

# NSW Aboriginal Maternal and Infant Health Strategy

Evaluation

Final Report 2005



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## **ABBREVIATIONS**

ABSP	Alternative Birthing Services Project
AHS	Area Health Service
AHW	Aboriginal Health Worker
AHEO	Aboriginal Health Education Officer
AHMRC	Aboriginal Health and Medical Research Council
ALO	Aboriginal Liaison Officer
AMIHS	Aboriginal Maternal and Infant Health Strategy
AMS	Aboriginal Medical Service
ACCCHS	Aboriginal Community Controlled Health Setting
CFHN	Child and Family Health Nurse
DoCS	NSW Department of Community Services
DOH	NSW Department of Health
FWAHS	Far West Area Health Service
GP	General practitioner
IPC	Integrated Perinatal Care
JCU	James Cook University, North Queensland
LGA	Local government area
MDC	Midwives Data Collection
MNCAHS	Mid North Coast Area Health Service
MNH	Mental Health Nurse
MWAHS	Mid Western Area Health Service
NGO	Non Government Organisation
NEAHS	New England Area Health Service
NSAHS	Northern Sydney Area Health Service
RANZCOG	Royal Australian and New Zealand College of Obstetricians and Gynaecologists
RFDS	Royal Flying Doctor Service
TSP	Training and Support Program
UTS	University of Technology Sydney
WHN	Women's Health Nurse

## INTRODUCTION

The NSW Aboriginal Maternal and Infant Health Strategy (AMIHS) was funded by NSW Health in December 2000 and commenced implementation in 2001. The goal was to improve the health of Aboriginal women during pregnancy and decrease perinatal morbidity and mortality.

The Strategy included:

- seven targeted antenatal/postnatal programs for Aboriginal women and infants across six of the former Area Health Services, representing 20 Local Government Areas (LGAs) as detailed in Table 1.
- a statewide Training and Support Program for midwives and Aboriginal health workers who provide these services
- the evaluation.

Table 1: LGAs where AHMIS programs are located

<b>Former Area Health Service</b>	<b>Local Government Area</b>
Far West	Broken Hill Wilcannia (Greater Darling)
Mid North Coast	Coffs Harbour including Nambucca Heads and Bellingen Taree including Great Lakes
Macquarie	Dubbo
New England	Moree
Hunter	Newcastle including Raymond Terrace and Belmont
Mid Western	All LGAs in the AHS (n=14)

In five of the former Area Health Services (AHS), a community midwife and Aboriginal health worker (AHW) or Aboriginal Health Education Officer (AHEO) team were established to provide community-based services for Aboriginal women in conjunction with existing medical, midwifery, paediatric and child and family health staff. A sixth AHS chose to initially provide a community development program across the AHS. In 2003, this AHS commenced clinic services at specific sites due to an identified need.

Community development programs have been designed by all the AMIHS programs in varying degrees. The aim of these community development programs is to address structural factors and achieve social change by encouraging and enabling communities to take control of factors that contribute to ill health.

This final evaluation report of the NSW AMIHS used both qualitative and quantitative data for the 2004 calendar year. Qualitative data included interviews and focus groups with women, clinicians, managers and other stakeholders. Quantitative data included program-specific information and population-based data from the NSW Midwives Data Collection (MDC). Program-specific information relates to outcomes that were specific to women and babies who received care through the AMIHS programs.

Qualitative data were collected through interviews and focus groups (201 people interviewed). Quantitative data were collected prospectively on all women and babies who were part of the AMIHS programs during 2003 and 2004

This final evaluation report builds on the previous three reports (2002; 2003; 2004) that were part of this longitudinal evaluation. This is the third year of the evaluation of the NSW Aboriginal Maternal and Infant Health Strategy (AMIHS). The evaluation answers the two questions below and makes recommendations for the future.

- Is the AMIHS achieving its goals?
- What are the strengths of AMIHS?

## METHODOLOGY

This final evaluation report builds on previous evaluations demonstrating the changes that AHSs have made through the implementation of the AMIHS programs. In addition, this evaluation focuses on the following issues:

- data collection
- the AMIHS target group
- models of care
- the AMIHS teams
- the Training and Support Program's effectiveness in supporting retention and recruitment of AMIHS staff

This report presents both qualitative and quantitative data. Ethical approval for the evaluation was sought and granted from the Aboriginal Health and Medical Research Council (AHMRC) and the six Area Health Services.

### *Analysis of quantitative data*

Quantitative data included program-specific information for a two year period (i.e. included babies born from 1<sup>st</sup> January 2003 to the 31<sup>st</sup> December 2004) and population-based data from the *NSW Midwives Data Collection* (MDC) from 1996 to 2003. These were analysed using three approaches:

1. The **Program** approach reported data provided by each program for the calendar years 2003 and 2004 for each of the sites providing a clinical service.
2. The **Comparative** approach compared program-specific data for five clinical outcomes from each site for the year 2004 with data from the MDC for Aboriginal women in the relevant local government areas (LGA) prior to the full establishment of the AMIHS (1996-2000). This approach was used to determine whether changes could be seen over this period (detailed in Appendix A) in the selected clinical outcomes. The selected clinical outcomes were:
  - Maternal age less than 20 years
  - First antenatal visit before 20 weeks gestation
  - Smoking in the second half of pregnancy
  - Preterm birth (prior to 37 weeks gestation)
  - Low birth weight (less than 2500 gms).
3. The **Population-based** approach used the NSW Midwives Data Collection (MDC) and examined changes in the same five clinical outcomes for Aboriginal women in the relevant local government areas (LGA) over time (1996-2000 versus 2003). The number of perinatal deaths was also included in this analysis. The population-based approach was used to determine whether changes could be seen over this period (detailed in Appendix B).



As the Mid Western AHS had taken an area-wide approach, all LGAs were included. LGAs are identified in Table 1.

Simple descriptive statistics and univariate chi-squared tests were used to assess differences in outcomes between 2003 and 1996-2000. Odds ratios and 95% confidence intervals (CI) are presented with an alpha level of 0.05 taken as being statistically significant.

### *Site visits and interviews*

Site visits by the evaluation team took place from October to December 2004. During these visits, a total of 201 interviews were conducted individually and/or in small groups with:

- Consumers of the AMIHS programs including Aboriginal women who were pregnant or whom had recently given birth, partners and grandmothers;
- Members of Aboriginal community controlled services who had been involved with the implementation of the AMIHS programs;
- Relevant AHS managers;
- Midwives and AHW/ AHEO involved in the AMIHS;
- Midwives, obstetricians, general practitioners (GP) and Child and Family Health Staff who had contact with the AMIHS programs; and,
- Other health staff and members of government or community organisations who interact with the program staff (e.g. Mental health, drug and alcohol workers and family support workers). (Table 2)
- Staff associated with the Training and Support Program based in the Northern Sydney Area Health Service (NSAHS).

Most interviews were mostly face to face with a small number conducted by telephone. The evaluators took notes during the interviews. The questions used to guide the interviews are presented in Appendix C.

**Table 2: Number of interviews by organisation or professional group by AHS**

	Macq	MW	MNC	NE	Hunt	FW	NS
Manager/Local Service Manger	2	4	1	2	2	3	1
Aboriginal Health Manager				1	1	1	
AHW/AHEO – AMIHS	1	2	1	2	3	1	
Midwives – AMIHS	2	1	2	1	1	1	
Women/consumers	7	14	11	9	10	6	
Partners / aunts / grandmothers	10	3	2	7	1	1	
Aboriginal Liaison Officer/Aboriginal staff	1	5	1		1	4	
Other AMS Staff		2	4	3	1		
Aboriginal D&A worker			1		1		
Midwives from maternity unit/community	4	5	4	1	3	5	
CFHN, community health nurses, WHN, MHN	2	3		4	3	1	
Community organisation staff/members	6			2	5		
GPs, obstetrician, paediatrician, registrar			2		1	3	
Other allied health/academic/projects				1	1		
Family/youth support workers				1			
CEO/manager AHS				1	1		
Project Officer							1
<b>Totals</b>	<b>35</b>	<b>39</b>	<b>29</b>	<b>35</b>	<b>35</b>	<b>26</b>	<b>2</b>

### ***Time and motion audit***

A time and motion audit tool was developed in order to map the activity of the teams (Appendix D). The tool was developed from existing tools used at St George Hospital in Sydney and Women’s and Children’s Hospital in Adelaide to map the activity of midwives who worked in caseload models of care. The Senior Project Officer at NSW Health provided feedback during the adaptation of the tool. A draft of the tool was discussed with midwives and AHW/AHEOs at two sites. Changes were made as a result of these discussions. The staff at these two sites piloted the tool. Their feedback further guided the revisions that were made prior to use across the six AHSs. The fields in the audit tool include:

- clinical care (antenatal and/or postnatal)
- antenatal and/or postnatal education
- transport
- preventative health interventions and health promotion
- advocacy for social needs, referrals, interagency liaison
- community development and empowerment activities
- administration, meetings and training
- time spent with non-AMIHS clients.

The audit tool was presented to the midwives and AHWs at the Annual Conference in November 2004. Each team was given copies of the tool and the instructions on how to complete it over a two week period. Each team was contacted during this time to provide support if required.

The tool was completed by 17 of the 19 clinicians (89%) involved in the AMIHS evaluation. The data were completed in a two week period during November to January 2005. Different teams completed the tool at slightly different times.

There were a number of limitations with the use of the time and motion audit. This included that some clinicians did not account for all the hours that they would usually be in the workplace. This was due to the complexity of the tool and the need to account for each 15 minute time period. Clinicians reported that it was often difficult to account for each 15 minute block of time as this was an unfamiliar way of accounting for time. As the time and motion audit was only conducted over a two week period, most clinicians reported that it was not long enough to feel really comfortable with the process.

### *Measuring 'need'*

The current tool used by all areas to measure the level of 'need' was one previously used in the Macquarie AHS and in Families First programs. It classifies women into three levels need: usual; extended or high (Appendix E). The clinicians in the AMIHS programs assess each woman during the antenatal and postnatal periods to classify them into a 'needs' level. The antenatal assessment is usually undertaken at the end of the pregnancy or in the early postnatal period. The postnatal assessment is undertaken prior to discharge from the program or after the last visit. Generally one team member is responsible for the assessment of need in consultation with the other clinicians who know the woman.

An assessment was undertaken to determine whether these measures were the most appropriate for the AMIHS clientele and to determine if the measures were appropriately categorized.

Six scenarios were developed and identified using pseudonyms. The team member who generally did the categorisation of need was given each of the scenarios and asked to classify the women into needs category. The results suggest that the current tool is overly simplistic and needs reconsideration.

## RESULTS

### *1. Quantitative outcomes*

#### **1.1 Program-specific data 2003 and 2004**

This approach analysed the data provided by each of the AMIHS programs for 2003 and 2004. Where appropriate, comparisons are made with population-based data from the *NSW Mothers and Babies Report* (NSW Health, 2004) and the *Report on Breastfeeding in NSW* (Hector, Webb et al., 2004).

The AMIHS provided care to 689 women in 2003 and 2004. About one in four were less than 20 years of age (29% in 2003 and 24% in 2004). This remains higher than for all women across NSW (4% in 2003).

More than three quarters of women (78%) in the AMIHS programs attended antenatal care prior to 20 weeks pregnancy in both 2003 and 2004. Some AHSs had achieved considerable improvements during this time period. For example, the two programs in Mid North Coast AHS increased the percentage of Aboriginal women receiving antenatal care prior to 20 weeks pregnancy from 79% in 2003 to 88% in 2004. Other programs however have remained stable or showed a small reduction. The rate of attendance at first antenatal visit prior to 20 weeks pregnancy for all mothers in NSW in 2003 was considerably higher (87%) (NSW Health, 2004).

Smoking in pregnancy remained a significant issue with rates higher than state averages. In 2004, in the AMIHS, the rates ranged from 77% in Broken Hill and Wilcannia to 53% in Dubbo. Overall, across all the programs, the rate of smoking in the second half of pregnancy was 58% in 2003 and 62% in 2004, a slight but statistically non-significant increase. Across NSW, the rates of smoking during pregnancy were high in Aboriginal women. The rate had decreased only slightly from 59% in 1999 to 57% in 2003. These rates were higher than in non-Aboriginal pregnant women. For example, in 2003, 14% of non-Aboriginal women reported smoking at some stage during pregnancy (NSW Health, 2004).

These smoking rates must be seen against a context of high rates of smoking in Indigenous communities. For example, in 2001, Indigenous Australians aged 18 years and over were more than twice as likely to be current smokers (51%) compared with non-Indigenous persons (24%) (AIHW, 2003). The prevalence of smoking during pregnancy for Indigenous women in the AMIHS is similar to that in the total population of Indigenous women, including pregnant women (Ivers, 2001). For example, research from the Northern Territory indicates smoking in pregnancy rates in Indigenous women of between 50-60% (Hunt, 2004).

The evaluators are unaware of any specific research evidence about effective interventions in relation to smoking cessation for pregnant Indigenous women. The review in The Cochrane Library (Lumley, Oliver et al., 2004) provides strategies for mainstream services. However, these strategies have not been tested in Indigenous

communities specifically. An NHMRC project is planned to commence in Queensland which may trial an Indigenous culturally specific smoking cessation intervention for pregnant women. When complete, this project will provide valuable information on strategies that may be more likely to work. In the meantime, continuation of the strong commitment to address smoking in pregnancy is necessary. This includes smoking cessation training for all staff involved in the care of pregnant or postpartum women.

Breastfeeding rates are improving as a result of the AMIHS. In women who were part of the AMIHS in 2003, 67% initiated breastfeeding with 59% of these women still breastfeeding at 6 weeks. In 2004, this had increased to 70% initiating with 62% still breastfeeding at 6 weeks. While these increases are modest, the trend is encouraging. These rates still remain lower than for NSW women generally with a 90% initiation rate reported in a NSW report on breastfeeding (Hector, Webb et al., 2004).

In some areas, the breastfeeding rates were impressive. For example, in Coffs Harbour, 97% of women in the AMIHS initiated breastfeeding in 2004. This was an increase from 86% in 2003. A number of other programs had initiation rates greater than 70% in 2004 (Far West; Taree; New England; Hunter). These programs were characterised by high intensity contact with women in the antenatal and postnatal period with home visits and support.

The rate of low birth weight babies in the AMIHS decreased from 15% in 2003 to 12% in 2004. The rate of preterm birth remained stable at 11% in the AMIHS programs. The rates of low birth weight (6%) and preterm birth (7%) among non-Indigenous babies born in NSW during 2003 were considerably lower (NSW Health, 2004).

There were six (6) perinatal deaths in the AMIHS programs in 2003 giving a perinatal mortality rate (PMR) for this cohort of 18.6 per 1000 births. There were two (2) deaths in this cohort in 2004, giving a PMR of 5.4 per 1000 births. This is a considerable decrease (although not statically significant) and an encouraging trend.

### **1.2 Program data (2004) compared with LGA data 1996-2000**

This approach contrasted program-specific data for five clinical outcomes from each site with the MDC data for Aboriginal women in the relevant local government areas (LGA) prior to the full establishment of the AMIHS (1996-2000). This approach was taken to determine whether changes could be seen after the introduction of the AMIHS. The quantitative data are presented in detail in Appendix A.

The largest improvements were in the proportion of women that attended their first antenatal visit before 20 weeks gestation (65% pre-AMIHS versus 78% AHMIS 2004) and the percentage of preterm birth (20% versus 11% respectively.). The percentage of low birth weight remained essentially stable (13% versus 12% respectively.). The proportion of women smoking during the second half of pregnancy is high and has not decreased, which is cause for concern.

### 1.3 Population-based data 1996-2000 and 2003

The approach used the NSW Midwives Data Collection (MDC) to examine five clinical outcomes for Aboriginal women in the relevant LGAs over time (1996-2000, 2001, 2002, and 2003). This approach was used to determine whether changes could be seen after the introduction of the AMIHS. The quantitative data are presented in detail in Appendix B.

Overall, there were more women attending their first antenatal visit before 20 weeks gestation than prior to the establishment of the AMIHS (Table 11). There were reductions in:

- smoking in the second half of pregnancy (59% from 1996-2000 versus 55% in 2003) (Table 12),
- the proportion of women giving birth at age 19 or less (Table 10)
- the proportion of preterm births (Table 14), though these changes were not statistically significant

The proportion of babies born at low birth weight remained stable although there were reductions in 2003 from 2001 and 2002 (Table 13).

The PMR rate had decreased in these areas since the establishment of the AMIHS. The PMR in 1996-2000 was 20.4 per 1000 births. In the time period 2001-2003, the PMR had decreased to 14.2 per 1000 births (Table 15).

### 1.4 Summary

The results from these three approaches are encouraging, however more work still needs to be done, especially to reduce smoking in pregnancy. It is likely that broader social issues that relate to health need to be addressed before significant changes in smoking, low birth weight and prematurity are seen. The Table below (Table 3) presents a summary of the two approaches that compared recent data with data from prior to the establishment of the AMIHS. The statistically significant findings are in bold.

**Table 3: Summary of changes since AMIHS was implemented**

<b>Outcome</b>	<b>Program-specific data 2004 versus MDC 1996- 2000</b>	<b>MDC 2003 versus MDC 1996-2000</b>
Age less than 20 years	No change	Decreased since AMIHS*
First visit before 20 weeks	<b>Increased since AMIHS</b>	<b>Increased since AMIHS</b>
Smoking in pregnancy	Increased since AMIHS*	Decreased since AMIHS*
Preterm birth	<b>Decreased since AMIHS</b>	No change
Low birth weight	No change	No change
Perinatal mortality	Decreased since AMIHS*	Decreased since AMIHS*

#### **MDC: Midwives Data Collection**

\* Not statistically significant

The level of trust that the AMIHS clinicians have with women may mean that they disclose more information which can then be collected.

## 2. AMIHS target group

### 2.1 Proportion of Aboriginal women cared for by AMIHS 2003/2004

The AMIHS provided care for a total of 368 women (321 in 2003) who gave birth during the 2004 calendar year. The Table below reports the number of births in each program for the calendar year including Mid Western who commenced a service in late 2003 in Condobolin, Lake Cargellico and Murrin Bridge.

Table 4: Number of births in women seen in 2004 by AMIHS

AMIHS programs	Women seen in 2004 by AMIHS
Far West – Broken Hill and Wilcannia	44
MNC-Coffs	64
MNC-Taree	58
Macquarie - Dubbo	59
New England - Moree	62
Hunter - Newcastle	68
Mid Western: Condobolin, Lake Cargellico, Murrin Bridge <sup>#</sup>	13
<b>Total</b>	<b>368</b>

<sup>#</sup>Mid Western AHS had 13 babies born on the program from September to December 2003. These are not included in the data for 2004.

Only a small number of women were seen in Mid Western AHS. The service only caters for three small towns (total population around 6,200). In 2002, there were only 16 babies born to Aboriginal women in Lake Cargellico and Condobolin so it is likely that the childbearing population is small.

### Coverage in the LGAs in 2003

The six AMIHS programs that provided clinical services at that time cared for a total of 321 women who gave birth during the 2003 calendar year. The number of women cared for by AMIHS programs in 2003 was compared with data on the number of births from the Midwives Data Collection (MDC) for the same calendar year in order to determine the proportion of Aboriginal women accessing AMIHS programs in the six locations (Table 5).

The numbers of women seen by the AMIHS may be higher than in the MDC data as women move around during pregnancy or services attend outreach areas and may include women from neighbouring towns. The MDC data classifies women according to their LGA of residence. Women may change their residence through pregnancy or choose to travel to another town to receive care.

Mid Western AHS was not included, as their clinical services did not fully commence until late 2003. Overall, 84% of women who gave birth in 2003, were resident in these areas and registered as Aboriginal, received care from the AMIHS. Four AMIHS programs (Far West, MNC-Coffs, New England, Hunter) saw all, or almost all, of the women in their catchment areas. These are displayed in **bold** in Table 5.

**Table 5: Number of women who gave birth on each program in 2003 and health area of residence of Aboriginal and Torres Strait Islander women who gave birth during 2003 (MDC 2003)**

AMIHS programs	Women who gave birth in 2003 and were seen by AMIHS*	Aboriginal women who gave birth in 2003 and were resident in the LGA <sup>#</sup>
<b>Far West</b>	<b>46</b>	<b>43</b>
<b>MNC-Coffs</b>	<b>65</b>	<b>62</b>
MNC-Taree	36	59
Macquarie	48	140
<b>New England</b>	<b>61</b>	<b>44</b>
<b>Hunter</b>	<b>65</b>	<b>59</b>
Total	321	407

\*AMIHS Evaluation Report 2003

<sup>#</sup>Midwives Data Collection 2003

The ultimate capacity of each program is unclear. At the time of the evaluation, none of the AMIHS programs were turning women away. Some programs have started considering placing some guidelines on their caseload to ensure that they can continue to provide a quality service. The capacity of each program will depend on a number of factors including transport, level of social and emotional need, risk factors, staffing numbers and engagement with, and availability of, other services.

## **2.2 Enabling, primary health model of care versus welfare model of care**

The aim of the AMIHS is to provide an enabling primary health care model. Services that are provided in community-based settings, especially those in community controlled organisations, have a higher capacity for an enabling model of care. Access to holistic, culturally appropriate services are essential elements of a primary health care approach. The AMIHS teams are providing this. Transport services, whether public, through community controlled organisations or through the team, are essential for access. The partnership of AHW/AHEO and midwife is another crucial element to the provision of culturally appropriate care which is rarely available in mainstream services.

Women's reference groups are one strategy to promote and support an enabling model of care. Women's reference groups remain challenging to establish and maintain momentum and a sense of purpose. They are established in Macquarie AHS and have recently commenced in Mid West AHS. In Mid North Coast AHS the reference groups have joined with the wider community reference group for the AMS (Women's Action Group). There are plans for this to occur in Far West as well.

Over the three years of the evaluation, women's reference groups have often occurred intermittently or have had limited interest expressed from community members. They have also, at times, suffered from a lack of purpose. Women were unsure of why they were invited or what they could contribute. At other times, the groups have been a vehicle for information giving by clinicians rather than being led by the women.



### **2.3 Level of care required in subsequent pregnancies**

It is evident that Aboriginal women returning to the service seem more able to access services without the AMIHS team member being present. For example, a number of women reported returning to hospital for check-ups or ultrasounds on their own. This provides evidence that empowerment changes have occurred for some women.

For many women, however, the challenges they face with subsequent pregnancies are equally high and require the same amount of care. For example, the lack of public and private transport facilities in many areas means those with small children find travelling to antenatal clinics or GP rooms even more difficult. Financial issues also come into play, as many Aboriginal women are unable to afford the GP fees for antenatal care that are charged in many areas. Some fees are required 'upfront' and women are unable to pay these. Funding for GP services was part of the AMIHS programs however, for the most part, programs have not taken this up.

Continuity of care and carer is so highly valued by many women that they continue to seek the high level of care that was available to them in previous pregnancies. The level of continuity of care and carer is limited in many mainstream settings so that Aboriginal women 'vote with their feet' and choose the care provided by the AMIHS.

### **2.4 Enabling women to use mainstream services**

Most Aboriginal women would choose not to attend mainstream services even if they required only 'routine' care and were empowered enough to attend the services. There are a number of reasons for this.

Firstly, many rural areas do not have public antenatal services available for women through their local hospital although women give birth in these centres. Of the nine towns where AMIHS programs are situated and have birthing services, only three (33%) have publicly available antenatal services. This means that the only alternative for many women is a local GP. The bulk billing services in many areas are limited and women often have to pay up front for services although this is inconsistent across the state. In one area, the cost to visit the GP for antenatal care was quoted as being \$80 per visit. This is unacceptable to many women. Access to midwifery services in the antenatal period is limited and in some places, non-existent. Therefore, encouraging women to use mainstream services is ineffective.

Secondly, most hospital-based services provide fragmented care. Research has clearly shown that childbearing women prefer continuity of care and carer. The AMIHS provides this option even though women do not have a known caregiver in labour. Having known caregivers in the antenatal and postnatal period is of paramount importance to the women who were interviewed for this evaluation. Equally, women talked of having caregivers who 'really cared about them' and having an Indigenous worker 'who understood them', as being significant factors.

Thirdly, the bureaucratic nature of most mainstream public services means that women choose not to attend. For example, inflexible clinic appointments, long waits for

appointments and expecting women to make their own way to the hospital, which is often on the outskirts of town with limited public transport, were all reported barriers. Others reported that antenatal care with a GP was expensive and often entailed long waits in the waiting room, particularly if the GP had to go to the hospital to attend a birth.

Fourthly, the inclusion of an Aboriginal person on the team enables the teams to provide culturally appropriate care (with the midwives receiving unique cultural awareness training). Mainstream services do not generally have Aboriginal people providing some or part of the services. In addition, many mainstream services were not seen as being 'Aboriginal-friendly' and so were not accessed readily.

Finally, being based in the community was a considerable advantage for women, especially those AMIHS programs based within an AMS. This meant that women could receive care, often close to home and in familiar surroundings. Attending a hospital or GP rooms was unfamiliar and often inaccessible.

In summary, in general, many mainstream services do not meet the needs of Aboriginal women. Mainstream services were not seen to be equitable, accessible, based in the community and have limited community participation. The AMIHS services in general, meet all these primary health care principles and are therefore, preferable and chosen by women. Until mainstream services address these issues, women still need the type of care offered by the AMIHS.

### **2.5 Need for a specialised and intensive service**

Across the AMIHS, one in four women were identified as being 'high need' by program staff. It is likely that high need women are in need of this specialised and intensive service.

In interviews, women themselves identified that this service was appropriate to their needs and should be extended to non-Aboriginal women. Many said they would not return to mainstream services and suggested extension of the team into child health services. Though these teams may seem to be resource heavy, they are certainly meeting the goals of the program, and are making available a service to those who would not access services at all. This is only the third year of this state-wide initiative and it is already showing discernible changes to health outcomes.

### **2.6 Is the current assessment tool the most appropriate method of determining Aboriginal women's needs?**

The tool to measure 'need' was taken from a list developed by Macquarie AHS in 2001 and used in the early Families First projects. The tool has three categories: Routine; Extended; and, High Needs. The tool essentially assesses social and emotional need rather than physical or obstetric risk. The tool has a series of categories under each of the three headings.

Across the sites, the proportion of women classified as high need varied considerably. For example, the proportion of women identified as high need antenatally ranged from

5% (Far West AHS) to 61% (Taree, Mid North Coast AHS). Postnatally, the proportion classified as high need ranged from 5% to 46% in the same sites.

Fictitious case scenarios were developed to test the current assessment tool used to determine the needs category of the women who attend the service. These case scenarios were then described to each clinician who categorised the needs. The fictitious scenarios are in the Table below.

**Table 6: Fictitious scenarios to examine category of ‘need’**

<b>Rosie</b>	Rosie is 16 years old and lives with her mother and her boyfriend. Her mother works part-time but also comes with Rosie to her antenatal appointments. Rosie is having a healthy pregnancy. She does not smoke, take drugs or drink alcohol. She is a regular attendee at her antenatal appointments. She had her first antenatal visit at 12 weeks and is currently 36 weeks.
<b>Evelyn</b>	Evelyn is 24 years old and this is her 5 <sup>th</sup> pregnancy. She has a healthy 4 year old daughter. She has had a stillbirth and two second trimester miscarriages. Evelyn’s first antenatal visit was at 28 weeks gestation and she is currently 38 weeks. She lives with her boyfriend who has a job. Evelyn tells you that she does not have any money or family problems.
<b>Mandy</b>	Mandy is 26 years old and has just had her 4 <sup>th</sup> baby. All her previous pregnancies and births were healthy. Her baby girl was born one week ago and weighed 2.6 kg. She currently has housing difficulties and will need to move out of her house soon. There is history of domestic violence.
<b>Angela</b>	Angela is a non-Indigenous woman married to an Indigenous man. She is pregnant with her second baby and is currently 36 weeks. She has attended well throughout her pregnancy. After her last pregnancy she had postnatal depression and needed medications for 6 months. Angela has excellent family support.
<b>Sandra</b>	Sandra is from Queensland and she came here to have her baby. She is 2 weeks postpartum. Her baby boy was born at 36 weeks and weighed 2.2kg. She is breastfeeding but finding it difficult and is thinking about giving up. Her baby was readmitted last week with respiratory difficulties.
<b>Jenny</b>	This is Jenny’s 7 <sup>th</sup> pregnancy. She is currently 32 weeks pregnant with twins. She has two children in foster care at the moment and an AVO out on her partner. She does not usually attend her antenatal visits and you are always searching for her. She is a heavy smoker and you have seen her drunk in town a few times.

The staff who completed the database and assigned the categories at each site were given these six fictitious scenarios and asked to allocate a category, that is, 1=usual needs; 2=extended needs; 3=high needs (Table 7).

**Table 7: Categorisation of need by each AMIHS site**

	Macq	Macq	MW	MNC	MNC	NE	Hunter	Hunter	FW
Rosie	2	1	2	2	2	2	1	2	2
Evelyn	2	1	1	2	2	2	2	3	2
Mandy	3	2	3	3	3	3	3	3	3
Angela	2	2	2	1	2	2	1	2	2
Sandra	2	2	2	1	2	2	1	3	2
Jenny	3	3	3	3	3	3	3	3	3

Needs categories: 1=usual; 2=extended; 3=high

The highest level of agreement was found with ‘high needs’ women (that is, Mandy and Jenny). This suggests that clinicians consistently identify women of high needs across the six AHSs while women of lower needs are more difficult to categorise (Table 8).

Accurate identification of women from high needs categories is important as it is evident that these are the very women who require the specialised and intensive service that the AMIHS can provide.

**Table 8: Percentage agreement by scenario and level of need**

	<b>Agreement (%)</b>	<b>Majority category</b>
Rosie	78	2
Evelyn	67	2
Mandy	<b>89</b>	<b>3</b>
Angela	78	2
Sandra	67	2
Jenny	<b>100</b>	<b>3</b>

### **Evaluation of the tool**

The needs assessment tool is overly simplistic. There are three categories with a list of ‘conditions’ or ‘issues’ under each. The tool is without a sense of the process used to determine the category. There is also no sense of how to score the tool or what to do if there are multiple conditions or issues. For example, if a woman has more than one condition in the ‘extended care’ category it is not clear whether she would then move into the ‘high needs’ category.

The background environment seems to influence the current categorisation. Ongoing work in high need environments seems to have desensitised the team members to the nature of their work. For example, one area visited by the evaluators (Far West) seemed to have significant numbers of high need women however the team only classified 5% of women as ‘high need’. It seems that the team are used to managing high need women as part of their normal workload that they did not perceive these women as ‘high need’.

The needs assessment tool needs reconsideration. The tool currently used in the Integrated Perinatal Care (IPC) assessment might be worth considering although this has not yet been validated with Aboriginal women. The opportunity exists for a partnership to validate the tool in the AMIHS.

### **3. Training and Support Program**

This section of the Outcome Evaluation reviews the Midwifery/AHW Training and Support Program’s effectiveness in achieving its outcomes. As many of the short term outcomes were met and reported in previous evaluation reports, this document will provide a brief summary of the most significant ongoing initiatives and describe the long term outcomes in more detail.

The TSP employs a full time Midwifery Consultant as Project Officer with part time administrative support. Management support is provided through Northern Sydney AHS. The TSP provides a high level of support to 54 midwives and AHW/AHEOs in 26 sites across NSW. The support is also provided to non-AMIHS programs. The TSP also acts as a major source of resources, particularly educational. The TSP acts, at times, as a 'clearinghouse' for resources for people involved in Aboriginal maternal and infant health. The TSP has had requests for information and resources from around the country. The evaluators feel that this is a valuable service and one not undertaken by any other group in Australia.

### **3.1 Annual workshop/conference**

The annual state-wide conference was held again in 2004. Most midwives and AHW/AHEOs reported that the conferences were very valuable. Networking, peer support and access to information were some of the positive factors. One AHS did not send either a midwife or AHW. This was partly related to the AHW being only part-time and the timing being inconvenient for the midwife.

The TSP Project Officer reported a number of challenges in relation to the conference. These included attracting suitable speakers and ensuring the needs of both midwives and AHW/AHEOs were met. It is evident that the different disciplines are requiring different programs at times. There is merit in having a conference with sessions where midwives and AHW/AHEOs have separate programs.

### **3.2 Telehealth initiative**

During 2004, four (4) Telehealth broadcasts were made as part of the AMIHS. The topics were:

- Preterm labour, postpartum haemorrhage and the principles of multidisciplinary case review (60 participants)
- Hypertension in pregnancy (59 participants)
- Drug and alcohol (65 participants)
- Smoking cessation (36 participants)

A further three programs are planned for 2005 (breastfeeding, preterm labour and cultural communication).

The evaluation team feels that the Telehealth sessions are important and should continue to be conducted. On average, 55 people are participating in each session which is encouraging.

Creating long term sustainability in such initiatives is important. Building partnerships with other state-wide services (e.g. the NSW Pregnancy and Newborn Services Network) has been a strategy to include a wider base of providers. This needs to be continued.

The possibility of a partnership or some kind of arrangement with an organisation like the Rural Health Education Foundation may be advantageous. This organisation is based in

Canberra but they are setting up a Project Officer in Sydney to help manage some of the work in NSW. They have 550 satellite centres around Australia to which they provide educational sessions. One of their activities, which could be advantageous to the TSP to consider, would be to provide the Telehealth sessions on video or through the Internet (either broadband or narrowband capacity). This would mean that people who cannot access the sessions at the allocated time could still see them at a later date. The IT capacity within the AHSs needs to be explored to determine whether this is feasible.

### 3.3 Support and consultation

As in previous years, the support provided to clinicians included education, advice, policy review and assistance with the preparation of papers for workshops and conferences. The sharing of resources between sites is an additional benefit. The accessibility and value of the Project Officer in the TSP was commented on by many of the AMIHS clinicians.

The Project Officer also undertook site visits. As there are 26 sites now across the state it is not possible to visit each one annually. The site visits were seen as useful for networking, team building work and provision of information about the AMIHS.

### 3.4 Maternal and infant health training program for AHWs

In 2004, six AHW/AHEOs graduated from the one year Maternal and Infant Preparatory Course at Yooroang Garang. Nine AHW/AHEOs have enrolled for 2005.

**Table 9: Enrolled, graduated and outcomes of students from Maternal and Infant Health Course**

Year	Number enrolled	Number graduated	Undertaking or planning further education	Subsequent courses undertaking or planning
2003	15	12	9/12 (75%)	Bachelor of Nursing (2) Bachelor of Midwifery – 2005 (2) Bachelor of Midwifery – planning 2006 (2) Graduate Diploma in Community Health (1) TAFE course (1) Counselling course (1)
2004	7	6	4/6 (66%)	Bachelor of Community Development (2) Bachelor of Midwifery (1) Bachelor in Primary Health Care (1)

The course has graduated 18 AHW/AHEOs in two years. More than a third have gone onto, or are planning, further education. This demonstrates the excellent outcomes of such a preparatory course in introducing Aboriginal women to further education.

### 3.5 Specific training module for midwives

The Project Officer has been involved in lecturing to midwifery students regarding Aboriginal maternal and infant health.

The Project Officer is also a member of the Bachelor of Midwifery Advisory Committee at the University of Technology Sydney (UTS). This course has a subject called *Indigenous Health: Women and Babies*. This subject will address issues relating to Indigenous health for midwives.

### **3.6 Number of Aboriginal midwives**

In 2004, three of the AHW/AHEOS enrolled in a preparatory subject prior to applying for the Bachelor of Midwifery. The Nursing and Midwifery Office at NSW Health provided financial assistance for these students in 2004. This opportunity provided valuable learning for both the students and the TSP in terms of planning future support for these students.

The Bachelor of Midwifery commenced at the University of Technology, Sydney (UTS) in 2005. There were a number of applications from Indigenous women and four accepted places in the first intake. The Hunter AHS pledged to offer a three year training scholarship for one of the AHWs who has commenced the course. This is an excellent initiative and to be commended.

The Project Officer has been advising the Faculty of Nursing, Midwifery and Health and Jumbunna Indigenous House of Learning at UTS in relation to the application and acceptance process and the support needed for Indigenous midwifery students. This partnership has been very useful to ensure students are prepared appropriately. The Project Officer also assisted the prospective students with their applications and with relevant information. Support to other universities who wish to commence a Bachelor of Midwifery should be provided by the Project Officer to facilitate the enrolment of Indigenous students.

It is clear that there needs to be planning and support for the education and preparation of Indigenous students to ensure that the number of Aboriginal midwives will increase. Without support including leave without pay provisions and/or cadet programs, students will be unable to undertake the course. Despite the best efforts of the TSP, without further support, this objective will continue to be challenging.

### **3.7 Future of Training and Support Program**

The Training and Support Program is a vital component of the AMIHS. It is unclear whether the achievements and successes would have been possible without the level of support offered by the TSP. It is unclear what the ramifications on the AMIHS would be if the TSP were discontinued but it is likely to be significant. In an environment of workforce shortages and staff dissatisfaction, the TSP is clearly a mechanism to support and engage clinicians who are undertaking difficult and challenging work. The evaluation team suggests three options for consideration about the future of the TSP.

#### **Option 1: No change**

The TSP continues to provide support to the network of midwives and AHWs involved in the AMIHS and the ABSP-funded programs. The TSP continues to be part of the now combined Northern Sydney/Central Coast AHS.

**Option 2: Move to be part of a state-wide, centralised service**

The TSP continues to be funded but is moved into being a more easily identifiable state-wide service. The NSW Pregnancy and Newborn Services Network is one structure that could be explored as a 'home' for the TSP. Joining with a larger group could reduce some of the isolation and enhance formal links across the state.

**Option 3: Expansion and centralize**

The TSP continues to be funded but is moved into being a more easily identifiable state-wide service and expanded to support all models of maternity care across NSW, not only those for Indigenous women. Innovative models of maternity care, particularly ones where midwives will play a greater role, are starting across NSW in response to workforce issues and policy direction from NSW Health (NSW Health, 2000). Many of these models are being established with little support or access to ongoing information or advice. The TSP has demonstrated that such a model has benefits especially for clinicians in rural areas.

**CONCLUSION*****Is the AMIHS achieving its goals?***

The AMIHS is achieving its goals in relation to the provision of antenatal and postnatal care and has demonstrated improvements in perinatal morbidity and mortality rates.

Aboriginal women are accessing both antenatal and postnatal services. Significantly more Aboriginal women attend their first antenatal visit before 20 weeks gestation in 2003 and 2004, than before the establishment of the AMIHS. In total, 78% of women attended their first antenatal visit before 20 weeks gestation compared with 65% in the relevant Local Government Areas (LGAs) prior to the establishment of the AMIHS (1996-2000).

Greater success in accessing women occurs when programs are linked with the local Aboriginal controlled health services based in the community. Strong partnerships in a number of areas have developed as a result of AMIHS being located in Aboriginal community controlled health services. The AMIHS appears to be accessing the majority of women in their catchment areas. In 2003, 79% of Aboriginal women who were resident in the targetted LGAs and gave birth, received care from AMIHS programs.

Aboriginal women were very satisfied with the AMIHS programs. Home visiting, the inclusion of an AHW/AHEO in the team and reminders about, and transport to, antenatal appointments were the most important aspects for Aboriginal women.

The AMIHS teams are making considerable efforts to address risk factors associated with perinatal morbidity and mortality, especially reducing alcohol use in pregnancy and promoting breastfeeding. For example, the proportion of women initiating breastfeeding has increased over the last two years, as has the proportion still breastfeeding at 6 weeks.



The rate of smoking in pregnancy remains high. There is little evidence that the AMIHS programs have reduced smoking in pregnancy. Smoking rates may not be an accurate outcome measure for the evaluation of the AMIHS. Smoking rates before the initiation of the AMIHS were probably underreported, whereas after the start of the AMIHS, they were most likely recorded correctly. This is probably due to the high levels of trust between Aboriginal women and AMIHS staff resulting in the women being more honest about their smoking behaviour. Therefore, reducing smoking in pregnancy remains a significant challenge for the AMIHS.

The proportion of babies born prematurely (before 37 weeks gestation) has significantly decreased since the establishment of the AMIHS. Of the women who received care from AMIHS, 11% of births were premature compared with 20% prior to the establishment of the AMIHS (1996-2000).

There were two Aboriginal perinatal deaths in the AMIHS programs in 2004 giving a perinatal mortality rate (PMR) of 5.4 per 1000. This is a decrease from six deaths reported in the programs in 2003 and a PMR of 18.6 per 1000.

Using population data, there has been a reduction in the PMR for Aboriginal babies from 20.4 per 1000 in 1996-2000 to 14.4 per 1000 in 2001-2003 in the LGAs where programs are located. This is an encouraging trend and provides evidence that the AMIHS is achieving its goals.

The Training and Support Program (TSP) is highly valued and has achieved almost all its goals and objectives.

### ***What are the strengths of the AMIHS?***

The team approach, where an AHW/AHEO and a midwife work together in a primary health care model to provide continuity of care, is a major strength of the AMIHS. Aboriginal women were particularly positive about the level of continuity provided by a culturally appropriate caregiver that the AMIHS provided.

One of the other strengths of the AMIHS is the ability of the teams to be in the community, provide home visits, and follow up women, especially those who are hard to find.

The high level of skill and expertise displayed by many of the team members is another strength. Most midwives and AHW/AHEOs were highly committed and had often developed excellent relationships with the community and the health services. The retention of staff was also impressive.

The level of trust that the AMIHS clinicians had with women may mean that they disclosed more information than previously. For example, the high rates of smoking, marijuana and alcohol use in pregnancy reported by the programs may be because the women disclose this information more readily.

A number of innovative and exciting community development projects have been undertaken as part of the AMIHS. These include art programs, peer education and partnerships with other organisations.

The level of support and development opportunities provided by the Training and Support Program is also a considerable achievement of the AMIHS. Educational opportunities, including the AHW/AHEO Maternal and Infant Health Course, the annual conference and Telehealth sessions, are all important initiatives.

In conclusion, the AMIHS is achieving improvements in maternity service provision and outcomes for Aboriginal women. The AMIHS team is working towards addressing factors that impact on perinatal health in mothers and babies. Many women now have services that they can attend that are culturally appropriate and valued by the community. The AMIHS has attracted a high calibre of midwife and AHW/AHEO. They are, in general, highly skilled and committed and equally determined to improve outcomes for Aboriginal women and babies. The midwives and AHW/AHEOs have been well supported by an excellent Training and Support Program.

There are still challenges to address. Many of these reflect long term social and economic factors and require ongoing work and commitment.

## **RECOMMENDATIONS**

### **Recommendation 1**

The implementation of women's reference groups requires ongoing support and commitment.

### **Recommendation 2**

The model of continuity of care offered by the AMIHS, especially provided in a community-based setting, should continue to be supported.

### **Recommendation 3**

The current tool used to assess 'need' has significant limitations. Consideration should be given to using other tools which may have stronger validity and reliability, for example, the IPC tool.

### **Recommendation 4**

NSW Health and Area Health Services should continue to support a primary health care approach with a team that includes a midwife and AHW/AHEO.

### **Recommendation 5**

Community-based services (including antenatal care) should continue to be a priority for all AMIHS programs.

### **Recommendation 6**

Support for ongoing education and staff development for midwives and AHW/AHEOs should continue.

### **Recommendation 7**

The key factors that impact on staff retention should be supported and encouraged. These included: effective leadership and management with clear lines of accountability, performance management, clinical supervision and support for education and training; clear strategic direction; time and effort spent in team building especially with new team members; grievance issues handled quickly and effectively; recruitment of appropriate and committed staff; ensure there are respectful relationships within the team; and support for occupational autonomy and flexibility.

### **Recommendation 8**

Community development and peer education activities should be undertaken in partnership with community organisations or NGOs.

### **Recommendation 9**

Effective utilisation of midwifery skills should be a priority across AMIHS programs, including the provision of publicly funded antenatal care. Strategies need to be employed to ensure that midwives can work according to their full role and scope of practice.

**Recommendation 10**

NSW Health develops a comprehensive woman-held record that can be utilised across the state.

**Recommendation 11**

NSW Health ensures that resources for pregnant women continue to be printed and developed and the TSP continues to be supported in their work in this area. Area Health Services should be encouraged to use funding designated for community development activities to support these projects.

**Recommendation 12**

Access to child and family health services for Indigenous women needs to be examined and strategies to improve that access need to be explored.

**Recommendation 13**

Information about the AMIHS should be made widely available to women. This may include brochures and posters in health and non-health organisations. Location in the community will also assist this process.

**Recommendation 14**

Strategies for ongoing formal and informal clinical supervision and debriefing are an ongoing priority for midwives and AHW/AHEOs.

**Recommendation 15**

Quarantined budgets should continue to be allocated to AHS for the AMIHS.

**Recommendation 16**

NSW Health needs to monitor the organisational structures of the AMIHS in the post-restructure phase to ensure that the program retains its desired focus and emphasis.

**Recommendation 17**

AMIHS programs should develop closer ties with local maternity units for the rotation of clinical staff. This process will assist with knowledge and understanding about the AMIHS, promote recruitment and provide mechanisms for staff relief for leave. Rotations should occur in a structured and planned manner to ensure continuity of care and carer is maintained.

**Recommendation 18**

AMIHS programs should develop an annual plan with clear strategic direction to govern the nature of the work including the balance between clinical and community development activities.

**Recommendation 19**

Creative and lateral strategies need to be developed to address transport issues.

**Recommendation 20** Smoking cessation programs should continue to be a priority for AMIHS programs. A state-wide initiative to address smoking in pregnancy would be beneficial.

**Recommendation 21** The annual conference should continue to be supported. AHSs should use available funding to ensure that staff members can attend. Dates should be known well in advance so that plans for all staff to attend can be made.

**Recommendation 22**

The format of the conference should be explored. The inclusion of a separate session for midwives and AHW/AHEOs would be useful to address the different needs. Midwives and AHW/AHEOs should provide input into the content of those days.

**Recommendation 23**

The Telehealth initiative should continue to be supported. The TSP needs to continue their partnerships with other organisations to ensure ongoing sustainability.

**Recommendation 24**

Managers should ensure that staff from the AMIHS are supported to attend and participate in Telehealth sessions. Topics should be chosen in collaboration with clinicians in the AMIHS. Mainstream staff should be encouraged to attend.

**Recommendation 25**

Support and consultation, including site visits from the TSP should continue to be supported. Each site should be visited every two (2) years.

**Recommendation 26**

The one year Maternal and Infant Preparatory Course at Yooroang Garang should continue to be supported. AHSs should use available funding to ensure that appropriate AHW/AHEOs can attend.

**Recommendation 27**

The TSP Project Officer should look to other presenters who can take on some of the teaching in future Maternal and Infant Preparatory Courses. This will ensure sustainability of the program.

**Recommendation 28** AHW/AHEOs should continue to be supported by NSW Health and their respective AHS to undertake the Bachelor of Midwifery program.

**Recommendation 29** In future planning of the TSP, consideration should be given to the inclusion of an Aboriginal worker as part of the staff.

## APPENDIX A: AMIHS PROGRAM DATA (2004) COMPARED WITH LGA POPULATION DATA (1996-2000)

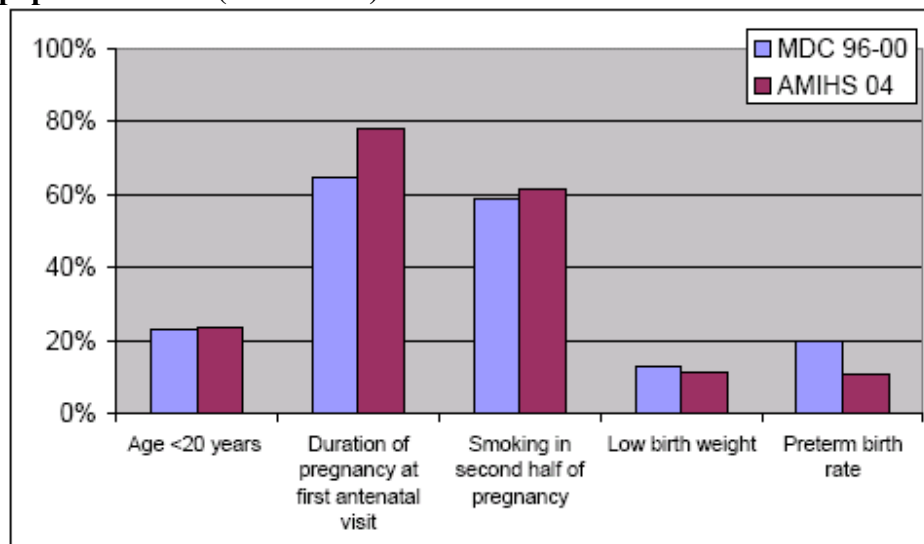
### Method

Clinical data provided by the AMIHS programs for the calendar year 2004 were compared with data from the 1996-2000 NSW Midwives Data Collection, for Aboriginal people in the relevant LGAs. The LGAs in which each program was situated were identified previously in this report (Table 1).

This approach was used to determine whether changes could be seen across these time periods. It is a crude comparison and the number of women is small in some LGAs which makes the analysis limited.

### Results

**Figure 1: Summary of AMIHS program data (2004) compared with LGA population data (1996- 2000)**



#### *Women aged less than 20 years at time of birth*

The overall proportion of births to women less than 20 years of age in 2004 was 24%. This was similar to the 23% in the LGAs prior to the establishment of the AMIHS (1996-2000).

#### *First antenatal visit before 20 weeks gestation*

In total, 78% of women had attended their first antenatal visit before 20 weeks gestation in 2004 compared with 65% in the LGAs prior to the establishment of AMIHS (1996-2000). This difference is statistically significant (OR 1.2; 95% CI 1.01-1.4; p=0.03).

#### *Smoking in the second half of pregnancy*

Smoking in second half of pregnancy included '1-10 cigarettes per day' and 'more than 10 cigarettes per day'. Overall, 62% of women reported smoking cigarettes in the second half of their pregnancy in 2004. This proportion is slightly higher to that prior to the establishment of the AMIHS (59% in these LGAs). The difference, however, was not statistically significant (OR 1.0; 95% CI 0.9-1.3; p=0.7).

#### *Low birth weight*

In 2004, 12% of babies were of low birth weight (less than 2500g). This was a small decrease compared with 13% in the same LGAs prior to the establishment of the AMIHS (1996-2000). This difference, however, was not statistically significant (OR 0.9 95% CI 0.6-1.3; p=0.5).

#### *Preterm birth rate*

Overall, 11% of babies were born prematurely (before 37 weeks gestation). This is a statistically significant decrease compared with the 20% seen prior to the establishment of the AMIHS in these LGAs (OR 0.5; 95% CI 0.4-0.8; p<0.001).

#### **Conclusion**

This approach contrasts program-specific data for five clinical outcomes from each site with the MDC data for Aboriginal women in the relevant LGAs prior to the full establishment of the AMIHS (1996-2000). This approach is used to determine whether changes could be seen over this period.

The largest improvements were in the proportion of women that attend their first antenatal visit before 20 weeks gestation and the rate of preterm birth. The proportion of babies born prematurely has significantly decreased compared with prior to the establishment of the AMIHS.

The level of smoking in pregnancy is high and has not declined, which is cause for concern.

## ***APPENDIX B: POPULATION-BASED APPROACH BY LOCAL GOVERNMENT AREA 1996-2003***

### ***Methods***

Data from the NSW Midwives Data Collection from 1996 to 2003 (calendar years) were used to examine the clinical outcomes of Aboriginal women and babies by local government area (LGA). The LGAs in which each program was situated were identified. Some women travel from outside their LGA of residence to receive care from the AMIHS. These women are not included in the data. As the Mid Western AHS has taken an area-wide approach, all LGAs were included. LGAs are identified in Table 1 in the main text. This is a population-based approach using population-based data from the Midwives Data Collection (MDC). Not all Aboriginal women in each LGA would have made use of the AMIHS programs. The number of women is small in some LGAs which makes definitive comparison limited.

Six clinical outcome measures were selected, as these are primary indicators for the AMIHS. These were:

- maternal age less than 20 years
- first antenatal visit before 20 weeks gestation
- smoking in the second half of pregnancy
- low birth weight (less than 2500 gms)
- preterm birth rate (prior to 37 weeks gestation)
- perinatal mortality.

The period 1996-2000 was compared with the calendar years 2001, 2002 and 2003. Most of the AMIHS programs had not commenced at the beginning of 2001 but by the end of 2001, all programs were implemented. To prevent personal identification of women, data for health areas where the number of women is less than 5 in a group, is not shown.

As the numbers of perinatal deaths were small, the number of deaths in the each of LGAs was combined rather than presented individually. The proportion of deaths in the time period 1996-2000 was compared with the deaths in the time period 2001-2003. Perinatal deaths include death reported to the MDC only. As the MDC form is completed at discharge or transfer of the baby, deaths occurring after this time may not be reported to the MDC. However, the level of any under-enumeration is expected to be consistent over the evaluation period.

### ***Results***

#### ***Women aged less than 20 years at time of birth***

All AHSs reported a decrease in the proportion of women who were less than 20 years of age at the time of their baby's birth from 1996-2000 to 2003. Overall, the proportion of women less than 20 years of age decreased from 24% in 1996-2000 to 21% in 2003. This difference however was not statistically significant (OR 1.2; 95% CI 0.9-1.5; p=0.15).



**Table 10: Health area of residence of Aboriginal and Torres Strait Islander women by age less than 20 years (1996-2003)**

AHS	1996-2000 n=2275	2001 n=526*	2002 n=544*	2003 n=524
MNC-Coffs	21%	25%	19%	19%
FW	29%	36%	21%	29%
Macq	22%	21%	20%	21%
MNC-Taree	26%	30%	31%	22%
NE	30%	23%	22%	25%
Hunter	27%	18%	34%	22%
MW	18%	16%	20%	19%
<b>Total</b>	<b>24%</b>	<b>23%</b>	<b>23%</b>	<b>21%</b>

\*information not available on maternal age for two women

*First antenatal visit before 20 weeks gestation*

All AHSs reported an increase in the proportion of women who commenced antenatal care at less than 20 weeks gestation from 1996-2000 to 2003. Overall, the proportion increased significantly from 65% in 1996-2000 to 76% in 2003 (OR 1.7; 95% CI 1.4-2.2;  $p < 0.001$ ).

**Table 11: Health area of residence of Aboriginal and Torres Strait Islander women by commencement of antenatal care prior to 20 weeks gestation (1996-2003)**

	1996-2000 n=2275	2001 n=528	2002 n=546	2003 n=524
MNC-Coffs	76%	70%	68%	81%
FW	52%	52%	63%	70%
Macq	59%	59%	73%	74%
MNC-Taree	63%	61%	67%	76%
NE	67%	68%	74%	77%
Hunter	63%	72%	61%	71%
MW	68%	74%	74%	80%
<b>Total</b>	<b>65%</b>	<b>66%</b>	<b>70%</b>	<b>76%</b>

*Smoking during second half of pregnancy*

Smoking during the second half of pregnancy included women who reported smoking: '1-10 cigarettes per day'; 'more than 10 cigarettes per day' and 'smoked but amount not stated'.

Four of the AHSs demonstrated a reduction in the number of women smoking during the second half of pregnancy. Far West AHS reported the largest reduction from 76% in 1996-2000 to 60% in 2003. Overall, the total proportion of women smoking decreased slightly from 59% in 1996-2000 to 55% in 2003. This decrease was not statistically significant (OR 1.2; 95% CI 0.9-1.4;  $p = 0.1$ ).

**Table 12: Health area of residence of Aboriginal and Torres Strait Islander women by smoking during the second half of pregnancy (1996-2003)**

	1996-2000 n=2275	2001 n=528	2002 n=546	2003 n=524
MNC-Coffs	55%	67%	56%	63%
FW	76%	79%	73%	60%
Macq	54%	57%	58%	55%
MNC-Taree	69%	59%	69%	64%
NE	54%	58%	60%	55%
Hunter	67%	51%	51%	46%
MW	54%	55%	58%	51%
<b>Total</b>	<b>59%</b>	<b>60%</b>	<b>60%</b>	<b>55%</b>

*Low birth weight*

Low birth weight was defined as less than 2500g.

The proportion of low birth weight babies reduced in four AHS from 1996-2000 to 2003. Overall, however, the rate remained stable at 13% from 1996-2000 to 2003 although there had been increases in 2001 (14%) and 2002 (16%).

**Table 13: Health area of residence of Aboriginal and Torres Strait Islander women by birth weight less than 2500g (1996-2003)**

	1996-2000 n=2299	2001 n=533	2002 n=554	2003 n=533
MNC-Coffs	9%	11%	11%	22%
FW	8%	11%	10%	9%
Macq	13%	10%	20%	8%
MNC-Taree	15%	24%	22%	8%
NE	13%	17%	17%	22%
Hunter	17%	16%	12%	12%
MW	14%	15%	16%	12%
<b>Total</b>	<b>13%</b>	<b>14%</b>	<b>16%</b>	<b>13%</b>

*Preterm birth*

Preterm birth was defined as birth occurring at less than 37 weeks gestation.

The proportion of babies born prematurely (less than 37 weeks gestation) reduced in three AHSs from 1996-2000 to 2003. Overall, the proportion remained stable at 19%.

**Table 14: Health area of residence of Aboriginal and Torres Strait Islander women by gestational age less than 37 weeks (1996-2003)**

	1996-2000 n=2299	2001 n=533	2002 n=554	2003 n=533
MNC-Coffs	14%	17%	15%	25%
FW	14%	11%	18%	19%
Macq	19%	18%	25%	19%
MNC-Taree	19%	20%	31%	17%
NE	20%	21%	29%	24%
Hunter	31%	23%	10%	17%
MW	21%	18%	19%	15%
<b>Total</b>	<b>19%</b>	<b>18%</b>	<b>21%</b>	<b>19%</b>

*Perinatal deaths*

The total number of perinatal deaths for babies born to Aboriginal mothers in the LGAs where the programs were situated was examined for the time period 1996 to 2003. In 1996-2000, the PMR was 20.4 per 1000 births. This reduced to 9.4 per 1000 births in 2003.

**Table 15: Perinatal mortality rate / 1000 babies born to Aboriginal women in the selected LGAs where AMIHS programs were situated (1996-2003)**

	1996-2000 n=2299	2001 n=533	2002 n=554	2003 n=533
Deaths	47	7	11	5
PMR	20.4	13.1	19.9	9.4

As the numbers of deaths in 2003 was small and hence the margin for error is great, the deaths from 2001 to 2003 were combined. This means that the PMR decreased from 20.4 per 1000 births (prior to the establishment of the AMIHS) to 14.4 per 1000 births after the establishment of the AMIHS (in the time period 2001-2003) although this was not statistically significant (OR 0.7; 95% CI 0.4-1.2; p=0.1).

While the rate is still higher than the PMR for non-Indigenous babies, it is an encouraging indicator of the success of the AMIHS.

**Conclusion**

The approach used the NSW Midwives Data Collection (MDC) and examines five clinical outcomes for Aboriginal women in the relevant local government areas (LGA) over time (1996-2000, 2001, 2002, and 2003). This approach was used to determine whether changes could be seen over this period.

Overall, there were less adolescent women and more women attending their first antenatal visit before 20 weeks gestation than prior to the establishment of the AMIHS in these areas. The proportion of women smoking in the second half of pregnancy reduced, as did the rate of preterm birth. The proportion of babies born at low birth weight remained stable although there were reductions in 2003 from 2001 and 2002. The PMR rate has shown some reduction in these areas since the establishment of the AMIHS.

## **APPENDIX C: INTERVIEW QUESTIONS GUIDE**

Questions for women and their partners during semi structures interviews on a one-to-one basis, and exploration in focus groups.

### **Team structure**

Do the maternity services provided by the AMIHS suit your needs?  
What did you think about a midwife and AHW/AHEO working together?  
Is it necessary to have both a midwife and an AHW/AHEO in the team?  
What is different about what they do?  
What are the most helpful things about the team?  
What are the least helpful things about the team?

### **Antenatal care**

Has your attitude to attending antenatal care changed in any way since you have met the team?  
Have you found it easier/helpful to have antenatal checks with the team?  
How does having antenatal care with the team differ from what you have had in the past?  
Are you a smoker? Has your smoking changed? Why?  
Do you use drugs/ has the use changed? Why?  
Would you recommend to your friends that they have antenatal care with the team?

### **Empowerment of women**

Do you feel you are more or less in control of what happens around your pregnancy and childbirth?  
Do you feel confident to say what you want to happen to you and your baby?  
Have your feelings changed about you and your baby's future?  
Have you been involved in decisions made about the AMIHS?  
Are you involved in, or have you heard of, the reference group for the AMIHS?  
What changes would you like to see in the program?  
What has attending the program helped you with?  
Have you been involved in any community projects run by the AMIHS?  
Do you use other services as a result of attending the midwifery program (eg. government /non-government / health)?  
Which services?  
Have you found it easier accessing those services?

### **Program Reach**

Do you think all your friends know about the program?  
Some women do not like to attend for health checkups and are very hard to access, could you suggest any strategies that would enable the teams to reach these women?

## APPENDIX D: TIME AND MOTION AUDIT TOOL

Name: \_\_\_\_\_ AHS: \_\_\_\_\_ Sector: \_\_\_\_\_ F/T or PT \_\_\_\_\_ Date: \_\_\_\_\_  
 Add the TIME IN MINUTES (closest 15/60) corresponding to the activity Day: \_\_\_\_\_

Time	A							B		C	D	E		F	G			H			I		
	1	2	3	4	5	6	7	1	2	1	1	1	2	1	1	2	3	1	2	3	1	2	
7am																							
8am																							
9am																							
10am																							
11am																							
12md																							
1pm																							
2pm																							
3pm																							
4pm																							
5pm																							
6pm																							

Please make a note if activity performed with other team member eg. use asterix \* or different coloured pens

Please indicate if the activity involved care for a woman with high needs by placing a tick in the box with the time

Is this a usual day?      Yes      No

Comments: \_\_\_\_\_

Number of clients seen or called today						
Routine		Extended Care		High Needs		
Mother	Baby	Mother	Baby	Mother	Baby	

\_\_\_\_\_

GUIDE ACTIVITY	
A1	Clinic visit - antenatal, pregnancy, counselling, education etc
A2	Home visit - antenatal, pregnancy, counselling, education etc
A3	Clinical care during labour and birth
A4	Hospital visit
A5	Clinic visit - postnatal, neonatal, contraception, education
A6	Home Visit - postnatal, neonatal, contraception, education
A7	Attending clinical visits with the woman eg. doctors / USS etc
B1	Education and support (Woman and her family)
B2	Education (Groups)
C1	Health promotion / resource development
D1	Community development /empowerment activities, networking and partnerships
E1	Advocacy- social and support (DOCS, social security, housing, land council for funerals etc)
E2	Advocacy/ referral / phone calls - health / clinical reasons eg. mental health team, drug & alcohol team
F1	Aboriginal families eg.non AMIHS clients or already discharged from the program eg. early childhood activity
G1	Adminstration / phone calls eg reminders for appointments
G2	Adminstration / phone calls for clinical reasons eg. pathology, patient notes / records, booking appointments
G3	Adminstration eg. statistics / database reports / email
H1	Transporting women eg. to appointments, group or community development activities
H2	Transport - driving to visits, looking for women, reminding women about appointments
H3	Transport or driving to other Health Centres, hospital or outreach clinics etc.
I1	Attending meetings, team get togethers or clinical support
I2	Attending inservice or training
J1	Family activities, community or family funerals to attend
K1	Meals and breaks

## **APPENDIX E: NEEDS CATEGORIES**

### 1. Routine care

### 2. Extended care

- Maternal age < 19 years
- Child with disability
- Parent with disability
- Multiple births
- Premature infant
- Low birth weight baby
- History of PND
- Significant financial stress
- Lack of housing
- Lack of family support (social and emotional)
- Anxiety or other mental health problem
- Significant breastfeeding problems
- Very unsettled infant

### 3. High need care

- Family known to DoCS
- History of psychiatric care
- History of family violence
- Current child protection issues
- Substance use in the family
- Parent with developmental disability
- Frequent hospitalisation of infant