Aboriginal Nutrition

Table of contents

Key points ........................................................................................................................................ 2
Overview ......................................................................................................................................... 2
Recommendations for practice ........................................................................................................ 3
Background ....................................................................................................................................... 4
Infant birth weight and maternal nutrition .................................................................................... 7
Growth ............................................................................................................................................... 11
Breastfeeding .................................................................................................................................. 12
Iron deficiency .................................................................................................................................. 14
Obesity .............................................................................................................................................. 15
Oral health ........................................................................................................................................ 16
Related policies, procedures and guidelines .................................................................................. 17
References ......................................................................................................................................... 17
Support Services ............................................................................................................................... 20
Professional Resources .................................................................................................................... 25
Resources for families ...................................................................................................................... 26

List of tables:
Table 1: Key points ............................................................................................................................. 2
Table 2: Aboriginal and total population by Western Australian Country Health Service health region ................................................................................................................................. 4
Table 3: Summary of milk consumption advice for children ................................................................ 13

List of figures:
Figure 1: Population Pyramid of Aboriginal and Non-Aboriginal in Western Australia – June 2011 ...................................................................................................................................................................................................... 5
Figure 2: Trends in low birth weight, by Aboriginal status of mother, 1991 – 2007 ................................ 8
Section 10: Aboriginal Nutrition

Aim: To outline the relationship between good nutrition and achieving and maintaining better health outcomes for Aboriginal peoples.

Key points

<table>
<thead>
<tr>
<th>Table 1: Key points</th>
</tr>
</thead>
<tbody>
<tr>
<td>● Nutrition issues of particular concern for Aboriginal peoples include overweight and obesity, under nutrition and poor growth in early childhood, and foetal alcohol syndrome.</td>
</tr>
<tr>
<td>● The traditional diet comprised mainly of low energy density, high nutrient density foods and this was combined with high energy expenditure lifestyle. With Western settlement, this changed to a diet high in fat and added sugars and low in fibre with reduced energy expenditure. As a result, Aboriginal people suffer many diet-related diseases, including cardiovascular disease, type 2 diabetes and some cancers.</td>
</tr>
<tr>
<td>● Health professionals need to support the consumption of healthy foods that are accessible and affordable. Children need sufficient nutritious foods to grow and develop normally.</td>
</tr>
<tr>
<td>● Women who are planning a pregnancy, pregnant or breastfeeding should be advised that not drinking alcohol is the safest choice.</td>
</tr>
<tr>
<td>● Iron deficiency needs to be prevented and if required, treated.</td>
</tr>
<tr>
<td>● Drinks and foods high in sugar and poor oral hygiene are major causes of poor oral health.</td>
</tr>
</tbody>
</table>

Overview

Aboriginal people suffer chronic and significant health inequities which typically reduce their quality of life and results in a life expectancy lower than their non-Aboriginal counterparts. This is largely due to the socio-economic disadvantage experienced by Aboriginal Australians such as lower educational attainment, higher rates of unemployment and lower incomes.

1 Within Western Australia, the term Aboriginal is used in preference to Aboriginal and Torres Strait Islander, in recognition that Aboriginal people are the original inhabitants of Western Australia. No disrespect is intended to our Torres Strait Islander colleagues and community.
Poor nutrition is a major risk factor for many of the prevalent diseases among Aboriginal groups such as cardiovascular disease, diabetes and cancers. Poor diet can be attributed to approximately 19% of the national Aboriginal burden of disease. Nutrition issues of particular concern include:

- overweight and obesity
- under nutrition and poor growth from around 6 months of age
- foetal alcohol syndrome
- iron deficiency.

All pregnant and lactating women, infants and young children have proportionally higher nutritional needs for healthy growth and development. The Australian Aboriginal population is recognised as having more young mothers, infants and young children compared to the non-Aboriginal population therefore offering sound nutrition advice at every opportunity is key.

Specific dietary considerations need to be addressed when working with pregnant and lactating Aboriginal women, with the aim of achieving optimal maternal nutrition and infant birth weight. This can be attained by working with the mother, her family, community members and other health professionals to assist in:

- the choice of healthy foods
- avoiding or at least limiting alcohol consumption
- providing advice on feeding practices that influence infant growth
- the promotion of breastfeeding
- the prevention of iron deficiency
- the promotion of good oral health.

**Recommendations for practice**

Good practice includes understanding communities’ priorities, family, culture, preferred methods of communication and learning. Health professionals who have little experience working with Aboriginal clients should contact their local Area Health Service to seek advice on who the most relevant person is to assist them.

A comprehensive Statewide Enhanced Aboriginal Child Health Schedule has been developed by Department of Health WA. This builds on and strengthens the existing Community Health Universal Child Health Schedule by offering additional health assessments to Aboriginal families with identified health needs. It aims to address the higher rates of developmental issues and ill-health experienced by Aboriginal children. The schedule is delivered predominantly as a home visiting/outreach community development model in recognition of evidence which suggests that home visiting positively impacts on effective Aboriginal parenting. For further information refer to the [Statewide Enhanced Aboriginal Child Health Contact Schedule](#).
A comprehensive Resource Matrix has also been developed for health professionals to consult when working with Aboriginal families on a range of health topics. These resources can be accessed via the Department of Health’s intranet and internet.

Health Professionals can access a range of nutrition programs, projects and resources that are available within the Western Australia Department of Health. Contact your local Community Health Service or CACH Aboriginal Health Team or refer to the professional resources at the end of this chapter.

Some information provided in this chapter is relevant to urban areas while other information is relevant to rural/remote areas. Health professionals need to consider the context they are working in before applying the information in this chapter.

Background

Some researchers describe the population distribution of Aboriginal families as enormously diverse. Aboriginal people live in many areas of Western Australia including:

- in small communities in remote and isolated area
- in towns or the outskirts or fringes of towns
- parts of rural centres or urban areas.

Table 2 shows the distribution of Aboriginal people in Western Australia. Data from the 2011 census showed that 88,277 Aboriginal people lived in Western Australian. This was a 21% increase from the 2006 census data. The majority of Aboriginal people live in urban areas, however, they represent a small proportion of the total population in these areas.

### Table 2: Aboriginal and total population by Western Australian Country Health Service health region

<table>
<thead>
<tr>
<th>Health Region</th>
<th>Aboriginal</th>
<th>Non Aboriginal</th>
<th>Total</th>
<th>% Aboriginal people</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total</td>
<td>88270</td>
<td>2265139</td>
<td>2353409</td>
<td>3.75</td>
</tr>
<tr>
<td>Goldfields</td>
<td>6851</td>
<td>52575</td>
<td>59426</td>
<td>11.53</td>
</tr>
<tr>
<td>Great Southern</td>
<td>2577</td>
<td>54660</td>
<td>57237</td>
<td>4.50</td>
</tr>
<tr>
<td>Kimberley</td>
<td>17022</td>
<td>19769</td>
<td>36791</td>
<td>46.27</td>
</tr>
<tr>
<td>Midwest</td>
<td>8472</td>
<td>56513</td>
<td>64985</td>
<td>13.04</td>
</tr>
<tr>
<td>North Metro</td>
<td>16082</td>
<td>953874</td>
<td>969956</td>
<td>1.66</td>
</tr>
<tr>
<td>Pilbara</td>
<td>9926</td>
<td>51851</td>
<td>61777</td>
<td>16.07</td>
</tr>
<tr>
<td>South Metro</td>
<td>18902</td>
<td>848428</td>
<td>867330</td>
<td>2.18</td>
</tr>
<tr>
<td>South West</td>
<td>4178</td>
<td>155552</td>
<td>159730</td>
<td>2.62</td>
</tr>
<tr>
<td>Wheatbelt</td>
<td>4260</td>
<td>71917</td>
<td>76177</td>
<td>5.59</td>
</tr>
</tbody>
</table>
In 2010-2012, life expectancy at birth for Aboriginal men was 69.1 years and 73.7 years for women. On average, Aboriginal men live 10.6 years less than non-Aboriginal men, while Aboriginal women live 9.5 years less than non-Aboriginal women. This gap has reduced over the last five years by 0.8 years for men and 0.1 years for women.

The Western Australian Aboriginal population is much younger overall than the non-Indigenous population. Data from the 2011 census showed 35% of Aboriginal people were aged less than 15 years, compared with 19% of non-Aboriginal people and approximately 3.0% of Aboriginal people were aged 65 years or over, compared with 12% of non-Aboriginal people. Figure 1 demonstrates the disproportionate number of Aboriginal youth compared to non-Aboriginal population.12

![Population pyramid of Aboriginal and non-Aboriginal in Western Australia, June 2011](image)

**Figure 1.** Population pyramid of Aboriginal and non-Aboriginal in Western Australia, June 201112

Dietary changes

Nationally, information on the health and nutritional status of Aboriginal people has been compiled in a National Health and Medical Research Council report *Nutrition in Aboriginal and Torres Strait Islander Peoples*. This report suggests there is limited historical record about the diet and nutritional health of Aboriginal people prior to European settlement in Australia.13

Understanding and acknowledging past history is fundamental to understanding the health status of today’s Aboriginal children. Historical events have had a devastating impact on Aboriginal people’s lifestyle. Prior to Western settlement, Aboriginal
people lived a fit and healthy lifestyle. Their dietary intake included traditional foods which had low energy density and high nutrient density. These foods were high in protein and complex carbohydrates, had a low glycaemic index, were low in sugar and also low in total fat. Children were breastfed until they were around three years, or until another sibling was born.\textsuperscript{14} With western settlement, Aboriginal people transitioned to surviving on food rations and participating in forced labour.\textsuperscript{6} Aboriginal people now generally consume a diet that is high in fat and added sugars and low in fibre.\textsuperscript{6,14,15,16,17}

Health professionals need to have an understanding of the cultural values of the communities that they are working with, and how this relates to infant and young child feeding within those communities. It is vital that health professionals work in partnership with local Aboriginal health professionals, local community members, particularly elders and engage in two way learning.

Often the extended family members and the broader community will play an important role in feeding children, rather than the biological parents being solely responsible.

**Dietary considerations**

The *Australian Dietary Guidelines* are relevant to all Australians and are outlined in the *During Pregnancy* chapter of this Child and Antenatal Nutrition Manual.

Key dietary considerations particularly relevant to improving the well-being of Aboriginal people include:\textsuperscript{5}

- Increasing consumption of vegetables and fruits.
- Consumption of traditional bush foods should be supported wherever possible.
- Encourage and support breastfeeding.
- Ensure children and adolescents receive sufficient nutritious food to grow and develop normally.
- Check the growth of young children regularly.
- Enjoy traditional foods whenever possible.
- When choosing store foods, choose foods most like traditional bush foods, (such as fresh plant foods, wholegrain foods, seafood, and lean meats and poultry).
- Lactose intolerance (after age 3-5 years) can be a problem in some individuals; so alternative sources of calcium can be recommended (including chewing on meat/fish bones, consuming soft fish bones and consuming low lactose dairy foods such as matured cheese and yoghurt).\textsuperscript{5,14}
The relationship between diet, nutrition and health is of particular significance to certain groups of Aboriginal people.

Children: there are about twice as many more young Aboriginal children than adults. Children need good nutrition to provide them with the nutrients they need for growth;

- Pregnant and lactating women: there are proportionally more pregnant and lactating women overall in the Aboriginal population than the non-Aboriginal population.
- Adolescent mothers: there are more adolescent girls who are mothers compared to non-Aboriginal people, who must meet their own nutritional needs as well as those of their infants.

It is important to recognise these areas of need and ensure that nutritional requirements are met and diet-related diseases are prevented. A number of innovative ways may need to be employed by the community to ensure that a safe and adequate food supply is available. For example, lobbying for refrigerators in local stores and ensuring only fresh produce is stored in them.

**Infant birth weight and maternal nutrition**

Good nutrition for children is important at all stages of development including in-utero, infancy and throughout childhood. The regular assessment of growth during infancy and childhood is one way to assess whether nutrition is adequate.

**Birth weight**

In WA during 2008, Aboriginal women had a higher birth rate than non-Aboriginal women (101.7 per 1000 women and 66.3 per 1000 women respectively) and represented 5.7% of all women who gave birth. From 2004-2008, 8,672 (6.1%) of babies (8,672) were born to Aboriginal women.10

Nationally, the proportion of low birth weight babies born to Aboriginal mothers is about twice that of babies born to non-Aboriginal mothers, although currently there is a rising trend towards higher birth weights in Aboriginal babies.13 The average birth weight of Western Australian Aboriginal babies was estimated to be 3,170 grams, with 11% being of low birth weight (less than 2,500 grams) compared with 7% for the non-Aboriginal population.13 Low birth weight may result from a short gestation period and/or intrauterine growth restriction.6

Babies with intrauterine growth restriction may have under-developed organs and consequent metabolic changes that could compromise their future health. Recent evidence suggests that low birth weight has long-term effects on the body including:

- being associated with increased risk of sudden infant death syndrome and type 2 diabetes
- high blood pressure and cardiovascular disease in adulthood.6
Nutritional determinants of intrauterine growth restriction include:

- low maternal dietary energy intake
- maternal malnutrition
- inadequate weight gain during pregnancy
- low pre-pregnancy weight.\(^6\)

Various other factors are also known to contribute to low birthweight, including smoking, alcohol intake and illness during pregnancy, as well as multiple births.\(^6\)

Figure 2 highlights the trends in low birthweight by Aboriginal status of mother during the period from 1991 – 2007.\(^{13}\)

**Figure 2: Trends in low birthweight, by Aboriginal status of mother, 1991–2007.**\(^{14}\)

*Source: AIHW analysis of National Perinatal statistics Unit National Perinatal Data Collection*

*Notes:*
1. ‘Other Australians’ includes non-Aboriginal mothers, and mothers for whom Aboriginal status was not stated.
2. *Excludes Tasmania and the Australian Capital Territory.*

**Choosing healthy foods**

Consumption of traditional foods should be supported wherever possible as they tend to be:

- plant-based, hence high in fibre, vitamins and minerals
- low in fat and sodium
- high in protein
cooked using traditional methods, such as on coals and without added fat.

Native animals are very lean (with the exception of dugong which is high in fat) and have a high proportion of mono-unsaturated fats (for example kangaroo, bush turkey, emu and turtle).

Some fresh foods in rural and remote areas can be more expensive than those in metropolitan areas. It is important that health professionals are mindful of this when encouraging people to eat healthy foods. The perceived high cost of healthy foods needs to be validated and solutions discussed with the family, rather than being dismissive or judgemental. Often the high cost of healthy food is a misconception. Although fresh produce is often more expensive in remote communities, it can still be cheaper to cook a family meal than to purchase a heat and eat meal such as a pizza.

Encourage foods that are accessible and affordable, including:

- legumes such as three bean mix, baked beans, split peas
- fruit and vegetables - if fresh are not available, canned fruit (in natural juice), canned vegetables (reduced salt where possible) or frozen varieties are suitable and nutritious
- breads and cereals such as wholemeal or multigrain bread, wholemeal flour damper, unsweetened breakfast cereal, rice or noodles
- lean meat such as kangaroo, chicken (with skin removed), lean beef and fish (canned or fresh)
- dairy products such as milk (powdered varieties where fresh milk is not available), yoghurt and cheese (reduced fat varieties for people over 2 years)
- tap water, if safe.

Buying food items in bulk and in season fruit and vegetables is a good way to save money.

Foods high in fat, salt and sugar should be limited. These include:

- large quantities of butter, jam and honey on damper
- take away foods, including hot chips
- processed meats such as salami, bacon and polony
- pastries such as sausage rolls and pies
- sugar-sweetened beverages.

Alcohol

Researchers suggest the major contributors to alcohol abuse include low self-esteem, depression, lack of social values, influence of family and peers, delinquency, non-conformity and stressful family circumstances.
Alcohol significantly contributes to mental health disorders and is the leading risk factor for injury burden in Aboriginal people.\textsuperscript{4}

Alcohol is high in kilojoules and low in nutrients, and can replace healthy foods in the diet. Drinking excessive quantities can lead to:

- type 2 diabetes
- liver damage
- raised blood pressure
- overweight and obesity.\textsuperscript{21}

The 2009 National Health and Medical Research Council recommendations state that \textbf{for women who are planning a pregnancy, are pregnant or breastfeeding, not drinking is the safest option}.\textsuperscript{22}

Alcohol entering a woman’s bloodstream also enters that of the foetus, thus drinking alcohol during pregnancy can affect the unborn child by damaging the development of the baby’s brain and slowing physical growth. Babies affected by alcohol tend to have lower birth weights and may also have physical and behavioural problems at birth and throughout childhood.\textsuperscript{23}

Foetal Alcohol Spectrum Disorder (FASD) is an umbrella term used to describe a range of alcohol-related birth defects and disorders, with Foetal Alcohol Syndrome (FAS) resulting from exposure to high levels of alcohol.\textsuperscript{24} Children with FASD may have facial abnormalities, impaired growth, abnormal functioning of the nervous system and significant developmental, behavioural and cognitive problems.\textsuperscript{22}

As FASD is linked directly to the consumption of alcohol during pregnancy, health professionals are in a prime position to assist and support with prevention.\textsuperscript{23} Even at low levels of drinking, research has shown that pregnant women who drink more than one to two standard drinks each time and more than six standard drinks a week increase the risk of a premature birth, even if drinking has ceased before the second trimester.\textsuperscript{23}

When a woman who has been advised on the risks of alcohol consumption in pregnancy and breastfeeding is not able to consider abstinence, health professionals may assist her in a non-judgemental way to reduce her consumption as much as possible, avoid intoxication, and arrange for further support by planning additional consultations or by referral to specialist services and support groups.\textsuperscript{26}

Alcohol enters breast milk by passive diffusion and levels are reflected in maternal blood within 30 to 60 minutes of ingestion. If not timed appropriately, drinking alcohol throughout the period of lactation can negatively impact on lactation performance and the mental development of the infant.\textsuperscript{27} Studies show that women who consume alcohol at levels of more than two standard drinks per day are almost twice as likely to discontinue breastfeeding before the infant is 6 months old than...
women who drink below this level. Drinking alcohol while lactating is also associated with deficits in infant psychomotor development and disrupted infant sleep wake behavioural patterns.

Refer to the information in Alcohol and breastfeeding: a guide for mothers for more information.

Drugs
Marijuana (‘gunja’, ‘dope’, ‘green’ or ‘moodle’), heroin and methadone are excreted in breast milk. The active components of these drugs are fat-soluble and concentrate in the breast milk. Where the mother has used heroin or methadone throughout her pregnancy, it is considered safer for the infant to continue to receive the drug in the breast milk than be subjected to symptoms associated with withdrawal. In addition, the other associated benefits of receiving breast milk outweigh the costs of inducing a state of withdrawal in the infant.

Drug use may also affect a mother’s alertness which can present hazards while breastfeeding or preparing infant formula, or sleeping near her infant.

The National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the newborn provides information for all health professionals working with pregnant and lactating women experiencing a drug or alcohol use problem, particularly drug dependency, but including other drug uses such as alcohol bingeing.

Growth
Low birth weight, growth faltering and inappropriate child growth are serious concerns in Aboriginal communities. It has been consistently noted that growth retardation is common among Aboriginal infants beyond four to six months which can persist into later childhood.

Environmental conditions (such as overcrowded housing, unhygienic conditions, repeated infections and poor nutrition) can affect growth and if these negative conditions are on-going, growth is likely to be persistently sub-standard and this can lead to growth faltering. Permanent growth restriction and stunting can result from a combination of low birth weight and under nutrition in infancy and early childhood.

When tracking a child’s growth, sequential measurements are taken and plotted on an appropriate growth chart. The trajectory of the child’s growth should follow the shape of the curve on the chart.

Refer to the Growth Monitoring and Action chapter of this manual for more information.
Breastfeeding

The WA Aboriginal Child Health Survey reported that Aboriginal mothers have higher rates of breastfeeding than the non-Aboriginal population. The Australian Bureau of Statistics reported that the proportion of Aboriginal children who had ever been breastfed increased steadily with isolation from 81.5% in the Perth metropolitan area to 96.3% in areas of extreme isolation.11 This is despite women in regional communities having less external breastfeeding support available to them.

Challenges facing breastfeeding mothers include:

- Problems associated with breastfeeding not always being treated quickly and effectively, which can escalate with travel delays.
- Some mothers living in rural/remote areas who give birth in larger towns may be discharged back to their community prior to breastfeeding being established.
- Culture also plays a part in feeding practices, particularly if the infant belongs to a large family group. The grandmother can encourage the mother to bottle feed so that she can assist with feeding if the mother goes out.
- Often if mother and baby live in an overcrowded house, the mother may not have a clean, safe and private place to breastfeed. 30

Accessing young pregnant women can be challenging for health professionals however it is important to access these women and promote breastfeeding, as anecdotal evidence suggests there is a decline in breastfeeding initiation and duration amongst this population group.

Health professionals should support mothers to begin breastfeeding and continue to breastfeed for at least 6 months. The health professional can discuss the advantages of breastfeeding over formula use with the mother. This includes being free, available and hygienic as well as providing an opportunity for the mother and baby to bond.

Perceived low milk supply among mothers can result in reduced breastfeeding and use of infant formula. If a baby is growing normally, having soft bowel movements and 6 – 8 wet nappies a day, then it is getting enough milk. Health professional should check for correct attachment at the breast and advise mothers that using bottles can decrease breast milk supply.

It may be necessary to provide breastfeeding support within an Aboriginal Health Service or within a comfortable community setting rather than a hospital or clinical setting.13 Men providing advice or support on breastfeeding or expressing to women is generally not culturally appropriate, unless they are well known and respected. This is best decided by an Aboriginal liaison officer or local resident.

In communities where breastfeeding continues to be a strong cultural practice, often the introduction of solid foods is delayed far beyond 6 months of age. This puts infants at risk of iron deficiency. Health professionals should educate parents and
carers on appropriate introduction of foods (timing and type) and the importance of first foods being iron-rich.  

For further information, refer to the Breastfeeding chapter contained in this manual.

Milk consumption

The following table is a guide for health professionals in regards to milk consumption for Aboriginal children.

Table 3: Summary of milk consumption advice for children

<table>
<thead>
<tr>
<th>Age</th>
<th>Advice</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 – 6 months</td>
<td>• An infant should consume breastmilk or infant formula only.</td>
</tr>
<tr>
<td>6 – 12 months</td>
<td>• The only drinks infants should consume are water and breastmilk or infant formula. Tea and cola drinks should not be consumed.</td>
</tr>
<tr>
<td></td>
<td>• Solid foods are introduced at around 6 months. Mother can continue to breastfeed and be encouraged to do so.</td>
</tr>
<tr>
<td></td>
<td>• Offer food before milk.</td>
</tr>
<tr>
<td></td>
<td>• If the mother is not breastfeeding, she can use a standard infant formula until 12 months.</td>
</tr>
<tr>
<td></td>
<td>• Follow-on formulas have no benefits over standard infant formula; however, can be used beyond 6 months of age.</td>
</tr>
<tr>
<td></td>
<td>• If mother is not breastfeeding, infant formula is a better alternative to cow’s milk between 6 and 12 months.</td>
</tr>
<tr>
<td></td>
<td>• Particularly in hot weather, babies can be given cooled, boiled water.</td>
</tr>
<tr>
<td></td>
<td>• A cup can be introduced from 6 months. If using a bottle, this should be phased out by 12 months and replaced with a cup.</td>
</tr>
<tr>
<td></td>
<td>• Parents should be discouraged from putting their baby to sleep with a bottle, as this can lead to tooth decay.</td>
</tr>
<tr>
<td>Beyond 12 months</td>
<td>• Cow’s milk can be introduced as a drink (as fresh milk, long life or powdered milk), along with water.</td>
</tr>
<tr>
<td></td>
<td>• Full-fat milk can be offered until 2 years of age, then changing to reduced-fat milk if the child is tracking well on the growth charts.</td>
</tr>
<tr>
<td></td>
<td>• It should be emphasised that milk (including powdered milk) is not a complete meal and solid foods need to be consumed in addition so that the toddler can grow and develop normally.</td>
</tr>
<tr>
<td></td>
<td>• Toddler milks are unnecessary if the child is growing and developing normally by consuming a wide variety of family foods. If this is not the case, their diet can be supplemented with toddler milk as advised by a medical professional.</td>
</tr>
<tr>
<td></td>
<td>• Milk consumption should be limited to no more than 600ml/day so that it is not replacing other nutritious foods in the child’s diet.</td>
</tr>
</tbody>
</table>
Lactose intolerance

Lactose intolerance in the Aboriginal population is very common. Approximately 70% of children are thought to have the condition, which is usually evident by the age of 6 years. People with lactose intolerance can experience symptoms such as bloating, flatulence, abdominal discomfort or pain or diarrhoea.

Lactose is found in milk and other dairy products; however these foods are also very good sources of calcium. Therefore, it is important to consume alternative calcium sources, which include:

- low lactose dairy foods (hard cheese, yoghurt)
- lactose-free milk
- calcium-fortified soy milk
- small soft fish bones (in tinned salmon)
- very small quantities of full-fat milk (depending on individual tolerance levels).

Secondary lactose intolerance can occur after a bout of gastrointestinal infection and is a common cause of diarrhoea in Aboriginal children. If left untreated and if the child has low appetite, or if carers withhold food for long periods in an attempt to improve the condition, malnutrition can result.

Iron deficiency

Infants and children are prone to iron deficiency due to their high iron needs during periods of rapid growth. In some cases, inappropriate nutritional intake can also lead to iron deficiency. Women of child bearing age can also experience iron deficiency from heavy menstrual blood losses and pregnancy. Aboriginal populations experience higher rates of iron deficiency compared to the general population.

In Western Australia in 2004, anaemia/lack of iron was reported in Aboriginal children;

- 5.4% of 0 – 3 year olds
- 3.8% of 4 – 11 year olds and
- 4.9% of 12 – 17 year olds.

Anaemia is a condition where the body does not have enough healthy red blood cells. Iron is required for the production of red blood cells, hence anaemia in childhood is one consequence of poor dietary intake of iron and/or folate. Frequent infections and gut parasites can make anaemia worse. Other factors associated with poor iron status include:

- low birth weight
- late introduction of solids
• early introduction or excessive intake of cow’s milk or fruit juice
• over reliance on breastfeeding as a source of nutrition in older infants
• tea drinking (as tannin reduces the absorption of non-haem iron)
• gastrointestinal worms (worms attach to the small intestine causing blood loss).

Iron deficiency needs to be prevented and, if required, treated by:

• Consuming a diet rich in iron (e.g. lean kangaroo, beef, lamb, liver*, skinless chicken). Consuming vitamin C-rich foods in the same meal as plant-based iron sources (e.g. lentils, eggs, fortified breakfast cereals and spinach) helps to increase the absorption of iron from these plant-based foods. This advice is the same for both women and infants over 6 months of age; ensuring the texture is suitable for their developmental status.

• Avoiding foods that inhibit iron absorption. Infants and children should not consume tea, coffee, cola or caffeinated energy drinks.
  *liver is not recommended for pregnant women.

In addition:

• A medical practitioner may recommend supplements if needed.
  o Oral supplementation is available for children.
  o Intramuscular (IM) and intravenous iron supplementation as also available for children under the guidance of medical practitioners experienced in iron deficiency in children, or under the guidance of paediatricians. (IM supplementation is very common for Aboriginal children living in rural and remote areas).

• Regular de-worming of families may be required in high risk areas, such as the wet tropics.

• Discussions with a paediatrician may be required for severe iron deficiency.

(For further information regarding iron deficiency, refer to the Introduction to Solids and Toddler chapters contained in this manual).

Obesity

Overweight and obesity is a significant and increasing health issue in the Aboriginal population. In 2012-13, results of the Australian Aboriginal and Torres Strait Islander Health Survey showed that 30.4% of Aboriginal children aged 2 – 14 years were overweight or obese. 32 Two thirds of Aboriginal people over 15 years were overweight or obese (28.6% and 37.0% respectively). 33 The results of the survey also found that Aboriginal people were 1.5 times as likely as non-Aboriginal people to be obese. 32
Contributing factors to overweight and obesity in the Aboriginal population include:

- an environment affecting food choices and availability;
- geographic, economic and infrastructure factors; and
- transition to a lifestyle with reduced energy expenditure compared to the traditional hunter-gatherer lifestyle.\(^{34}\)

There is growing concern at the increased level of overweight and obesity within the Aboriginal population due to associated adverse health outcomes including:

- cardiovascular disease
- type 2 diabetes
- some cancers
- osteoarthritis and other musculoskeletal problems
- kidney and gall-bladder disease and
- respiratory problems.\(^ {34}\)

**Oral health**

Dental health may sometimes be overlooked among the many serious health problems experienced by Aboriginal people. Drinks and foods high in sugar and poor oral hygiene are major causes of poor oral health\(^ {35}\) and this can affect a child’s ability to eat healthy food.


- Thirty nine percent of Aboriginal children aged 4 – 14 years had teeth or gum problems.
- gum and teeth problems were more commonly reported in non-remote areas that in remote areas (32% and 22% respectively).
- in both remote and non-remote areas, 8% of children needed to see a dentist but had not been in the last 12 months.
- Seven percent of Aboriginal children did not brush their teeth at all.\(^ {36}\)

If parents are bottle-feeding their child, they should be discouraged from putting anything in the bottle besides expressed breast milk, infant formula (between 0 – 6 months), or cooled, boiled water (beyond 6 months). Sugar-sweetened beverages such as soft drinks, cordial, juices or flavoured milks should be avoided. Parents should also be discouraged from putting their baby to bed with a bottle, as this prolongs the amount of time the teeth are exposed to the milk which increases the likelihood of tooth decay.\(^ {35}\)

Good dental health is important for quality of life. Further information and oral health recommendations can be found in the *Toddler* chapter of this manual.
Related policies, procedures and guidelines

The following can be read in conjunction with this document.

| 3.2.4 Enhanced Aboriginal Child Health Schedule Rationale |
| 3.2 Policy and Rationale. 3.2.5 Child Health Services - Birth To School Entry - Policy for Aboriginal Child Health Services in Western Australia |

References


28. NSW Department of Health. National clinical guidelines for the management of drug use during pregnancy, birth and the early development years of the


Support Services

Metropolitan

Aboriginal Alcohol and Drug Service (AADS)
211 Royal Street, East Perth WA 6004.
Phone: 08 9221 1411
Fax: 08 9221 1585
Country

There are a number of support services offered in Country Western Australia in addition to the Government services. These include the following Aboriginal Medical Services which are members of the Aboriginal Health Council of Western Australia.

Beagle Bay Community Health Service
Address: PO Box 326, Broome, WA 6725
Phone: (08) 9192 4914
Fax: (08) 9192 4440
e-Mail: beaglebaymanager@westnet.com.au
Website: www.kamsc.org.au/about_beaglebay.html

Bega Garnbirringu Health Services Incorporated
Address: PO Box 1655, 16-19 McDonald Street, Kalgoorlie, WA 6430
Phone: (08) 9022 5500
Fax: (08) 9091 1039
e-Mail: wayne.johnson@bega.org.au
Website: www.bega.org.au/flash.htm

Bidyadanga Aboriginal Community Health Service
Address: PO Box 634, Broome, WA 6725
Phone: (08) 9192 4952
Fax: (08) 9192 4827
e-Mail: ceo@kamsc.com.au
Website: www.kamsc.org.au

Bindi Bindi Aboriginal Community
Via Onslow WA 6710
Phone: +61 8 9184 1086

Broome Regional Aboriginal Medical Service
Address: PO Box 1879, 640 Dora Street, Broome, WA 6725
Phone: (08) 9192 1338
Fax: (08) 9192 1606
e-Mail: chrisb@brams.org.au; brams@wn.com.au
Website: www.kamsc.org.au

Carnarvon Aboriginal Medical Service
Address: PO Box 278, 14-16 Rushton Street, Carnarvon, WA 6701
Phone: (08) 9941 2499
Fax: (08) 9941 2024
Derby Aboriginal Health Service
Address: PO Box 1155, 1 Stanley Street, Derby, WA 6728
Phone: (08) 9193 1090
Fax: (08) 9191 2679
E-Mail: vicki@dahs.org.au
Website: www.kamsc.org.au/about_dahs.html

Geraldton Regional Aboriginal Medical Service
Address: PO Box 4109, 60 Riflerange Road, Rangeway, WA 6530
Phone: (08) 9956 6555
Fax: (08) 9964 3225
E-Mail: deborah.woods@grams.asn.au
Website: www.grams.asn.au

Jurrugk Aboriginal Health Service
Address: PO Box 1155, 1 Stanley Street, Derby, WA 6728
Phone: (08) 9191 7163
Fax: (08) 9191 7163
E-Mail: vicki@dahs.org.au
Website: www.derbyaboriginalhealthservice.org.au

Kimberley Aboriginal Medical Service Council
Address: PO Box 1377, 640 Dora Street, Broome, WA 6725
Phone: (08) 9193 6043
Fax: (08) 9192 2500
E-Mail: ceo@kamsc.org.au
Website: www.kamsc.org.au/

Mawarnkarra Health Service Aboriginal Corporation
Address: PO Box 56, 20 Scholl Street, Roebourne, WA 6718
Phone: (08) 9182 0800
Fax: (08) 9182 1300
E-Mail: daniel.b@mhs.org.au
Website: www.nghealth.org.au

Ngaanyatjarra Health Service
Address: PO Box 644, Shop 2/58 Head Street, Alice Springs, NT 0871
Phone: (08) 8950 1730
Fax: (08) 8953 4581
E-Mail: Brett.Cowling@nghealth.com

Nindillingarri Cultural Health Service
Address: PO Box 59, Fitzroy Crossing, WA 6765
Phone: (08) 9193 0093
Professional Resources

1. Statewide Enhanced Aboriginal Child Health Schedules' Resource Matrix

2. 3.2.4: Statewide Enhanced Aboriginal Child Health Schedules' Rationale 2012.

3. All Guidelines and Policies relevant to Child and Adolescent Health

4. Australian Indigenous Health InfoNet

5. WA Health Aboriginal Cultural Learning Framework. 2012

6. Western Australian Aboriginal Child Health Survey Volumes 1 to 4 from the Telethon Institute for Child Research


8. The Health and Welfare of Australia’s' Aboriginal and Torres Strait Islander Peoples: an Overview 2011.
Resources for families

1. Enhanced Aboriginal Child Health Schedule Resource Matrix
   http://pmh.health.wa.gov.au/general/CACH/services.htm#achr

2. Derbarl Yerrigan Health Service Inc
   Address: 156 Wittenoom Street, East Perth, WA 6004
   Phone: (08) 9421 3888
   Fax: (08) 9421 3884
   e-Mail: paceo@dyhs.org.au
   website: http://www.derbarlyerrigan.com.au

3. Statewide Indigenous Mental Health Service
   (Formerly Graylands Selby-Lemnos Aboriginal Psychiatric Services)
   Brockway Road Mt Claremont WA 6010
   Phone: 08 9347 6600

4. Australian Indigenous HealthInfoNet
   Edith Cowan University, 2 Bradford Street, Mt Lawley WA 6050
   Phone: 08 9370 6336
   Fax: 08 9370 6022
   Email: healthinfonet@ecu.edu.au
   Website: http://www.healthinfonet.ecu.edu.au/

5. Aboriginal Alcohol and Drug Service (AADS)
   211 Royal Street, East Perth WA 6004.
   Phone: 08 9221 1411
   Fax: 08 9221 1585
   Website: http://www.aads.org.au/

6. CACH Aboriginal Health Team
   Child and Adolescent Community
   Belmont Community Health Centre (South Metropolitan Area Health Service)
   240 Hardey Road
   Belmont WA 6104
   Phone: 9277 1300