NT Health Nutrition and Physical Activity Strategy 2015–2020
## Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword</td>
<td>2</td>
</tr>
<tr>
<td>Acronyms</td>
<td>5</td>
</tr>
<tr>
<td>Who is this strategy for and how can it be used?</td>
<td>6</td>
</tr>
<tr>
<td>Aim</td>
<td>6</td>
</tr>
<tr>
<td>Objectives</td>
<td>6</td>
</tr>
<tr>
<td>Key action areas and target group</td>
<td>6</td>
</tr>
<tr>
<td>Related policies, strategies and guidelines</td>
<td>7</td>
</tr>
<tr>
<td>Guiding principles</td>
<td>7</td>
</tr>
<tr>
<td>Working within a health promoting framework</td>
<td>7</td>
</tr>
<tr>
<td>Targeting the social determinants of health</td>
<td>7</td>
</tr>
<tr>
<td>Gender and diversity</td>
<td>8</td>
</tr>
<tr>
<td>Providing cultural security</td>
<td>8</td>
</tr>
<tr>
<td>Sustaining through capacity building</td>
<td>8</td>
</tr>
<tr>
<td>Working in partnership</td>
<td>8</td>
</tr>
<tr>
<td>Commitment to monitoring and evaluation</td>
<td>8</td>
</tr>
<tr>
<td><strong>Summary of strategies</strong></td>
<td>9</td>
</tr>
<tr>
<td><strong>Objective 1: improve food security, particularly in remote communities</strong></td>
<td>14</td>
</tr>
<tr>
<td>Background</td>
<td>14</td>
</tr>
<tr>
<td>What the data tell us</td>
<td>14</td>
</tr>
<tr>
<td>Our challenge</td>
<td>16</td>
</tr>
<tr>
<td>Evidence of effective interventions</td>
<td>16</td>
</tr>
<tr>
<td>Suggested strategies across settings</td>
<td>17</td>
</tr>
<tr>
<td>Indicators</td>
<td>17</td>
</tr>
<tr>
<td>Stakeholders*</td>
<td>18</td>
</tr>
<tr>
<td><strong>Objective 2: promote and support a healthy diet and a healthy weight among women of child bearing age</strong></td>
<td>18</td>
</tr>
<tr>
<td>Background</td>
<td>18</td>
</tr>
<tr>
<td>What the NT data tell us</td>
<td>20</td>
</tr>
<tr>
<td>Our challenge</td>
<td>21</td>
</tr>
<tr>
<td>Evidence of effective interventions</td>
<td>21</td>
</tr>
<tr>
<td>Suggested strategies across settings</td>
<td>22</td>
</tr>
<tr>
<td>Indicators</td>
<td>22</td>
</tr>
<tr>
<td>Stakeholders*</td>
<td>22</td>
</tr>
<tr>
<td><strong>Objective 3: optimise feeding practices and promote an active lifestyle for children aged 0–5 years</strong></td>
<td>24</td>
</tr>
<tr>
<td>Background</td>
<td>24</td>
</tr>
<tr>
<td>What the data tell us</td>
<td>25</td>
</tr>
<tr>
<td>Our challenge</td>
<td>26</td>
</tr>
<tr>
<td>Evidence for effective interventions</td>
<td>26</td>
</tr>
<tr>
<td>Suggested strategies across settings</td>
<td>28</td>
</tr>
<tr>
<td>Indicators</td>
<td>28</td>
</tr>
<tr>
<td>Stakeholders*</td>
<td>29</td>
</tr>
<tr>
<td><strong>Objective 4: promote and support healthy eating and regular participation in physical activity among school aged children</strong></td>
<td>30</td>
</tr>
<tr>
<td>Background</td>
<td>30</td>
</tr>
<tr>
<td>What the data tell us</td>
<td>31</td>
</tr>
<tr>
<td>Our challenge</td>
<td>33</td>
</tr>
<tr>
<td>Evidence of effective interventions</td>
<td>33</td>
</tr>
<tr>
<td>Suggested strategies across settings</td>
<td>34</td>
</tr>
<tr>
<td>Indicators</td>
<td>35</td>
</tr>
<tr>
<td>Stakeholders*</td>
<td>35</td>
</tr>
<tr>
<td><strong>Objective 5: achieve and maintain a healthy weight for all adults and older Territorians</strong></td>
<td>36</td>
</tr>
<tr>
<td>Background</td>
<td>36</td>
</tr>
<tr>
<td>What the data tell us</td>
<td>37</td>
</tr>
<tr>
<td>Our challenge</td>
<td>41</td>
</tr>
<tr>
<td>Evidence of effective interventions</td>
<td>41</td>
</tr>
<tr>
<td>Suggested strategies across settings</td>
<td>42</td>
</tr>
<tr>
<td>Indicators</td>
<td>44</td>
</tr>
<tr>
<td>Stakeholders*</td>
<td>44</td>
</tr>
<tr>
<td><strong>Appendix A: Australian Dietary Guidelines</strong></td>
<td>45</td>
</tr>
<tr>
<td><strong>Appendix B: Australia’s physical activity and sedentary behaviour guidelines</strong></td>
<td>46</td>
</tr>
<tr>
<td>National Physical Activity Recommendations for Children 0–5 years</td>
<td>46</td>
</tr>
<tr>
<td>Physical Activity and Sedentary Behaviour Guidelines for 5–12 and 13–17 year olds</td>
<td>46</td>
</tr>
<tr>
<td>Physical Activity and Sedentary Behaviour Guidelines for 18–64 year olds</td>
<td>47</td>
</tr>
<tr>
<td>Physical Activity Recommendations for Older Australians</td>
<td>47</td>
</tr>
<tr>
<td>References</td>
<td>48</td>
</tr>
<tr>
<td>Acronym</td>
<td>Description</td>
</tr>
<tr>
<td>---------</td>
<td>-------------</td>
</tr>
<tr>
<td>AOD</td>
<td>Alcohol and other Drugs</td>
</tr>
<tr>
<td>ABS</td>
<td>Australian Bureau of Statistics</td>
</tr>
<tr>
<td>AHP</td>
<td>Aboriginal Health Practitioner</td>
</tr>
<tr>
<td>ALPA</td>
<td>Arnhem Lands Progress Aboriginal Corporation</td>
</tr>
<tr>
<td>CNW</td>
<td>Community Nutrition Worker</td>
</tr>
<tr>
<td>CYH</td>
<td>Child and Youth Health</td>
</tr>
<tr>
<td>DET</td>
<td>Department of Education</td>
</tr>
<tr>
<td>DLPE</td>
<td>Department of Lands, Planning and the Environment</td>
</tr>
<tr>
<td>DSR</td>
<td>Department of Sport and Recreation</td>
</tr>
<tr>
<td>GP</td>
<td>General Practitioner</td>
</tr>
<tr>
<td>MBS</td>
<td>Market Basket Survey</td>
</tr>
<tr>
<td>MSHR</td>
<td>Menzies School of Health Research</td>
</tr>
<tr>
<td>NHMRC</td>
<td>National Health and Medical Research Council</td>
</tr>
<tr>
<td>OBS</td>
<td>Outback Stores</td>
</tr>
<tr>
<td>PHC</td>
<td>Primary Health Care</td>
</tr>
<tr>
<td>RMP</td>
<td>Remote Medical Practitioner</td>
</tr>
<tr>
<td>RN</td>
<td>Registered Nurse</td>
</tr>
<tr>
<td>SWSBSC</td>
<td>Strong Women Strong Baby Strong Culture</td>
</tr>
<tr>
<td>SWW</td>
<td>Strong Women Worker</td>
</tr>
<tr>
<td>WHSU</td>
<td>Women’s Health Strategy Unit</td>
</tr>
<tr>
<td>MHSU</td>
<td>Men’s Health Strategy Unit</td>
</tr>
</tbody>
</table>
It is no secret that healthy nutrition and regular physical activity are critical to good health. Yet, for most of us, choosing healthier foods and drinks and finding time to exercise has never been harder. Not surprisingly rates of overweight and obesity are high, and rising, causing an alarming increase in prevalence of diabetes and chronic diseases.

These issues present significant public health problems that threaten the gains made in earlier decades. They also place an increasing burden on health budgets and governments in general.

The Northern Territory (NT) has not been immune to these developments and is now facing high rates of chronic diseases. But whilst we have an urgent responsibility to act on overweight and obesity, we must also tackle other nutrition issues, such as underweight and anaemia among young children in remote communities. As we all know, these issues must be addressed in the context of geographic isolation, limited enabling infrastructure, and staff turnover.

With these challenges in mind, this strategy draws on the available evidence to propose local solutions to NT specific problems. It contains a comprehensive list of suggestions for staff who are able to influence the determinants of a healthy and active lifestyle, whether these staff work in a policy context or ‘at the coal face’. It also leaves room for innovative and community driven responses.

As most contributing factors to poor nutrition or physical inactivity are outside the control of the Health sector, many of the proposed solutions will require collaboration with other sectors, within and outside government. The strength of the NT is that in many cases, these alliances already exist and are solid; much good work can therefore be expected by capitalising on them.

Finally, this strategy is grounded on health promotion principles; it acknowledges the role that environments play in shaping individuals’ decisions and aims to develop the conditions that will support changes. Only by making it easier for people to make healthy choices in the places they live, work and play, can we hope to turn the rising tide of chronic diseases.

I thank all of those who gave their time and attention to the development of this important document. It is with great pleasure that I commend to you the NT Health Nutrition and Physical Activity Strategy 2015–2020.

Professor Len Notaras AM
Chief Executive
Who is this strategy for and how can it be used?

The Northern Territory Health (NT Health) Nutrition and Physical Activity Strategy 2015–2020 (‘the strategy’) is intended for staff within NT Health who are in a position to influence the determinants of a healthy diet and an active lifestyle.

It provides an overview of the key health issues associated with poor nutrition and physical inactivity throughout the life course, brings together the available evidence of interventions that have been effective in addressing them, and suggests a range of strategic actions relevant to the NT context.

In practice, this strategy can be used as a guide and practical tool for planning and evaluation across the spectrum of programs that have a remit in nutrition and physical activity. It complements the Northern Territory Chronic Conditions Prevention and Management Strategy 2010–2020¹ and supports its implementation.

Aim

This strategy aims to increase the proportion of Territorians who enjoy a balanced diet, lead an active lifestyle and maintain a healthy weight, in order to enhance their health and wellbeing, and reduce the risk and incidence of chronic diseases and premature death.

Objectives

Objective 1: improve food security, particularly in remote communities.

Objective 2: promote and support a healthy diet and a healthy weight among women of child bearing age.

Objective 3: optimise feeding practices and promote an active lifestyle for children aged 0–5 years.

Objective 4: promote and support healthy eating and regular participation in physical activity among school aged children.

Objective 5: achieve and maintain a healthy weight for all adults and older Territorians.

Key action areas and target group

- Reduce obesogenic environments by developing policies and environments that support healthy eating and regular physical activity.
- Promote healthy eating by encouraging and supporting
  - exclusive breastfeeding for the first 6 months of life
  - the introduction of age appropriate solids at around 6 months
  - increased consumption of fruit and vegetables
  - reduced intake of sugar sweetened beverages (SSBs)
  - reduced intake of other energy-dense nutrient-poor (EDNP) foods and drinks.
- Promote participation in regular physical activity throughout life.
- Promote a reduction in time spent being sedentary or sitting down.

This strategy targets all Territorians, wherever they live. It places however a special emphasis on Aboriginal people living in remote communities due to the higher burden of disease and disadvantage they experience.

Related policies, strategies and guidelines

- 2014–2017 Strategic Plan, Northern Territory Health²
- Northern Territory Chronic Conditions Prevention and Management Strategy 2010–2020¹
- Northern Territory Work Health and Safety Act 2011³
- Australian National Breastfeeding Strategy 2010–2015⁴
- National Women’s Health Policy 2010⁵
- National Male Health Policy 2010⁶
- Australian Dietary Guidelines⁷
- Australian Physical Activity Recommendations and Guidelines.⁸⁻¹²

¹ Throughout this document the term Aboriginal should be taken to include Torres Strait Islander people
Guiding principles

Working within a health promoting framework
Consistent with NT Health’s Health Promotion Framework, this strategy promotes a continuum of health promotion practice. This continuum is reflective of the Ottawa Charter and relies on a range of approaches, both individual and population-wide, designed to complement one another as they target the determinants of health across the life course. These approaches include:

- settings and supportive environments
- community action
- health information and social marketing
- health education and skills development
- screening and individual risk assessment.

Targeting the social determinants of health
This strategy acknowledges the need to address the multiple underlying social, economic and cultural determinants of health and aims to reduce health disparities seen in the NT, by focussing on those who experience the greatest disadvantage and are most at-risk. Hence its strong focus on Aboriginal people living in remote communities, and particularly on Aboriginal children under the age of two.

Gender and diversity
This strategy recognises other causal factors of health inequity including: age; ethnic and linguistic background; gender; incarceration; mental health status; physical and or intellectual disability; and sexuality.

Providing cultural security
Consistent with NT Health’s Aboriginal Cultural Security Policy, this strategy promotes the provision of culturally secure services that

- review service delivery practices to ensure that they do not offend Aboriginal people’s culture and values
- act to modify service delivery practices where necessary
- monitor service activity to ensure that our services continue to meet culturally safe standards.

This approach is extended to the provision of services to communities of culturally and linguistically diverse backgrounds.

Sustaining through capacity building
A key element to the sustainability of all initiatives identified in this strategy is the building of capacity, within the community or other agencies. Capacity building encompasses training and support, sharing knowledge, assisting with ensuring that the infrastructure is in place, addressing the issue of sustainability and facilitating the process of problem solving and evaluation.

Working in partnership
Implementation of this strategy will be a shared responsibility between a broad range of stakeholders across the three entities forming the Public Health system in the NT. Many of the factors that impact on food supply, nutrition or physical activity are however outside the responsibility of the health system. For sustained improvements in these domains, partnerships must therefore be established between relevant stakeholders across all levels of government, the non-government sector, research institutions, industry and the community.

Commitment to monitoring and evaluation
The Nutrition and Physical Activity Strategy Unit will monitor performance against the objectives at mid-term and five years, and carry out the final evaluation.
Summary of strategies

Objective 1: improve food security, particularly in remote communities

In remote communities

- Develop community capacity to influence availability, variety, quality and affordability of core foods at the store.
- Assist store/takeaway management and store committees to develop and implement food and nutrition policies.
- Provide advice and learning opportunities to store staff to develop and implement initiatives that improve food supply and consumption of healthy food.
- Contribute to store-based activities that promote and support a healthy diet.
- Engage with Outback Stores (OBS), Arnhem Land Progress Aboriginal Corporation (ALPA) stores and other key food industry stakeholders to contribute to their efforts to ensure that the food supply supports the Australian Dietary Guidelines7 (see Appendix A page 43).
- Support research related to food systems and factors that influence purchasing and consumption decisions.
- Build on existing housing initiatives to improve community and household food preparation and storage facilities.
- Advocate for initiatives to improve the affordability of healthy food and drinks (e.g. cross-subsidisation).

Across the NT

- Work with Community Stores Licensing (Australian Government) to ensure availability of a range of affordable and healthy food in all stores.
- Work with relevant government agencies, as well as the agriculture, horticulture and aquaculture industry, to support the development of sustainable and economically viable projects.
- In partnership with local community organisations, the non-government sector and Aboriginal organisations, support community and school gardens, where community capacity and willingness to support the sustainable implementation of a garden project are demonstrated.
- Contribute to projects researching options to improve food security in disadvantaged areas.

Objective 2: promote and support a healthy diet and a healthy weight among women of child bearing age

Pre-pregnancy

- With adolescent females of child bearing age, emphasise the importance of healthy and balanced nutrition; in particular, promote a diet high in iron-rich foods. Refer to contraception counselling as required.
- Promote folic acid and iodine supplements for all women planning a pregnancy (see Figure 3 page 21).
- Develop and implement weight management programs for women of childbearing age who are overweight or obese.
- Encourage smoking cessation.

During the pregnancy and the first 6 weeks post-natal

- Encourage regular attendance at antenatal clinics.
- Incorporate specific weight management advice as part of regular antenatal care. In particular, counsel teenagers on the importance of adequate weight gain during pregnancy.
- Promote key nutritional recommendations for pregnancy (see Figure 3 page 21).
- Encourage regular physical activity to maintain general fitness and for good blood glucose control in those women with diabetes.
- Promote smoking cessation and encourage women not to drink alcohol during pregnancy and lactation.
Objective 3: optimise feeding practices and promote an active lifestyle for children aged 0–5 years

**Key focus**

- Systematic promotion of exclusive breastfeeding for the first 6 months.
- Counselling about the introduction of appropriate solids at around 6 months.
- Early identification and action on growth failure, anaemia or overweight.
- Promotion of regular physical activity and limited screen time.

**Within the health sector**

- Implement the National Breastfeeding Strategy: develop an NT action and implementation plan.
- Integrate the systematic promotion of breastfeeding into key messages and practice for all health professionals.
- Develop and/or enhance systematic data collection and reporting of breastfeeding rates.
- Identify growth failure, overweight, obesity and anaemia early and ensure adequate follow up.
- Contribute to national initiatives seeking to reduce exposure to television or screen based advertising of energy dense nutrient poor foods to children.

**In the home/families/community**

- Promote exclusive breastfeeding up to 6 months.
- Ensure that messages provided to parents about breastfeeding and introduction of solids are consistent with the Infant Feeding Guidelines.
- Create supportive community environments for the development of healthy eating behaviour, including breastfeeding.
- Build remote communities’ capacity to support and promote the introduction of solids and the development of healthy feeding practices.
- Work with store managers to ensure that displays of infant formula, bottles and teats are consistent with the Marketing in Australia of Infant Formulas (MAIF) Agreement.

**Objective 4: promote and support healthy eating and regular participation in physical activity among school aged children**

**In schools**

- Promote and support the implementation of the NT Schools’ Canteen, Nutrition and Healthy Eating Policy.
- Contribute to the development of strategies that reduce energy-dense, nutrient-poor (EDNP) foods and drinks in lunch boxes.
- Provide advice, training and support to teaching staff to deliver nutrition education in schools.
- Provide advice on the development of curriculum related resources that promote nutrition and physical activity and healthy body image.
- Advocate for the training of generalist teachers in fundamental movement skills and physical education in general.
- Advocate for strategies that will increase adolescent girls’ participation in physical activity.
• Advocate for and support active transport to school.
• Advocate for active playgrounds and opportunities for incidental activity throughout the day.
• Contribute to the establishment of school based gardens.
• Contribute nutritional advice to Out-of-School Care programs, as required.

In other settings
• Support local government to develop and implement childhood obesity prevention programs (e.g. COPAL in Palmerston).
• Provide training and support to health professionals on child nutrition, physical activity and healthy body image, consistent with current guidelines and recommendations.
• Promote the Australian Dietary Guidelines for Children7 and the Australian recommendations for physical activity for children9,12; suggest home-based strategies to implement them.
• Develop partnerships with Good Sports and key sporting bodies to reduce access to, and promotion of, EDNP foods and drinks at sporting events.
• Promote ‘child friendly by design’ approaches to influence the development of the built environment and public open spaces so that they incorporate safe active play and transport options.
• Research and implement innovative strategies to include fathers in nutrition and physical activity promotion.
• Contribute to national initiatives seeking to reduce exposure to advertising of EDNP foods and drinks to children.

Objective 5: achieve and maintain a healthy weight for all adults and older Territorians

Within the health sector
• Create workplace environments where healthy eating and physical activity are easily achievable:
  - implement ‘Healthy choices made easy’, NT Healthy food and drinks provision policy
  - develop and implement an Active@work policy
  - promote and support active transport to and from work
  - promote breaks in sedentary time.
• Strengthen the capacity of health professionals to address overweight and obesity by:
  - promoting awareness of the risks associated with weight gain and the need to address even modest weight gain
  - promoting the NHMRC recommendations for the management of overweight and obesity in adults, children and adolescents.
• Ensure that the NTG leads by example, by advocating for the adoption of the NT Healthy food and drinks provision policy across all NTG agencies.
• Advocate for, and actively contribute to, the development of government policies that have a positive impact on the determinants of overweight and obesity (e.g. food/active transport policy at national and Territory level).
• Advocate for the integration of Healthy by Design principles177 in urban developments.
• Advocate for the shared use of facilities that provide opportunities for physical activity (e.g. school grounds).
• Contribute to national efforts seeking the stronger regulation of marketing of unhealthy foods and drinks, particularly EDNP products.
• Advocate for, and support, Australian Government regulatory initiatives in food reformulation and labelling to support healthier eating.

In the community
• Increase community awareness of the need to eat well and be active through social marketing
  - disseminate and promote the Australian Dietary Guidelines7
  - disseminate and promote the Physical Activity Guidelines for adults11
  - support national or NGO driven campaigns and initiatives, as they are developed (e.g. Live lighter).
• Build on and support local government/ regional council/ community initiated programs that assist individuals and groups to embrace a healthy lifestyle (e.g. Healthy Darwin), particularly in low SES areas and remote communities.
• Assist local government and community based organisations to develop and implement healthy eating/catering policies.
• Advocate for the development of environments that support active living across all ages and for all abilities, and include easy and safe access to public open spaces, schools or food retail/shopping outlets that promote universal access.

In remote communities
• Facilitate gendered community based opportunities for cooking and food preparation learning sessions.
• Engage men in targeted nutrition interventions that relate to chronic disease prevention and management.
• Support and encourage middle aged men and women to continue to engage in regular physical activity after they stop playing sports.

• Promote participation in lifestyle modification programs (such as Eat Better, Move More).
• Contribute to the development of community based sustainable sport and recreation programs/ policies/ infrastructure, which cater for both men and women across all age groups.
• Contribute to the upskilling of key community stakeholders in physical activity and nutrition (e.g. sport and recreation officers).
• Develop a culture of ‘choosing water’ over sugar sweetened beverages (SSBs) through the ‘Swap soft drinks for water’ initiative.

In commercial and non-commercial food services
• Encourage services in commercial, non-commercial and institutional premises (e.g. hospitals, aged care institutions, jails, hostels) to provide meals in line with the Australian Dietary Guidelines.7
• Encourage managers of remote community takeaways to provide food in line with the Australian Dietary Guidelines.7

In sports clubs and associations
• Engage in partnership with local sporting clubs, as a setting where healthy behaviours can be role modelled and promoted.
• Contribute to the development of healthy catering/fundraising activities that support healthy food and drink options and are in line with the Australian Dietary Guidelines.7
Objective 1: Improve food security, particularly in remote communities

Background

Food security has been defined as the ability of individuals, households and communities to acquire appropriate and nutritious food on a regular and reliable basis, using socially acceptable means. Food security is determined by people’s local food supply and their capacity and resources to access and use that food. Food security is strongly associated with a sustainable food system that encourages local production and distribution infrastructures.

In the NT, 30.4% of the population is Aboriginal and three quarters of that group (74%) live in remote areas, in low socio-economic circumstances. In remote communities most of the food eaten is food purchased from the store and/or the takeaway. Despite noted recent improvements, the availability and the variety of foods available in these communities remain more limited than in regional centres, and prices are significantly higher, suggesting the likelihood of food insecurity. While healthy food is more readily available in urban centres, it may be equally unaffordable for people living on low income or welfare payments, resulting as well in food insecurity or what has been labelled ‘food stress’. It has been postulated that people on limited income may opt for low cost energy-dense nutrient-poor (EDNP) foods and drinks in order to maximise energy availability per dollar spent. The resulting poor diet is a major risk factor for chronic diseases such as type 2 diabetes, gestational diabetes, cardiovascular disease, hypertension and renal disease, all of which have a high prevalence in the Aboriginal population. Poor diet also contributes to dental caries.

The impact of improving the supply of healthy food and drinks is greatest when it is coordinated with actions that promote healthy eating and increase demand for healthy food and drinks.
What the data tell us

In 2014, data collected as part of the NT Market basket Survey (MBS)\textsuperscript{17} showed that a healthy food basket was 53% more expensive in remote community stores than in a Darwin supermarket (see Figure 1 page 13). That same year, the proportion of income\textsuperscript{b} required to purchase the food basket was 34% in remote stores, compared with 22% in a Darwin supermarket. There has been little variation in this difference over the last three years (see Figure 2 page 14).

A 2012 study in Adelaide found that low-income families would have to spend approximately 30% of household income on eating healthily, whereas high-income households needed to spend about 10%.\textsuperscript{18}

A review of the literature describing the link between poverty, food insecurity and obesity, with specific reference to Australia, has shown that the risk of obesity is 20 to 40% higher among people affected by food insecurity.\textsuperscript{21}

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\textsuperscript{b} Income is calculated annually from the sum of welfare payments that the hypothetical family is entitled to receive. For more details, see the Market basket survey at http://digitallibrary.health.nt.gov.au/dspace/simple-search?query=%22market+Basket%22.
Our challenge

We must

- contribute to increased access to a healthy and affordable food supply, wherever people live
- build nutrition knowledge and skills, and stimulate demand for a healthy diet.

Evidence of effective interventions

Research shows that store managers can have considerable influence over the food supply in remote communities, and that working in partnership with them can benefit the community’s dietary intake. Overall, there is a paucity of well-designed and well evaluated food security programs, particularly those targeting remote communities. The few documented successful interventions include the following best practice elements:

- community involvement and support at all stages of the project
- empowering the community rather than imposing priorities
- multifaceted interventions addressing both supply of and demand for ‘healthy’ food
- monitoring and providing feedback to participants
- modifying strategies according to need.

Suggested strategies

In remote communities

- Develop community capacity to influence availability, variety, quality and affordability of core foods at the store.
- Assist store/takeaway management and store committees to develop and implement food and nutrition policies.
- Provide advice and learning opportunities to store staff to develop and implement initiatives that improve food supply and consumption of healthy food.
- Contribute to store-based activities that promote and support a healthy diet.
- Engage with Outback Stores (OBS), Arnhem Land Progress Aboriginal Corporation (ALPA) stores and other key food industry stakeholders to contribute to their efforts to ensure that the food supply supports the Australian Dietary Guidelines7 (see Appendix A page 43).
- Support research related to food systems and factors that influence purchasing and consumption decisions.

FIGURE 2: PROPORTION OF INCOME REQUIRED TO PURCHASE THE FOOD BASKET IN REMOTE STORES, COMPARED WITH DISTRICT CENTRE SUPERMARKETS, 2000 TO 2014

Source: 2014 Market basket Survey (MBS)17
• Build on existing housing initiatives to improve community and household food preparation and storage facilities.
• Advocate for initiatives to improve the affordability of healthy food and drinks (e.g. cross-subsidisation).

Across the NT
• Work with Community Stores Licensing (Australian Government) to ensure availability of a range of affordable and healthy food in all stores.
• Work with relevant government agencies, as well as the agriculture, horticulture and aquaculture industry, to support the development of sustainable and economically viable projects.
• In partnership with local community organisations, the non-government sector and Aboriginal organisations, support community and school gardens, where community capacity and willingness to support the sustainable implementation of a garden project are demonstrated.
• Contribute to projects researching options to improve food security in disadvantaged areas.

Indicators
• Trends in availability, variety, quality and relative costs of food in remote communities.
• Proportion of population consuming the recommended serves of fruit and vegetables.
• Establishment of community/school gardens.
• Establishment of agricultural, horticultural or aquacultural projects.

Stakeholders*
Environmental Health Program; Department of Housing; Department of Primary Industry and Fisheries; Department of Justice (Consumer and Business Affairs); Power and Water Corporation; Australian Government Department of Prime Minister and Cabinet – Community Stores Licensing team; Australian Government Department of Social services; MSHR; ALPA; OBS; Food wholesalers and manufacturers; Store committees; Store managers and staff; Community Councils; Aboriginal Land Councils; Fred Hollows Foundation and other agencies involved in food supply in remote communities; Remote Indigenous Gardens (RIG Network).

* See Acronyms page 3
Objective 2:
Promote and support a healthy diet and a healthy weight among women of child bearing age

Background

‘The 1,000 days between a woman’s pregnancy and her child’s 2nd birthday offer a unique window of opportunity to shape healthier and more prosperous futures. The right nutrition during this 1,000 day window can have a profound impact on a child’s ability to grow, learn, and rise out of poverty. It can also shape a society’s long-term health, stability and preprosperity.’

A number of factors interact with nutrition to impact on intrauterine growth and birth outcomes which also require attention. These include mothers’ characteristics and behaviours, exposure to infections and the socio-economic environment.
Key maternal nutrition or nutrition-related factors impacting on foetal development and birth outcomes

Anaemia
Iron deficiency anaemia is a risk factor for maternal and perinatal mortality, preterm delivery and subsequent low birthweight, delayed mental development and possibly inferior neonatal health.\(^{26,27}\)

Diabetes in pregnancy
Whether pre-existing (type 1 or type 2 diabetes) or developing in pregnancy as gestational diabetes mellitus (GDM), diabetes in pregnancy increases the risk of serious short and long term complications in both mother and child.

- **Pre-existing diabetes**
  - For mothers, it is associated with a higher risk of miscarriage, pre-eclampsia, giving birth preterm or by caesarean section, and the first appearance or progression of diabetes-related kidney and ophthalmic complications.\(^{28,29}\)
  - For babies, it is associated with congenital malformations of the spine, heart and kidneys, stillbirth, high birthweight (macrosomia), birth injuries due to shoulder dystocia or cephalopelvic disproportion, respiratory distress and hypoglycaemia.\(^{30}\) In the long term, it is associated with increased risk of obesity, impaired glucose tolerance and type 2 diabetes in early adulthood.\(^{30}\)

- **Gestational diabetes mellitus**
  - For mothers, it is associated with a difficult birth, increased chance of having an induced birth and caesarean birth due to the large size of the baby. In the long-term, it places mothers at increased risk of recurrent GDM in subsequent pregnancies and of progression to type 2 diabetes.
  - Babies of mothers with GDM are at increased risk of stillbirth, high birthweight, post birth hypoglycaemia, shoulder dystocia, respiratory distress and jaundice. Babies may also be at increased risk of obesity, impaired glucose tolerance and type 2 diabetes in early adulthood.\(^{30,31}\)
Weight

- Pre-pregnancy overweight or obesity and large gestational weight gain can strongly increase the risk of having a large baby.\textsuperscript{32} Large for gestational age babies have a higher risk of birth injury and complications of low blood sugar after delivery.\textsuperscript{32,33}

- Pre-pregnancy underweight is associated with intrauterine growth restriction (IUGR)\textsuperscript{34} and increased prevalence of some pregnancy complications, such as preterm birth and low birthweight.\textsuperscript{35} The latter may have serious consequences as low birthweight infants, particularly those who experience a rapid weight gain in childhood, are at increased risk of obesity, insulin resistance, the metabolic syndrome, type 2 diabetes, hypertension, and coronary heart disease later in life.\textsuperscript{32,36-38}

- Low pregnancy weight gain is associated with poor foetal growth, low birth weight, preterm birth and infant death.\textsuperscript{25,39}

- Excess weight gain during pregnancy is associated with pre-eclampsia, caesarean delivery\textsuperscript{40}, large for gestational age babies and increased risk of overweight for the child by the age of 3.\textsuperscript{41,42}

- The NHMRC recommends to measure all women’s weight and height at the first antenatal visit and calculate their BMI.\textsuperscript{43} Whilst there are no Australian guidelines for weight gain during the pregnancy, the US Institute of Medicine (IOM) provides guidance on weight gain in pregnancy based on prepregnancy BMI \textsuperscript{44}.

Note that more research is needed to determine the suitability of these guidelines for adolescents or women from different ethnic backgrounds.\textsuperscript{39}

### Other modifiable factors

- Maternal smoking is associated with growth restriction and low birth weight\textsuperscript{45} and is considered the largest known determinant of IUGR in developed countries.\textsuperscript{25} Recent research also suggests that mothers who smoke during pregnancy have children at higher risk of obesity in later years.\textsuperscript{46} The likelihood of smoking decreases with higher levels of schooling.

- Alcohol consumption during pregnancy may result in miscarriage and stillbirth. It is also associated with prematurity, brain damage, birth defects, growth restriction, developmental delay and cognitive, social, emotional and behavioural deficits.\textsuperscript{47,48}

- Stress can also have an impact on women’s nutritional status, and consequently affect the development of the fetus.\textsuperscript{25}

- Young maternal age may impair foetal development, particularly in the case of teenage mothers whose growth is incomplete, as the nutritional needs of the mother’s body compete with those of the fetus.\textsuperscript{25}

- Poverty or low socio-economic circumstances, during childhood and throughout the pregnancy, underpin many of the factors described above.

<table>
<thead>
<tr>
<th>Pre-pregnancy Body Mass Index (BMI)</th>
<th>Total weight gain (kg)</th>
<th>Rates of weight gain 2nd and 3rd trimester (kg/week)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>underweight (BMI&lt;18.5)</td>
<td>12.5–18</td>
<td>0.51 (0.44 – 0.58)</td>
</tr>
<tr>
<td>normal weight (BMI 18.5–24.9)</td>
<td>11.5–16</td>
<td>0.42 (0.35 – 0.50)</td>
</tr>
<tr>
<td>overweight (BMI 25–29.9)</td>
<td>7–11.5</td>
<td>0.28 (0.23 – 0.33)</td>
</tr>
<tr>
<td>obese (BMI &gt;30)</td>
<td>5–9</td>
<td>0.22 (0.17 – 0.27)</td>
</tr>
</tbody>
</table>

* Calculations assume a 0.5-2kg weight gain in the first trimester
What the NT data tell us

Anaemia
In 2012, rates of maternal anaemia were around 14%, among Aboriginal mothers.49

Type 2 diabetes and GDM
- In 2010, pre-pregnancy rates of type 2 diabetes were six times higher for Aboriginal women than for non-Aboriginal women (3.53% and 0.58% respectively).
- Rates of GDM were also higher amongst Aboriginal women than non-Aboriginal women (8.3% and 5% respectively).50

Smoking
In 2010, smoking prevalence at first visit or at under 20 weeks was 37.9% for Aboriginal women and 11.5% for non-Aboriginal women. Smoking prevalence at any time during pregnancy was 38.5% for Aboriginal women and 11.6% for non-Aboriginal women.51

Alcohol consumption
In 2010, at first antenatal visit, 6% of all NT mothers reported drinking alcohol during pregnancy. The prevalence of alcohol consumption was higher among Aboriginal mothers (13% at the first visit and 7% at 36 weeks gestation) than non-Aboriginal mothers (3% and 1%, respectively).52

Overweight/obesity
No data are available for NT women during pregnancy. A recent Australian longitudinal study of measured pregnancy weight gain showed that 38% of participants gained weight in excess of the IOM guidelines (see page 19) during their pregnancy. Fifty-six percent of overweight women gained excess weight compared with 30% of those who started with a healthy weight.53 Of concern was the fact that at 16 weeks, 47% of participants were unsure of the weight gain recommendations for them.

Mothers’ age
In 2010, a fifth (20%) of Aboriginal mothers were less than 20 years of age at the time of giving birth, almost seven times higher than the 3% of non-Aboriginal mothers.

Nine percent of all Aboriginal mothers were aged less than 18 years, compared with only 0.7% of non-Aboriginal mothers. This pattern of markedly earlier childbearing among Aboriginal mothers was seen in all health districts including urban areas.52

Ante-natal care
In 2010, overall, women in urban areas were more likely to attend an antenatal visit in the first trimester than those living in rural or remote areas. This applied to both Aboriginal and non-Aboriginal mothers. Aboriginal mothers were more likely to have insufficient antenatal care (no antenatal visit or attended less than four visits) compared with non-Aboriginal mothers (13% and 1% respectively).52

Our challenge
We must
- continue to reduce rates of maternal anaemia
- reduce risk factors for diabetes (e.g. rates of pre-pregnancy overweight and obesity)
- ensure healthy gestational weight gain
- reduce rates of smoking during pregnancy.

Evidence of effective interventions
A review of interventions for preventing unintended pregnancies among adolescents reported that all interventions including education, contraception education and promotion, and combinations of education and contraception promotion, reduced unintended pregnancy over the medium term and long term follow up period.55

Smoking cessation interventions in pregnancy reduce the proportion of women who continue to smoke in late pregnancy, and reduce low birthweight and preterm birth.56 There is evidence that partners play a powerful role in determining whether pregnant women quit smoking and whether they are able to maintain abstinence in the postpartum period.
Compared to pregnant women who live with non-smokers, those who live with a partner who smokes are less likely to stop smoking during pregnancy and more likely to relapse during the postpartum period.\(^{57}\)

There is some evidence that health promotion interventions are associated with some positive maternal behavioural change, including lower rates of binge drinking.\(^{58}\)

There is insufficient evidence to recommend, or advise against, pregnant women with diabetes enrolling in exercise programs in order to improve glycaemic control and maintain a healthy weight.\(^{59}\) There is also insufficient evidence to guide recommendations around physical activity to prevent gestational diabetes.\(^{60}\)

A meta-analysis showed that antenatal dietary programs targeting obese women were effective in reducing the total gestational weight gain, without detrimental effect on the weight of the baby.\(^{61}\) A systematic review has shown that monitored physical activity interventions appear to be successful in limiting gestational weight gain.\(^{62}\)

Approaches that take into consideration both the nutritional status of the mother and other social or environmental factors amenable to change are likely to be more effective than single focus one. A lifecourse approach to maternal health based on multi-disciplinary collaboration is important to ensure optimum foetal development and birth outcomes.

### Suggested strategies across settings

#### Pre-pregnancy

- With adolescent females of child bearing age, emphasise the importance of healthy and balanced nutrition; in particular, promote a diet high in iron-rich foods. Refer to contraception counselling as required.
- Promote folic acid and iodine supplements for all women planning a pregnancy (see Figure 3 page 21).
- Develop and implement weight management programs for women of childbearing age who are overweight or obese.
- Encourage smoking cessation.

#### During the pregnancy and the first 6 weeks post-natal

- Encourage regular attendance at antenatal clinics.
- Incorporate specific weight management advice as part of regular antenatal care. In particular, counsel teenagers on the importance of adequate weight gain during pregnancy.
- Promote key nutritional recommendations for pregnancy (see Figure 3 page 21).
- Encourage regular physical activity to maintain general fitness and for good blood glucose control in those women with diabetes.
- Promote smoking cessation and encourage women not to drink alcohol during pregnancy and lactation.

### PREVENTING ANAEMIA

Eat foods high in iron every day
- best: liver* and kidney, red meat, chicken, fish
- good: iron enriched bread and cereals (wholegrain), green leafy vegetables, egg yolk, legumes.

Have foods high in vitamin C with meals, to help absorb iron: bush berry, oranges, mandarin, pawpaw, capsicum, broccoli.

* Pregnant women should limit their intake of liver to 100 g per week due to the high concentration of Vitamin A in liver.

**Source:** adapted from CARPA STM 6th ed 54

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### Key messages for women of child bearing age

- **Eat well, be active and maintain a healthy weight throughout your life**
- **Eat iron rich foods and continue to be active during the pregnancy**
- **Don’t smoke and don’t drink alcohol while pregnant**
Pregnant women should avoid alcohol.

Pregnant women are at greater risk of food poisoning and should prepare and store food carefully. They should avoid:

- foods which may contain listeria bacteria like soft cheeses (brie, camembert, ricotta, feta and blue cheese), sandwich meats, bean sprouts, pre-prepared salads and pâté
- raw eggs as they may contain salmonella
- fish that may contain high levels of mercury – Food Standards Australia New Zealand recommend consuming no more than one serve* (100g cooked) per fortnight of shark/flake, marlin or broadbill/swordfish, and no other fish that fortnight, or one serve (100g cooked) per week of orange roughy (deep sea perch) or catfish and no other fish that week
- foods such as nuts during pregnancy only if they are allergic to the foods themselves – avoiding these foods has no impact on the infant’s risk of developing allergy symptoms.

Steady weight gain during pregnancy is normal and important for the health of the mother and baby. However, it is also important not to gain too much weight.

Source: Adapted from Australian Dietary Guidelines brochure Healthy eating during your pregnancy* and Minymaku Kutju Tjukurpa – Women’s Business Manual, 5th ed 64
Objective 3:
Optimise feeding practices and promote an active lifestyle for children aged 0–5 years

Background

Adequate nutrition and physical activity are vital for optimal health and development in childhood. A child’s nutritional status is strongly influenced by food security, adequate care and the underpinning socio-economic and cultural environment. Undernutrition in infancy results in poorer health and social outcomes throughout life. It is critical to act early to prevent undernutrition and obesity in children. After age two the effects of undernutrition on childhood growth and development are largely irreversible. Hence the need for interventions during the ‘first 1000 days’ (see box page 16) or the window of opportunity defined by pregnancy and the first two years of life.
Health impacts of malnutrition

*Undernutrition* in early childhood occurs when the transition to solids is inadequate both in quantity and/or quality, and/or untimely. This may lead to stunting or wasting, impaired immunity and increased susceptibility to infection, which establish a self-perpetuating cycle of infection-malnutrition.71

Children who are wasted, have a higher risk of death than children of adequate weight for height.72

A stunted child is likely to remain short in stature throughout life, with associated risks that continue to the next generation.65 Stunting is also associated with delayed mental and motor development, which result in long term, irreversible deficits.69

Anaemia is most commonly the result of inadequate dietary iron intake or absorption, and frequent intestinal infection. Other contributors are low birthweight, low iron stores in the mother before and during pregnancy, specific complementary feeding practices—such as delayed introduction of solids, inadequate quantity of iron-rich foods, and drinking cow's milk before 12 months of age.73 Iron deficiency anaemia is associated with poor growth, impaired cognitive and motor development, increased susceptibility to infection and reduced aerobic capacity.74

Currently, treatment includes giving iron orally or iron by intra muscular injection.73

Low birthweight, combined with rapid growth in early life, is associated with a number of chronic conditions in adulthood, such as overweight or obesity, heart disease and diabetes.65,75

Overweight and obesity in childhood tracks into adulthood, contributing to increased risk of chronic disease in adulthood.76 Maternal obesity is the most significant predictor of childhood obesity, however other associated risk factors include: low birthweight combined with rapid growth in early life, intrauterine exposure to gestational diabetes and low socioeconomic status. Research also points to both pre-natal and stressful life events during pregnancy as important determinants of later obesity risk, for example death of a family member or exposure to violence.77

In young children, growth faltering and obesity may go unrecognised by carers unless the child’s growth (length, height and weight) is monitored against child growth standards.
What the data tell us

The critical issues for NT children under the age of 5 are:

- high rates of low birthweight, chronic undernutrition (particularly stunting) and anaemia, mostly amongst Aboriginal children living in remote communities
- emerging overweight and obesity in urban communities.

In the NT the proportion of low birthweight babies born to Aboriginal mothers is more than double that born to non-Aboriginal mothers (13.8% and 5.7% respectively).78

The prevalence of undernutrition is high, specifically among Aboriginal children, and is attributed to an insufficient intake of age-appropriate complementary foods.79 In 2014, 17% of Aboriginal children under the age of 5 and living in remote communities were stunted; 7% were underweight and 5% wasted.80 The highest prevalence of stunting was found in children aged 1–3 years, where the rate of stunting was as high as 24%, compared with 13% for the under 12 months age group and 12% for the 3–5 years. Rates of anaemia were also highest in the under 12 months and 1–3 years, at 31% and 24% respectively. Note that caution must be exercised when interpreting these data as coverage was in some cases as low as 50%.

Mild iodine deficiency has been reported in young people the Top End region before the introduction of mandatory iodine fortification of salt in bread, with females (including those who are pregnant and breastfeeding) most affected.81 The status of other micronutrients is unknown. It is reasonable to assume that where undernutrition exists, micronutrient deficiencies may also be present – particularly in regards to calcium, zinc and folate.

Overweight and obesity is becoming more prevalent in very young children in Australia and recent data suggest that about 20% of children aged 2–3 are overweight or obese.82 In South Australia, urban Indigenous children have been found to be at higher risk of obesity than non-Indigenous children.83 In the NT, in 2011, 15.1% of urban Aboriginal children aged 4–6 years were overweight or obese compared to 11.6% of urban non-Aboriginal children, and 6.3% of remote Indigenous children.84

Breastfeeding initiation rates in the NT are the highest in Australia, at 99%, compared to around 90% elsewhere.85 Rates and length of exclusive breastfeeding are however not available as there are significant gaps in data available on breastfeeding rates. Overall, children who live in remote areas are more likely to have been breastfed than those living in major cities (85% and 72% respectively).86
Our challenge

We must

- reduce rates of low birthweight (this is also addressed in ‘Section 2: women of child bearing age’)
- reduce rates of stunting, wasting and anaemia
- prevent and address the development of overweight and obesity.

Evidence for effective interventions

Promoting [Exclusive] Breastfeeding

Compared to a range of preventive interventions to improve child health, breastfeeding is shown to have the greatest impact on health because it provides nutrition and immune protection for babies.\(^8\) In the first 6 months of life, the risk of diarrhoea and all-cause mortality is lowest in babies exclusively breastfed\(^c\) compared with babies who were either not breastfed or partially breastfed.\(^6\)

Nearly all women can breastfeed successfully, when given appropriate support. Breastfeeding and nutrition counselling delivered by trained health professionals or community workers is an effective intervention to improve exclusive breastfeeding rates.\(^7\)

The promotion of breastfeeding is an important public health strategy, driven at national level by the Australian National Breastfeeding Strategy 2010–2015.\(^4\)

Reducing and preventing undernutrition

Recommended actions are community based counselling and multi-faceted interventions integrated into the primary health care system.\(^7\)

Ensuring appropriate infant and early childhood feeding practices along with adequate nutrient intake by pregnant women and micronutrient supplementation are some of the best preventive measures to reduce the incidence of undernutrition in children younger than 5 years, in developing countries.\(^7\)

Feeding practices that encourage a variety of food tastes and textures and support the infant’s innate appetite regulation are known to help develop healthy food behaviours in children.\(^8\)

Reducing and preventing anaemia

Strategies to help prevent iron deficiency in young children\(^7\) include routine iron and folate supplements to pregnant women, fortification of staple foods with iron, micronutrient supplementation, deworming and delayed cord clamping. Iron-rich foods should be the first foods to be introduced at around 6 months to complement breast milk.\(^9\)

In developing countries, home fortification of foods with multiple micronutrient powders is recommended by WHO to improve iron status and reduce anaemia among infants and children 6–23 months of age.\(^9\) The evaluation\(^9\) of the NT Early Childhood Nutrition and Anaemia Prevention Project (ECNAPP)\(^d\) stressed the need for routine antenatal and child growth and development checks, as well as treatment according to relevant protocols.

Fostering a stimulating environment

In addition to nutrition, a child’s early environment can also impact on development, as evidenced by a study showing that stunted children who experienced psycho-social stimulation through play at age 9–24 months, sustained benefits at 18 years of age.\(^9\)

c Exclusive breastfeeding means that the infant receives only breast milk. No other liquids or solids are given – not even water – with the exception of oral rehydration solution, or drops/syrups of vitamins, minerals or medicines.\(^8\)

d The Early Childhood Nutrition and Anaemia Prevention Project (ECNAPP), also called ‘Sprinkles’, was a research project set up to determine the feasibility and acceptability of a community nutrition program to prevent anaemia and improve the nutrition of Indigenous infants and young children aged 6 - 24 months. The objectives of the project were to:

- improve knowledge and practices of carers of 0 - 24 month old infants and young children about optimal infant and young child feeding and anaemia prevention
- provide a preventive home micronutrient supplement (‘Sprinkles’) to 6-24 month olds
- inform future policy and program development to prevent nutritional anaemia and improve infant and young child nutrition.
Reducing and preventing overweight and obesity

Prevention strategies include: exclusive breastfeeding and timely introduction of appropriate solids, encouraging a healthy rate of weight gain in the early years of life; adequate infant sleep, attention to activity versus screen viewing time and responsive feeding practices. An Australian randomised controlled trial has shown that a home based early intervention delivered by trained community nurses was effective in reducing mean body mass index (BMI) for children at age 2. This intervention also showed positive effects on vegetable consumption, not being given food as a reward, and TV viewing time, as well as mothers’ vegetable consumption and physical activity. Another randomised controlled trial has shown that anticipatory guidance for appropriate infant feeding and a responsive parenting style reduce indicators of childhood obesity risk.

Being physically active every day is important for the healthy growth and development of infants, toddlers and pre-schoolers. The National Physical Activity Recommendations for Children 0–5 years are presented page 44.

Growth Monitoring

Growth monitoring is recommended in the prevention of growth failure or obesity only when integrated into a broader primary health care program that ensures early identification, action and follow-up.

As the critical period for intervention for growth failure is before the age of 2, early identification and follow up of those at risk is critical. NT Health uses the World Health Organisation (WHO) Growth Standards (0–5 years) to monitor children’s growth.

Suggested strategies across settings

Key focus

- Systematic promotion of exclusive breastfeeding for the first 6 months.
- Counselling about the introduction of appropriate solids at around 6 months.
- Early identification and action on growth failure, anaemia or overweight.
- Promotion of regular physical activity and limited screen time.

Within the health sector

- Implement the National Breastfeeding Strategy: develop an NT action and implementation plan.
- Integrate the systematic promotion of breastfeeding into key messages and practice for all health professionals.
- Develop and/or enhance systematic data collection and reporting of breastfeeding rates.
- Identify growth failure, overweight, obesity and anaemia early and ensure adequate follow up.
- Contribute to national initiatives seeking to reduce exposure to television or screen based advertising of energy dense nutrient poor foods to children.

Key messages for parents and carers

- Breastfeeding is recommended until 12 months and beyond, for as long as the mother and child desire.
- Exclusive breastfeeding is recommended until around 6 months of age.
- Introduce solids at around 6 months.
- Start with iron-rich foods – iron fortified cereal or meats/poultry (finely minced).
- Introduce a variety of healthy foods so baby learns to accept a range of flavours.
- Avoid foods that are high in saturated fat, sugars and salt.

In the home/families/community

- Promote exclusive breastfeeding up to 6 months.
- Ensure that messages provided to parents about breastfeeding and introduction of solids are consistent with the Infant Feeding Guidelines.97
- Create supportive community environments for the development of healthy eating behaviour, including breastfeeding.
- Build remote communities’ capacity to support and promote the introduction of solids and the development of healthy feeding practices.
- Work with store managers to ensure that displays of infant formula, bottles and teats are consistent with the Marketing in Australia of Infant Formulas (MAIF) Agreement.98

In early childhood centres

- Provide education and assistance in developing a nutrition policy and menu planning, consistent with the Infant Feeding Guidelines97 and the requirements of the Australian Children’s Education and Care Quality Authority.

Indicators

- Birthweights.
- Rates of anaemia, underweight, stunting, overweight and obesity.
- Rates of exclusive breastfeeding at 4 months.

Stakeholders*

RNs; SWWs; CNWs; AHPs; midwives; RMPs; GPs; SWSBSC Program, Child Health nurses; CYH Program; Oral Health staff; Families as First Teachers (FAFT) within DET; Australian Breastfeeding Association; Early Childhood Centre staff.

* See Acronyms page 3
Objective 4:

Promote and support healthy eating and regular participation in physical activity among school aged children

Background

Healthy nutrition and regular participation in physical activity are critical to children’s healthy development. A balanced diet, in line with the Australian Dietary Guidelines, is important for optimal growth and educational attainment.

Regular physical activity promotes skeletal development and optimum bone density, improves metabolic profile and psychological well-being, and is associated with an increased likelihood of regular physical activity in adult life. Malnutrition [in the form of a diet high in energy-dense nutrient-poor (EDNP) foods and drinks] combined with low levels of physical activity may result in energy imbalance and obesity. While malnutrition can also lead to underweight, it is childhood obesity that has dominated the research and policy agenda over the last few years, due to the size of the problem and its lifelong health consequences.

Childhood obesity is associated with high blood pressure, early development of atherosclerosis, type 2 diabetes, non-alcoholic fatty liver disease, polycystic ovary disorder, and disordered breathing during sleep. Importantly, childhood obesity tracks into adulthood. The prevention of overweight and obesity in adults and older people must therefore be initiated in the early years of life.

Socio economic status (SES) has a strong influence on diet and weight-related behaviours, with differences observed between age groups, gender and the selected SES indicator. While a low SES is associated with increased risk of overweight or obesity during childhood, adolescence and young adulthood, it is important to note that obesity affects all socio-economic groups. Research also shows that some people remain able to eat a healthy diet despite living in low socio economic circumstances.

Short sleep duration has also been associated with obesity.
Evidence has recently accumulated on the negative impact of EDNP food and drink advertising on children’s eating patterns, with concerns that in the absence of regulations, such early environmental influences may have long lasting repercussions on adult diet. Accordingly, there have been growing calls for government regulation and policy changes in relation to food marketing, particularly as it applies to children, as well as food labelling and food pricing.

There is evidence that consumption of fruit and vegetables is associated with reduced risk of obesity and weight gain. Whilst modest, this association may be important in the long term.

Developing environments that promote and support a culture of healthy eating and regular physical activity in children is considered an important strategy for the prevention of overweight and obesity not only in childhood, but throughout the lifespan.

What the data tell us

At national level

The 2007 Australian National Children’s Nutrition and Physical Activity Survey found that overall, children aged 2–16 years consumed food and drinks that provided sufficient energy and were adequate for most nutrients.

Non observance with the Australian Dietary Guidelines was greatest in relation to vegetables, saturated fat and sugar, for all age groups, as well as fruit and dairy intake for those 9 years and over. Older girls in particular (12–16 years) were most at risk of not meeting their requirements of calcium.

A positive association between SES and consumption of fruit and vegetables was noted, with parental education more strongly linked to consumption than parental income. Consumption of energy-dense drinks was age-related—with the greatest consumption in the oldest age group—and also inversely related to SES.

Television viewing time was consistently lower among children from households of higher socio-economic status (SES). There was however no clear relationship between parental socio-economic position and children’s levels of physical activity.
Physical activity levels

Additional information on physical activity participation is available through the more recent Australian Health Survey 2011–2013 (AHS). In 2011–12, only one in three children aged 5–12 and one in ten young people aged 13–17 undertook the recommended 60 minutes of physical activity every day.\(^9,12\)

In addition, just under one-third of children and young people (29%) met the recommended “no more than two hours a day” of electronic media use for entertainment. (See ‘Physical activity recommendations for 5–12 and 13–17 year olds’ pages 44 and 45).

Almost one in two (48%) Aboriginal children or youth aged 5–17 living in non-remote communities met the physical activity recommendation, compared with four in five (82%) for those living in remote communities.\(^114\)

Aboriginal children and youth aged 5–17 living in non-remote communities spent an average of 2.6 hours on sedentary screen-based activities per day, above the recommended limit of two hours; those aged 15–17 years spent more time than those aged 5–8 years on screen-based activities (3.3 hours compared with 1.9 hours).\(^114\)

Only 1 in 3 children, aged 5–12, and 1 in 10, aged 13–17, do enough daily physical activity for health benefits.\(^9,12\)

1 in 4 children aged 5–17 is overweight or obese.\(^115\)

Weight

The survey found that 25.7% of children aged 5–17 years were overweight or obese, with little variation across age groups or gender.\(^115\)

There has been no change in the proportion of children aged 5–17 years who were overweight or obese between 2007–08 and 2011–12.\(^115\)

Recent data from both NSW and Victoria also suggest that the rising trends of rates of overweight and obesity noted over the last twenty years may have now stabilised.\(^116,117\)

In the NT

Inadequate nutrition amongst some NT children is evidenced through prevalence of underweight as well as overweight and obesity.\(^118\)

Despite improvements, undernutrition continues to be a problem amongst Aboriginal school-age children in remote communities,
TABLE 1: OVERWEIGHT AND OBESITY, NT CHILDREN AGED 5 TO 17, 2011-12

<table>
<thead>
<tr>
<th></th>
<th>Australia %</th>
<th>NT %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight (but not obese)</td>
<td>18.3</td>
<td>18.7</td>
</tr>
<tr>
<td>Obese</td>
<td>7.4</td>
<td>8.9</td>
</tr>
<tr>
<td>Overweight or obese</td>
<td>25.7</td>
<td>27.6</td>
</tr>
</tbody>
</table>

* estimate has a relative standard error of 25% to 50% and should be used with caution

With 4.2% of 5 and 10 year olds being underweight, 3.9% stunted and 16.6% wasted.119

Among children aged 4–6, in 2011, the highest proportion of overweight or obese children was 15.1% for urban Aboriginal children, followed by 11.6% for urban non-Aboriginal children and 6.3% for remote Aboriginal children.84 Of concern is the steady rise in the proportion of overweight or obese urban Aboriginal children (see Figure 4 page 30).

In 2011, 27.6% of NT children aged 5–17 were classified as overweight or obese, compared with 25.7% in Australia (see Table 1 page 31).115

In regards to adolescents, a 2010 study of NT students aged 12 to 17 years classified 23% of them as overweight and a further 3% as obese. Only 22% of these students were meeting the daily requirement of 4 serves of vegetables, while 46% were eating the recommended 3 serves of fruit. Nineteen percent of male students were meeting physical activity recommendations, compared to just 5% of female students.120

**Our challenge**

We need to
- develop connected policies and environments that promote and support healthy eating and physical activity in schools and other settings where children and adolescents study, live and play
- influence weight-related behaviours, notably:
  - reduce consumption of EDNP foods in general, and sugar-sweetened beverages (SSBs) in particular
  - increase physical activity levels of adolescent girls
  - reduce screen time and promote longer sleep duration
  - promote active play and active transport
  - reduce exposure to EDNP food/drink advertising
- promote increased consumption of fruit and vegetables
- increase calcium consumption among adolescent girls.
Evidence of effective interventions

Targeting childhood obesity calls for multi-faceted, multi component school and community based interventions that address a range of determinants of obesity. Recent demonstration projects in Australia based on multi-strategy, multi-setting and/or whole of community approaches have shown promising results.

In relation to specific strategies or policies, a recent Cochrane review of obesity prevention programs for children recommends:

- school curriculum that includes healthy eating, physical activity
- increased sessions for physical activity and the development of fundamental movement skills throughout the school week
- improvements in nutritional quality of the food supply in schools
- environments and cultural practices that support children eating healthier foods and being active throughout each day
- support for teachers and other staff to implement health promotion strategies and activities (e.g. professional development, capacity building activities)
- parent support and home activities that encourage children to be more active, eat more nutritious foods and spend less time in screen based activities.

Whole of school approaches are more promising than targeted curriculum based interventions.

Evidence points to the importance of providing quality physical education (PE) in schools, delivered by well-trained instructors. Programs encouraging children to walk or ride to school are generally supported by the community and have positive effects on children’s active commuting to school. Cycling to school has been found to be associated with lower BMI and lower odds of being overweight or obese in a large population-based study of Danish adolescents.

Safe access to recreational and transport infrastructure has been found to increase children's participation in physical activity. Parental perceptions of safety also influence children's participation in outdoor physical activity and active transport. Parental support for physical activity is also associated with children's regular activity.

There is limited evidence of the effectiveness of interventions targeting obesity-specific individual behaviours. With regards to nutrition, strategies aiming to reduce consumption of SSBs have shown some modest results in reducing consumption and improving BMI. Those seeking to increase children's consumption of fruit and vegetables have had some success in increasing consumption, mostly in the context of a comprehensive and multi-faceted approach.

An Australian economic modelling found a restriction on advertising junk food and drinks and fast food outlets during children's television viewing hours (where the audience may include up to 15% of children up to the age of 14) to be the most cost-effective of thirteen interventions investigated.

There is little high quality evidence of interventions in Aboriginal communities, which, in many cases, are afflicted by the double burden of underweight and obesity. Further, it is unclear whether interventions that have been successful in one setting can be replicated successfully in another.

Overall there is no ‘one size fits all’ intervention for the prevention of childhood obesity and the danger is to expect too much from one particular setting, such as schools, where findings remain mixed.
Suggested strategies across settings

In schools

- Promote and support the implementation of the NT Schools’ Canteen, Nutrition and Healthy Eating Policy.[139]
- Contribute to the development of strategies that reduce energy-dense nutrient-poor (EDNP) foods and drinks in lunch boxes.
- Provide advice, training and support to teaching staff to deliver nutrition education in schools.
- Provide advice on the development of curriculum related resources that promote nutrition and physical activity and healthy body image.
- Advocate for the training of generalist teachers in fundamental movement skills and physical education in general.
- Advocate for strategies that will increase adolescent girls’ participation in physical activity.
- Advocate for and support active transport to school.
- Advocate for active playgrounds and opportunities for incidental activity throughout the day.
- Contribute to the establishment of school based gardens.
- Contribute nutritional advice to Out-of-School Care programs, as required.

In other settings

- Support local government to develop and implement childhood obesity prevention programs (e.g. COPAL in Palmerston).
- Provide training and support to health professionals on child nutrition, physical activity and healthy body image, consistent with current guidelines and recommendations.
- Promote the Australian Dietary Guidelines for Children[7] and the Australian recommendations for physical activity for children[9,12]; suggest home-based strategies to implement them.
- Develop partnerships with Good Sports and key sporting bodies to reduce access to, and promotion of, EDNP foods and drinks at sporting events.
- Promote ‘child friendly by design’ approaches to influence the development of the built environment and public open spaces so that they incorporate safe active play and transport options.
- Research and implement innovative strategies to include fathers in nutrition and physical activity promotion.
- Contribute to national initiatives seeking to reduce exposure to advertising of EDNP foods and drinks to children.

Indicators

- BMI.
- Consumption of fruit and vegetables, other core foods, water and non-core foods.
- Participation in physical activity and active transport to school.
- Development of policies and strategies that support active transport.

Stakeholders*

Oral Health Program; Women’s Health Strategy Unit; Men’s Health Strategy Unit; PHC workers including RNs; school nurses; DET (Teaching, Learning and Inclusion); Council of Government School Organisations (COGSO); Heart Foundation; Catholic Education; Independent Schools Association; City of Palmerston; SA Health; Australian Drug Foundation (Good Sports); Australian Government Department of Prime Minister and Cabinet.

* See Acronyms page 3
**Objective 5:**

*Achieve and maintain a healthy weight for all adults and older Territorians*

**Background**

As highlighted in the previous sections, healthy eating and regular physical activity are central to maintaining a healthy weight and reducing the risk of developing chronic diseases and premature death.

Overweight and obesity in adulthood are major risk factors for a range of chronic diseases, such as cardiovascular disease, type 2 diabetes and hypertension. Obesity is also associated with other conditions, such as osteoarthritis and some cancers.

At the simplest level, overweight and obesity are the result of an imbalance between energy intake and energy expenditure. If sustained, the imbalance needs only be minor for weight gain to occur. The greater availability of an energy dense food supply, increased sedentariness (at work and in leisure time) and poor environmental designs all now combine to create what has been termed 'obesogenic environments.'

Some people are more likely to gain weight than others. An individual’s susceptibility to weight gain is determined by the complex interaction between genetic and biological predispositions, age, sex, cultural, socio-economic and other personal factors.

The same factors apply to Aboriginal people living in remote communities. These are however compounded by: remoteness and isolation (which reduce access to services); limited community infrastructure for exercise; and the high cost of food which may prompt people to opt for EDNP foods in order to maximise energy availability per dollar spent.
Weight loss (and its maintenance) is complex and challenging as it relies both on reduced energy intake and increased energy expenditure. While immediate weight loss can be achieved through dietary restrictions only, long term weight loss is more likely to be maintained if people achieve regular levels of increased accumulated physical activity, while maintaining an adequate energy intake. Different weight gain prevention and management strategies may be required according to different age groups.

The focus on weight loss sometimes obscures the fact that there are cardiovascular benefits of regular physical activity, irrespective of weight loss. Lower levels of fitness are an independent predictor of all-cause mortality, even after adjustment for obesity. Recent research suggests that even people exercising at lower levels than those recommended were found to have lower risk of coronary heart disease and reduced mortality.

Regular physical activity also assists older people maintain or improve physical function and independent living, and reduces the risk of injuries from falls.

There is a growing body of research now suggesting that prolonged sitting can also be a health risk, with a dose-response association between sitting time and mortality, independent of leisure time physical activity.

What the data tell us

At national level

The Australian Health Survey 2011–2013 (AHS) has a strong focus on factors associated with chronic diseases. Its results, as they become progressively available, will help sharpen the focus of future nutrition and physical activity strategies.

In 2007–08, people living in more disadvantaged areas were more likely to be less active, be overweight or obese, and have fewer serves of fruit and vegetables.

Fruit and vegetables consumption

In 2011−12, 48.5% of Australians aged 18 and over reported that they usually met the guideline for daily fruit intake (2 or more serves), while 8.2% only met the guidelines for daily vegetable intake (5 or more serves). Taking both guidelines into account, only 5.5% of Australian adults had an adequate usual daily intake of fruit and vegetables.

Women were more likely to meet both guidelines than men (6.5% and 4.5% respectively). In general, older Australians were more likely to meet the guidelines than younger adults, with 9.6% of persons aged 65–74 years consuming the recommended intake of fruit and vegetables, compared with 3.0% of persons aged 25–34 years.
Physical activity
In 2011–12, 43% of Australians aged 18 and over were classified as sufficiently active for health benefits, as per the previous Australian Physical Activity Guidelines. A higher proportion of males were classified as sufficiently active than females (45% versus 41%).

More than half of all Australian adults are not active enough for health benefits. Adults aged 18–24 years were more likely to meet the guidelines than any other age group (53%). The proportion of people sufficiently active for health benefits declined with age, with only 1 in 4 Australians aged 75 years or over meeting the guidelines (see Figure 5 page 36).

Participation in sufficient physical activity was associated with socio-economic disadvantage, body mass index, health status and smoking status.

It is known that Australians living in areas outside major cities, and people who live in the most disadvantaged areas, are less likely to undertake sufficient physical activity for health benefits.

In 2012–13, 38% of Aboriginal adults living in non-remote communities and 55% of those living in remote communities were sufficiently active for health.

When compared with the non-Aboriginal adult population (and after adjusting for age differences), Aboriginal adults:

• were less likely to be sufficiently active for health (rate ratio 0.8)
• were less likely to be participating in any physical activity (rate ratio 0.9)
• spent less time on sedentary behaviour (for work, leisure, and travel) (rate ratio 0.9).

The updated Physical Activity and Sedentary Behaviour Guidelines for adults (18–64 years) are presented in Appendix B page 45.

Weight
The prevalence of overweight and obesity has increased in Australia over time, going from 56.3% in 1995 to 61.2% in 2007–08 and 62.8% in 2011 (see Figure 6 page 37).

FIGURE 5: PARTICIPATION IN SUFFICIENT PHYSICAL ACTIVITY, BY GENDER AND AGE GROUP, 2011-12

Source: - Australian Health Survey: Physical Activity, 2011-12

i.e. they undertook at least 150 minutes of physical activity over 5 or more separate sessions in the week prior to the interview.
In 2011–12, 35.3% Australians aged 18 years and over were overweight and 27.5% were obese. More men were overweight or obese than women (69.7% compared with 55.7%).

Overweight and obesity varied with age, with 74.9% of people aged 65–74 years being overweight or obese, compared with 36.4% of people aged 18–24 years (see Figure 7 page 37). An association was found between socioeconomic circumstances and overweight and obesity in women, but not in men, with 63.8% of adult women living in areas of most disadvantage being overweight or obese compared with 47.7% of those living in areas of least disadvantage.

In 2011–12, 60.3% of men aged 18 years and over had a waist circumference that put them at an increased risk of developing chronic disease (i.e. a waist circumference of 94 cm or more for men or 80 cm or more for women), while 66.6% of women had an increased level of risk.160

FIGURE 6: PROPORTION OF OVERWEIGHT OR OBESE PERSONS, AGED 18 YEARS AND OVER, BY GENDER, 1995-2011

![Figure 6: Proportion of overweight or obese persons, aged 18 years and over, by gender, 1995-2011](source)

FIGURE 7: PROPORTION OF THE ADULT POPULATION EITHER OVERWEIGHT OR OBESE, BY GENDER AND AGE GROUP, AUSTRALIA, 2011

![Figure 7: Proportion of the adult population either overweight or obese, by gender and age group, Australia, 2011](source)
In the NT

In 2011–12, only 37.5% of NT men met the dietary guidelines for intake of fruit, compared with 47.6% for women; only 6% of both men and women met the guidelines for vegetables.\textsuperscript{160}

While there are no data from the AHS on intake of sugar sweetened beverages, it is known that there has been an increase in sales of high sugar drinks in Arnhem Land Progress Aboriginal Corporation (ALPA) stores from October 2006 to September 2009,\textsuperscript{166} and that soft drinks are contributing up to 27 per cent of the total sugar available through remote community stores.\textsuperscript{167} More recent but unpublished data are however showing downward trends in sales of soft drinks in ALPA stores.

In 2011–12, the NT had the lowest proportion of people sufficiently active for health benefits, with only 37% of the adult population meeting the physical activity guidelines (34.7% for males and 39.8% for females).\textsuperscript{162}

The AHS\textsuperscript{160} found that, at 61%, the proportion of NT non-Aboriginal adults (18 years and over) who are overweight or obese is slightly lower than the national prevalence. Whilst among the non-Aboriginal population, more men are overweight or obese than women, it is the reverse in the Aboriginal population (see Figure 8 page 38).

Fifty six percent of the NT participants had a waist measurement that placed them at increased risk of chronic disease.\textsuperscript{160}

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**FIGURE 8: PROPORTION OF THE POPULATION EITHER OVERWEIGHT OR OBESE, BY GENDER, AGE GROUP AND ABORIGINAL STATUS, NORTHERN TERRITORY, 2011**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Aboriginal Men</th>
<th>Aboriginal Women</th>
<th>Non-Aboriginal Men</th>
<th>Non-Aboriginal Women</th>
</tr>
</thead>
<tbody>
<tr>
<td>18−24</td>
<td>34.7%</td>
<td>34.6%</td>
<td>47.2%</td>
<td>36.5%</td>
</tr>
<tr>
<td>25−34</td>
<td>48.0%</td>
<td>58.7%</td>
<td>58.8%</td>
<td>42.7%</td>
</tr>
<tr>
<td>35−44</td>
<td>70.9%</td>
<td>73.6%</td>
<td>71.6%</td>
<td>54.1%</td>
</tr>
<tr>
<td>45+</td>
<td>59.9%</td>
<td>74.2%</td>
<td>76.0%</td>
<td>67.2%</td>
</tr>
<tr>
<td>18+</td>
<td>53.0%</td>
<td>61.5%</td>
<td>67.2%</td>
<td>54.6%</td>
</tr>
</tbody>
</table>

Our challenge

We must

- develop connected policies and environments that promote and support healthy eating and physical activity in workplaces and the community
- influence weight-related behaviours, and particularly
  - reduce consumption of EDNP foods in general, and SSBs in particular
  - increase physical activity levels
  - promote active living, including active transport.

Evidence of effective interventions

There is limited evidence relating to approaches effective in reaching young adults (18–35 years old). There is strong evidence that workplaces are effective settings for interventions involving nutrition and physical activity. The need to establish a solid commitment from management is stressed, as is that of implementing policy and environmental changes to support positive health behaviours.

A large UK study has shown that substantial physical activity can be accumulated through active travel, which also contributes to greater total physical activity.

For older adults, nutrition counselling interventions can be effective, provided they are tailored to individual needs and include personal contact with participants. Recommended physical activities for this age group include walking, resistance training and Tai Chi.

It has been shown that the benefits of a multi-setting community based intervention targeting childhood obesity may extend to adults, resulting in decreased BMI levels.

There is little evidence available regarding recent successful healthy lifestyle programs focussing on physical activity and nutrition implemented in Indigenous communities. It is not known whether lifestyle programs that have been successful in non-Aboriginal
settings could be replicated successfully in Aboriginal communities. The role of sport in increasing participation remains uncertain. Factors associated with the maintenance of a healthy diet despite unfavourable socio-economic circumstances include:

- food preparation and cooking skills
- support from family members
- availability of fruit and vegetables

Overall, the most effective behavioural interventions to promote healthy eating and physical exercise include physician advice or individual counselling and workplace-based activities. Mass media campaigns and legislative interventions have also shown to be moderately effective.

Whilst interventions targeting individual behaviours can be reasonably cost-effective, they are insufficient to substantially reduce the burden due to overweight and obesity. Greater cost effectiveness can be achieved by policy approaches, rather than health education or clinical interventions.

**Suggested strategies across settings**

**Within the health sector**

- Create workplace environments where healthy eating and physical activity are easily achievable:
  - implement “Healthy choices made easy”, NT Healthy food and drinks provision policy
  - develop and implement an Active@work policy
  - promote and support active transport to and from work
  - promote breaks in sedentary time.

- Strengthen the capacity of health professionals to address overweight and obesity by:
  - promoting awareness of the risks associated with weight gain and the need to address even modest weight gain
  - promoting the NHMRC recommendations for the management of overweight and obesity in adults, children and adolescents.

- Ensure that the NTG leads by example, by advocating for the adoption of the NT Healthy food and drinks provision policy across all NTG agencies.

- Advocate for, and actively contribute to, the development of government policies that have a positive impact on the determinants of overweight and obesity (e.g. food/active transport policy at national and Territory level).

- Advocate for the integration of Healthy by Design principles in urban developments.

- Advocate for the shared use of facilities that provide opportunities for physical activity (e.g. school grounds).

- Contribute to national efforts seeking the stronger regulation of marketing of unhealthy foods and drinks, particularly EDNP products.

- Advocate for, and support, Australian Government regulatory initiatives in food reformulation and labelling to support healthier eating.

**Key messages to adults and older Territorians**

- ‘Swap soft drinks for water’ and cut back on ‘junk food’
- Eat more fruit and vegetables
- Move more and sit less
- Be active for life
- It’s never too late to be active

**In the community**

- Increase community awareness of the need to eat well and be active through social marketing
  - disseminate and promote the Australian Dietary Guidelines
- disseminate and promote the Physical Activity Guidelines for adults\textsuperscript{11}
- support national or NGO driven campaigns and initiatives, as they are developed (e.g. Live lighter).

- Build on and support local government/ regional council/ community initiated programs that assist individuals and groups to embrace a healthy lifestyle (e.g. Healthy Darwin), particularly in low SES areas and remote communities.
- Assist local government and community based organisations to develop and implement healthy eating/catering policies.
- Advocate for the development of environments that support active living across all ages and for all abilities, and include easy and safe access to public open spaces, schools or food retail/ shopping outlets that promote universal access.

In remote communities
- Facilitate gendered community based opportunities for cooking and food preparation learning sessions.
- Engage men in targeted nutrition interventions that relate to chronic disease prevention and management.
- Support and encourage middle aged men and women to continue to engage in regular physical activity after they stop playing sports.
- Promote participation in lifestyle modification programs (such as Eat Better, Move More).
- Contribute to the development of community based sustainable sport and recreation programs/ policies/ infrastructure, which cater for both men and women across all age groups.
- Contribute to the upskilling of key community stakeholders in physical activity and nutrition (e.g. sport and recreation officers).
- Develop a culture of ‘choosing water’ over sugar sweetened beverages (SSBs) through the ‘Swap soft drinks for water’ initiative.

In commercial and non-commercial food services
- Encourage services in commercial, non-commercial and institutional premises (e.g. hospitals, aged care institutions, jails, hostels) to provide meals in line with the Australian Dietary Guidelines.\textsuperscript{7}
- Encourage managers of remote community takeaways to provide food in line with the Australian Dietary Guidelines.\textsuperscript{7}

In sports clubs and associations
- Engage in partnership with local sporting clubs, as a setting where healthy behaviours can be role modelled and promoted.
- Contribute to the development of healthy catering/fundraising activities that support healthy food and drink options and are in line with the Australian Dietary Guidelines.\textsuperscript{7}

Indicators
- Rates of overweight, obesity, participation in physical activity.
- Development and implementation of guidelines and policies that support healthy nutrition and an active lifestyle.

Stakeholders*\textsuperscript{3}
- Community Health; RNs; RMPs; AHPs; NT Medicare Local; NTG in general, and DET; DSR; DLPE in particular; Local Government; Good Health Alliance and other Non-Government Organisations; Australian Drug Foundation (Good Sports Healthy Eating Program); Sporting clubs; food industry and take-away operators, Unions NT.

* See Acronyms page 3
APPENDIX
Appendix A:
Australian Dietary Guidelines

| Guideline 1 | To achieve and maintain a healthy weight, be physically active and choose amounts of nutritious food and drinks to meet your energy needs.  
• Children and adolescents should eat sufficient nutritious foods to grow and develop normally. They should be physically active every day and their growth should be checked regularly.  
• Older people should eat nutritious foods and keep physically active to help maintain muscle strength and a healthy weight. |
|---|---|
| Guideline 2 | Enjoy a wide variety of nutritious foods from these five groups every day:  
• Plenty of vegetables, including different types and colours, and legumes/bean, fruit  
• Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties, such as breads, cereals, rice, pasta, noodles, polenta, couscous, oats, quinoa and barley  
• Lean meats and poultry, fish, eggs, tofu, nuts and seeds, and legumes/beans  
• Milk, yoghurt, cheese and/or their alternatives, mostly reduced fat (reduced fat milks are not suitable for children under the age of 2 years)  
• And drink plenty of water. |
| Guideline 3 | Limit intake of foods containing saturated fat, added salt, added sugars and alcohol.  
  
  a) Limit intake of foods high in saturated fat such as many biscuits, cakes, pastries, pies, processed meats, commercial burgers, pizza, fried foods, potato chips, crisps and other savoury snacks.  
  
  b) Replace high fat foods which contain predominantly saturated fats such as butter, cream, cooking margarine, coconut and palm oil with foods which contain predominantly polyunsaturated and monounsaturated fats such as oils, spreads, nut butters/pastes and avocado.  
  
  c) Low fat diets are not suitable for children under the age of 2 years.  
  
  d) Limit intake of foods and drinks containing added salt. Read labels to choose lower sodium options among similar foods. Do not add salt to foods in cooking or at the table.  
  
  e) Limit intake of foods and drinks containing added sugars such as confectionary, sugar-sweetened soft drinks and cordials, fruit drinks, vitamin waters, energy and sports drinks.  
  
  f) If you choose to drink alcohol, limit intake. For women who are pregnant, planning a pregnancy or breastfeeding, not drinking alcohol is the safest option. |
| Guideline 4 | Encourage, support and promote breastfeeding. |
| Guideline 5 | Care for your food; prepare and store it safely |
Appendix B:

Australia’s physical activity and sedentary behaviour guidelines

National Physical Activity Recommendations for Children 0–5 years

Physical Activity Recommendations
• For healthy development in infants (birth to one year) physical activity – particularly supervised floor-based play in safe environments – should be encouraged from birth.
• Toddlers (1 to 3 years) and pre-schoolers (3 to 5 years) should be physically active every day for at least three hours, spread throughout the day.

Sedentary Behaviour Recommendations
• Children younger than 2 years of age should not spend any time watching television or using other electronic media (DVDs, computer and other electronic games).
• For Children 2 to 5 years of age, sitting and watching television and the use of other electronic media (DVDs, computer and other electronic games) should be limited to less than one hour per day.
• Infants, toddlers and pre-schoolers (all children birth to 5 years) should not be sedentary, restrained, or kept inactive, for more than one hour at a time, with the exception of sleeping.

Physical Activity and Sedentary Behaviour Guidelines for 5–12 and 13–17 year olds

Physical Activity
• For health benefits, children aged 5–12 and young people aged 13–17 should accumulate at least 60 minutes of moderate to vigorous intensity physical activity every day.
• Children and young people’s physical activity should include a variety of aerobic activities, including some vigorous intensity activity.
• On at least three days per week, children and young people should engage in activities that strengthen muscle and bone.
• To achieve additional health benefits, children and young people should engage in more activity – up to several hours per day.

Sedentary Behaviour
To reduce health risks, children aged 5–12 and young people aged 13–17 should minimise the time they spend being sedentary every day. To achieve this they should:
• Limit use of electronic media for entertainment (e.g. television, seated electronic games and computer use) to no more than two hours a day – lower levels are associated with reduced health risks.
• Break up long periods of sitting as often as possible.
Physical Activity and Sedentary Behaviour Guidelines for 18–64 year olds

Physical Activity Guidelines
- Doing any physical activity is better than doing none. If you currently do no physical activity, start by doing some, and gradually build up to the recommended amount.
- Be active on most, preferably all, days every week.
- Accumulate 150 to 300 minutes (2 ½ to 5 hours) of moderate intensity physical activity or 75 to 150 minutes (1 ¼ to 2 ½ hours) of vigorous intensity physical activity, or an equivalent combination of both moderate and vigorous activities, each week.
- Do muscle strengthening activities on at least 2 days each week.

Sedentary Behaviour Guidelines
- Minimise the amount of time spent in prolonged sitting.
- Break up long periods of sitting as often as possible.

Physical Activity Recommendations for Older Australians

There are five physical activity recommendations for older Australians.
1. Older people should do some form of physical activity, no matter what their age, weight, health problems or abilities.
2. Older people should be active every day in as many ways as possible, doing a range of physical activities that incorporate fitness, strength, balance and flexibility.
3. Older people should accumulate at least 30 minutes of moderate intensity physical activity on most, preferably all, days.
4. Older people who have stopped physical activity, or who are starting a new physical activity, should start at a level that is easily manageable and gradually build up the recommended amount, type and frequency of activity.
5. Older people who continue to enjoy a lifetime of vigorous physical activity should carry on doing so in a manner suited to their capability into later life, provided recommended safety procedures and guidelines are adhered to.
References


(19) Brimblecombe J, O’dea K. The role of energy cost in food choices for an Aboriginal population in Northern Australia. MJA 2009;190(10):549-551.


REFERENCES


(49) Connors C. Unpublished data. 2013.


(60) Han S, Middleton P, Crowther CA. Exercise for pregnant women for preventing gestational diabetes mellitus. Cochrane Database of Systematic Reviews 2012.


REFERENCES


(111) Sassif F. Obesity and the Economics of Prevention - Fit not Fat. OCDE; 2010.


(126) Morgan P, Hansen V. Classroom teachers’ perceptions of the impact of barriers to teaching physical education on the quality of physical


(142) AIHW. Australia’s Health 2010. [AUS 122]. 2010. Canberra, AIHW.

(143) Shaw KA, Gennat HC, O’Rourke P, Del MC. Exercise for overweight or obesity. Cochrane Database of Systematic Reviews 2006;UK DOI: 10.1002/14651858.CD003817.pub3. Issue 4.


(177) National Heart Foundation of Australia (Victorian Division). Healthy by design: a planner’s guide to environments for active living. National Heart Foundation of Australia (Victorian Division); 2004.