challenges for the Netherlands are on empowering midwifery by strengthening midwives role as primary care gate-keepers and co-operation with other health professionals. There is currently discussions on broadening of midwives' role to include prenatal screening, external cephalic version and pre-conceptional consultations.

Workforce Information 2003-2004

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

Source: MCPMCCP; Primary Health Care in the Netherlands, Ministry of Health, Welfare and Sport
**estimated on birth rate 11.3/1,000*
***admissions in one academic year*
****CBS Netherlands 2005*

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

Mortality Rates

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

Infant, Neonatal and Maternal Mortality Rates

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

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

Summary and Conclusions

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

- Our data suggests that the ratio of midwives to maternities is disconcertingly low at approximately 11 midwives per 1,000 births and similar to other countries, there is a shortage of midwives.

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

Relevance to Dublin

- Midwives are the lead professionals for normal pregnancies, births and postnatal care and significant amounts are delivered in the community setting. Mothers have a choice of birth settings including home, policlinic or hospital. 34% of births are home births. Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.

- The Netherlands' clinical outcomes compare favourably with other European countries suggesting that safe, effective and women focused maternity care can be delivered in a primary care setting and be provided predominantly by midwives.

- The Netherlands has achieved this in part by having a clear division of tasks and responsibilities in primary and secondary care including midwifery and obstetric care underpinned by collaborative working. Dublin could achieve greater collaborative working but must ensure that the necessary protocols, government arrangements and guidelines are developed and agreed by all professions.

G6: Maternity Provision in the New Zealand

General Overview

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

- New Zealand is acknowledged internationally as a leader in its model of maternity services.

Model of Care

- The past 17 years has seen changes in legislation and in how maternity care is provided in New Zealand. In 1990, a change in the law brought about a system whereby pregnant women can choose a midwife, a GP with a diploma in obstetrics or an obstetrician to lead her maternity care (LMCs).

- LMCs take responsibility for the care provided to women throughout pregnancy and the postpartum period including the management of labour and birth. One LMC is expected to take responsibility for all modules of care (registration, second trimester, third trimester, labour and birth, services following birth) so that each woman receives continuity of care.

Percentage of LMCs by First Registration and At Birth, 2003

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

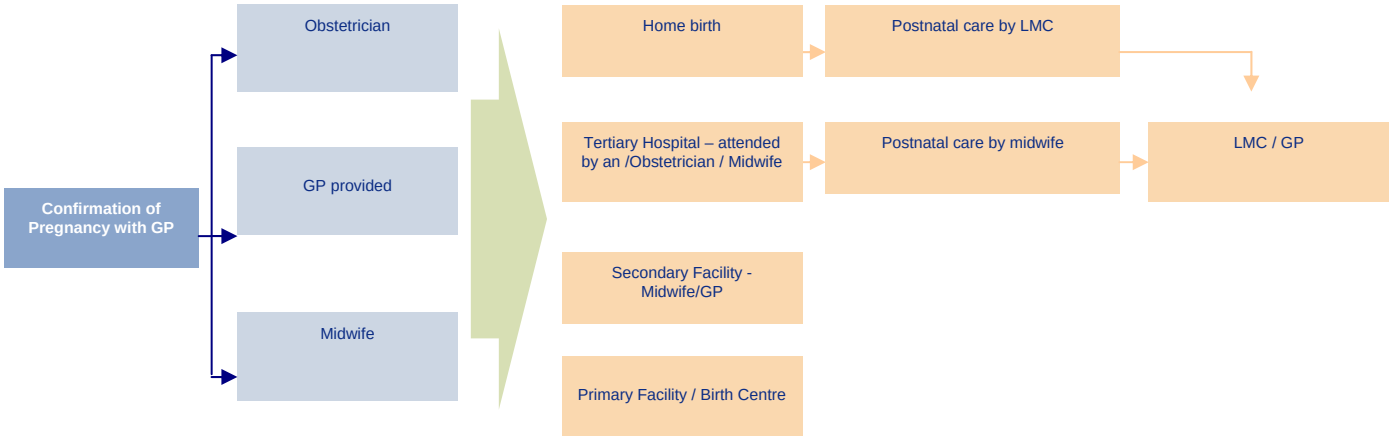
Source: Report on Maternity - Maternal and Newborn Information, 2003 New Zealand Health Information Service, 2006

- The table shows that most mothers register with a midwife with almost equal numbers registering with an obstetrician or GP.

- All women must have access to a maternity care facility which, in conjunction with the (usually) midwife, provides inpatient services during labour and birth and in the immediate postnatal period until discharge home. A professional consensus by all disciplines on referral guidelines has been agreed.

- New Zealand is currently undertaking a review of maternity provision and will report in 2008.

Current Model of Maternity Care in New Zealand



Maternity Units

Type and Numbers of Facility, Capacity and ALOS

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

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

- Women in New Zealand can give birth at home, in primary maternity facilities or birthing centres, or in secondary maternity hospitals (which have the capability of performing caesarean sections) or tertiary facilities which can provide neonatal intensive care units.

  - Primary Maternity Facilities have no inpatient secondary maternity service and do not have 24-hour on-site availability of Specialist Obstetricians, Paediatricians and Anaesthetists. Primary facilities are often in rural settings although there is a move to establish more primary facilities in urban centres so that women have more options for normal birth.

  - There are many birth centres for low risk women in primary care. Geography, population numbers and demographics determine the location and size of these units and in some cases, the capacity of these units outstrips demand resulting in some women having to access secondary units.

  - Secondary facilities have caesarean section capabilities and provide additional care, from twenty weeks gestation to six weeks following a birth, for women and babies

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

- Tertiary Maternity Facilities provide services on a regional basis for women with complex needs who require access to a multidisciplinary specialist team. Women accessing Tertiary Maternity Services will continue to have access to LMC services and Maternity Facility Services. Five of the six tertiary maternity facilities in New Zealand also provide tertiary neonatal intensive care units.

- There are 7 Level 3 neonatal units, 5 Level 2+, and 10 Level 3 neonatal units.

- Paediatric units are almost universally co-located in acute hospitals although there are a few exceptions – Auckland has a stand-alone paediatrics unit.

- In the last five years, New Zealand has moved to relocate any stand-alone tertiary unit onto an acute hospital site. For example, the National Women's Hospital in Christchurch, with >4,000 births per annum, has recently relocated onto an acute hospital site.

- Networks between maternity facilities for sick mothers are not well developed and reflect the Health Board funding model.

Clinical Outcomes

- New Zealand has favourable clinical outcomes for maternal and perinatal mortality.

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

Table Maternal Mortality

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

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

- The neonatal mortality rate was 3 per 1,000 live births in 2003.

- The caesarean section rate has increased steadily, from 11.7 in 1988 to 20% in 1999 to 23% in 2003 and there is currently no consensus in New Zealand regarding the optimal caesarean section rate in which to maximise health outcomes.

- New Zealand has been criticised that it failed to develop / implement a rigorous clinical performance database to help map the progress of its new model. Although there have been improvements in capturing performance data, this has remained a weakness. In June 2005, New Zealand established a Perinatal and Maternal Mortality Review Committee (PMMRC), an independent committee to advise the Minster of Health on how to reduce the number of deaths of babies and mothers in New Zealand.

Workforce

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

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

- It is clear that New Zealand has invested in its midwifery workforce. The ratio of midwives to maternities demonstrates that New Zealand meets international and UK based guidelines on optimal midwifery resources. For example, the recommendations set by Birth Rate Plus, (the only internationally recognised workforce planning tool used in Australia and Europe) recommends midwife:woman ratios based on case mix and skill requirement, and recommends a ratio of 1:28 for safe level of service to ensure capacity to achieve one-to-one care in labour. The Royal Colleges in the UK further recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour.

- Current issues with the obstetric workforce are the decreasing numbers of GPs becoming involved and the increasing age profile of midwifes (where the average age is 50-55 years old).

- There are issues in sustaining a specialist workforce in provincial / rural areas and New Zealand is looking to ‘cluster’ 2-3 locations to form a sub-regional model of secondary care.

Gynaecology Services

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

Summary and Conclusions

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

Relevance to Dublin

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

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

- The LMC system has increased the role and autonomy of midwifes and there is no evidence that clinical outcomes have deteriorated as care has moved from GPs and obstetricians to midwives. This would suggest that similar clinical outcomes could be achieved in Dublin by giving more autonomy to midwives although this would need to be supported by partnerships and collaborative working arrangements. Outcomes in New Zealand are very strong when you consider that 16% of births take place in primary care facilities. This strongly supports the case in GDA for providing MLUs, where care is provide by the midwife but, as we are proposing that they be co-located with the obstetric service, there will be proximate access to emergency care if required.

- Women in New Zealand have a choice of birth settings including primary maternity facilities or birthing centres, or in secondary maternity hospitals (which have the capability of performing caesarean sections) or tertiary facilities which can provide neonatal intensive care units Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.

- The LMC model clearly offers an opportunity to provide antenatal and some postnatal care in a community setting thus freeing up capacity and resources in obstetric units and providing more accessible services to mothers.

- Caesarean -section rate like GDA have been increasing and are running at 23% in 2003, similar to GDA.

- Average length of stay at 1.4 days in tertiary obstetric units is low compared to the three maternity units in Dublin, suggesting there is a significant opportunity for improvement in GDA.

- Gynaecology provision provides clear support to move more services into the community and/or day surgery thus making more effective use of hospital facilities.

- Gynaeoncology provision is linked to the gynaecology/obstetric services, but tertiary services are located on acute hospital sites permitting proximate access to multidisciplinary teams. This is not inconsistent with our recommendations for gynaeoncology for GDA. Gynaeoncology should be provided where the multidisciplinary teams are, and New Zealand supports this. Therefore, for GDA in the future this with be in the new cancer centres.

G7: Maternity Provision in Sweden

Model of Maternity Care

- In Sweden, collaborative models of care exist between midwives and obstetricians and some collaboration occurs between midwives and GPs who are involved in obstetric care.

- All women in Sweden are entitled to antenatal care, childbirth in hospital and postnatal care.

- In Sweden antenatal care is provided mainly by midwives working in maternity clinics (also called antenatal clinics).These are predominately community based and employ from one to 12 midwives depending on the size. Many of these clinics are part of a primary care centre. For example, a Family Centre, where different healthcare professionals work closely together.

- The majority of the clinics are government-run, but there are additional privately run clinics that are also covered by national health insurance.

- Midwives, working in primary health care and at maternity hospitals, are responsible for a wide range of reproductive health services, including antenatal and postpartum care, contraceptive services, abortion counselling, and hospital deliveries.

- GPs are sometimes involved in maternity care, mainly in rural areas as compared to urban areas. GPs are affiliated with a community maternity clinic and hold consultation office hours where they can see pregnant women referred by the midwife for mainly non-pregnancy related complications.

- A routine prenatal visit to the (hospital-based) obstetrician is recommended in Sweden. However, the majority of midwives working in maternity clinics do not adhere to this.

- Women at obstetrical risk or those who develop complications during pregnancy are referred to the obstetrician. Although obstetricians are responsible for deliveries with obstetrical risk, midwives generally conduct these deliveries with the exception of instrumental and operative deliveries.

- More than 99% of births take place in hospital.

- Hospital employed midwives care for normal births.

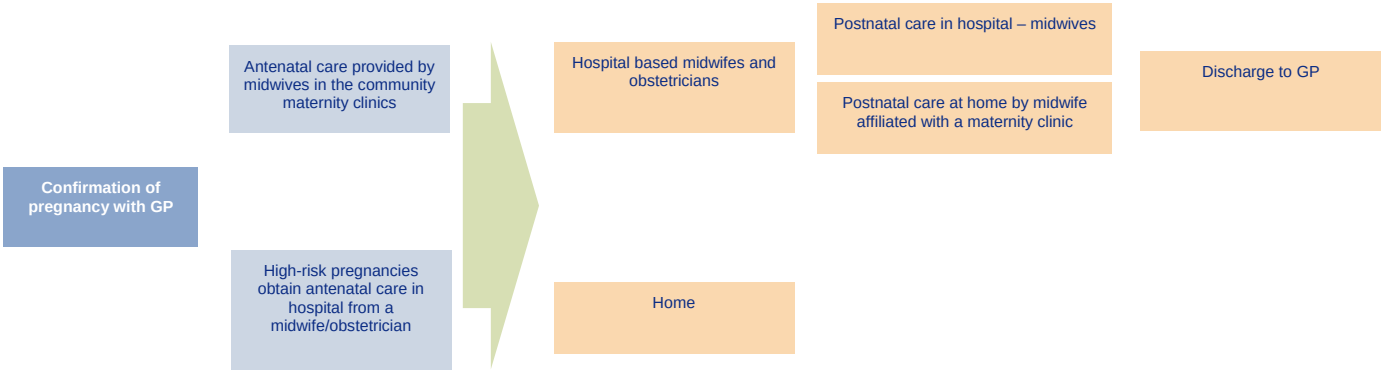
- Postnatal care in the delivery ward is provided by hospital-based midwives.

- When a woman goes home within 72 hours after birth, she is entitled to postnatal care at home provided by midwives affiliated with a maternity clinic.

- A postnatal check-up, 6-10 weeks after delivery, is also performed by a midwife from the maternity clinic. In some hospital, antenatal care is provided by paediatric nurses.

- A qualitative study based on responses of 827 pregnant women suggested a range of areas for improvement and that a patient-centered and individualized approach, with women and their partners as the subjects rather than the objects of care, would increase satisfaction and the overall quality of maternity services in Sweden. (Women's Perspectives on Maternity Services in Sweden: Processes, Problems, and Solutions, Ingegerd Hildingsson and Jan E Thomas, Journal of Midwifery and Women's Health, Volume 52, Issue 2, Pages 126-133 (March 2007)).

Current Model of Maternity Care in Sweden



Maternity Units

- In Sweden, there are eight regional hospitals, some 70 county hospitals and just over 1,000 health centres.

- In the whole country, there are approximately 42 hospitals with maternity wards and departments of gynaecology and obstetrics. Previously, there were 57 obstetric/gynaecology units but there has been a trend to centralise healthcare provision including maternity provision resulting in the closure of some maternity units in specific locations, including some units in large cities. Some smaller maternity units have closed although small units do remain reflecting population densities and local needs in rural areas.

- There are no stand alone maternity hospitals or paediatric hospitals in Sweden. All maternity units are co-located on acute hospital sites ensuring they are close to all necessary resources e.g. laboratory facilities, theatres etc.

- There are two MLUs in Sweden, both co-located within hospitals in Stockholm for low-risk pregnancies.

- Maternity units range from 1,500 – 4,500 and the largest unit is 6,000 reflecting population needs.

Workforce

Number and Ratio of Obstetricians and Midwifes to Maternities

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

*Source: MCPMCP; *Births in 2002, Statistics Sweden*

- In the UK, the Royal College of Obstetricians and Gynaecologist and the Royal College of Midwives recommend a ratio of 36 midwives per 1,000 deliveries to enable one to one care. Sweden's midwifery workforce greatly exceeds this level and is significantly higher than the ratio in the GDA. Sweden's midwifery ratios reflect their involvement in primary, community and secondary care and for all aspects of pregnancy.

- Approximately 99% of midwives work in the public sector.

- Midwives also provide advice and information on a range of related issues including abortion counselling, sexually transmitted disease (STD) prevention, contraceptive advice etc.

- 57% of Obstetricians /Gynaecologists are female.

Clinical Outcomes

Clinical Outcomes 2000-2005, Sweden

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

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

- The Swedish health care system is heavily decentralised. Sweden's 21 county councils are responsible for providing health and medical care services across large geographical areas. The county councils, in turn, are grouped into six regions. One of the purposes of the regions is to facilitate cooperation in highly specialised care.

- Compared with other countries at a similar development level, the system performs well. For example, neonatal and perinatal mortality are amongst the lowest in Europe and continue to decrease.

- Part of Sweden's clinical success is attributed to its strong welfare system. For example, maternity provision is trusted and is free of charge (including follow-up care), the role of midwives and the significant collaboration between them and other health professionals.

- In 2003, the BJOG (British Journal of Obstetrics and Gynaecology) published research showing that Sweden (and Finland) had better levels of maternal and perinatal care than other European countries.

    - The EuroNatal Working Group investigated the differences in background to 1,619 perinatal deaths in selected regions of ten European countries. The regions were identified as having characteristics representative of their country as a whole. The audit looked at deaths between 1993 and 1998 and assessors examined the presence of suboptimal care factors that had possibly or probably contributed to the death of the baby.

    - The study found that 46% of the deaths examined had suboptimal factors that possibly or probably contributed to the death of the baby. The percentage of cases with suboptimal care factors was significantly lower in the Finnish (31.9%) and Swedish (35.7%) regions when compared to the regions of Norway (39.6%), Spain (44.1%), the Netherlands (48.4%), Scotland (50.6%), Belgium (51.1%), Denmark (51.2%), Greece (51.4%) and England (53.5%).

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

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

- Similar to other European countries, Sweden's Caesarean section rate is steadily increasing although is lower than many other European countries. Over 90% of breech births are delivered by Caesarean section and 56% of multiple birth deliveries. Sweden has introduced a specific programme to educate and inform mothers to choose a vaginal delivery.

- The average length of stay (ALOS) for normal delivery has decreased from 6 days in 1973 to 2 days in 2005 while ALOS for Caesarean section deliveries has fallen from 9 days to 2 days in the same period (The Swedish Medical Birth Register 1973-2005, Summary).

- Sweden is currently extending its prenatal diagnosis services but recognises the resource implications – workforce, equipment and costs.

Neonatology

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

Gynaecology

- GPs generally make the referral to an acute hospital.

- Similar to obstetrics, gynaecology services have been centralised particularly gynae-oncology treatments and are concentrated in the larger obstetric/gynaecology departments although there is great collaboration with oncology units.

- Hospitals tend to specialise in specific services. For example, surgery for gynaecological tumours take place in Lund while infertility treatment is centralised in Malva with postoperative care and follow-up provided locally.

- Sweden has a national quality assurance system for gynaecology services but not all gynaecology departments are involved as yet.

- There has been a move to increase the numbers of treatments by day procedure, advanced laparoscopic surgery and robotic laparoscopic surgery and the time spent in hospital has been steadily reduced, as has the number of gynaecology beds.

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

Summary and Conclusions

- In Sweden most antenatal and postnatal care are provided by a midwife in a community clinic.

- Almost all deliveries take place in hospitals and are usually attended by midwives with support from obstetricians where clinically necessary. There are two hospital based MLUs.

- Clinical outcomes are very good for perinatal and neonatal mortality, maternal mortality and Caesarean section rates and amongst the best in Europe although, similar to many other countries, Caesarean section rates are on the increase.

- All maternity units are located at/on acute hospitals. There are no strand alone maternity units or paediatric units.

- Sweden has closed several maternity units in order to centralise services although its geography and demographics dictate the size and location of units outside major cities. Larger units deliver about 6,000 babies.

- Neonatology networks are well developed and all infants requiring heart surgery are brought to one of two specialist centres.

- There is a greater focus on day procedures for routine gynaecology treatments while gynaecology is concentrated in larger obstetric and gynaecology units, although with strong collaboration with oncology services.

Relevance to Dublin

- Sweden has made a clear decision not to build stand-alone facilities and provides clear evidence for co-location on acute hospital sites where there is ready access to all necessary specialists and clinical support services. Infants requiring heart surgery are treated in specialist centres providing Level 3 NICU and paediatric services. This is in addition to the development of very strong neonatology networks. This clearly supports the case for co-location of one of the obstetric units and Level 3 NICUs in GDA with the new paediatric hospital. The larger obstetric units deliver 6,000 births which is consistent with our recommendations for GDA.

- Almost all antenatal care is provided by midwives in a community setting supporting the view that further investment in community based care is necessary in GDA and should free up hospital capacity.

- Almost all deliveries take place in hospitals with midwives working collaboratively with obstetricians and Sweden maintains good clinical outcomes. However, there is

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

- Clinical outcomes are very good, and are amongst the best in Europe and this can be attributed in part to the close collaboration between professions as well as the quality of care provided. Sweden's clinical outcomes are especially noteworthy given that the majority of deliveries, even in higher risk cases, are undertaken by midwives. So while on the face of it, the Sweden model of care may appear highly medicalised, it differs from GDA in that there is strong midwifery involvement in both antenatal care and delivery. This supports our view that in Dublin very good outcomes can be achieved by transferring more antenatal care to community-based midwives and increasing the role of midwives in obstetric units, but with clear collaboration with other professions.

- Major gynaecology surgical services have been centralised in gynaecology units but with close links to oncology. This is a feature of the structures of services in Sweden where hospitals tend to specialise in specific services and does not run contrary to our view that gynaeoncology can be separated from gynaecology/obstetric units, because of increasing sub-specialisation and the needs for cancer patients to be treated by multi-disciplinary teams. Sweden has recognised strong collaboration between gynaecology and cancer units.

- There is an increase in routine surgery being performed as day surgery and increased use of laparoscopic surgery and robotic laparoscopic surgery. This has relevance to GDA, where there is a high level of inpatient activity and high numbers of procedures done through open abdominal surgery. The evidence from Sweden would support the view that GDA needs to reduce its inpatient admissions and increase day surgery rates.

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

General Overview

- Maternity provision is covered by various frameworks and strategies. The National Service Framework (NSF) for Children, Young People and Maternity Services sets out the need for flexible services with a focus on the needs of the individual, especially those who are disadvantaged or vulnerable. Specifically, NSF emphasises the need for all women to be supported and encouraged to have as normal a pregnancy and birth as possible. (Source: Maternity Matters, DoH, UK)

- Maternity Matters: Choice, access and continuity of care in a safe service sets out the UK DoH's vision for the future of maternity services. It sets out national choice guarantees on how to access maternity care. This includes choice on type of antenatal care, choice of place of birth (home, local facility under the care of a midwife or in a hospital) supported by a multi-disciplinary midwifery team including consultant obstetricians. It also includes choice of postnatal care.

- The Royal College of Midwives' policy document Vision 2000 sets out a vision for maternity services which is responsive to individual needs and preferences, and which promotes partnership working between midwives, obstetricians, paediatricians, GPs,

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

- The first port of call for almost all pregnant women in the UK is with their GP for confirmation of pregnancy.

- GPs generally make the referral to hospital – and 98% of all births take place in a hospital setting or other type of maternity unit (about 3.5% of these are in MLUs based on 2005 statistics), and over 99% are within the NHS.

- Midwives are the lead professionals for normal pregnancies, births and postnatal care.

- Generally, GPs are not very involved in maternity services as this is delegated to community midwives. The exception is in Scotland where there is a 'shared care' model, but increasingly GPs are not involved.

- Medical staff, such as obstetricians, anaesthetists and paediatricians in partnership with midwives, are involved in complicated or high-risk pregnancies.

- Midwife led care and/or GP led care is recommended for all women with uncomplicated pregnancies and the routine involvement of obstetricians in the care of women with uncomplicated pregnancies is not recommended as it does not improve perinatal outcomes compared with involving obstetricians when complications arise.

- Midwifery services are provided in both the acute and community sectors. Most midwives work in a hospital setting or in the community which are usually attached to GP surgeries. Very few midwives work in independent or private practice.

- Community based midwives tend to be involved in antenatal care, home or short stay hospital births, and post natal care.

- The majority of antenatal care takes place in the community.

- The Healthcare Commission has conducted a review of maternity services to focus on whether hospital trusts provide a high quality, value for money maternity service.

    - In recent years maternity services have become a cause for concern as the Commission have investigated potentially serious issues affecting maternity services at three separate trusts and found worrying similarities in the problems identified – mainly relating to poor staffing practices and shortages of staff.

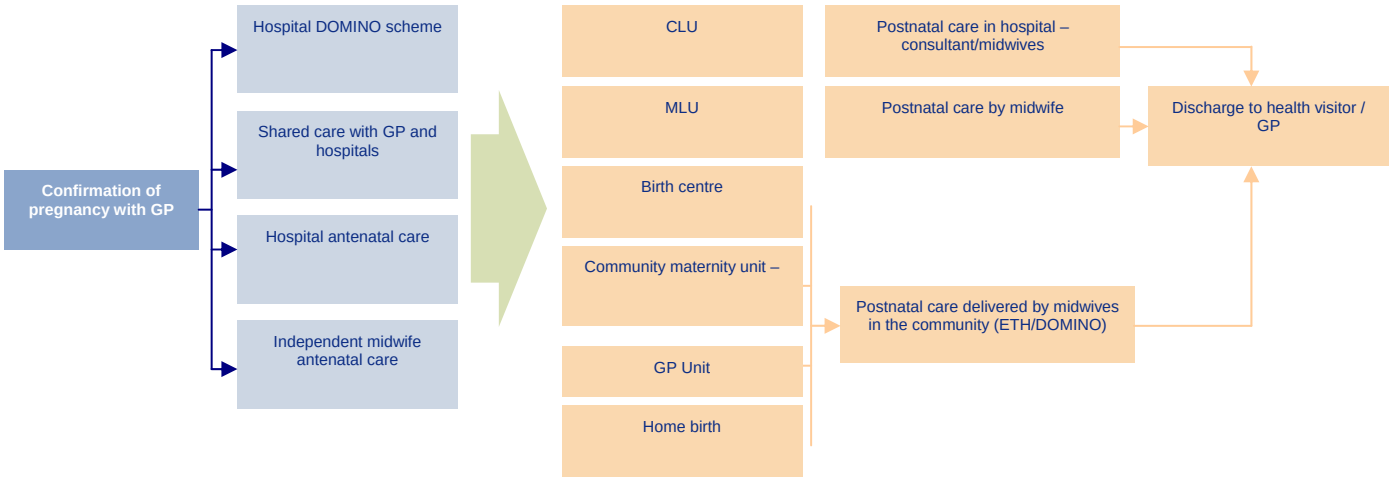
    - This review, which is the most comprehensive assessment ever of maternity services in England, has found significant variations in the quality of care across the country.

    - The Commission found that Trusts in the north of England performed relatively well, while Trusts in London performed most poorly. In the north, 33 out of 44

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

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

Current Model of Maternity Care in the UK



Maternity Units

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

Consultant Led Units

- A Consultant Led Unit (CLU) is usually part of a general hospital, staffed by obstetricians (specialists in birth where there are complications) and midwives (specialists in normal birth).

- A woman is usually booked under the care of a particular consultant, but may only see them rarely throughout her pregnancy. Midwives will give most of her care. If complications arise during pregnancy or labour, the doctors will become more involved. Interventions such as epidurals and Caesarean operations are usually available in the

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

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

Other Maternity Units

- Midwifery-led units, GP units and birth centre types of maternity units provide maternity care for women who have chosen a "low-tech" birth environment. They provide friendly, personal care from midwives. They can be grouped according to whether they are at a hospital which also has a consultant unit, or if they are situated away from a main obstetric hospital (community units). There are approximately 24 birth centres in the UK.

- Recent research shows that childbirth in such centres is as safe as in consultant-led units, provided that a) admission is restricted to low-risk women or b) if the midwife unit is not located near a consultant unit, there are efficient escalation protocols for transferring the woman to an acute hospital. R. Campbell et al, "Evaluation of midwife-led care provided at the Royal Bournemouth Hospital" *Midwifery* (1999) 15 183–193.

Hospital Midwifery-Led Units

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

Community Units

- Community units are another birth option for women who do not want a home birth but do not feel comfortable with a hospital environment, or live a long way from their nearest hospital. They tend to have a "home-from-home" atmosphere giving many of the benefits of home birth.

- In some places, they are near a hospital so that women with complications can be transferred quickly. In rural areas, community units are a place for women to give birth without travelling a long way to the nearest consultant unit. Because epidurals and Caesarean sections are not usually available at these units, they tend to be suitable for women expected to have a good chance of having a straightforward birth ("low-risk" women). This can include first-time mothers.

- In GP units (GPU), a GP specialising in birth is available for interventions such as forceps deliveries. In some community units, a doctor may be available to carry out Caesarean operations in an emergency. Increasingly, GPs are not involved in maternity care.

- All but one of these community units are owned by the NHS. There is currently only one birth centre in England which is run privately by independent midwives, which is in South-West London.

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

- C-Section rate 15%

- 47% of women gave birth at home

- 93% of women gave birth without pain relief

- 78% of women were breastfeeding 28 days after giving birth.

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

Type of Unit and Numbers[1]

Type of Maternity Unit in the UK

Type of Unit	Number	%
Consultant Led Unit	161	59.9
Midwife Led Unit	65	24.2
Consultant Led Unit with Midwife Led Unit	36	13.3
General Practitioner Unit	6	2.2
Consultant Led Unit with General Practitioner Unit	1	0.4
Total Number of Units	269	100

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

Source: BirthChoiceUK, 2006

- The above table shows that CLUs tend to dominate maternity services although these have dropped to 60% from 73% of units in recent years (2003/2004) and reflect the rise of MLUs.

- Liverpool Women's Hospital's MLU has seen a sharp rise in the numbers of women delivered, from 991 in 2000 to almost 2,000 in 2004, and in 2004 there were less than 3% instrumental deliveries due to its concept as a non-interventional, low risk delivery area.

Capacity

Operational Information on Births, Beds and Midwifes

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

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

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

Size of Units

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

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

Size of Units in the UK, 1973-2003

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

Source: Maternity Services in the NHS, Reform, 2005

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

Workforce

- In October 2007, the Royal Colleges combined to produce a joint report of recommendations for safer maternity care. The report, Safer Childbirth, sets out the minimum staffing level for a labour ward as follows:

  - consultant led wards with +2,500 deliveries / annum should have at least 40 hrs of consultant presence during the working week

  - all consultant led wards with +6,000 deliveries / annum should have at least 60 hrs of consultant presence during the working week

- In 2005, only half of all consultant led units of the relevant size had 40 hrs of consultant time during the working week. The Royal Colleges recognise that this level of consultant cover can only be achieved with considerable expansion of consultant numbers.

- The Royal Colleges further recommended a ratio of 36 midwives per 1,000 maternities to enable one to one care in labour.

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

Workforce Information 2002-2005

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

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

- The table indicates that there has been a marginal increase in the numbers of midwives and more significant increases in the numbers of consultants and registrars but these staff increases have occurred at a time of increases in the numbers of maternities.

- There has been marginal improvement in the ratio of midwives and consultants to maternities but hospitals are struggling to maintain the minimum staffing levels as recommended by the Royal Colleges.

- More recently, the Healthcare Commission found that, on average, the level of midwife staffing in maternity units is 31 midwives per 1,000 deliveries and that nine trusts had only 26 midwives per 1,000 deliveries or fewer. Two thirds of trusts reviewed scored weak, suggesting that very low staffing levels may be associated with poor overall performance.

- Additional key issues with the midwife workforce in the UK include the age profile (almost one third registered to practice are over 50 years of age) and the numbers of midwife vacancies – 78% of maternity units in England were experiencing vacancies and 59% had been unfilled for more than three months. There are however over 1,000 additional midwifery students due to qualify leading up to 2009.

- A key initiative to providing a skilled workforce has been to focus on ensuring that maternity services have staff at appropriate levels, with appropriate skill sets, undertaking appropriate tasks.

- A new development in the UK has been the creation of Consultant Midwife posts which are clinical leadership posts with responsibilities for education and service development and at least 50% of their time spent on clinical practice. There are currently approximately 20 such posts and they are seen as key change agents and an important resource for the local health organisations responsible for managing health services in a local area.

- The last few years have seen the development of Maternity Support Workers (MSWs) who can work in the acute hospital or community setting, always under midwifery supervision. MSWs undertake postnatal support visits, clerical duties, help women with baby care and breastfeeding, can attend home births and generally assist with post-delivery care. They help free up midwives to concentrate on midwifery tasks. For example, Derby Hospital NHS Foundation Trust reported that the use of MSWs helped:

  - reduce midwives' non-midwifery tasks by 30%

  - reduced waiting times in community antenatal clinics

  - saw MSWs undertake 18% of post-natal home visits.

(Source: Maternity Matters, DoH, UK).

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

Centralisation

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

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

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

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

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

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

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

- The above table shows that the maternal mortality rate calculated from all maternal deaths directly due to pregnancy identified by the Confidential Enquiry into Maternal and Child Health (CEMACH) has not changed significantly in the last 10 years. While the data in table shows an increase in the numbers of maternal deaths indirectly due to pregnancy, this is due to improved reporting rather than increased numbers.

- There is no evidence to directly link maternal deaths to model of maternity care. CEMACH reports that many possible factors lie behind the lack of decline in the maternal mortality rate. They include rising numbers of older or obese mothers, women whose lifestyles put them at risk of poorer health and a growing proportion of women

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

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

Location

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

  - Queen Charlotte's Hospital that moved from a stand-alone site in Chiswick to the Hammersmith hospital acute hospital site

  - the Mother's hospital in Hackney (stand-alone) moved to the Homerton hospital acute site

  - West London hospital (stand-alone) which moved to the Chelsea and Westminster hospital acute site.

Developments impacting on Maternity Services

- The current focus in the UK is on improving the experience of pregnancy and childbirth e.g. through provision of 24 hr anaesthetic cover, development of birth plans, water births, aromatherapy services etc.

- It has also been recognised that clinical outcomes for the more vulnerable and disadvantaged give cause for concern and maternal mortality outcomes tend to be worse for women from disadvantaged communities, in families where both partners are unemployed or where women are single; and infant mortality outcomes tend to be worse for babies born to women in manual socio economic groups, teenage mothers, black and ethnic minority groups women and those in deprived communities. Generally this is because of a failure to access care early or consistently. (Saving Mothers Lives: Reviewing maternal deaths to make motherhood safer, 2003-2005 – Confidential Enquiry into Children and Maternal Death, December 2007).

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

Clinical Efficiencies

- There have also been various initiatives and action plans to improve service effectiveness and efficiency especially in relation to Average Length of Stay (ALOS) and clinical procedures such as Caesarean Sections.

- ALOS has reduced consistently over the last five years, from 66% of mothers staying 2 days or less in 2002 to 72% in 2006.

Average Length of Stay, 2002-2006

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

Source: HPE/HES

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

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

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

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

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

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

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

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

Payment by Results

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

Summary and Conclusions

- Midwives are the lead professionals for normal pregnancies, births and postnatal care demonstrating that not all care needs to be delivered by a consultant.

- For high-risk mothers or where there are complications, midwives work in partnership with obstetricians and other clinicians.

- Community midwifery services are very well developed including antenatal and postnatal services and most antenatal care takes place in the community.

- Women have a choice where to give birth including hospitals, MLUs, birth centre or home. The numbers and range of MLUs has increased steadily and there is evidence that women are increasingly choosing this option. MLUs tend to have much lower birth numbers and offer a greater midwife to mother ratio. There is no evidence to suggest that, for low risk women, any of these settings is more or less safe than another.

- In the UK, the numbers of maternity hospitals have reduced as services have been centralised into larger units on the grounds of workforce considerations, safety and clinical effectiveness. There is no optimal size of unit and the UK has several units in excess of 5,000 births per annum.

- The ratio of midwives to maternities is approximately 31 midwives per 1,000 births but, as stated, MLUs offer a higher midwife to maternity ratio.

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

Relevance to Dublin

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

- Mothers have a choice of birth settings including home, hospital or co-located MLU. The later offers a non-interventional, low risk delivery option. Broadening of choice is a key driver for change in the GDA and a consistent theme raised with us during the review.

- Almost all antenatal and some postnatal care takes place in the community thereby freeing up capacity and resources in the maternity hospitals and providing more accessible services to mothers diverting appropriate antenatal and postnatal activity out of the maternity hospitals and into the community is a major opportunity for the GDA.

- There has been a move to relocate stand-alone maternity facilities onto acute sites where there is ready access to all necessary support services. Our recommendation for service reconfiguration in the GDA is underpinned by the need to co-locate or tri-locate maternity hospitals with acute general hospitals in the GDA.

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

Reference List

AUSTRALIA

1 Future directions for Victoria's maternity services, Published by Programs Branch, Metropolitan Health and Aged Care Services, Victorian Government Department of Human Services, Melbourne Victoria, 2002.

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

3 Dept of Health and Ageing website – www.health.gov.au

4 Implementing the National Maternity Action Plan In Western Australia A call for the introduction of caseload midwifery care options within the WA public health sector.

5 Maternal and Child Health Service © Copyright Department of Human Services, 2005. Authorised by the Victorian Government, 555 Collins Street, Melbourne. Printed by Print In Vision, 28 Laser Drive, Rowville. (0040105) September 2005

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

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

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

9 Excellence in Women's Health, Annual Report 2006, The Royal Australian and New Zealand College of Obstetricians and Gynaecologists

10 Australian health & Ageing system: The concise factbook, April 2007, Department of Health and Ageing

11 Elective caesarean sections at maternal request , Obstetricians find themselves somewhere between a rock and a fairly indurated place, O&G, Vol. 6, No. 3, September 2004

12 New South Wales Population Health Survey, 2006 Report on adult health

13 O&G Magazine, Vol 9 No Winter 007

14 Charting the Safety and Quality of Health Care in Australia, This publication was developed under the auspices of the Australian Council for Safety and Quality in Health Care and the National Institute of Clinical Studies, July 2004

15 The Royal Women's Hospital Melbourne

CANADA

16 Canada Health Act, Annual Report, 2005 – 2006

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

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

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

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

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

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

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

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

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

FRANCE/GERMANY

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

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

NETHERLANDS

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

29 HiT Summary, Netherland 2005, The European Observatory on Health Systems and Policies

30 Healthcare in the Netherlands, 2004, ESTEC Medical and Social Service

31 Women`s Health Network: State of Affairs, Concepts, Approaches, Organizations

32 in the Health Movement Country Report The Netherlands, September 2000

33 Netherlands Official Statistics, Volume 15, Summer 2000, Special issue Integrating administrative registers and household surveys, Statistics Netherlands

34 Developments in the Dutch model of midwifery care, Christina Oudshoorn, Vol 6 No 10, Midwives, 2003

35 *OECD Health Data 2007*, How Does the Netherlands Compare, OECD

36 Statistical Yearbook of the Netherlands, 2007, Statistics Netherlands

37 Primary Health Care in the Netherlands, The nature, structure, financing, regulation, supply of, and training and demand for primary health care in the Netherlands, International Publication Series Health, Welfare and Sport no. 20, Ministry of Health,Welfare and Sport

NEW ZEALAND

38 Choices for Childbirth, Maternity Services Consumer Council

39 Home births in New Zealand: Perspectives of a Fellow and a Midwife, O&G, Vol. 6, No. 3, September 2004

40 Maternity Service Strategic Plan, 2005 – 2010, Southland District Health Board, New Zealand

41 Midwifery Workforce, Summary Results from the 2006 Health Workforce Annual Survey, Ministry of Health, New Zealand

42 New Zealand College of Midwives, Journal 33, October 2005

43 New Zealand College of Midwives, Journal 34, April 2006

44 New Zealand Medical Practitioners, 2000, New Zealand Health Information Service, April 2001, Ministry of Health, New Zealand

45 Perinatal and Maternal Mortality Review Committee. 2007. First Report to the Minister of Health: June 2005 to June 2007. Wellington: Perinatal and Maternal Mortality Review Committee. Published in October 2007 by the Perinatal and Maternal Mortality Review Committee

46 Report on Maternity, Maternal and Newborn Information, 2003, Review of Maternity Services in New Zealand, New Zealand Health Information Service – 2006, Ministry of Health, New Zealand

47 Review of Maternity Services in New Zealand, The National Health Committee, September 1999

48 The few: new Zealand's diminishing number of rural GPs providing maternity services. Journal of the New Zealand Medical Association, Vol 119, No 1241, September 2006

49 UTS:Nursing, Midwifery & Health Research for Health, December 2006, University of Technology, Sydney

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

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

SWEDEN

52 This is The National Board of Health and Welfare, The National Board of Health and Welfare, 2006

53 Women's Health Network: State of Affairs, Concepts, Approaches, Organizations in the Women's Health Movement Country Report Sweden, 1999

54 How the NHS could learn from Sweden, bbc.co.uk

UK

55 Audit of Acute Maternity Services, Department of Health, Social Services & Public Safety, 2006

56 Royal College of Obstetricians and Gynaecologists, Setting standards to improve women's health

57 The Future Role of the Consultant A Working Party Report, 2005

58 Royal College of Obstetricians and Gynaecologists, CLINICAL STANDARDS Advice on Planning the Service in Obstetrics and Gynaecology, 2002

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

60 Expert Group on Acute Maternity Services, Reference Report, Scottish Executive, 2002

61 Implementing A Framework for Maternity Services in Scotland, Overview Report of the Expert Group on Acute Maternity Services, NHS Scotland

62 Review of Maternity Services 2007, Healthcare Commission, 2008

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

64 Improving Patient Safety: Risk Management for Maternity and Gynaecology, Clinical Governance Advice No. 2, Revised October 2005, Royal College of Gynaecologists and Obstetricians

65 'Where now for Midwives?' Improving Maternity Services, Anna Walker CB, Chief Executive, 10 May 2006, Royal College of Midwives Annual Conference, Healthcare Commission

66 Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. *Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards*. London: RCOG/RCM; 1999.

67 Safer Childbirth: Minimum Standards for Service Provision and Care in Labour, Royal Colleges of Midwives, Obstetricians and Gynaecologists, Anaesthetists, and Paediatrics and Child Health

68 Royal College of Obstetricians and Gynaecologists. The Future Role of the Consultant – a working party report. London: RCOG; 2005

69 The Configuring Hospitals Evidence File: Part One, Department of Health, 2004

70 R. Campbell et al, "Evaluation of midwife-led care provided at the Royal Bournemouth Hospital" *Midwifery* (1999) 15 183–193.

71 National Service Framework for Children, Young People and Maternity Services, Maternity Services, Department of Health, 2005

72 Making It Better: For Mother and Baby; Clinical case for change, Report by Sheila Shribman, National Clinical Director for Children, Young People and Maternity Services, Department of Health, 2007

73 Department of Health. *National Service Framework for Children, Young People and Maternity Services: Standard 11, Maternity Services*. London: Department of Health; 2004.

74 Healthcare Commission. *Review of maternity services provided by North West London Hospitals NHS Trust*. London: Healthcare Commission; 2005.

75 Commission for Health Improvement. *Investigation into Maternity Services provided by Ashford and St Peter's Hospitals NHS Trust Report*. CHI: London; 2003.

76 Healthcare Commission. *Investigation of the maternity service provided by the Royal Wolverhampton Hospitals NHS Trust at New Cross Hospital*. London: Healthcare Commission; 2004.

77 27 Healthcare Commission. *Investigation into 10 maternal deaths at, or following delivery at, Northwick Park Hospital, North West London Hospitals NHS Trust, between April 2002 and April 2005*. London: Healthcare Commission; 2006.

78 Royal College of Midwives. *Vision 2000 into Practice: Birth Centres – Auditable Standardsof Care*. No. 6. London: RCM; 2000.

79 National Collaborating Centre for Women's and Children's Health guideline. *Caesarean Section: Clinical Guideline*. London: NICE; 2004.

80 Royal College of Midwives Position Paper 26 and Guidance paper 26a . *Refocusing the role of the midwife*. London: RCM; 2006.

81 Royal College of Midwives Position Paper 5a. *Support workers in the maternity services*. London: RCM; 1999.

82 NHS Employers. *Maternity support workers: enhancing the work of the maternity team*. London: NHS Employers; 2005.

83 Royal College of Obstetricians and Gynaecologists/Royal College of Midwives. *Towards Safer Childbirth: Minimum Standards for the Organisation of Labour Wards*. London: RCOG/RCM;

84 Annual Clinical Report 2004, Professor Zarko Alfirevic and Janet Newall, Liverpool Women's Hospital NHS Foundation Trust

85 Provision of Maternity Servcies, House of Commons Health Committee Fourth Report of Session 2002–03, Volume I

86 Choice in Maternity Services House of Commons Health Committee, , Ninth Report of Session 2002–03, Volume I

87 Barking, Havering and Redbridge Hospitals NHS Trust, Annual Report, 2006-07

88 The Safety of Maternity Services in England Alex Smith and Anna Dixon, Kings Fund, 2007

90 Delivering the Best, Midwives Contribution to the NHS Plan, Department of Health, 2003

GENERAL

91 The State of the World's Children, Excluded and Invisible, UNICEF, 2006

92 WHO Recommended Interventions for Improving Maternal and Newborn Health, WHO, 2007

93 Beyond the Numbers, Reviewing maternal deaths and complications to make pregnancy safer, WHO, 2004

94 The World Health Report, Make every mother and child count, WHO, 2005

95 World Health Statistics, WHO, 2005