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Health

Health status of children in the Australian Capital Territory

Results from the 2007-10 ACT
General Health Survey

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Summary of results

With the exception of demographic information, all summary results refer to the four year period 2007-10.

Demographic characteristics

- ❖ as at June 2012, one fifth (19.3%) of the ACT population consisted of children aged 0-15 years (72,473). The ACT experienced the second highest percentage growth in children (2.5%) of states and territories during the preceding year.
- ❖ major increases in the child population from 2005 to 2010 occurred in the districts of Gungahlin-Hall and Belconnen. Tuggeranong experienced a decrease.

Behaviours affecting health

Tobacco smoke exposure

- ❖ over 97% of ACT households were smoke-free and only 2% of people smoked in their cars in 2010, a reduction on previous years.

Nutrition

- ❖ over 93% of mothers surveyed had ever breastfed their babies;
- ❖ 69.7% of children aged 2-15 years were meeting the minimum dietary requirements of fruit consumption. Younger children were significantly more likely to meet the minimum guidelines with only 20% of children aged 12-15 years meeting this minimum dietary requirement;
- ❖ 39.7% of children aged 2-15 years were meeting the minimum dietary requirements of vegetable consumption. Again, younger children were significantly more likely to meet the minimum guidelines with only 17% of children aged 12-15 years meeting the minimum dietary requirement;
- ❖ 5.1% of children consumed red meat less than once in a week with 69.7% eating it four or less times in a week and 5.2% eating it 7 or more times a week;
- ❖ consumption of hot fried potato products is decreasing over time. However, 51.4% of children ate them once or more per week;
- ❖ 50.9% of children did not consume any sugary drinks, but 20.2% drank 6 or more cups per week;
- ❖ 11.1% of children did not consume any confectionery, but 32.9% consumed it 3 or more times per week.

Physical activity and sedentary behaviour

- ❖ two in 10 children (22.8%) did one or more hours of physical activity outside of school per usual day;
- ❖ favourite sports included swimming, soccer, bike riding, athletics, running and dancing/ballet;
- ❖ four in 20 children (19.4%) usually walked to school each day;
- ❖ nearly half of children (46.2%) used electronic media for more than 2 hours a day.

Sun protection

- ❖ 75.6% of children wore hats or caps and used sunscreen when outdoors over the previous summer;
- ❖ 30.2% of children experienced some sunburn over the previous summer.

Summary of results (continued)

Health status

- ❖ 89.3% of parents reported that their children's health was good to excellent;
- ❖ 16.2% of children were overweight and 6.6% of children were obese;
- ❖ 21.1% of children had ever had asthma with 12.3% having asthma in the past year;
- ❖ 6.4% of children aged 4-15 years were at risk of developing a clinically significant behavioural problem.

Health services

- ❖ ACT children used more services generally than NSW children, particularly government dental services and community health centres;
- ❖ children in the ACT used GP services, emergency department services and overnight stays in hospital less than NSW children;
- ❖ 80.7% of ACT children visited a dental professional in the last 12 months. Older children were more likely than younger ones to do so (5-8 years; 71.3%, 9-15 years; 85.5%);
- ❖ reasons for not visiting a dental professional included hard to find the time (25.9%), too expensive (16.6%) and long waiting lists (4.2%).
- ❖ most ACT parents rated the services offered as good to excellent (between 79% and 93% depending on the type of service);
- ❖ a quarter of people (24.5%) had difficulty at some time in getting health care for their children. Reasons given included lengthy wait times to access GP and specialist services.

1. Introduction

The *Health Status of Children in the ACT* report provides an overview of the health and wellbeing of children living in the Territory using the latest data available from the ACT General Health Survey.

This survey is an initiative of ACT Health and is currently administered by the NSW Ministry of Health. The survey commenced in 2007 and collects information on an average of 1,300 respondents, including approximately 500 children (via their parent or carer) each year.

Sample pooling over the years allows for more specific analysis than has been previously possible and is utilised in this report where appropriate. Comparison between individual years should be interpreted with caution and is generally not detailed in the report due to the small number of cases, which in turn can cause rates to fluctuate from year to year.

For the purpose of this report, a child is defined as being aged between 0 and 15 years where information has been collected through interview with a parent or carer. Respondents have been weighted to the ACT population weights to calculate Territory estimates.

With the exception of headline indicators outlined in section 6.2, information is based on results from the ACT General Health Survey (ACTGHS).

As NSW Ministry of Health undertakes a similar survey for their state, comparisons with NSW results are shown where appropriate and where sufficient sample size allows. It should be noted that ACT results reflect four years of surveying (2007-10) whereas NSW results reflect two years (2009-10).

Statistical significance has been assessed in this report by comparing confidence intervals (95%CI) or calculating p-values, depending on the data. Where results are statistically significant, this is indicated by ($p < 0.05$).

For further information on the methodology used for the survey, refer to section 6.5.

The following sections present information across a range of factors influencing children's health and wellbeing. A demographic overview of children in the ACT, based on the Australian Bureau of Statistics 2011 Census data and related population estimates is also presented.

This report represents a valuable resource in informing the development of child health policy, planning and program development. It also offers benchmark data for future comparisons.

Findings which indicate opportunities for policy consideration are:

- Health services: whilst the population of the ACT continues to age, almost 20% are aged less than 15 years. Health services will need to continue to grow to meet the demands of this age group;
- healthy food and drink choices of older children and adolescents: only 20% of children aged 12-15 years consume the recommended serves of fruit, 17% consume the recommended serves of vegetables and 20.2% of children drink 6 or more cups of sugary drinks per week;
- physical activity: only 23% of children spend one or more hours being physical active outside of school per day and 19% usually walk to school (NSW: 16.5%), only 29% of parents are aware of the recommendation of 60 minutes or more exercise a day for children;
- sedentary behaviour: 46% of children spend more than 2 hours a day on electronic media;
- sun protection: 30% of children experience some sunburn in the summer;
- healthy weight: 16% of ACT children reported being overweight and 7% obese;
- asthma: 12% of ACT children had current asthma or were on treatment in the year preceding the survey. Half of these children did not have a written asthma plan.

2. Demographics

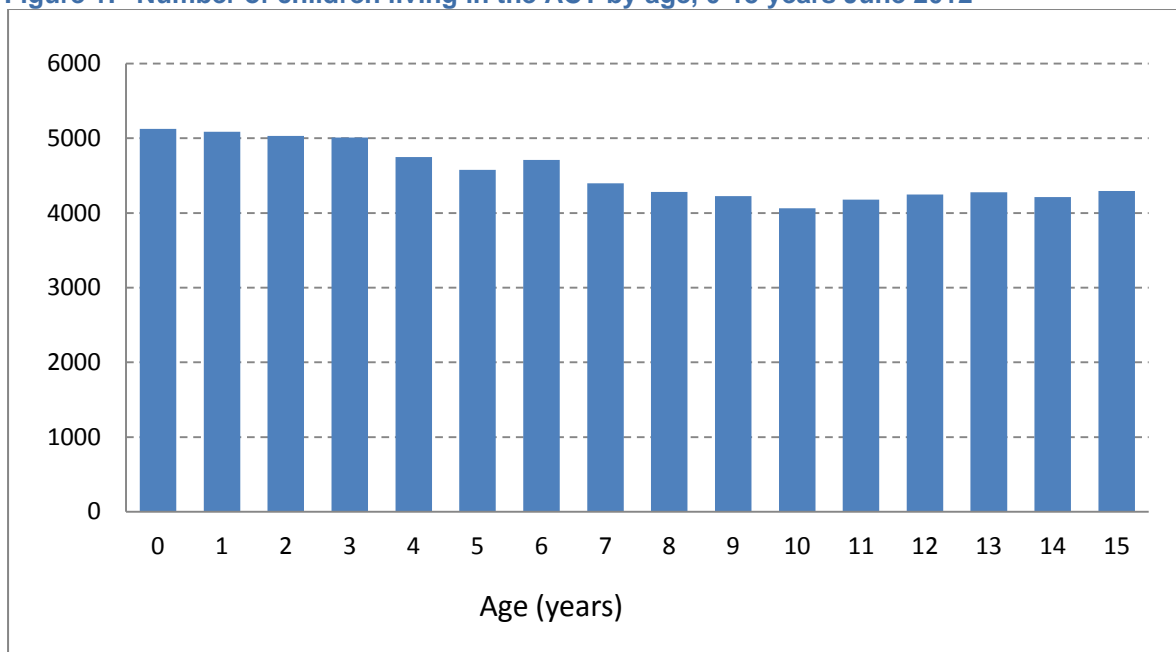
The ACT has consistently shifted towards an older population over the last few decades. However, estimates from the 12 months to June 2012 indicate that the ACT recorded the second highest percentage growth (2.5%) in the number of children over the year, next to Western Australia (3.1%) and followed by Queensland (1.7%).¹

As at June 2010, there were 70,401 children aged 0-15 years residing in the ACT (51.1% males; 48.9% females). This represented 19.6% of the total ACT population (358,600) with the greatest number of children less than one year of age (5,128; 7.3%) and the least number of children aged 10 years (4,008; 5.7%).

As at June 2012, there were 72,473 children aged 0-15 years residing in the ACT (51.4% males; 48.6% females). This represented 19.3% of the total ACT population (374,700) with the greatest number of children less than one year of age (5,127) and the least number of children aged 10 years (4,064), (Figure 1).

Australian Bureau of Statistics (ABS) experimental projections estimate that there were approximately 1,600 Aboriginal and Torres Strait Islander children living in the ACT in 2012.²

Figure 1: Number of children living in the ACT by age, 0-15 years June 2012



Source: ABS *Australian Demographic Statistics, Estimated Resident Population by Single Year of Age*, Cat. No. 3101.0, 2012

The changing population distribution in the ACT

The ABS constructs estimates of population by age group for the statistical districts within the Territory based on five yearly Census data. The following figures show findings for children aged 0-14 years.

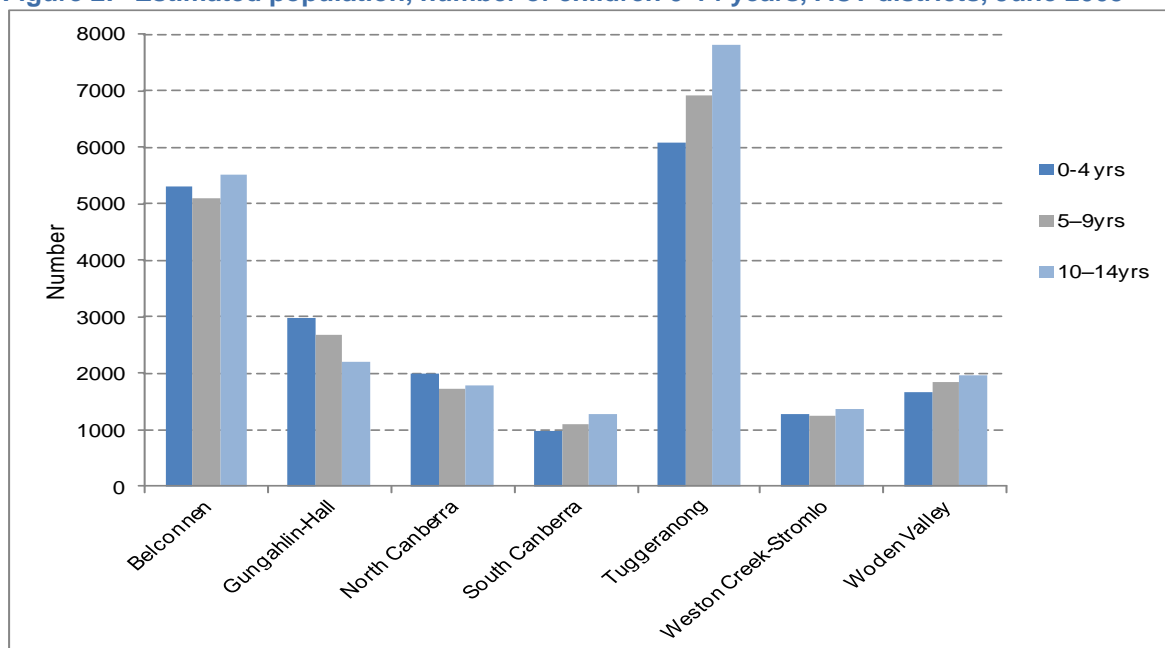
The districts of Belconnen and Tuggeranong had the largest proportions of children up to the age of 14 years with the inner city older districts having the lowest proportions in 2005 (Figure 2).

Comparison of data from 2005 (Figure 2) and 2010 (Figure 3) however, show that the demographic proportions are slowly changing over time. Major increases in the child population occurred in the newer districts of Gungahlin-Hall and Belconnen. Tuggeranong experienced a decrease.

ABS projections suggest that the total child population (0-15 years) will increase to 75,593 by 2020.

These changes have implications for long-term service planning and delivery.

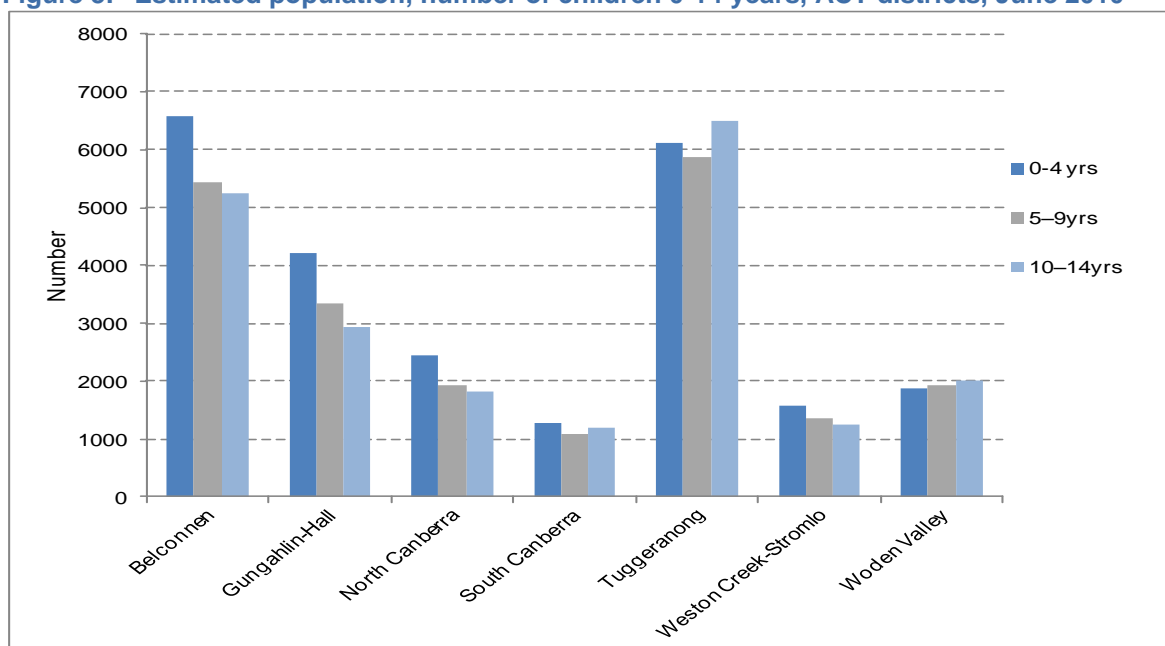
Figure 2: Estimated population, number of children 0-14 years, ACT districts, June 2005



Source: ABS, *Population Estimates by Age & Sex, ACT by Geographical Classification (ASGC 2010)*, Cat. No. 3235.0, 2011

Note: The age-groups reported in the source publication are only available in 5 year age-groups and thus do not align with the target age-group of 0-15 years.

Figure 3: Estimated population, number of children 0-14 years, ACT districts, June 2010



Source: ABS, *Population Estimates by Age & Sex, ACT by Geographical Classification (ASGC 2010)*, Cat. No. 3235.0, 2011

Note: The age-groups reported in the source publication are only available in 5 year age-groups and thus do not align with the target age-group of 0-15 years.

Results from the Census 2011 showed that suburbs with the highest proportion of children to 14 years were Amaroo (29%), Harrison (28%) and Bonner (26%), all in Gungahlin. Suburbs with the largest declines over the 10 years to 2011 were Conder (from 33% to 23%), Theodore (32% to 23%) and Banks (32% to 25%), all in Tuggeranong.

3. Behaviours affecting health

3.1. Infant sleeping position

Research into Sudden Infant Death Syndrome (SIDS) has emphasised infant sleeping position as an important risk factor. Infants placed on their stomach to sleep have a much higher risk of SIDS, but those placed on their side also have an increased risk. Consequently, health education campaigns have recommended that placing the infant on their back is the preferred sleeping position for most healthy infants.

The number of respondents to questions concerning sleeping positions was too low for generalisation of results (total of 120 infants aged to 11 months). However, the estimated percentage of infants who slept on their backs was consistent over the four years of surveying (average: 89.2%) (NSW: 87.7%).

3.2. Exposure to tobacco smoke

Smoking during pregnancy and exposure to tobacco smoke are important risk factors for adverse perinatal and antenatal outcomes.

Smoking during pregnancy

In the ACT survey, mothers of babies aged less than 12 months were asked about their smoking behaviour during pregnancy. Although the number of respondents was too low to generalise (total of 107 mothers), the results are encouraging with 94% of these mothers reporting not smoking during pregnancy.

Smoking in the home and enclosed spaces

Information regarding smoking in the home and in cars was collected in the ACT survey as indicative measures of the exposure of children to passive smoking. Passive smoking, especially by young children, is an accepted risk factor for respiratory problems and lung cancer in later life. All parents of 0-15 year olds were included in this analysis.

Results over the four years 2007-10 indicate that 97.4% of ACT residents do not smoke inside the home (NSW: 95.5%). The results have remained stable over the years.

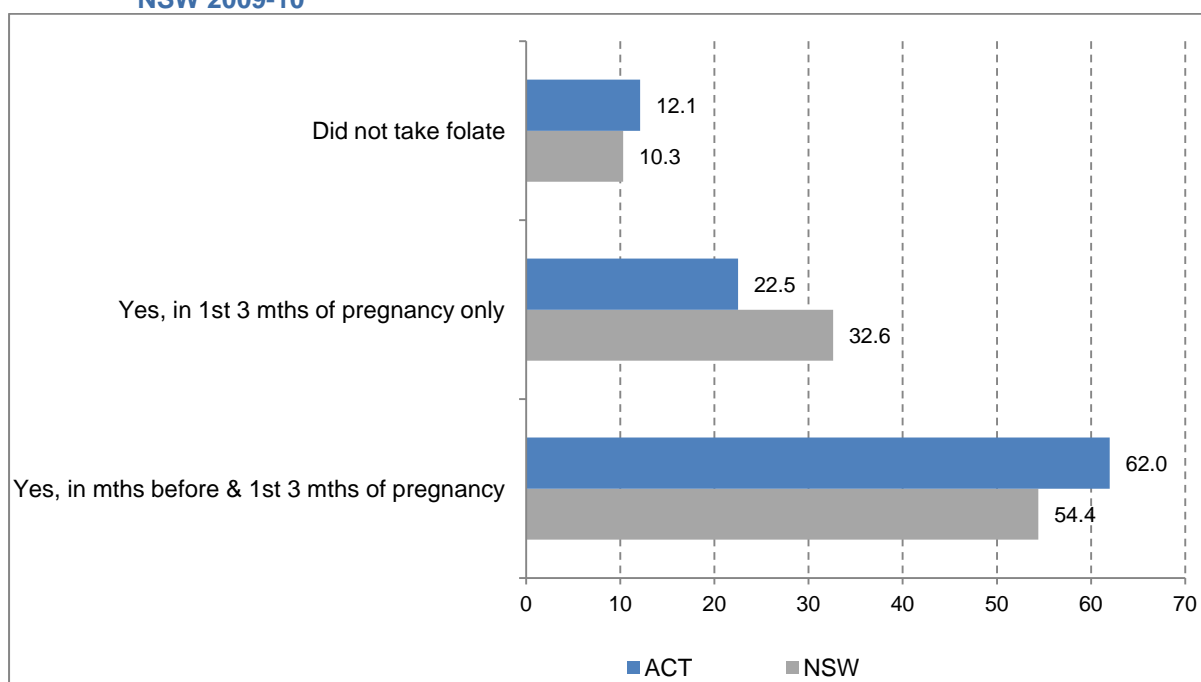
There has been a significant reduction in the percentage of people smoking in cars over the four years surveyed, from 4.6% in 2007 to 2.1% in 2010 (average of 3.7% over 2007-10), (NSW: 3.1%).

3.3. Folate intake during pregnancy

Adequate intake of folate (B group vitamin) around the time of conception has been found to reduce the risk of neural tube defects including spina bifida, anencephaly and encephalocele which are causes of major disability in children and adults.³

Only mothers of infants aged less than 12 months were asked about folate consumption during pregnancy. As the number of respondents (total 107) was low, information detailed in Figure 4 should be treated with caution.

Figure 4: Folate intake during pregnancy, percentage of mothers of infants, ACT 2007-10 & NSW 2009-10



Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Notes: Percentages may not add to 100% due to rounding.

Supplements include tablets or capsules containing folate or folic acid only.

3.4. Child nutrition

Good nutrition is essential for healthy growth and development in infants, children and adolescents. The NHMRC *Dietary Guidelines for Children and Adolescents in Australia* (refer Section 6.2) outlines guidelines for healthy eating. They state that children and adolescents should enjoy a wide variety of nutritious foods and drink plenty of water. The guidelines describe the number of serves of these foods that children in various age groups should eat on average, each day.

Breastfeeding

The health benefits of breastfeeding for infants and mothers are well established. Breast milk provides protection against infection and disease and provides all the nutrients necessary for optimum physical and mental development of the infant in the first six months of life. The NHMRC recommend exclusive breastfeeding from birth to around six months of age.

Although the number of infants (0-23 months old) surveyed was small (total of 269), the proportion ever breastfed was consistently above 90% over the four years 2007-10, ranging from 91.0% to 97.1% (average: 93.2%) (NSW: 93.2%). Unfortunately the numbers were too small to allow analysis of exclusive breastfeeding or specific length of time an infant was breastfed.

Fruit and vegetable consumption

Eating fruit and vegetables is essential for a healthy diet. A diet high in these foods provides some protection against a range of chronic diseases including cardiovascular disease, cancer, stroke, cataracts and Type 2 diabetes. The minimum recommended daily vegetable intake according to the *NHMRC Dietary guidelines for children and adolescents in Australia*, (refer Section 6.2) is defined as two serves a day for children aged 4-7 years; three serves a day for children aged 8-11 years and four serves for 12-18 year olds depending on their overall diet. The guide does not provide recommendations for children aged 2-3 years and so the recommendations for 4-7 years have been applied. The minimum recommended daily consumption of fruit according to *the guidelines* is one serve for children aged 4-11 years and three serves for children aged 12-18, depending on their overall diet. The guide does not provide recommendations for children aged 2-3 years, so the recommendations for 4-7 year old children have been applied.

The following data has been measured against the *NHMRC Dietary guidelines for children and adolescents in Australia* (2003) as these were the current guidelines when the data was collected. These guidelines have been revised and replaced with the *Australian Dietary Guidelines (2013)* and *Infant Feeding Guidelines* (2012). Future analysis will use the revised guidelines.

Survey results indicate 69.7% of 2-15 year olds are meeting the minimum dietary requirements of fruit consumption. The percentage of children meeting the dietary requirements decreased significantly with age ($p < 0.05$), with 96.5% of younger children (2-11 years) eating one or more serves a day (95.5% of males and 97.5% of females) and only 20% of 12-15 year olds eating three or more serves a day, (22.2% of males and 17.5% of females) (Table 1).

Table 1: Fruit consumption, serves per day, percentage of children 2-15 years, ACT, 2007-10

Serves	2-11 years	12-15 years
Less than 1 serve	3.5	15.3
1-2 serves	65.6 [#]	64.7
3 or more serves	30.9 [#]	20.0 [#]

Source: ACTGHS data collection 2007-10

Notes: [#] denotes the percentage meeting the minimum recommended number of serves for this age-group. Percentages may not add to 100% due to rounding. One serve of fruit is calculated as a medium piece or two small pieces of fruit.

ACT children were significantly less likely to meet the dietary guidelines for vegetable consumption with 39.7% of 2-15 year olds meeting the minimum recommended dietary requirements compared with 69.7% meeting the guidelines for fruit consumption ($p < 0.05$).

Younger children were significantly more likely to meet the daily requirements than older children with 60.8% of 2-7 year olds consuming two or more serves of vegetables (61.5% of males and 60.1% of females); 37.8% of 8-11 year olds (34.6% male and 40.8% female) eating three or more serves and 17.4% of 12-15 year olds eating four or more serves (18.7% males and 16.5% of females) ($p < 0.05$) (Table 2).

Table 2: Vegetable consumption, serves per day, percentage of children 2-15 years, ACT, 2007-10

Serves	2-7 years	8-11 years	12-15 years
Less than 1 serve	8.4	7.2	5.9
1 serve	30.7	23.9	25.8
2 serves	35.0 [#]	31.2	32.1
3 serves	18.2 [#]	22.4 [#]	18.9
4 or more serves	7.7 [#]	15.4 [#]	17.4 [#]

Source: ACTGHS data collection 2007-10

Notes: [#] denotes the percentage meeting the minimum recommended number of serves for this age-group. Percentages may not add to 100% due to rounding. One serve of vegetables is calculated as half a cup of cooked vegetables or one cup of salad vegetables.

Dairy consumption

According to the *NHMRC Dietary guidelines for children and adolescents in Australia*, dairy products, including milk, yoghurt and cheese and/or their alternatives are essential to a balanced diet for children (refer Section 6.2). It recommends 2 serves a day for children aged 4-11 years and 3 serves for children aged 12-18 years, depending on their overall diet. The guide does not provide recommendations for children aged 2-3 years so the recommendations for 4-11 year old children have been applied.

Results from the ACTGHS show that 69.2% of 2-15 year olds are meeting the minimum dietary guidelines for dairy consumption. As with fruit and vegetable intake, younger children are significantly more likely to be meeting the guidelines with 80.6% of 2-11 year olds (81.9% males, 79.2% females) compared to 47.7% of 12-15 year olds (54.2% male and 41.0% of females) ($p < 0.05$).

Meat consumption

Lean meat is included in one of the five recommended food groups. The ACTGHS asked whether the children ate any red meat. Results were similar to those for NSW, although ACT children were significantly less likely to eat meat seven or more times a week than their NSW counterparts ($p < 0.05$). There was no difference between male and female intake.

In accordance with the *Dietary guidelines*, 54.9% of ACT children ate the recommended serves (3-4 serves) per week.

Table 3: Red meat consumption, serves per week, percentage of children 2-15 years, ACT 2007-10 & NSW 2009-10

	ACT	NSW
Frequency per week	%	%
Less than once	5.1	5.3
Once or twice	9.7	10.3
Three or four times	54.9	51.1
Five or six times	25.2	24.9
Seven or more times	5.2	8.7

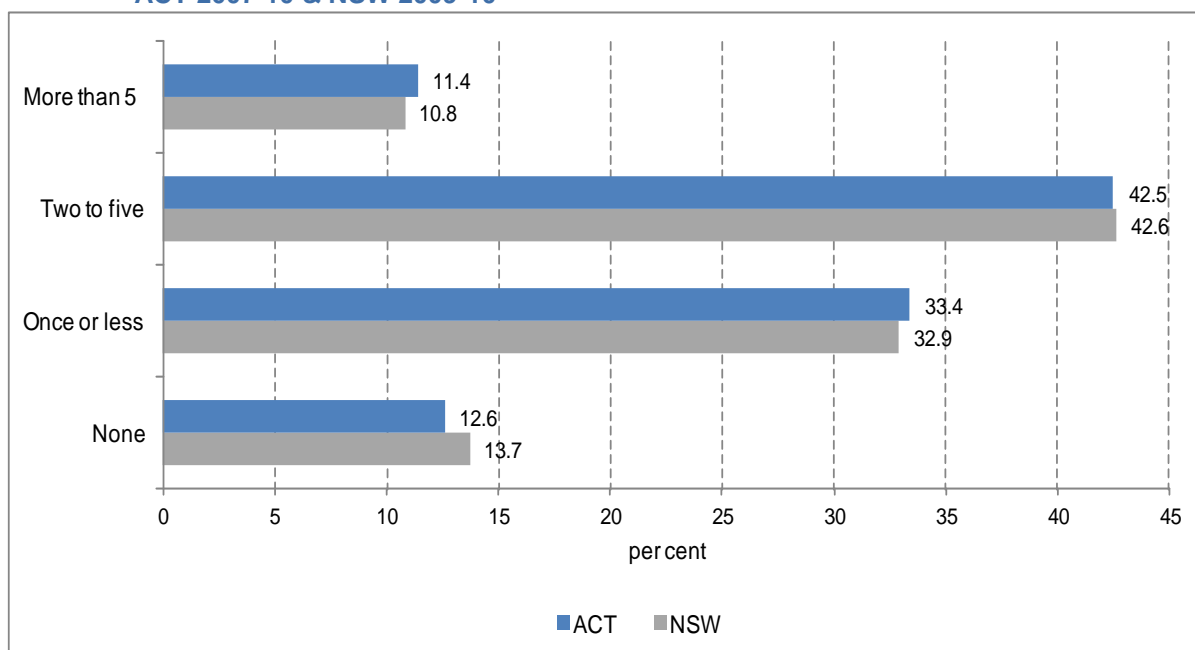
Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Meat product consumption

Meat products are not recommended inclusions in children's diets. Meat products include processed meats such as sausages, devon, bacon, ham and pies. 12.6% of children did not eat any meat products (NSW: 13.7%), 33.4% once or less than once a week (NSW: 32.9%) and 11.4% more than 5 times a week (NSW: 10.8%) (Figure 5).

ACT females aged 2-15 years (27.2%) were significantly less likely than ACT males aged 2-15 years (35.7%) to eat these foods three or more times a week ($p < 0.05$).

Figure 5: Meat product consumption, serves per week, percentage of children 2-15 years, ACT 2007-10 & NSW 2009-10



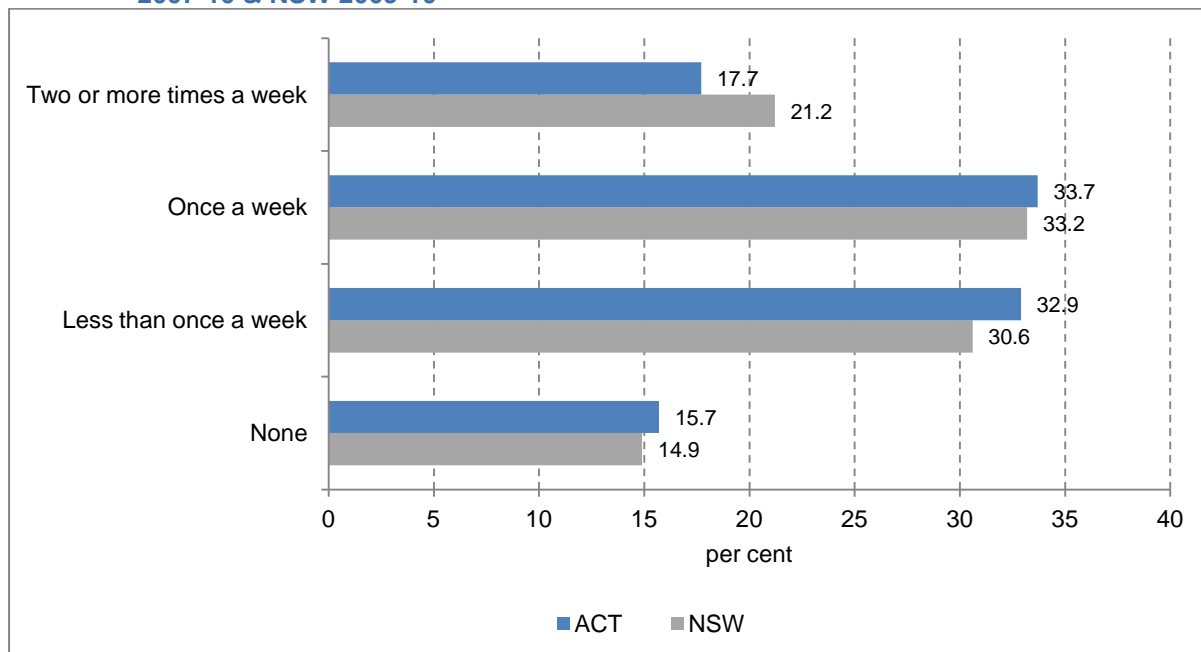
Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Hot fried potato products consumption

Hot fried potato products are a high-fat food commonly consumed by children. In the ACTGHS, the question asked was “How often does your child eat hot chips, french fries, wedges or fried potatoes?” Over the four years 2007-10, 15.7% of children reported to not eat these foods (NSW: 14.9%) and 17.7% reported eating them twice or more per week (NSW: 21.2%) (Figure 6).

There was a significant decrease from 2007 (56%) to 2010 (48.4%) in the consumption of once or more in a week ($p < 0.05$). There was no difference between male and female intake.

Figure 6: Fried potato consumption, serves per week, percentage of children 2-15 years, ACT 2007-10 & NSW 2009-10



Source: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Sugary drink consumption

Dietary guidelines for children and adolescents in Australia (refer Section 6.2) suggest that children consume only moderate amounts of sugar. The consumption of sugary drinks is one measure of intake.

Evidence indicates that it is probable that consumption of sugar-sweetened drinks is associated with increased risk of weight gain in children (and adults).⁴

Survey results indicate that although 50.9% of ACT children did not consume any soft drink, cordial or sports drink (NSW: 46.0%), 20.2% drank 6 or more cups of these drinks per week (NSW: 28.8%). There was little difference between ACT male and female intake.

Fruit juice consumption should also be limited due to the high sugar content. Survey results indicate that although 26.7% of ACT children did not consume any juice, (NSW: 26.8%), 4.1% drank 3 or more cups a day (NSW: 6.8%).

Confectionery consumption

Survey results show that 11.1% of ACT children (12.8% males and 9.4% females) consumed no confectionery each week (including chocolate, lollies and sweet bars) (NSW: 13.8%), but 32.9% ate them 3 or more times per week (NSW: 33.4%). ACT females (35.8%) were significantly more likely to eat confectionery 3 times or more per week than males (30%, $p < 0.05$) (Table 4) with 9-15 year old females being the largest consumer of confectionery (39.6%) compared to their male counterparts (30.1%).

Thirty one per cent of 2-8 year olds consumed confectionery three or more times a week with little difference between males and females (males 29.9%, females 31.5%).

Table 4: Confectionery consumption, times per week, percentage of children 2-15 years, ACT 2007-10

Frequency	Males	Females	Children
None	12.8	9.4	11.1
Once or less	38.5	37.6	38.0
Twice	18.7	17.2	18.0
3 or more times	30.0	35.8	32.9

Source: ACTGHS data collection 2007-10

3.5. Physical activity and sedentary activity

The *National physical activity guidelines* recommend that children and adolescents need at least 60 minutes of moderate (e.g. bike riding, skateboarding, quick walking) to vigorous (e.g. running, ball games) physical activity every day for healthy growth and wellbeing (refer Section 6.2). Children who are sedentary can become overweight or obese and this can affect their health in later life.

Although it is difficult for parents/carers to accurately gauge their children's levels of physical activity, some indication can be gained by asking questions about participation in sports, outdoor activities and conversely, the amount of time children watch TV or use computers.

Survey results show that 29.1% of ACT parents thought that children needed 60 minutes or more exercise each day (NSW: 30.7%) whereas 26.6% of ACT parents (NSW: 32.3%) did not know the recommended amount of time.

22.8% of ACT children (24.6% males and 21.0% females) did one or more hours of physical activity outside of school per usual day (NSW: 24.5%).

In addition 19.4% of ACT children usually walked to school each day (NSW: 16.5%).

Children were asked what sports and outdoor activities they did over the previous 12 months (Table 5). Whilst there were some minor differences in proportions of children doing various activities, children in the ACT and NSW generally participated in sporting activities to the same levels. Only 4% of ACT children (NSW: 4.7%) did not participate in any activity.

Table 5: Sport & outdoor activities in last 12 months, percentage of children 5-15 years, ACT 2007-10 & NSW 2009-10

Activity	ACT	NSW
	%	%
Swimming	39.7	50.5
Soccer	35.4	33.3
Cycling/mountain bike/bike riding	35.2	26.6
Jogging/athletics/running	32.5	28.1
Dancing/ballet	24.3	23.7
Basketball	11.5	10.2
Netball	11.2	13.6
Cricket	10.7	11.7
Rugby league	8.2	11
Martial arts	7.1	6.5
Rugby union	6.5	3.7
Skateboarding/roller blading	3.8	5.6
Other ball sports	22.1	na
Other	27.1	13.3
Did not play any sport	4	4.7

Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Note: Respondents could mention more than one response. Percentages may total more than 100%.

With regard to sedentary activities, 46.2% of ACT children (55.2% males and 36.7% females) used electronic media (TV/DVD/computer games) for more than two hours a day (NSW: 45.3%).

3.6. Sun protection

Although some exposure to sunlight is beneficial to health, in particular to encourage production of vitamin D, over-exposure can be detrimental to health. Excessive sun exposure can lead to skin cancer, eye disease and premature ageing. This is particularly important in the childhood years, when children are more likely to be outdoors when the highest ultraviolet ray levels occur. Sun protection during these times is a priority for reducing lifetime risk of skin cancer and other diseases.⁵

Responses from the ACTGHS 2007-10 to questions concerning sun protection behaviours during the previous summer indicate that ACT results were similar to NSW, with the exception of wearing a hat or cap outdoors where ACT children were significantly more likely to wear a hat or cap (75.7%) than NSW children (55.9%, $p < 0.05$) (Table 6).

ACT children were significantly less likely to have been sunburnt one or more times (in the previous summer) (30.2%) than NSW children (35.7%, $p < 0.05$). However, results show that ACT females were significantly more likely to have been sunburnt one or more times (33.1%) compared to males aged 0-15 years in the ACT (27.4%, $p < 0.05$).

Table 6: Sun protection behaviours & sunburn in most recent summer, percentage of children 0-15 years, ACT 2007-10 & NSW 2009-10

Frequency		ACT 2007-10			NSW 2009-10
		Males	Females	Children	Children
Protective behaviours		%	%	%	%
seeks shade	always/often	33.6	42.2	37.9	37.4
wears hat/cap	always/often	76.6	74.8	75.7	55.9
wears sunglasses	always/often	8.6	16.3	12.4	12.1
wears sunscreen (SPF15 or stronger)	always/often	69.7	71.6	70.6	69.8
sunburn last summer	One or more times	27.4	33.1	30.2	35.7

Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

4. Health status

4.1. Self-reported health status

Respondents to the ACTGHS 2007-10 were asked to rate the health status of their child on a scale from very poor to excellent. Responses indicate that parents of ACT children aged 0-15 years believe their children's health to be excellent to good in 89.3% of cases (NSW: 91.3%).

4.2. Weight status

Healthy weight is associated with wellbeing and physical health. In children, BMI is first calculated by dividing a person's weight (in kilograms) by their height (in metres) squared. The resulting BMI is then classified into 4 categories: underweight, normal weight, overweight and obese. These categories are then defined using international cut-off points for underweight, overweight, and obesity.^{6,7} These thresholds take into account the substantial changes in BMI with age. BMI categories used in this report can be found at Section 6.3. For the purpose of analysis full year cut offs were used. For example if a child was older than five years of age but less than six years of age, the classification for five year olds was used. The ACTGHS asked parents to report on weights and heights of their children. It is important to note that self-reporting of these measures can result in underestimates, in particular, overweight and obesity. Generally, self-reported heights are significantly higher than measured heights and self-reported weights are significantly lower than measured weights.^{8,9}

Over the four year period 2007-10, 16.2% of ACT children reported being overweight and 6.6% obese.

4.3. BMI categories for children

Comparisons with NSW were not available at the time of publication.

Table 7: Weight status, percentage of children, 2-15 years, ACT, 2007-10

	male	females	Total
Obese	6.5	6.7	6.6
Overweight	16.7	15.7	16.2
Normal weight	62.2	61.7	61.9
Underweight	14.6	15.9	15.2

Source: ACTGHS data collection 2007-10

4.4. Asthma

Asthma is a chronic inflammatory disorder of the airways. Consequences of poor management of this disorder include tiredness, poor concentration, absenteeism from physical and other activities and in serious cases, hospitalisation and even death. Asthma can be managed effectively using strategies such as avoiding known triggers, using an appropriate asthma action plan, appropriate medication and regular monitoring by a GP.¹⁰

ACTGHS 2007-10 results estimate that 21.1% of ACT children (24.3% males and 17.8% females) had ever had asthma (NSW: 22.4% of children) and 12.3% (13.6% males and 10.9% females) had current asthma or were on asthma treatment in the year preceding the survey (NSW: 13.4% of children). Nearly half of children with current asthma (49.6%) had a written asthma management plan (NSW: 51.9% of children).

4.5. Oral health

The ACTGHS included questions on the use of dental health services in the ACT with 81% of ACT children having visited a dental professional in the previous 12 months (NSW: 72.8%). There was a higher percentage of older children than younger ones making these visits (5-8 years: 71.3%, 9-15 years: 85.5%).

When asked when the child last attended a dental consult, 80.7% of parents reported that their child had made such a visit in the previous 12 months (NSW: 72.8%) with 4.7% of ACT children “never” attending a dental consult in the last 12 months (NSW: 7.3%).

Reasons for not visiting a dental professional included no need to visit (57.7%), hard to find the time (25.9%), too expensive (16.6%) and long waiting lists (4.2%).

4.6. Resilience (emotional & behavioural)

Childhood behavioural problems impact not just on the child and the child’s future life, but also on their family, school and community. The ACTGHS utilises the Goodman Strengths and Difficulties Questionnaire to gauge levels of difficulty (refer Section 6.4).

Results from the ACTGHS 2007-10 estimate that 6.4% of children in the ACT aged 4-15 years are at a substantial risk of developing a clinically significant behavioural problem based on the Strengths and Difficulties questionnaire (NSW: 7.3%). The main types of problems identified were emotional symptoms, hyperactivity or inattention and conduct problems (Table 8). Some children were identified with multiple problems.

Table 8: At risk of substantial behavioural problems, percentage of children, 4-15 years, ACT 2007-10 & NSW 2009-10

Difficulties	ACT			NSW
	Males	Females	Children	Children
Emotional symptoms	11.4	10.3	10.8	11.1
Conduct problems	8.7	7.8	8.3	9.1
Hyperactivity or inattention	13.9	6.0	10.0	10.8
Peer relationship problems	7.9	6.3	7.1	8.4
Pro-social behaviour problems	3.8	0.7	2.3	1.8

Sources: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

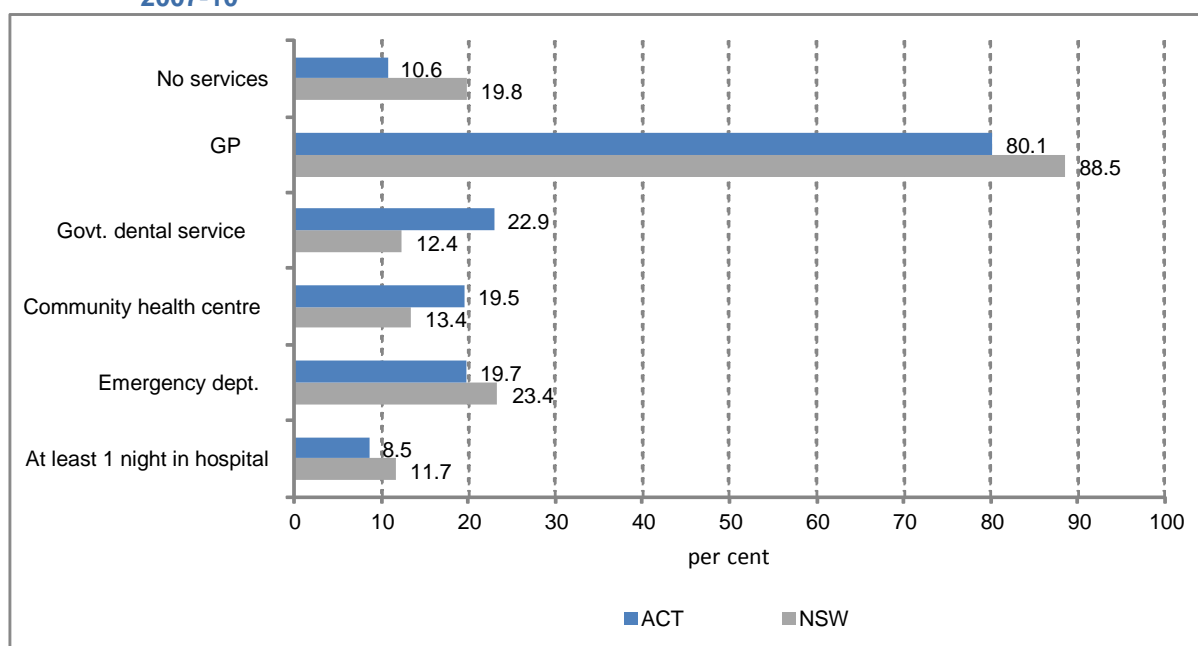
Notes: The 25 item Strengths and Difficulties Questionnaire (SDQ) comprises 5 scales of 5 items. Each subscale score ranges between 0 and 10. The at risk score for each subscale is 5-10 for emotional symptoms, 4-10 for conduct problems, 7-10 for hyperactivity or inattention, 4-10 for peer relationship problems, and 0-4 for pro-social behaviour. Respondents could mention more than 1 response. Percentages may total more than 100%. “Pro-social behaviour” is behaviour designed solely to help other people.

5. Health services

Health service usage

Over the four years 2007-10, 19.7% of ACT children attended an emergency department in a hospital (NSW: 23.4%), 80.1% visited a GP (NSW: 88.5%), 22.9% visited a government dental service (NSW: 12.4%) and 19.5% visited a community health centre (NSW: 13.4%). One in 10 ACT children (10.6%) did not use any of the services listed in Figure 7 during the previous 12 months (NSW 19.7%). The difference between health service use by ACT and NSW children was statistically significant for all service types ($p < 0.05$).

Figure 7: Health services attended in last 12 months, percentage of children 0-15 years, ACT, 2007-10



Source: ACTGHS data collection 2007-10, NSW Child Health Survey data collection 2009-10

Health service rating

Parents and carers of children were asked to rate some of the health services they may have attended recently. Most were satisfied with the service received:

- ❖ 90.0% stated excellent, very good or good for hospital stays (NSW: 90.7%);
- ❖ 78.9% stated excellent, very good or good for emergency department visits (NSW: 82.1%);
- ❖ 87.9% stated excellent, very good or good for community health centre visits (NSW: 93.8%);
- ❖ 92.9% stated excellent, very good or good for early childhood centre visits (NSW: not available).

About a quarter of ACT people (24.5%) reported that they had difficulties in getting health care for their children (NSW: 21.7%). The main types of difficulties were lengthy wait times to access GP and specialist services, lack of bulk billing services in the ACT and lengthy emergency department waiting times.

6. Appendices

6.1. Demographic characteristics

Table 9: Population by age group & sex, children 0-15 years, ACT, June 2012

Age group	Males		Females		Children	
	number	%	number	%	number	%
Less than 1 yr	2,669	7.2	2,458	7.0	5,127	7.1
1 yr	2,638	7.1	2,448	6.9	5,086	7.0
2 yrs	2,555	6.9	2,477	7.0	5,032	6.9
3 yrs	2,612	7.0	2,398	6.8	5,010	6.9
4 yrs	2,463	6.6	2,285	6.5	4,748	6.6
0 to 4 years	12,937	34.8	12,066	34.2	25,003	34.5
5 yrs	2,354	6.3	2,225	6.3	4,579	6.3
6 yrs	2,420	6.5	2,292	6.5	4,712	6.5
7 yrs	2,253	6.1	2,143	6.1	4,396	6.1
8 yrs	2,201	5.9	2,081	5.9	4,282	5.9
5 to 8 years	9,228	24.8	8,741	24.8	17,969	24.8
9 yrs	2,196	5.9	2,029	5.8	4,225	5.8
10 yrs	2,050	5.5	2,014	5.7	4,064	5.6
11 yrs	2,108	5.7	2,071	5.9	4,179	5.8
12 yrs	2,156	5.8	2,092	5.9	4,248	5.9
13 yrs	2,166	5.8	2,109	6.0	4,275	5.9
14 yrs	2,158	5.8	2,056	5.8	4,214	5.8
15 yrs	2,216	6.0	2,080	5.9	4,296	5.9
9 to 15 years	15,050	40.4	14,451	41.0	29,501	40.7
Total	37,215	100	35,258	100	72,473	100

Source: ABS Australian Demographic Statistics, Estimated Resident Population by Single Year of Age Cat. No. 3101.0, 2012

Table 10: Survey sample size by age group & sex, children 0-15 years, ACT, 2007-10

Age group	Males		Females		Children	
	number	%	number	%	number	%
Less than 1 yr	60	6.4	60	6.5	120	6.5
1 yr	71	7.6	81	8.8	152	8.2
2 yrs	61	6.6	64	6.9	125	6.7
3 yrs	61	6.6	57	6.2	118	6.4
4 yrs	47	5.0	49	5.3	96	5.2
0 to 4 years	300	32.2	311	33.7	611	33.0
5 yrs	52	5.6	62	6.7	114	6.1
6 yrs	56	6.0	40	4.3	96	5.2
7 yrs	42	4.5	54	5.9	96	5.2
8 yrs	43	4.6	56	6.1	99	5.3
5 to 8 years	193	20.7	212	23.0	405	21.8
9 yrs	43	4.6	50	5.4	93	5.0
10 yrs	51	5.5	55	6.0	106	5.7
11 yrs	59	6.3	57	6.2	116	6.3
12 yrs	72	7.7	44	4.8	116	6.3
13 yrs	71	7.6	73	7.9	144	7.8
14 yrs	79	8.5	62	6.7	141	7.6
15 yrs	63	6.8	59	6.4	122	6.6
9 to 15 years	438	47.0	400	43.3	838	45.2
Total	931	100	923	100	1,854	100

Source: ACTGHS data collection 2007-10

Note: Percentages may not add to 100% due to rounding.

6.2. National guidelines for diet and physical activity

Dietary Guidelines for Children and Adolescents in Australia (2003)

The NHMRC *Dietary Guidelines for Children and Adolescents in Australia*, recommended:

- ❖ fruit: 1 serve a day for children aged 4-11 years and 3 serves for children aged 12-18 years, depending on their overall diet;
- ❖ vegetables: 2 serves a day for children aged 4-7 years, 3 serves for children aged 8-11 years and 4 serves for 12-18 year olds, depending on their overall diet;
- ❖ dairy (including milk, yoghurt, cheese and dairy alternatives): 2 serves a day for children aged 4-11 years and 3 serves for children aged 12-18 years, depending on their overall diet;
- ❖ lean meat, fish, poultry, nuts, and legumes: 1/2 to 1 serve a day for children aged 4-7 years and 1 serve for children aged 8-18 years, depending on their overall diet;
- ❖ a diet low in sugar, salt and fat (reduced fat milks are not suitable for children under two years, but reduced fat varieties are encouraged for older children);
- ❖ children and adolescents need sufficient nutritious foods to grow and develop normally.

Source: National Health and Medical Research Council. *Dietary Guidelines for Children and Adolescents in Australia: Incorporating the Infant Feeding Guidelines for Health Workers* Canberra: National Health and Medical Research Council, 2003.

Note: These 2003 guidelines have been replaced by *Australian Dietary Guidelines (2013)* and *Infant Feeding Guidelines (2012)*. This will have implications on future comparative analyses.

Physical activity guidelines for 5-12 and 12-18 year olds (current)

The *Australia's physical activity recommendations for 5-12 year olds* and *Australia's physical activity recommendations for 12-18 year olds* state that children and adolescents need at least 60 minutes of:

- ❖ moderate exercise such as bike riding, skateboarding, quick walking and dancing

OR

- ❖ vigorous exercise such as running hard, ball games (football, netball, soccer, basketball etc.) and swimming laps

every day for healthy growth and wellbeing.

Source: Australian Government Department of Health and Ageing, *Australia's physical activity recommendations for 5-12 year olds* and *Australia's physical activity recommendations for 12-18 year olds*, www.healthyschools.gov.au

Note: These guidelines are currently being revised. This will have implications on future comparative analyses.

Sedentary behaviour in children is a predictor of unhealthy body mass and possible ill-health in later life. Children and adolescents are therefore recommended to spend less than 2 hours a day using electronic media for entertainment. This media includes television, DVDs, the internet and computer games.

6.3. BMI categories for children

Table 11: BMI values for BMI categories by age, males

Age (years)	Underweight	Normal weight	Overweight	Obese
2	≤15.14	≥15.15 and ≤18.40	≥18.41 and ≤20.08	≥20.09
3	≤14.74	≥14.75 and ≤17.88	≥17.89 and ≤19.56	≥19.57
4	≤14.43	≥14.44 and ≤17.54	≥17.55 and ≤19.28	≥19.29
5	≤14.21	≥14.22 and ≤17.41	≥17.42 and ≤19.29	≥19.30
6	≤14.07	≥14.08 and ≤17.54	≥17.55 and ≤19.77	≥19.78
7	≤14.04	≥14.05 and ≤17.91	≥17.92 and ≤20.62	≥20.63
8	≤14.15	≥14.16 and ≤18.43	≥18.44 and ≤21.59	≥21.60
9	≤14.35	≥14.36 and ≤19.09	≥19.10 and ≤22.76	≥22.77
10	≤14.64	≥14.65 and ≤19.83	≥19.84 and ≤23.99	≥24.00
11	≤14.97	≥14.98 and ≤20.54	≥20.55 and ≤25.09	≥25.10
12	≤15.35	≥15.36 and ≤21.21	≥21.22 and ≤26.01	≥26.02
13	≤15.84	≥15.85 and ≤21.90	≥21.91 and ≤26.83	≥26.84
14	≤16.41	≥16.42 and ≤22.61	≥22.62 and ≤27.62	≥27.63
15	≤19.98	≥19.99 and ≤23.28	≥23.29 and ≤28.29	≥28.30

Source: Cole, Bellizzi et al and Cole, Flegal et al

Table 12: BMI values for BMI categories by age, females

Age (years)	Underweight	Normal weight	Overweight	Obese
2	≤14.83	≥14.84 and ≤18.01	≥18.02 and ≤19.80	≥19.81
3	≤14.47	≥14.48 and ≤17.55	≥17.56 and ≤19.35	≥19.36
4	≤14.19	≥14.20 and ≤17.27	≥17.28 and ≤19.14	≥19.15
5	≤13.94	≥13.95 and ≤17.14	≥17.15 and ≤19.16	≥19.17
6	≤13.82	≥13.83 and ≤17.33	≥17.34 and ≤19.64	≥19.65
7	≤13.86	≥13.87 and ≤17.74	≥17.75 and ≤20.50	≥20.51
8	≤14.02	≥14.03 and ≤18.34	≥18.35 and ≤21.56	≥21.57
9	≤14.28	≥14.29 and ≤19.06	≥19.07 and ≤22.80	≥22.81
10	≤14.61	≥14.62 and ≤19.85	≥19.86 and ≤24.10	≥24.11
11	≤15.05	≥15.06 and ≤20.73	≥20.74 and ≤25.41	≥25.42
12	≤15.62	≥15.63 and ≤21.67	≥21.68 and ≤26.66	≥26.67
13	≤16.26	≥16.27 and ≤22.57	≥22.58 and ≤27.75	≥27.76
14	≤16.88	≥16.89 and ≤23.33	≥23.34 and ≤28.56	≥28.57
15	≤17.45	≥17.46 and ≤23.93	≥23.94 and ≤29.10	≥29.11

Source: Cole, Bellizzi et al and Cole, Flegal et al

6.4. The Strengths and Difficulties Questionnaire

The Goodman Strengths and Difficulties Questionnaire (SDQ) was utilised in the ACT General Health Survey (ACTGHS) to estimate the levels of behavioural problems and resilience of children aged 4-15 years.

The following is an extract from the NSW Child Health Report (page 95) describing the questionnaire, which can be found at: http://www.health.nsw.gov.au/PublicHealth/surveys/hsc/0910pub/toc/t_2_beh.

Childhood behavioural problems add stress to any family and are a common challenge parents and carers face. The majority fall within the normal range and are appropriately dealt with by parents and carers, primary health, community health, and child health professionals. By understanding the nature of these problems, and by getting appropriate support, parents and carers can better deal with them. The Strengths and Difficulties Questionnaire (SDQ), created by Professor Robert Goodman in the United Kingdom, was identified as an appropriate parent-rated tool following adaptation for use in telephone surveys in consultation with Professor Goodman.¹¹

The SDQ is a brief screening questionnaire for children aged 4-17 years, with different versions for children aged 4-10 years and 11-17 years. Both versions ask parents about 25 attributes divided into 5 subscales: emotional symptoms, conduct problems, hyperactivity or inattention, peer relationship problems, and pro-social behaviour. Each subscale scores between 0 and 10. The at risk score for each subscale is: 5-10 for emotional symptoms, 4-10 for conduct problems, 7-10 for hyperactivity or inattention, 4-10 for peer relationship problems, and 0-4 for pro-social behaviour. The emotional symptoms, conduct problems, hyperactivity or inattention, and peer relationship problems scores are combined to calculate a total difficulties score between 0 and 40. A child with a total difficulties score of 17 or above is at risk of developing a clinically significant behavioural problem.

Studies have demonstrated the SDQ to be a valid questionnaire, well suited for screening purposes, longitudinal monitoring, structured interview diagnoses, and scientific research.^{11,12,13} The parent-reported versions of the SDQ adapted for use in the New South Wales Child Health Survey (and ACTGHS) are the same as those mandated for national use in Australia's specialised mental health services. Data from these services is provided to the Australian Mental Health Outcomes and Classification Network, as part of the National Outcomes and Casemix Collection.¹⁴

6.5. Survey methodology

Survey sample

The target population for the survey is all ACT residents living in households with private telephones. The target sample is approximately 1,300 persons a year including 500 children. Households are contacted using list assisted random digit dialling. One person from the household is randomly selected for inclusion in the survey, using age order, having firstly identified the position of the household reporter. If the selected respondent is a child under the age of 16 years, a parent or carer is selected as a proxy respondent.

Attendance

Interviews are usually carried out continuously between March and December. An 1800 freecall contact number is provided for potential respondents to verify the authenticity of the survey and to ask any questions regarding the survey. Trained interviewers from the in-house New South Wales Health Survey Program CATI facility carry out interviews. Up to 7 calls are made to establish initial contact with a household, and 5 calls are made in order to contact a selected respondent.

Response rates

The overall response rate is calculated as completed interviews divided by completed interviews and refusals. The average response rate for the ACTGHS between 2007 and 2010 was 76%.

Data analysis

For analysis, the survey sample is weighted to adjust for differences in the probabilities of selection among subjects. These differences are due to the varying number of people living in each household and the number of residential telephone connections for the household. Post-stratification weights are used to reduce the effect of differing non-response rates among males and females and different age groups on the survey estimates. These weights are adjusted for differences between the age and sex structure of the survey sample and the Australian Bureau of Statistics mid-year population estimates (excluding residents of institutions). This enables calculation of prevalence estimates for the territory population rather than for the respondents selected.

Statistical analyses were undertaken using SPSS (PASW Statistics 18) and Microsoft Office Excel 2007. Sampling errors (SE) were calculated as were relative standard errors (RSE). (An RSE is the SE expressed as a percentage of the estimate, and provides an immediate indication of the percentage of errors likely to have occurred due to sampling). Only estimates with RSEs of less than 25% are considered sufficiently reliable in most cases and results subject to RSEs of between 25% and 50% should be considered with caution. This report highlights those estimates with high RSE's and notes that the results should be treated with caution.

Missing values were not included in the analyses.

Limitations

All estimates are based on proxy respondents answering on behalf of their children and as previously mentioned this has the potential to lead to some over or under reporting on some measures. For example self-reported heights are significantly higher than measured heights and self-reported weights are significantly lower than measured weights.^{8 9}

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