

Infant and Child Nutrition in Queensland 2003

SUMMARY REPORT

August 2005

Surveys conducted by:

Epidemiology Services Unit, Health Information Branch in conjunction
with Public Health Services, Queensland Health

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INTRODUCTION

Optimal infant and child nutrition is fundamental to normal physical growth and development and the enhancement of health throughout the lifecycle. There is increasing evidence of the importance of nutrition in infancy and childhood in the prevention of diet related diseases in later life. Nutrition during infancy and childhood can also have short term effects on health and development, for example dental disease and childhood overweight and obesity.

This report summarises the results of two surveys conducted using Queensland Health's computer-assisted telephone interviewing (CATI) system - the 2003 Infant Nutrition Survey (INS) and the 2003 Child Health Survey (CHS). The respondents to the INS were 1201 biological mothers of children less than five years of age. The respondents to the CHS were 1596 principal caregivers of children less than 13 years of age. Many of the questions in the INS were also included in the CHS. To make the best use of the available data concerning infant nutrition practices, a combined dataset comprising all of the INS respondents plus the biological mothers of children under five from the CHS was created, with a total of 1761 respondents.

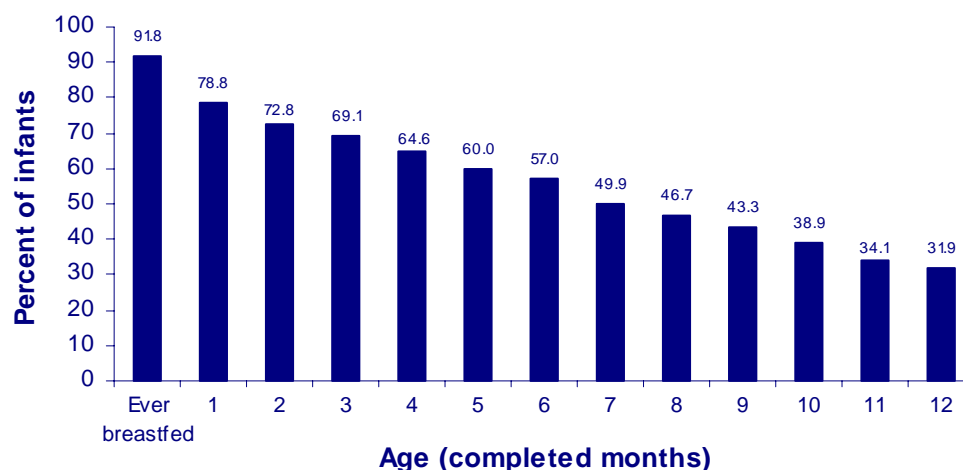
BREASTFEEDING

Initiation, Duration and Predictors

In these surveys 91.8% of children less than five years of age had ever been fed breastmilk. This rate meets the objective of the National Health and Medical Research Council (NHMRC 2003) of a breastfeeding initiation rate in excess of 90%. However, at six months of age the rate of breastfeeding had fallen to 57%, well below the NHMRC objective of 80% of infants breastfeeding at this age.

The most dramatic drop in breastfeeding rates occurred in the first month postpartum with the breastfeeding prevalence at one month being 79% (Figure 1). The median duration of breastfeeding among children less than five years of age who were ever fed breastmilk was six months.

FIGURE 1 BREASTFEEDING PREVALENCE FOR THE FIRST 12 MONTHS



Mothers in the INS who had ever breastfed their child were asked to comment on the main reasons why they chose to breastfeed their child (Table 1). The most frequently reported reasons for deciding to breastfeed related to the benefits for the infant, the convenience of breastfeeding and that it was the ‘right’ or ‘natural’ thing to do.

TABLE 1 MOTHERS’ REASONS FOR BREASTFEEDING (n=1098)

REASON	MOTHERS WHO HAD EVER BREASTFED THEIR CHILD*	
	n	%
Breastmilk better for baby	954	86.8
More convenient/easier	491	44.7
The right/normal/natural thing to do/breastfed previous children/ my mum did it	304	27.7
Breastfeeding cheaper	218	19.8
Bonding with baby	161	14.6
Breastfeeding better for mum / mum enjoyed it	86	7.8
Motivated by failure to breastfeed other babies	16	1.5
Hospital staff or other people pressured me into it	16	1.4
Friends/relatives advised breastfeeding	12	1.1
Child's father wanted me to breastfeed	2	0.2
Other	58	5.3

*Multiple responses were permitted

Maternal prenatal intention to breastfeed was consistently the strongest association found with actual breastfeeding practice in this survey. Mothers who had decided, before giving birth, to breastfeed were nearly 19 times more likely to initiate breastfeeding, five times more likely to breastfeed for four months, nearly five times more likely to breastfeed for six months, and 13 times more likely to breastfeed for 12 months than mothers who had not made that decision prior to the birth.

When only demographic variables were examined, mothers with higher levels of education were more likely to initiate breastfeeding than those with lower education levels.

However, when all factors including intention to breastfeed, mothers' age, education and income were taken into consideration, education and income ceased to be predictors of breastfeeding initiation. Older mothers (over 30 years) were more likely to initiate breastfeeding and more likely to continue breastfeeding than younger mothers.

Programs aimed at increasing breastfeeding initiation should be targeted at younger, less well educated women, especially those who have not made a decision prior to giving birth about infant feeding method, as mothers with these characteristics were found to be more likely to have never breastfed their child.

Breastfeeding Experience and Support

The provision of information regarding post-discharge feeding support and advice was positively associated with breastfeeding at four and six months. Mothers who were offered this information were approximately one and a half times more likely to breastfeed at both four and six months. This simple practice could have a significant impact on the median duration of breastfeeding. Providers of post-discharge support need to ensure that good quality information is consistently provided.

Mothers in the INS who had ever breastfed their child were asked where they sought help or support for breastfeeding. Table 2 presents the results as percentages of mothers who indicated that they sought help and of all mothers who had ever breastfed.

TABLE 2 PLACES FROM WHICH MOTHERS SOUGHT HELP OR SUPPORT FOR BREASTFEEDING

PLACE	n	% OF MOTHERS WHO HAD SOUGHT FEEDING SUPPORT* (n=662)	% OF ALL MOTHERS IN THE INS WHO EVER BREASTFED* (n=1100)
Family or friends	348	52.6	31.6
Local Community or Child Health Centre	286	43.3	26.0
During home visit by nurse or midwife	196	29.7	17.8
ABA or Nursing Mothers Assoc.	179	27.1	16.3
GP or specialist	163	24.6	14.8
Hospital where baby born	145	22.0	13.2
Pharmacy or pharmacist	66	9.9	6.0
Private lactation consultant	57	8.6	5.2
Parents helpline	5	0.8	0.4
Anywhere else (specify)	14	2.1	1.2

*Multiple responses were permitted

Women in the INS identified family and friends as their major source of advice. Other studies have shown the importance of the father's support for breastfeeding (Landers, Hughes & Graham 1998; Scott & Binns 1999). Therefore, it is important to educate the whole community about the current feeding recommendations.

Health staff working in the community and the Australian Breastfeeding Association (ABA), play an important role in assisting mothers to continue breastfeeding and thereby increase the median duration of breastfeeding. Of the mothers in the INS who had ever breastfed, 26% had approached community based health staff and 16% had sought help or support from the ABA.

Almost half (47%) of all mothers in the INS who had ever breastfed their child said they had experienced problems with breastfeeding. These mothers were asked what sort of problems they had experienced. Table 3 presents the results as

percentages of mothers who indicated that they experienced problems, and of all mothers who had ever breastfed.

Mothers who experienced problems with breastfeeding had some of the lowest mean durations of breastfeeding. The prevention and successful management of breastfeeding problems is vital to increasing breastfeeding duration. It will also potentially increase the 'ever breastfed' rate as 30% of mothers who formula fed from birth gave 'previous problems with breastfeeding' as one of their reasons for choosing to formula feed.

TABLE 3 PROBLEMS WITH BREASTFEEDING EXPERIENCED BY MOTHERS

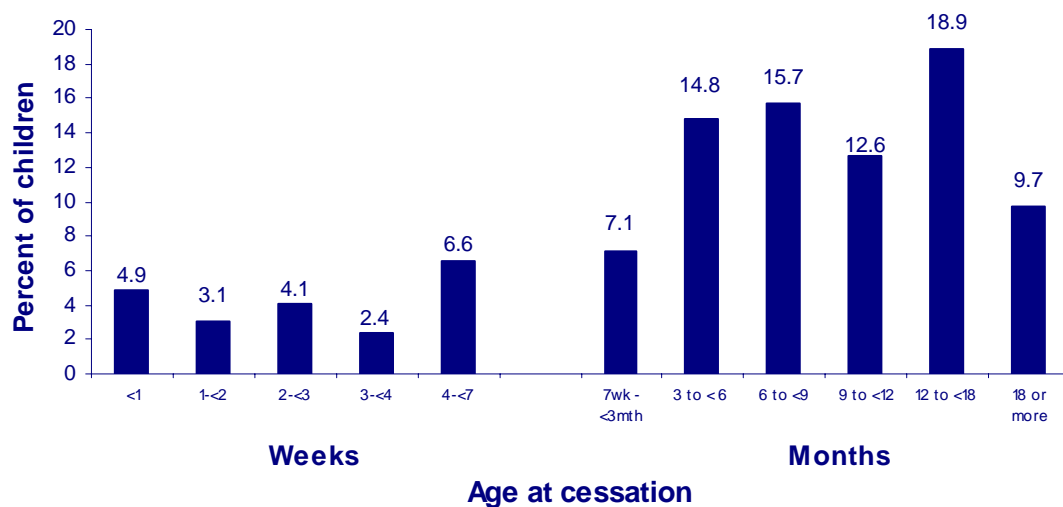
PROBLEM	n	% OF MOTHERS WHO EXPERIENCED PROBLEMS* (n= 515)	% OF ALL MOTHERS IN INS WHO EVER BREASTFED* (n=1100)
Problems with attachment	158	30.7	14.4
Sore/cracked nipples / painful breasts / inverted nipples	144	28.0	13.1
No milk or not enough milk	143	27.7	13.0
Mastitis	113	21.9	10.3
Baby health reason e.g. short tongue/ tongue tie/ premature/ reflux/ lactose intolerance	61	11.9	5.5
Baby poor or fussy feeder/breast refusal	43	8.4	3.9
Mother health reason: caesarean pain/ radiotherapy/ surgery/ stress	21	4.1	1.9
Too much milk / engorged breasts	18	3.4	1.6
Low weight gain baby	15	2.8	1.4
Biting	7	1.3	0.6
Other	43	8.4	3.9

**Multiple responses were permitted*

Breastfeeding Cessation

Mothers of children who had been breastfed but were no longer receiving any breastmilk were asked about the age of their child when breastfeeding ceased. Approximately 43% of the children who had already ceased breastfeeding at the time of the interview were last fed breastmilk before six months of age. Approximately 15% ceased breastfeeding before 1 month of age (Figure 2). The mean age at which breastfeeding ceased was 7.8 months, with a minimum of one day and a maximum of three years.

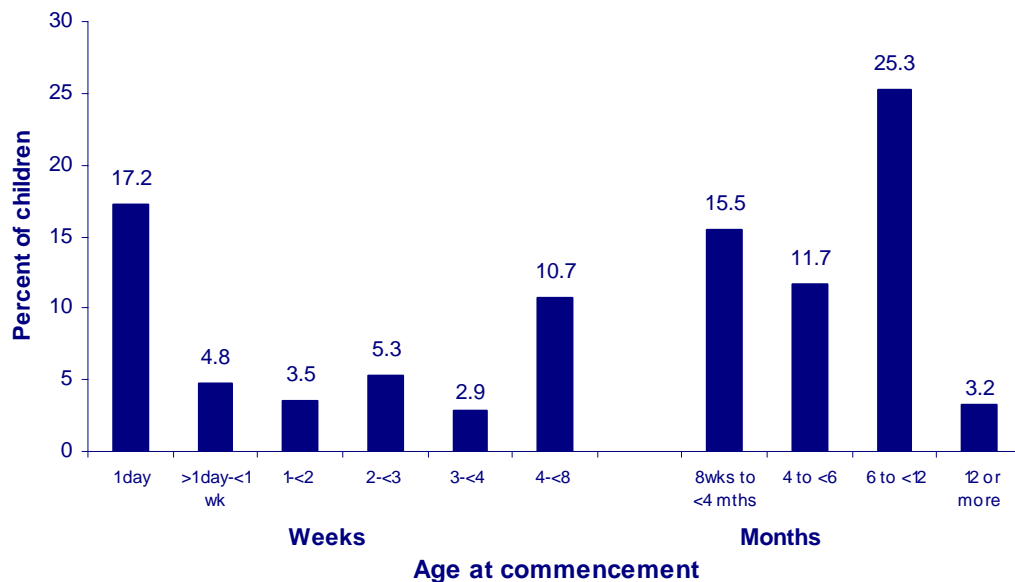
FIGURE 2 PERCENTAGE OF CHILDREN UNDER 5 YEARS OF AGE WHO WERE EVER BREASTFED BY AGE OF CESSATION



INFANT FORMULA

Seventeen percent of regular consumers of infant formula (12% of all children less than five years of age) started regular formula consumption on the first day of life. The proportion of infants regularly receiving infant formula rose steadily during the early days postpartum. Thirty three percent of regular infant formula consumers (23% of all children less than five years of age) had commenced regular formula consumption before four weeks of age (Figure 3).

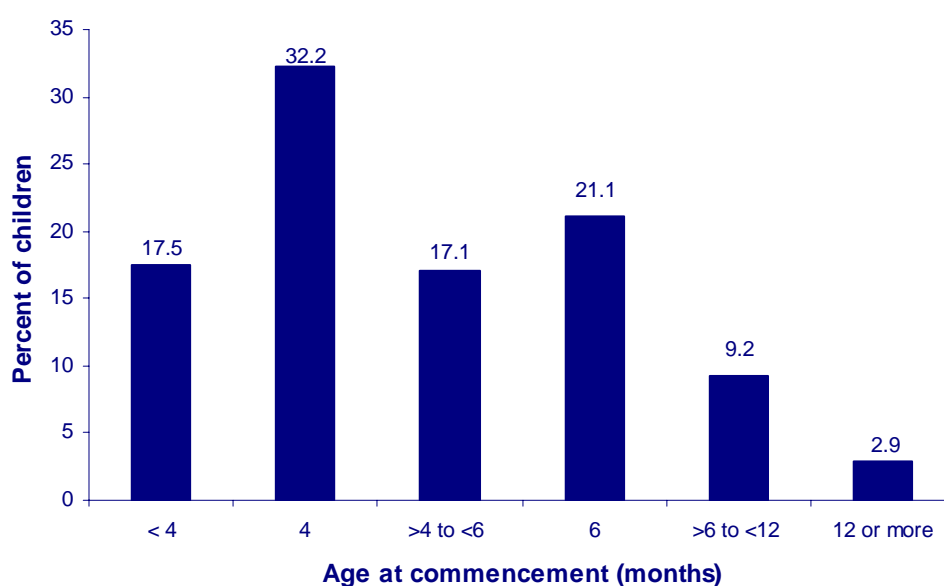
FIGURE 3 PERCENTAGE OF CHILDREN UNDER FIVE YEARS OF AGE WHO EVER REGULARLY CONSUMED INFANT FORMULA, BY AGE AT COMMENCEMENT



INTRODUCTION OF SOLID FOODS

Mothers of children under five years of age in the INS and CHS were asked whether their child had ever consumed solid food regularly i.e. daily or almost daily. Of those children who regularly consumed solid food, 70% commenced regular consumption between four and six months of age (inclusive) in line with the NHMRC recommendation at the time of the survey (Figure 4). However, almost one in five children commenced regular solid food consumption before four months of age. The mean age for starting regular solid food consumption was five months.

FIGURE 4 PERCENTAGE OF CHILDREN UNDER 5 YEARS OF AGE WHO REGULARLY CONSUMED SOLID FOOD BY AGE AT COMMENCEMENT



Infants who commenced regular consumption of infant formula before one month of age were significantly more likely to commence solid foods before four months. Regular consumption of formula before one month of age may be a useful predictor of very early introduction of solid foods.

Mothers who were more likely to introduce solid foods and cows' milk earlier than recommended tended to be younger and less well educated than other mothers. There is a need for education programs regarding the new recommendation for the introduction of solid foods, the health concerns about the very early introduction of solids and the premature introduction of cows' milk. These programs need to target younger, less well educated mothers and their families.

FRUIT AND VEGETABLE CONSUMPTION

The *Australian Guide to Healthy Eating* (AGHE) provides information on the amount and type of food required each day for individuals at least four years of age to obtain sufficient quantities of the nutrients essential for good health and well-being (DHAC 1998). There are currently no recommendations for children less than four years of age. Caregivers of children aged two years and over in the CHS were asked about their child's usual daily consumption of fruit and vegetables (Tables 4 and 5).

TABLE 4 CONSUMPTION OF FRUIT BY CHILDREN AGED TWO TO LESS THAN 13 YEARS BY NUMBER OF SERVES AND AGE (n=1284)

NUMBER OF SERVES OF FRUIT	CHILD'S AGE IN YEARS					
	TOTAL 2-12 %	2 (n=111) %	3 (n=112) %	4-7 (n=466) %	8-11 (n=478) %	12 (n=117) %
Less than 1*	7.5	3.0	4.0	6.2	9.3	12.6
1	33.0	22.8	33.1	33.1	36.1	29.3
2	33.7	30.7	30.0	35.3	34.0	32.9
3	15.8	26.9	22.6	17.0	10.3	16.8
>3	10.0	16.7	10.3	8.3	10.4	8.4

The percentages of children who met or exceeded the recommendations are shown in bold.

** Includes 1.9% no fruit*

TABLE 5 CONSUMPTION OF VEGETABLES BY CHILDREN AGED TWO TO LESS THAN 13 YEARS BY NUMBER OF SERVES AND AGE (n=1284)

NUMBER OR SERVES OF VEGETABLES	CHILD'S AGE IN YEARS					
	TOTAL 2-12 %	2 (n=111) %	3 (n=112) %	4-7 (n=466) %	8-11 (n=478) %	12 (n=117) %
Less than 1*	36.0	41.2	40.9	39.6	31.8	29.8
1	41.7	46.4	44.0	42.4	39.5	41.7
2	16.9	10.6	12.7	13.9	21.6	19.5
3	2.7	1.8	0.8	1.8	3.5	5.6
>3	2.7	0.0	1.7	2.4	3.6	3.5

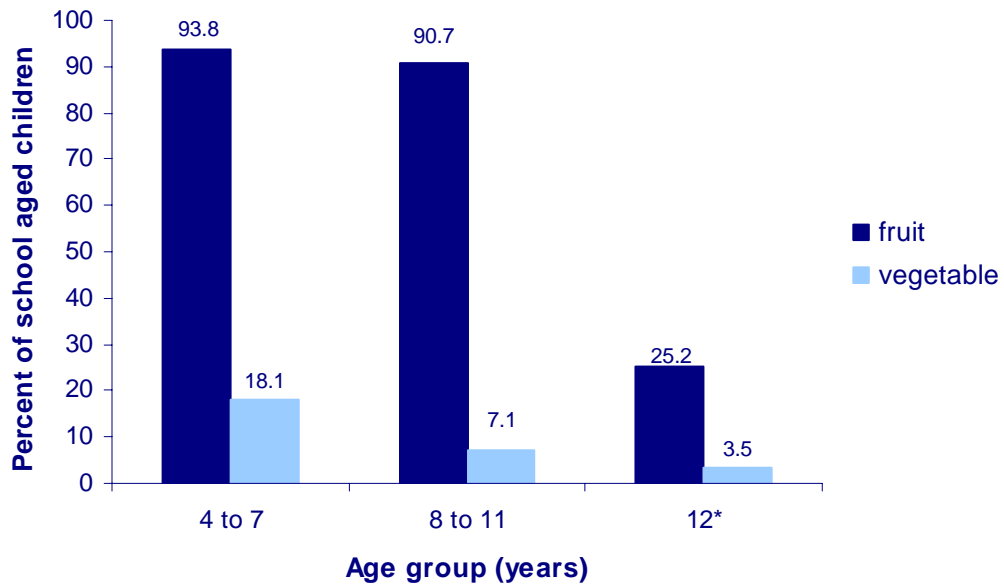
The percentages of children who met or exceeded the recommendations are shown in bold.

** Includes 0.8% no vegetables*

Over 90% of children four to 11 years of age consumed at least the recommended daily serves of fruit. Vegetable consumption was very low by comparison. Fewer than 20% of four to seven year olds and only around 7% of children eight to 11 years consumed the recommended serves of vegetables for their age group

(Figure 5). It was not possible to determine the exact prevalence of 12 year olds who consumed the recommended four serves of vegetables, however, it would have been less than 3.5%.

FIGURE 5 PERCENTAGE OF CHILDREN EATING RECOMMENDED DAILY SERVES OF FRUIT AND VEGETABLES, BY AGE GROUP



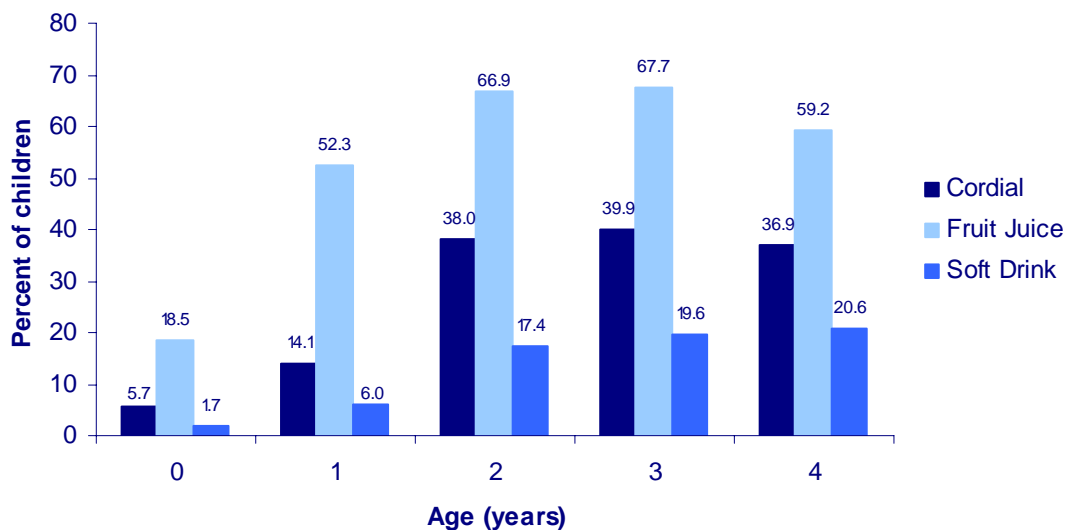
* Reported >3 serves of vegetables

DRINKS AND TAKE-AWAY FOOD CONSUMPTION

The consumption of low or reduced fat milk has not been widely taken up by children five to less than 13 years. Fewer than one in five children in this age group usually consumed low or reduced fat milk, although this is the milk type recommended for this age group. The proportion of children drinking reduced fat milk did increase with age but remained low overall.

Nearly 40% of children aged two, three and four years had consumed cordial in the 24 hours prior to the interview. This was approximately twice the number who had consumed soft drink (Figure 6).

**FIGURE 6 SWEET DRINK CONSUMPTION IN PREVIOUS 24 HOURS
(CHILDREN AGED LESS THAN FIVE YEARS)**



Almost half (45%) of children less than five years of age consumed take-away food at least once per week. A similar number (47%) consumed take-away food less than once per week with 8% rarely or never consuming them. Almost half (44%) of children aged five to less than 13 years consumed take-away food one or more times per week. Only 3% of children in this age group rarely or never consumed take-away food.

CONCLUSIONS AND RECOMMENDATIONS

Describing the dietary patterns of Queensland's infants and children is integral to addressing the increasing incidence of childhood overweight and obesity. Results from these surveys may be used to inform the design of interventions in this area. They also provide an important baseline from which to measure the effectiveness of programs.

There has been a large investment in Australia by the Commonwealth and State Governments and non-government organizations in promoting and supporting breastfeeding. Children under five years of age in this survey had an 'ever breastfed' rate of 91.8% meeting the NHMRC target of in excess of 90% of Australian infants initiating breastfeeding. Clearly the health promotion message 'breast is best' is getting through.

Unfortunately this success at initiation has not been translated into the recommended intensity and duration of breastfeeding. Programs to encourage and support breastfeeding must address these issues. The prevention and successful management of breastfeeding problems is vital to increasing breastfeeding duration. It will also potentially increase the 'ever breastfed' rate as 30% of mothers who formula fed from birth gave 'previous problems with breastfeeding' as one of their reasons for choosing to formula feed.

Education needs to be provided to health staff and the public about the infant feeding recommendations contained in the Dietary Guidelines for Children and Adolescents in Australia (NHMRC 2003), particularly related to the timing of the introduction of solid foods, fruit juice and cows' milk.

With increasing rates of childhood overweight and obesity, effective programs are necessary to increase the consumption of foods in line with the AGHE suggestions and the Dietary Guidelines for Children and Adolescents in Australia (NHMRC 2003). These programs should target children and their caregivers across a range of settings.

As well as information about feeding practices, the surveys collected the standard socio-demographic data and information about some of the factors which may affect feeding practice. For details of statistical analyses undertaken refer to full report *Infant and Child Nutrition in Queensland 2003* available at <http://qheps.health.qld.gov.au> or www.health.qld.gov.au

Data collected were used to calculate the seven breastfeeding indicators proposed by the National Food and Nutrition Monitoring and Surveillance Project (Webb et al. 2001) for the first time in Queensland. The *Infant and Child Nutrition in Queensland 2003* full report provides details of the calculation of the indicators and points to consider in their interpretation.

Program Recommendations:

That Queensland Health and other health agencies:

- Actively support the implementation of the Optimal Infant Nutrition: Evidence-Based Guidelines 2002-2008.
- Continue and enhance the promotion of breastfeeding, with a focus on increasing breastfeeding duration. Programs should target young mothers, mothers with low levels of education, their partners, family and friends, and the community in general. Programs need to include feeding support and advice in the early days and weeks postpartum.
- Continue the promotion and implementation of the principles of the Baby Friendly Hospital Initiative.
- Facilitate and encourage the support of breastfeeding mothers provided by health staff working in the community and by the Australian Breastfeeding Association.
- Develop and continue programs to reduce the decline in breastfeeding observed in the early days and weeks postpartum.
- Undertake further research on the factors associated with increased breastfeeding duration including psychosocial factors, antenatal care and education, hospital practice, domiciliary care and social support to develop effective programs to promote and support increases in the median duration of breastfeeding.
- Actively promote and increase awareness of the current Dietary Guidelines for Children and Adolescents in Australia to the community, especially parents, including:
 - the recommendation for exclusive breastfeeding to six months
 - the recommendation for breastfeeding to continue to at least 12 months
 - the rationale for these recommendations
 - the need for solid foods rich in iron and zinc from six months
 - the recommendations regarding cows' milk
 - the recommendations regarding reduced-fat milk.
- Continue to provide and enhance education on appropriate methods of feeding infant formula and expressed breastmilk to mothers as necessary.
- Encourage regular growth monitoring of infants and children to identify poor growth, provide reassurance in the presence of adequate growth and facilitate the early detection of overweight and obesity.

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- Implement programs in a range of settings to increase children's consumption of a diet in line with the AGHE suggestions and the Dietary Guidelines for Children and Adolescents in Australia.

Methodological Recommendations:

That in Queensland:

- Monitoring of breastfeeding indicators and dietary patterns of infants and children be undertaken at five yearly intervals to assess the effectiveness of activity, and progression towards objectives and targets.
- Health professionals adopt the standardised breastfeeding terms and definitions in Webb et al. (2001).

That all jurisdictions work to:

- Report on the proposed breastfeeding indicators (Webb et al. 2001).
- Undertake validation studies of the 24 hour recall questions used to calculate indicators 4-7.
- Pool CATI survey results to increase the sample of infants aged six months or less and so increase validity of the breastfeeding indicators developed from recall of the previous 24 hours intake.
- Include questions in statewide CATI surveys which will allow reporting of the indicators for the vulnerable subgroups identified in Webb et al. (2001) using the pooled data from all states.
- Ensure the AGHE serve definitions be used in surveys of fruit and vegetable consumption.
- Develop standardised questions for use in surveys describing the dietary patterns of infants and children.

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