PRINT

Sydney South West Area Health Service
Maternity Services Plan
2009 - 2013

SYDNEY SOUTH WEST
AREA HEALTH SERVICE
NSW HEALTH

Acknowledgements

A thank you is extended to Thomas and Eloise and their parents and Sister Alison Bush AO, for the photographs used on the front cover of this Plan. A thank you is also extended to Julian for creating the drawing also appearing on the front cover.

ISBN: ***978 1 74079 1052***

HEALTH SERVICES PLANNING REPORT NO: 2009/02

DATE: June 2009

Further copies of this document can be downloaded from the
Sydney South West Area Health Service website: www.sswahs.nsw.gov.au

or from:

Health Services Planning
Sydney South West Area Health Service
Locked Bag 7017, Liverpool BC NSW 1871
Telephone: (02) 9828 5755; Facsimile: (02) 9828 5962

CHIEF EXECUTIVE'S MESSAGE

The birth of a baby is a very special and life-changing event for a woman, her partner and her family. Paramount during this period is that a woman and her baby have positive healthcare experiences and strong social and emotional support. This will ensure that a baby has a solid foundation for positive ongoing health and development.

Many of us have been responsible for the care of a new baby or young child and recognise that while it may be rewarding, there are initially periods of uncertainty and stress. There is much to learn about child development and parenting. New parents need support, care, social opportunities and access to excellent health and human services. Sensitive and collaborative support, advice and care needs to be provided by trained healthcare professionals, including the general practitioner, midwife, obstetrician and early childhood and family nurse.

We now know that the first years of a baby's life are critical for their development. The parents' experience of pregnancy and parenting will have significant impact on the baby's health and how the baby is cared for. While most women are in good health and they and their babies experience good outcomes, some women and families require extra help and support. Many strategies outlined in this Plan target these women and families with additional programs and supports. At the same time, the Plan includes strategies which build upon the excellent maternity services of Sydney South West Area Health Service to ensure that the needs of all women and babies are met in the future.

Many people have been involved in the development of the *Sydney South West Area Health Service Maternity Services Plan 2009 – 2013.* Extensive consultation has occurred with women who have used our services, health service providers, and representatives from other services. Their experiences, views and suggestions have been used to guide the strategies in this Plan. I would like to thank everyone who made time to contribute to the development of this Plan.

Our knowledge about maternal and infant health is constantly changing. It is intended that this Plan be flexible and responsive, so that new policies, evidence and developments relating to the care of women, their babies and families can be incorporated.

I look forward to the implementation of this Plan which will assist Sydney South West Area Health Service to provide appropriate and equitable services to our diverse and growing population of women, their babies and families.

Mike Wallace
Chief Executive

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY

This is the first Maternity Services Plan for Sydney South West Area Health Service (SSWAHS). It lays a clear foundation for the future directions for maternity services in the Area. Developed following a decision to undertake further planning to identify models of care for the delivery of maternity services across SSWAHS, the Plan describes the current SSWAHS maternal population, maternal health and maternal and neonatal outcomes, current SSWAHS maternity services, a framework for future services and strategies to address current and future issues. Given most women and babies in SSWAHS are in good health and have good outcomes, many of the strategies outlined focus on women, babies and families who require extra assistance during this period.

SSWAHS offers maternity services at a variety of sites across the Area throughout a networked system of hospitals and community health centres. Women in SSWAHS have access to primary, secondary and tertiary services. Continuity of care for a mother and her baby is promoted through networks with Neonatology, Community Health, Aboriginal Health, Drug Health and Allied Health services. Collaboration also occurs with external agencies such as local Divisions of General Practice and Aboriginal Medical Services who also provide a significant amount of care to women and their babies.

From 2001/02 to 2007/08, the number of confinements in SSWAHS hospitals increased by 19%. Projections indicate that the number of confinements in SSWAHS hospitals will continue to increase over the life of the Plan. Concurrent with an increase in the number of projected confinements, additional challenges will place further demand on maternity services including high maternal rates of overweight and obesity, increasing intervention rates including caesarean section and the trend towards older women giving birth. An ageing workforce will also place additional stress on services.

This Plan was developed following consultation with staff, consumers and external agencies such as the Divisions of General Practice. Staff consultation included a forum and a posting on the SSWAHS intranet and internet sites which allowed staff and the public an opportunity to provide comments on a draft version of the Plan. Consumer consultation was extensive and included focus groups with women including Aboriginal women, women from culturally and linguistically diverse backgrounds, refugee women and women who use drugs.

During the development of the Plan a number of issues relating to the provision of maternity services were identified. Some of the major issues related to:

- The recruitment and retention of medical, nursing and allied health staff;
- The need to develop more community based antenatal clinics;
- Access to interpreters;
- Access to lactation consultants;
- Vulnerable groups for example women with mental health and drug health problems;
- Communication and networking; and
- The availability of different models of maternity care.

To guide the development of this Plan key local, state and national documents were referred to including the *NSW Framework for Maternity Services*[1], NSW state and health plans[2], *NSW Aboriginal and Infant Health Strategy*[3] and *Primary Maternity Services in Australia: A Framework for Implementation.*[4] A review of the evidence on alternative models of maternity care was also conducted by the Australian Health Policy Institute, Sydney University. This paper reviewed the evidence on alternative models of care (focusing on midwifery-led and shared care models), international experiences with midwifery-led models, safety and risk in midwifery-led models and the relationship between size of patient units and patient safety. The findings of this paper (p. 6) guided the discussion on the most appropriate models of care for SSWAHS.

This Plan recommends the adoption of the following major strategies:

- Maintaining birthing services at all hospitals that currently provide this service: Bankstown-Lidcombe; Royal Prince Alfred; Canterbury; Fairfield; Liverpool; Campbelltown; and Bowral and District. Tertiary level services will remain at Royal Prince Alfred and Liverpool hospitals, while Bankstown-Lidcombe, Canterbury, Fairfield, Campbelltown and Bowral and District will provide secondary level services.
- Enhancing choice for women by expanding the range of maternity care options;
- Increasing participation in GP Antenatal Shared Care programs especially in areas with lower participation rates such as Fairfield, Campbelltown and Bankstown;
- Increasing the availability of midwifery-led models such as midwifery group practice;
- Increasing the number of community based antenatal clinics;
- Rolling out programs specific to Aboriginal women and babies consistent with the Aboriginal Maternal and Infant Health Strategy;
- Implementing policies promoting breastfeeding; and
- Developing a workforce plan for maternity and related services.

The Plan provides a framework for maternity services in SSWAHS to 2013 and more broadly to 2016. The framework and major strategies, will help to ensure that women have access to maternity services which are consistent with their level of risk, whether it be medical, social or psychological. The framework has been based on a set of core concepts and principles:

- A woman centred approach that increases choice in and before childbirth;
- Matching clinical services to clinical needs;
- Continuity of care;
- Integrated service networking;
- Reflecting current evidence and best practice; and
- The appropriate number and mix of health care professionals with the knowledge, skills and experience.

It aims to promote continuity of care and delivery of care that is appropriate during all phases of care - antenatal, birthing, and postnatal; so that desirable health outcomes are achieved.

The Plan is consistent with relevant recommendations made within the *Garling Special Commission of Inquiry into Acute Care Services in NSW Public Hospital (2008).*[5] Specifically that:

- *"NSW Health, through the area health services, identify which hospitals would be appropriate for the introduction of a caseload model of maternity care in addition to, or in lieu of full-time maternity services. Following the review, NSW Health is to plan for the introduction of that model of care, where viable on a clinical basis and subject to available funding;" and*
- *"In the interests of patient safety, NSW Health only offer birthing facilities for low risk mothers in hospitals which satisfy the following criteria:*
  - I. *the hospital has an adequate number of health professionals qualified and trained to assist with the birth, such as midwives or VMOs with the necessary credentials; and*
  - II. *the hospital has on-site, or else has the ability to transfer the mother within 30 minutes travel time to a hospital which has onsite, the workforce and facilities to perform an emergency caesarean section."* [6]

While existing resources may be used to implement some of the strategies outlined in the action plan, new resources and alternate use of existing resources will be required to meet future demand for maternity services.

2. BACKGROUND

Pregnancy and childbirth are important events in the life of a woman and her family, and the experience is affected by the woman's culture, level of knowledge and support during pregnancy, birth and in the postnatal periods. In Sydney South West, given the diversity of cultures, women's expectations of maternity care, including expectations of the type and frequency of care, will vary.

The need for an Area-wide maternity services plan was identified as a priority following the amalgamation of the former South West Sydney and Central Sydney area health services. The aim of this Plan is to present strategies to address current gaps in services identified by consumers and staff and to propose models of service provision consistent with current and future needs.

This Area-wide plan for maternity services for the Sydney South West Area Health Service (SSWAHS) identifies strategies that SSWAHS needs to implement over the next five years to meet the projected growth in demand for maternity services, in addition to the growth expected in the new communities as part of the South West Growth Centre. The Plan has been developed following a review of models of care in 2005 to inform the *Sydney South West Area Healthcare Services Plan* (draft) and a subsequent literature review in 2006 conducted by the Australian Health Policy Institute, The University of Sydney, on behalf of SSWAHS (Refer to Appendix 1). [7] The models recommended are based on the best available research and evidence. The Plan considers the future configuration of maternity services within SSWAHS and the models considered are evidence based.

In developing this Plan, SSWAHS adopted the NSW Health philosophy statement that

> *"recognises pregnancy, labour, birth and parenting as significant and meaningful life events and acknowledges the right of consumers to access safe maternity care and quality maternity services. Continuity of care and consistent information is essential to the provision of care that is culturally sensitive and appropriate. Collaboration between health workers at all levels plus the development of a competent and flexible workforce are critical in ensuring safe services and the availability of a range of models of care."* [8]

The Plan also considers related aspects of Neonatology and Community Health services and their relationship with maternity services given the links and networks required to ensure that women, their babies and families receive comprehensive care and continuity of care.

Identified within the Plan are maternity service issues raised during community and staff consultations, focus groups, by members of the Maternity Services Plan Steering Committee and those who commented on draft versions of the Plan. This includes issues regarding specific populations, including Aboriginal women, women who use drugs, teenage mothers and refugee and culturally and linguistically diverse (CALD) women. Some strategies have been developed to target specific needs in these populations. Service related data and information have also been reviewed.

3. THE OPERATING ENVIRONMENT

The policy and planning context

This Plan has been informed by a number of national, state and SSWAHS plans and documents including *Primary Maternity Services In Australia: A Framework for Implementation*, *The NSW Framework for Maternity Services*, *NSW State Plan, A new direction for NSW*. It also considers and complements a number of current Area service plans, including the *SSWAHS Community Health Strategic Plan 2007 - 2012*, *SSWAHS Overweight and Obesity Prevention and Management Plan 2008 - 2012*, *SSWAHS Carers Action Plan 2007 – 2012* and *SSWAHS Disability Action Plan 2008 – 2011*. Brief summaries of the documents are provided below and in Appendix 2.

Improving Maternity Services in Australia. The Report of the Maternity Services Review (2009)[9]

This Review was commissioned to assist the development of a national maternity services plan. Released in 2009, it canvassed different groups and people for their perspectives on maternity services in Australia. It identified gaps in services and proposed changes. Issues considered as part of the review included antenatal services, birthing options and postnatal services. The Review makes a number of recommendations in the key areas of:

1. Safety and quality;
2. Access to a range of models of care;
3. Inequality of outcomes and access
4. Information and support for women and their families;
5. The maternity workforce ; and
6. Financing arrangements.[10]

Primary Maternity Services In Australia: A Framework for Implementation (2008)[11]

Primary maternity care has been described as "health care provided for women not experiencing complications. It covers pregnancy, labour and birth and the postnatal period".[12] In 2005, an inter-jurisdictional committee was formed by the heads of Australia's Health Departments to develop a national approach to the provision of primary maternity services. The resultant framework provides an overview of the features expected of primary maternity service models. The desired features of public primary maternity services include:

1. *"High quality care enabled by evidence-based practice;*
2. *Care coordinated according to the women's need;*
3. *Health professionals working together in a collaborative multidisciplinary approach;*
4. *Continuity of care through pregnancy, birth and the early postnatal period;*
5. *Woman-centred care which gives women a sense of control of their birthing experience;*
6. *Care that is culturally appropriate and reduces health inequalities; and*
7. *Continued access to best practice care at the local level."*[13]

Given no single model of care was deemed ideal for the organisation of primary maternity services, it was recognised that various models should be used to provide a service dependent on the needs of individual communities, while considering the above desired features.

Special Commission of Inquiry into Acute Care Services in New South Wales Public Hospitals – The Garling Report (2008)

The *Special Commission of Inquiry into Acute Care Services in New South Wales Public Hospitals* was established in January 2008 and led by Mr Peter Richard Garling SC. While the inquiry made recommendations in a number of areas, two recommendations were relevant to this Plan:

1. *"NSW Health, through the area health services, identify which hospitals would be appropriate for the introduction of a caseload model of maternity care in addition to, or in lieu of full-time maternity services. Following the review, NSW Health is to plan for the introduction of that model of care, where viable on a clinical needs basis and subject to available funding"; and*

2. *"In the interests of patient safety, NSW Health only offer birthing facilities for low risk mothers in*

hospitals which satisfy the following criteria:

i. the hospital has an adequate number of health professionals qualified and trained to assist with the birth, such as midwives or VMOs with the necessary credentials; and

ii. the hospital has, on-site, or else has the ability to transfer the mother within 30 minutes travel time to a hospital which has onsite, the workforce and facilities to perform an emergency caesarean section."[14]

In its response to the recommendations made in this Inquiry, *Caring Together the Health Action Plan for NSW,*[15] the state government supported the first recommendation and indicated that further consultation was required in its consideration of the second recommendation.

The NSW Framework for Maternity Services (2000)[16]

This Framework articulates current NSW Health policy for maternity services. It promotes the development of a networked arrangement of primary, secondary and tertiary maternity services as the preferred, best practice approach to the provision of comprehensive antenatal, perinatal, postnatal, and early childhood services. It also reiterates the six key dimensions of the NSW Quality Framework, specifically that maternity services are required to demonstrate that they are safe and minimise risk, are effective, appropriate, involve consumer participation and ensure access, equity, efficiency. The Framework sets out the following philosophy statement for developing maternity services:

> *"NSW Health recognises pregnancy, labour, birth and parenting as significant and meaningful life events and acknowledges the right of consumers to access safe maternity care and quality maternity services.*
>
> *Continuity of care and consistent information is essential to the provision of care that is culturally sensitive and appropriate.*
>
> *Collaboration between health workers at all levels plus the development of a competent and flexible workforce are critical factors in ensuring safe services and the availability of a range of models of care."*[17]

SSWAHS Health Service Strategic Plan; Towards 2010 (2007)[18]

The *Sydney South West Area Health Service Strategic Plan* provides strategic direction for all the activities of SSWAHS over the five year period 2006 to 2010. It outlines the vision, values and objectives of SSWAHS, and reflects the NSW State Health Plan[19] and *Future Directions for Health in NSW – Towards 2025*. As such, it is the strategic framework that will guide further corporate and health service planning and reporting across all levels of the organisation. The Plan also reflects the priorities identified for Health in the recently released NSW Government State Plan (2006).[20]

The goals of NSW Health and SSWAHS are:

1. To keep people healthy;
2. To provide the health care that people need;
3. To deliver high quality services; and
4. To manage health services well.

The seven strategic directions to achieve organisational goals are:

1. Make prevention everybody's business;
2. Create better experiences for people using the health system;
3. Strengthen primary health and continuing health care in the community;
4. Break down barriers to regional collaboration;
5. Make smart choices about costs and benefits of health and health supports;
6. Build a sustainable health workforce; and
7. Stay alert for new risks and opportunities.

The overall objectives and service planning principles that guided development of the *SSWAHS Maternity Services Plan 2009 – 2013* have been aligned with NSW Health's four goals and the seven strategic directions.

4. DESCRIPTION OF THE PLANNING PROCESS

The Maternity Services Plan was developed under the guidance of a Steering Committee comprising key medical, midwifery, nursing and allied health clinicians, administrators, health services planners, representatives from Divisions of General Practice and consumers. The Committee evaluated the current service, analysed data on outflows and projections, reviewed consultancy comments, and utilising this information determined the range of services to be offered to SSWAHS women to 2013. A list of the Maternity Services Plan Steering Committee members and terms of reference is attached in Appendix 3.

The planning process was founded on evidence from a background literature review, discussion paper and staff forum. The Australian Health Policy Institute (AHPI) conducted a literature review on the evidence on alternative models of care for maternity services (a summary of the key finding is summarised below and in more detail in Appendix 1) [21]. The paper reviewed the evidence on:

- Alternative models of maternity care (focusing on midwifery-led and shared care models):
- International experiences with midwifery-led models:
- Safety and risk in midwifery-led models; and
- Size of inpatient units and safety.

Whilst many other aspects of maternity services are relevant to decisions about the re-organisation of maternity services in NSW, they were outside the terms of reference for this literature review. The following points summarise the key findings of the AHPI literature review:

- The main options for models of maternity care are obstetrician-led (public or private); midwifery-led (standard, team or caseload); and shared care.
- Despite calls for nearly 20 years to increase the range of maternity services options in NSW, progress has been slow.
- Public obstetrician-led models are essential for high risk women, while private obstetric care provides a popular alternative for those who can afford it.
- There is strong evidence of the benefits of midwifery-led models of care for low risk women.
- There is virtually no evidence that midwifery-led models of care (including team midwifery, caseload midwifery and co-located birth centres) are unsafe for mothers and babies. However, it is difficult to make assurances about the safety of various midwifery models of care because of the methodological limitations of many studies in this field.
- Currently there is little evidence on how to accurately assess risk and respond to an increase in risk status, particularly during labour.
- Shared care models have the potential to provide women using localised services with a known carer, but the lack of streamlined policy and procedures appear to have limited expected benefits.
- Community-based public services (either midwifery-led or shared care) offer women services that are similar to the more popular private models and may help reduce inequities of access to services for those women living in non-metropolitan areas.
- The effects of continuity of care, continuity of carer and type of carer are frequently confused, making it difficult to assess how each of these affect outcomes.
- Recent studies indicate that it is quality of care, rather than continuity of care that is most beneficial.
- There is mixed evidence on the relationship between the size of maternity unit and safety, with differences in technological capacity and risk identification procedures making it impossible to draw definitive conclusions.
- A crucial issue to be resolved is the classification of risk status, both during pregnancy and in labour. Concerns about the safety of various midwifery models for high risk women may be allayed if much clearer guidelines and procedures for risk assessment can be developed.

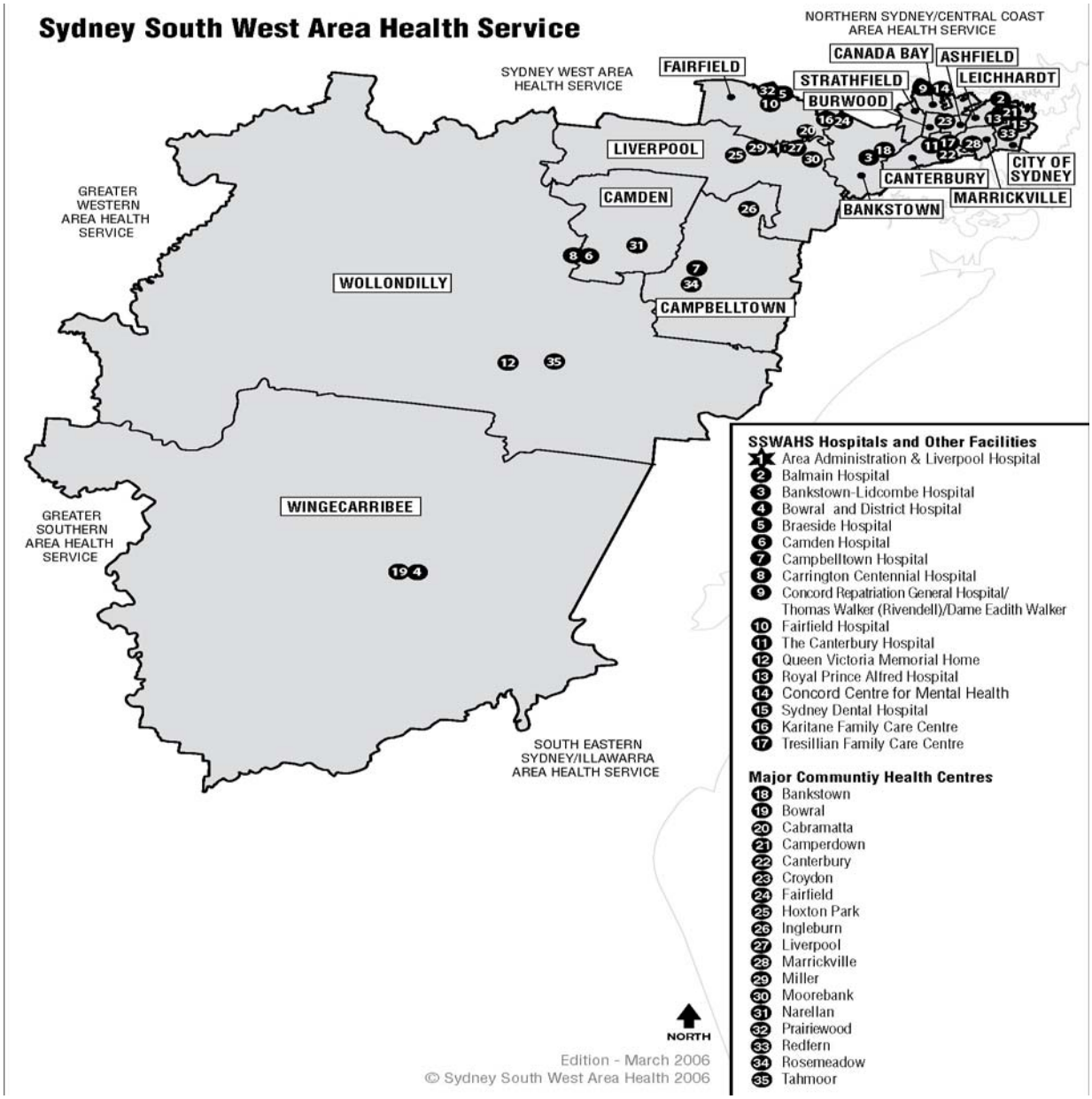
Community consultation was extensive and is detailed in Section 10.

5. SYDNEY SOUTH WEST AREA HEALTH SERVICE (SSWAHS) PROFILE

Geography

The SSWAHS comprises the fifteen local government areas of Ashfield, Bankstown, Burwood, Camden, Campbelltown, Canada Bay, Canterbury, Fairfield, Marrickville, Leichhardt, Liverpool, Strathfield, Sydney (part of), Wollondilly and Wingecarribee. The Area Health Service (AHS) covers a land area of 6,380 square kilometres and settlements vary from scattered rural townships in the south, through to the densely populated inner city. A map of SSWAHS is shown below in Figure 1.

Figure 1: Map of SSWAHS and location of facilities



SSWAHS includes the following public hospitals and health facilities: Balmain, Bankstown- Lidcombe, Bowral and District, Camden, Campbelltown, Canterbury, Concord Repatriation General, Fairfield, Liverpool, Royal Prince Alfred (RPA) and Sydney Dental hospitals as well as Tresillian Family Care Centres and Karitane. In addition, a range of community health facilities and services are provided to meet local community needs for health services outside of the hospital setting (Refer to Figure 1).

SSWAHS is bounded by the South Eastern Sydney/Illawarra Area Health Service to the south and east, Sydney West Area Health Service to the north, Greater Western Area Health Service to the west and Greater Southern Area Health Service to the south-west as illustrated in Figure 1.

Demography

The Population of SSWAHS

The estimated population of SSWAHS in 2006 was 1.34 million (M), representing 20% of the total population of NSW. With areas projected for both substantial new land release for residential development and medium density urban infill, SSWAHS will continue to be one of the fastest growing parts of the state. Its population is projected to increase by 12% over 10 years, from 2006, reaching 1.5M people by 2016. Much of this growth is attributed to the development of the South West Growth Centre.

Over the next 20 years an additional 300,000 people will be settling in the South West Growth Centre new land release area. This new development will have implications for maternity services within the south west of SSWAHS, in particular for Liverpool and Campbelltown hospitals. In addition, medium density urban consolidation in the inner and middle rings of Sydney will place further demands on maternity and related services and present additional complexities and challenges.

In addition to covering 6 of the 10 most disadvantaged metropolitan Sydney postcodes, SSWAHS covers one of the most ethnically diverse communities in Australia, with a significant number of people speaking a language other than English at home. This is most notable in the Fairfield and Canterbury LGAs, where 67% and 63% of the population respectively speak a language other than English at home. [22] The south west of SSWAHS has historically been a preferred area of settlement for both migrants and refugees arriving in NSW. According to the Department of Immigration Multicultural and Indigenous Affairs (DIMIA), between January 1999 and October 2004, over 50,000 new arrivals settled in Sydney South West (SSW). Of these, approximately 19% (over 9,000) were humanitarian arrivals or refugees.

Considerable variations exist between SSWAHS LGAs in the proportions of the population identifying as Aboriginal, with the highest proportions residing in Campbelltown, Wollondilly and Marrickville.

The Female Population in SSWAHS

SSWAHS has one of the highest female populations in NSW. The following table shows the composition of the current female population by age group and projections to 2016. By 2016, it is projected that the proportion of women in the 15 to 44 year childbearing group will decline by 2%, from 46% (2006) to 44%.

Table 1: Number of females in each age group in 2001, 2006 and projections to 2011 and 2016

Age group	2001	2006	2011	2016	Total Change 2006 - 2016	% Change 2006 - 2016
0 – 14	128,762	126,221	126,818	129,746	3,526	3
15 – 44	303,178	307,928	320,141	331,418	23,490	8
45+	211,125	236,758	263,151	288,149	51,391	22
Total	643,065	670,907	710,109	749,314	78,407	12
0 – 14 years as % of total	20	19	18	17		
15 – 44 years as % of total	47	46	45	44		
45+ years as % of total	33	35	37	39		

Source: NSW Department of Planning, 2007

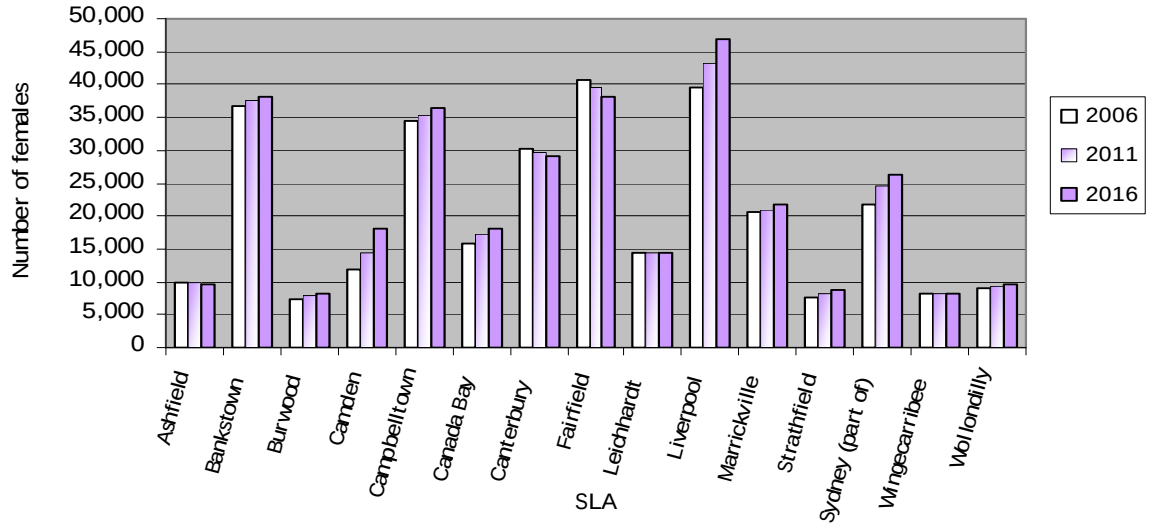
The Maternal Population

SSWAHS contains areas with some of the highest fertility rates in NSW (Refer to Table 3). In 2006, there were 20,750 confinements by SSWAHS residents, representing over 22% of all confinements in NSW.[23] This represents an increase of 6.5% from 2002.[24] Confinement numbers by SSWAHS

local government areas vary considerably from 3,066 confinements in Liverpool in 2006 to 309 in Burwood in 2006 (Refer to Table 1 in Appendix 4). [25]

The following graph shows the projected change in the SSWAHS female population ages 15 - 44 years between years 2006, 2011 and 2016 by statistical local area (SLA).

Graph1: SSWAHS females 15-44 years, projections - 2006, 2011 and 2016



Source: NSW Department of Planning, 2007

Women aged 15 - 44 years of age are considered to be the childbearing age group. The largest projected growth to 2016 in the fertile population, is in the SLAs of Camden and Liverpool. Significant growth is also expected in Sydney, Strathfield and Canada Bay.

Table 2: Projected SSWAHS female populations aged 15 – 44 years for years 2006, 2011 and 2016

SLA	SSWAHS Females aged 15 – 44 years			Difference 2016 - 2006	% change 2006 - 2016
	2006	2011	2016		
Ashfield	9,847	9,818	9,602	-245	-2
Bankstown	36,638	37,563	38,161	1,523	4
Burwood	7,398	7,843	8,055	657	9
Camden	11,937	14,531	17,980	6,043	51
Campbelltown	34,456	35,294	36,517	2,061	6
Canada Bay	15,859	17,270	17,959	2,100	13
Canterbury	30,086	29,554	29,055	-1,031	-3
Fairfield	40,769	39,546	38,081	-2,688	-7
Leichhardt	14,544	14,500	14,410	-134	-1
Liverpool	39,843	43,137	47,000	7,157	18
Marrickville	20,540	20,961	21,728	1,188	6
Strathfield	7,491	8,168	8,647	1,156	15
Sydney (part of)	21,714	24,441	26,401	4,687	22
Wingecarribee	8,060	8,063	8,099	39	0
Wollondilly	8,932	9,452	9,723	791	9
SSWAHS	307,928	320,141	331,418	23,490	8

Source: NSW Department of Planning, 2007

SSWAHS combines higher fertility rates in LGAs further from the inner city (Bankstown, Liverpool, and Camden) with significantly lower total fertility rates in the inner city suburbs (Sydney, Burwood and Strathfield) as indicated in Table 3.

Table 3: SSWAHS Births by age of mother (2005 - 07) and total fertility rates (2006)

Local Government Area	12 -19 years	20–4 years	25–29 years	30 - 34 years	35–39 years	40 years and over	Total	Total fertility rate (2006)[26] #
Ashfield	16	84	361	669	441	98	1,669	1.41
Bankstown	270	1,602	2,767	2,587	1,316	279	8,821	2.15
Burwood	8	80	257	387	225	67	1,024	1.28
Camden	51	262	817	958	362	60	2,510	2.06
Campbelltown	453	1,556	2,239	1,804	876	167	7,095	1.94
Canada Bay	8	108	594	1,316	841	189	3,056	1.56
Canterbury	176	1,128	2,025	2,156	1,188	240	6,913	2.02
Fairfield	236	1,360	2,523	2,436	1,243	262	8,060	1.83
Leichhardt	16	51	338	1,312	1,085	211	3,013	1.57
Liverpool	319	1,545	2,993	2,835	1,243	255	9,190	2.07
Marrickville	45	244	636	1,429	1,085	221	3,660	1.45
Strathfield	55	184	531	1,230	730	164	2,894	1.36
Sydney	14	77	345	400	197	38	1,071	0.91
Wingecarribee	52	187	370	478	260	61	1,408	1.92
Wollondilly	46	247	560	638	259	50	1,800	2.04
Total number of births	1,765	8,715	17,35	20,635	11,351	2,362	62,184	
Percentage of total	3	14	28	33	18	4	100	

Source: Midwives Data Collection 2005 – 2007(births) and ABS 2009 for total fertility rates.
 # The total fertility rate (TFR) is the sum of age-specific fertility per female estimated resident population of that age. The rate represents the number of babies born to a woman throughout her reproductive life.

The average age of mothers in NSW is increasing each year. The largest age group of new mothers in SSWAHS in 2005 - 2007 was women aged 30 - 34 years as indicated in Table 3. [27] There are a range of co-morbidities associated with the increase in maternal age including hypertension and gestational diabetes. Increased morbidity and co-morbidity is also associated with the increasing numbers of women able to participate successfully in in-vitro fertilisation (IVF). The rate of birth defects also increases with increasing maternal age.[28]

Special Groups

Aboriginal and Torres Strait Islander Mothers and Babies

In 2005, the reported number of SSWAHS Aboriginal and Torres Strait Islander mothers who gave birth was 181. This represents 7.3% of all reported NSW Aboriginal and Torres Strait Islander mothers in NSW who gave birth and 0.9% of all SSWAHS mothers. Given maternal Aboriginality is under reported in the Midwives Data Collection, the total SSWAHS estimated Aboriginal births, based on the birth registrations held by the NSW Registry of Births, Deaths and Marriages, was 378 in 2005.[29] Of the reported 181 births, 13.3% were teenagers, compared to the NSW state average of 20.4% for Aboriginal mothers.

While there have been gains in Aboriginal maternal and infant health, outcomes remain poor compared to the rest of the population. The poor health outcomes have been attributed to:

1. The proportion of SSWAHS Aboriginal women who commence antenatal care before 20 weeks gestation remains low despite a significant improvement in this measure over the past few years. In 2006, this proportion was 67.8%, an increase of 8.7% from 2004. The NSW metropolitan area health services proportion was 79.5% for Aboriginal women (2006).[30]
2. In 2006, 44% of SSWAHS Aboriginal women smoked during their pregnancy, compared to 10% of non-Aboriginal SSWAHS mothers.[31]
3. The rate of prematurity (< 37 weeks gestation) of SSWAHS Aboriginal babies (16.7%) was more than twice the rate reported for babies born to non-Aboriginal mothers in SSWAHS, which was 7% in 2006, and more than the rate reported for Aboriginal women in other NSW metropolitan area health services (11.4%).[32]

4. In 2006, the rate of low birth weight (less than 2,500 grams) SSWAHS Aboriginal babies was 15.7%. The rate for Aboriginal babies born in other metropolitan area health services was 11.9%.[33]

Teenage Mothers

The south west has a large number of confinements to young mothers (aged less than 20 years). In 2005 – 2007, this number was 1,765 (Refer to Table 3). The largest proportion of teenage mothers was in the Campbelltown and Liverpool LGAs. Young mothers are often vulnerable in a variety of social and emotional ways that may impact on the health of the infant and mother. They are more likely to be single, a smoker, to be living in an area of socioeconomic disadvantage and have fewer antenatal visits. There is a higher risk of medical complications for the baby, including prematurity, low birthweight, the need for neonatal intensive care, and neonatal death.[34] According to NSW Health "there is a growing need for a greater focus on equity of access to ensure that the services provided to women from marginalised groups, who have the poorest outcomes, are more appropriate and better utilised". [35]

Culturally and Linguistically Diverse Women

SSWAHS has the highest proportion of mothers born in non-English speaking countries, 37.5% in 2005. The largest numbers of confinements to SSWAHS women from non-English speaking backgrounds in 2005 were to women born in South East Asian countries (11.7% of all births in SSWAHS), Middle East and African countries (10.1% of all births in SSWAHS), North East Asian countries (4.5% of all births in SSWAHS), Southern Asia (3.3% of all births in SSWAHS) and Melanesia, Micronesia and Polynesia (3.2% of all SSWAHS births). (For more detailed information refer to Table 2 in Appendix 4). In 2005, 5% of mothers in NSW were born in South East Asian countries and 50% of these mothers were residents in SSWAHS.[36]

Significant differences exist between country of birth groups and their access to antenatal care prior to 20 weeks gestation. Mothers born in Melanesia, Micronesia and Polynesia and in the Middle East and Africa are less likely to commence antenatal care prior to 20 weeks gestation, compared to mothers born in English speaking countries. Mothers born in Melanesia, Micronesia and Polynesia report higher rates of diabetes mellitus compared to mothers born in NSW. Rates of gestational diabetes are also higher among mothers born in Asian countries and Melanesia, Micronesia and Polynesia. Mothers born in the Middle East and Africa and Melanesia, Micronesia and Polynesia are more likely to have a normal vaginal birth whereas mothers born in Southern Asia have higher rates of caesarean sections compared to all mothers.[37]

It is unclear what impact language and communication may have on the areas discussed above however they may be significant given that 39% of people in SSWAHS speak a language other than English at home and within this group 23.8% rate themselves as speaking English either not well or not at all.[38]

Refugee Women

Based on 2006 and 2007 data, approximately 350 refugee women in the age group 20 - 49 years, each year become residents of SSWAHS LGAs.[39] Refugees in SSWAHS reside in Fairfield (54%) and Liverpool LGAs (28%) and to a lesser extent Canterbury (10%) and Bankstown LGAs (6.2%).[40] In the period 2003 to 2007, refugees primarily originated in Iraq (62%), Sudan (10.5%), Sierra Leone (5.0%) and the former Yugoslavia (3.7%).[41]

For many refugee women, issues relating to their experiences as a refugee and difficulties relating to their re-settlement in Australia can result in a less than optimal pregnancy. Women from refugee backgrounds come from countries with a history of oppression, political and civil unrest and warfare, and many have experienced years of deprivation, under-nutrition, torture and lack of access to quality health care.[42] Common ongoing health problems experienced by many refugee women following resettlement in Australia include: mental and emotional health problems such as depression and Post Traumatic Stress Disorder; results of past sexual abuse including sexually

transmitted diseases; inadequate diet and under nutrition (e.g. iron, folate and calcium); dental problems; and reproductive health care needs.[43]

In addition to ongoing health issues, refugee women may also experience issues relating to their resettlement in Australia that may adversely impact on them, their babies and families. Torture and trauma experiences can sometimes result in family breakdowns, domestic violence, isolation and exacerbation of existing mental health problems. Many refugee women also experience difficulties relating to language and communication, finding affordable and suitable accommodation, child care and a loss of socio-cultural structures, which may include a lack of parenting advice from an extended family.[44]

6. MATERNAL AND NEONATAL HEALTH IN SSWAHS

Women in NSW enjoy a high standard of maternity care with perinatal outcomes that rank among the best in the world.[45] However there are some groups in the community that have poorer outcomes than the rest. Aboriginal mothers and babies, those from socioeconomically disadvantaged areas and women from CALD backgrounds continue to experience worse outcomes compared to other NSW mothers and babies.[46]

In SSWAHS the majority of women and their babies are in good health and experience good outcomes. However there are groups within the community with poorer health and who experience suboptimal outcomes. The areas that require attention are outlined below.

Maternal Health

Overweight and Obesity

NSW Health estimates that between 2001- 2006 in SSWAHS, the prevalence of overweight and obesity in the 16 to 44 year old female age group ranged from 20.4% (16 - 24 years) to 34.1% (35 - 44 years), and the prevalence of obesity ranged from 0.7% to 15.7% respectively.[47] Both overweight and obesity and obesity prevalence rates increased with increasing age.

Obesity has been associated with difficulties conceiving and complications for mother and baby during pregnancy.[48] For the mother, complications associated with obesity in pregnancy include gestational diabetes and thromboembolic problems[49] as well as delivery complications such as increased rates of caesarean section.[50] Babies of overweight and obese women are at increased risk of requiring admission to a neonatal intensive care unit (NICU) and having congenital abnormalities such as cardiac and neural tube defects.[51] Maternal obesity also increases the risk of a 'large for gestational age' neonate who is in turn at risk of childhood obesity.[52]

Gestational Diabetes Mellitus

Gestational Diabetes Mellitus (GDM) occurs in pregnancy in 3 - 8% women.[53] It mostly develops around the 24th to 28th week of pregnancy and usually resolves after the birth of the baby.

Table 4: Rates of gestational diabetes mellitus by LGA of mothers' residence in 2006

Local Government Area	Number	Percentage (%)
Ashfield	41	7.24%
Bankstown	226	7.69%
Burwood	23	7.44%
Camden	58	7.01%
Campbelltown	224	9.63%
Canada Bay	47	4.61%
Canterbury	226	9.60%
Fairfield	264	9.92%
Leichhardt	58	5.67%
Liverpool	256	8.35%
Marrickville	87	7.03%
Strathfield	28	8.05%
Sydney	56	5.96%
Wingecarribee	11	2.4%
Wollondilly	33	4.87%

Source: Midwives Data Collection 2006

Risk factors for developing gestational diabetes include:

- Being aged over 30 years;
- Having a family history of Type 2 diabetes;

- Being overweight;
- Having an Aboriginal and Torres Strait Islander background;
- Having a Vietnamese, Middle Eastern, Chinese, Melanesian or Polynesian background; and
- Having a history of gestational diabetes with previous pregnancies.[54]

Although following the birth of the baby, maternal blood glucose levels usually return to normal, GDM is a known risk factor for future development of Type 2 diabetes in the mother. It may also be a risk factor for Type 2 diabetes in the child in later life.[55]

Latest data indicates that the NSW rate of GDM was 4.8% in 2006, having risen from 4.0% in 2000.[56] The SSWAHS rate was 7.9% in 2006. Local data showed that the rate of GDM in 2006 varied according to LGA. Rates by LGA were highest in: Fairfield, Canterbury and Liverpool (Refer to Table 4).

Female genital mutilation (female circumcision)

The World Health Organization defines Female Genital Mutilation (FGM), often referred to as 'circumcision', and mainly practised in Africa and the Middle East, as "all procedures involving partial or total removal of the female external genitalia or other injury to the female genital organs whether for cultural or other non-therapeutic reasons".[57] Increased risk of obstetric complications associated with FGM include: a caesarean section; an extended hospital stay; episiotomy; postpartum haemorrhage; low birth weight; and infant resuscitation.[58] In Sudan, it has been estimated that 90% of females aged 15 - 49 years have undergone the practice.[59]

While the prevalence of FGM in SSWAHS is unknown, increasing numbers of migrant and refugee women are from regions where FGM is practised such as the Horn of Africa, the Middle East and parts of South East Asia.[60] Given that a high proportion of refugees and migrants to Australia settle within the SSWAHS catchment area[61], this may have some impact on maternity services within the AHS.

Maternal Health Behaviours

Antenatal care

The purpose of antenatal care is to monitor the health of the mother and baby, provide advice to promote both the health of the mother and baby, identify any antenatal complications and provide timely intervention if required.[62]

In SSWAHS (2002-2006), 81.1% of women commenced antenatal care prior to 20 weeks gestation compared to the NSW average of 87.6%. [63] Across SSWAHS this rate varies. Compared to the NSW state prevalence ratio, the prevalence ratio for first antenatal visits before 20 weeks gestation in the Bankstown, Campbelltown, Canterbury and Fairfield LGAs was 10% lower than the state average. It was also below average in the Liverpool and Strathfield LGAs. Prevalence ratios were significantly higher in the Camden, Canada Bay and Leichhardt LGAs.[64]

In 2006, 86.8% of SSWAHS Australian born women who gave birth, received antenatal care before 20 weeks. This compared to 75.7% of SSWAHS women born overseas who gave birth.[65]

Smoking and pregnancy

Smoking during pregnancy increases the risk of certain adverse outcomes for both the mother and her baby. Adverse outcomes include: placenta praevia; an ectopic pregnancy; preterm premature rupture of the membranes; perinatal mortality; a lower birth weight baby; and sudden infant death syndrome.[66]

The *NSW Chief Health Officer's Report* (2008) states smoking rates are the highest among young adults, Aboriginal people and people in the lowest socio-economic group.[67] In 2006, the smoking in pregnancy rate in the Campbelltown (24.7%) LGA was considerably above the NSW state rate of 13.7%. It was also higher in the Wingecarribee (17.1%) and Wollondilly (16.1) LGAs.[68]

A recent study indicated that one in four women who attend antenatal clinics at Liverpool and Campbelltown hospitals do not quit smoking during their pregnancy. These women are more likely to be teenagers, single mothers and less likely to have formal education or employment.[69]

Smoke-free pregnancy project

The *National Smoke-Free Pregnancy Project* and the *Sydney South West Area Health Service Smoking Cessation with Women and Partners Project* aims to re-orient public birthing services to support and accommodate a primary health care approach to smoking and pregnancy. In doing this, the project will contribute to reducing the significant adverse health outcomes associated with smoking during pregnancy and exposure of infants, children and families to environmental tobacco smoke.

The project commencing in 2008, is due for completion by February 2010. It aims to increase the knowledge, confidence, capacity and practice among antenatal midwives in public birthing services at Liverpool and Campbelltown hospitals, to attend and record a brief tobacco intervention for pregnant smokers and their partners, with the inclusion of free Nicotine Replacement Therapy (NRT) to qualifying pregnant women and their partners. The intervention will include education regarding the benefits of quitting smoking for pregnant women, their partners and their families, the availability of NRT, distribution of resources to encourage quitting, the services offered by *Quitline* in NSW and faxed referrals to this service to support behaviour change.

Drugs in pregnancy (other than smoking)

The prevalence of drug and alcohol use during pregnancy in SSWAHS and NSW is unknown and the accuracy of any data may be limited and underestimated given the social stigma attached to acknowledging tobacco, drug or alcohol use during pregnancy.[70] Collection of current data is challenging, as there is no defined data set or data point for collection indicating the number of pregnant women affected by substance use and provided a service. A recent study from a national sample in the United States indicated that substance use during pregnancy was 25.8%: illicit drugs (4.7%); cigarettes (18.9%); and alcohol (10%).[71] Local anecdotal evidence suggests that the number of births affected by significant substance use at Campbelltown, Liverpool and RPA hospitals fluctuates between 2 - 4%, while at Canterbury, Fairfield, Bankstown-Lidcombe and Bowral and District hospitals the numbers fluctuate between 1 - 2%.

Alcohol and drug use during pregnancy is linked to a number of adverse pregnancy and neonatal outcomes however the effects of substance abuse can vary dependent on factors such as: type and amount of substances used; route of administration; maternal health and nutrition; and amount and quality of pregnancy care.[72]

Adverse outcomes associated with a range of substances used in pregnancy include spontaneous abortion, premature birth, antepartum haemorrhage, intra-uterine foetal death, reduced birth size and weight, reduced head circumference and severe developmental disability.[73] Infants born to women who are dependent on alcohol are at risk of developing Foetal Alcohol Syndrome or Foetal Alcohol effects, which may include birth defects.[74]

Reports based on case studies from SSWAHS Drug Health Services staff suggests that cannabis is the most commonly used illicit drug during pregnancy in SSWAHS. The health risks of cannabis use in pregnancy have not been fully established however for the mother they may include increased risk of respiratory and psychological problems.[75] For the baby, some studies suggest that in-utero exposure may influence behaviour in the first few weeks of life and longer term developmental problems such as sleep disturbances in 3 year olds and reduced height at 6 years.[76] Further study in this area is required.

Concurrent with problems experienced relating to substances used, substance-using women are also more likely to experience a range of mental, physical health and social issues that may impact on their pregnancy and require intervention including: depression[77]; poor diet; poor oral health[78]; high rates of domestic and other violence[79]; sole parenting combined with economic disadvantage and housing instability, including homelessness.[80]

Strategies that are considered effective for both the mother and baby where substance abuse in pregnancy is involved include: early intervention; early engagement in antenatal care; regular antenatal visits; coordinated care with a case manager; continuity of care; a multi-disciplinary team approach; a treatment plan to address drug and alcohol issues; and a drug treatment plan that assists the partner or other relevant family members.

Screening and subsequent early assertive intervention is also considered effective and may assist to ensure that women do not "fall through the gaps". This may include following up on women when medical and or antenatal clinics are missed.

Breastfeeding

Breastfeeding, especially exclusive breastfeeding to 6 months, confers many health benefits to infants and mothers. For infants, breastfeeding: reduces the incidence and duration of diarrhoeal illnesses; possibly reduces the risk of obesity later in childhood; improves visual acuity and psychomotor development; and reduces the occurrence of otitis media.[81] For mothers, breastfeeding promotes recovery from childbirth, reduces the risk of pre-menopausal cancer and possibly accelerates weight loss and a return to pre-pregnancy body weight.[82]

A recent NSW population health survey (2003 - 2004)[83] reports improvement in breastfeeding indicators for SSWAHS in the period between 2001 and 2003 – 2004, including a significant increase in the proportion of infants fully breastfed to 6 months, (from 11.0% to 24.0%) and a significant reduction in the proportion of infants who regularly received solid foods before 6 months (from 71.9% to 50.8%).

Although results are not specific to SSWAHS, the same report indicated poorer breastfeeding practices amongst less privileged and younger mothers (less than 25 years old) in NSW. This included: a significantly lower proportion of infants in the most socioeconomic disadvantaged quintile were exclusively breastfed to 6 months (9.5%) and fully breastfed to 6 months (18.7%) compared with the overall NSW infant population; and a significantly lower proportion of infants with mothers under 25 years were breastfed to 12 months (15.1%), exclusively breastfed to 6 months (5.2%), and a significantly higher proportion received solid foods before 6 months (74.9%) compared with mothers 25 years or older.

Psychosocial Factors Impacting Maternal Health

Postnatal Depression

Postnatal depression is a common and important disorder which can have a negative impact on the mother, baby and family.[84] It is estimated that one in five women experience depression in the weeks and months following the birth period.[85]

Homelessness

Homelessness has been described as a "complex issue, resulting from a variety of personal and societal factors".[86] Poverty, unemployment, and an inadequate supply of affordable housing are major contributors to homelessness. Drug and alcohol abuse, domestic violence, poor mental health and family and relationship breakdown may also increase a person's risk of becoming homeless or remaining homeless.[87]

Local rates of homelessness amongst pregnant women are unknown. Consultation with SSWAHS clinicians indicates that homelessness amongst pregnant SSWAHS women does not appear to be an increasing problem.

Domestic violence

Domestic violence is an important public health issue, which has a significant impact on the physical, psychological and social health of many women and children. Routine screening for domestic violence is a key strategy of NSW Health policy and procedures for identifying and responding to domestic violence.[88] All women attending antenatal and early childhood services and women aged 16 years and over who attend mental health and alcohol and other drugs services are

screened as part of routine assessment. The screening asks questions about experience of violence in the past 12 months, current safety and question about children in the clients' care. Upon disclosure, appropriate referrals are made, for example to counselling, advocacy, legal support and to the Department Of Community Services (DoCS). Younger women, particularly teenagers, single, separated and divorced women, Aboriginal women, women with low socio-economic status and women who attend antenatal care late are at greater risk.[89]

NSW Health conducts routine one month snapshots of each area health service. These consistently show rates of identification of domestic violence antenatally of around 7% in SSWAHS.

Domestic violence in pregnancy can have a significant impact on a woman and her child's health. Trauma can result in placental abruption, preterm labour and delivery, foetal death and direct foetal injury. The stress of living with abuse and violence may result in substance misuse and a lack of adequate nutrition, medical care and rest.[90]

The parental risk factor of domestic violence is consistently present in *NSW Child Death Reviews* and reports of reviewable deaths by the NSW Ombudsman. Babies under 12 months of age are more vulnerable to exposure to domestic violence.

Maternal and Neonatal Outcomes

Neonatal outcomes

There are some slight variations, compared to the state average, in outcomes reported for SSWAHS babies. In 2005, the SSWAHS perinatal mortality rate per 1,000 births was 9.4% compared to the NSW state average of 8.7%. The rate includes all births and deaths of babies of at least 400 grams birthweight or at least 20 weeks gestation. SSWAHS stillbirth and neonatal death rates were fairly consistent with the NSW rates, 0.6% and 0.3% respectively.

In 2005, the Neonatal Intensive Care Units (NICUs) registration rate for SSWAHS babies (determined by the mother's health area of residence) was 23.9 registrants per 1,000 live births compared to the NSW average of 23.8. Crude rates of reported birth defects for SSWAHS babies and rates standardised for maternal age in 2005 were 8.8 per 1,000 births and 8.4 per 1,000 births respectively and compared favourably to the NSW rates of 10.4 (crude rate) and 9.6 (standardised rate) per 1,000 births (Refer to Table 3 in Appendix 4).

A birthweight of less than 2,500 grams at term is classified small for gestational age. In 2006, 6.6% of all resident births were below 2,500 grams compared to 6.2% in other NSW metropolitan area health services. Risk factors for low birthweight include socioeconomic status, smoking, alcohol and other drug use during pregnancy.[91] Low birth weight can be a predictor of health issues later in life. Medical advancements are continuing to enable smaller and more premature babies to survive. In 2005, 261 SSWAHS babies weighed less than 1,500 grams at birth.

Rates of intervention

Compared to other mothers who reside within NSW, residents of SSWAHS generally experience lower rates of intervention during birth. In 2005, the caesarean section rate was 25.2% for mothers who resided within SSWAHS. The NSW average was 28.1%. The rate of forceps delivery was 2.1%. The NSW average was 3.1%. The rate of vacuum extraction for SSWAHS residents was 7.6%, compared to the NSW average of 7.1% (Refer to Table 4 in Appendix 3).[92]

Bankstown-Lidcombe, Campbelltown and Fairfield hospitals reported the highest rates of normal vaginal birth in 2005. Royal Prince Alfred Hospital (RPAH) reported the highest caesarean section rate, 28.3%, of public hospitals within SSWAHS, reflecting its tertiary role for maternity services.[93] Caesarean rates in other metropolitan tertiary hospitals in 2005 included: Liverpool (23%); Royal Hospital for Women (31%); Westmead (29%); and Royal North Shore (32%).

For other types of delivery by hospital in SSWAHS refer to Table 5 in Appendix 4.

Multiple Births

Multifetal gestation is linked to an increased risk of perinatal mortality and morbidity. [94] In 2006, 3.01% of confinements in SSWAHS resulted in twins; 0.15% in triplets; and 0.2% in quadruplets. [95] This represents a slight increase in the percentage of multiple births in SSWAHS since 2002 (2.82%).

Place of birth

The majority of SSWAHS women give birth within a hospital delivery suite. In 2005, 98.2% of SSWAHS mothers gave birth within a hospital delivery suite and 1.1% chose to give birth within a birth centre. A very small minority of SSWAHS women gave birth at home and only 7 women planned a home birth.[96] Further detail is provided in Table 6 in Appendix 4.

7. MATERNITY AND RELATED SERVICES IN SSWAHS

SSWAHS maternity services comprise a multidisciplinary network of community and inpatient services. Eight hospitals across SSWAHS provide inpatient care. Underpinning the maternity services provided in SSWAHS are a set of core principles which include women's choice, continuity of care, collaborative multidisciplinary team work and access to an appropriate level of care based on clinical need. Networks and links have been established within SSWAHS services and with related external agencies and groups to ensure continuity of care for women, their babies and families. This includes a range of primary health services for example *Families NSW*, general practitioners and Child and Family Health Services. As the need arises, families can be referred to tertiary services such as Karitane and Tresillian Family Care Centres.

Facilities and Services

Across SSWAHS a variety of antenatal, inpatient and postnatal services are available (Refer to Table 5). These services are organised in a networked arrangement, so that while all services are not available onsite at each hospital, the network ensures that women, their babies and families can access services according to their needs.

As is evident in Table 5, RPA and Liverpool hospitals provide tertiary services for the inner west and south west respectively. High risk (medical) women are managed at these facilities. High risk (medical) women include:

- Women with maternal histories or conditions that significantly increase their risks during pregnancy, labour and birth (for example hypertension and multiple pregnancy) and
- Babies with major foetal problems requiring antenatal diagnostic and foetal therapy services.[97]

Tertiary services include Neonatal Intensive Care Unit (NICU) and Materno-Fetal Medicine (MFM) services. The Campbelltown Hospital special care nursery also offers a higher level of care for babies, including continuous positive airway pressure (CPAP) therapy, however babies requiring a ventilator cot are transferred to Liverpool Hospital.

Figure 2 provides an illustration of most maternity and related services available in SSWAHS as well as priority groups and issues.

Table 5: Antenatal, inpatient and postnatal services available at facilities across SSWAHS[1].

	BANKSTOWN-LIDCOMBE	BOWRAL AND DISTRICT	CANTERBURY	CAMPBELLTOWN	CAMDEN	FAIRFIELD	LIVERPOOL	ROYAL PRINCE ALFRED
Role delineation[2]	4	3	4	4	1	3	6	6
Antenatal/Postnatal maternity beds	20	12	22	24	10	29	38	70
Number of delivery beds (including birth centre)	6 beds and 1 family room	3	5	8	Nil	6 beds (includes family room)	9	12[3]
Assessment room/s	1	1	1	2	Nil	1 (2 beds)	Nil	2
Bilingual Ethnic Parent Educator (BEPE)	Area BEPE	Area BEPE	No	No	No	Area BEPE	Area BEPE	No
Interpreter service	Yes	Via telephone	Yes	Yes	Yes	Yes	Yes	Yes

[1] Access to services may not be available on-site but accessible via a network arrangement across SSWAHS
[2] Definitions for each role delineation level are given in Appendix 5
[3] Includes 9 delivery beds and 3 birth centre beds

	BANKSTOWN-LIDCOMBE	BOWRAL AND DISTRICT	CANTERBURY	CAMPBELLTOWN	CAMDEN	FAIRFIELD	LIVERPOOL	ROYAL PRINCE ALFRED
ANTENATAL								
Antenatal clinics (medical)	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Midwife antenatal clinics	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community antenatal clinics	No	Yes	No	Yes	No	No	Yes	No
CALD antenatal clinics	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Early Pregnancy Unit	Yes	Yes	Yes	Yes	No	Yes	Yes	Yes
Early Pregnancy Assessment Services	No	No	No	Yes (limited)	No	No	Yes	Yes
Antenatal education service	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Maternal-Fetal Medicine Unit	No	No	No	No	No	No	Yes	Yes
Day Assessment Unit	Yes[4]	No	No	Yes[5]	No	No	Yes	Yes
Genetic counselling	Yes	*	*	Yes	*	*	Yes	Yes
Female Genital Mutilation (FGM) clinic	No	No	Yes	No	No	No	No	No
Post and Antenatal Mood Disorders Service	Yes	Yes[6]	No	Yes[7]	Yes	No	Yes[8]	Yes
Perinatal & Family Drug Health Services	Yes	No[9]	Yes[10]	No	No	No	Yes	Yes
Perinatal Intake Meeting	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Adolescent programs	Yes	Yes	No	No	Yes	Yes	Yes	Yes
DELIVERY								
Access to 24 hour anaesthetic service	Yes on-site	Yes	Yes on-site	Yes on-site	Yes	Yes not on site	Yes on-site	Yes
Access to 24 hour elective epidural	Yes	Yes	Yes	Yes	No	No	Yes	Yes
NURSERY								
Special Care Nursery (cots)	10	2	4	14	**	8	20	20
NICU level	N/A	N/A	N/A	N/A	N/A	N/A	5	5
NICU cots	N/A	N/A	N/A	N/A	N/A	N/A	11	14
POSTNATAL								
Midwifery support program	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Universal Home Visiting Service	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Community Health Services	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Aboriginal Home Visiting Program	No	No	No	Yes	Yes	No	Yes	Yes
Residential Parenting services	Yes	Not local	Yes	No	Yes	Yes	Yes	Yes

* Access to this service is available

** A level one postnatal nursery is available which does not include cots

[4] Bankstown - Fetomaternal clinic/unit – also known as the Day Assessment Unit. It operates Monday, Wednesday and Friday and is for foetal and maternal monitoring of risk pregnancies and post dates women. It provides an ultrasound service but not as in depth as the service which is provided at Liverpool Hospital.

[5] Campbelltown Hospital – Day Assessment Unit. This outpatient clinic is for high risk and post dates and for women who require closer monitoring. It is held on the maternity ward, 5 days per week, 5 hours per day. The clinic is staffed by a CNS midwife however an obstetrician's input is available if required.

[6] Via Social Work Department

[7] The Perinatal Infant Mental Health Service will see this group of mothers

[8] As above

[9] There is a Drug Health Clinical Nurse Consultant that provides consultation and liaison services to women delivering at Bowral and District Hospital

[10] Perinatal and Family Drug Health Service (PAFDH) is based at RPAH but provides a consult and liaison service to RPA and Canterbury hospitals for women and their families with drug and alcohol issues. The PAFDH case manages approx 100 clients per year with significant drug and alcohol use issues in pregnancy and the early years of the newborn.

Antenatal clinics
Antenatal clinics are conducted by medical (including registrar and consultant obstetrician) and midwifery staff. Speciality clinics target women of high risk including teenagers, CALD women and women who use drugs during their pregnancy. While the majority of clinics are conducted in hospitals, community based antenatal clinics are conducted by Liverpool Hospital at Moorebank, Hoxton Park and the Liverpool Central Business District; by Campbelltown Hospital at Macquarie Fields; and by Bowral and District Hospital at Tahmoor.

Early Pregnancy Units
This service is provided within Emergency Departments 24 hours per day seven days per week. For women who present to this service with pain and bleeding in the early part of their pregnancy, appropriate care, support and counselling is given by trained and skilled nurses. This may include a Clinical Initiative Nurse, Nurse Practitioner or Clinical Nurse Consultant. Social Workers are available to support the service.

Early Pregnancy Assessment Services
Early Pregnancy Assessment Services (EPAS) are provided as a follow up to the Early Pregnancy Unit (EPU) service for women who require further care (although women may also be referred to an EPAS independent of an EPU). EPAS accept referrals from emergency departments, other clinicians and women with early pregnancy problems. Women who require this service are seen in either Ambulatory Care or in a Fetomaternal Unit for ongoing care. This care may involve an ultrasound, genetic counselling and/or blood tests and perhaps curette. The service is well established at RPAH and is being developed at Liverpool and Campbelltown hospitals.

Childbirth and Early Parenting Education (i.e. antenatal classes and antenatal education service)
Childbirth and parenting programs are provided prior to birth in preparation for birth and early parenthood. Across SSWAHS a wide variety of childbirth and parenting programs are offered.[98] Program content may include information about the pregnancy, labour, birth and early postnatal period as well as education about breastfeeding, pain management and newborn care.

In mid 2006 a review was conducted evaluating current childbirth/preparation for parenthood classes offered across SSWAHS. [99] The Review contained a number of findings when programs offered at SSWAHS facilities were compared including: diverse program content; variable access to a range of programs designed to meet the needs of the local communities for example young women or those from CALD communities; variable class sizes, from eight to thirty people; and variable uptake of Childbirth and Early Parenting Education programs from 6.9% to 35% of women who gave birth.

Recommendations of the review related to: programs of parenting education; structure and format; and utilisation and attendance. A number of these recommendations address issues raised in the community consultations (discussed in Section 10). An implementation committee has been established to review and implement the recommendations.

Materno-Fetal Medicine Services
The subspecialty of Materno-Fetal Medicine (MFM) has developed over the last 20 years as the understanding of maternal and fetal pathophysiology has increased and the quality of fetal imaging and invasive diagnostic and therapeutic techniques has improved. The sub-specialty provides a tertiary clinical service for antenatal, intrapartum and postnatal care of high risk pregnancies and a consultative service accessible by health professionals working in General Practice or who have a broader Obstetric/Gynaecology base.

The two MFM units in SSWAHS (based at Liverpool and RPA hospitals) provide facilities for ultrasound assessment of high risk pregnancies, ultrasound review of selected low risk pregnancies (where anomalies were suspected on routine 12/20 week scans), prenatal diagnosis (amniocentesis and chorionic villus sampling), fetal therapy (e.g. fetal transfusion/shunt placement) and ongoing management of anomalous fetuses. MFM services involve

multidisciplinary care and are therefore closely linked to maternity, neonatology, paediatric and genetic services. As there are no facilities for neonatal surgery within SSWAHS, fetuses that have anomalies requiring postnatal surgical repair are typically transferred out of the Area.

Both MFM centres provide consultative advice pre-pregnancy (to women with previous obstetric complications or with complex medical histories) as well as in the antenatal, intrapartum and postnatal periods. In some circumstances this may lead to transfer of care from a peripheral centre to facilitate neonatal care after delivery or to enable better access to other medical services (e.g. access to cardiology at RPAH for complex maternal cardiac disease). On other occasions, consultation leads to an opinion being offered to the referring clinician who continues to manage the pregnancy locally.

Day Assessment Units

Day Assessment Units primarily provide a means of screening pregnancies for complications in the third trimester and thereby reduce hospital admissions.

Neonatal Services

Access to specialised networked neonatal support services promotes safe delivery and care of at-risk neonates and reduces the need/risk of ex-utero transfers. The network consists of 2 NICUs one at Liverpool Hospital and another at RPAH, as well as Special Care Nurseries (SCNs) at RPA, Canterbury, Bankstown-Lidcombe, Fairfield, Liverpool, Campbelltown and Bowral and District hospitals.

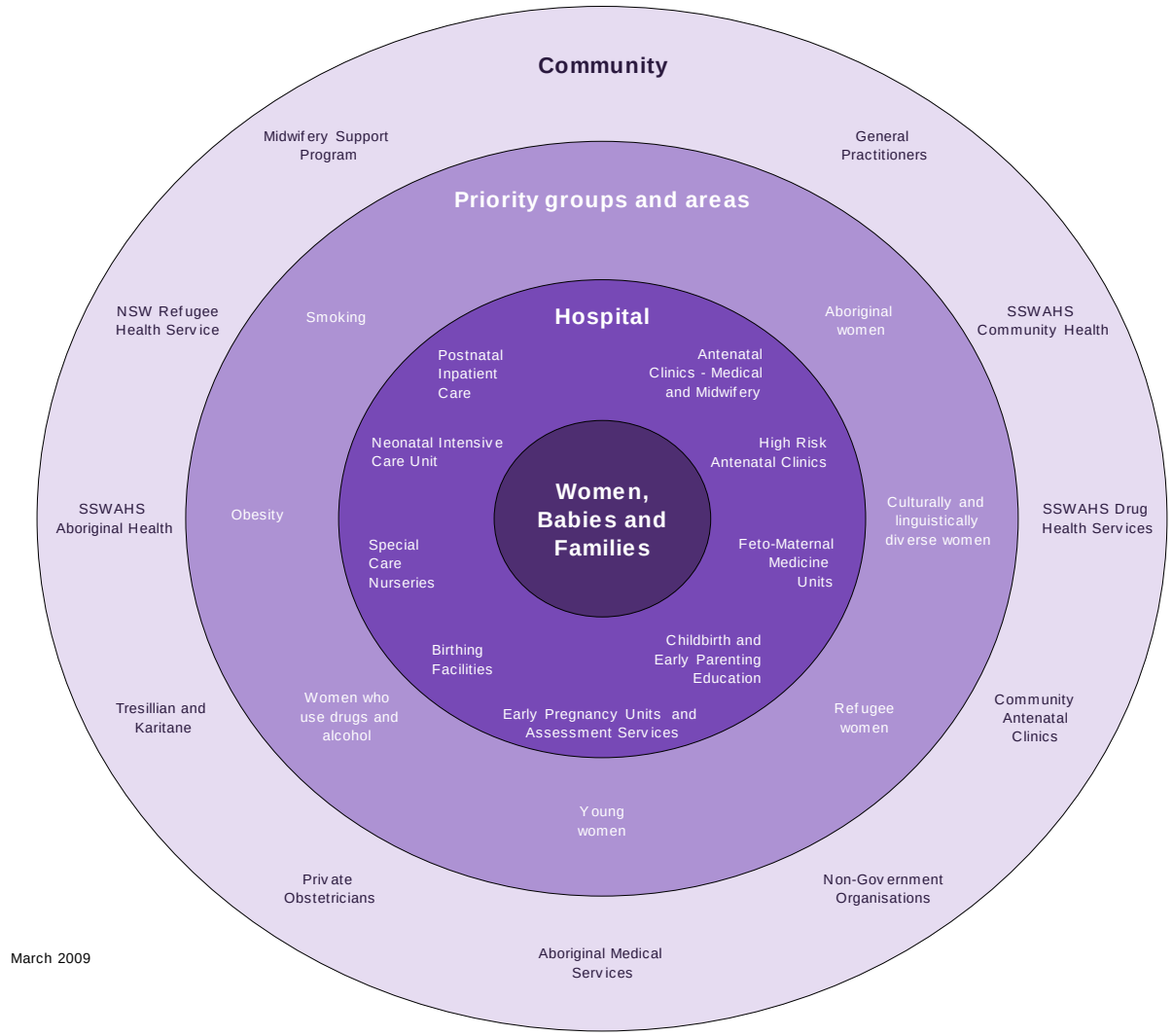
- **Neonatal Intensive Care Units**

Neonatal Intensive Care Units provide high-dependency specialist medical and nursing care for newborn babies including sustained life support such as mechanical ventilation. Staff include neonatologists and neonatal registrars. Neonatal intensive care beds are a statewide funded service. The NSW Pregnancy and Newborn Services coordinates the NICUs and monitors the availability of beds in NSW and the Australian Capital Territory.

- **Special Care Nurseries**

Special care nurseries (SCNs) provide care to infants who are ill following birth. They do not have ventilated beds however are capable of providing care to babies who are greater than 34 weeks gestation with minimal complications and convalescing babies for example babies that have been transferred from a NICU. It has been estimated that approximately 18% of infants born in NSW are admitted to a SCN or NICU. Rates of admission to SCNs vary between hospitals and reflect local needs, admission policies and clinical practice variations.

Figure 2: SSWAHS and non-SSWAHS maternity and related services and priority groups



Bilingual Early Parenting Educators

Bilingual Early Parenting Educators (BEPEs) provide an antenatal and postnatal service for parents with limited English proficiency in SSWAHS. The Service targets women who are pregnant and parents with children 0 - 2 years of age who need assistance with parenting. Services include home visits, referral to other services and the provision of antenatal education. The languages covered are: Arabic, Khmer, Vietnamese, Chinese, Cambodian and Laotian. BEPEs in south west have replaced the Ethnic Obstetric Liaison Officers (EOLOs).

Perinatal Intake Meetings

Occurring on a weekly basis at each facility, these meetings discuss the management of high risk (i.e. psychosocial risk) women. This may involve referral for case coordination and/or referral to other services such as child protection services, DoCS, counsellors and non-government organisations (NGOs) such as Centacare.

Tertiary Early Family Care Services

Assistance with early parenting difficulties are provided by tertiary services including Karitane and Tresillian Family Care Centres. Women from the Southern Highlands also access the Queen Elizabeth II (QE II) Family Centre, a non-SSWAHS facility located in the Australian Capital Territory.

Karitane is a 3rd Schedule Hospital under the Health Services Act 1997, providing support, guidance and information to families experiencing parenting difficulties. The Residential Family Care Unit, a tertiary Statewide referral centre is located at Carramar, with other services provided

for a South West Sydney catchment including a Family Care Cottage at Liverpool, Jade House day stay facility for women with severe pre and postnatal depression, volunteer family home visiting and a Statewide Careline service. The Karitane Residential Unit provides a 5-day inpatient program for families with children from birth to four years coping with complex early parenting and psychosocial issues. Support and education are provided to 11 families each week by a multidisciplinary team.

Tresillian Family Care Centre Belmore, a 3rd Schedule Hospital under the Health Services Act 1997, is one of 4 Tresillian centres in Sydney offering residential, day stay, outreach and parent education services for families needing guidance on issues such as breastfeeding, settling, night waking, parentcraft or postnatal depression. Tresillian also offers a 24 hour parent advice line. Accomodation for up to 11 mothers and their babies is provided.

Tresillian Residential units are available at Tresillian's Nepean, Canterbury and Willoughby Centres. Clients are often referred to residential care with issues that include an unsettled baby (and exhausted parents), symptoms of postnatal depression, difficulties establishing breastfeeding, parents needing assistance getting a baby into a routine and toddler issues. A 5 day stay is routinely provided.

Community Health Services

Child and Family clinical services, delivered within the context of the *Families NSW* philosophy, recognise that support provided to families and children in the early years of life has a lasting health and social impact. They also ensure that there is continuity of care for babies and their families postnatally. Services within this stream include: Child and Family Health Nursing Service; Child Protection Services; and Child, Adolescent and Family Health Services.

Child and Family Health Nursing services in SSWAHS are provided for children aged 0 – 5 years and their families and are generally staffed by a range of health professionals including child and family health nurses, midwives, and social workers. Services offered include universal home visiting, sustained home visiting, breastfeeding clinics and support groups, early childhood clinics and social work services.

Universal home visiting is offered to all families within SSWAHS and involves a home visit by a child and family health nurse to families with a new baby within two weeks of the birth of the baby. Sustained home visiting however is not widely available in SSWAHS and where possible is provided for families with complex health and social issues, including families with drug issues, mental health issues and Aboriginal families. The Miller Early Childhood Sustained Home Visiting project is a specific example of a project which targeted vulnerable families within the 2160 postcode. Currently this project is being evaluated with outcomes for children into the first year of school being measured.

Social work services include providing support to assist in adjustment to parenting, postnatal emotional distress, domestic violence, family and relationship issues, immigration, social isolation and grief and loss issues.

Child, Adolescent and Family Health (CAFH) services are provided for children aged 0 - 18 years and their families. Clinical services provided include centre based, home, school or preschool assessments and interventions. A range of intervention models are offered including individual, group, consultation, collaboration and parent training. Clinical services are supported by a range of non-clinical services such as health promotion and partnership development. CAFH services are staffed by a range of professionals including allied health, nursing and medical staff.

Perinatal and Family Drug Health Services

Perinatal and Family Drug Health Services provide support, education and information to women and their families so that they can make informed choices about substance use during pregnancy. Services include:

- Antenatal care;
- Inpatient and outpatient drug stabilisation services;
- Opioid treatment programs;
- Counselling, detoxification or rehabilitation programmes;
- Assistance with social issues e.g. housing, finance, childcare;
- Counselling for pregnancy-related issues;
- Support with child protection issues
- Home visiting by a social worker for the antenatal period and up to 2 years after a child is born; and
- Assistance addressing partners and family drug and alcohol use.

For SSWAHS Drug Health Services, opiate treatment for pregnant women who use opioid drugs is an important component of their role. Methadone and buprenorphine are the two main drugs that are dispensed for treatment however methadone is the first line of treatment for pregnant women who are opioid dependent. Buprenorphine is also prescribed however unlike methadone its safety in pregnancy is less clear.[100]

Perinatal and Family Drug Health team members may include; a drug health nurse; a staff specialist in drug health; a social worker; an obstetrician; a midwife; and an Aboriginal and Torres Strait Islander worker. Other health professionals and services may become involved in the care of both the mother and baby as required such as: general practitioners; Aboriginal Medical Services; mental health services; and domestic violence services.

Following a mapping exercise and the release of *National guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn*[101], SSWAHS Drug Health Services commenced the development of a set of standards of care for this population group, clinical pathways, standardise criteria for documents and key performance indicators and data collection criteria. A Perinatal and Family Drug Health Coordinator has been being recruited for the south west to oversee the implementation of the recommendations.

Perinatal Mental Health

The perinatal period offers a unique opportunity for prevention and early intervention. Intervention in the perinatal period has the potential to improve the physical and mental health of the mother, infant and other family members. Some of the short and long term benefits include:

- Improved maternal physical and emotional wellbeing;
- A reduction in infant health problems and disorders;
- Enhanced infant socio-emotional development;
- Improved breastfeeding and immunisation rates; and
- A reduction in hospital admissions for infants.

Perinatal mood disorders such as anxiety[102] and depression are common disorders which can have a negative impact on the mother and her capacity to care for her baby and family.[103] It is estimated that one in five women experience depression and/or anxiety during pregnancy and after the birth of the baby.[104] The NSW Health *SAFE START* (2008) strategic policy requires that all women presenting to maternity and early childhood health services be assessed for risk through universal psychosocial assessment and screened for anxiety and/or depression.[105]

Integrated Perinatal Care (now referred to as *SAFE START*)

Integrated Perinatal Care (IPC) is an evidence-based initiative designed to ensure the provision of comprehensive biopsychosocial care at a critical stage in the life of a family (conception to 12 months). IPC comprises universal, routine, antenatal and postnatal assessment to identify and manage psychological, social and cultural factors that might adversely affect the mother's capacity to care for herself and her foetus/infant. The administration of the Edinburgh Depression Scale (EDS) provides a screening tool for assessing anxiety and depression.[106]

In 2004, a dedicated Perinatal and Infant Mental Health Service (PIMHS) was established as part of the Area Child and Adolescent Mental Health Service in Liverpool. Staff from this service supported roll out of psychosocial assessment across the south west (including the South West Private Hospital in Liverpool) and also throughout NSW. In the inner west of the AHS, the PIMHS is not a discrete service, but the psychosocial process is well established with multidisciplinary input.

Women are also assessed postnatally, by early childhood nurses or general practitioners, at the earliest postnatal contact. It is recommended that the EDS be repeated routinely at least once over the subsequent 12 months and at any other time the clinician deems it advisable.

During the development of this Plan comment was made on the need for dedicated psychiatric mother/baby beds, however there are no plans for a separate mother-baby unit within SSWAHS as clinical advice indicates that mental health units pose an unacceptable risk to babies. In keeping with the philosophy of minimising separation of a mother and her baby, babies in nurseries are brought to their mothers in mental health units, or mothers are taken to nurseries, for periods during a mother's stay in a mental health facility.

Continuity of care in SSWAHS – Maternity Services to Child and Family Health Nursing Services, General Practitioners and Paediatricians

With the introduction of universal health home visiting by the child and family health nurse, maternity, neonatal intensive care and paediatric discharge services, family care cottages, day stay units and universal health home visiting services, work together and complement each other to ensure continuity of care across the transition from hospital to home for mothers, their babies and families. Within SSWAHS, systems have been established to ensure that there is effective transfer from the hospital to community health services. Where appropriate, the child and family health nurse will visit the family with the midwife or neonatal home visiting service in order to achieve a seamless transition.

To ensure continuity of care from hospital to community-based or health services, the following information is transferred from the maternity service to central intake in the south west or the Child and Family Health Nursing services in the inner west within 48 hours of discharge from hospital:

- MR 44/PR16 or Obstetric discharge summary as per NSW Health policy directive PD2005-543 *Midwives Data Collection Form—Early Childhood Health Service*;
- Outcomes of the antenatal psychosocial assessment and any follow-up services provided to address the identified issues;
- Other information about the parents and infant that is required to ensure appropriate care and follow-up; and
- Identification of those families requiring priority follow-up.

Cross-border protocols with other health services and private hospitals have also been established to ensure the transfer of information and for discharge planning.

All parents receive the following information prior to discharge from hospital to home:

- The services available through the Child and Family Health Nursing service;
- A contact for their local early childhood health service should issues arise between discharge from hospital and the universal home visit;
- The offer of their first Child and Family Health Nurse service within their own home within the first two weeks of their baby's birth; and
- Relevant community peer support groups, for example Australian Breastfeeding Association.

Most hospitals in SSWAHS have an intake meeting where a multidisciplinary team discuss complex families, seek support and advice and develop coordinated care plans. The multidisciplinary team may include, when appropriate, clinicians from the following health services:

- Maternity;
- Child and Family Health Nursing;
- Mental Health;
- Drug Health;
- Social Work;
- Psychology;
- Child Protection;
- Psychiatry;
- BEPE;
- DoCS; and
- NGOs – for example *Brighter Futures.*

In addition to Community Health Services, women and their babies are also referred to their local general practitioner following discharge from hospital and where relevant a paediatrician.

Perinatal Coordinators

Across SSWAHS many women are identified as having psychosocial risk factors including drugs and alcohol misuse, domestic violence, mental health issues, significant learning difficulties and lack of social and family support. Pregnancy has been identified as an ideal opportunity to identify families at-risk and the antenatal period as the optimal time for initiating early intervention strategies to ensure that children commence their life with good foundations.

The Perinatal Project, a three year (2005 – 2008) project, funded by the DoCS and managed by SSWAHS, aimed through early identification and intervention to reduce to the number of children entering the child protection system and increase through the Integrated Perinatal Care (IPC) process, the number of referrals for vulnerable mothers, their babies and families.

The main role of the project was to track and monitor access to and utilisation of services by referred, consenting, vulnerable families. These families were primarily identified via the psychosocial assessment at the hospital maternity antenatal booking in. Women and families identified as vulnerable were assisted in accessing a wide range of support services and where necessary were encouraged to re-engage with services to improve outcomes for themselves and their babies.

Following the success of this program, a decision was made to continue the project and Perinatal Coordinators are currently being recruited at Liverpool, Fairfield, Bankstown and Campbelltown. These positions will be responsible for coordination and evaluation of local systems identifying women in high risk groups, clinical assessments, development of management plans and coordinating and monitoring the multi-agency system of care to individuals and their families presenting and referred to the service.

8. CURRENT ACTIVITY

Current obstetric inpatient and outpatient activity within SSWAHS was sourced from FlowInfo (Version 9.3), WebDOHRs (Department of Health Reporting System) and the Health Information Exchange (HIE) and is presented below. Definitions of "supply", "demand", "capture", "outflows" and "inflows" are provided in Appendix 6. Further detail regarding previous years 2000/01 to 2005/06: numbers of babies born: beddays: average length of stay; outflows and inflows: including interstate flows is provided in Appendix 7.

Inpatient and outpatient/community activity – Supply

Eight hospitals within SSWAHS provided maternity services in 2007/08. Inpatient data indicating the number of confinements in each hospital, maternity ward occupancy rate, average length of stay, self sufficiency for public confinements, inter and intra area outflows in 2007/08 is presented in Table 6 below.

Table 6: Inpatient data for 2007/08

Hospital	Confinements 2007/08	% change in confinements from 2006/07	Occupancy rate (%) 2007/08	Average length of stay 2007/08	Self sufficiency public confinements 2007/08 (%)	Major intra area outflow 2007/08	Major inter area outflows 2007/08
Bankstown-Lidcombe	2,167	10	96	2.91	73	Canterbury (6%)	St George (6%)
Bowral and District	653	-5	53	2.56	94	Campbell-town (2%)	Royal for Women (1%)
Camden	-	-		2.54	_	_	_
Campbelltown	2,616	1.6	82	2.79	83	Liverpool (13%)	Nepean (2%)
Canterbury	1,652	0	80	3.06	63	RPAH (16%)	St George (9%)
Fairfield	2,017	6	66	2.53	71	Liverpool (17%)	Westmead (6%)
Liverpool	2,990	-1	77	2.98	85	Fairfield (5%)	Westmead (15%)
Royal Prince Alfred	5,015	-1	85	2.93	85	Canterbury (1%)	Royal for Women

Source: Flowinfo version 9.3, WebDOHRs and the Health Information Exchange (HIE)

Within SSWAHS, in 2007/08, Bankstown-Lidcombe Hospital experienced the largest increase in the number of confinements compared to 2006/07, a 10% increase, and the highest occupancy rate (96%). Self sufficiency rates (public patients) were the highest for Bowral and District, RPA and Liverpool hospitals. RPA and Liverpool hospitals also recorded the largest intra area inflows reflecting their tertiary status.

Across SSWAHS facilities in 2007/08, a variety of outpatient clinics and services were provided. Table 7 details some of these services as well as the number of occasions of services provided for each service in 2007/08.

Demand for maternity services

There were 20,865 confinements to women living in SSWAHS in 2007/08. SSWAHS captured 76% of the total demand, while 8% flowed to public hospitals outside SSWAHS, and 16% flowed to private hospitals. The total number of public inflows to SSWAHS hospitals was 1,330 representing 7.8% of SSWAHS separations (Refer to Table 8).

Table 7: Facility non admitted patient occasions of service in 2007/08

Hospital	Service	Non Admitted patient occasions of service (2007/08)
Bankstown-Lidcombe	Antenatal clinic	12,487
	Midwifery Support Program	3,975
	Pregnancy day assessment	406
Bowral and District	Midwifery Support Program	1,029
	Midwives antenatal clinics	872
	Medical antenatal clinics	1,121
Camden	Midwifery group practice antenatal clinic	2,037
	Antenatal outpatient clinic	2,855
Campbelltown	Birthing Services - Outpatient Clinic	3,032
	Foetal Maternal Assessment Unit	552
	Midwifery Support Program	3,675
Canterbury	Midwifery	3,064
	Antenatal clinic – medical	5,943
	Midwifery Support Program	1,743
Fairfield	Antenatal clinic	16,499
	Midwifery Support Program	4,412
Liverpool	Drugs and Pregnancy	480
	Foetal Maternal Unit	8,597
	Midwives Clinic	10,472
	Obstetrics Clinic	12,835
	Midwifery Support Program	2,890
Royal Prince Alfred	Midwives Clinic	8,157
	Antenatal Clinic	6,028
	Adolescent ANC	386
	Complex Pregnancy	509
	Twins	522
	Foetal Medicine	3,201
	Birth centre	6,238

Source: WebDoHRs

The increased activity in SSWAHS hospitals over the 2001/02 to 2007/08 period, as illustrated in Table 8, might be explained by several factors: a general increase in the number of confinements to women living in SSWAHS; a trend towards reduced public demand outflow; and a trend towards a reduced percentage of women flowing to private hospitals to give birth. Public hospital and private demand, inflows and outflows are shown in greater detail in Table 8.

Table 8: SSWAHS LGA public and private demand, inflows and outflows 2001/02 to 2007/08

Activity Measure	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08
Total number of confinements to women living in SSWAHS	18,433	18,891	18,966	19,049	19,825	20,555	20,865
Local demand for public services	15,100	15,561	15,629	15,703	16,330	17,022	17,424
Local public demand which outflowed	1,988	1,774	1,787	1,860	1,785	1,844	1,643
SSWAHS residents treated locally	13,112	13,787	13,842	13,843	14,545	15,178	15,781
% Public demand which outflowed	13.17%	11.40%	11.43%	11.84%	10.93%	10.83%	9.4%
Private hospital demand by SSWAHS locals	3,333	3,330	3,337	3,346	3,495	3,533	3,441
% Local private demand	18.08%	17.63%	17.59%	17.57%	17.63%	17.19%	16.5%
Public patients inflows (into SSWAHS hospitals)	796	820	873	920	915	886	666
Private patients inflows (into SSWAHS hospitals)	450	438	410	406	564	611	664
Total inflows	1,246	1,258	1,283	1,326	1,479	1,497	1,330
% Supply inflows	8.68%	8.36%	8.48%	8.74%	9.23%	8.98%	7.77%
Total Confinements (supply by SSWAHS)	14,358	15,045	15,125	15,169	16,024	16,675	17,111

Source: FlowInfo Inpatient Services Planning Tool. Versions 8 and 9.3

Private maternity patients in SSWAHS hospitals

Within SSWAHS hospitals, the number of private maternity patients varies across the Area. In 2006/07, a significant number of patients provided a service by the RPAH maternity service were private patients. For other hospitals in SSWAHS private maternity patients comprised a small proportion of their activity (Refer to Table 9).

Table 9: Private maternity patients within SSWAHS hospitals – separations by Enhanced Service Related Group (ESRG) in 2006/07.

ESRG	Canterbury	RPA	Camden	Fairfield	Liverpool	Campbelltown	Bankstown-Lidcombe	Bowral
Ante-natal Admission	8	269	0	3	37	18	4	7
Vaginal Delivery	83	1,316	0	5	162	2	73	50
Caesarean Delivery	50	672	0	5	97	0	43	19
Postnatal Admission	3	30	0	1	2	2	2	6

Source: SSWAHS Health Information Exchange 2006/07

Private Sector Utilisation

The private sector provides a moderate proportion of overall maternity care, with variation between LGAs. In 2007/08, in SSWAHS, the private sector provided approximately 16% of sector demand for maternity services compared to 18% in 2001/02 (Refer to Table 8). This represented 3,441 confinements.[107] The percentage of resident women who accessed private sector services in 2007/08 varied between LGAs as follows:

- Canada Bay 39% (n=426)
- Leichhardt 38% (n=396)
- Camden 27% (n=215)
- Sydney (part of) 22% (n=98)
- Strathfield 24% (n=94)
- Burwood 18% (n=73)
- Liverpool 17% (n=517)
- Bankstown 16% (n=464)
- Wollondilly 16% (n=91)
- Canterbury 12% (n=281)
- South Sydney 17% (n=74)
- Fairfield 11% (n=298)
- Ashfield 11% (n=63)
- Marrickville 10% (n=135)
- Campbelltown 8% (n=196)
- Wingecarribee 4% (n= 20)

The variation between local government areas reflects differential access to private hospitals, levels of private health insurance status and socioeconomic status.

9. MODELS OF CARE – ANTENATAL, BIRTH/LABOUR AND POSTNATAL

SSWAHS offers women a variety of care choices during their pregnancy, birth of their baby and the postnatal period.

The following describes the predominant models of care. The first three models are considered to provide continuity of caregiver. These models involve the same caregiver or a small group of caregivers, such as midwives, being responsible for a woman's care throughout her pregnancy, labour, birth and the postnatal period. A description of each model available at each facility follows and is summarised in Table 10.

Caseload Midwifery and Midwifery Group Practice

Caseload midwifery involves a primary midwife providing coordinated care, throughout pregnancy, labour, birth and the early postnatal period. Under this model each full time equivalent midwife normally provides care for approximately forty women annually.

Midwifery group practice incorporates the caseload midwifery model. Under this model midwives work in pairs or triplets. This 'structure' ensures that while a midwife remains the primary midwife for a caseload of up to forty women annually, she is also able to provide back up support to her midwife partners for example during periods of leave.

For women who develop risks or complications, this model of care usually continues to be provided as part of a multidisciplinary team of caregivers which includes the relevant medical specialists.

The Macquarie Fields Midwives Outreach Clinic

In 2004, an antenatal clinic was opened in the Macquarie Fields housing estate eliminating the need for many women to travel to Campbelltown Hospital for routine antenatal care. Early and regular antenatal care improves outcomes for both the mother and baby. Poor access to public transport, difficulty using public transport, especially with young children, and low rates of car ownership had been recognised as issues leading to poor attendance.

The clinic, located in a Salvation Army hall and staffed by two midwives from Campbelltown Hospital, is fully equipped to perform all necessary antenatal tests and assessments, including blood pressure checks, ultrasounds and referrals for blood tests. Postnatally women are also able to attend the clinic for care and advice on breastfeeding.

Since the clinic commenced in 2004, the number of women presenting for their first antenatal check prior to 20 weeks has improved by more than 10%. Recently the clinic has been incorporated into the Campbelltown Midwifery Group Practice, ensuring women receive continuity of care throughout the antenatal, birth and postnatal periods.

Team midwifery

Team midwifery care is provided to a woman throughout pregnancy, labour, birth and the early postnatal period by a group of 5 -7 midwives. For women at low risk of complications this care may be their primary care, with referral to medical care should complications arise. For women at major risk of complications, team midwifery care can be provided as part of a multidisciplinary team of caregivers which includes the relevant medical specialists.

An obstetrician in private practice

Most antenatal care and the six weeks postnatal visits are provided in the obstetrician's surgery. An obstetrician will usually attend the birth, and labour care is normally provided by midwives, unless complications arise.

General Practitioner Antenatal Shared Care
In SSWAHS, General Practitioner (GP) Antenatal Shared Care involves an arrangement between a maternity hospital and a GP for the provision of antenatal and postnatal care to women. Women attend their local shared care GP for most of their antenatal care, deliver their babies in the maternity hospital with care provided by midwives and obstetric staff, and return to their shared care general practitioner for postnatal follow-up following discharge from hospital.

Team care
This is also known as hospital care. Women attend a hospital for antenatal and postnatal care and the birth of their baby. Each phase of care is generally provided by a range of medical and midwifery staff working as a team at the hospital.

Midwives clinics
Midwives clinics can be provided in either a hospital or community setting. Some clinics are ethnic-specific. Medical review is provided as required and according to local policy requirements. Every SSWAHS hospital providing a maternity service offers midwives clinics.

Labour/Birthing
Birth centre
Birth centres are designed and furnished to look and feel more like a home than a hospital. Care within birth centres is mainly provided by midwives, however if required, medical assistance can also be provided within the centre. The service is available to women who are deemed as at 'low risk'. Transfer to a hospital delivery suite and medical intervention is available if required.

Delivery suite (also known as a birthing unit or birthing suite or labour ward)
This model provides for both doctors and midwives to deliver care to women during the birth in a traditional hospital birth setting.

Postnatal care
Midwifery Discharge Support Program.
This program involves the planned discharge of a woman and her baby into the community within 4 - 48 hours after giving birth. A midwife visits the woman at home and provides postnatal care, advice and referral up to Day 6 after which she is referred to appropriate community-based services. Every SSWAHS hospital providing a maternity service offers this program.

Community Health
As previously described in Section 7, to ensure continuity of care from maternity services to childhood health services in SSWAHS, systems are in place to support an effective transfer from hospital to community services.

ROYAL PRINCE ALFRED HOSPITAL
For women who choose to have their baby at RPAH several models of care are available. These include team care, GP Shared Care, Birth Centre care and private obstetric care.

Under the Birth Centre (BC) model of care, women largely receive all their antenatal care as well as give birth in the BC. A woman attending the BC will see the same group of midwives (e.g. 5-6 midwives). Primiparous women have one assessment by an obstetrician at about 22 weeks and multiparas see the obstetrician only if a problem requires review. Private obstetricians can also provide services women in the BC at the woman's request. While this is a low risk model of care, if a woman develops a complication, they can attend a high-risk multidisciplinary clinic such as the diabetes clinic and continue their care with the BC. There are clear guidelines that determine when this is no longer a possible option. If complications arise in labour for women in the BC, they may be mostly transferred to the labour ward.

Table 10: Models of Care available at each SSWAHS hospital

	Team	Caseload Midwifery/Mid-wifery Group Practice	Team midwifery	Private obstetrician	GP Antenatal Shared Care	GP Obstetrician	Delivery suite	Birth centre
Bankstown Lidcombe	Yes	No	No	Yes	Yes	No	Yes	No
Bowral and District	Yes	No	No	Yes	No	Yes	Yes	No
Camden	No	Yes	No	No	Yes	No	No	No
Campbelltown	Yes	Yes	No	No	Yes	No	Yes	No
Canterbury	Yes	Yes (limited)	No	Yes	Yes	No	Yes	No
Fairfield	Yes	No	No	Yes	Yes	No	Yes	No
Liverpool	Yes	No	No	Yes	Yes	No	Yes	No
RPAH	Yes	No	No	Yes	Yes	No	Yes	Yes

Midwives who work in the BC, work as part of a team. Women under the BC model of care are provided postnatal care on the postnatal ward or go home on the Midwifery Discharge Support Program.

The team model at RPAH involves very close collaboration between doctors, midwives and a range of other related health professionals. As part of this model of care a variety of clinics are held on a daily basis. This includes medically-led clinics and daily midwives' clinics. The midwives' clinics provide women with a continuum of care antenatally, as they are cared for by the same midwife during this period. Several high-risk clinics, including diabetes, cardiac, hypertension/renal, multiple birth, complex and drug and alcohol clinics, predominantly medically led, are also provided. For women who chose this model of care, birth occurs in the labour ward where midwives provide care. Obstetricians and their obstetric registrars are involved in the woman's care when complications arise in labour.

CANTERBURY HOSPITAL

Several models of care are available for women with low to moderate risk who wish to give birth at Canterbury: team; GP Shared Care; private obstetric; and caseload midwifery. In most situations RPAH is the receiving tertiary facility.

Similar to RPAH, under the team model, both medical and midwifery antenatal clinics are held at Canterbury Hospital. While midwives' clinics are staffed by a core group of midwives, if required, women with medical risk are able to attend medically led clinics such as an endocrine clinic.

Canterbury Hospital has the only Midwife Practitioner within SSWAHS. Part of the Midwife Practitioner's role is to undertake a small caseload, seeing approximately 15 women per year with special needs.

BANKSTOWN-LIDCOMBE HOSPITAL

Bankstown-Lidcombe Hospital provides maternity care to pregnant women who are of low to moderate risk. In addition to team care, women also have the option of GP Shared Care.

As part of the maternity service, midwives clinics are held on a daily basis in the outpatient department of the hospital and are run by staff from the birthing unit. This arrangement results in a large percentage of women receiving care from a known/familiar midwife. Medical clinics are also held for women with risk factors. These clinics are staffed by registrars.

For the birthing period, all low risk women at Bankstown-Lidcombe Hospital are provided midwifery care with 24-hour registrar and anaesthetic cover available. Birthing occurs within one of 6 birthing rooms or the family centred birthing room. For women who choose early discharge (i.e. within 48 hours), the Midwifery Discharge Support Program is available.

LIVERPOOL HOSPITAL

Liverpool Hospital offers pregnant women a team model of care as well as GP Antenatal Shared Care. While midwives clinics are held in an outpatient department in the hospital, women also have the option of attending midwives' clinics at Hoxton Park, Moorebank and in the Liverpool central business district (CBD). A variety of medical clinics are also held at the hospital and these include high risk and the Obstetric, Physician and Endocrine Clinic. For the birthing period a birthing suite is available where midwives and doctors work together under a risk rated system. Women in the Liverpool area also have the option of private obstetric care.

To avoid unnecessary admissions a day assessment unit staffed by two midwives (with back up obstetrician as required) has recently been established. Women who present to this Unit are monitored during the day and if appropriate are discharged home. They may re-present to the Unit if required. Women seen in this Unit may include those whose membranes have ruptured (and are not in labour) and those with hypertension. Women will be assessed in the Unit the day prior to an elective caesarean, eliminating the need for an early admission.

As Liverpool Hospital provides services for high-risk women across the south west many specialised services are provided for example MFM Services. Women who choose to go home within 48 hours of giving birth may access the Midwifery Discharge Support Program.

BOWRAL AND DISTRICT HOSPITAL

Team, private obstetric and GP obstetrician models are available at Bowral and District Hospital (BDH). Prior to 2005, all women who gave birth at BDH were cared for by either a GP obstetrician or private obstetrician. In 2005, midwife antenatal clinics were commenced at BDH and a staff specialist was employed. Women with identified risk factors are referred to specialist clinics.

Delivery at BDH occurs within one of 3 birthing rooms and care is provided by either midwives or GP obstetricians who work on a 24 hour roster. A staff specialist is available when needed. A Midwifery Discharge Support Program is also available.

CAMPBELLTOWN HOSPITAL

Midwifery Group Practice, GP Shared Care and team models of care are available at Campbelltown Hospital. Private obstetric care is not available. At present, consideration is being given to further expanding the number of community based antenatal clinics.

Midwifery Group Practice (MGP) has recently been introduced at Campbelltown Hospital. Unlike the Camden model, the midwives who work under this model also care for women with moderate risk. This has been made possible as birthing is at Campbelltown and medical support is readily available. The model has also incorporated the outreach clinic at Macquarie Fields and women who were previously cared for at Macquarie Fields are now cared for under the MGP model if appropriate.

In addition to providing a birthing service to women who are cared for antenatally in Campbelltown, Campbelltown Hospital also provides a birthing service for women cared antenatally by Camden Hospital either by the midwives or under GP Shared Care.

CAMDEN HOSPITAL

Three models of care are available at Camden Hospital: MGP for low risk women; a midwives clinic; and GP Antenatal Shared Care. Private obstetric care is not available at Camden.

Under the Camden Hospital Midwifery Group Practice (CHMGP) model, women are seen antenatally at Camden Hospital and give birth at Campbelltown Hospital. For both these phases of their pregnancy, the same midwife usually provides care. In the immediate postnatal period three options are available for CHMGP women:

- Early discharge home under the care of their MGP midwife; or
- Transfer back to Camden Hospital to be cared for by a core group of Camden midwives; or

- Care by Campbelltown midwives on the postnatal ward.

Regardless of the type of immediate postnatal care, the midwife who provided antenatal and birthing care follows up women under the CHMGP model postnatally at home for up to 4 to 6 weeks if needed, but this is more commonly 10 to 12 days.

For women who choose a team model, care consists of: an antenatal midwife clinic staffed by a core midwife at Camden Hospital. A staff specialist also attends Camden twice a week to discuss referrals with midwives and consults with women who require medical input; birthing at Campbelltown Hospital with care provided by Campbelltown core midwives; and postnatal care either at Camden or Campbelltown hospitals.

For women who choose either team care or GP Shared Care, the Midwifery Discharge Support Program is available with early discharge.

In 2008, the *Camden Midwifery Group Practice: clinical outcomes, cost and acceptability* report evaluated the CHMGP. [108] The evaluation included the examination of maternal and infant clinical outcomes, cost effectiveness and the acceptability of the model to the women, midwives and key professional stakeholders. Some of the key findings of the evaluation were:

- The CHMGP model provides safe and satisfying birth experiences for low risk women and a rewarding work experience for midwives;
- The usual care provided to low-risk women in Campbelltown and Camden hospitals is rated highly by them; and
- Differences in maternal and infant morbidity resulted in cost savings for the CHMGP model.

Based on the report, the Maternity Services Taskforce, established to develop appropriate service models for the Camden Hospital Maternity Unit, recommended to the SSWAHS Executive members that the CHMGP continue at Camden with birthing at Campbelltown Hospital.

FAIRFIELD HOSPITAL

The models of care available in Fairfield include: team; GP Shared Care; and private obstetrics. Women who give birth at Fairfield are low to moderate risk. High risk women, either antenatally or during the birth period, are transferred to Liverpool Hospital.

Under the team model, daily midwife clinics are held at the Hospital and where there is some risk, women also attend medical clinics on site. Given two midwives from the birthing suite also assist with the antenatal clinics, some women receive continuity of carer during labour.

Delivery at Fairfield Hospital occurs within one of the six delivery rooms including the family centred room available. For most women who give birth at Fairfield, care during this period is provided by midwives and medical support is available where some risk has been identified.

ABORIGINAL MATERNAL HEALTH SERVICES

Maternity services provided to Aboriginal women in SSWAHS consist of a range of flexible services as well as those provided in partnership with other agencies and the Aboriginal community.

A. Bringing Services Together

Bringing Services Together is an Aboriginal teenage intensive sustained home visiting program which commenced in SSWAHS in 2007. It includes 29 to 31 home visits which are initiated early in the antenatal period and continue for 2 years postnatally. The program is open to Aboriginal mothers or pregnant Aboriginal women who are less than 20 years of age and who have not been assessed as eligible for the DoCS *Early Intervention Program*. The objectives of the program include the:

- Establishment of a sustained nurse home visiting program for teenage Aboriginal mothers in SSWAHS;

- Development of linkages between the home nurse visiting service and other relevant health services and social services;
- Provision of Aboriginal parent education and health promotion; and
- Establishment of a system to monitor and evaluate outcomes of the program.

The anticipated antenatal and postnatal outcomes of the program include: a reduction in smoking rates in pregnancy; a reduction in the number of low birth weight babies; an increase in breastfeeding rates; a reduction in the rates of prematurity; a reduction in rates of child abuse; a reduction in rates of accidental injury; and a reduction in the rates of child abuse. Anticipated early childhood outcomes include improved rates of child immunisation. Anticipated outcomes for mothers include: better spacing between pregnancies; reduced dependency on welfare; and greater participation in the workforce.

A number of performance indicators have been identified including the number of women who enrol antenatally. The establishment of partnerships and linkages for example with external agencies such as the Aboriginal Community Controlled Health Services, Department of Housing, Centrelink and Inner West Aboriginal Community Company as well as other SSWAHS staff and programs are considered vital to the program. A service is currently provided to young Aboriginal mothers from the inner city and Liverpool/Fairfield areas.

B. Aboriginal Home Visiting Team (Macarthur)
The Ingleburn Aboriginal Home Visiting Team (AHVT), based at Narellan Community Health Centre and part of the Macarthur Child and Family Health Nursing Team (C&FHNT), provides services to Aboriginal women and their families living in the Macarthur area which extends from Glenfield in the north to Yanderra in the south. The AHVT has received additional funding to expand into an Aboriginal Maternal and Infant Health Strategy (AMIHS) site. The team presently consists of -

- One full time equivalent midwife who offers home visits to Aboriginal women antenatally including comprehensive antenatal care. This midwife supports approximately 20-30 women annually. In addition, support is also given during the birthing and early postnatal periods. All antenatal referrals are organised by the home visiting midwife through an interview process in the antenatal clinic at Campbelltown Hospital. The midwife also conducts a weekly antenatal clinic in collaboration with the Aboriginal Medical Service (AMS) at Tharawal Aboriginal Corporation in Airds (Campbelltown).

- One full time equivalent Aboriginal Home Visiting Child and Family Health Nurse (C&FHN), who visits antenatal clients of the Aboriginal Home Visiting Midwife following delivery and provides a home visiting program for both the mother and baby for a period of up to two years.[11]

A weekly Parents Advisory Service (PAS) is provided by the Aboriginal Home Visiting C&FHN to Aboriginal mothers and their children (0-5 years) in collaboration with the Tharawal Aboriginal Corporation. An opportunistic immunisation program is also provided to all Aboriginal children visiting the PAS.

The C&FHNT also accepts referrals via the Child and Family Nursing Intake Office for Aboriginal mothers and their children who live in the Macarthur area but delivered outside of the local hospital. All other Aboriginal mothers and their babies who deliver at the local hospital are referred via the Macarthur Child and Family Health Intake Office to the Macarthur C&FHNT. These Aboriginal mothers are offered a universal home health visit and are case managed by the C&FHNs. The C&FHNs relieve the Aboriginal Home Visiting C&FHN during periods of leave to maintain continuity of care and service to clients.

[11] Although the C&FHN is currently providing a form of sustained home visiting service for up to 2 years, where needed, the sustained home visiting service component is temporarily not being offered to new referrals, as planning is currently being undertaken at Macarthur to expand the sustained home visiting service and to evaluate the program.

Planning is currently being undertaken at Macarthur to expand the sustained home visiting service and to evaluate the program in partnership with the Centre for Health Equity Training, Research and Evaluation (CHETRE). This development is part of a more extensive reorientation of child and family health nurses to enhance service provision to all Aboriginal families, especially those that are vulnerable or at-risk. It also incorporates the *Bringing Services Together* project and supports the *Closing the Gap* policy. An Aboriginal Health Education Officer (AHEO) is currently being recruited to work closely with both nurses in the AHVT to provide support to Aboriginal women and their families within Macarthur.

An initiative of the AHVT is the WISH (Women's Indigenous Supported Housing) Project, a project developed in collaboration with the Department of Housing, Argyle Housing and Family Support. The project initiated the development of a support program for indigenous, pregnant, homeless and young (under 24 years) women. It has four homes available at nominal cost to clients who agree to participate in a twelve month support program. During the twelve month period, support services are put in place to assist young Aboriginal women to achieve the skills to provide a safe, supported environment for themselves and their children.

Gudaga Project

The Gudaga Project, commenced in 2005 and due for completion in 2012, seeks to improve knowledge about the health and development of Aboriginal infants in the Campbelltown area. Gudaga is an Aboriginal word that means "healthy baby". The objectives of the Gudaga Project are to:

- Describe obstetric outcome;
- Assess growth and development;
- Describe patterns of illness and injury;
- Identify risk and protective factors; describe patterns of health and children's services use;
- Identify barriers and facilitators to services; and
- Identify mothers' aspirations for their children.

159 babies and 152 mothers have been recruited into the project. These mothers and babies will be visited by a project officer for up to five years to complete a number of anthropometric measures (length, head circumference and weight) and a questionnaire on health status and health services use. At 12 months all participating babies will be examined by a paediatric registrar. Mothers will also be asked to tell their stories regarding their experience using available health services.

At present results of this project are not available, however future release of results may have implications for the services provided to all Aboriginal women and their babies by SSWAHS maternity services.

C. Miller Community Health Centre

The Miller Community Health Centre Women's Health Services include the *Well Women's Clinic*. The clinic, held fortnightly is staffed by a women's health nurse who offers pap smears, breast checks and initial antenatal care of pregnant women. Advice is available regarding termination services. Pregnant women are linked with antenatal services at Liverpool Hospital. A weekly Aboriginal child and family health clinic is also held at the centre.

D. Royal Prince Alfred Hospital

For Aboriginal women who choose to give birth at RPAH, Aboriginal staff are available to provide care to pregnant women and their babies. Staff includes an Aboriginal Midwifery Liaison Consultant whose main focus is service provision in the antenatal period and education to other staff members. There are also AHEOs who work with the Aboriginal Health Promotion Officers (AHPOs) whose target group is pregnant women and children under the age of 5 years. AHEOs and AHPOs provide education about breastfeeding and environmental tobacco smoking and are also able to provide basic support, for example linking women with organisations that provide housing assistance and other community organisations. Basic support may also include encouraging women to attend antenatal care and limited transport to antenatal appointments.

E. *Other*

There are no specific maternity services for Aboriginal women in the Bowral area. Aboriginal women use mainstream services for antenatal, birthing and postnatal care. Both antenatal classes and clinics are utilised. Aboriginal mothers access the local Aboriginal Health Worker postnatally for mental health issues.

There are no designated Aboriginal staff at Canterbury, Bankstown-Lidcombe, or Fairfield hospitals for pregnant Aboriginal women and their babies.

General Practitioner Antenatal Shared Care in the SSWAHS Divisions of General Practice

The inner west has an established GP (General Practitioner) Antenatal Shared Care program which has developed over the past 15 years. It is a well utilised program, demonstrated by the total number of deliveries in the program, 56 - 60% and 49% in RPA and Canterbury hospitals respectively (Refer to Table 11). The program is a joint initiative of the Central Sydney General Practice Network, RPA and Canterbury hospitals. GP Shared Care is an option offered to all women assessed at the hospitals' antenatal clinics as having a low to moderate risk pregnancy. Care is provided collaboratively by the general practitioner and the hospital-based services.

Table 11: Details regarding GP Antenatal Shared Care in SSWAHS#

	BANKSTOWN	FAIRFIELD	LIVERPOOL	MACARTHUR	SOUTHERN HIGHLANDS	RPAH	CANTERBURY
Number of GPs participating in GP Shared Care (accredited) (% who are female)	420## (24 females)	67 (30%)	66 (45%)	86 (28%)	The Southern Highlands Division of GP does not participate in a formal GP antenatal shared care program. It is in the process of refining a local program prior to implement-tation.	420## (70%)	420## (70%)
% of total deliveries in GP Shared Care	20	10	40	17		56 - 60	49.4
% of GPs consulting in a language other than English	N/A	99 %	70%	51%		54%	54%
Most common languages spoken (antenatal shared care)	Arabic and Vietnamese	Vietnamese and Chinese. Another 14 languages are also spoken	Arabic. Another 16 languages are also spoken	Arabic, Hindi, Mandarin, Cantonese and Vietnamese		Approximate-ly 50 different languages are spoken	Approximately 50 different languages are spoken

 # As of November 2007
420 combined number from Central Sydney Practice Network and Bankstown Division of General Practice

In the south west, although GP Antenatal Shared Care has been available as an option of care for many years, the program is not as well developed, evidenced by the lower rates of deliveries in the GP Shared Care program (Refer to Table 11). To assist increase uptake rates, two GP Shared Care Liaison clinical nurse consultants have recently been appointed to coordinate the program in the south west. Their job will include assisting to develop consistent protocols and standardised accreditation of general practitioners across the whole of SSWAHS and standardising data collection regarding options for care and general practitioners providing care. Table 11 outlines additional details regarding GP Antenatal Shared Care in SSWAHS.

10. CONSULTATION – STAFF AND COMMUNITY VIEWS OF MATERNITY SERVICES WITHIN SSWAHS

Consultation to assist the development of this Plan has been extensive and has included a staff forum, consultation with women from CALD backgrounds, Aboriginal and mainstream women. A draft Plan was widely distributed and posted on the SSWAHS intra and internet for comments. The main issues raised are presented below.

1. Staff Consultation

On 19 December 2006, the Steering Committee held a staff consultation forum regarding maternity services within SSWAHS. The forum signalled the commencement of a consultation process to inform the development of a maternity services plan for SSWAHS. Participants highlighted the positive aspects of SSWAHS' current high quality maternity services as well providing expert comment on how to improve current models for our diverse and growing community. Relevant local non-government services that provide either maternity and/or maternity related services were also invited.

Seventy people attended the forum. There was also representation from Divisions of General Practice, the Consumer/Community Council, NGOs and the Area Health Advisory Council (AHAC).

Emerging themes from group work and discussion

Level of service provision

The variation of service provision between hospitals and within hospitals was identified. However, there was recognition that not the full spectrum of services could be offered at all facilities acknowledging the service role delineation of hospitals.

Access

Factors that were identified as impacting upon access to services included: availability of parking; transport; patient knowledge of what services are available; after hours clinics for mothers who work; child care for mothers attending clinics; access to interpreter services; patients who do not have a Medicare card; and poor socioeconomics, resulting in many clients being unable to pay for services, for example, lactation classes and parking.

Models of care

Emphasis was placed on enhancing the availability of midwifery models of care across the Area. Continued networking between all the health professionals is an essential component of any model of care. It was also proposed that that there needs to be a greater shift towards more community based maternity services.

Diversity

Requests were made for a variety of service delivery options that recognised the diversity and differing needs of each community. Much of the variety in service provision at hospital and community level reflected the varying needs. It was emphasised that the existing strengths of service provision be built upon.

Vulnerable groups

Some services need to be targeted towards specific population groups to ensure that vulnerable people in the community do not fall through the 'cracks' and that these services needed to be implemented early. It was emphasised that support services, for example in drug and alcohol and mental health required enhancement and to be more widely available. Comment was made that vulnerable groups provided the opportunity for the greatest gain in health outcomes.

Workforce
Apart from requests to increase maternity workforce numbers, including bilingual workers, a need was also expressed to value, develop and ensure the competency of existing staff. This included training and development within small units and network training and development; education of staff that included a component of cultural competency training; and promotion of midwifery and other specialities as career choices.

Promotion of services
There was general agreement that the important innovations, excellent outcomes being achieved and services being delivered across the SSWAHS should be promoted more to the community.

Support services
Support services such as allied health and interpreters in particular are required to implement service models.

Communication and networking
Requests were made for an improvement in networked collaborative services to support different models of care, as well as improved communication and collaboration between health professionals, communication between the inner west and south west and a communication framework for networked services.

2. Culturally and Linguistically Diverse and Refugee Women Consultation
A joint project between SSWAHS Multicultural Health, NSW Refugee Health Service (RHS) and SSWAHS Health Services Planning Unit was undertaken to consult women from CALD and/or refugee backgrounds who had accessed maternity services within the last three years. Ten focus groups were held and 94 women were consulted. The major language groups consulted were Arabic (2 groups), Chinese (2 groups), Vietnamese and Samoan. The four refugee groups consulted were Assyrian, Burundian, Serbian and Sudanese. The CALD groups were chosen on the basis of significant numbers of populations' resident in SSWAHS or on the basis of previously identified issues relating to maternity services. Refugee groups were identified by the NSW RHS as either newly arrived and particularly vulnerable or large in number in SSWAHS. The focus groups were facilitated by Bilingual Community Educators (BCEs), designated bilingual staff of SSWAHS, bilingual workers from community organisations and bilingual staff employed by Karitane.

The major issues raised by women who attended the focus groups are described below.

Antenatal period
Interpreters
Most of the women stated that they had been offered and had used interpreters. The majority of women who had accessed interpreter services reported that they were satisfied with the quality of the interpreters. However specific issues with interpreter services were reported including the provision of an interpreter who spoke a different language or dialect. For example some Assyrian women reported being provided an Arabic speaking interpreter, with the assumption that they also spoke Arabic. Burundian women also reported being provided interpreters that did not speak their language, that is Swahili instead of Kirundi. Other issues raised by women in relation to the interpreter service included the cancelling of appointments due to unavailability of interpreters, a perceived increase in waiting time for consultations due to block bookings of interpreters and provision of written English material in lieu of explanations provided by an interpreter.

Antenatal classes
Women reported very poor attendance at antenatal classes. Some women were unaware that classes were available while none of the Serbian, Burundian and Sudanese women consulted had attended any classes. The minority of women who had attended classes had mostly attended classes conducted in their own language, specifically Arabic and Vietnamese. These women reported that the classes had been interesting and informative.

Waiting times
Waiting times for services was the greatest area of concern for all the participants, especially for women who had other children. Women also considered lengthy waiting times unfair given often they were only seen by the health professional for only a few minutes.

Transport and parking
The women expressed difficulty using public transport especially when they also had other children and prams. Parking was also a major issue and while parking was available at some hospitals it was too expensive and not affordable.

Labour/birth/inpatient stay
The women consulted were generally satisfied with services provided by inpatient staff. Comments made about the majority of nursing staff included that they were kind, helpful, pleasant and understanding. For some women, specifically the Burundian and Sudanese the most basic medical care was highly valued, possibly a reflection of their previous experiences. Negative experiences reported by women included: concern at having been left alone in the delivery suite: insufficient knowledge regarding care of their newborn baby and information regarding self-care; a lack of a sufficient number of female doctors; and discrimination from some staff. Sudanese women raised issues in relation to Female Genital Mutilation (FGM) and felt that staff required more knowledge of and/or experience in managing this condition.

Postnatal
Women reported that they had experienced difficulties in the postnatal period with breastfeeding and caring for their baby. Most women reported having received a home visit from a nurse soon after discharge however they had difficulty identifying whether the health professional was a midwife or early childhood nurse. Despite this they expressed gratitude for these services. Many women had also reported that they had used the "Baby Clinic". In general there was limited knowledge about the existence of other support services, however the Karitane Helpline, the BEPE service and some mothers groups, were considered very useful for those who were aware of and had used these services.

3. Aboriginal and Torres Strait Islander Women
Consultation of Aboriginal women in SSWAHS occurred on four separate occasions and was undertaken at RPAH, Tharawal Aboriginal Medical Service and Liverpool. Eighteen Aboriginal women were consulted and the number of babies born to each woman in SSWAHS hospitals ranged from 1 to 5. The major issues that were raised by these women are described below.

Antenatal
Aboriginal women had used a variety of services in the antenatal period including: the Aboriginal Medical Services based in Airds and Redfern; hospital antenatal clinics; the Aboriginal home visiting service based at Ingleburn; and the drug health service at RPAH. In one group, some women reported having used GP Shared Care and the nurse at Tharawal, and were very positive about this choice. The Ingleburn Aboriginal Home Visiting Service and Tharawal Aboriginal Medical Service were also highly valued.

Similar to the other women consulted, some of the Aboriginal women reported long waits in the hospital antenatal clinics. A subset of this group also reported feeling intimidated when they entered large and crowded antenatal clinics. They also described the clinics as being "rushed". Transport, especially when travelling with other children, was raised as an issue in the south west. Apart from one group of women who attended antenatal classes at Tharawal, antenatal classes were not attended by the Aboriginal women. Reasons given for this included classes were full, they would not feel comfortable and they were not considered. With the exception of one Aboriginal woman, women reported that options for antenatal care or birthing were not explained or provided. Women reported that hospital staff did not provide sufficient information or were "vague" about the services available.

Suggestions for improving services included: making caseload midwifery more available; increased Aboriginal staff in maternity services; antenatal classes for Aboriginal women; increased availability of home visits especially during the late stages of pregnancy; the provision of clear and simple explanation of tests, medications and paperwork; support and encouragement; a more personalised service; and an Aboriginal space in antenatal clinics.

Aboriginal Myths

"How does the young Aboriginal mother see herself? How aware is she of the proud culture she continues, by becoming a mum? No other culture abounds in myths like the Aboriginal dreaming.

If they were written down, these myths would fill a thousand books. They are spoken and passed down from one to the other. They form the 'song lines', the dreaming that insists this is an alive culture and still thriving, in spite of terrible loss of land, family and community. To many young Aboriginal women having babies, these are unknown.

'The most ancient of all Aboriginal mystical thinking – central to all dreaming – is the idea of ***Gunewari****, "seed power".* ***Gunewari*** *equates roughly with the invisible seed of life-creating energy. In the dreamtime, where the creation of the world is continually being sung into existence, the unknown invisible seed engenders the energy of new life.'*[109]

This is never more true than in pregnancy and new birth."[110]

Inpatient/Labour/Birth

On the whole, women reported positive interaction with inpatient staff, including both doctors and midwives. However some women reported instances of rudeness, discrimination due to race or lifestyle choice. They were unwilling to complain. Some women reported that they were unaware of the complaints process. There were several reported instances of breaches of confidentiality and difficulty with breastfeeding due to a lack of support. One woman reported that compared to her previous inpatient stays, most staff were now less judgemental of drug and alcohol use.

Suggested improvements for the inpatient period included: increasing the time spent with new mothers; increasing assistance with breastfeeding; allocating time for discussion of information; a Koori (staff) "face" to talk to in the hospital; and improving staff awareness of Aboriginal culture.

Postnatal

Many of the women reported having had a home visit from either a midwife or early childhood nurse post discharge. These visits were either provided by SSWAHS (Early Childhood Service or Aboriginal Home Visiting Service) or Aboriginal Medical Service. However some women requested that this visit occur within a few days of discharge rather than 3 weeks later, given some women suffer from postnatal depression, as it was thought that three weeks was too long to wait for this to be addressed. Additionally, they requested an Aboriginal Health Worker screen them, given the shame within their community relating to admitting to being depressed, and the unlikelihood that they would admit to being depressed to a non-Aboriginal Health Worker.

Some of the groups consulted were grateful for post discharge transport home while other groups suggested that this be provided. Mothers groups were attended by many women and the opportunity to share information was valued. There were variable levels of knowledge among women of postnatal services available such as Tresillian Family Care Centres. In addition to those made above, women also made the following suggestions to improve service: additional home visits; mail out of information; and assistance with transport.

4. Mainstream Consultation

The following summarises information gathered from five separate consultations including with women who were considered medically high risk during their pregnancy. Consultations were held at Camperdown, Redfern, Bowral, Liverpool and Narellan. Most women had given birth in SSWAHS within the past 3 - 4 years. Two women had given birth outside the Area.

Antenatal

During the antenatal period women had used a number of services including: private obstetric care; MGP; GP Antenatal Shared Care; GP obstetric care; health service antenatal clinics, antenatal, lactation, yoga and epidural classes; and the Perinatal and Family Drugs and Baby service. Some women had also used the services of a local private midwife for hypnotherapy sessions in preparation for labour.

Of concern to some women was a lack of knowledge, misinformation, and anxiety about antenatal tests and when they were required. Many women were also unaware of the number of options available to them. Parking at health services for some women was an issue, as was waiting times at antenatal clinics, however dissimilar to other consultations, transport was not. One woman reported use of the Perinatal and Family Drug Health Service which she described as “excellent”. Several women consulted had used the MGP service, were very pleased with the process, especially that it allowed a relationship to develop and that it included their partner. They also reported that they would use the service for their next pregnancy. One woman however was disappointed that neither her midwife nor back up midwife was present at the birth.

Inpatient

Women provided variable feedback regarding their inpatient stay. On the whole, the feedback regarding staff was positive, however a minority of women reported that they had experienced inappropriate behaviour, discrimination and rudeness from a minority of staff. Some women also reported that the variable staff to patient ratio was evident in the level of care provided at different hospitals. There were also reports regarding extended delays in being transferred to a bed post delivery and issues raised regarding privacy in shared rooms. One group of women requested the development of care plans.

Feedback regarding the NICU was very positive. Women were very grateful for the care that their babies and they had received from NICU staff, including assistance with breastfeeding.

Postnatal

In relation to postnatal services, positive comments were expressed about the midwifery discharge support program. Some women reported that support received exceeded that provided as an inpatient. Women also spoke favourably about the support offered by early childhood nurse visits and early childhood centres.

Suggestions for improvement of services included: commencing antenatal support groups, similar to the mother’s groups; the availability of a booklet with all relevant information; continuity of carer throughout the labour/birth/post delivery period; the provision of consistent advice; restricted visiting hours which do not clash with meal times; increased community access to *Chemical Use in Pregnancy Service* (CUPS); increased assistance with breastfeeding; availability of dietetic advice and a hypnotherapy service; information about useful websites; and improved communication between hospitals.

5. South West Sector Maternity Services Workshop

Prior to the commencement of the planning process, a workshop was held with staff regarding maternity services in the south west. In addition to the identification of strategic issues, future short term and long term objectives and an action plan were discussed. Some of the key strategic issues raised included:

- The ability to attract and retain staff;
- Clear role delineations;
- Accessibility which is influenced by transport, socioeconomic levels and long waiting times;
- Multicultural diversity; and
- Continuity of care in relation to the introduction of new NSW Health policies.

6. Maternal-Fetal Medicine Services

In relation to MFM services in SSWAHS, staff requested enhancement of resources particularly senior medical staff and equipment. It was proposed that enhanced resources would improve patient access to MFM services as well as support teaching and research and staff recruitment and retention initiatives.

11. PROJECTED DEMAND FOR MATERNITY SERVICES

Several methodologies have been used to project the demand and supply (activity) of maternity services within SSWAHS to 2011 and 2016. Initial projections using *aIM 2005*, a NSW Health activity projection tool, projected confinements for 2011 and 2016, which were below the current SSWAHS supply and not consistent with projected increases in the fertile population. The methodology described below and data presented in Graph 2 and Tables 12 and 13 was prepared by SSWAHS Research, Evidence Management and Surveillance (REMS) Unit. It projects confinements from 2007 to 2021. The projection process is described below. Further detail including data, methods and modelling approach is provided in Appendix 8.

Using confinement projections prepared by REMS, projected SSWAHS supply, local public demand, inflows, outflows, private hospital demand, etc., for 2011 and 2016 have been calculated using data from FlowInfo Version 9.3. Results are presented in Table 14.

SSWAHS Confinements Projections 2007 to 2021 - REMS

To calculate total projected confinements of females aged 15 - 44 years for all SSWAHS and in each LGA the following processes were used:

I. Age-group specific rates were projected to 2021 by extrapolating confinement rates forward by year to 2021 using the estimated model and assuming that historical trends and the baby bonus will continue into the future;

II. Projected age-group specific rates were multiplied by the age-group specific projected population to estimate by year, the age-group specific numbers of confinements; and

III. Aggregate projected numbers of confinements across age-groups were used to estimate by year, total SSWAHS and LGA projected confinements of females aged 15 -44 years. (Refer to Appendix 9)

In order to estimate total projected confinements (of females of all ages) in SSWAHS and each LGA from 2007 to 2021, projected confinements of females aged 15 - 44 years in each year were then inflated by the average annual proportion (%) of total confinements from 1991 to 2006 in SSWAHS or the respective LGA that were females aged <15 or >44 years. This made little difference to projections however; as for example, the average annual % for SSWAHS over this period was only 0.24%.

Graph 2 shows observed (1991 - 2006) and projected (2007-2021) numbers of confinements of females of all ages in SSWAHS. Table 12 provides the observed confinement number for 2006 and projections for 2011 and 2016 by age group and Table 13 indicates the observed confinement number for 2006 and projections for 2011 and 2016 by LGA. The full table of values and LGA-specific projections is provided in Appendix 9.

Graph 2: Observed (1991 – 2006) and projected (2006 – 2021) confinements of females in SSWAHS

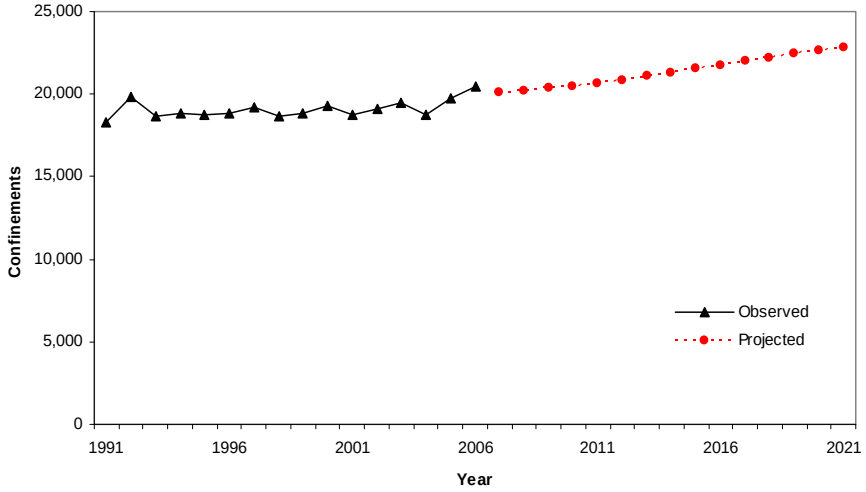


Table 12: Observed (2006) and projected (2011 and 2016) confinements of females in SSWAHS by age group

Year	SSWAHS (all ages)	15-24	25-29	30-34	35-44	<15 or >44
2006[12]	20,426	3,388	5,729	6,859	4,409	41
2011[13]	20,658	2,948	5,452	7,027	5,182	49
2016[14]	21,760	2,546	5,126	7,861	6,177	50

Graph 2 and Table 12 indicate that from 2006 to 2011 the projected increase in the number of all confinements in SSWAHS is 232 with a further projected increase from 2011 to 2016 of 1,102. These projections are driven by a combination of increasing/decreasing confinement rates and/or populations. The largest increase in confinement numbers are projected to occur in the older age groups 30 - 34 and 35 – 44 years. From 2006 to 2016, the projected percentage increase in the number of confinements in the 30 - 34 age group is 14.6% and in the 35 - 44 age group, 40%. While it is projected that the 30 - 34 age group will remain the largest group having confinements in 2016, the second largest group will be the 35 - 44 age group. Concurrently the number of confinements in the 15 - 24 age group and 25 - 29 age groups are projected to fall, by 25% and 11% respectively.

Table 13 provides additional information regarding projected confinements numbers by LGA. While most LGAs are projected to have increased confinement numbers compared to 2006, the largest percentage increases to 2016 are projected for:

- Camden;
- Liverpool;
- Canada Bay;
- Wollondilly; and
- Sydney/Leichhardt.

The largest numerical increases are projected for:

- Liverpool;
- Sydney/Leichhardt (combined);
- Bankstown; and
- Camden.

A decline in the number of confinements is projected for:

- Fairfield;
- Canterbury;
- Strathfield; and
- Ashfield.

Table 13: Observed (2006) and projected (2011 and 2016) confinements of females (all ages) in SSWAHS by LGA

Local government area (LGA)	Year					
	2006 (actual)	2011 (projected)	Projected % change 2006 to 2011	2016	Projected % change 2011 to 2016	Projected % change 2006 to 2016
Ashfield	556	529	-4.86%	527	-.38%	-5.22%
Bankstown	2,890	3,020	4.50%	3,301	9.30%	14.22%
Burwood	306	319	4.25%	326	2.19%	6.54%
Camden	810	962	18.77%	1,185	23.18%	46.30%
Campbelltown	2,291	2,338	2.05%	2,340	0.09%	2.14%
Canada Bay	1,005	1,119	11.34%	1,286	14.92%	27.96%
Canterbury	2,319	2,216	-4.44%	2,228	0.54%	-3.92%
Fairfield	2,619	2,410	-7.98%	2,232	-7.39%	-14.78%
Liverpool	3,020	3,329	10.23%	3,875	16.4%	28.31%
Marrickville	1,218	1,172	-3.78%	1,249	6.57%	2.55%
Strathfield	341	319	-6.45%	327	2.51%	-4.11%
Wingecarribee	450	461	2.44%	475	3.04%	5.56%

[12] Observed number of confinements
[13] Projected confinement number
[14] Projected confinement number

Local government area (LGA)	Year					
	2006 (actual)	2011 (projected)	Projected % change 2006 to 2011	2016	Projected % change 2011 to 2016	Projected % change 2006 to 2016
Wollondilly	666	766	15.02%	844	10.18%	26.73%
Sydney/Leichhardt combined[15]	1,935	2,068	6.87%	2,372	14.70%	22.58%
Sum (LGA)	20,426	21,028	2.95%	22,567	7.32%	10.48%

Note: *Minor variations exist in the 2011 and 2016 total number of projected confinements calculated for combined SSWAHS (all ages) (Table 12) versus the sum of projected confinements calculated by LGA (all ages (Table 13). This is because time series of age-specific confinement rates for combined SSWAHS are much smoother than the more volatile LGA-specific time series, which were calculated based on considerably smaller numbers of confinements.*

SSWAHS Confinement Supply, Outflows and Inflows

Utilising REM projected confinement numbers, and rates of private and public demand, outflows and inflows for the period 2001/02 to 2007/08 from FlowInfo versions 8 and 9.3, projected supply of confinements, private and public inflows and outflows have been calculated for 2011 and 2016. These projections are presented in Table 14.

In 2016, total supply of confinements by SSWAHS is projected to increase to 17,788. This represents an increase of 4% from 2007/08. To calculate supply projections for 2011 and 2016 it was decided given uncertainties regarding public and private demand due to the current global economic growth slow down and government policy such as the *Baby Bonus*, to utilise 2007/08 rates of public and private demand and maintenance of inflow and outflow numbers.

Bed capacity in SSWAHS hospitals

NSW Health is currently undertaking a review of maternity bed capacity across NSW with a view to future needs. The newly revised parameters set by NSW Health for planning for maternity beds are: a caesarean section rate of 26.3%; a length of stay of 5.5 days post caesarean section (tertiary hospitals) and 3 days post vaginal delivery; antenatal and postnatal inpatient admission length of stay of 2 days; and an occupancy rate of 75%.

Although the NSW Health has suggested a planning parameter of 26.3% for caesarean rates, it is understood that maternity services will need to be working actively to reduce this rate where possible. It is also agreed that the higher caesarean rates will reflect the higher role level of the hospital for e.g. RPA and Liverpool.

Revisions of estimated residential population numbers are regularly updated by the Department of Planning and Transport. These population projections are utilised by NSW Health to inform revisions of projected acute inpatient supply and demand tools that are subsequently utilised by area health services to plan services. Upon receipt of revised activity and population projections, SSWAHS will be reviewing the bed capacity and projected requirements for maternity services across the Area (Refer to strategy 21 in the Action Plan).

Table 14: SSWAHS actual and projected confinement supply, outflows and inflows to 2011 and 2016

Activity measure	Year								
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	Projections	
								2011	2016
SSWAHS all confinements[16]	18,433	18,891	18966	19,049	19,825	20,555	20,865	20,658	21,760
Local demand for public services[17]	15,100	15,561	15,629	15,703	16,330	17,022	17,424	17,251	18,171
Local public demand which outflowed[18]	1,988	1,774	1,787	1,860	1,785	1,844	1,643	1,627	1,713
SSWAHS residents treated locally[19]	13,112	13,787	13,842	13,843	14,545	15,178	15,781	15,624	16,458
% Public demand which	13.17%	11.40%	11.43%	11.84%	10.93%	10.83%	9.43%	9.43%	9.43%

[15] To improve the accuracy of data given recent LGA boundary changes, Sydney and Leichhardt LGAs have been combined.
[16] Refers to all SSWAHS resident confinements
[17] Local public demand that was seen within SSWAHS and which flowed out to public hospitals outside SSWAHS
[18] Refers to local residents who flowed to public hospitals outside SSWAHS
[19] Local residents treated in SSWAHS hospitals

Activity measure	Year								
	2001/02	2002/03	2003/04	2004/05	2005/06	2006/07	2007/08	Projections	
								2011	2016
outflowed									
Private hospital demand by SSWAHS locals[20]	3,333	3,330	3,337	3,346	3,495	3,533	3,441	3,407	3,588
% Local private demand	18.08%	17.63%	17.59%	17.57%	17.63%	17.19%	16.49%	16.49%	16.49%
Public patients inflows (into SSWAHS hospitals)[21]	796	820	873	920	915	886	666	666	666
Private patients Inflows (into SSWAHS hospitals)[22]	450	438	410	406	564	611	664	664	664
Total Inflows	1,246	1,258	1,283	1,326	1,479	1,497	1330	1,330	1,330
% Supply Inflows	8.68%	8.36%	8.48%	8.74%	9.23%	8.98%	7.77%	7.84%	7.48%
Total Confinements (supply)[23]	14,358	15,045	15,125	15,169	16,024	16,675	17,111	16,954	17,788

Source: Flowinfo versions 8 and 9.3 and REMS

Factors that may impact on future demand for maternity services

Caesarean section rates

There has been an upward trend in caesarean section rates in NSW, from 23.6% in 2001 to 28.1% in 2005. SSWAHS caesarean rates have mirrored this trend.

Obesity epidemic

The prevalence of overweight and obesity is higher among older women in child bearing age groups, (Overweight and obesity: 16 – 24 years, 20.4%; 25 – 34 years, 29.4%; 35 – 44 years; 34.1%. Obesity: 16 – 24 years, 0.7%; 25 - 34 years, 14.9%; 35 – 44 years, 15.7%). Given the projected increasing age of women bearing children in SSWAHS, the overweight and obesity problem may significantly impact on maternity and related SSWAHS services such as allied health and endocrinology.

As previously stated, obesity has been associated with difficulties conceiving and complications for mother and baby during pregnancy. However pregnancy presents an opportunity for recognising varying degrees of overweight and obesity as a pregnant woman's initial height, weight and BMI is routinely recorded at the hospital booking in for pregnancy. Given this, and the fact that during the antenatal and perinatal periods women and their families tend to be more receptive to health messages, it is also presents an ideal time to establish a woman's awareness of the problems and risks associated with being overweight and or obese. General practitioners who are often the first medical contact for a pregnancy and continue to provide care to a woman and her baby in the postpartum period are one group of health professionals ideally placed to provide continuity of care in relation to overweight and obesity intervention. However there is also a role for other SSWAHS health professionals involved in the care of women and their babies to address this issue. Specific strategies targeting overweight and obese young women have been considered in the *Sydney South West Area Health Service Overweight and Obesity Prevention and Management Plan 2008 - 2012*. The family focus of the Plan will also indirectly target this group.

Gestational Diabetes Mellitus

Recorded rates of GDM are expected to increase given proposed changes to reduce the diagnostic criteria. This will have human resources implications particularly for dietitians, endocrinologists, diabetes nurse educators and obstetricians. It may also impact on SSWAHS hospital outpatient antenatal clinics.

Increasing age of mothers

It is projected that by 2016, the 35 - 44 year old group will be the second largest group of women having babies and this trend is projected to continue to 2021 (Refer to Appendix 9). The increasing

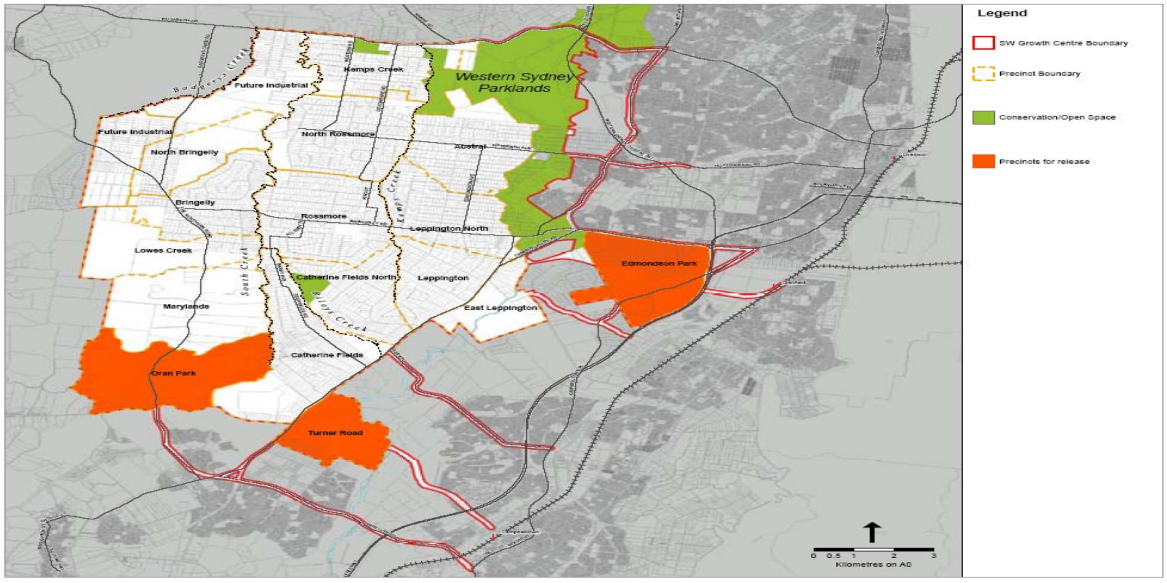
[20] Refers to residents of SSWAHS LGAs who used private hospitals
[21] Refers to public patients in SSWAHS hospitals who are residents of other area health services
[22] Refers to private patients in SSWAHS hospital who are residents of other area health services
[23] Sum of SSWAHS supply – SSWAHS LGAs public demand local and total inflows

age of women bearing children in SSWAHS LGAs may have a significant impact on maternity services within SSWAHS. Older mothers experience an increased incidence of caesarean section, more complex childbirth, increasing rates of birth defects[111] and higher likelihood of illness and twinning. More complex childbirth will translate into increasing caesarean deliveries. An increase in the number of babies with birth defects will place greater demand on neonatal special care nurseries and intensive care services.

South West Growth Centre

The South West Growth Centre (Refer to Figure 4) is to be developed over the next 25 years and will have a significant impact on the demand for health services in the South West. An additional 250-300,000 people are expected to be housed in the new centre.

Figure 4: Map of South West Growth Centre



The first precinct release includes Oran Park and Turner Road which has implications of an additional 12,000 new homes and 33,000 people. The timing of the Leppington precinct planning and release is unclear at this stage however 2012 has been flagged as a commencement date for development. Leppington is to be the largest precinct and the major service hub for the centre. The SSWAHS approach to this development is outlined in Appendix 10.

Government initiatives

Government policies such as changes to paid and non paid maternity and paternity leave and levels of migration, as well as initiatives such as the *Baby Bonus* may impact on confinement rates.

12. SSWAHS MATERNITY SERVICES FRAMEWORK

The following framework for maternity services in SSWAHS aims to promote continuity of care and increase birthing choices for women. It also aims to deliver the appropriate level of care commensurate with the degree of risk to the mother and baby during the antenatal, birthing and postnatal period so that desirable health outcomes are achieved. The framework is consumer focussed and considers the following six NSW Health quality dimensions: safety and risk minimisation; effectiveness; appropriateness of interventions; consumer participation that enhances acceptability; access that is equitable and based on need; and efficiency in resource allocation.[112]

In addition to encompassing the above quality dimensions, the following core concepts and principles have been utilised to develop a framework for maternity services in SSWAHS:

- A woman-centred approach that increases choice in and before childbirth;
- Matching clinical services to clinical needs;
- Continuity of care;
- Integrated service networking;
- Reflect current evidence and best practice;
- Culturally sensitive and responsive to the needs of the individuals; and
- The appropriate number and mix of health care professionals with the knowledge, skills and experience.

These quality dimensions and core concepts and principles will also be used to guide a range of models that will be available in SSWAHS. The core concepts and principles have been adapted from two strategic NSW Health maternity services documents, *The NSW Framework for Maternity Services*[113] and *Models of Maternity Service Provision Across NSW. Progressing Implementation of the NSW Framework for Maternity Services 2003.*[114]

1. *A woman-centred approach that increases choice in and before childbirth*

For women who choose to give birth in SSWAHS, there will be a variety of choices regarding maternity options. To assist in decision making, women will be given clear and unbiased information about services available. The limitations and implications of each option will be discussed with women who will be given the opportunity to ask questions.

2. Matching of services to clinical need

Within SSWAHS, all women will have equal access to the highest quality maternity service according to their health needs at the time. This includes primary, secondary and tertiary care.

Primary care includes both midwifery and medical care. All women will have access to primary level services in primary, secondary and tertiary SSWAHS maternity facilities. Access will also include facilities such as community health centres and there will be a greater emphasis on providing more community services, in particular community antenatal clinics. Opportunities will be sought to expand access in non-health facilities for example schools and shopping centres.

In addition to the above, primary care services will be enhanced in SSWAHS via the further expansion of the GP Antenatal Shared Care program. Given historically 70% of women have uncomplicated pregnancies and birth experiences and do not require access to higher levels of obstetric care, expansion of the GP Shared Care program may reduce demand in antenatal clinics. This in turn may improve access to hospital antenatal clinics for those who require a higher level of obstetric care. As general practitioners are community based, this development should improve access and may assist in alleviating waiting times for women, a major complaint expressed in the consumer consultations.

Tertiary maternity services in SSWAHS will continue to be provided at RPA and Liverpool hospitals. Both hospitals will provide level 6 maternity services supported by multidisciplinary specialist teams. Women with medical high risk pregnancies in SSWAHS will be managed in these two hospitals. Given the expected increase in the number of women with complex pregnancies, the number of medical high risk antenatal clinics at these two facilities will also be increased. Secondary maternity services will remain at Canterbury, Bankstown-Lidcombe, Bowral and District, Fairfield and Campbelltown hospitals at their current role levels. Camden will continue to provide antenatal and inpatient postnatal care with birthing services located at Campbelltown Hospital.

Campbelltown Hospital, for the duration of this Plan, will continue to provide maternity services that are consistent with a role delineation level of 4, which includes care for women with low to moderate risk pregnancies. Women who are deemed high risk will continue to give birth at Liverpool Hospital. However development of the Campbelltown maternity service will continue with a view to it providing higher role level maternity services in the future. This proposed development will be further outlined in the Clinical Services Plan for Campbelltown/Camden hospitals. The development of higher role level maternity services at Campbelltown Hospital will be consistent with its emerging role as a teaching hospital for the University of Western Sydney's School of Medicine and projected demand for higher role level maternity services given the planned South West Growth Centre and projected flows to Campbelltown Hospital. It will also assist to improve access to services for some of the most at risk women in Macarthur and Wingecarribee LGA.

3. Continuity of care

Improving continuity of care across the three phases of pregnancy, birth and postnatal period will be essential if SSWAHS is to improve maternal and neonatal outcomes especially for vulnerable and marginalised women and families. It will include establishing explicit linkages between maternity and related services, for example maternity services, *Families NSW* and the *SAFE START* program. Such linkages will ensure that the acute and brief hospital episode does not occur in isolation from the pre and post birth period.

4. Integrated service networking

Critical to achieving quality and a comprehensive maternity service in SSWAHS will be the further development, strengthening and formalisation of networked arrangements between all services and the full range of multidisciplinary care providers, primary, secondary and tertiary. The focus will be on prevention, early recognition of risk, timely referral and consultation.

For medical high risk pregnancies, Canterbury Hospital will be linked to RPAH, while Fairfield, Bankstown-Lidcombe, Campbelltown and Bowral and District hospitals will continue their network arrangements with Liverpool Hospital. The link between Bankstown-Lidcombe Hospital and RPAH will also be further developed. These network arrangements will ensure that although all services are not provided at each facility, women and their babies can expect to be admitted rapidly to an integrated health care network which will meet their health care needs at the time.

5. Reflect current evidence and best practice

The SSWAHS models of maternity care will be flexible so that changes in evidence and best practice can be incorporated.

Essential to the achievement of excellence in maternity services in SSWAHS will be the enhancement and or implementation of midwifery led models of care, especially given the strong evidence of the benefits of midwifery-led models of care for low risk women[115] and their known role in the antenatal, intrapartum and postnatal periods.[116] This development will improve choice for women and, given that midwifery led care is more appropriate to being community based, together with expansion of the GP Shared Care program, will further assist to alleviate the burden on acute facilities.

Improved access to birth centres will also improve choice for women. In addition to the birth centre located at RPAH, a co-located midwifery led birthing centre has been approved as part of Liverpool

Stage 2 Redevelopment. Evidence shows that care in birth centres results in lower rates of medical intervention during birth and greater reported satisfaction with care.[117]

Best practice will be to improve care and outcomes for women who are either medically, psychologically or socially high risk. For pregnant women who use drugs, services will also be improved via the implementation of the new evidence based national guidelines. Access to antenatal and postnatal psychological and social assessment, and linkage to services for all women who access SSWAHS services, will also be improved. Strategies to address lifestyle factors which may impact on the mother and baby, such as obesity and smoking, will also be implemented. All attempts will be made to minimise separation of a mother and her baby.

Many of these strategies and developments will initially focus on the most marginalised, vulnerable and disadvantage women in SSWAHS, who have potential to experience the greatest gains in health outcomes.

6. Culturally sensitive and responsive to the needs of individual consumers

Services will be adapted to the local geographic area, clinical needs and expressed preferences of the local community. This includes: an expansion of midwives clinics in languages other than English; continuation of the BEPE service; provision of midwifery-led models of care such as midwifery group practices and midwives clinics; and greater availability of maternity early discharge programs. Regardless of the level of risk and model of care, an integrated and collaborative model of care that includes midwifery, medical and allied health care will be offered to all women.

There will be a greater emphasis at all facilities on providing more community services and in particular community based antenatal clinics. RPA, Canterbury, Bankstown-Lidcombe and Fairfield hospitals will establish community antenatal clinics. Campbelltown Hospital will continue to explore innovative antenatal clinic outreach options and Liverpool will maintain its current community based antenatal clinics. It is important to ensure that these services are adequately resourced.

Maintaining patient preference for reductions in hospital stay will also require enhanced community services, including child and family health nurses, community midwives and midwifery discharge support programs.

Training, including cultural competency training, will be essential to ensure a skilled and knowledgeable workforce are able to care for some of the most vulnerable groups in SSWAHS, including Aboriginal women and women from CALD and refugee backgrounds.

7. The appropriate number and mix of health care professionals with the necessary knowledge, skills and experience

The appropriate number and development of a competent and flexible workforce will be critical to ensuring safe and effective services. During the life of this Plan, SSWAHS will improve and enhance training for maternity and any health professional staff involved in the provision of care during any of the three phases of pregnancy, birth and postnatal period. This will include the development of new programs and formalisation of a small networked training and education unit. A plan will also be developed to ensure the recruitment and retention of an adequate maternity services workforce. This will also include exploring the possibility of trialling and evaluating the *Birthrate Plus* midwifery workload tool. [118]

Snapshot of future maternity services and developments in SSWAHS

The following provides specific examples of planned services and developments at each of the facilities providing maternity services in SSWAHS.

Bankstown-Lidcombe Hospital

- Increase participation in GP Antenatal Shared Care Program
- Establish a community based antenatal clinic/s
- Explore the possibility of developing a birth centre
- Increase networking with RPAH

Bowral and District Hospital

- Maintain as low risk and explore the development of midwifery led care models

Camden Hospital

- Continue Midwifery Group Practice with birthing at Campbelltown Hospital

Campbelltown Hospital

- Improve networking with Bowral and District Hospital
- Increase participation in GP Antenatal Shared Care Program
- Improve services for Aboriginal women via case management
- Commence planning for a birth centre
- Increase number of community based antenatal clinics

Canterbury

- Establish a community based antenatal clinic/s

Fairfield

- Maintain as a low risk maternity service
- Increase participation in GP Antenatal Shared Care Program
- Continue to network with Liverpool Hospital
- Explore the development of midwifery led care and midwifery group practice models
- Establish a community based antenatal clinic/s

Liverpool

- Further develop as a tertiary service
- Increase caesarean section theatre lists and improve access to emergency and elective theatres
- Increase participation in GP Antenatal Shared Care Program
- Explore the possibility of increasing the number of community based antenatal clinics
- Improve services for Aboriginal women via case management

Royal Prince Alfred Hospital

- Explore the development of midwifery group practice for low risk women
- Establish a community based antenatal clinic/s
- Continue close networking with Canterbury Hospital and increase networking with Bankstown-Lidcombe Hospital

13. WORKFORCE

In SSWAHS, a team of health professionals work collaboratively to provide safe and quality maternity care to women, their babies and families. This includes: general practitioners; midwives; obstetricians; anaesthetists; paediatricians; ultrasonographers; social workers; pathologists; physiotherapists; neonatal nurses; and other health workers including those from child and family, drug and mental health services. SSWAHS, similar to other health services within Australia, faces a number of workforce issues that in the future may affect its ability to provide the best possible maternity service. Although workforce planning for maternity services is beyond the scope of this Plan and will be addressed in a separate planning process, comment is made below regarding some of the national workforce issues, with particular reference to midwifery and obstetrics, given they provide the majority of maternity care.

Midwifery workforce

Issues facing midwifery in Australia include a shortage of midwives, ageing midwifery workforce and dependence on overseas recruitment. The Australian Health Workforce Advisory Committee estimates that there is national shortage of 1,850 midwives. [119] Mirroring this locally, there is a chronic problem with vacant midwifery positions at RPA and Liverpool hospitals. To counter the national shortage there has arisen a dependence on recruiting overseas midwives, especially from the United Kingdom (UK). However other countries facing similar health workforce challenges, especially Canada and the UK, have implemented strategies to retain their workforce.[120] In tandem with this tight labour market, the midwifery workforce is ageing. The average age of the midwifery workforce is 40.7 years.[121] Exacerbating the shortage is the trend for midwives to reduce average hours worked and this trend is predicted to continue due to reasons such as lifestyle preferences, family considerations and ageing.[122]

Medical workforce

Nationally the medical workforce providing maternity services faces issues similar to those faced by the midwifery profession. This includes an ageing workforce with a mean age 50.9 years in Australia [123] and competition for workforce. Increased feminisation of the obstetric workforce with a tendency for females to work fewer hours than male obstetricians will also have impact on the number of available staff.[124] Consultation with medical staff has indicated other relevant workforce issues including: patient safety expectations which require on-site senior medical cover 24 hours day; a reluctance of visiting medical officers to be involved in the public system due to poor recognition of their contribution; a lack of experience of junior staff resulting from shorter hours of work; compliance with safe hours; lifestyle choices resulting in fewer hours worked; an increasing reluctance to cover colleagues on leave; increased pressure on individual clinicians to provide longer consultation times; and subspecialisation by obstetricians resulting in difficulty recruiting generalist obstetricians. This latter development is also an issue for midwives. In addition to the general medical workforce issues, specific local issues include difficulties in attracting doctors to work in outer metropolitan areas and a heavy reliance on overseas trained doctors.

Staff consultation has concluded that innovative solutions are required. Issues that will need to be considered include: equity of access to services across SSWAHS; current activity; training and support; clinical supervision; attracting and retaining staff; confinement projections; role delineations; geography; and demography. In addition to obstetricians and midwifery staff, neonatologists, anaesthetists, imaging and allied health staff, particularly social workers will also need to be considered. Reference will need to be made to relevant documents such as the King Edward Memorial Hospital Douglas Inquiry (2000)[125], which will help to guide workforce planning and assist in ensuring a safe and quality service continues to be provided.

14. THE MATERNITY SERVICE 'ENABLERS'

During the life of this Plan other issues that need to be taken into consideration include research and teaching and implementation, management, governance and evaluation of the Plan. Addressing these issues will complement implementation of strategies outlined in the Action Plan.

Critical to growth and improvements in maternity services in SSWAHS will be the development of improved information systems. Improved information systems will assist in the implementation, monitoring and evaluation of the Plan.

Research and Teaching

It is generally accepted that strength in health and medical research is essential to the provision of a high-quality maternity health service. The reasons for this interact with and reinforce each other:

1. A reputation for research productivity and access to research facilities helps to attract and retain high-calibre staff;
2. Research capacity also attracts researchers (both clinical and non-clinical) and research students. They create a research-active environment which, in turn, promotes a spirit of inquiry and evaluation in maternity services. The presence of research students brings fresh ideas and a sense of renewal; and
3. A research-active environment also promotes the translation of new knowledge (acquired locally and elsewhere) into practice.

Research also interacts with teaching. The capacity for teaching and training in maternity services depends on an ability to attract and retain staff who have the expertise and orientation needed to deliver complex educational programs. Leaders in clinical teaching invariably have a noteworthy research track record.

Implementation/Management/Governance

The Women's Health and Neonatology stream clinical leaders will be responsible for the management, implementation and oversight of the Plan including dissemination, implementation, identification of performance targets, monitoring, evaluation, adjustment of the Plan where necessary, and ensuring that the strategies implemented remain informed by best practice. To assist they will be guided by a broad based implementation group. Consumer involvement in all phases of the Plan's implementation, monitoring, evaluation and adjustment will also be critical to ensure that the community is involved in the strategies that will shape maternity services over the next five years.

During the life of this Plan, consideration will need to be given to implications of any relevant plans and or policies released. Mid term and final review reports regarding implementation will be required to be submitted to the SSWAHS Chief Executive.

Evaluation

This Plan has a number of goals, objectives and performance indicators which are articulated in the Action Plan. Broadly, the evaluation of this Plan will assess whether the goals and objectives have been achieved. Evaluation will include monitoring several key indicators collected in regular data collections. The major source of data will be the annually released NSW Health document *Mothers and Babies.* Auditing of equity in access to maternity services across SSWAHS will be included in the evaluation as will access to transport.

In the first year of the Plan it will be important to establish baseline levels of indicators where they are not currently available. Midway through the Plan there should be a review of implementation progress while the summative assessment of the Plan should commence after four years. This will allow sufficient time to commence planning for the next five years. The Women's Health and Neonatology stream will be responsible for overseeing the monitoring of data.

15. ACTION PLAN

The following Action Plan has been organised according to NSW Health and SSWAHS' four goals articulated on page 5. Implementation of the strategies outlined, which are consistent with available evidence and incorporate the results of consultation, will assist to meet these goals. The Action Plan includes strategies for priority populations including Aboriginal, CALD and refugee women and women who use drugs.

Where relevant, links are made to priority areas, "Future Directions" and objectives articulated in the NSW State Plan, NSW State Health Plan and SSWAHS Strategic Plan and are indicated by the following abbreviations:

- SP (NSW State Plan);
- SHP (NSW State Health Plan); and
- ASP (SSWAHS Strategic Plan).

It is noted that considerable information was obtained through the consultation process about potential strategies which could be developed to improve maternity services in SSWAHS. It will be important that as the Action Plan is implemented that reference is made to the consultation reports.

ACTION PLAN

Goals

1. To keep mothers and their babies healthy;
2. To provide the health care that mothers and their babies need;
3. To deliver high quality services; and
4. To manage health services well.

Goal: To keep mothers and their babies healthy					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy links**
1. Improve continuity of care between models and phases of care	1.1 Implement service models that provide continuity of care for women through pregnancy, labour, birth and the postnatal period across SSWAHS	Women's Health and Neonatology *Partners*: Community Health; Drug Health Services; and Mental Health Services	No. of models implemented	Ongoing	SP S1 SHP S2
	1.2 Implement service changes that improve continuity of care, including when transferring women from one facility to another e.g. inter-hospital transfers	Women's Health and Neonatology *Partners*: Community Health and Drug Health Services	• Policies implemented • Satisfaction surveys	Ongoing	SP S1 SHP S2 ASP 2c
	1.3 Provide general practitioners advice about maternity models of care and services available for example via: - Divisions of General Practice newsletters; - Development of referral pathways; and - Options of care brochure	Women's Health and Neonatology *Partner*: Divisions of General Practice	• No. of articles in relevant media • Referral pathways developed	2009	SP S1 SHP S3
2. Increase choice for women by expanding the range of maternity care options available in all SSWAHS facilities	2.1 Enhance models of care available at each facility with particular emphasis on midwife led models such as midwifery group practice and team midwifery	Women's Health and Neonatology *Partners*: General Managers; Community Health; and Mental Health Services	Increased no. of models of care available at each facility	Ongoing to 2013	SP S1 SHP S3 ASP 3a
	2.2 Develop an Area brochure on available SSWAHS maternity services and options. Brochures to provide explanations of options of care available at each facility including summary of important information e.g. tests required, timelines, and community postnatal services available	Women's Health and Neonatology *Partner*: Community Health	Brochure developed and distributed	2009	SP S1 SHP S2
3. To improve equity of access to antenatal services within SSWAHS	3.1 Facilitate accessible GP Antenatal Shared Care particularly in the south west of SSWAHS	Women's Health and Neonatology *Partner*: Divisions of General Practice	• % of total deliveries in GP Antenatal Shared Care. Target identified and met • Audit of clinical outcomes	Ongoing to 2013	SP S1 SHP S3 ASP 3b

Goal: To keep mothers and their babies healthy					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy links**
	3.2 Explore community-based locations to continue the expansion of antenatal clinics in the community. Ensure that community antenatal based services are adequately resourced and linked to Child and Family Health Nurse teams	Women's Health and Neonatology and General Managers *Partners*: Community Health and Mental Health Services	No. of additional community based antenatal clinics established. Target identified and met	Ongoing	SP S1 SHP S3 ASP 3a
	3.3 Review the current location of childbirth and early parenting programs with a view to relocating classes into the community. Ensure that community based childbirth and early parenting are adequately resourced	Women's Health and Neonatology and General Managers *Partner*: Community Health	No. of antenatal classes relocated into the community. Target identified and met	Ongoing	SP S1 SHP S3 ASP 3a
	3.4 Review the current availability of after hours antenatal clinics with a view to increasing the number available	Women's Health and Neonatology and General Managers	No. of additional after hours antenatal clinics established. Target identified and met	Ongoing	SP S1 SHP S2
	3.5 Implement the recommendations from the recent Area review of childbirth and early parenting education programs ensuring collaboration with Community Health	Women's Health and Neonatology *Partner*: Community Health	No. of recommendations implemented	2009	SP S1 SHP S2
	3.6 Review Maternal-Fetal Medicine Services' models of care in SSWAHS to ensure equity of access to Maternal-Fetal Medicine services across SSWAHS. Consider resource implications	Women's Health and Neonatology and General Managers *Partner*: Health Services Planning Unit	Review undertaken, recommendations made and implemented.	2010	SP S1 SHP S2

Goal: To keep mothers and their babies healthy					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy links**
4. To increase the proportion of women starting antenatal care before 20 weeks gestation (Aboriginal and non-Aboriginal)	4.1 In collaboration with general practitioners, partners and the community, develop services and systems which will improve the uptake of antenatal services/education. Consider initially implementing in areas of greatest need for example Bankstown	Women's Health and Neonatology *Partners*: Divisions of General Practice; Aboriginal Health; Divisions of General Practice; Community Health; Aboriginal Medical Services; Drug Health Services; and Mental Health Services	• % increase in the number of women (Aboriginal and non-Aboriginal) who commence antenatal care before 20 weeks gestation • Maintain % of low birth weight non-Aboriginal babies • Reduce % of low birth weight (less than 2,500g) Aboriginal babies	Ongoing	SP F4 SHP S3 ASP 3b.3 SP FI F4 ASP 3b.2
	4.2 Explore opportunities to develop models of care to increase continuity of care, collaboration and greater engagement e.g. *CenteringPregnancy*[24] (group antenatal care)	Women's Health and Neonatology *Partner*: Community Health and Mental Health Services	No. of models developed that increase continuity of care, collaboration and greater engagement	2010	SP S1 SHP S3

[24] *CenteringPregnancy* is a group based program which focuses on antenatal care, information sharing and support. The program developed in the United States has demonstrated significant improvements in outcomes in disadvantaged communities. (Homer, C., Brodie, P., and Leap, N. 2008. *Midwifery Continuity of Care. A Practical Guide.* Elsevier, Chatswood.)

Goal: To keep mothers and their babies healthy					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy links**
5. To minimise the impact of lifestyle factors on mothers and their babies	**Smoking** 5.1 Implement the relevant sections of the *National Tobacco Strategy 2004 - 2009* with priority implementation in areas of highest need: - Aboriginal women - Teenage women - Campbelltown LGA	Population Health *Partner*: Women's Health and Neonatology	• Strategy implemented and evaluated • Reduction in smoking rates within target groups	Ongoing	SP S3 SHP S1 ASP 1a
	5.2 Provide relevant maternity staff with education regarding simple brief evidence-based behavioural advice that can be implemented during the care of women who smoke	Population Health *Partner*: Women's Health and Neonatology	• Education module developed • No. of staff trained	Ongoing until 2013	SP S3 SHP S1 ASP 1a
	Overweight and Obesity 5.3 Develop a brochure on the impact of overweight and obesity on conception and pregnancy to be distributed via general practitioners	Women's Health and Neonatology *Partners*: Allied Health Services and Divisions of General Practice	• Brochure developed • No. of general practitioners provided brochures	2009	SP S3 SHP S1 ASP 1a
	5.4 Ensure there is a clinical pathway for the management of pregnant women who are identified as being obese and who decide to give birth within SSWAHS facilities	Women's Health and Neonatology *Partners*: Divisions of General Practice and Allied Health Services	Pathway developed and implemented	2009	SP S3 SHP S2
	5.5 Develop resources for women which can be used in the antenatal and perinatal period (for example in antenatal clinics). This may include for example audiovisual materials providing information such as dietary and exercise advice, cooking tips and family meal preparation	Women's Health and Neonatology *Partners*: Allied Health Services and Public Affairs and Marketing	• Resources developed • No. of resources developed	2010	SP S3 SHP S7 ASP 1a

Goal: To keep mothers and their babies healthy					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy links**
	5.6 Explore opportunities to develop antenatal and postnatal groups for overweight and obese mothers to address issues around overweight and obesity. Pilot initially in priority areas	Women's Health and Neonatology *Partners*: Allied Health Services and Community Health	No. of groups established	2011	SP S3 SHP S1 SHP S7 ASP 1a
6. Provide women with additional information that will assist improve choice and knowledge	6.1 Develop and market a webpage on the SSWAHS internet site to provide information to patients, local general practitioners and staff. Consider links with other relevant organisations e.g. NSW Health. For example create a hyperlink to *Having a Baby* resource http://www.health.nsw.gov.au/mhcs/publication_pdfs/8075/DOH-8075-ENG.pdf	Women's Health and Neonatology *Partners*: Information and Technology Division and Public Affairs and Marketing	Webpage developed	2012	SP S1 SHP S7
	6.2 Consistent with the review of childbirth and early parenting education programs enhance the availability of up-to-date parent education teaching materials and resources such as DVDs, flip charts, etc.	Women's Health and Neonatology *Partners*: Strategic Workforce Planning & Development and Mental Health Services	No. of resources developed	Ongoing	SP S3 SHP S7
	6.3 Develop an information sheet to be distributed on the antenatal and postnatal maternity wards and NICUs outlining services and entitlements available, for example eligibility for Carer's Allowance and parking	Women's Health and Neonatology	Information sheet developed and distributed	2009	SHP S2

Goal: To provide the health care that mothers and their babies need					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
7. Provide a culturally appropriate model that will facilitate the provision of maternity services that are accessible to Aboriginal women (and women who are pregnant with Aboriginal babies)	7.1 Continue initiatives to improve access to maternity services for Aboriginal women, women who are pregnant with Aboriginal babies and their families via implementation of programs such as the *Aboriginal Maternal and Infant Health Strategy* and *Bringing Services Together (BST)* program. This will also include promoting these services to fathers who are Aboriginal	Women's Health and Neonatology *Partners*: Aboriginal Health and Community Health	• Strategies and programs implemented across SSWAHS. BST program implemented at Bankstown and Campbelltown and evaluated across SSWAHS • % increase in the number of Aboriginal women who commence antenatal care before 20 weeks gestation • Reduce % of low birth weight (less than 2,500g) Aboriginal babies	Ongoing	SP FI F4 ASP 3b.2
	7.2 Continue to develop and provide innovative childbirth and parenthood education to Aboriginal women (and women who are pregnant with Aboriginal babies) and their partners. This may include flip charts, pamphlets and classes	Women's Health and Neonatology *Partners*: Aboriginal Health and Community Health	• No. of new resources developed	Ongoing	SP F1 ASP 1b
	7.3 Recruit Aboriginal midwives and health care workers to improve maternity service appropriateness	Women's Health and Neonatology *Partners:* Aboriginal Health and Community Health	Target identified and met	Ongoing to 2013	SP F1 SHP S6 ASP 6b
	7.4 Increase the number of training positions for Aboriginal midwives and health workers	Women's Health and Neonatology *Partners:* Aboriginal Health and Community Health	Target identified and met	Ongoing to 2013	SP F1 SHP S6 ASP 6b

Goal: To provide the health care that mothers and their babies need					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
8. Ensure that maternity services are accessible to women from CALD communities	8.1 Improve access to communication tools and services by: 8.1.1 Translating the Area brochure on available SSWAHS maternity services and option[25]; 8.1.2 Advocating for an increase in the number of interpreters in SSWAHS; 8.1.3 Improving access to interpreter services by adopting alternative technology for accessing interpreter services for example teleconferencing and videoconferencing; and 8.1.4 Implementing the use of relevant existing and new interpreted information and communication tools such as the Department of Education and Training *Language of Childbirth* resource	Women's Health and Neonatology *Partner:* Community Health	• No. of translations/ languages • No. of interpreters increased • Yearly audit of alternative technology used • No. of tools implemented	2009 Ongoing 2009 – 2013 2009 - 2013	SHP S2 ASP 1b ASP 1b.3
	8.2 Develop and monitor the provision of additional CALD specific antenatal clinics in community settings in Fairfield, Liverpool, Canterbury and Bankstown	Women's Health and Neonatology *Partner:* Community Health	No. of additional community based clinics established	Ongoing to 2013	SHP S2 ASP 1b
	8.3 Enhance Bilingual Early Parenting Educators (BEPE) program	Community Health *Partner*: Women's Health and Neonatology	No. of extra positions created	Ongoing to 2013	SHP S2 ASP 1b
	8.4 Develop antenatal and postnatal support groups tailored for the specific needs of CALD women. Consider partnerships with NGOs	Women's Health and Neonatology *Partner*: NSW Refugee Health Service and Community Health	No. of groups established Target identified and met	2010	SP S1 SHP S4 ASP 1b

[25] Brochures to provide explanations of options of care by facility including summary of important information e.g. tests required and timelines; and community postnatal services available. Such a brochure should be translated into Arabic, Chinese, and Vietnamese at a minimum. Consider translating into less common languages for example Kirundi (Burundian language) or Juba Arabic or Dinka (Sudanese language).

Goal: To provide the health care that mothers and their babies need					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
9. Ensure that maternity services are accessible to women from refugee communities	9.1 Develop antenatal and postnatal support groups tailored for the specific needs of refugee women. Consider partnerships with NGOs	Women's Health and Neonatology *Partner*: NSW Refugee Health Service and Community Health	No. of groups established Target identified and met	2010	SP S1 SHP S4 ASP 1b
	9.2 Explore opportunities of providing a midwifery educational outreach service in partnership with English language tuition providers. For example Blacktown Hospital model[26]	Women's Health and Neonatology *Partners*: NSW Refugee Health Service and relevant English language tuition providers	Outreach service developed and no. of classes attended	2010	SP S1 SHP S4 ASP 1b
10. Improve access to maternity services for women with drug and alcohol related issues who are pregnant	10.1 Implement the recommendations of the recent review of perinatal and family drug health services which incorporate the new *National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn*	Drug Health Services *Partner:* Women's Health and Neonatology	• No. of pregnant women on methadone attending a minimum of 5 antenatal visits[27] • No. of pregnant women on methadone assessed prior to 20 weeks gestation[28]	Ongoing to 2013 Ongoing to 2013	SP S3 SHP S3 ASP 1c.8
	10.2 Explore opportunities to develop models of care to increase continuity of care, collaboration and greater engagement with this client group	Drug Health Services *Partners*: Women's Health and Neonatology; Community Health; and Mental Health Services	• No. of models developed	Ongoing to 2013	SP S3 SHP S6 ASP 1c.8

[26] Blacktown Hospital have commenced a service whereby a midwife from the maternity service attends a local Migrant Resource Centre (MRC) and provides outreach childbirth and early parenting classes to refugee women. Education is provided via bilingual workers attached to the MRC.
[27] Database needs to be developed and need to determine who is collecting data and providing reports
[28] As above

Goal: To provide the health care that mothers and their babies need					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
	10.3 Advocate for an enhancement in the number of relevant health workers working with women with drug and alcohol related issues including social workers, drug health staff, midwives and medical officers	Women's Health and Neonatology	• No. of additional drug health staff Target identified and met	Ongoing to 2013	SP S3 ASP 1c.8
	10.4 Develop programs for training of health care workers in drug issues in pregnancy	Drug Health Services *Partner*: Women's Health and Neonatology and Strategic Workforce Planning & Development	• Program/s developed and target/s identified and met	2009	SP S3 ASP 1c.8
11. To support women with issues that impact on perinatal mental health and wellbeing	11.1 Establish antenatal and postnatal groups for women to enhance relationships and parent infant attachment	Mental Health Services *Partner*: Women's Health and Neonatology	No. of antenatal and postnatal, anxiety and depression management groups established. Target identified and met	2010	SP F4 SHP S1
	11.2 Improve access to antenatal and postnatal biopsychosocial assessment and linkage to services for all women	Women's Health and Neonatology *Partner*: Mental Health Services	All women who receive maternity care in SSWAHS hospitals are assessed	2011	SP F4 SHP S1
12. Promote access to maternity services for young women who are pregnant	12. Promote SSWAHS antenatal and postnatal services for women under the age of 21 years. Consider developing links with NGOs and agencies providing care to young women	Women's Health and Neonatology *Partners*: Community Health Services and relevant NGOs	• % of young women who commence antenatal care before 20 weeks gestation • No. of links developed with NGOs • Targets identified and met	2010	SP S1 SHP S2

Goal: To provide the health care that mothers and their babies need					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
13. Ensure that maternity services are accessible to women with a disability	13.1 Review all policies and procedures to ensure access requirements are met. Review to be guided by NSW Health Policy PD2008_010 and *SSWAHS Disability Action Plan 2008 - 2011*	General Managers *Partner*: Women's Health and Neonatology	All policies and procedures reviewed to ensure access	2009	SP S1 SHP S2 ASP 1b
	13.2 Review all relevant information to ensure that it is accessible for the range of women with a disability	General Managers *Partner*: Women's Health and Neonatology	All information reviewed to ensure accessibility	2009	SP S1 SHP S3 ASP 1b
	13.3 Implement relevant recommendations from the *SSWAHS Carers' Plan 2008 - 2012*	General Managers *Partner*: Women's Health and Neonatology	Relevant sections of the *SSWAHS Carers' Plan* implemented	2009	SP S1 SHP S3 ASP 1b
14. To support women to initiate and maintain breastfeeding	14.1 Implement the NSW Health Policy PD2006_012: *Breastfeeding in NSW: Promotion, Protection and Support* and SSWAHS implementation plan	Women's Health and Neonatology *Partners*: Community Health and Divisions of General Practice	Policy and plan implemented and evaluated	Ongoing to 2013	SP S1 SHP S1
	14.2 Increase the number of lactation consultants across SSWAHS via training and development initiatives	Women's Health and Neonatology *Partner*: Community Health	Target identified and met	Ongoing to 2013	SP S1 SHP S6
	14.3 Develop innovative projects to improve access to breastfeeding services for example: - Pilot a mobile van service	Women's Health and Neonatology and Community Health	No. of projects implemented	2011	SP S1 SHP S3
	14.4 Provide SSWAHS staff adequate access to onsite expressing facilities	General Managers *Partner*: Women's Health and Neonatology	Target identified and met	Ongoing to 2013	SP S1 SHP S6
	14.5 Provide general practitioners with access to SSWAHS lactation consultants	Women's Health and Neonatology and Community Health	Pathways established to improve general practitioner access to SSWAHS lactation consultants	Ongoing to 2013	SP S1 SHP S3

Goal: To deliver high quality services					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
15. Improve and enhance training for maternity and related staff	15.1 Formalise a small networked training and education unit for maternity and related staff	Women's Health and Neonatology *Partner*: Strategic Workforce Planning & Development	• Unit established • No. of programs offered and staff trained	2009	SP S1 SHP S6 ASP 6b
	15.2 Ensure that psychosocial assessment and early intervention training is available to all maternity staff. Increase the number of maternity staff who participate in up-skilling programs for working with clients who have anxiety and depression in pregnancy and early parenting	Women's Health and Neonatology *Partner*: Mental Health Services	Targets identified and met	2009	SP F4 SHP S6 ASP 6b
	15.3 Develop and implement a Female Genital Mutilation (FGM) training program for clinicians and relevant personnel. Consider consultation with NSW FGM Education Program and the Auburn Hospital Maternity Unit	Women's Health and Neonatology *Partners*: Strategic Workforce Planning & Development and NSW Refugee Health Service	• Program developed • No. of staff who attend training	2010	SP S1 SHP S6 ASP 6b
	15.4 Implement the relevant recommendations from the recent review of childbirth and early parenthood education programs in SSWAHS	Women's Health and Neonatology	No. of recommendations implemented	2010	SP S1 SHP S2
16. Ensure a culturally appropriate and safe environment for women and their families	16. Ensure that all staff in Maternity and Neonatal services attend Aboriginal cultural awareness training	Women's Health and Neonatology Services *Partner*: Aboriginal Health	Target identified and met	2011	SP F1 SHP S2 SHP S6 ASP 6b
17. Ensure that patients are aware of their rights and responsibilities and the complaints process	17. Consider project to audit awareness of patients' knowledge of their rights and responsibility and the SSWAHS complaints process	Clinical Governance Unit *Partner*: Women's Health and Neonatology	Results of audit and implementation of recommendations	2009	SP S1 SHP S2 ASP 2a
18. Ensure quality and safety with the implementation of the maternity services framework	18. Establish a system to monitor trends and outcomes for different models of care and implementation of the framework	Women's Health and Neonatology *Partner*: Clinical Governance Unit	• Establish and implement a monitoring and reporting system	2010	SP S1 SHP S5 ASP 2b

Goal: To manage health services well					
Objective	**Strategy**	**Responsibility**	**Performance Indicator**	**Time Frame**	**Policy Link**
19. Promote SSWAHS maternity services	19. Develop a promotion strategy that highlights innovation and excellent outcomes of SSWAHS maternity services	Public Affairs and Marketing *Partner*: Women's Health and Neonatology	Strategy developed and implemented	2010	
20. Develop a plan for the recruitment and retention of an appropriate number and adequately skilled maternity services workforce	20.1 Establish a working party within the Women's Health and Neonatology stream to develop a workforce plan.	Women's Health and Neonatology *Partner*: Strategic Workforce Planning & Development	• Workforce planning party established • Planning day held • Plan developed and implemented	2009	SP S1 SHP S6 ASP 6a
	20.2 Explore the possibility of trialling and evaluating the *Birthrate Plus* midwifery workload tool	Women's Health and Neonatology *Partner*: Strategic Workforce Planning & Development	*Birthrate Plus* tool trialled and evaluated. Consider results for implementation	2010	SP S1 SHP S6 ASP 6a
21. Ensure that infrastructure is adequate and equitably distributed to meet future demands	21. Develop an infrastructure capacity paper for hospitals within SSWAHS that provide maternity services	Health Services Planning Unit *Partner*: Women's Health and Neonatology	Infrastructure capacity paper developed	2010 and ongoing	SP S1 SHP S7
22. To improve equity of access to maternity services within SSWAHS	22. Audit maternity and related services for equity in access to services	Women's Health and Neonatology	Audit conducted and recommendations implemented	2009 and ongoing	SP S1 SHP S2 ASP 2b
23. Evaluate the results of implementing the maternity services plan	23. Conduct a satisfaction survey to determine women's perception of maternity services Conduct surveys at the beginning of the Plan's implementation and at completion	Women's Health and Neonatology and General Managers	Surveys are conducted and recommendations implemented	2013	SP S1 SHP S2 ASP 2a

16. APPENDICES

APPENDIX 1 MATERNITY SERVICES OPTIONS. A REVIEW OF THE EVIDENCE ON ALTERNATIVE MODELS OF CARE

MATERNITY SERVICES OPTIONS

A REVIEW OF THE EVIDENCE ON ALTERNATIVE MODELS OF CARE

AUSTRALIAN HEALTH POLICY INSTITUTE

THE UNIVERSITY OF SYDNEY

The University of Sydney

Kathy Flitcroft and Anne-marie Boxall

November 2006

Commissioned by Sydney South West Area Health Service

KEY POINTS

- The main options for models of maternity care are obstetrician-led (public or private); midwifery-led (standard, team or caseload); and shared care.
- Despite calls for nearly 20 years to increase the range of maternity services options in NSW, progress has been slow.
- Public obstetrician-led models are essential for high risk women, while private obstetric care provides a popular alternative for those who can afford it.
- There is strong evidence of the benefits of midwifery-led models of care for low risk women.
- There is virtually no evidence that midwifery-led models of care (including team midwifery, caseload midwifery and co-located birth centres) are unsafe for mothers and babies. However, it is difficult to make assurances about the safety of various midwifery models of care because of the methodological limitations of many studies in this field.
- Currently there is little evidence on how to accurately assess risk and respond to an increase in risk status, particularly during labour.
- Shared care models have the potential to provide women with more localised services with a known carer, but the lack of streamlined policy and procedures appear to have limited expected benefits.
- Community-based public services (either midwifery-led or shared care) offer women services that are similar to the more popular private models and may help reduce inequities of access to services for those women living in non-metropolitan areas.
- The effects of continuity of care, continuity of carer and type of carer are frequently confused, making it difficult to assess how each of these affect outcomes.
- Recent studies indicate that it is quality of care, rather than continuity of care that is most beneficial.
- There is mixed evidence on the relationship between the size of maternity unit and safety, with differences in technological capacity and risk identification procedures making it impossible to draw definitive conclusions.
- A crucial issue to be resolved is the classification of risk status, both during pregnancy and in labour. Concerns about the safety of various midwifery models for high risk women may be allayed if much clearer guidelines and procedures for risk assessment can be developed.

EXECUTIVE SUMMARY

Maternity services in NSW have developed in an ad hoc way. This now needs to change. For nearly two decades, there have been calls from federal and state governments and the National Health and Medical Research Council to increase the maternity care options available for women. Despite this, options for many women remain limited. Although there are many reasons for the lack of progress, contention over the benefits and safety of alternative models are major sticking points. This paper reviews the evidence on:

- Alternative models of maternity care (focusing on midwifery-led and shared care models)
- International experiences with midwifery-led models
- Safety and risk in midwifery-led models
- Size of inpatient units and safety

Whilst many other aspects of maternity services are relevant to decisions about the re-organisation of maternity services in NSW, they are outside the terms of reference for this literature review.

Current Models of Maternity Care

Obstetrician-led models

While obstetrician-led models of care are not dealt with in any detail in this review, the authors recognise their vital contribution to maternity services, and the lack of discussion about these models in no way infers they are less important. The priority of this review, however, is to discuss the evidence for and against midwifery-led and shared care models, as well as other relevant issues such as continuity of care, safety and optimal size of maternity units.

Midwifery-led models

The term midwifery-led care can be confusing as midwifery is practised in various settings – hospitals, birth centres and community clinics – and is organised in different ways – including standard midwifery, team midwifery and caseload (or one-to-one) midwifery. Generally speaking, studies of midwifery-led models of care in Australia and overseas have demonstrated that they have some advantages over public hospital obstetrician-led and shared care models. Community-based (including free-standing birth centres) and outreach models of midwifery-led care are in their infancy in Australia, so there is little local evidence to assess.

The benefits of other midwifery-led models, such as team and caseload midwifery and co-located birth centres, are clear, however. Studies consistently show that women who are using these services report greater continuity of care, higher satisfaction with care and less interventionist deliveries than those using conventional maternity services (generally public hospital based care). These benefits are highly valued by many women.

However, it is not the benefits of midwifery-led care that are disputed. It is the safety of these services that is under the spotlight. Although there is no evidence that midwifery-led services are unsafe, and most agree they are safe for low risk deliveries, there are sharp divisions on their suitability for high risk women. It is because the existing evidence does not adequately address this issue that assurances on the safety of midwifery-led services for all women cannot be given.

The literature on risk in midwifery-led services is problematic for several reasons including: the variability in type and scope of midwifery care between studies; the small size of many studies which limits their ability to find significant adverse outcomes; the difficulty in separating the effects of various elements of care on outcomes; and the limitations due to the high transfer rates between services, usually from midwifery to obstetrician-led care. Concerns about the safety of various midwifery-led models for high risk women may be allayed if much clearer guidelines and procedures for risk assessment can be developed.

Shared care models

There are few high quality studies that have specifically investigated shared care models. Some international trials have compared either caseload or team midwifery with various forms of shared care, however, and found that midwifery-led models had better outcomes. There have not been any Australian randomised controlled trials (RCTs) of shared care models but other studies have shown that shared care has so far failed to relieve pressure on the public system, improve access for marginalised women and is generally not rated by women any more highly than public hospital care.

Community-based care

With the closure of 126 non-metropolitan maternity units in Australia over the last ten years, community-based care (with either midwifery-led or shared care models) offers an important way of providing access to maternity services for women living outside the major cities. The NSW Report of the Greater Metropolitan Services Implementation Group recognised the valuable role locally-based services can play, providing they are networked into the broader area health service operations (NSW Health Department 2001).

Issues in the Delivery of Maternity Care Services

Continuity of care

Substantial questions remain about continuity of care. It is unclear whether it is continuity of care or carers that matters and whether it is the number or type of carers or the quality of the interaction that improves outcomes. Randomised controlled trial evidence has also been unable to decipher which particular component of care (for example, the setting, type of caregiver, or extent of personalised care) is responsible for women's preferences for one model over another. Uncertainty will remain until studies are conducted that manipulate only a few variables at a time.

Size of maternity units

There is ongoing debate about the optimal size of inpatient maternity units. In recent years, there has been a push towards centralising maternity services and many smaller units have been closed. Such decisions have generally been justified on safety grounds with claims that delivering in smaller units poses an inherent risk to mothers and babies. Opponents of centralisation argue that there is no evidence of poorer outcomes in smaller units and their closure is a cost-cutting measure. Because there are so few studies and they contradict each other, it is impossible to make clear cut recommendations using the existing evidence.

Fragmentation of care

Australia can learn from the recent New Zealand experiences of reforming maternity services. In particular, it is essential that fragmentation of care, either across caregivers or across stages of maternity care, is minimised, and measures that may lead to increased competition among providers avoided. Collaboration among obstetricians, general practitioners and midwives must be fostered if women are to receive the best maternity services possible.

Conclusion

There are several ways forward in the debate over maternity services and the safety of alternative models. Further research is undoubtedly needed but unless deficiencies in the research are addressed, it will not help resolve the current debate. Larger studies need to be undertaken that have sufficient statistical power to draw conclusions about maternal and neonatal outcomes. Studies that use methodologies other than randomised controlled trials and apply more complex statistical techniques also need to be conducted in order to separate out the effects of various aspects of care. Researchers need to be much clearer and more consistent when defining the scope and type of midwifery-led care. The most critical development, however, is in the area of risk classification. Because most of the issues about safety concern high risk women or those who become high risk during delivery, researchers need to investigate existing risk screening criteria and protocols used to guide decision-making.

APPENDIX 2 NATIONAL, STATE AND SSWAHS POLICIES AND PLANS

National Policy	Relevance
'Close the Gap' [126]	*Closing the Gap* between Indigenous and non-Indigenous Australians on a range of areas of Indigenous disadvantage is a national priority. In addition to *Closing the Gap* on areas such as life expectancy, educational achievements and employment opportunities, halving the mortality gap between Indigenous and non-Indigenous children under the age of five within a decade has been set as a target. [127] Action in the areas of maternal, antenatal and early childhood health are recognised as being essential to addressing child mortality and early childhood development.
National Tobacco Strategy 2004 - 2009: The Strategy[128]	The objectives of the strategy among all social groups are: I. *To prevent uptake of smoking;* II. *To encourage and assist as many smokers as possible quit as soon as possible;* III. *To eliminate harmful exposure to tobacco smoke among non-smokers; and* IV. *Where feasible, to reduce harm associated with continuing use of, and dependence on tobacco and nicotine.*[129] A specific maternal and child objective outcome stated is to ensure that substantially fewer infants are exposed to tobacco in utero and after birth. The paper notes research findings that maternal smoking doubles the risk of Sudden Infant Death Syndrome (SIDS) and smoking during pregnancy causes approximately one quarter of cases of low birthweight, which in turn contributes to the cost of antenatal care and is a predictor of developmental delays and ill health in both child and adults. The adoption of treatment protocols by all public maternity hospitals is strongly advocated in the paper.
NSW Government: Future directions for Health in NSW – Towards 2025. Fit for the future (2007) [130]	This plan identifies key areas for action in NSW. It will guide changes that are required in NSW over the next 20 years to ensure that health remains of a high quality and affordable. Equity in health is a fundamental principle that underpins the document.
NSW Action Plan 2007 – 2011 Early Childhood and Child Care Council of Australian Governments National Reform Agenda (2007)[131]	This plan outlines the NSW Government's action plan for early childhood and childcare. It is structured around three key policy directions: improving antenatal care; strengthening the health, development and learning of 0 - 5 year olds; and enhancing the provision of early education and care services. The two priority action areas for improving antenatal care are: improve antenatal services to better respond to the needs of all pregnant women; and provide targeted antenatal information and services to Indigenous, teenage and other vulnerable mothers. Initiatives supporting these priority areas include: screening every pregnant woman to identify their risk of antenatal and postnatal depression; implementing a set of national, evidence-based guidelines for antenatal care based on the current work of the National Health and Medical Research Centre (NHMRC); and examining ways to strengthen antenatal services for at-risk mothers to ensure early in their pregnancy they receive appropriate advice and specialised support.

State Policy/Plan	Relevance
The NSW Aboriginal Perinatal Health Report (2003) [132]	This paper provides an *Aboriginal Maternal and Infant Health Strategy (AMIHS) Framework* that can be implemented to improve the health of Aboriginal mothers and their babies. Multifaceted approaches include strategies to improve the use of antenatal and postnatal maternity services, for example targeted programs that include a team approach to care involving Aboriginal Health Workers, midwives, specialists and general practitioners and "sensitivity to the underlying social and economic circumstances of many Aboriginal women which can result in non-attendance."
Aboriginal Child, Youth and Family Strategy[133]	This strategy forms part of the Government's efforts to improve outcomes for Aboriginal children, young people and their families and communities. It focuses on better coordination and targeting of existing government and non-government resources, ensuring mainstream services are meeting the needs of Aboriginal people and testing new ways of supporting these communities. The Aboriginal Child, Youth and Family Strategy is currently being implemented across a number of Aboriginal communities in SSWAHS.
Women's Health Outcomes Framework (2002)[134]	This document reviews the scope of women's health priorities in NSW and proposes a framework for the ongoing development of indicators to measure and monitor the effectiveness of interventions in women's health, as well as the sensitivity of services to the needs of women. The Framework encourages the development of sustainable partnerships and interventions to address key health determinants, with a particular focus on achieving health gains for those women who are disadvantaged or living in areas of disadvantage and have the poorest health outcomes. Maternal and infant health is one of the five priority issues.
NSW Aboriginal Maternal and Infant Health Strategy (2000)	This strategy is a community based maternity service. It involves an Aboriginal Health Worker or Aboriginal Health Education Officer working in close collaboration with a midwife to provide care to pregnant Aboriginal women, new mothers and their babies in a culturally safe environment. [135] It aims to improve the health of Aboriginal women during pregnancy and decrease perinatal morbidity and mortality via providing improved and more culturally sensitive antenatal and postnatal services to pregnant Aboriginal women. [136] To achieve its goals, AMIHS networks with relevant health services such as mental health, drug and alcohol, and early childhood services and advocates for and supports Aboriginal women and their families within mainstream services.[137] Evaluated in 2005, the program demonstrated improvement in the number of Aboriginal women presenting for antenatal care before 20 weeks and reductions in pre-term and low birth weight births.[138]
NSW Aboriginal Health Strategic Plan (1999)[139]	The key priorities of the plan are to: "improve access to health services"; "address identified health issues"; "improve social and emotional wellbeing"; "increase the effectiveness of health promotion"; and "to create an environment supportive of good health."[140]
Two Ways Together: the NSW Aboriginal Affairs Plan 2003 - 2012[141]	*Two Ways Together* aims to improve the lives of Aboriginal people in 7 priority areas: health, education, economic development, justice, families and young people, culture and heritage and housing and infrastructure. The philosophy of the plan is based on the interrelationships between these priority areas and the flow on effects of positive outcomes. Specific health issues being addressed include the health and wellbeing of Aboriginal mothers and children, injury, ill health and disease from

	substance misuse and physical health (for example cardiovascular disease and diabetes). Increased birth weight, reducing the time until the first antenatal visit and reducing smoking in pregnancy were three relevant indicators identified.
Women's Health Outcomes Framework (2002)[142]	This document reviews the scope of women's health priorities in NSW and proposes a framework for the ongoing development of indicators to measure and monitor the effectiveness of interventions in women's health, as well as the sensitivity of services to the needs of women. The framework encourages the development of sustainable partnerships and interventions to address key health determinants, with a particular focus on achieving health gains for those women who are disadvantaged or living in areas of disadvantage and have the poorest health outcomes. Maternal and infant health is one of the five priority issues.
The Sydney South West Area Healthcare Services Plan	Following the amalgamation of area health services (AHSs) in 2004, all AHSs were required to develop an area healthcare services plan (AHSP) to establish strategic directions for their health services. The AHSP makes projections to 2016 and more broadly to 2021. The plan remains in draft under the consideration of NSW Health.
NSW State Plan: A New Direction for NSW (2006) [143]	This plan articulates the NSW government's 10 year plan for NSW. It highlights the importance of the antenatal period for child development and the need to examine ways of strengthening antenatal services for at-risk mothers to ensure that they engage with support systems early in pregnancy and receive appropriate advice and specialised support as required. Attention is given to young single mothers and Aboriginal mothers with the aim of avoiding preventable problems and increasing the time between births.
NSW Government State Health Plan: A New Direction for NSW: Towards 2010 (2007)[144] .	This plan incorporates the health priorities articulated in the NSW government's state plan with strategies based on evidence and targets for the future. It guides the development of the NSW public health system towards 2010 and beyond. Relevant priorities include delivering better community based primary care and improving health outcomes. The maternal and neonatal targets are: increase the proportion of mothers commencing antenatal care before 20 weeks gestation (Aboriginal and non-Aboriginal); strive to reduce the proportion of Aboriginal babies weighing less than 2,500g at birth; prevent any increase in the proportion of non-Aboriginal babies weighing less than 2,500g at birth; and increase the proportion of families offered and receiving a postnatal home visit within two weeks of birth.
Models of Maternity Service Provision Across NSW – Progressing Implementation of the NSW Framework for Maternity Services – April 2003[145]	This paper supplements the *NSW Framework for Maternity Services (2000)* document and proposes models of maternity service provision for NSW which are consistent with international best-practice that can meet community needs and expectations for accessible, appropriate, safe and high quality maternity care.

State Policy/Plan	Relevance
Families NSW[146]	*Families NSW* is the NSW Government's whole of government prevention and early intervention strategy that assists parents give their children a good start in life. It includes supporting families during pregnancy and children up to 8 years, when development is most rapid. *Families NSW* aims to improve health, developmental, educational and social outcomes for children in NSW and provide all children with the skills for life and learning. The basis for *Families NSW* is a universal population based approach, which focuses on early intervention and prevention within a community development framework to support parents and carers raising children. *Families NSW* is well established within SSWAHS. 2008 marks the tenth anniversary of the implementation of *Families NSW* in South West Sydney. Major initiatives such as the *Supporting Families Early* package, including the Universal Health Home Visiting and *SAFE START* policies, have ensured that all families should have a comprehensive psychosocial assessment and depression screening antenatally and postnatally, and a universal entry point home visit, soon after birth, by a Child and Family Health Nurse.
Maternity Services in New South Wales – The Final Report of the Ministerial Taskforce on Obstetric Services in New South Wales (Shearman Report) (1989)	The Shearman Report was formative in a number of respects, including: • Its commitment to developing maternity services, that reflect consumer views and needs; • Its promotion of consumer choice in childbirth and the recognition of the importance of family-centred childbirth; • The recognition of the need for continuity of care in maternity service provision; and • The recognition that varied maternity and child health outcomes correlate with socio-economic status, ethnicity, age, geography and community support. It recommended specific strategies regarding access and culturally appropriate maternity services for Aboriginal women. These included: • Expanding shared care arrangements between maternity units and Aboriginal Medical Services; • Creating Aboriginal Liaison Officer positions in hospitals serving large Aboriginal communities; and • Greater acceptance and involvement of traditional Aboriginal birth attendants.[147] It led to the development of Ethnic Obstetric Liaison Officers, birthing centres and a significant re-orientation of maternity services across NSW. The principles and goals of the Shearman Report remain relevant today.

APPENDIX 3 MATERNITY SERVICES PLAN STEERING COMMITTEE MEMBERS

Name	Title
Dr Greg Stewart	Chairperson, Director of Population Health, Planning and Performance
Dr Andrew Child	Area Director Women's Health and Neonatology
A/Prof Rajanishwar Gyaneshwar	Director Womens' Services, Liverpool Hospital
Ms Valerie Smith	Clinical Manager, Women's Health and Neonatology, SSWAHS
Prof Patricia Brodie	Professor of Midwifery Practice Development & Research, SSWAHS
Dr Andrew Zuschmann	Staff Specialist, Womens' Services, Liverpool Hospital
Mr Gary Miller	General Manager, Canterbury Hospital
Ms Karen Becker	Director, Drug Health Services, SSWAHS
Ms Sharon Smith	Chair, Consumer/Community Council
Ms Janice Low	Consumer/Community Representative
Ms Jo Tilley	Consumer/Community Representative
Ms Karen Sorenson	Nursing Unit Manager Delivery Suite, Fairfield Hospital
Ms Sonya Holley	Nursing Unit Manager, Women's and Child Health Outpatients, Liverpool Hospital
Dr Susan Harnett	General Practitioner, Bankstown General Practice Division
Dr Anett Wegerhoff	General Practitioner, Macarthur Division of General Practice
Dr Linda Mann	General Practitioner, Central Sydney General Practice Network
Dr Allan Kelly	Area Director Paediatric Services, Inner West
Dr Phillip Emder	Head Department Paediatrics, Bankstown-Lidcombe Hospital
Dr Alfred Ng	Staff Specialist, Bankstown-Lidcombe Hospital
Ms Ursula Hopper	Service Manager, Perinatal and Infant Mental Health Service
Ms Majella Hooper	Nurse Manager, Newborn Care, Liverpool Hospital
Ms Donna Hartz	Clinical Midwife Consultant, Clinical Governance, SSWAHS
Ms Tracy Popham	Families First Program Coordinator, Community Paediatrics, South West
Ms Brenda Gillard	Clinical Nurse Consultant , Early Childhood Health Services, Inner West
Ms Anne McKenzie	Acting Clinical Nurse Consultant, Early Childhood Health Services, Inner West
Ms Victoria Blight	Nursing Unit Manager, Child and Family Health Nursing Team, Bankstown
Ms Dorothy Shipley	Aboriginal Health Manager, Liverpool Hospital
Ms Katrina Hurley	Senior Social Worker, Women's and Children's Health, RPAH
Sr Alison Bush	Clinical Midwife Consultant, Aboriginal Liaison Midwife, RPAH
Ms Sharon Nicolson	Senior Aboriginal Health Manager, SSWAHS
Ms Lou-Anne Blunden	Director, Health Services Planning Unit, SSWAHS
Ms Anita Calderan	Senior Health Services Planner, Health Services Planning Unit ,SSWAHS

SSWAHS Maternity Services Plan Steering Committee Terms of Reference:

- Determine an appropriate process for developing the SSWAHS Maternity Services Plan;
- Establish the framework for the development of the Plan which will include women's health services, paediatrics and neonatal services;
- Identify the main priority areas for action for SSWAHS;
- Review and propose future models of maternity care;
- Review maternity services networking across SSWAHS in the light of the proposed models of care e.g. midwifery–led;
- Consider workforce issues and the private sector; and
- Develop a Maternity Service Plan that has a planning horizon of 2007-2012 with a broader vision to encompass the projected growth to 2016 (mostly in the South West of the Area Health Service).

APPENDIX 4 DATA FROM NSW MIDWIVES DATA COLLECTION (HOIST).

Table 1: Confinements in SSWAHS by statistical local area of residence, 2002 – 2006

Local Government Area	2002		2003		2004		2005		2006	
	No.	%	No.	%	No.	%	No.	%	No.	%
Ashfield	507	2.6	500	2.5	496	2.6	523	2.6	566	2.7
Bankstown	2,701	13.9	2,802	14.2	2,654	14.0	2,838	14.2	2,938	14.2
Burwood	368	1.9	331	1.7	317	1.7	315	1.6	309	1.5
Camden	866	4.5	822	4.2	813	4.3	772	3.9	827	4.0
Campbelltown	2,283	11.8	2,342	11.8	2,124	11.2	2,272	11.2	2,326	11.2
Canterbury	2,146	11.1	2,135	10.8	2,173	11.5	2,257	11.3	2,355	11.4
Concord	357	1.8	364	1.8	396	2.1	437	2.2	1,019[29]	4.9
Drummoyne	469	2.4	471	2.4	499	2.6	531	2.7		
Fairfield	2,721	14.0	2,826	14.3	2,643	13.9	2,663	13.3	2,660	12.8
Leichhardt	1,002	5.2	997	5.0	1,004	5.3	975	4.9	1,023	4.9
Liverpool	3,013	15.5	3041	15.4	2,860	15.1	2,974	14.9	3,066	14.8
Marrickville	1,029	5.3	1081	5.5	1,072	5.6	1,144	5.7	1,238	6.0
Strathfield	278	1.4	297	1.5	297	1.6	336	1.7	348	1.7
Sydney (part of)	550	2.8	611	3.1	531	2.8	834	4.2	939	4.5
Wingecarribee	497	2.6	517	2.6	460	2.4	498	2.5	458	2.2
Wollondilly	617	3.2	638	3.2	639	3.4	647	3.2	678	3.3
TOTAL	19,404	100	19,775	100	18,978	100	20,016	100	20,750	100

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

Table 2: Maternal country of birth SSWAHS and NSW, 2005

	Country of birth group																					
	English speaking		Central and South America		Melanesia, Micronesia and Polynesia		Southern Europe		Western and Northern Europe		Eastern Europe, Russia, Central Asian and Baltic States		Middle East and Africa		South East Asia		North East Asia		Southern Asia		Total	
SSWAHS	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
	12,274	62.4	283	1.4	624	3.2	410	2.1	108	0.5	150	0.8	1,981	10.1	2,297	11.7	894	4.5	645	3.3	19,666	100.0
NSW	70,354	79.1	726	0.8	1,485	1.7	927	1.0	688	0.8	578	0.7	4,080	4.6	4,571	5.1	3,117	3.5	2,396	2.7	88,922	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health. Excludes 218 mothers for which country of birth was not stated.

[29] Represents the number of births for the Canada Bay LGA. The Canada Bay LGA was created following the amalgamation of the Concord and Drummoyne LGAs.

Table 3: Birth defects in SSWAHS, 1999 – 2005#

	Year											
	1999 -2003			2004			2005			1999 – 2005			TOTAL
	No.	Crude rate per 1,000 births	Standardised rate per 1,000 births	No.	Crude rate per 1,000 births	Standardised rate per 1,000 births	No.	Crude rate per 1,000 births	Standardised rate per 1,000 births	No.	Crude rate per 1,000 births	Standardised rate per 1,000 births	99% confidence intervals
SSWAHS	2,196	22.6	20.5	436	23.0	20.7	177	8.8	8.4	2,809	20.6	18.8	17.8 -19.8
NSW	9,865	22.9	20.8	1,949	22.9	20.6	935	10.4	9.6	12,749	21.1	19.1	18.6 – 19.6

Source: NSW Births Defects Register. Centre for Epidemiology and Research, NSW Department of Health.
 # Cases exclude terminations of pregnancy, stillbirths and livebirths where the place of residence is unknown. For 1999 – 2004, cases reported during pregnancy and up to one year of age are included. For 2005, cases reported during pregnancy or at birth are reported.

Table 4: Type of delivery for residents of SSWAHS, NSW 2005

	Type of delivery													
	Normal vaginal birth		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean section		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
SSWAHS	12,757	64.7	422	2.1	1,496	7.6	73	0.4	2,877	14.6	2,088	10.6	19,713	100.0
NSW	54,568	61.2	2,801	3.1	6,372	7.1	322	0.4	14,467	16.2	10,610	11.9	89,140	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

Table 5: Type of delivery by hospital in SSWAHS, 2005

Hospitals	Type of delivery													
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean sections		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Canterbury	1,061	68.4	15	1.0	122	7.9	4	0.3	199	12.8	151	151	1,552	100.0
Royal Prince Alfred	2,749	60.6	122	2.7	359	7.9	23	0.5	631	13.9	656	656	4,540	100.0
Fairfield	1,263	74.6	6	0.4	96	5.7	4	0.2	209	12.3	115	115	1,693	100.0
Liverpool	2,047	68.3	33	1.1	210	7.0	17	0.6	408	13.6	281	281	2,996	100.0
Campbelltown	1,724	74.8	15	0.7	64	2.8	8	0.3	287	12.4	208	208	2,306	100.0
Bankstown-Lidcombe	1,438	76.0	21	1.1	105	5.6	3	0.2	206	10.9	118	118	1,891	100.0
Sydney Southwest Private	661	56.1	20	1.7	153	13.0	2	0.2	226	19.2	116	116	1,178	100.0

Hospitals	Type of delivery													
	Normal vaginal		Forceps		Vacuum extraction		Vaginal breech		Elective caesarean section		Emergency caesarean sections		TOTAL	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Bowral	421	60.2	28	4.0	101	14.4	2	0.3	85	12.2	62	62	699	100.0
Other Area hospitals	50	73.5	3	4.4	6	8.8	2	2.9	0	0.0	7	7	68	100.0
All SSW hospitals	11,414	67.4	263	1.6	1,216	7.2	65	0.4	2,251	13.3	1,714	1,714	16,923	100.0
NSW	54,568	61.2	2,801	3.1	6,372	7.1	322	0.4	14,467	16.2	10,610	11.9	89,140	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

Table 6: Place of birth in SSWAHS and NSW, 2005

	Hospital		Birth centre		Planned birth centre- hospital admission		Planned home birth		Planned home birth – hospital admission		Born before arrival		Not stated		Total	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
SSWAHS	19,352	98.2	214	1.1	57	0.3	7	0.0	4	0.00	79	0.4	0	0.00	19,713	100.0
NSW	85,660	96.1	1,830	2.1	1,128	1.3	112	0.1	40	0.0	369	0.4	1	0.0	89,140	100.0

Source: NSW Midwives Data Collection (HOIST). Centre for Epidemiology and Research, NSW Department of Health.

APPENDIX 5 DESCRIPTION OF ROLE DELINEATION LEVELS FOR MATERNITY SERVICES[148]

Level	Description
1	Postnatal only. Normal post-partum mothers and babies delivered elsewhere returned for postnatal care provided there are no complications. Mothercraft nurses and registered nurses (RNs) with post graduate qualifications and/or experiences specific to the needs of the service. Access to midwives with current clinical experiences preferable. Nursing and midwifery education programs available, specific to the needs of the service. Has Level 1 Neonatal Service. Quality improvement activities. Interpreters as per Circular NSW DOH 94/10.
2	Normal risk delivery only. As Level 1. Plus able to cope with sudden unexpected complications until transfer. Has 24 hour access to Medical Officers on site or available within 10 minutes. NUM is desirable to general ward. Midwives available. Continual educational programs for all clinical staff in neonatal and adult resuscitation methods and the management of obstetric emergencies (as per NSW DOH Circular 99/86). Has Level 2 Neonatal Service. Links with units at higher levels of services, for referrals and transfers, consistent protocols and continuing education. Strategies in place to ensure ongoing competency of all providers of maternity care. Has more than 80 deliveries per year, or has Medical Practitioners complying with the RACGP/RACOG "Recommended Guidelines relating to Hospital Access and Delineation of Clinical Privileges in Obstetric for GPs". (If minimum caseload cannot be achieved, considerations maybe made for the degree of geographic isolation). Has Level 2 General Surgery. Formal quality improvement program. Formal protocol and referral links to allied health and psychiatry services. Has establish referrals links to higher levels of care and expertise, including specialist medical, nursing and midwifery services.
3	As Level 2 plus may deliver selected moderate risk pregnancies (>36 week gestation) in consultation. Access to obstetrician/s for consultation. Has Accredited Medical Practitioners to provide simultaneous care for mothers and neonate in theatre. Specialist anaesthetist (maybe GP anaesthetist credentialed for obstetric anaesthesia) and an additional Accredited Medical Practitioner in new born paediatrics. Sufficient Accredited Medical Practitioners (may be GP anaesthetist credentialed for obstetric anaesthesia) and General Surgeon (may be accredited Medical Practitioner in obstetrics) credentialed for lower segment caesarean section (LSCS). Has NUM. Midwives on all shifts. Some RNs with experience in neonatal care and/or having or undertaking relevant post-basic studies.
4	As Level 3 plus care for mother and babies (>34 weeks gestation) at moderate risk and elective LSCS. Obstetricians, Paediatricians and Specialist Anaesthetists on call 24 hours. Accredited Medical Practitioners on site 24 hours. Has NUM and experienced RNs. Experienced midwives on all shifts. Established links with CNC and/or CNE in midwifery and neonatal nursing. Has minimum of Level 3 Neonatal Services. Allied health professionals and liaison psychiatry available.
5	As Level 4 plus may deliver selected high risk pregnancies. Has Level 4 Neonatal Service. CNCs and/or CNE in midwifery on site.
6	Care of normal, moderate and high risk deliveries. Obstetric registrar on site 24 hours. Anaesthetic Registrar on site 24 hours and available exclusively for obstetrics for hospitals with more that 3000 births per year. Obstetricians may have specific subspecialties/skills/training. Access to feto-maternal specialist. May participate in High Risk Pregnancy and Feto-Maternal Advisory Line (PAL) roster. Experienced midwives on all shifts. Capacity to provide high ratio of nurse/patient care for women with acute complications with pregnancy or birth. 24 hour access to ultrasound services and reporting. CTG monitoring available with capacity to carry out fetal scalp pH in labour ward. Operating suite supra regional unit or statewide role. Capacity to carry out caesarean section within 30 minutes. Usually a specialist supra regional unit or statewide role. The lead hospital within a defined network, in which the combined total is at least 3000 births per year. Has Level 5 Neonatal Service. 24 hour access to liaison psychiatry and allied health services. Full-time CNC and/or CNE in midwifery.

APPENDIX 6 DESCRIPTIONS OF DEMAND, SUPPLY, CAPTURE, INFLOWS AND OUTFLOWS

Demand

The analysis of data by local government area (LGA) of residence provides an estimation of the inpatient service needs of local populations. This is referred to as "Demand", although it is not a pure representation of demand since it is based on utilisation data and is influenced in part by the access of residents of any given area to the services they need or desire. *Demand* in this plan refers to the total number of episodes of care recorded for SSWAHS (or residents of a specific LGA) in all hospitals in NSW and interstate.

Supply and Inflows

The analysis of data by unit of health service provision (that is hospital or AHS) reflects the workload of the health system units and is referred to as "Supply". *Supply* refers to the total amount of inpatient services provided by SSWAHS to both SSW residents and out-of-Area residents (*inflows*).

Capture

The extent to which a population's "demand" for services is "supplied" by the local health service unit (hospital or AHS) is measured by examining the relation between area of residence and unit of service provision. "Capture" refers to the number of SSWAHS residents treated within SSWAHS hospitals.

Outflows

Where SSWAHS residents access inpatient care outside of the Area this is referred to as "outflows". *Outflows* may occur where demand exceeds local supply, or where services are not available within the Area, or where residents prefer to seek treatment outside of the Area.

APPENDIX 7 SSWAHS - OBSTETRICS – NUMBER OF BIRTHS – INFLOW AND OUTFLOW ANALYSIS SUMMARY

Facility Code	Facility Name	Total Beddays					
		2000/01	2001/02	2002/03	2003/04	2004/05	2005/06
A202	Canterbury Hospital	4,509	4,196	4,512	4,444	4,631	4,565
A208	Royal Prince Alfred Hospital	19,567	18,956	19,888	21,669	21,386	23,932
D205	Camden Hospital	636	636	636	1,530	762	762
D206	Fairfield Hospital	6,194	5,201	6,927	6,292	4,786	4,695
D209	Liverpool Hospital	12,353	11,901	11,663	12,516	13,373	13,076
D215	Campbelltown Hospital	7,723	7,231	8,010	6,652	5,811	7,402
D227	Bankstown / Lidcombe Hospital	5,611	5,578	5,592	5,409	5,475	5,612
N219	Bowral and District Hospital	1,829	1,778	1,683	1,676	1,738	1,721
	Inner West Total	24,076	23,152	24,400	26,113	26,017	28,497
	South West Total	34,346	32,325	34,511	34,075	31,945	33,268
	SSWAHS Total	58,422	55,477	58,911	60,188	57,962	61,765

Facility Code	Facility Name	Total Intra SSWAHS Inflow						Total Intra SSWAHS Outflow						Total Net Intra SSWAHS Flow [5]					
		2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006
A202	Canterbury Hospital	318	366	407	360	397	414	594	546	597	588	601	685	-276	-180	-190	-228	-204	-271
A208	Royal Prince Alfred Hospital	630	541	592	577	581	683	190	204	231	170	207	188	440	337	361	407	374	495
D205	Camden Hospital			117	287	134		641	653	559	352	438	546	-641	-653	-442	-65	-304	-546
D206	Fairfield Hospital	264	234	247	217	180	139	711	668	649	675	636	473	-447	-434	-402	-458	-456	-334
D209	Liverpool Hospital	1,128	1,072	1,076	1,103	1,060	851	336	299	319	259	231	194	792	773	757	844	829	657
D215	Campbelltown Hospital	849	887	716	364	508	686	339	378	395	524	399	322	510	509	321	-160	109	364
D227	Bankstown / Lidcombe Hospital	260	285	282	257	247	285	358	348	407	373	362	445	-98	-63	-125	-116	-115	-160
N219	Bowral and District Hospital	14	11	24	16	20	25	294	300	304	240	253	230	-280	-289	-280	-224	-233	-205
	Inner West Total	948	907	999	937	978	1,097	784	750	828	758	808	873	164	157	171	179	170	224
	South West Total	2,515	2,489	2,462	2,244	2,149	1,986	2,679	2,646	2,633	2,423	2,319	2,210	-164	-157	-171	-179	-170	-224
	SSWAHS Total	3,463	3,396	3,461	3,181	3,127	3,083	3,463	3,396	3,461	3,181	3,127	3,083						

Appendix 7 continued - Sydney South West Area Health Service - Obstetrics – Number of confinements – Inflow and outflow analysis summary

Facility Code	Facility Name	Total Intra SSWAHS Inflow Beddays						Total Intra SSWAHS Outflow Beddays						Total Net Intra SSWAHS Flow [5]					
		2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006
A202	Canterbury Hospital	927	1,165	1,289	1,122	1,223	1,213	2,646	2,742	2,655	2,683	2,544	3,075	-1,719	-1,577	-1,366	-1,561	-1,321	-1,862
A208	Royal Prince Alfred Hospital	3,242	3,068	3,010	3,033	2,971	3,770	556	728	860	569	702	589	2,686	2,340	2,150	2,464	2,269	3,181
D205	Camden Hospital			313	773	370		2,056	2,189	2,972	1,179	1,418	2,058	-2,056	-2,189	-2,659	-406	-1,048	-2,058
D206	Fairfield Hospital	773	762	1,861	659	616	439	3,154	2,868	2,555	2,838	2,579	1,743	-2,381	-2,106	-694	-2,179	-1,963	-1,304
D209	Liverpool Hospital	5,099	4,999	4,781	5,046	4,763	4,371	1,093	963	1,003	814	937	547	4,006	4,036	3,778	4,232	3,826	3,824
D215	Campbelltown Hospital	2,604	2,730	2,418	1,003	1,535	2,333	1,477	1,630	1,543	2,044	1,580	1,891	1,127	1,100	875	-1,041	-45	442
D227	Bankstown / Lidcombe Hospital	827	881	800	914	808	869	1,435	1,352	1,677	1,672	1,734	2,120	-608	-471	-877	-758	-926	-1,251
N219	Bowral and District Hospital	44	26	68	39	48	52	1,099	1,159	1,275	790	840	1,024	-1,055	-1,133	-1,207	-751	-792	-972
	Inner West Total	4,169	4,233	4,299	4,155	4,194	4,983	3,202	3,470	3,515	3,252	3,246	3,664	967	763	784	903	948	1,319
	South West Total	9,347	9,398	10,241	8,434	8,140	8,064	10,314	10,161	11,025	9,337	9,088	9,383	-967	-763	-784	-903	-948	-1,319
	SSWAHS Total	13,516	13,631	14,540	12,589	12,334	13,047	13,516	13,631	14,540	12,589	12,334	13,047						

Appendix 7 continued - Sydney South West Area Health Service - Obstetrics – Number of births – Inflow and outflow analysis summary

Facility Code	Facility Name	Total Inter AHS Inflow						Total Inter AHS Outflow						Total Net Inter AHS Flow [5]					
		2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006	2000 /2001	2001 /2002	2002 /2003	2003 /2004	2004 /2005	2005 /2006
A202	Canterbury Hospital	96	75	91	92	97	93	267	250	253	276	276		-171	-175	-162	-184	-179	
A208	Royal Prince Alfred Hospital	770	659	700	709	733	861	703	832	651	640	608		67	-173	49	69	125	
D205	Camden Hospital			3	4	1				23	26	22				-20	-22	-21	
D206	Fairfield Hospital	82	62	74	63	56	61	254	258	276	253	292		-172	-196	-202	-190	-236	
D209	Liverpool Hospital	77	61	61	80	90	87	177	173	155	158	157		-100	-112	-94	-78	-67	
D215	Campbelltown Hospital	22	13	16	14	6	10	68	58	56	50	73		-46	-45	-40	-36	-67	
D227	Bankstown / Lidcombe Hospital	63	63	62	59	66	53	299	318	300	324	351		-236	-255	-238	-265	-285	
N219	Bowral and District Hospital	27	43	27	27	43	41	75	66	66	72	63		-48	-23	-39	-45	-20	
	Inner West Total	866	734	791	801	830	954	970	1,082	904	916	884		-104	-348	-113	-115	-54	
	South West Total	271	242	243	247	262	252	873	873	876	883	958		-602	-631	-633	-636	-696	
	SSWAHS Total	1,137	976	1,034	1,048	1,092	1,206	1,843	1,955	1,780	1,799	1,842		-706	-979	-746	-751	-750	

NOTE:

1: Camden Hospital births transferred to Campbelltown Hospital from 2004/05

2: Fairfield Hospital 2005/06 number of births understated by more than 200 comparing to the DOHRS figure due to coding arrears of 2005/06 medical records.

3: Liverpool Hospital at 3,000 births.

4: All data are sourced from HIE except Inter AHS and Inter State Outflows which are sourced from FlowInfo Version 7. Data from FlowInflow Version 7 are for number of mother not number of births.

5: Negative figure (-) means more Outflow of patients from the resident Hospital catchment areas to other health facilities and vice versa.

APPENDIX 8 SYDNEY SOUTH WEST AREA HEALTH SERVICE - CONFINEMENTS PROJECTIONS, 2007 TO 2021

Aim

The aim of this report was to project numbers of confinements in Sydney South West Area Health Service (SSWAHS) and Local Government Areas (LGAs) in SSWAHS, from 2007 to 2021.

Data and methods

Data on all confinements from 1991 to 2006 for SSWAHS residents were extracted from New South Wales (NSW) Midwives Data Collection (MDC), located in the Health Outcomes Indicators Statistical Toolkit (HOIST) data warehouse maintained by the NSW Department of Health. The number of registered confinements is the number of pregnancies resulting in either live or stillborn children. Such a pregnancy is counted as one confinement irrespective of whether a single or multiple birth results. Australian Bureau of Statistics (ABS) estimated resident populations (ERPs), and NSW Department of Planning population projections for SSWAHS and LGAs in SSWAHS were obtained from HOIST for 1991 to 2005, and 2006 to 2021 respectively.
Numbers of confinements and population estimates were aggregated by maternal age for SSWAHS, and by LGA. Since counts of confinements were sparse at some ages in some LGAs, confinements were then aggregated into six age-groups: <15; 15-24; 25-29; 30-34; 35-44; and ≥44 years of age. As counts were still extremely low in the <15 and ≥44 age-groups, these were excluded from the modelling process and adjusted back in to projections later (see Projections Process).

Modelling approach

A number of modelling approaches were investigated to determine the most appropriate method to project confinements for SSWAHS and its LGAs from 2007 to 2021. In all approaches, confinement rates rather than counts of confinements were modelled to account for changing population levels over time. As most models gave very similar projections, we describe and report the results from only the simplest approach: a log-linear regression of confinement rates with a dummy variable to indicate full years in which the baby bonus was in effect (2005-2006):

log(confinement rate) = intercept + slope * year + bonus

Age-group (15-24; 25-29; 30-34; 35-44) specific models were fitted for all SSWAHS and separately for each LGA.

Projections process

Total projected confinements of females aged 15-44 years for all SSWAHS and in each LGA were obtained using the following process:

I. Age-group specific rates were projected to 2021 by extrapolating confinement rates forward by year to 2021 using the estimated model and assuming that historical trends and the baby bonus will continue into the future.

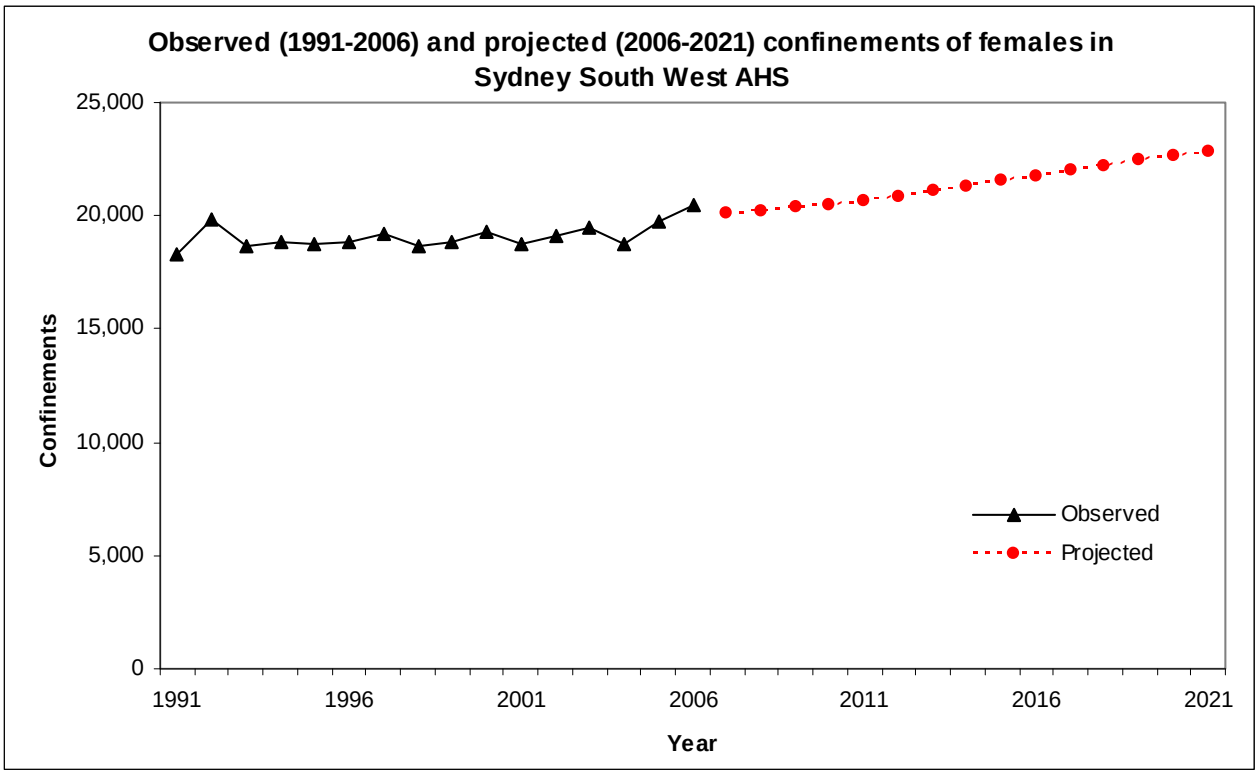
II. Multiply projected age-group specific rates by the age-group specific projected population to estimate by year, the age-group specific numbers of confinements.

III. Aggregate projected numbers of confinements across age-groups to estimate by year, total SSWAHS and LGA projected confinements of females aged 15-44 years.

In order to estimate total projected confinements (of females of all ages) in SSWAHS and each LGA from 2007 to 2021, projected confinements of females aged 15-44 years in each year were then inflated by the average annual proportion (%) of total confinements from 1991 to 2006 in SSWAHS or the respective LGA that were females aged <15 or >44 years. This made little difference to projections however; as for example, the average annual % for SSWAHS over this period was only 0.24%.

Results

The following figure shows observed (1991-2006) and projected (2007-2021) numbers of confinements of females of all ages in SSWAHS. See the Appendix 9 for a full table of values and LGA-specific projections.



APPENDIX 9 PROJECTED CONFINEMENTS AND SSWAHS FEMALE POPULATIONS TO 2021

Observed (1991-2006) and Projected (2007-2021) Confinements (all ages) SSWAHS

Year	SSWAHS (all ages)	SSWAHS (by age)					Sum (LGA)	Ashfield	Bankstown	Burwood	Camden	Campbelltown	Canada Bay
		15-24	25-29	30-34	35-44	< 15 or > 44 or unknown							
1991	18,316	4,970	6,402	4,737	2,111	96	18,316	569	2,242	386	362	2,870	678
1992	19,813	5,184	6,857	5,358	2,343	71	19,813	605	2,212	397	459	2,936	672
1993	18,696	4,786	6,303	5,209	2,330	68	18,696	590	2,357	362	492	2,880	674
1994	18,848	4,587	6,227	5,410	2,540	84	18,848	596	2,350	404	509	2,855	684
1995	18,751	4,552	6,070	5,441	2,665	23	18,751	519	2,421	390	592	2,781	653
1996	18,873	4,348	6,146	5,528	2,833	18	18,873	589	2,430	408	541	2,665	680
1997	19,168	4,240	6,369	5,532	3,002	25	19,168	538	2,489	373	642	2,668	681
1998	18,624	3,990	6,081	5,381	3,136	36	18,624	532	2,519	328	686	2,456	717
1999	18,844	3,890	6,220	5,464	3,236	34	18,844	549	2,570	348	578	2,421	725
2000	19,315	3,805	6,214	5,781	3,476	39	19,315	512	2,714	341	561	2,358	745
2001	18,775	3,667	5,836	5,829	3,407	36	18,775	499	2,571	313	703	2,325	758
2002	19,105	3,547	5,711	6,214	3,602	31	19,105	502	2,660	363	849	2,254	806
2003	19,485	3,697	5,761	6,261	3,739	27	19,485	493	2,759	328	809	2,310	825
2004	18,720	3,339	5,377	6,317	3,650	37	18,720	490	2,632	313	802	2,092	879
2005	19,713	3,560	5,467	6,560	4,076	50	19,713	515	2,798	314	753	2,239	957
2006	20,426	3,388	5,729	6,859	4,409	41	20,426	556	2,890	306	810	2,291	1,005
2007	20,150	3,335	5,570	6,725	4,474	47	20,192	534	2,904	310	806	2,254	1,016
2008	20,242	3,235	5,544	6,775	4,641	48	20,347	532	2,928	312	843	2,273	1,040
2009	20,356	3,136	5,520	6,836	4,815	48	20,529	531	2,953	314	883	2,296	1,064
2010	20,493	3,040	5,491	6,918	4,997	48	20,746	530	2,983	317	923	2,319	1,091
2011	20,658	2,948	5,452	7,027	5,182	49	20,988	529	3,020	319	962	2,338	1,119
2012	20,849	2,862	5,398	7,170	5,371	49	21,258	528	3,066	321	998	2,349	1,150
2013	21,064	2,779	5,334	7,338	5,563	50	21,545	527	3,118	322	1,035	2,353	1,183
2014	21,292	2,700	5,264	7,518	5,760	50	21,854	527	3,177	324	1,077	2,351	1,217
2015	21,527	2,622	5,193	7,697	5,964	51	22,176	527	3,239	325	1,125	2,347	1,252
2016	21,760	2,546	5,126	7,861	6,177	51	22,501	527	3,301	326	1,185	2,340	1,286
2017	21,986	2,469	5,064	8,000	6,400	52	22,827	527	3,363	327	1,257	2,333	1,317
2018	22,203	2,394	5,006	8,118	6,634	52	23,155	527	3,423	329	1,340	2,325	1,347
2019	22,420	2,320	4,948	8,221	6,878	53	23,486	528	3,483	330	1,428	2,315	1,378
2020	22,638	2,250	4,886	8,318	7,132	53	23,829	529	3,544	332	1,517	2,305	1,409
2021	22,866	2,182	4,818	8,415	7,396	54	24,188	531	3,607	334	1,603	2,293	1,443

Observed (1991-2006) and Projected (2007-2021) Confinements (all ages) SSWAHS

Year	SSWAHS (all ages)	SSWAHS (by age)					Sum (LGA)	Canterbury	Fairfield	Leichhardt	Liverpool	Marrickville	Strathfield
		15-24	25-29	30-34	35-44	< 15 or > 44 or unknown							
1991	18,316	4,970	6,402	4,737	2,111	96	18,316	2,274	3,131	664	1,773	1,258	309
1992	19,813	5,184	6,857	5,358	2,343	71	19,813	2,344	4,299	643	1,897	1,295	306
1993	18,696	4,786	6,303	5,209	2,330	68	18,696	2,387	3,209	546	1,973	1,227	326
1994	18,848	4,587	6,227	5,410	2,540	84	18,848	2,436	3,134	597	1,996	1,299	273
1995	18,751	4,552	6,070	5,441	2,665	23	18,751	2,309	3,142	621	2,200	1,186	286
1996	18,873	4,348	6,146	5,528	2,833	18	18,873	2,512	3,079	569	2,329	1,154	289
1997	19,168	4,240	6,369	5,532	3,002	25	19,168	2,458	3,078	576	2,591	1,145	301
1998	18,624	3,990	6,081	5,381	3,136	36	18,624	2,336	2,730	617	2,685	1,096	301
1999	18,844	3,890	6,220	5,464	3,236	34	18,844	2,265	2,894	648	2,715	1,140	295
2000	19,315	3,805	6,214	5,781	3,476	39	19,315	2,413	2,991	682	2,868	1,087	274
2001	18,775	3,667	5,836	5,829	3,407	36	18,775	2,228	2,686	704	2,838	1,095	281
2002	19,105	3,547	5,711	6,214	3,602	31	19,105	2,111	2,690	769	2,982	1,008	269
2003	19,485	3,697	5,761	6,261	3,739	27	19,485	2,105	2,781	985	3,001	1,060	293
2004	18,720	3,339	5,377	6,317	3,650	37	18,720	2,145	2,614	991	2,814	1,051	294
2005	19,713	3,560	5,467	6,560	4,076	50	19,713	2,217	2,632	949	2,930	1,125	333
2006	20,426	3,388	5,729	6,859	4,409	41	20,426	2,319	2,619	1,009	3,020	1,218	341
2007	20,150	3,335	5,570	6,725	4,474	47	20,192	2,246	2,551	1,031	3,036	1,163	334
2008	20,242	3,235	5,544	6,775	4,641	48	20,347	2,235	2,513	1,066	3,093	1,160	330
2009	20,356	3,136	5,520	6,836	4,815	48	20,529	2,226	2,478	1,101	3,160	1,160	325
2010	20,493	3,040	5,491	6,918	4,997	48	20,746	2,220	2,444	1,139	3,238	1,164	322
2011	20,658	2,948	5,452	7,027	5,182	49	20,988	2,216	2,410	1,179	3,329	1,172	319
2012	20,849	2,862	5,398	7,170	5,371	49	21,258	2,216	2,375	1,226	3,430	1,184	319
2013	21,064	2,779	5,334	7,338	5,563	50	21,545	2,219	2,337	1,275	3,539	1,199	321
2014	21,292	2,700	5,264	7,518	5,760	50	21,854	2,222	2,301	1,329	3,652	1,216	323
2015	21,527	2,622	5,193	7,697	5,964	51	22,176	2,226	2,266	1,387	3,765	1,233	326
2016	21,760	2,546	5,126	7,861	6,177	51	22,501	2,228	2,232	1,447	3,875	1,249	327
2017	21,986	2,469	5,064	8,000	6,400	52	22,827	2,228	2,200	1,510	3,975	1,264	328
2018	22,203	2,394	5,006	8,118	6,634	52	23,155	2,227	2,170	1,574	4,070	1,278	328
2019	22,420	2,320	4,948	8,221	6,878	53	23,486	2,225	2,140	1,641	4,161	1,292	328
2020	22,638	2,250	4,886	8,318	7,132	53	23,829	2,223	2,112	1,712	4,254	1,307	328
2021	22,866	2,182	4,818	8,415	7,396	54	24,188	2,222	2,085	1,788	4,352	1,324	328

Observed (1991-2006) and Projected (2007-2021) Confinements (all ages) SSWAHS

Year	SSWAHS (all ages)	SSWAHS (by age)					Sum (LGA)	Sydney	Wingecarribee	Wollondilly	Sydney/Leichhardt combined
		15-24	25-29	30-34	35-44	< 15 or > 44 or unknown					
1991	18,316	4,970	6,402	4,737	2,111	96	18,316	672	584	544	1,336
1992	19,813	5,184	6,857	5,358	2,343	71	19,813	655	536	557	1,298
1993	18,696	4,786	6,303	5,209	2,330	68	18,696	570	566	537	1,116
1994	18,848	4,587	6,227	5,410	2,540	84	18,848	616	560	539	1,213
1995	18,751	4,552	6,070	5,441	2,665	23	18,751	589	559	503	1,210
1996	18,873	4,348	6,146	5,528	2,833	18	18,873	638	486	504	1,207
1997	19,168	4,240	6,369	5,532	3,002	25	19,168	585	534	509	1,161
1998	18,624	3,990	6,081	5,381	3,136	36	18,624	647	498	476	1,264
1999	18,844	3,890	6,220	5,464	3,236	34	18,844	655	517	524	1,303
2000	19,315	3,805	6,214	5,781	3,476	39	19,315	721	509	539	1,403
2001	18,775	3,667	5,836	5,829	3,407	36	18,775	730	501	543	1,434
2002	19,105	3,547	5,711	6,214	3,602	31	19,105	751	484	607	1,520
2003	19,485	3,697	5,761	6,261	3,739	27	19,485	600	509	627	1,585
2004	18,720	3,339	5,377	6,317	3,650	37	18,720	524	452	627	1,515
2005	19,713	3,560	5,467	6,560	4,076	50	19,713	824	490	637	1,773
2006	20,426	3,388	5,729	6,859	4,409	41	20,426	926	450	666	1,935
2007	20,150	3,335	5,570	6,725	4,474	47	20,192	872	460	675	1,918
2008	20,242	3,235	5,544	6,775	4,641	48	20,347	865	458	699	1,952
2009	20,356	3,136	5,520	6,836	4,815	48	20,529	858	458	722	1,987
2010	20,493	3,040	5,491	6,918	4,997	48	20,746	852	459	745	2,025
2011	20,658	2,948	5,452	7,027	5,182	49	20,988	849	461	766	2,068
2012	20,849	2,862	5,398	7,170	5,371	49	21,258	849	463	784	2,120
2013	21,064	2,779	5,334	7,338	5,563	50	21,545	851	466	800	2,179
2014	21,292	2,700	5,264	7,518	5,760	50	21,854	854	469	815	2,241
2015	21,527	2,622	5,193	7,697	5,964	51	22,176	857	472	829	2,306
2016	21,760	2,546	5,126	7,861	6,177	51	22,501	859	475	844	2,372
2017	21,986	2,469	5,064	8,000	6,400	52	22,827	860	478	860	2,436
2018	22,203	2,394	5,006	8,118	6,634	52	23,155	860	480	877	2,501
2019	22,420	2,320	4,948	8,221	6,878	53	23,486	859	483	895	2,565
2020	22,638	2,250	4,886	8,318	7,132	53	23,829	857	486	914	2,629
2021	22,866	2,182	4,818	8,415	7,396	54	24,188	855	489	934	2,695

Observed (1991- 2006) and Projected (2007-2021) Populations (15 - 44 year olds) SSWAHS

Year	SSWAHS (15-44)	SSWAHS (by age)				Ashfield	Bankstown	Burwood	Camden	Campbelltown	Canada Bay
		15-24	25-29	30-34	35-44						
1991	278,955	92,103	52,168	49,953	84,730	10,404	35,253	7,012	5,656	37,480	13,333
1992	280,687	91,985	51,509	51,313	85,881	10,328	35,162	6,970	6,043	37,651	13,291
1993	281,100	91,552	50,524	51,932	87,092	10,135	35,050	6,852	6,449	37,644	13,193
1994	282,736	91,210	50,330	52,598	88,599	10,042	34,985	6,796	6,910	37,537	13,193
1995	286,252	91,300	51,217	52,864	90,872	10,161	35,141	6,858	7,449	37,183	13,252
1996	290,578	90,780	53,175	52,958	93,664	10,220	35,596	6,935	7,986	37,076	13,351
1997	292,960	89,683	54,780	52,502	95,995	10,085	35,888	6,967	8,543	36,707	13,490
1998	295,188	89,152	55,780	51,881	98,375	9,945	35,983	6,955	9,111	36,428	13,703
1999	297,588	89,068	56,622	52,015	99,884	9,850	36,289	7,019	9,663	36,201	14,022
2000	300,168	89,655	56,857	52,786	100,870	9,746	36,563	7,068	10,200	35,798	14,399
2001	302,897	90,444	55,695	55,115	101,643	9,699	36,865	7,129	10,756	35,609	14,807
2002	305,127	91,780	54,478	56,688	102,181	9,676	36,932	7,213	11,240	35,328	15,108
2003	306,790	93,042	54,045	57,583	102,120	9,772	37,030	7,305	11,472	34,809	15,343
2004	307,658	94,082	53,649	57,747	102,181	9,818	36,927	7,442	11,483	34,204	15,623
2005	308,869	94,795	54,018	57,773	102,283	9,867	37,184	7,560	11,652	33,851	15,993
2006	310,789	95,660	55,207	56,797	103,125	10,013	37,746	7,689	11,713	33,499	16,248
2007	312,560	95,965	55,878	56,738	103,980	9,996	37,709	7,732	12,209	33,732	16,476
2008	314,425	96,151	56,648	56,703	104,923	9,963	37,651	7,763	12,760	34,074	16,691
2009	316,390	96,271	57,449	56,759	105,911	9,919	37,593	7,789	13,345	34,480	16,893
2010	318,464	96,381	58,212	56,972	106,899	9,869	37,557	7,814	13,942	34,902	17,085
2011	320,661	96,536	58,870	57,409	107,846	9,818	37,563	7,843	14,531	35,294	17,270
2012	322,981	96,773	59,377	58,108	108,723	9,769	37,627	7,880	15,104	35,621	17,449
2013	325,371	97,071	59,762	58,992	109,545	9,724	37,736	7,923	15,693	35,889	17,615
2014	327,761	97,392	60,075	59,954	110,340	9,681	37,874	7,969	16,339	36,115	17,760
2015	330,090	97,697	60,368	60,887	111,138	9,641	38,021	8,014	17,086	36,319	17,877
2016	332,297	97,950	60,691	61,688	111,968	9,602	38,161	8,055	17,980	36,517	17,959
2017	334,332	98,125	61,078	62,276	112,852	9,565	38,279	8,089	19,045	36,722	18,000
2018	336,217	98,247	61,502	62,684	113,784	9,531	38,377	8,118	20,241	36,928	18,011
2019	337,996	98,352	61,918	62,973	114,753	9,501	38,463	8,143	21,513	37,121	18,002
2020	339,715	98,478	62,284	63,203	115,751	9,475	38,545	8,167	22,807	37,291	17,986
2021	341,414	98,662	62,555	63,434	116,763	9,455	38,630	8,192	24,065	37,425	17,976

Observed (1991- 2006) and Projected (2007-2021) Populations (15 - 44 year olds), SSWAHS

Year	SSWAHS (15-44)	SSWAHS (by age)				Canterbury	Fairfield	Leichhardt	Liverpool	Marrickville	Strathfield
		15-24	25-29	30-34	35-44						
1991	278,955	92,103	52,168	49,953	84,730	31,663	44,967	13,953	24,737	21,556	5,995
1992	280,687	91,985	51,509	51,313	85,881	31,696	45,201	13,967	25,507	21,360	6,018
1993	281,100	91,552	50,524	51,932	87,092	31,439	45,385	13,951	26,485	20,861	5,935
1994	282,736	91,210	50,330	52,598	88,599	31,487	45,267	13,910	27,445	20,961	5,911
1995	286,252	91,300	51,217	52,864	90,872	31,920	45,320	13,863	28,723	21,300	5,980
1996	290,578	90,780	53,175	52,958	93,664	32,367	45,556	13,639	30,269	21,427	6,080
1997	292,960	89,683	54,780	52,502	95,995	32,209	45,262	13,699	31,933	21,266	6,196
1998	295,188	89,152	55,780	51,881	98,375	31,988	44,783	13,711	33,572	21,189	6,343
1999	297,588	89,068	56,622	52,015	99,884	31,717	44,388	13,803	35,074	20,958	6,442
2000	300,168	89,655	56,857	52,786	100,870	31,458	44,010	13,977	36,637	20,898	6,492
2001	302,897	90,444	55,695	55,115	101,643	31,202	43,549	14,345	38,194	20,773	6,592
2002	305,127	91,780	54,478	56,688	102,181	31,080	43,159	14,206	39,025	20,670	6,730
2003	306,790	93,042	54,045	57,583	102,120	30,883	42,660	14,198	39,263	20,653	7,066
2004	307,658	94,082	53,649	57,747	102,181	30,632	42,268	14,098	39,425	20,615	7,402
2005	308,869	94,795	54,018	57,773	102,283	30,358	41,753	13,985	39,582	20,644	7,680
2006	310,789	95,660	55,207	56,797	103,125	30,195	41,344	14,028	39,843	20,631	7,988
2007	312,560	95,965	55,878	56,738	103,980	30,040	40,955	14,120	40,381	20,647	8,052
2008	314,425	96,151	56,648	56,703	104,923	29,898	40,581	14,228	40,983	20,684	8,084
2009	316,390	96,271	57,449	56,759	105,911	29,771	40,222	14,338	41,646	20,747	8,103
2010	318,464	96,381	58,212	56,972	106,899	29,656	39,877	14,434	42,364	20,838	8,125
2011	320,661	96,536	58,870	57,409	107,846	29,554	39,546	14,500	43,137	20,961	8,168
2012	322,981	96,773	59,377	58,108	108,723	29,463	39,227	14,527	43,957	21,115	8,244
2013	325,371	97,071	59,762	58,992	109,545	29,375	38,921	14,520	44,790	21,287	8,344
2014	327,761	97,392	60,075	59,954	110,340	29,284	38,628	14,491	45,600	21,458	8,454
2015	330,090	97,697	60,368	60,887	111,138	29,180	38,348	14,451	46,348	21,611	8,559
2016	332,297	97,950	60,691	61,688	111,968	29,055	38,081	14,410	47,000	21,728	8,647
2017	334,332	98,125	61,078	62,276	112,852	28,904	37,827	14,378	47,530	21,797	8,706
2018	336,217	98,247	61,502	62,684	113,784	28,734	37,586	14,354	47,967	21,827	8,740
2019	337,996	98,352	61,918	62,973	114,753	28,552	37,357	14,338	48,356	21,829	8,757
2020	339,715	98,478	62,284	63,203	115,751	28,366	37,142	14,328	48,741	21,819	8,765
2021	341,414	98,662	62,555	63,434	116,763	28,186	36,939	14,321	49,166	21,808	8,772

Observed (1991 - 2006) and Projected (2007-2021) Populations (15 - 44 year olds), SSWAHS

Year	SSWAHS (15-44)	SSWAHS (by age)				Sydney	Wingecarribee	Wollondilly	Sydney/Leichhardt combined
		15-24	25-29	30-34	35-44				
1991	278,955	92,103	52,168	49,953	84,730	12,117	7,324	7,504	26,071
1992	280,687	91,985	51,509	51,313	85,881	12,339	7,413	7,741	26,306
1993	281,100	91,552	50,524	51,932	87,092	12,491	7,428	7,801	26,443
1994	282,736	91,210	50,330	52,598	88,599	13,005	7,478	7,809	26,915
1995	286,252	91,300	51,217	52,864	90,872	13,708	7,567	7,827	27,571
1996	290,578	90,780	53,175	52,958	93,664	14,508	7,664	7,904	28,147
1997	292,960	89,683	54,780	52,502	95,995	15,049	7,680	7,986	28,748
1998	295,188	89,152	55,780	51,881	98,375	15,748	7,660	8,069	29,459
1999	297,588	89,068	56,622	52,015	99,884	16,280	7,747	8,135	30,083
2000	300,168	89,655	56,857	52,786	100,870	16,775	7,860	8,287	30,752
2001	302,897	90,444	55,695	55,115	101,643	17,000	7,926	8,451	31,345
2002	305,127	91,780	54,478	56,688	102,181	18,253	8,002	8,505	32,459
2003	306,790	93,042	54,045	57,583	102,120	19,713	8,007	8,616	33,911
2004	307,658	94,082	53,649	57,747	102,181	21,095	7,942	8,684	35,193
2005	308,869	94,795	54,018	57,773	102,283	22,174	7,875	8,711	36,159
2006	310,789	95,660	55,207	56,797	103,125	23,316	7,814	8,722	37,344
2007	312,560	95,965	55,878	56,738	103,980	23,780	7,859	8,873	37,900
2008	314,425	96,151	56,648	56,703	104,923	24,118	7,912	9,033	38,347
2009	316,390	96,271	57,449	56,759	105,911	24,388	7,967	9,190	38,726
2010	318,464	96,381	58,212	56,972	106,899	24,649	8,020	9,333	39,082
2011	320,661	96,536	58,870	57,409	107,846	24,961	8,063	9,452	39,461
2012	322,981	96,773	59,377	58,108	108,723	25,367	8,092	9,540	39,893
2013	325,371	97,071	59,762	58,992	109,545	25,843	8,109	9,603	40,362
2014	327,761	97,392	60,075	59,954	110,340	26,347	8,114	9,648	40,838
2015	330,090	97,697	60,368	60,887	111,138	26,839	8,110	9,685	41,290
2016	332,297	97,950	60,691	61,688	111,968	27,280	8,099	9,723	41,690
2017	334,332	98,125	61,078	62,276	112,852	27,638	8,083	9,768	42,016
2018	336,217	98,247	61,502	62,684	113,784	27,918	8,065	9,821	42,273
2019	337,996	98,352	61,918	62,973	114,753	28,138	8,047	9,878	42,476
2020	339,715	98,478	62,284	63,203	115,751	28,313	8,032	9,938	42,640
2021	341,414	98,662	62,555	63,434	116,763	28,459	8,022	9,998	42,780

APPENDIX 10 SOUTH WEST GROWTH CENTRE

For the South West Growth Centre, detailed planning is still required to confirm health needs. Capacity for emergency, acute in-patient and chronic care services are partly to be provided by the Liverpool Hospital Stage 2 redevelopment.

Other potential developments could include:

- Campbelltown Hospital, developing further as a major teaching hospital for the University of Western Sydney; and
- Dependent on population needs and future service models, an Integrated Health Centre could be appropriate for Leppington. Access to major commercial, public transport and parking facilities is important.

Development of additional Community Health Services will be considered based on population needs. A smaller Integrated Primary Health Care Centre will need to be developed first in Oran Park. Good access to public transport and parking again are important considerations.

Capacity to co-locate with GP's and with partner services would be an advantage including other human service government agencies and non government services.

At the local level, early childhood and outreach services may be delivered through local community facilities. Over the next 20 years, depending on the speed of land release, there is potential for up to 4 Integrated Primary Health Care Centres of various sizes to be developed in the South West Growth Centre.

17. ABBREVIATIONS

ABS	Australian Bureau of Statistics
AHSP	Area Healthcare Services Plan
AHPI	Australian Health Policy Institute
AHS	Area health service
ALOS	Average length of stay
AMIHS	Aboriginal Maternal and Infant Health Strategy
AMS	Aboriginal Medical Service
BEPE	Bilingual Early Parenthood Educator
BLH	Bankstown-Lidcombe Hospital
BDH	Bowral and District Hospital
CALD	Culturally and linguistically diverse
CNC	Clinical nurse consultant
CNE	Clinical nurse educator
CPAP	Continuous positive airways pressure
DV	Domestic violence
EOC	Episode of care
ESRG	Expanded Service Related Group
FGM	Female genital mutilation
GP	General Practitioner
HOIST	Health Outcomes Indicators Statistical Toolkit (HOIST)
LGA	Local government area
MDC	Midwives Data Collection
MGP	Midwifery group practice
NGO	Non-government organisation
NICU	Neonatal intensive care unit
NHMRC	National Health and Medical Research Council
NSW	New South Wales
PND	Postnatal depression
RACGP	Royal Australian College of General Practitioners
RACOG	Royal Australian College of Obstetricians and Gynaecologists
RPA	Royal Prince Alfred
SEPS	Separations
SCN	Special care nursery
SLA	Statistical local area
SRG	Service Related Group
SSWAHS	Sydney South West Area Health Service
TFR	Total fertility rate
UK	United Kingdom
VMO	Visiting Medical Officer

18. DEFINITIONS

Birthrate Plus	Provides a framework for midwifery workforce planning and strategic decision making. [149] Used in the United Kingdom, *Birthrate Plus* uses retrospective data to: inform service planning and commissioning; inform recruitment and retention strategies; and identify baselines for maternity staffing.[150]
Birthweight	The newborn's infant's first bare weight in grams. Low birth weight: birth weight less than 2,500 grams. Very low birth weight: birth weight less than 1,500 grams. Extremely low birth weight: birth weight less than 1,000 grams.
Caesarean section	Delivery of the foetus through an abdominal incision
Caseload midwifery	Midwives providing total care for a defined caseload of women. This involves a midwife providing antenatal, labour and postnatal care for the same women.[151]
CenteringPregnancy	A group based program which focuses on antenatal care, information sharing and support. Essential elements of *CenteringPregnancy* include: health assessment occurs within the group space; women are involved in self-care activities; the group is conducted in a circle; group composition is stable, but not rigid; and attention is given to core content; emphasis may vary.[152]
Confinement	Refers to a woman having given birth. In a multiple pregnancy, one confinement results in more than one birth[153]
Continuity of carer	Care which enables child bearing women to develop a relationship with the same caregiver(s) throughout pregnancy, birth and the postnatal period
Country of birth	Indicates the country of maternal birth
Early discharge	Discharge from a maternity unit within 48 hours of giving birth
Exclusively breastfed	"An infant has received only breastmilk…,or expressed breastmilk, and no other liquids or solid foods with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines."[154]
Ever breastfed	"An infant has been put to the breast, if only once, and/or an infant has received expressed milk but has never been put to the breast."[155]
Families NSW	A coordinated strategy to better link preventative, early intervention community development programs to form a comprehensive network capable of providing support and assistance to families raising young children. The program provides universal home visiting and postnatal assessments.
FlowInfo	A computer based inpatient service planning tool utilised by NSW Health and area health services
Fully breastfed	An infant is fully breastfed if he or she receives breastmilk as the main source of nourishment[156]
Inner West	Refers to the former Central Sydney Area Health Service as well as the LGAs covered under the previous area health service: Marrickville; Canterbury; Concord; Canada Bay; City of Sydney (part of); Ashfield; Burwood; Strathfield and Leichhardt.
Marginalised	"Existence of a population, group, or individual: (a) on the periphery or boundary of mainstream society; or (b) between two different cultures, being part of neither". These positions create environments that can threaten the well-being of individuals or communities who are marginalized.[157]
Midwifery models of care	Models of maternity services in which midwives are the primary caregivers. These services may include midwife clinics, domiciliary

	midwifery, team midwifery, independent midwifery and birth centres. These models of maternity care are based on a primary health care philosophy and principles.
Midwives data collection	Is a population-based surveillance system covering all births in NSW public and private hospitals, including home births. It encompasses all livebirths and stillbirths of at least 20 weeks gestation or at least 400 grams birth weight. [158]
Multiparous	Describes a woman who has already borne one or more children[159]
Neonate	Generally defined as an infant during the first 28 days of life
Normal birth	Birth that is spontaneous and low risk
Obesity	Obesity may defined as an excess of total body fat, resulting from a caloric intake that exceeds energy usage. Body Mass Index (BMI) is widely used to indicate/measure obesity.
Parenthood Education	The provision of a structured program of services education/information about pregnancy, labour, birth and early parenting to women and their partners.
Perinatal	Refers to the period just before or after birth
Primary Health Care	A level of care which is the first point of contact with the health system
Primiparous	Describes a woman who has given birth for the first time[160]
Role delineation	Is a process which determines that support staff, staff profile, minimum safety standards and other requirements are provided to ensure that clinical services are safely provided and appropriately supported[161]
Secondary maternity services	Includes the *"provision of additional care during the antenatal, labour and birth, and postnatal periods for women and babies who experience complications and who have a clinical need for referral or transfer"*[162]
Separation	A separation occurs when an inpatient (admitted patient) is discharged, is transferred to another institution, dies whilst in care, changes status (for example, from acute to nursing home type) or leaves hospital for a period of 7 or more days.
Shared care	The provision of care shared between general practitioners, obstetrics, midwives, and/or Aboriginal or Torres Strait Islander health workers
South West	Refers to the former South Western Sydney Area Health Service as well as the LGAs covered under this area health service: Bankstown, Camden, Campbelltown, Fairfield, Liverpool, Wingecarribee and Wollondilly
Supply	Refers to the total amount of inpatient services provided by SSWAHS to both residents of SSWAHS and out of Area residents (inflows)
Team midwifery	A model of maternity care provided by a small team of midwives/general practitioners in collaboration with an obstetrician that focuses on continuity of care through all stages of pregnancy, labour, birth and early parenting
Tertiary maternity services	Includes the provision of a multidisciplinary specialist team for women and babies with complex and/or rare foetal maternal needs who require access to specialised services
WebDOHRs	Web based system for collecting and reporting non-admitted patient occasions of service data

19. REFERENCES

[1] NSW Department of Health 2000, *The NSW Framework for Maternity Services*, Sydney.

[2] NSW Government 2006, *A new direction for NSW. State Plan*, Sydney.

NSW Government 2007, *State Health Plan: Towards 2010*, Sydney.

[3] NSW Department of Health 2008. *Aboriginal Maternal and Infant Health Strategy Linkage with Brighter Futures Working Agreement Paper.* Accessed 15 January 2009. Available at: http://www.community.nsw.gov.au/docswr/_assets/main/documents/brighter_futures_AMIHS.doc

[4] NSW Department of Health 2008 on behalf of the Maternity Services Inter-jurisdictional Committee. *Primary maternity Services In Australia: A Framework for Implementation.* Accessed 3 December 2008. Available at: www.ahmac.gov.au

[5] Garling P, 2008. *The Special Commission of Inquiry into Acute Care Services in New South Wales Public Hospitals*. Commissioned by the New South Wales Governor. Accessed 21 January 2009. Available at: http://www.dpc.nsw.gov.au/publications/news/stories/special_commission_of_inquiry_into_acute_care_services_in_new_south_wales_public_hospitals

[6] Ibid, pp.90

[7] Flitcroft, K. and Boxall, A., 2006*, Maternity Services, A Review of the Evidence on Alternative Models of Care,* Australian Health Policy Institute, the University of Sydney.

[8] NSW Department of Health 2000, *The NSW Framework for Maternity Services,* Sydney, pp.3.

[9] Commonwealth of Australia, 2009. *Improving Maternity Services in Australia. The Report of the Maternity Services Review*. Accessed 25 February 2009. Available at: http://www.health.gov.au/internet/main/publishing.nsf/Content/64A5ED5A5432C985CA25756000172578/$File/Improving%20Maternity%20Services%20in%20Australia%20-%20The%20Report%20of%20the%20Maternity%20Services%20Review.pdf

[10] Ibid, pp. 1

[11] NSW Department of Health 2008 on behalf of the Maternity Services Inter-jurisdictional Committee. *Primary maternity Services In Australia: A Framework for Implementation.* Accessed 3 December 2008. Available at: www.ahmac.gov.au

[12] Ibid, pp. 3.

[13] Ibid, pp. 4.

[14] Garling P, 2008. *The Special Commission of Inquiry into Acute Care Services in New South Wales Public Hospitals.* Commissioned by the New South Wales Governor, vol 1. pp.90. Accessed 21 January 2009. Available at: http://www.dpc.nsw.gov.au/publications/news/stories/special_commission_of_inquiry_into_acute_care_services_in_new_south_wales_public_hospitals

[15] NSW Department of Health, 2009. *Caring Together the Health Action Plan for NSW,* Accessed 26 March 2009. Available at: http://healthactionplan.nsw.gov.au/files/Caring-Together-complete-report.pdf

[16] NSW Department of Health 2000, *The NSW Framework for Maternity Services*, Sydney.

[17] Ibid, pp. 3.

[18] Sydney South West Area Health Service, 2007. *A New Direction for Sydney South West. Health Service Strategic Plan: Towards 2010*. Accessed 1 December 2008. Available at: http://www.sswahs.nsw.gov.au/Publications/StrategicPlan.pdf

[19] NSW Government 2006, *A new direction for NSW. State Plan - Towards 2010*, Sydney.

[20] NSW Government 2006, *A new direction for NSW. State Plan - Towards 2010*, Sydney.

[21] Flitcroft, K. and Boxall, A., 2006*, Maternity Services, A Review of the Evidence on Alternative Models of Care,* Australian Health Policy Institute, the University of Sydney.

[22] Australian Bureau of Statistics, *2006 Census Community Profiles by Location*, Australian Government. Accessed 21 January 2009. Available at: http://www.censusdata.abs.gov.au/ABSNavigation/prenav/LocationSearch?ReadForm&prenavtabname=Location%20Search&&&navmapdisplayed=true&javascript=true&textversion=false&collection=Census&period=2006&producttype=Community%20Profiles&method=&productlabel=&breadcrumb=PL&topic=&

[23] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[24] Centre for Epidemiology and Research 2007, *NSW Mothers and Babies 2002, NSW Health Bulletin*, NSW Health Department.

[25] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[26] Australian Bureau of Statistics 2009, 3301.0 - Births, Australia, 2006, Table 4 Births, Summary, Local Government Areas, 2001–2006. Accessed 5 February 2009. Available at:

http://www.abs.gov.au/ausstats/abs@.nsf/detailspage/3301.02006?opendocument

[27] Ibid

[28] Ibid, pp. 87

[29] Centre for Epidemiology and Research, NSW Health Department 2007, *NSW Mothers and Babies 2005, NSW Health Bulletin*, 18(S-1).

[30] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[31] Ibid

[32] Ibid

[33] Ibid

[34] Van der Klis K.A.M., Westernberg L., Chan A., Dekker G., and Keane R., 2002, Teenage pregnancy: Trends, characteristics and outcomes in South Australia and Australia. *Australian and New Zealand Journal Public Health*, vol. 26, pp.125-131.

[35] NSW Department of Health, 2003, *Models of maternity Services Provision Across NSW. Progressing implementation of the NSW Framework for Maternity Services*, pp. 5.

[36] Centre for Epidemiology and Research, NSW Health Department 2007, *NSW Mothers and Babies 2005, NSW Health Bulletin*, 18(S-1).

[37] Ibid

[38] Australian Bureau of Statistics Census Data 2001

[39] Department of Immigration and Citizenship Settlement Database. Extracted 11 February 2008

[40] Department of Immigration and Citizenship Settlement Database. Period 2003 – 2007. Extracted on 5 March 2008

[41] Ibid

[42] Ibid

[43] NSW Refugee Health Service, *Fact Sheet 5. Refugee Women*. Accessed 1 December 2008. Available at: http://www.swsahs.nsw.gov.au/areaser/refugeehs/files/FS5_women.pdf

[44] NSW Refugee Health Service and Service for the Treatment and Rehabilitation of Torture and Trauma Survivors (STARTTS), 2004, *Working with Refugees. A Guide for Social Worker.* Accessed 1 December 2008. Available at: http://www.swsahs.nsw.gov.au/areaser/refugeehs/files/NSW%20REFUGEE_STARTTS.pdf

[45] NSW Department of Health 2003, *Models of Maternity Service Provision Across NSW. Progressing Implementation of the NSW Framework for Maternity Services.*

[46] Population Health Division. 2006, *The health of the people of New South Wales. Report of the Chief Health Officer 2006*. NSW Department of Health, Sydney.

[47] NSW Department of Health, 2006, *NSW Health Population Health Survey, 2006 Report on Adult Health Sydney South West Area Health Service*.

[48] Nankervis, A.J. Conn, J.J and Knight, R.L. 2006. Obesity and reproductive health. Accessed 29 January 2009. Accessed 29 January 2009. Available at: http://www.mja.com.au/public/issues/184_02_160106/nan11011_fm.html#0_i1091605 .

[49] Andreasen KR, Andersen ML, Schantz AL. 2004. Obesity and Pregnancy. *Acta Obstetrics Gynecology Scandanavia.* (abstract) Accessed 29 January 2009. Available at: http://www.ncbi.nlm.nih.gov/sites/entrez?cmd=Retrieve&db=PubMed&list_uids=15488115&dopt=AbstractPlus

[50] Castro, L.C. and Avina, R.L., 2002, Maternal obesity and pregnancy outcomes, *Current Opinion in Obstetrics and Gynaecology,* vol. 14, pp. 601-606.

[51] Nankervis, A.J. Conn, J.J and Knight, R.L. 2006. Obesity and reproductive health. Available at: http://www.mja.com.au/public/issues/184_02_160106/nan11011_fm.html#0_i1091605

[52] Castro, L.C. and Avina, R.L., 2002, Maternal obesity and pregnancy outcomes, *Current Opinion in Obstetrics and Gynaecology,* vol. 14, pp. 601-606.

[53] Diabetes Australia. Gestational Diabetes. Accessed 4 August 2008. http://www.diabetesaustralia.com.au/Living-with-Diabetes/Gestational-Diabetes/

[54] Ibid

[55] Ibid

[56] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[57] World Health Organisation. *Female genital mutilation*. Accessed 2 December 2008. Available at: http://www.who.int/topics/female_genital_mutilation/en/

[58] World Health Organisation 2006. *Female genital mutilation and obstetric outcome: WHO collaborative prospective study in Six African countries*. Accessed 2 December 2008. Available at: http://www.who.int/reproductive-health/fgm/lancetfgm.pdf

[59] UNICEF 2005, Innocenti Research Centre, Innocenti Digest, *Changing a Harmful Social Convention; Female Genital Mutilation/Cutting. Accessed* 5 December 2008. Available at: http://www.unicef-icdc.org/publications/pdf/fgm-gb-2005.pdf

[60] NSW Refugee Health Service, *Fact Sheet 5. Refugee Women*. Accessed 1 December 2008. Available at: http://www.swsahs.nsw.gov.au/areaser/refugeehs/files/FS5_women.pdf

[61] Sydney South West Area Health Service 2005, *A health profile of Sydney South West: A status report describing the population, their health and the services provided for Sydney South West Area Health Service.* Accessed 9 October 2008. Available at: http://www.cs.nsw.gov.au/agm/DemProfile.pdf

[62] Ibid

[63] Population Health Division, 2008. *The health of the people of New South Wales - Report of the Chief Health Officer 2008.* NSW Department of Health, Sydney. Accessed 22 January 2009. Available at: http://www.health.nsw.gov.au/publichealth/chorep/index.asp).

[64] Ibid

[65] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[66] Walsh, R.A., Lowe, J.B., and Hopkins, P.J. 2001, *Quitting smoking in pregnancy,* The Medical Journal of Australia, vol. 175, pp. 320 - 323.

[67] Population Health Division, 2008. *The health of the people of New South Wales - Report of the Chief Health Officer 2008.* NSW Department of Health, Sydney. Accessed 22 January 2009. Available at: http://www.health.nsw.gov.au/publichealth/chorep/index.asp).

[68] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[69] Mohsin M., Forero R., Berthelsen A., Bauman A., Jalaludin B. and Gyaneshwar R., 2007, Social influences for smoking in pregnancy in South Western Sydney antenatal clinic attendees. *The Australian and New Zealand Journal of Obstetrics and Gynaecology,* vol. 47, pp. 207-212.

[70] NSW Department of Health 2006, *Background Papers to the National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn*. Commissioned by the Ministerial Council on Drug Strategy under the Cost Shared Funding Model.

[71] Havens, J.R. Simmons, L.A. Shannon, L.M. and Hansen, W.F. 2008, *Factors associated with substance use during pregnancy: results from a national sample,* Drug and Alcohol Dependence, XXX, XXX-XXX (article in press)

[72] Department of Health and Ageing. Alcohol and Other drugs. A website for General Practitioners and other Health Professionals. Accessed 5 August 2008. Available at: http://www.aodgp.gov.au/internet/aodgp/publishing.nsf/content/handbook/$FILE/chap15.pdf

[73] Ibid

[74] Ibid

[75] NSW Department of Health and South Australian Health, *The National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn, 2006*, Accessed 20 October 2008. Available at: http://www.health.nsw.gov.au/pubs/2006/pdf/ncg_druguse.pdf

[76] Ibid

[77] Horrigan, T.J, Schroeder, A. and Schaffer, R.M., 2000, "The triad of substance abuse, violence, and depression are interrelated in pregnancy" *Journal of Substance Abuse Treatment,* vol.18, no.1, pp. 55-58.

[78] NSW Department of Health 2006, *Background Papers to the National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn.* Commissioned by the Ministerial Council on Drug Strategy under the Cost Shared Funding Model.

[79] Martin, S., Andresen Clark, K., Lynch, S. R. and Kupper, L.L., 1999, "Violence in the lives of pregnant teenage women: Associations with multiple substance use", *American Journal of Drug and Alcohol Abuse,* vol.25, no.3, pp.425 - 440.

[80] NSW Department of Health 2006, *Background Papers to the National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn.* Commissioned by the Ministerial Council on Drug Strategy under the Cost Shared Funding Model.

[81] National Health and Medical Research Council, 2003. *Dietary Guidelines for Children and Adolescents in Australia incorporating the Infant feeding Guidelines for Health Workers*. Accessed 20 January 2009. Available at: http://www.nhmrc.gov.au/publications/synopses/dietsyn.htm

[82] Ibid

[83] The NSW Centre for Public Health Nutrition, 2007. *Breastfeeding in New South Wales: Population Health Survey 2003 – 2004.*

[84] Howard, L.M., Hoffbrand, S. Henshaw, C. and Bradley,E. Antidepressant prevention of postnatal depression. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No: CD004363. DOI: 10. 1002/14651858.CD0044363.pub2. Accessed 5 August 2008. Available at: www.cochrane.org/reviews/en/ab0044363.html

[85] Australian Government, *Mental health and well-being.* Accessed 5 August 2008 http://www.mentalhealth.gov.au/internet/mentalhealth/publishing.nsf/Content/perinatal-depression-1

[86] Australian Institute of Health and Welfare, *Homelessness*. Website. Accessed 29 October 2008. Available at: http://www.aihw.gov.au/housing/sacs/index.cfm

[87] Ibid

[88] NSW Health 2006. *Policy and procedures for identifying and responding to domestic violence*. Accessed 2 March 2009. Available at: http://internal.health.nsw.gov.au/pubs/p/pdf/procedures_dom_violence.pdf

NSW Health 2006. Policy Directive *Domestic Violence – Identifying and Responding*. PD 2006_084. Accessed 2 March 2009. Available at: http://www.health.nsw.gov.au/policies/pd/2006/pdf/PD2006_084.pdf

[89] Taft, A, 2002. *Violence against women in pregnancy and after childbirth: Current knowledge and issues in health care response*. Australian Domestic and Family Violence Clearinghouse. Issues paper 6.

[90] Jamieson and Hart, 1999 cited in Laing, L, 2000. *Children, young people and domestic violence.* Australian Domestic and Family Violence Clearinghouse. Issues Paper 2.

[91] NSW Health Department 2002. *Pregnancy and Childbirth. Women's Health Outcomes Framework*. Newsletter January 2002.

[92] Population Health Division. 2006, *The health of the people of New South Wales. Report of the Chief Health Officer 2006*. NSW Department of Health, Sydney, pp.33.

[93] Population Health Division. 2006, *The health of the people of New South Wales. Report of the Chief Health Officer 2006*. NSW Department of Health, Sydney, pp.95.

[94] Ayres, A. and Johnson, T.R.B. 2005. Management of Multiple Pregnancy; Labor and Delivery. *Obstetrical and Gynecological Survey: CME Review Article*, vol. 60, No.8.

[95] Centre for Epidemiology and Research, New South Wales Midwives Data Collection 2006, NSW Department of Health.

[96] Centre for Epidemiology and Research, NSW Department of Health 2007, NSW Mothers and Babies 2005*, NSW Health Bulletin*, 18(S-1).

[97] NSW Health Department 2003. Paper, *Models of Maternity Service provision across NSW. Progressing Implementation of the NSW Framework for Maternity Services.* Accessed 29 January 2009. Available at: http://www.health.nsw.gov.au/health_pr/mph/pdf/models_maternity.pdf

[98] Sydney South West Area Health Service, 2007, *Report of the Review of Preparation for Childbirth and Early Parenting Programs. Final* (Internal document)

[99] Ibid

[100] NSW Department of Health and South Australian Health, *The National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn, 2006*, Accessed 20 October 2008. Available at: http://www.health.nsw.gov.au/pubs/2006/pdf/ncg_druguse.pdf

[101]NSW Department of Health 2006, *Background Papers to the National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn*. Commissioned by the Ministerial Council on Drug Strategy under the Cost Shared Funding Model

[102] Glover, V. and O'Connor, T.G. 2002. Effects of antenatal stress and anxiety. *British Journal of Psychiatry* vol. 180, pp.389-391.

[103] Howard, L.M., Hoffbrand, S. Henshaw, C. and Bradley,E. Antidepressant prevention of postnatal depression. *Cochrane Database of Systematic Reviews* 2005, Issue 2. Art. No: CD004363. DOI: 10. 1002/14651858.CD0044363.pub2. Accessed 5 August 2008. Available at: www.cochrane.org/reviews/en/ab0044363.html

[104] Australian Government, *Mental health and well-being.* Accessed 5 August 2008 http://www.mentalhealth.gov.au/internet/mentalhealth/publishing.nsf/Content/perinatal-depression-1

[105] NSW Department of Health, 2008. *Supporting Families Early, SAFESTART Strategic Policy*.

[106] Cox, J.L., Holden, J.M. and Sagovsky, R., 1987, "Detection of postnatal depression. Development of the 10-item Edinburgh Postnatal Depression Scale*". British Journal of Psychiatry,* vol. 150*,* pp.782-786.

[107] NSW Health Statewide Services Development, Strategic Division. FlowInfo. Inpatient Services Planning Tool. Version 9.2.

[108] Knight, J., Kemp, L., Brodie, P. and Passant, L. 2007. *The Camden Midwifery Group Practice: clinical outcomes, costs and acceptability.* CHETRE, UNSW Research Centre for Primary Health Care and Equity, Sydney.

[109] Atkinson, J cited in Tracey, N. *Australian Dreaming: Being Pregnant* resource

[110] Tracey, N. *Australian Dreaming: Being Pregnant* resource

[111] Centre for Epidemiology and Research, NSW Health Department 2007, *NSW Mothers and Babies 2005, NSW Health Bulletin*, 18(S-1).

[112] NSW Department of Health 1999, *Framework for Managing the Quality of Health Services in NSW, Sydney.*

[113] NSW Department of Health 2000, *The NSW Framework for Maternity Services*, Sydney.

[114] NSW Health Department 2003. Paper, *Models of Maternity Service provision across NSW. Progressing Implementation of the NSW Framework for Maternity Services.* Accessed 29 January 2009. Available at: http://www.health.nsw.gov.au/health_pr/mph/pdf/models_maternity.pdf

[115] Hatem, M, Sandall, J., Devane,D., Soltani, H., and Gates, S. 2008. Midwife-led versus other models of care for childbearing women (Review). *Cochrane Database of Systematic Reviews Collaboration,* Issue. Art.No.: CD004667. DOI: 10.1002/14651858. CD4667.pub2

Flitcroft, K. and Boxall, A., 2006*, Maternity Services, A Review of the Evidence on Alternative Models of Care,* Australian Health Policy Institute, the University of Sydney.

[116] Hodnett, E.D. *Continuity of caregivers for care during pregnancy and child birth.* The Cochrane Database of systematic reviews 2000, Issue 1. Art. No: CD000062.DOI:10 1002/14641858.CD000062.

[117] The Australian Health Policy Institute, 2007, *Maternity Services Options. A review of the evidence on alternative models of care.* The University of Sydney.

[118] NSW Department of Health, *Midwifery Services*, Website, accessed 29 October 2008. Available at: http://www.health.nsw.gov.au/nursing/midwifery.asp

[119] Australian Health Workforce Advisory Committee. *The midwifery workforce in Australia 2002-2012. AHWAC Report 2002.1.* Accessed 6 August 2008. North Sydney: NSW Health. Available at: http://www.health.nsw.gov.au/amwac/pdf/midwifery_20022.pdf

[120] Australian Health Ministers' Conference 2004, National Health Strategic Framework, Sydney. Accessed 6 August 2008. Available at http://www.health.nsw.gov.au/amwac/pdf/NHW_stratfwork_AHMC_2004.pdf

[121] Australian Health Workforce Advisory Committee. *The midwifery workforce in Australia 2002-2012. AHWAC Report 2002.1*. North Sydney: NSW Health. Accessed 6 August 2008. Available at: http://www.health.nsw.gov.au/amwac/pdf/midwifery_20022.pdf

[122] Ibid

[123] Bell R. *The 2003 RANZCOG Workforce Survey. O&G* 2003; 5: 174-178. Accessed 29 January 2009. Available at: http://www.ranzcog.edu.au/publications/o-g_pdfs/O&G-2000-2003/OG-Sept-2003.pdf;

[124] Ibid

[125] Douglas, N., Robinson, J., Fahey, K. 2001. *Inquiry into obstetric and gynaecology services at King Edward Memorial Hospital 1990 – 2000.* Accessed 7 November 2008. Available at: http://www.kemh.health.wa.gov.au/general/KEMH_Inquiry/volume1.pdf

[126]Australian Government. First Steps in Closing the Gap. Available at: http://www.aph.gov.au/budget/2008-09/content/ministerial_statements/html/indigenous-03.htm

[127] Australian Government. Australian Prime Minister. *Apology to Australia's Indigenous People's 13 February 2008*. Accessed 23 January 2009. Available at http://www.aph.gov.au/house/Rudd_Speech.pdf

[128] Commonwealth of Australia, 2005. *National Tobacco Strategy, 2004 -2009: The Strategy. Ministerial Council on Drug Strategy, November 2004*. Accessed 23 January 2009. Available at: http://www.nationaldrugstrategy.gov.au/

[129] Ibid., pp. 10

[130] NSW Government 2007, *Future directions for Health in NSW – Towards 2025. Fit for the future,* Sydney.

[131] NSW Government 2007, *NSW Action Plan, Early Childhood and Child Care April 2007, Council of Australian Governments National Reform Agenda,* Sydney.

[132] NSW Department of Health 2003, *The NSW Aboriginal Perinatal Health Report,* Sydney, pp.2.

[133] NSW Department of Community Services 2008. *Aboriginal Child Youth and Family Strategy* website. Accessed on 1 December 2008. Available at: http://www.communitybuilders.nsw.gov.au/site/govinfo/151.html

[134] NSW Health Department 2002. *Women's Health Outcome Framework*, Accessed 1 December 2008. Available at: http://www.health.nsw.gov.au/pubs/2002/pdf/womenshealthframework.pdf

[135] NSW Department of Health 2008. *Aboriginal Maternal and Infant Health Strategy Linkage with Brighter Futures Working Agreement Paper.* Accessed 15 January 2009. Available at: http://www.community.nsw.gov.au/docswr/_assets/main/documents/brighter_futures_AMIHS.doc

[136] NSW Department of Health 2005, *NSW Aboriginal Maternal and Infant Health Strategy Evaluation, Final Report 2005.* Accessed 15 January 2009. Available at: http://www.health.nsw.gov.au/pubs/2006/pdf/evaluation_maternal.pdf

[137] Ibid

[138] Ibid

[139] NSW Department of Health 1999, *New South Wales Aboriginal Health Strategic Plan,* Sydney.

[140] NSW Department of Health 1999, *New South Wales Aboriginal Health Strategic Plan,* Sydney.

[141] NSW Premier's Department 2005. *Two Ways Together Report, 2005*. Accessed 1 December 2008. Available at: http://www.daa.nsw.gov.au/publications/Two%20Ways%20Together%20Report.pdf

[142] NSW Health Department 2002. Women's Health Outcome Framework, Accessed 1 December 2008. Available at: http://www.health.nsw.gov.au/pubs/2002/pdf/womenshealthframework.pdf

[143] NSW Government, 2006. *State Plan. A new direction for NSW,* Sydney.

[144] NSW Government 2007, *State Health Plan: Towards 2010*, Sydney.

[145] NSW Health 2003, *Models of Maternity Service Provision Across NSW. Progressing Implementation of the NSW Framework for Maternity Service,* Sydney.

[146] Families First website. Accessed 23 January 2009. Available at: www.familiesfirst.nsw.gov.au

[147] NSW Department of Health 2000, *The NSW Framework for Maternity Services*, Sydney.

[148] Statewide Services Development Branch 2002. NSW Health Department. *Guide to the Role delineation of Health Services. Third Edition.*

[149] Industrial Relations Commission of New South Wales 2007, *Public Health System Nurses' & Midwives' (state) Award.* Accessed 7 October 2008. Available at http://www.lawlink.nsw.gov.au/irc/ircgazette.nsf/files/C6372.doc/$FILE/C6372.doc

[150] NSW Department of Health, *Midwifery Services*. Accessed 7 October 2008. Available at: http://www.health.nsw.gov.au/nursing/midwifery.asp

[151] Homer, C., Brodie, P., and Leap, N. 2008. *Midwifery Continuity of Care. A Practical Guide.* Elsevier, Chatswood.

[152] Ibid, pp. 14.

[153] Centre for Epidemiology and Research, NSW Health Department 2007, *NSW Mothers and Babies 2005, NSW Health Bulletin*, 18(S-1), p.14.

[154] The NSW Centre for Public Health Nutrition, 2007. *Breastfeeding in New South Wales: Population Health Survey 2003 – 2004*.

[155] Ibid

[156] Ibid

[157] Alexander G.L., Kinman E.L., Miller L.C., Patrick T.B. 2003. Marginalization and health geomatics. *Journal of Biomedical Informatic,* vol. 36, pp. 400-7.

[158] Centre for Epidemiology and Research, NSW Health Department 2007, NSW Mothers and Babies 2005*, NSW Health Bulletin*, 18(S-1), p.12.

[159] Igoe, J.B. 1979. *Blakiston's Pocket Medical Dictionary* Fourth Edition. McGraw-Hill Book Company. New York

[160] Ibid

[161] NSW Health Department, 2002. *Guide to the Role Delineation of Health Services.* Third Edition. Sydney.

[162] NSW Health 2003, *Models of Maternity Service Provision Across NSW. Progressing Implementation of the NSW Framework for Maternity Service,* Sydney, pp.9.