



Australian Government

**Australian Institute of
Health and Welfare**

*Authoritative information and statistics
to promote better health and wellbeing*

2010 Australian National Infant Feeding Survey

Indicator results

Australian Institute of Health and Welfare
Canberra

Cat. No. PHE 156

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Suggested citation

Australian Institute of Health and Welfare 2011. 2010 Australian National Infant Feeding Survey: indicator results. Canberra: AIHW.

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Published by the Australian Institute of Health and Welfare

Please note that there is the potential for minor revisions of data in this report. Please check the online version at <www.aihw.gov.au> for any amendments.

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Acknowledgments

The report was prepared by Pramod Adhikari and Mark Cooper-Stanbury from the Australian Institute of Health and Welfare (AIHW). Assistance and support in data verification was provided by David Batts.

Thanks are due to the Technical Advisory Group who advised the project team on technical aspects of the survey in the design stages.

The AIHW would particularly like to acknowledge Erica Nixon, Kathleen Graham, Pippa Robinson, Rosemary Knight (from the Department of Health and Ageing); Luba Dubyk, Steve Gilbert, Rory King, Judy Zang (from Medicare Australia); Sushma Mathur, Ann Hunt (from the AIHW); Greg Smith and Ashwin Prekesh (from UNSW Global).

The project was funded by the Australian Government Department of Health and Ageing. The expert advice on all ethical aspects of the survey was provided by the Institute's Ethics Committee.

Finally, this work was completely dependent on the cooperation of the mothers and carers who gave up their time to take part in the survey. Many thanks to all respondents who shared personal experiences about infant and child feeding practices.

Abbreviations

ABS	Australian Bureau of Statistics
AIHW	Australian Institute of Health and Welfare
ANIFS	Australian National Infant Feeding Survey
BMI	body mass index
CATI	computer-assisted telephone interviewing
DoHA	Australian Government Department of Health and Ageing
EAA	Educational Assessment Australia
LSAC	Longitudinal Study of Australian Children
PAL	primary approach letter
OCR	optical character recognition
ORS	oral rehydration solution
SEIFA	Socio-Economic Indexes for Areas
WHO	World Health Organization

Symbols

–	nil or rounded to zero
n.p.	not publishable because of small numbers, confidentiality or other concerns about the quality of the data

Summary

The 2010 Australian National Infant Feeding Survey, conducted in 2010–11, was the first large-scale, specialised, national survey of infant feeding practices and related attitudes and behaviours conducted in Australia. The main aim of the survey was to provide baseline data on estimates of the prevalence and duration of breastfeeding and other feeding practices adopted by mothers/carers.

Main findings

Initiation, duration and intensity of breastfeeding

- Breastfeeding was initiated for 96% of children aged 0–2 years.
- Around 69% of infants were still receiving some breastmilk at 4 months of age, although only 39% were *exclusively* breastfed to 3 months (less than 4 months), and around 60% were still receiving some breastmilk at 6 months, but only 15% were *exclusively* breastfed to 5 months (less than 6 months).
- A total of 47% of infants were predominantly (fully) breastfed to 3 months (less than 4 months), dropping to 21% predominantly breastfed to 5 months (less than 6 months).

Introduction of non-human milk and other fluids/foods

In the day before the survey:

- About 40% of infants aged 1 month old received non-human milk or infant formula, with the rate rising gradually to 55% at 6 months. Nearly 80% of children aged 12 months received non-human milk or infant formula.
- Less than 1% of infants aged 1 month old had consumed soft/semi-solid/solid food, rising to 35% of infants aged 4 months, 92% of infants aged 6 months and 95% of children aged 12 months.

Characteristics associated with breastfeeding practices

- Higher rates of initiation and higher intensity feeding for longer periods were associated with:
 - mothers/carers aged 35 and over
 - mothers/carers with tertiary education, and higher incomes
 - infants who did not regularly use a dummy.
- These same groups were associated with lower and later rates of introduction of non-human milk and soft/semi-solid/solid foods.

Factors influencing breastfeeding practices

- The reasons most cited for giving the child breastmilk were 'healthier for child' (94%), 'convenient' (64%) and 'helps with mother–infant bonding' (64%).
- The reasons most cited for not breastfeeding were 'previously unsuccessful experience' (38%), 'so my partner can share feeding' (29%) and 'infant formula as good as breastmilk' (26%).

1 Introduction

Breastfeeding helps protect infants against a number of conditions including diarrhoea, respiratory and ear infections, and obesity and chronic diseases in later life. For mothers, it provides many positive health effects, such as reducing the risk of some cancers and osteoporosis, as well as encouraging bonding between mother and child (NHMRC 2003).

Australia's dietary guidelines recommend exclusive breastfeeding of infants until 6 months of age, with the introduction of solid foods at around 6 months and continued breastfeeding until the age of 12 months – and beyond if both mother and child wish (NHMRC 2003).

In 2009 all Australian health ministers endorsed the Australian National Breastfeeding Strategy 2010–2015 (Strategy) (AHMC 2009). The Strategy aims to improve the health, nutrition and wellbeing of infants and young children, and the health and wellbeing of mothers, by protecting, promoting, supporting and monitoring breastfeeding. One of the Strategy's principles is that it is consistently informed by the best available evidence, and that the percentage of babies breastfed is regularly monitored and outcomes evaluated.

Most states and territories monitor breastfeeding rates and duration, but there is a lack of consistency in the data collected and the indicators reported. Several states use computer-assisted telephone interviewing (CATI) to collect data on breastfeeding rates, including Queensland, Victoria, Western Australia and South Australia. South Australia also uses CATI to ask additional questions about community perceptions of breastfeeding and to evaluate social marketing campaigns.

At a national level, breastfeeding data have been collected through the National Health Surveys and the National Aboriginal and Torres Strait Islander Health Surveys. The most recent national data are from the 2004 Longitudinal Study of Australian Children (LSAC).

Data from the 2004 LSAC survey indicated a breastfeeding initiation rate of 92%. However, at 1 week old, less than 80% of infants were fully breastfed, with a steady decline each month of age thereafter. At 3 months of age, 56% of infants were reportedly fully breastfed, reducing to 28% at 5 months and 14% at 6 months (AIFS 2008).

The measurement of breastfeeding is a complex matter. In 2001, as part of a broader food and nutrition monitoring and surveillance project, Webb et al. (2001) proposed a set of breastfeeding indicators for Australia. Considerations included the need to ensure that the indicators were relevant to the Australian policy environment, consistent with World Health Organization indicators (WHO 2008), feasible with a nationally representative sample and suitable for priority groups.

In 2006, 19 headline indicators for priority areas for children's health, development and wellbeing were endorsed by the Australian Health Ministers' Conference, the Community and Disability Services Ministers' Conference and the Australian Education Systems Officials Committee (DHS 2006). The proportion of infants exclusively breastfed at 4 months of age is one of the headline indicators. This indicator is for 4 rather than 6 months because exclusive breastfeeding at 6 months is not a stable indicator as solid foods are often introduced at this time.

The Australian Institute of Health and Welfare (AIHW) has previously reported Children's Headline Indicators for which data are currently available, including a summary of the available national and state/territory breastfeeding data (AIHW 2011a).

Until the 2010 Australian National Infant Feeding Survey (ANIFS), there has been limited national data to effectively monitor infant feeding practices. Further, due to lack of standardised measures and inconsistent use of definitions it was difficult to compare breastfeeding rates across jurisdictions.

In December 2010, the AIHW convened a workshop to gain consensus on a core set of national breastfeeding indicators. Workshop attendees included those who had participated in the 2008 review of breastfeeding indicators (Hector 2008); federal, state and territory government employees working in nutrition, epidemiology/health data and maternal health areas; and academics and researchers in child health.

During the workshop, a set of draft breastfeeding indicators was discussed for their suitability, stability, simplicity and measurability as core national breastfeeding indicators. The following set of indicators was agreed (AIHW 2011b):

- Indicator 1: Proportion of children ever breastfed (for children aged 0–24 months)
- Indicator 2: Proportion of children breastfed at each month of age, 0–24 months
- Indicator 3: Proportion of children exclusively breastfed to each month of age, 0–6 months
- Indicator 4: Proportion of children predominantly breastfed to each month of age, 0–6 months
- Indicator 5: Proportion of children receiving soft/semi-solid/solid food at each month of age, 0–12 months
- Indicator 6: Proportion of children receiving non-human milk or formula at each month of age, 0–12 months.

2010 Australian National Infant Feeding Survey

In this context, the 2010 ANIFS was designed to provide baseline data on estimates of the prevalence and duration of breastfeeding and other feeding practices adopted by mothers/carers, and related attitudes. Barriers to initiating and continuing breastfeeding were also explored in the survey.

The initial methodology for the ANIFS was developed by the Australian Government Department of Health and Ageing in consultation with Medicare Australia and the Australian Bureau of Statistics (ABS). A summary of the relevant literature was completed in October 2008. This summary was used by the ABS to inform the development of the survey questionnaire which was completed in June 2009.

A pilot study to test the survey method and survey instrument was conducted from August 2010 to September 2010. The main survey was conducted between October 2010 and February 2011.

The sampling frame for the survey was the Medicare enrolment database. About 52,000 children aged up to 24 months were randomly selected nationwide. Medicare Australia applied an activity test when identifying children for inclusion in the sample. If there was at least one Medicare service or at least one episode recorded in the Australian Childhood Immunisation Register in the previous 12 months (enrolment was considered an activity), the child was included in the sample.

A primary approach letter (PAL) explaining the purpose of the survey was sent in late October 2010 to the primary card holder on whose Medicare card the selected infant or baby was listed. About a week later, a survey instrument was sent, along with a reply paid envelope. There was also an option of completing the survey online. A week later, a reminder/thankyou letter was sent to all survey participants (except those who notified to opt out of the survey). A fourth and last mail-out reminding any remaining non-responding mothers/carers to complete the survey was sent in the first week of December 2010. More details on the survey methodology, including the weighting and analytical approach, are provided in Appendix A.

The survey achieved a response rate of 56%, considered to be an exceptional result for a mail survey. Two features of the design contributed to an improved response rate:

- for two-fifths of the initial sample (20,000 people), a pen with the inscription 'Department of Health and Ageing' was included in the mail-out containing the survey questionnaire, and this appears to have provided a small boost in the response rate among that subsample
- in preparing for the fourth mail-out, 5,000 of the survey sample – for whom a response had yet to be received – were *excluded* from the fourth mail-out. Among this group the response rate was only 5%, compared with 21% among the subsample who had received the fourth mail-out. That is, the fourth mail-out was influential in obtaining responses towards the end of the survey period.

About this report

Understanding how child's age is used in this report

This report uses two different but related concepts of the child's age for reporting.

Some indicator results are expressed using the current age of the child in completed months, as reported by the mother/carer at the time the survey was completed. For example, Indicator 2 (receiving any breastmilk at x months), Indicator 5 (introducing soft food at x months), and Indicator 6 (receiving non-human milk or formula at x months) are expressed using the child's age in completed months.

By way of illustration (see Figure 1.1), a child aged 6 months (had completed 6 months of life, or was in their seventh month of life) who received solid foods in the past 24 hours is reported as receiving solid foods *at* 6 months. The use of the child's age in such a way has been necessitated by the way the survey collected information on infant feeding time events.

Other indicators that are based on time-to-event techniques are expressed by the term 'to' months. Indicator 3 (exclusively breastfed) and Indicator 4 (predominantly breastfed) require the infant not to have experienced any 'non-human milk' to qualify for exclusive or predominant breastfeeding.

By way of illustration (again, see Figure 1.1), an infant that was introduced to:

- non-human milk at 4 months when they were 4 months old (the event happened when the infant had completed 4 months of life, or were in their fifth month of life) was exclusively breastfed *to* 4 months
- water at 1 month (in their second month of life) was exclusively breastfed *to* 1 month
- water at 0 months (in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

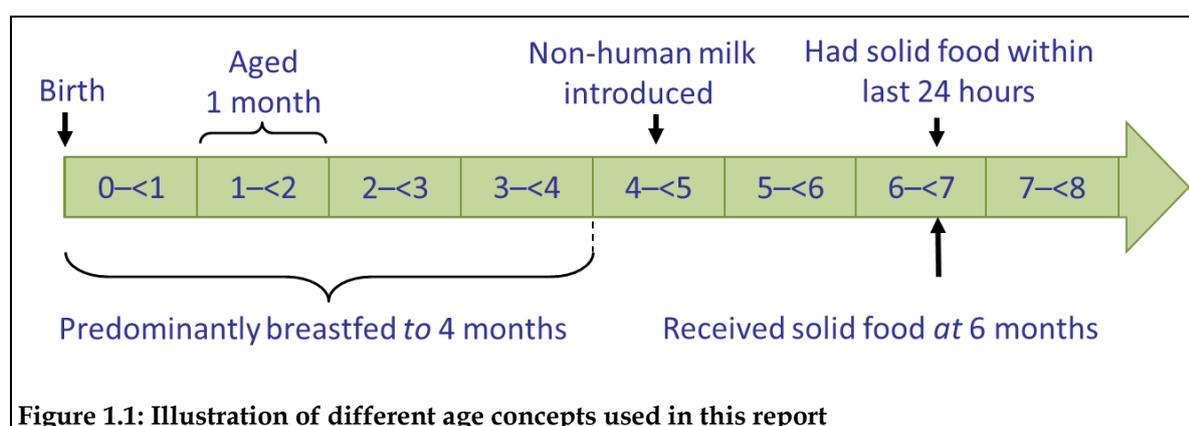


Figure 1.1: Illustration of different age concepts used in this report

Description of selected infant feeding practices

In 2008, the World Health Organization published recommended terms defining breastfeeding practices which are used to guide breastfeeding data collection and reporting (WHO 2008), and these were adopted for the Australian Strategy (see Table 1.1). Of the equivalent terms 'predominant' and 'full', this report uses the term 'predominant'.

Table 1.1: Definitions of selected infant feeding practices

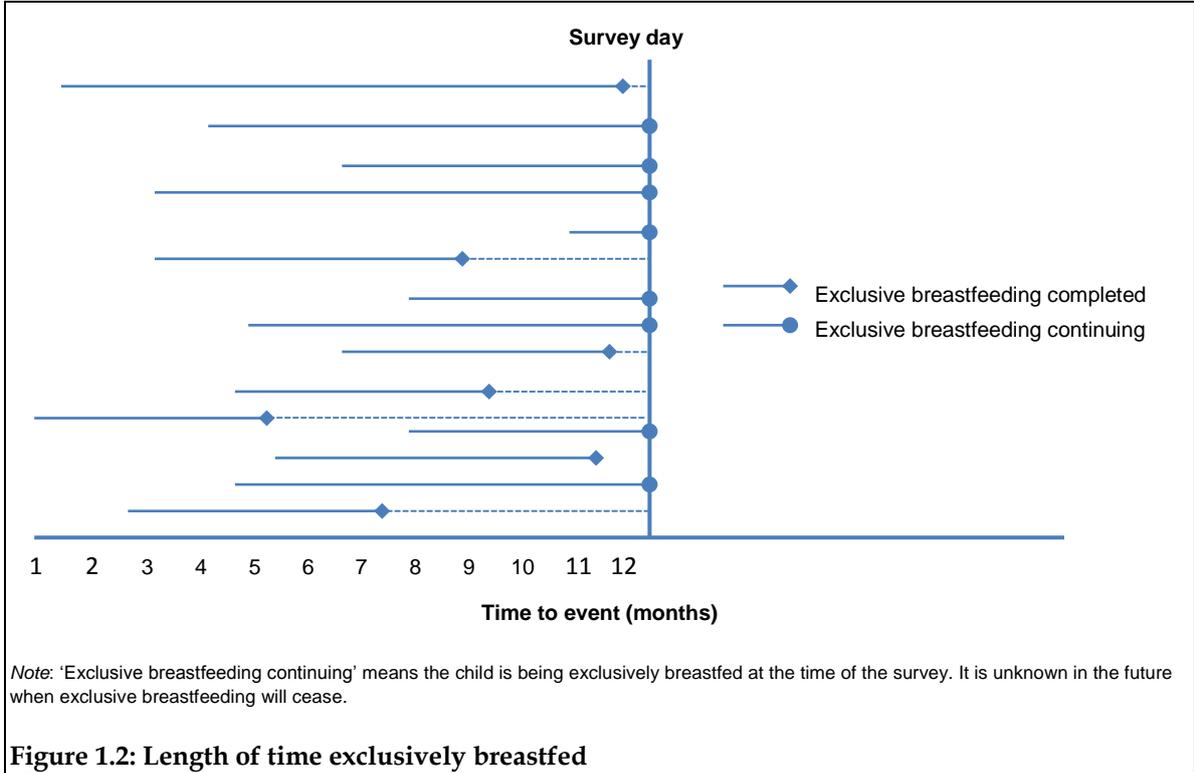
Feeding practice	Requires that the infant receive	Allows the infant to receive	Does not allow the infant to receive
Exclusive breastfeeding	Breastmilk (including expressed milk)	Oral rehydration solutions, drops, syrups (vitamins, minerals, medicines)	Anything else
Predominant or 'full' breastfeeding	Breastmilk (including expressed milk) as the predominant source of nourishment	Certain liquids (water and water-based drinks, fruit juice), ritual fluids and oral rehydration salts, drops or syrups (vitamins, minerals, medicines)	Anything else (in particular, non-human milk, food-based fluids)
Complementary feeding or 'partial' breastfeeding	Breastmilk (including expressed milk)	Anything else: any food or liquid including non-human milk and formula	Not applicable
Any breastfeeding	Any of the above definitions		
Ever breastfed	The infant has been breastfed or received expressed breastmilk or colostrum at least once		

Source: AHMC 2009.

Time-to-event analysis

Cases are ‘censored’ when a child is still being exclusively breastfed at the time of the survey and it would not be known when they will stop being exclusively breastfed in the future. Events which are yet to happen pose analytical complexities. In Figure 1.2, data on 15 hypothetical children aged up to 12 months are shown. On the horizontal axis, the time-to-event (in months) is shown. The observations on infants’ feeding status are made at the survey date when the mother/carer completed the survey form. Each observation is represented with a horizontal line with a round or square mark suggesting whether the event has been completed (square) or was continuing (round).

Different measures are applied to the various indicators. For example, Indicator 2 measures current breastfeeding status and so only the cases for which ‘breastfeeding continuing’ (that is, the line with a round mark) are counted. In contrast, for Indicator 3, which measures the duration of exclusive breastfeeding, both the ‘breastfeeding completed’ (that is, round mark) and the ‘breastfeeding continuing’ (square mark) are counted. Similarly, both measures are used for Indicator 4, which measures predominant breastfeeding. Further information about time-to-event analysis is at Appendix A.



Structure of the report

This report is based only on data collected from the 2010 ANIFS, with the headline results framed around the agreed core national indicators (AIHW 2011b). The report provides national baseline data on infant feeding practices. While the infant/child is the unit of analysis in this report, in some instances results have been presented as proportions of mothers/carers with particular characteristics or attitudes. All estimates are weighted to the total child population in Australia aged 0–24 months as at September 2010.

The context and introduction to the survey are described in this chapter . The next chapter contains an overview of the results for each of the core indicators.

Chapter 3 provides further breakdowns for each indicator where the sample is sufficient to support further analysis. These breakdowns include selected sociodemographic characteristics of the mother/carer, area-based characteristics and other characteristics.

Chapter 4 presents results on the attitudes and barriers to breastfeeding, and identifies factors that may predict breastfeeding practices in Australia.

This report only provides results for breastfeeding indicators and factors influencing infant feeding practices. The results on perinatal depression are not included in this report; these were separately provided to the Department of Health and Ageing.

Appendix A contains detailed descriptions of the survey methodology and related matters, including how the detailed indicator results were derived from the survey questions.

A glossary of relevant terms is also provided.

Additional tables are available from the AIHW web page at <www.aihw.gov.au>, including confidence intervals for key results. The survey form is also available at this web page.

2 Overview of indicator results

The results presented here are framed by the core national breastfeeding indicators agreed at the consensus workshop in December 2010 (AIHW 2011b). Prevalence figures for exclusive and predominant breastfeeding are given using the term 'to' x months rather than using the more traditional concept of at x months.

Indicator 1: Proportion of children ever breastfed

Breastfeeding was **initiated for a total of 95.9% of children aged 0–2 years**. These results varied by sociodemographic characteristics of the mother/carer, with clear gradients seen by mother's/carer's age, level of education and income (see Tables 3.1 to 3.3).

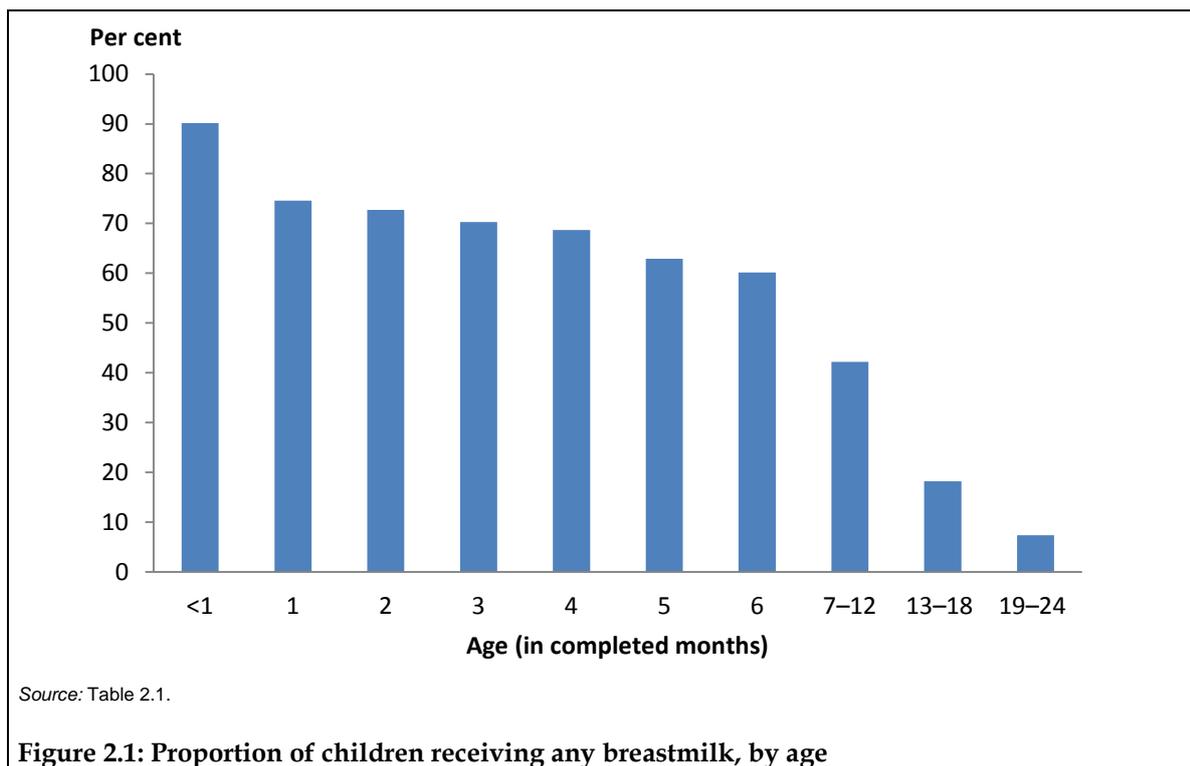
Indicator 2: Proportion of children receiving any breastmilk at each month of age, 0–24 months

The **proportion of children receiving any breastmilk at 4 months of age was 68.7%**, and **at 6 months of age it was 60.1%** (Table 2.1 and Figure 2.1). In the age group 19–24 months, 7.4% of children were still receiving some breastmilk.

Table 2.1: Proportion of children receiving any breastmilk, by age

Age (completed months)	Per cent
0 ^(a) (less than 1 month)	90.2
1	74.6
2	72.7
3	70.3
4	68.7
5	62.9
6	60.1
7–12	42.2
13–18	18.2
19–24	7.4

(a) An age of 0 completed months indicates an infant aged from birth to less than 1 month. There were only 33 respondents aged 0 months at the time of survey completion. This was an artefact of the delay between when the sample was drawn and when the survey was completed (for some respondents, this was more than 3 months).



The data in Table 2.1 and Figure 2.1 show prevalence results for ‘any breastfeeding’ by child’s age/age group. This is based on the breastfeeding status of the child at the time of the survey; that is, an *actual* cohort as opposed to a *synthetic* cohort used for indicators 3 and 4 (see *Analytical approach* section in Appendix A for further detail).

Indicator 3: Proportion of children exclusively breastfed to each month of age, 0–6 months

A total of **90.4% of infants initiated exclusive breastfeeding** (that is, their first feed was breastmilk or equivalent) (see Table 3.7). Among all infants, **61.4% were exclusively breastfed for less than 1 month** – that is, 38.6% were introduced to some other fluid in their first month (were between birth and less than 1 month). An estimated **39.2% of all infants were exclusively breastfed to 3 months** (less than 4 months) **and 15.4% were exclusively breastfed to 5 months** (less than 6 months) (Table 2.2 and Figure 2.2).

Table 2.2: Proportion of children exclusively breastfed to each month of age

To month ^(a)	Equivalent duration	Per cent
0	Less than 1 month	61.4
1	Less than 2 months	55.8
2	Less than 3 months	48.0
3	Less than 4 months	39.2
4	Less than 5 months	27.0
5	Less than 6 months	15.4
6	Less than 7 months	2.1

(a) 'To' indicates an infant's age the month before a fluid other than breastmilk was introduced. This is effectively the month *before* another fluid was introduced. For example, a child who was introduced to water when they were aged 4 months (in their fifth month of life) was exclusively breastfed *to* 4 months of age (that is, they had 4 completed months of exclusive breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at 0 months (in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

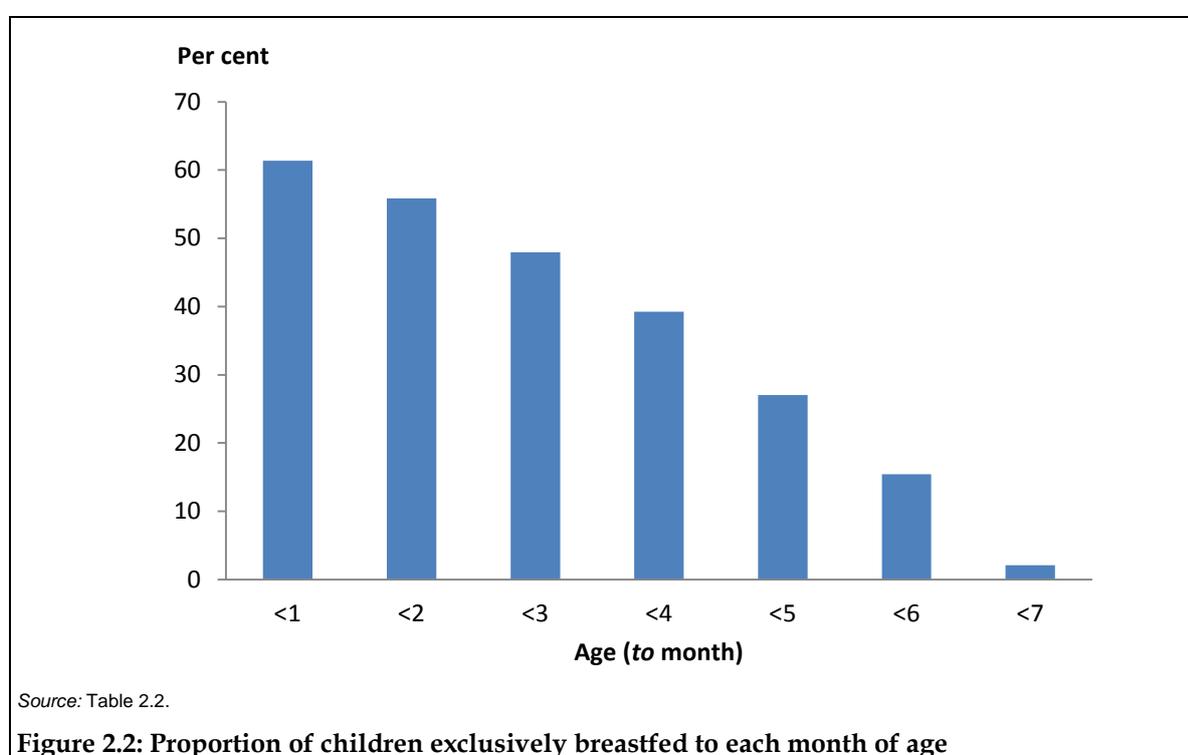


Figure 2.2: Proportion of children exclusively breastfed to each month of age

A child is no longer exclusively breastfed as soon as another feeding event occurs, including if the first feed was not breastmilk (or an equivalent). Once such an event has occurred the child can never regain 'exclusive' status. The 'to each month of age' is reported using a time-to-event analysis technique (see *Analytical approach* section in Appendix A for further detail).

Indicator 4: Proportion of children predominantly breastfed to each month of age, 0–6 months

A total of **90.4%** of infants initiated predominant breastfeeding (see Table 3.10). Among all infants, **64.7%** were predominantly breastfed for less than 1 month – that is, 35.3% either did not predominantly breastfeed or were introduced to some other fluid other than water or juice in their first month (aged 0 months) (Table 2.3 and Figure 2.3).

An estimated **47.1%** of all infants were predominantly breastfed to 3 months (less than 4 months) and **20.9%** were predominantly breastfed to 5 months (less than 6 months).

Table 2.3: Proportion of children predominantly breastfed to each month of age

To month ^(a)	Equivalent duration	Per cent
0	Less than 1 month	64.7
1	Less than 2 months	60.3
2	Less than 3 months	53.8
3	Less than 4 months	47.1
4	Less than 5 months	34.6
5	Less than 6 months	20.9
6	Less than 7 months	3.9

(a) This indicates an infant's age the month *before* the event occurred. For example, a child who was introduced to cow's milk when they were aged 4 months (in their fifth month of life) was predominantly breastfed to 4 months of age (that is, they had 4 completed months of predominant breastfeeding).

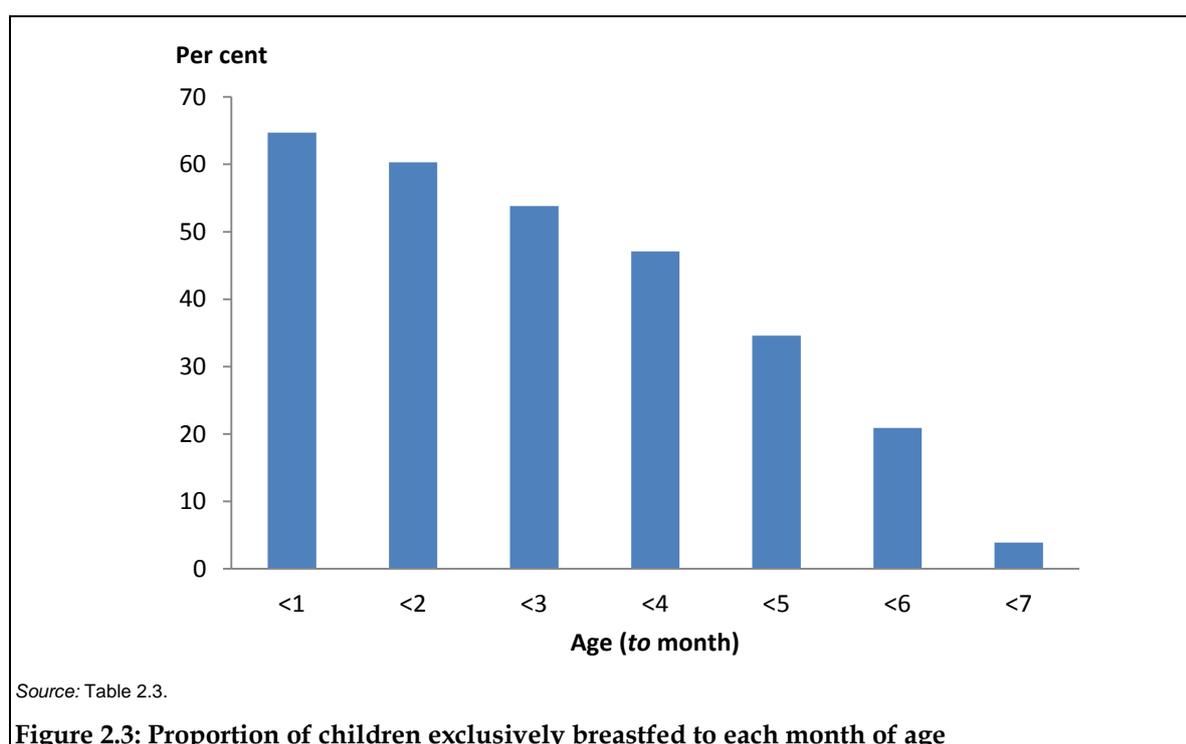


Figure 2.3: Proportion of children exclusively breastfed to each month of age

A child is no longer predominantly breastfed as soon as other food is introduced, including if the first feed was not breastmilk or an equivalent. Once such an event has occurred, the child can never regain 'predominant' status. Results 'to each month of age' are reported based on time-to-event analysis.

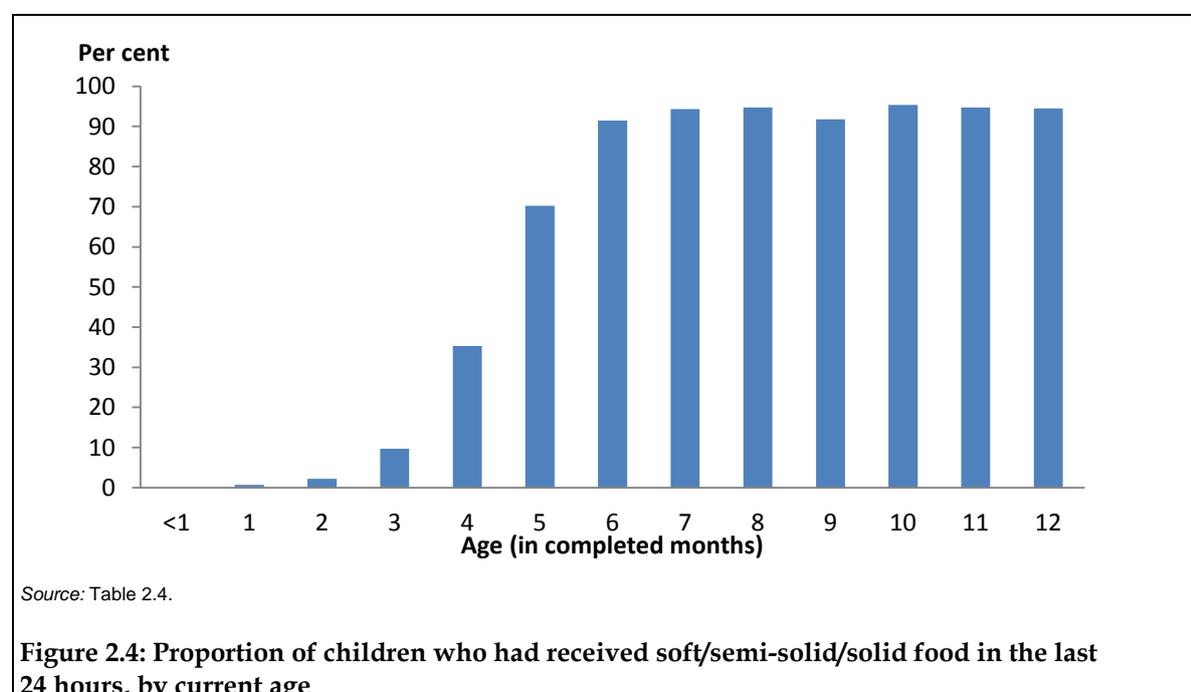
Indicator 5: Proportion of children receiving soft/semi-solid/solid food at each month of age, 0–12 months

Based on only 30 respondents in the 0 months age group, none had received any soft/semi-solid/solid food in the last 24 hours (Table 2.4 and Figure 2.4). **For those aged 4 months, 35.3% had received soft/semi-solid/solid food in the last 24 hours, and for those aged 6 months the proportion was 91.5%.** This was only marginally higher for each month of age between 7 and 12 months.

Table 2.4: Proportion of children who had received soft/semi-solid/solid food in the last 24 hours, by current age

Age (completed months)	Per cent
0 (less than 1 month)	0.0
1	0.7
2	2.2
3	9.7
4	35.3
5	70.2
6	91.5
7	94.3
8	94.7
9	91.8
10	95.4
11	94.7
12	94.5

Note: The proportion for infants aged 0 months is based on 30 responses only.



For this indicator, the definition requires a child to have received soft/semi-solid/solid food *within the last 24 hours*, hence this indicator is reported using ‘current’ status, like Indicator 2. In the detailed results in Chapter 3, we present time-to-event results for this indicator, which requires the ‘last 24 hours’ constraint to be excluded.

Indicator 6: Proportion of children receiving non-human milk or formula at each month of age, 0–12 months

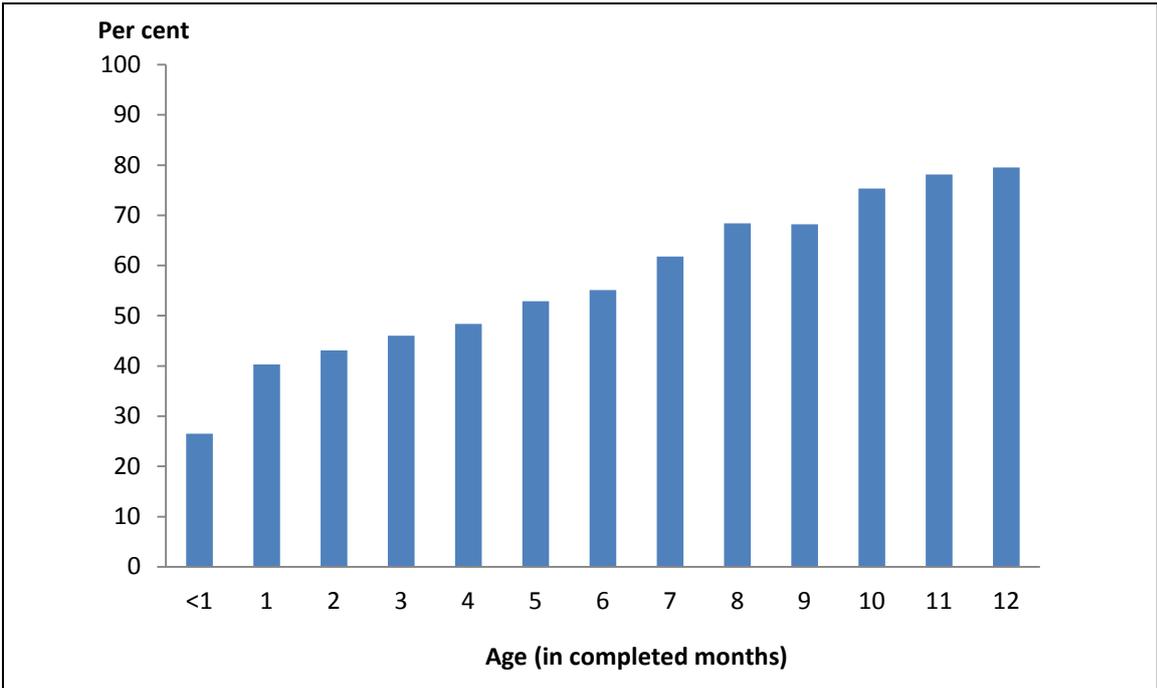
Based on only 30 responses for infants in the less than 1 month age group, 26.5% had received formula or non-human milk in the last 24 hours (Table 2.5 and Figure 2.5). **For those aged 4 months, 48.4% had received formula or non-human milk** in the last 24 hours, and **for those aged 6 months the proportion was 55.1%**. This was only marginally higher for each month of age between 7 and 12 months.

Like Indicator 5, the definition for this indicator requires a child to have received non-human milk or formula within the last 24 hours, hence this indicator is reported using ‘current’ status – the feeding status of the infant at the time of survey completion. Again, time-to-event results for this indicator are presented in the next chapter, where the constraint of using the ‘last 24 hours’ is not applied.

Table 2.5: Proportion of children who had received formula or non-human milk in the last 24 hours, by current age

Age (completed months)	Per cent
0 (less than 1 month)	26.5
1	40.3
2	43.1
3	46.0
4	48.4
5	52.9
6	55.1
7	61.8
8	68.4
9	68.2
10	75.3
11	78.1
12	79.5

Note: The proportion for infants aged 0 months is based on 30 responses only.



Source: Table 2.5.

Figure 2.5: Proportion of children who had received formula or non-human milk in the last 24 hours, by current age

3 Detailed indicator results

Introduction

This chapter presents results using a standard set of tables for each indicator. These cover mother's/carer's sociodemographic characteristics, area-level characteristics, and other characteristics. A few highlights from each table are drawn out in the commentary. All the estimates are statistically reliable unless otherwise stated. Supplementary tables on this report's web page at <www.aihw.gov.au> provide confidence intervals for each result.

Indicator 1: Proportion of children ever breastfed

The survey showed that the breastfeeding initiation rate for all children aged 24 months and under, was 96%. Other highlights include:

From Table 3.1:

- The lowest breastfeeding initiation rate was reported by mothers/carers who were daily smokers (88%).
- A similar low rate for breastfeeding initiation was reported by mothers/carers whose level of education was Year 11 or lower (88%).
- Children in households whose income fell within the highest category had a very high breastfeeding initiation rate (98%).
- There were no significant differences in breastfeeding initiation rates by mother's/carer's country of birth or main language spoken at home.

From Table 3.2:

- There was little variation for those who were reported to have ever been breastfed across socioeconomic areas based on Socio-Economic Indexes for Areas (SEIFA), ranging from 94% in the most disadvantaged fifth to 98% in the least disadvantaged fifth.
- Rates were similar across the six Australian states, but significantly higher in the two territories.
- There was no clear pattern in ever breastfed rates by geographical remoteness.

From Table 3.3:

- Ever breastfed rates were significantly higher where the body mass index (BMI) of the mother/carer fell within the normal range compared with those whose BMI was within the obese range.
- Rates were significantly higher among mothers/carers who took leave for the birth or care of the child (97%) compared with those who did not take leave (95%).
- Rates were lower among mothers/carers who were not working (94%) compared with those who were working (97%).

Table 3.1: Proportion of children ever breastfed, by mother's/carer's sociodemographic characteristics

Sociodemographic characteristic	Per cent
All	95.9
Mother's/carer's age (years)	
24 or younger	93.6
25–29	95.4
30–34	96.6
35 or older	96.0
Parity	
Primiparous	97.5
Multiparous	95.0
Education	
Bachelor degree or higher	98.4
Diploma/certificate	95.7
Year 12 or equivalent	93.9
Year 11 or below ^(a)	88.4
Smoking status	
Daily	88.2
Occasionally	94.5
Not at all	96.7
Gross household income (per year)	
\$156,000 or more	98.3
\$88,400–\$155,999	97.5
\$52,000–\$88,399	95.9
\$26,000–\$51,999	94.7
\$25,999 or below	92.7
Mother's/carer's Indigenous status	
Indigenous	94.9
Non-Indigenous	96.0
Mother's/carer's country of birth	
Australia	95.8
Overseas	96.4
Main language spoken at home	
English	95.9
Other	96.4

(a) Includes 'Did not go to school'.

Table 3.2: Proportion of children ever breastfed, by area-level characteristics

Area-level characteristic	Per cent
All	95.9
Socioeconomic status (SEIFA quintile)	
1st quintile (most disadvantaged)	93.9
2nd quintile	95.5
3rd quintile	94.9
4th quintile	96.1
5th quintile (least disadvantaged)	97.8
State/territory	
New South Wales	95.9
Victoria	96.1
Queensland	96.1
Western Australia	95.3
South Australia	94.3
Tasmania	96.1
Australian Capital Territory	99.6
Northern Territory	99.5
Remoteness	
Major cities	96.2
Inner regional	94.4
Outer regional	97.0
Remote/Very remote	97.8

Table 3.3: Proportion of children ever breastfed, by select characteristics of mother/carer and child

Characteristic	Per cent
All	95.9
Body mass index (BMI) at the start of the pregnancy	
Underweight	94.9
Normal	97.2
Overweight	95.7
Obese	93.6
Current BMI	
Underweight	95.0
Normal	97.1
Overweight	96.1
Obese	94.0
Regular use of dummy	
No	97.4
Yes	94.5
Age started regular dummy use	
Before 1 month	92.9
Before 2 months	97.8
Before 3 months	96.5
Before 4 months	97.7
At 5 months or after	97.2
Child delivery method	
Vaginal	96.5
Elective or planned caesarean	93.9
Emergency caesarean	96.2
Whether mother/carer took leave for the birth or care of the child	
Yes	97.2
No	94.6
Currently working ^(a)	
Yes	96.5
No	93.5

(a) Among those who worked for any period of time since the birth of the child.

Indicator 2: Proportion of children breastfed at each month of age

The survey asked all respondents whose child had ever been breastfed to report whether the child was currently receiving breastmilk (including expressed breastmilk or breastmilk from a donor). The results presented here are by the month of age of the child at the time the survey was completed. As the sample size was considerably reduced for children aged 7–24 months, these ages have been grouped into 6-month bands.

The results show that 90% of infants who were in their first month of life were receiving breastmilk (Table 3.4). For those in their second month (aged 1 month) the rate dropped to 75%, and then decreased gradually to 69% among infants aged 4 months and to 60% among infants aged 6 months. The survey also showed that 7% of children aged 19–24 months were still receiving some breastmilk. Other highlights include:

From Table 3.4:

- Age of the mother/carer was strongly associated with current breastfeeding, with higher rates found among older mothers/carers compared with younger ones across all child ages.
- The lowest rates were observed among the youngest mothers (aged 24 years or younger) across all child ages.
- A similar (but opposite) gradient of current breastfeeding was observed for education levels of mothers/carers, with higher proportions of children of higher-educated mothers/carers receiving any breastmilk compared with less-educated mothers/carers; however, this difference had dissipated for older children.
- Children of mothers/carers who were daily smokers had much lower rates of any breastfeeding: for example, infants at age 6 months showed almost a threefold difference in the rate of any breastfeeding (63% among infants of non-smokers and 23% among infants of daily smokers).

From Table 3.5:

- For infants aged up to [but less than] 6 months, there was a general gradient of increased breastfeeding rates with increasing socioeconomic status; for children aged 19–24 months this pattern reversed.
- Across all age groups, breastfeeding rates were consistently higher in the Australian Capital Territory, although the Northern Territory had the highest rate of any breastfeeding for infants aged 1 and 4 months.
- There was no clear pattern of current breastfeeding across geographical regions.

From Table 3.6:

- Breastfeeding rates were significantly lower among mothers/carers who were obese compared with those whose weights fell within the normal BMI range.
- The regular use of a dummy was associated with lower breastfeeding rates. For example, among infants aged 4 months who did not regularly use a dummy the breastfeeding rate was 81%, compared with 58% among those who did use a dummy.

Table 3.4: Proportion of children currently breastfed, by current age of child, mother's/carer's sociodemographic characteristics (per cent)

Sociodemographic characteristic	Child's age at survey (in completed months) ^(a)									
	0 ^(b)	1	2	3	4	5	6	7–12	13–18	19–24
All	90.2	74.6	72.7	70.3	68.7	62.9	60.1	42.2	18.2	7.4
Mother's/carer's age (years)										
24 or younger	n.p.	61.9	53.0	47.0	53.1	35.6	39.1	19.2	4.8	2.6
25–29	n.p.	73.6	70.2	66.2	65.9	60.9	56.7	41.2	15.1	6.2
30–34	n.p.	79.1	77.9	76.1	71.8	67.2	63.5	44.2	17.5	5.5
35 or older	n.p.	76.7	76.3	73.7	72.5	67.1	64.1	44.8	22.4	10.0
Parity										
Primiparous	n.p.	73.7	71.0	68.4	67.7	60.9	57.1	41.8	15.8	7.0
Multiparous	n.p.	75.5	74.2	72.3	69.8	65.0	62.8	43.1	20.2	7.3
Education										
Bachelor degree or higher	n.p.	84.5	84.8	80.4	79.7	74.6	73.1	52.6	22.1	8.6
Diploma/certificate	n.p.	69.0	66.3	63.8	62.2	53.5	51.7	35.5	15.0	5.5
Year 12 or equivalent	n.p.	75.4	66.0	65.9	57.2	56.2	52.0	37.0	11.4	5.9
Year 11 or below ^(c)	n.p.	60.0	60.2	51.9	55.7	46.9	40.3	26.3	21.4	12.9
Smoking status										
Daily	n.p.	55.3	43.3	38.1	37.9	27.6	23.3	20.3	9.7	4.7
Occasionally	n.p.	75.5	58.1	50.7	55.9	51.2	48.2	23.7	n.p.	n.p.
Not at all	n.p.	76.4	75.6	73.1	71.4	65.7	63.3	44.9	19.6	7.4
Gross household income (per year)										
\$156,000 or more	n.p.	85.2	84.5	78.6	76.6	70.8	73.6	42.0	16.8	7.1
\$88,400–\$155,999	n.p.	77.6	78.5	73.7	75.2	68.9	64.3	42.8	16.7	5.1
\$52,000–\$88,399	n.p.	76.8	72.5	70.9	66.1	60.3	60.9	43.3	18.5	7.7
\$26,000–\$51,999	n.p.	69.9	64.7	66.1	63.9	57.4	49.9	43.3	19.5	11.3
\$25,999 or below	n.p.	64.5	62.8	57.5	52.4	54.0	49.5	36.6	20.5	7.9
Mother's/carer's Indigenous status										
Indigenous	n.p.	69.2	61.4	67.3	59.2	57.3	45.4	n.p.	n.p.	n.p.
Non-Indigenous	n.p.	74.7	72.9	70.3	68.8	62.9	60.3	n.p.	n.p.	n.p.
Mother's/carer's country of birth										
Australia	n.p.	73.1	70.6	68.4	66.8	60.7	58.4	41.4	17.3	6.3
Overseas	n.p.	78.8	78.7	75.1	74.0	68.7	65.4	44.4	20.8	10.6
Main language spoken at home										
English	n.p.	73.3	71.8	69.4	68.0	62.0	60.0	41.2	17.8	6.5
Other	n.p.	83.7	79.8	76.9	74.7	71.0	60.6	50.5	23.1	15.4

(a) 272 cases were aged more than 24 months when the survey was completed, and were subsequently excluded from the analysis.

(b) By the time the survey was received, there were only 33 cases that were aged 0 months (less than 1 month).

(c) Includes 'Did not go to school'.

Table 3.5: Proportion of children currently breastfed, by current age of child, area-level characteristics (per cent)

Area-level characteristic	Child's age at survey (in completed months) ^(a)									
	0 ^(b)	1	2	3	4	5	6	7–12	13–18	19–24
All	90.2	74.6	72.7	70.3	68.7	62.9	60.1	42.2	18.2	7.4
Socioeconomic status (SEIFA quintile)										
1st quintile (most disadvantaged)	n.p.	68.8	64.1	65.6	65.5	55.5	52.4	42.0	19.2	12.6
2nd quintile	n.p.	72.7	67.5	66.2	66.0	57.1	55.8	41.2	16.5	8.8
3rd quintile	n.p.	69.4	71.2	67.7	65.8	61.3	56.7	41.6	19.4	8.2
4th quintile	n.p.	77.6	74.3	70.0	66.3	64.2	60.1	41.0	14.9	4.7
5th quintile (least disadvantaged)	n.p.	81.7	81.2	77.1	76.1	69.1	68.7	44.7	20.7	6.0
State/territory										
New South Wales	n.p.	74.7	73.6	71.2	69.7	60.2	57.5	41.9	16.6	6.8
Victoria	n.p.	76.4	72.2	70.7	66.0	67.6	61.4	42.8	21.3	6.1
Queensland	n.p.	74.7	70.6	70.1	67.4	63.3	62.2	39.8	18.9	6.5
Western Australia	n.p.	72.8	74.0	66.8	69.4	59.0	58.3	43.7	17.0	11.0
South Australia	n.p.	65.3	74.6	72.4	68.7	59.5	58.8	44.8	13.7	6.5
Tasmania	n.p.	77.1	70.8	58.4	74.0	70.4	61.8	45.5	17.4	n.p.
Australian Capital Territory	n.p.	82.6	80.9	74.5	80.9	71.7	76.1	60.1	24.4	16.5
Northern Territory	n.p.	86.2	72.2	72.8	85.1	66.0	60.1	26.9	14.9	n.p.
Remoteness										
Major cities	n.p.	76.1	74.2	71.2	68.9	64.0	60.6	41.2	18.4	7.1
Inner regional	n.p.	69.4	70.1	68.0	67.7	57.5	56.6	43.3	18.0	8.9
Outer regional	n.p.	72.6	68.6	66.3	67.5	65.7	61.9	46.5	19.5	5.3
Remote/Very remote	n.p.	80.2	63.4	74.7	75.9	58.7	63.0	59.4	4.6	15.8

(a) 272 cases were aged more than 24 months when the survey was completed, and were subsequently excluded from the analysis.

(b) By the time the survey was received, there were only 33 cases that were aged 0 months (less than 1 month).

Table 3.6: Proportion of children currently breastfed, by current age of child, select characteristics of mother/carer and child (per cent)

Characteristic	Child's age at survey (in completed months) ^(a)									
	0 ^(b)	1	2	3	4	5	6	7–12	13–18	19–24
All	90.2	74.6	72.7	70.3	68.7	62.9	60.1	42.2	18.2	7.4
Body mass index (BMI) at the start of the pregnancy										
Underweight	n.p.	70.0	80.8	71.7	73.1	65.3	71.6	41.6	24.0	n.p.
Normal	n.p.	79.8	78.3	75.8	74.7	66.4	64.6	46.9	18.2	7.6
Overweight	n.p.	73.0	71.3	67.0	63.6	61.4	59.8	37.7	19.6	6.5
Obese	n.p.	61.9	59.7	58.4	55.7	53.6	45.9	31.9	13.6	7.2
Current BMI										
Underweight	n.p.	52.0	72.4	78.5	72.6	67.1	76.2	50.9	27.5	9.8
Normal	n.p.	80.4	80.6	75.8	76.2	69.5	66.7	46.9	19.1	8.5
Overweight	n.p.	77.9	71.4	71.6	66.5	60.3	57.4	41.1	19.1	5.4
Obese	n.p.	61.0	61.0	57.3	54.7	51.8	46.9	29.6	14.0	5.3
Regular use of dummy										
No	n.p.	83.8	84.9	82.5	81.0	77.8	74.4	55.9	26.2	11.2
Yes	n.p.	66.1	62.3	59.0	57.6	48.8	46.5	28.5	9.1	3.3
Age started regular dummy use										
Before 1 month	n.p.	64.9	59.0	55.7	54.3	44.2	43.0	25.9	7.6	3.2
Before 2 months	n.p.	—	72.2	67.5	60.4	57.5	55.1	35.2	7.6	n.p.
Before 3 months	n.p.	—	—	64.1	62.1	53.1	51.8	30.8	12.4	n.p.
Before 4 months	n.p.	—	—	—	72.1	57.1	52.3	36.0	13.8	n.p.
At 5 months or after	n.p.	—	—	—	—	63.3	47.6	29.5	10.9	n.p.
Child delivery method										
Vaginal	n.p.	76.4	73.6	71.9	70.6	65.2	63.4	45.0	19.8	7.0
Elective or planned caesarean	n.p.	68.8	71.2	70.1	66.9	59.8	52.5	36.0	14.6	8.6
Emergency caesarean	n.p.	73.7	70.5	63.5	62.5	57.3	53.4	37.3	16.1	7.8
Whether mother/carer took leave for the birth or care of the child										
Yes	n.p.	76.4	73.4	72.2	70.6	64.8	60.2	43.7	14.6	6.2
No	n.p.	72.8	71.8	68.0	66.6	60.8	60.0	41.0	22.1	8.9
Currently working ^(c)										
Yes	n.p.	68.9	68.5	63.9	63.3	56.0	51.7	33.6	15.7	5.8
No	n.p.	69.3	66.7	64.7	60.4	53.2	52.1	46.0	15.7	5.5

(a) 272 cases were aged more than 24 months when the survey was completed, and were subsequently excluded from the analysis.

(b) By the time the survey was received, there were only 33 cases that were aged 0 months (less than 1 month).

(c) Among those who worked for any period of time since the birth of the child.

Indicator 3: Proportion of children exclusively breastfed to each month of age

As described earlier, the results for this indicator are derived using a survival analysis technique (see Appendix A for details).

The survey showed that of all children aged 0–24 months, 90% initiated exclusive breastfeeding (Table 3.7). However, before they completed their first month of life, one-third of these children had been introduced to something other than breastmilk (for example, water, juice or infant formula). Overall, just 15% of infants were exclusively breastfed to 5 months of age (that is, for less than 6 months). Other highlights include:

From Table 3.7:

- There was little variation in initiation rates by mother's/carer's age, but the rate of exclusive breastfeeding to 4 months (for example) was 3 times as high in older mothers/carers compared with younger ones; this is largely a result of only 50% of infants with younger mothers/carers (24 years or younger) starting their second month of life exclusively breastfed.
- Initiation of children to exclusive breastfeeding was significantly higher by mothers/carers who had a tertiary education (92%) compared with those who had completed Year 11 or below (84%), but this difference had diminished by 6 months. A similar pattern was seen for household income, with higher initiation rates associated with higher income, but the gradient lessening as the infant aged.

From Table 3.8:

- Among states and territories, the highest initiation rate was seen in the Northern Territory (99%), compared with the five mainland states at around 90%. In Tasmania, initiation was above the national average of 90%, and exclusive breastfeeding was among the highest for each month through to 6 months.
- There was no clear pattern of exclusive breastfeeding by geographical region.

From Table 3.9:

- Children of mothers/carers with a normal BMI at the start of the pregnancy had a higher initiation to exclusive breastfeeding (93%) than of mothers/carers who were obese (87%), and the higher rates were sustained across the duration of exclusive breastfeeding (for example, 31% to 4 months among mothers/carers with a normal BMI compared with 18% among mothers/carers who were obese).
- The regular use of a dummy was associated with considerably lower rates of exclusive breastfeeding: for example, 19% of children who regularly used a dummy were exclusively breastfed to 4 months compared with 35% of children who did not regularly use a dummy.
- There was no real pattern of difference in exclusive breastfeeding rates among mothers/carers who took leave compared with those that did not.

Table 3.7: Duration of exclusive breastfeeding (to each month of age), by mother's/carer's sociodemographic characteristics (per cent)

Sociodemographic characteristic	Initiation ^(b)	To month ^(a) (equivalent duration)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	61.4	55.8	48.0	39.2	27.0	15.4	2.1
Mother's/carer's age (years)								
24 or younger	88.1	50.4	42.7	30.9	21.7	11.3	6.2	2.0
25–29	90.5	61.6	55.8	47.2	37.0	23.3	11.9	1.6
30–34	91.0	62.0	56.4	48.6	39.9	27.4	15.2	1.7
35 or older	90.1	62.5	57.8	50.9	43.1	31.6	19.2	2.9
Parity								
Primiparous	90.6	56.1	50.5	42.9	34.7	23.1	12.0	1.4
Multiparous	90.5	65.2	59.9	51.7	42.6	29.9	18.0	2.6
Education								
Bachelor degree or higher	92.3	65.6	61.2	55.0	47.5	33.6	18.4	2.0
Diploma/certificate	90.3	60.1	53.9	44.3	35.2	23.5	13.5	1.7
Year 12 or equivalent	88.7	57.2	51.2	42.9	32.4	21.1	13.2	3.3
Year 11 or below ^(c)	84.0	53.1	45.1	37.5	26.9	19.5	12.8	2.6
Smoking status								
Daily	81.4	49.6	39.8	28.1	19.3	10.5	6.4	0.8
Occasionally	87.4	55.5	49.3	38.5	27.5	15.1	7.4	0.9
Not at all	91.4	62.6	57.5	50.0	41.3	28.9	16.6	2.2
Gross household income (per year)								
\$156,000 or more	93.7	64.1	59.2	52.4	44.9	31.1	16.8	2.3
\$88,400–\$155,999	91.7	64.4	59.8	52.6	43.4	29.4	16.3	1.6
\$52,000–\$88,399	90.9	61.5	55.8	47.6	38.9	27.6	15.8	2.0
\$26,000–\$51,999	88.7	58.1	52.2	43.9	35.5	25.1	14.7	2.5
\$25,999 or below	85.9	56.4	49.7	40.8	31.9	20.0	13.0	3.0
Mother's/carer's Indigenous status								
Indigenous	86.8	59.3	46.2	32.5	18.6	11.0	n.p.	n.p.
Non-Indigenous	90.4	61.4	56.0	48.1	39.5	27.2	n.p.	n.p.
Mother's/carer's country of birth								
Australia	90.8	62.5	57.0	49.0	40.4	27.8	15.8	1.9
Overseas	89.1	58.1	52.6	45.0	35.9	25.0	14.3	2.6
Main language spoken at home								
English	90.7	62.2	56.8	48.8	40.3	27.7	15.6	1.9
Other	87.1	54.5	47.8	40.9	30.6	21.6	14.6	3.8

(a) This is effectively the month *before* the event occurred. For example, a child who was introduced to water when they were aged 4 months (in their fifth month of life) was exclusively breastfed *to* 4 months of age (that is, they had 4 completed months of exclusive breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

(b) Initiation to exclusive breastfeeding.

(c) Includes 'Did not go to school'.

Table 3.8: Duration of exclusive breastfeeding (to each month of age), by area-level characteristics (per cent)

Area-level characteristic	Initiation ^(b)	To month ^(a)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	61.4	55.8	48.0	39.2	27.0	15.4	2.1
Socioeconomic status (SEIFA quintile)								
1st quintile (most disadvantaged)	88.2	57.0	51.1	42.4	32.5	22.5	15.7	2.7
2nd quintile	90.0	62.1	56.1	46.7	37.8	26.4	15.1	2.2
3rd quintile	89.0	59.7	54.5	46.2	37.6	25.2	14.6	2.1
4th quintile	90.7	60.3	54.3	47.4	38.8	26.2	14.8	1.8
5th quintile (least disadvantaged)	92.2	64.9	60.0	52.8	44.6	31.5	16.7	2.1
State/territory								
New South Wales	89.9	62.9	57.4	48.8	40.3	27.1	16.0	2.3
Victoria	90.0	58.7	53.4	46.1	38.5	27.5	15.0	1.6
Queensland	91.0	61.9	55.8	47.7	38.1	24.7	14.1	1.8
Western Australia	89.9	58.3	53.2	45.1	36.7	26.3	14.8	2.3
South Australia	89.6	59.5	53.2	47.4	38.1	26.0	14.6	2.5
Tasmania	92.0	72.6	69.9	62.5	47.2	37.7	25.7	3.8
Australian Capital Territory	94.1	68.9	65.6	58.3	50.7	39.5	17.8	2.1
Northern Territory	98.5	72.1	62.5	53.7	43.3	31.5	21.7	5.8
Remoteness								
Major cities	90.2	59.7	54.1	46.4	38.1	26.3	14.5	2.1
Inner regional	90.0	65.3	60.0	51.8	42.8	28.9	17.4	2.2
Outer regional	91.5	66.7	61.4	52.1	42.2	30.4	19.6	2.5
Remote/Very remote	94.1	62.9	58.7	52.1	36.8	24.4	15.9	1.0

(a) This is effectively the month *before* the event occurred. For example, a child that was introduced to water when they were aged 4 months (in their fifth month of life) was exclusively breastfed *to* 4 months of age (that is, they had 4 completed months of exclusive breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

(b) Initiation to exclusive breastfeeding.

Table 3.9: Duration of exclusive breastfeeding (to each month of age), by select characteristics of mother/carer and child (per cent)

Characteristic	Initiation ^(b)	To month ^(a)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	61.4	55.8	48.0	39.2	27.0	15.4	2.1
Body mass index (BMI) at the start of the pregnancy								
Underweight	89.0	60.0	54.0	47.1	37.3	26.0	16.4	2.8
Normal	92.5	66.5	61.1	53.2	44.2	30.8	17.6	2.1
Overweight	89.5	57.3	52.2	45.1	35.9	24.7	13.7	1.8
Obese	86.7	49.5	44.0	35.4	28.2	17.9	9.6	1.6
Current BMI								
Underweight	89.9	62.4	58.3	51.0	42.6	30.5	20.9	2.2
Normal	92.6	67.7	62.2	54.4	45.1	31.4	17.9	2.2
Overweight	89.7	57.4	52.3	45.5	37.3	26.5	15.3	2.1
Obese	87.2	50.0	43.8	35.0	26.9	16.2	8.2	1.1
Regular use of dummy								
No	92.3	67.8	63.0	56.8	48.5	35.4	21.3	3.2
Yes	88.5	54.9	48.7	39.1	30.0	18.7	9.5	1.0
Age started regular dummy use								
Before 1 month	85.9	48.3	42.0	33.5	25.2	15.3	7.3	0.9
Before 2 months	93.7	67.3	58.6	46.9	36.1	24.8	12.6	—
Before 3 months	91.6	60.8	56.1	42.5	32.5	19.1	9.9	0.8
Before 4 months	93.9	70.1	63.5	52.9	40.1	26.6	14.0	1.6
At 5 months or after	91.7	66.7	61.9	51.7	42.6	27.1	17.8	2.7
Child delivery method								
Vaginal	93.2	66.0	60.4	52.0	42.8	29.7	16.8	2.3
Elective or planned caesarean	86.9	54.9	48.8	41.7	33.4	23.0	14.3	2.0
Emergency caesarean	82.0	48.8	44.5	38.1	30.8	20.0	10.7	1.4
Whether mother/carer took leave for the birth or care of the child								
Yes	91.3	61.5	56.5	48.8	40.4	28.0	15.2	2.0
No	89.3	61.3	55.1	46.9	38.0	26.0	15.8	2.3
Currently working ^(c)								
Yes	90.7	62.9	57.8	49.8	40.8	27.7	15.4	2.0
No	88.4	62.6	57.3	47.4	39.5	28.7	18.9	2.0

(a) This is effectively the month *before* the event occurred. For example, a child that was introduced to water when they were aged 4 months (in their fifth month of life) was exclusively breastfed *to* 4 months of age (that is, they had 4 completed months of exclusive breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

(b) Initiation to exclusive breastfeeding.

(c) Among those who worked for any period of time since the birth of the child.

Indicator 4: Proportion of children predominantly breastfed to each month of age

As described earlier, the results for this indicator are derived using a survival analysis technique (see Appendix A for details).

The survey showed that of all children aged 0–24 months, 90% initiated predominant breastfeeding (Table 3.10). However, before they completed their first month of life, nearly one-third of these children had been introduced to something other than breastmilk, water or juice (for example, infant formula). Overall, around 21% of infants were predominantly breastfed to 5 months of age (aged less than 6 months) compared to 15% of infants who were exclusively breastfed. Other highlights include:

From Table 3.10:

- There was little variation in initiation rates by mother's/carer's age, but the rate of predominant breastfeeding to 4 months of age (for example) was more than twice as high for older mothers/carers aged 35 years or older (39%) than for mothers/carers aged 24 years or younger (16%).
- Initiation to predominant breastfeeding was significantly higher where mothers/carers had a tertiary education (92%) compared with Year 11 or below (84%), but this difference had diminished by 6 months of age. A similar pattern was seen for household income, with higher initiation rates associated with higher income, with the gradient lessening as the infant aged.

From Table 3.11:

- Among the states and territories, the highest initiation rate of predominant breastfeeding was seen in the Northern Territory (99%), compared with the five mainland states at around 90%. In Tasmania, initiation was above the national average, and predominant breastfeeding was then highest from 1 month through to 6 months of age.
- There was a slight gradient in predominant breastfeeding rates by geographical remoteness, with slightly higher initiation rates in more remote areas (compared with major cities) and slightly higher rates sustained through to 2 months of age.

From Table 3.12:

- Children of mothers/carers with a normal BMI had a higher initiation to predominant breastfeeding (93%) than of mothers/carers who were obese (87%), and the higher rates were sustained across the duration of predominant breastfeeding (for example, 40% to 4 months among mothers/carers with a currently normal BMI compared with 23% among mothers/carers who were obese).
- The regular use of a dummy was associated with considerably lower rates of predominant breastfeeding; for example, 25% of children who regularly used a dummy were predominantly breastfed to 4 months compared with 45% of children who did not regularly use a dummy.
- There was no real difference in the pattern of predominant breastfeeding among mothers/carers who took leave compared with those who did not.

Table 3.10: Duration of predominant breastfeeding (to each month of age), by mother's/carer's sociodemographic characteristics (per cent)

Sociodemographic characteristic	Initiation ^(b)	To month ^(a)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	64.7	60.3	53.8	47.1	34.6	20.9	3.9
Mother's/carer's age (years)								
24 or younger	88.1	55.3	49.1	38.8	30.3	16.4	10.6	3.0
25–29	90.5	65.5	60.9	53.4	46.1	30.9	17.2	3.5
30–34	91.0	64.9	60.3	54.2	47.7	35.3	20.4	3.2
35 or older	90.1	65.7	61.9	56.3	50.2	39.3	25.1	5.0
Parity								
Primiparous	90.6	59.2	54.7	48.2	42.0	29.9	16.9	3.0
Multiparous	90.5	68.8	64.6	57.9	51.0	38.1	23.8	4.6
Education								
Bachelor degree or higher	92.4	68.1	64.5	59.5	54.0	40.6	23.5	3.7
Diploma/certificate	90.3	63.8	58.7	51.0	43.9	31.6	19.5	3.7
Year 12 or equivalent	88.7	60.6	56.4	49.2	41.3	29.2	17.9	4.3
Year 11 or below ^(c)	84.0	58.9	52.7	45.4	36.6	26.8	18.4	5.9
Smoking status								
Daily	81.4	52.5	44.9	35.1	27.5	16.3	9.9	1.3
Occasionally	87.3	60.4	55.7	45.3	35.7	19.9	9.8	1.9
Not at all	91.4	65.9	61.9	55.7	49.3	36.8	22.2	4.2
Gross household income (per year)								
\$156,000 or more	93.8	66.6	61.5	55.8	49.8	38.7	20.5	3.6
\$88,400–\$155,999	91.7	66.7	62.8	56.9	49.9	35.8	20.3	2.8
\$52,000–\$88,399	90.9	64.3	60.1	53.5	46.8	34.6	21.0	3.6
\$26,000–\$51,999	88.8	62.6	57.8	50.4	44.1	32.6	21.4	5.6
\$25,999 or below	85.9	63.0	58.1	50.6	43.7	31.6	21.2	5.5
Mother's/carer's Indigenous status								
Indigenous	86.8	64.9	54.3	40.6	30.4	16.6	n.p.	n.p.
Non-Indigenous	90.4	64.7	60.4	53.9	47.4	34.9	n.p.	n.p.
Mother's/carer's country of birth								
Australia	90.8	65.3	60.8	54.1	47.3	34.5	20.5	3.3
Overseas	89.1	63.3	59.0	52.8	46.6	35.1	22.0	5.8
Main language spoken at home								
English	90.7	65.1	60.7	53.9	47.2	34.6	20.4	3.5
Other	87.1	61.6	57.4	52.5	46.8	34.8	25.5	8.3

(a) This is effectively the month *before* the event occurred. For example, a child that was introduced to water when they were aged 4 months (in their fifth month of life) was predominantly breastfed *to* 4 months of age (that is, they had 4 completed months of predominant breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

(b) Initiation to predominant breastfeeding.

(c) Includes 'Did not go to school'.

Table 3.11: Duration of predominant breastfeeding (to each month of age), by area-level characteristics (per cent)

Area-level characteristic	Initiation ^(b)	To month ^(a)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	64.7	60.3	53.8	47.1	34.6	20.9	3.9
Socioeconomic status (SEIFA quintile)								
1st quintile (most disadvantaged)	88.2	62.8	57.9	51.7	43.9	32.6	22.9	5.2
2nd quintile	90.0	66.1	61.9	54.2	47.1	34.6	21.5	4.6
3rd quintile	89.0	63.1	59.0	51.9	45.5	32.9	19.8	3.7
4th quintile	90.7	63.3	58.7	52.4	46.1	33.6	19.6	3.4
5th quintile (least disadvantaged)	92.3	67.1	62.7	56.8	50.6	37.7	21.4	3.8
State/territory								
New South Wales	89.9	66.4	61.8	54.7	48.0	34.2	21.1	3.8
Victoria	90.0	61.8	57.6	51.5	45.7	35.1	21.3	3.5
Queensland	91.0	64.6	60.1	53.8	46.8	33.1	19.0	4.2
Western Australia	89.9	63.0	58.8	51.8	45.1	34.2	20.5	4.0
South Australia	89.6	63.1	59.0	54.3	47.3	33.9	20.3	3.6
Tasmania	92.1	75.4	72.5	65.6	55.0	46.0	31.4	8.5
Australian Capital Territory	94.1	70.9	66.7	60.3	54.9	43.9	23.1	3.3
Northern Territory	98.5	78.1	69.0	57.3	49.5	38.5	24.3	5.9
Remoteness								
Major cities	90.2	63.1	58.7	52.1	45.9	33.6	19.8	3.7
Inner regional	90.0	68.6	64.3	57.7	50.0	37.2	22.7	4.3
Outer regional	91.5	69.8	65.4	58.9	51.7	38.2	25.6	5.3
Remote/Very remote	94.2	66.7	63.7	57.1	45.0	32.4	21.6	3.4

(a) This is effectively the month *before* the event occurred. For example, a child that was introduced to water when they were aged 4 months (in their fifth month of life) was predominantly breastfed to 4 months of age (that is, they had 4 completed months of predominant breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed to 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed to 0 months (or for less than 1 month)

(b) Initiation to predominant breastfeeding.

Table 3.12: Duration of predominant breastfeeding (to each month of age), by select characteristics of mother/carers and child (per cent)

Characteristic	Initiation ^(b)	To month ^(a)						
		<1	<2	<3	<4	<5	<6	<7
All	90.4	64.7	60.3	53.8	47.1	34.6	20.9	3.9
Body mass index (BMI) at the start of the pregnancy								
Underweight	89.0	62.5	58.4	52.0	45.3	32.6	21.1	5.7
Normal	92.5	69.7	65.4	58.9	52.4	39.1	23.4	4.0
Overweight	89.5	60.5	56.4	50.3	43.6	31.8	18.5	3.4
Obese	86.8	54.0	49.1	41.9	35.3	24.1	14.3	2.4
Current BMI								
Underweight	90.0	65.5	61.9	55.3	50.3	39.4	29.1	5.3
Normal	92.7	70.6	66.3	60.0	53.4	39.6	23.8	4.3
Overweight	89.7	60.9	57.0	51.3	44.8	34.0	20.1	3.7
Obese	87.2	54.4	49.1	41.2	34.4	22.6	12.6	1.8
Regular use of dummy								
No	92.3	70.9	67.2	62.5	57.4	44.7	28.4	6.1
Yes	88.5	58.4	53.3	45.0	36.7	24.5	13.2	1.7
Age started regular dummy use								
Before 1 month	85.9	52.4	47.4	39.7	31.3	20.6	10.5	1.6
Before 2 months	93.7	69.8	61.7	51.6	43.0	31.7	15.2	0.6
Before 3 months	91.7	63.6	60.5	48.7	40.6	25.2	13.7	1.7
Before 4 months	93.9	72.9	66.5	58.7	49.6	33.8	20.7	1.7
At 5 months or after	91.7	68.9	64.1	56.8	50.0	34.3	23.8	3.9
Child delivery method								
Vaginal	93.3	69.6	65.2	58.4	51.6	38.1	23.0	4.5
Elective or planned caesarean	86.9	57.6	52.4	46.5	39.7	29.4	18.2	3.4
Emergency caesarean	82.1	51.9	48.3	42.1	36.4	25.7	14.6	2.1
Whether mother/carers took leave for the birth or care of the child								
Yes	91.3	64.3	60.2	53.6	47.2	35.0	19.9	3.3
No	89.4	65.2	60.5	53.9	47.1	34.3	22.1	4.7
Currently working ^(c)								
Yes	90.7	65.5	61.7	55.2	48.3	35.0	20.0	3.5
No	88.4	66.5	61.7	55.3	48.1	34.2	22.9	3.5

(a) This is effectively the month *before* the event occurred. For example, a child that was introduced to water when they were aged 4 months (in their fifth month of life) was predominantly breastfed *to* 4 months of age (that is, they had 4 completed months of predominant breastfeeding). Similarly, a child who was introduced to water at age 1 month (in their second month of life) was exclusively breastfed *to* 1 month. Or, a child who was introduced to water at age 0 months (was in their first month of life) was exclusively breastfed *to* 0 months (or for less than 1 month).

(b) Initiation to predominant breastfeeding.

(c) Among those who worked for any period of time since the birth of the child.

Indicator 5: Proportion of children receiving soft/semi-solid/solid food at each month of age

As noted in Chapter 2, the definition for this indicator requires the child to have received soft/semi-solid/solid food *within the last 24 hours*. However, for the detailed results presented here, this time constraint is removed, and instead we present survival-type analysis. Note, because this indicator is about *having* an attribute (in this case, some type of food), the results are presented as *at* 4 months (say), not *to*. Note further, the results represent a 'reverse' survival curve, in that the rates increase over time (age of child) rather than decline as seen in the previous two indicators. For brevity, the commentary below referring to 'solids' covers soft, semi-solid and solid foods.

The results show that by 2 months of age, less than 1% of infants had been introduced to solid foods; by 6 months, 92% of infants had been introduced to solids (Table 3.13). Other highlights include:

From Table 3.13:

- The age of the mother/carer was strongly associated with introduction of solids, with younger mothers/carers introducing solid foods at comparatively younger infant ages than older mothers/carers. For example, at 4 months, 55% of infants with younger mothers (aged 24 or younger) had been introduced to solid foods compared with 22% of infants with older mothers (aged 35 or older).
- A substantial gradient was also observed for education, with higher proportions of children of lower-educated mothers/carers introduced to solid foods at younger ages than children of more-educated mothers/carers; however, this gradient had reversed for children aged 6 months.
- The main language spoken at home was associated with earlier introduction of solid foods. For example, by the age of 4 months, 29% of children in homes where the main language was English had been introduced to solid foods, compared with 20% of children in homes with another main language.

From Table 3.14:

- There was no clear pattern of introduction of solid foods by socioeconomic status of an area, state or territory, or geographical remoteness.

From Table 3.15:

- Children of mothers/carers who were obese were introduced to solid foods at slightly younger ages than those whose mothers/carers had a normal BMI.
- The regular use of a dummy was associated with earlier introduction to solid foods. For example, among infants aged 4 months who regularly used a dummy, 34% had been introduced to solid foods, compared with 23% among those who did not regularly use a dummy.

Table 3.13: Proportion of children who were introduced to soft/semi-solid/solid food, by month of age and mother's/carer's sociodemographic characteristics (per cent)

Sociodemographic characteristic	Infant's age at which soft/semi-solid/solid food was introduced						
	<1	1	2	3	4	5	6
All	0.1	0.1	0.8	4.3	28.4	56.2	91.6
Mother's/carer's age (years)							
24 or younger	0.3	0.4	3.1	15.2	54.6	71.9	94.1
25–29	0.1	0.2	1.0	6.0	34.4	63.4	93.4
30–34	—	0.1	0.5	2.9	26.6	57.0	92.2
35 or older	0.1	0.2	0.5	2.8	22.4	48.9	89.9
Parity							
Primiparous	0.2	0.2	1.0	5.2	31.9	60.9	93.5
Multiparous	—	0.1	0.7	3.7	26.3	53.4	91.0
Education							
Bachelor degree or higher	—	—	0.2	1.9	23.3	55.2	92.8
Diploma/certificate	0.1	0.2	1.1	5.4	31.0	57.4	92.6
Year 12 or equivalent	—	0.1	0.9	5.6	32.5	58.0	89.7
Year 11 or below ^(a)	0.4	0.5	2.0	10.2	36.6	53.5	85.2
Smoking status							
Daily	0.1	0.2	1.7	12.9	42.4	63.9	94.0
Occasionally	—	0.1	0.6	6.1	41.9	68.8	93.4
Not at all	0.1	0.1	0.7	3.6	27.1	55.4	91.8
Gross household income (per year)							
\$156,000 or more	—	—	0.2	1.7	24.5	59.5	94.7
\$88,400–\$155,999	—	—	0.4	2.8	26.5	57.7	94.0
\$52,000–\$88,399	0.1	0.1	0.6	3.9	27.5	55.5	92.5
\$26,000–\$51,999	0.1	0.2	0.9	6.4	31.6	55.4	89.1
\$25,999 or below	0.3	0.5	2.5	8.3	33.8	53.4	85.6
Mother's/carer's Indigenous status							
Indigenous	0.2	0.2	1.5	12.3	45.2	69.7	96.2
Non-Indigenous	0.1	0.1	0.8	4.2	28.2	56.1	91.6
Mother's/carer's country of birth							
Australia	0.1	0.1	0.8	4.7	30.0	58.9	93.9
Other countries	0.1	0.2	0.6	3.3	24.2	48.7	85.3
Main language spoken at home							
English	0.1	0.1	0.8	4.6	29.4	58.4	93.3
Other	0.2	0.2	0.7	2.6	19.8	36.6	75.8

(a) Includes 'Did not go to school'.

Table 3.14: Proportion of children who were introduced to soft/semi-solid/solid food, by month of age and area-level characteristics (per cent)

Area-level characteristic	Infant's age at which soft/semi-solid/solid food was introduced						
	<1	1	2	3	4	5	6
All	0.1	0.1	0.8	4.3	28.4	56.2	91.6
Socioeconomic status (SEIFA quintile)							
1st quintile (most disadvantaged)	0.2	0.3	1.2	5.7	30.0	49.5	86.8
2nd quintile	—	0.2	1.2	5.8	30.7	54.5	90.3
3rd quintile	0.2	0.2	0.7	5.5	29.9	57.2	92.9
4th quintile	—	0.1	0.8	4.2	29.2	58.8	92.1
5th quintile (least disadvantaged)	0.1	0.1	0.4	2.2	24.8	57.3	93.1
State/territory							
New South Wales	0.2	0.3	0.9	4.4	28.4	55.4	91.3
Victoria	—	—	0.3	2.5	23.4	52.5	91.7
Queensland	0.1	0.2	1.3	5.9	34.8	60.9	92.3
Western Australia	—	0.1	0.8	4.7	27.9	58.4	92.0
South Australia	—	0.1	0.8	5.7	30.3	57.3	90.9
Tasmania	—	—	0.2	3.7	19.7	44.9	89.2
Australian Capital Territory	—	—	—	2.3	26.5	57.9	93.1
Northern Territory	—	—	0.6	3.4	24.2	58.5	90.8
Remoteness							
Major cities	—	0.1	0.7	3.8	27.5	56.2	91.4
Inner regional	—	0.2	0.8	5.3	30.6	56.4	92.8
Outer regional	0.7	0.7	1.7	7.1	30.3	55.1	91.0
Remote/Very remote	—	0.1	0.6	5.0	33.0	58.2	93.0

Table 3.15: Proportion of children who were introduced to soft/semi-solid/solid food, by month of age and select characteristics of mother/carers and child (per cent)

Characteristic	Infant's age at which soft/semi-solid/solid food was introduced						
	<1	1	2	3	4	5	6
All	0.1	0.1	0.8	4.3	28.4	56.2	91.6
Body mass index (BMI) at the start of the pregnancy							
Underweight	—	0.1	1.0	5.6	34.6	55.9	90.0
Normal	0.1	0.1	0.5	3.3	26.5	55.1	92.8
Overweight	—	0.1	0.7	4.0	29.2	58.7	92.0
Obese	—	0.1	1.2	6.9	34.8	62.0	92.6
Current BMI							
Underweight	—	0.1	0.8	4.2	32.6	53.2	90.8
Normal	0.1	0.1	0.5	3.1	25.7	54.3	92.3
Overweight	—	—	0.5	4.6	28.7	57.2	92.1
Obese	—	0.1	1.2	6.3	36.3	64.5	93.4
Regular use of dummy							
No	—	0.1	0.6	3.2	23.4	50.2	89.3
Yes	0.1	0.2	1.0	5.6	33.7	62.5	94.1
Age started regular dummy use							
Before 1 month	0.2	0.3	1.2	6.6	35.6	64.4	94.5
Before 2 months	—	0.1	0.9	4.8	28.3	62.2	97.7
Before 3 months	0.2	0.3	0.7	5.0	34.7	63.9	93.8
Before 4 months	0.1	0.1	0.6	3.2	29.6	58.7	92.9
At 5 months or after	—	—	0.1	2.5	28.0	50.0	89.4
Child delivery method							
Vaginal	0.1	0.2	0.8	4.4	28.7	56.2	91.9
Elective or planned caesarean	—	0.1	0.6	3.8	26.7	55.2	91.3
Emergency caesarean	0.2	0.2	0.8	4.8	29.5	57.8	91.3
Whether mother/carers took leave for the birth or care of the child							
Yes	0.1	0.1	0.5	3.4	27.9	57.9	93.3
No	0.1	0.2	1.2	5.5	29.2	54.2	89.7
Currently working ^(a)							
Yes	0.1	0.1	0.6	4.0	28.1	57.6	92.7
No	—	—	0.5	4.2	30.8	53.4	91.3

(a) Among those who worked for any period of time since the birth of the child.

Indicator 6: Proportion of children receiving non-human milk or formula at each month of age

As noted in Chapter 2, the definition for this indicator requires the child to have received non-human milk or formula *within the last 24 hours*. However, for the detailed results presented here, this time constraint is removed, and instead we present survival-type analysis. Like the previous indicator, the results are presented as *at x months*, not *to*, and represent a 'reverse' survival curve (or a failure curve). For brevity, the commentary below referring to 'non-human milk' covers non-human milk and infant formula.

The results show that 34% of infants had been introduced to non-human milk in their first month of life (aged 0 months) (Table 3.16). By 2 months of age, this had risen to 45%, and 69% of infants had been introduced to non-human milk by the age of 6 months. Other highlights include:

From Table 3.16:

- The age of the mother/carer was associated with introduction of non-human milk, with younger mothers/carers introducing non-human milk at comparatively younger infant ages than older mothers/carers. For example, at age 0 months, 42% of infants with mothers/carers aged 24 or younger had been introduced to non-human milk, compared with 33% of infants with mothers/carers aged 35 or older. By 4 months, this difference had increased: 74% for infants of younger mothers/carers compared with 53% for infants of older mothers/carers.
- A gradient was also observed for education, with higher proportions of children of lower-educated mothers/carers introduced to non-human milk at younger ages than children of higher-educated mothers/carers.
- There were no clear differences in introduction of non-human milk by mother's/carer's country of birth, or by the main language spoken at home.

From Table 3.17:

- There was no clear pattern of introduction of non-human milk by socioeconomic status of an area, or by geographical remoteness.
- Infants in Tasmania were introduced to non-human milk at older ages than infants in other jurisdictions, although by 4 months the proportion of children who had been introduced to non-human milk was similar across most jurisdictions.

From Table 3.18:

- Children of mothers/carers who were obese were introduced to non-human milk at younger ages than those whose mothers/carers had a normal BMI. For example, at age 0 months, 44% of infants whose mothers/carers were currently obese had been introduced to non-human milk, compared with 29% of infants whose mothers/carers had a normal BMI. By 4 months, the proportions were 69% and 51%, respectively.
- The regular use of a dummy was associated with earlier introduction to non-human milk. For example, among infants aged 2 months who regularly used a dummy, 54% had been introduced to non-human milk, compared with 36% among those who did not regularly use a dummy.

Table 3.16: Proportion of children introduced to non-human milk or formula, by month of age and mother's/carer's sociodemographic characteristics (per cent)

Sociodemographic characteristic	Infant's age at which non-human milk or formula was introduced						
	<1	1	2	3	4	5	6
All	34.0	38.6	45.1	51.2	56.9	61.1	69.1
Mother's/carer's age (years)							
24 or younger	42.4	49.6	59.9	67.3	74.0	77.5	82.2
25–29	33.0	37.7	45.4	52.1	58.8	63.7	71.9
30–34	33.9	38.6	44.7	50.9	56.4	60.3	68.6
35 or older	33.3	37.3	42.8	48.1	53.3	57.4	65.8
Parity							
Primiparous	39.3	44.2	50.7	56.2	61.5	65.4	72.6
Multiparous	30.2	34.5	41.1	47.5	53.5	57.9	66.4
Education							
Bachelor degree or higher	30.9	34.6	39.6	44.8	50.6	55.0	63.5
Diploma/certificate	34.8	40.0	47.8	54.2	60.3	64.4	72.3
Year 12 or equivalent	38.6	43.0	50.2	57.9	62.9	67.5	74.3
Year 11 or below ^(a)	38.3	45.4	52.3	59.0	64.0	66.8	74.2
Smoking status							
Daily	45.5	53.3	62.6	70.1	75.7	78.9	87.4
Occasionally	36.8	42.0	52.7	61.5	71.3	74.2	83.1
Not at all	33.0	37.2	43.4	49.2	54.8	59.1	67.0
Gross household income (per year)							
\$156,000 or more	33.5	38.5	44.3	50.2	56.0	59.7	68.9
\$88,400–\$155,999	32.4	36.4	42.4	48.8	55.0	60.2	67.9
\$52,000–\$88,399	34.5	38.9	45.3	51.5	57.4	60.9	68.4
\$26,000–\$51,999	36.6	41.4	48.6	53.7	58.6	62.7	71.0
\$25,999 or below	33.5	39.3	46.8	53.6	59.2	62.6	71.3
Mother's/carer's Indigenous status							
Indigenous	31.5	42.4	57.9	66.1	n.p.	n.p.	n.p.
Non-Indigenous	34.0	38.6	44.9	51.0	n.p.	n.p.	n.p.
Mother's/carer's country of birth							
Australia	33.6	38.3	45.0	51.2	56.7	60.7	68.3
Other countries	35.2	39.6	45.5	51.3	57.3	62.0	71.2
Main language spoken at home							
English	33.9	38.5	45.2	51.3	57.0	61.0	69.0
Other	34.7	39.5	44.0	49.6	55.7	61.3	69.8

(a) Includes 'Did not go to school'.

Table 3.17: Proportion of children who were introduced to non-human milk or formula, by month of age and area-level characteristics (per cent)

Area-level characteristic	Infant's age at which non-human milk or formula was introduced						
	<1	1	2	3	4	5	6
All	34.0	38.6	45.1	51.2	56.9	61.1	69.1
Socioeconomic status (SEIFA quintile)							
1st quintile (most disadvantaged)	35.0	40.3	46.0	53.0	58.9	63.7	70.3
2nd quintile	32.9	37.1	44.8	51.3	55.7	59.9	68.2
3rd quintile	35.4	39.7	47.0	52.7	58.4	62.2	70.6
4th quintile	35.6	40.3	46.5	52.2	58.0	62.4	71.9
5th quintile (least disadvantaged)	32.1	36.6	42.6	48.4	54.7	58.6	65.3
State/territory							
New South Wales	32.1	36.7	43.9	50.1	56.7	61.3	70.0
Victoria	37.3	41.5	47.4	52.8	58.5	62.3	69.8
Queensland	34.0	39.2	45.3	51.4	56.5	60.3	68.9
Western Australia	35.5	39.8	46.7	52.8	58.1	62.2	70.0
South Australia	36.0	40.4	45.3	51.6	57.4	62.5	69.0
Tasmania	23.5	26.5	33.5	43.0	47.4	51.2	54.9
Australian Capital Territory	28.5	32.6	39.7	44.9	48.4	51.0	58.1
Northern Territory	22.4	32.2	44.2	52.2	54.4	58.6	66.2
Remoteness							
Major cities	35.6	40.2	46.7	52.4	58.3	62.5	70.6
Inner regional	30.3	34.6	41.3	48.1	53.4	57.2	65.6
Outer regional	29.0	34.2	40.4	47.0	52.2	56.5	62.0
Remote/Very remote	32.2	35.3	41.9	52.6	57.2	64.1	74.2

Table 3.18: Proportion of children who were introduced to non-human milk or formula, by month of age and select characteristics of mother/carer and child (per cent)

Characteristic	Infant's age at which non-human milk or formula was introduced						
	<1	1	2	3	4	5	6
All	34.0	38.6	45.1	51.2	56.9	61.1	69.1
Body mass index (BMI) at the start of the pregnancy							
Underweight	35.6	40.5	47.3	53.5	58.7	61.5	70.2
Normal	29.4	33.8	40.2	46.2	51.8	56.5	65.2
Overweight	38.4	42.8	48.9	55.1	60.7	64.4	72.2
Obese	45.0	50.1	57.2	63.2	69.1	71.8	79.2
Current BMI							
Underweight	32.8	36.2	43.8	48.0	51.5	54.3	62.2
Normal	28.7	33.1	39.4	45.4	51.3	55.6	64.6
Overweight	38.0	42.2	48.0	54.1	59.3	63.7	71.8
Obese	44.0	49.5	57.2	63.5	69.0	72.0	79.2
Regular use of dummy							
No	28.0	31.9	36.4	40.8	45.7	49.9	59.1
Yes	40.2	45.5	53.9	61.7	68.2	72.3	79.1
Age started regular dummy use							
Before 1 month	46.0	51.4	59.2	67.0	72.7	76.8	82.5
Before 2 months	28.6	36.7	47.2	55.8	62.6	67.0	77.5
Before 3 months	36.0	39.1	50.2	57.8	65.4	69.1	76.2
Before 4 months	26.4	32.9	40.8	49.2	59.0	63.3	70.8
At 5 months or after	29.0	33.4	40.6	47.0	53.3	57.6	67.5
Child delivery method							
Vaginal	29.4	33.9	40.5	46.8	52.6	57.1	65.6
Elective or planned caesarean	41.0	46.6	52.5	58.8	63.5	66.4	74.0
Emergency caesarean	45.8	49.6	56.1	61.4	67.7	72.0	78.0
Whether mother/carer took leave for the birth or care of the child							
Yes	34.8	39.1	45.7	51.6	57.2	61.4	69.7
No	33.1	38.1	44.5	50.7	56.6	60.6	68.3
Currently working ^(a)							
Yes	33.4	37.5	43.8	50.2	56.9	61.4	70.3
No	32.5	37.4	43.3	49.7	55.9	60.6	68.8

(a) Among those who worked for any period of time since the birth of the child.

4 Factors influencing infant feeding practices

Attitudes and barriers to breastfeeding

Reasons for giving child breastmilk

The survey asked mothers/carers to give the reasons why they breastfed their child. This question was asked only of those mothers/carers whose child had ever had breastmilk. Respondents were offered several response alternatives, and could choose as many responses as were applicable to them.

The most cited reasons for breastfeeding their child was 'breastfeeding was healthier for child' (94%), followed by 'convenience' (64%), 'helps with mother–infant bonding' (64%), and 'healthier for mother' (58%). Less than half cited 'cheaper than infant formula' as the reason they were breastfeeding their child (Table 4.1).

Table 4.1: Mother's/carer's reasons for giving child breastmilk (per cent)

Reason	Per cent
Healthier for child	93.7
Convenient	64.4
Helps with mother–infant bonding	63.9
Healthier for mother	58.1
It felt right/motherly instinct/cultural reason	57.1
Cheaper than infant formula	47.1
Advised or encouraged by midwife	26.5
Encouraged by partner	22.7
Encouraged by family	19.0
Advised or encouraged by ante-natal class instructors	18.0

Note: The question wording was 'What were your reasons for giving your child breastmilk?' Respondents were offered several response alternatives and could choose as many responses as were applicable to them.

Reasons for not continuing breastfeeding

The survey asked mothers/carers of children who were currently not breastfeeding their child to give their reasons for discontinuing breastfeeding. This question was only asked of mothers/carers who were no longer providing any breastmilk to their child. The respondents were able to cite more than one reason. The figures shown in the Table 4.2 are independent of each other, and only the top 10 most cited reasons are shown.

The most cited reason for not continuing breastfeeding was 'not enough breastmilk for child'. However, this reason was cited by only of 13% mothers/carers whose child stopped receiving breastmilk after 12 months of age, compared with 56% of mothers/carers whose child stopped receiving breastmilk when aged 6 months or less (Table 4.2). Those children who stopped receiving any breastmilk when they were aged more than 12 months did so because 'child was old enough to stop' (63%) or 'child lost interest' (33%).

Table 4.2: Mother's/carer's reasons for not continuing to give child breastmilk (per cent)

Reason	Age (in completed months) child stopped receiving any breastmilk			Total
	0–6	7–12	>12	
Not enough breastmilk for child	56.3	31.2	12.5	41.0
Child lost interest	11.2	33.8	33.2	19.2
Child was old enough to stop	1.8	32.0	63.0	17.2
Baby was unsettled	24.2	5.1	2.4	15.0
Child was not attaching properly	25.2	1.7	0.6	14.4
Return to work	8.7	24.4	10.6	12.7
Breastfeeding was too painful	18.4	3.0	1.6	11.1
It was time for child to have other foods	4.5	21.7	18.0	10.5
Expressing milk to feed child was too hard	14.2	6.9	2.3	9.9
Child was biting	4.0	21.3	13.6	9.5

Note: The question wording was 'What were your reasons for not continuing to give your child breastmilk?' Respondents were offered several response alternatives and could choose as many responses as were applicable to them.

Reasons for not breastfeeding

The survey collected information from mothers/carers about why their child was never breastfed. The survey showed that 4% of children aged 24 months or less were never breastfed (Table 3.1).

The top 10 most cited reasons for never breastfeeding the child include 'previously unsuccessful experience with breastfeeding' (38%) and 'so my partner can share feeding' (29%). One in four mothers/carers cited 'infant formula as good as breastmilk' as one of the reasons for not giving their child breastmilk.

Table 4.3: Mother's/carer's reasons for not giving child breastmilk (per cent)

Reason	Per cent
Previously unsuccessful experience with breastfeeding	37.9
So my partner can share feeding	28.5
Infant formula as good as breastmilk	26.0
Medical reasons for mother	19.8
Other reasons	17.2
I would not feel comfortable breastfeeding in public	16.1
I was not breastfed as a baby	9.1
Return to work	7.8
Medical reasons for child	3.8
I did not want the shape of my breasts to change	3.3

Note: The question wording was 'What were your reasons for not giving your child breastmilk?' Respondents were offered several response alternatives and could choose as many responses as were applicable to them.

Factors related to early initiation to breastfeeding

The survey asked mothers/carers to report if around the time of the child's birth the child was placed in skin-to-skin contact, and if so, how soon after the birth was the child placed in skin-to-skin contact. The survey further asked whether mothers/carers were encouraged by a health-care professional (doctor, nurse, midwife etc.) to breastfeed their child. The survey also collected information on the mother's/carer's feeding intention before the birth of the child, as well as their partner's preference to breastfeed.

Skin-to-skin contact

Three in four mothers/carers reported that after the birth of the child, the child was given the opportunity to independently find the mother's breast by being placed in skin-to-skin contact with them. The survey showed that the rate of any breastfeeding among the children who were placed in skin-to-contact was 98%, compared with 89% among those children who were not placed in skin-to-skin contact with the mother around the time of the birth.

The survey then asked a follow-up question to mothers whose child was placed in skin-to-skin contact to report how soon after the birth of the child he/she was placed in skin-to-skin contact with them. Of those mothers who had their child placed in skin-to-skin contact, 73% had contact immediately after or within a few minutes of the birth (Table 4.4).

Table 4.4: Time since birth of child to skin-to-skin contact (per cent)

Time since birth	Per cent
Immediately or within a few minutes	73.4
More than a few minutes and up to half an hour	12.8
More than half an hour and up to 1 hour	5.8
More than 1 hour and up to 2 hours	4.3
More than 2 hours and up to 24 hours	2.8
Don't know/can't say	0.8
Total	100.0

Note: The question wording was 'How long after your child was born was he/she placed in skin-to-skin contact with you?'

Early encouragement to breastfeed

One in three mothers/carers (34%) reported that they were encouraged by a health-care professional to breastfeed their child within a few minutes of the birth of their child (Table 4.5). The survey showed 5% of mothers/carers were not encouraged by the health professionals to breastfeed their child around the time of the birth.

Table 4.5: Early breastfeeding encouragement by health professionals (per cent)

Time since birth	Per cent
Immediately or within a few minutes	34.1
More than a few minutes and up to half an hour	24.2
More than half an hour and up to 1 hour	12.2
More than 1 hour and up to 2 hours	9.1
More than 2 hours and up to 24 hours	11.0
Not encouraged	5.2
Don't know/can't say	4.3
Total	100.0

Note: The question wording was 'How long after your child was born were you encouraged by a health care professional (doctor, nurse, midwife, etc.) to breastfeed your child?'

Intention to feed the child

Before the child's birth, nearly nine in ten (88%) mothers intended to feed their child breastmilk, and 5% intended to feed their child an infant formula product (Table 4.6). Subsequent analysis shows that nearly all mothers whose prior intention was to breastfeed their child did provide breastmilk to their child, compared with 25% of mothers whose intention was to formula-feed their child.

Table 4.6: Prior intention to feed the child (per cent)

Intention	Per cent
Breastmilk	87.3
An infant formula product	4.6
Breastmilk and an infant formula	7.0
Did not think about it prior to	1.1
Total	100.0

Note: The question wording was 'Prior to the birth of your child, did you intend to provide breastmilk or an infant formula product?'

Partner's preference regarding infant feeding

The survey showed that more than half (55%) of partners preferred that the child's mother breastfeed the baby, and 2% preferred the baby to be bottle-fed (Table 4.7). Two in five mothers/carers reported that before the birth of the child, their partners had no preference on how they fed their babies.

Table 4.7: Mother's/carer's perception of partner's preference on how their child should be fed (per cent)

Preference	Per cent
Breastfeeding	55.4
Bottle-feeding	1.9
No preference	39.5
Don't know/Not applicable	3.2
Total	100.0

Note: The question wording was 'Prior to the birth of your child, did your partner have any preference for how you fed your child?'

Appendix A Explanatory notes

Introduction

The 2010 Australian National Infant Feeding Survey used two data collection modes: mail-out mail-in and 'online' options. The Australian Institute of Health and Welfare (AIHW) commissioned Educational Assessment Australia (EAA) to undertake formatting and scanning of the survey questionnaire. EAA also formatted and captured the 'online' survey forms. Medicare Australia extracted the sample and managed the mailing out of the survey communications and survey forms. The data collection period for the survey was from October 2010 to February 2011.

Survey objectives

The survey is the first of its kind in Australia. It aims to provide cross-sectional data to produce reliable estimates of infant feeding practices in Australia.

The objectives of the survey are to:

- collect and report national baseline data on the prevalence and duration of breastfeeding
- collect and report national baseline data on other foods and drinks consumed by infants and toddlers
- collect and report national baseline data on perinatal depression
- analyse and report on the barriers to initiating and continuing breastfeeding by exploring the associations with demographic information and other characteristics of the child and parent/carer.

Methodology

Pilot survey

A pilot survey involving mothers/carers of a sample of 1,000 children aged up to 24 months was conducted to test the survey methodology and to assess response patterns, including the likely impact on response rates of the survey incentive – a Department of Health and Ageing (DoHA) pen. The sample of 1,000 children was randomly drawn from the Medicare Australia enrolment database. The pilot survey included all the steps proposed for the full Australian National Infant Feeding Survey.

The data from the pilot survey were not included in the main survey for technical and administrative reasons. After the pilot, there were minor changes made to the questionnaire to incorporate an additional question.

Survey questionnaire

The DoHA had asked the Australian Bureau of Statistics (ABS) to cognitively test the survey questions, response categories in order to assess the flow, ease of understanding and skip pattern, and overall integrity of survey instrument. The AIHW was provided with the final draft of the survey instrument. Only slight modifications were made to the questionnaire after the pilot. The copy of the survey questionnaire is available at <www.aihw.gov.au>.

Main survey

A sample of 52,008 children aged 0–2 years was randomly selected from the Medicare Australia enrolment database. Cardholders of these children were sent a primary approach letter (PAL) to participate in the survey. Medicare Australia printed and mailed out the PALs, thank-you/reminder postcards, questionnaires and reply-paid envelopes. Medicare Australia also arranged for the DoHA-supplied pens to be included with the survey materials.

Survey hotline

The AIHW established a toll-free survey hotline during both the pilot and the main survey. This allowed survey participants to seek information on the purpose of the survey, how to complete the questionnaire, or to advise if they did not wish to take part in the survey.

Sample selection and data collection

The AIHW, in close cooperation with officers from the DoHA and Medicare Australia, determined the required sample size. EAA, as the data collection agency, collected the returned questionnaires from the designated post office, and scanned the survey responses using optical character recognition (OCR) technology.

Sampling

- Children aged 0–24 months on 8 October 2010 and included in the Medicare Australia enrolment database comprised the sample frame.
- Those born less than 30 days from when the sample was drawn were considered to be 0–1 month old.
- Children from external territories were excluded from the sample.
- The sample was stratified by age and infants each month of age up to 6 months were oversampled by a factor of 10 compared with children aged each of 7–24 months.
- If the selected child was the only person listed on the Medicare card (that is, there was no adult listed on the card), then the child was excluded from the sample. Over 5,000 children were listed alone on the Medicare card.
- Medicare Australia applied an activity test when identifying children for inclusion in the sample. If there was at least one Medicare service or at least an episode in the Australian Childhood Immunisation Register in the previous 12 months (enrolment was considered an activity), the child was eligible to be included in the sample.

Mail-out

- In cases where a child was associated with more than one Medicare card, a PAL was sent to each adult on whose Medicare card the child was listed. The survey materials were sent only to the primary cardholder. This meant that in some cases the survey materials were addressed to the father of the child. In essence, the number of PALs mailed out exceeded the survey sample size.
- Immediately before mailing, the record of sampled children and the associated adults was matched against the national 'fact-of-death' file.
- After the mail-out of the PAL, mail-out of the actual survey instrument occurred within 7 days.
- All 'return to sender' envelopes were addressed to Medicare Australia.
- The completed survey forms were sent to a reply-paid post box at the Alexandria Post Office (Sydney) for daily collection by EAA.
- Thankyou/reminder cards were sent to all respondents within 1 week, irrespective of whether they had completed the survey.
- The second mail-out of the questionnaire to non-responding mothers/carers occurred 3 weeks after mailing the thankyou/reminder cards.

Weighting

Weights were applied to the survey data to adjust for differential probability of selection, differential response rates and also to adjust for non-coverage.

Adjustment for differential probability of selection

Altogether 52,008 children were selected in the sample. Infants aged up to 6 months were oversampled to obtain sound estimates of breastfeeding intensity and duration for this age period and to facilitate comparisons with future national survey data. For each month of age up to 6 months, 6,667 infants were randomly selected nationally, whereas only 667 children were selected for each month for children aged 7 to 24 months. [The sample was further stratified by state and territory. Although the selection probability within each age (in months) was constant across Australia, the selection probability varied by state or territory.]

To adjust for the differential probability of selection, a first weight (w_1) was used. This weight is the inverse of the selection probability of a child within each age (in months) and state/territory. The population and the sample for each month of age by state/territory are in tables A1 and A2, respectively.

Table A1: Population, by age of child and state/territory (from the Medicare enrolment database, 2010) (number)

Child's age range (months)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Less than 1	2,316	1,421	1,803	649	525	244	100	127	7,185
1-<2	6,519	4,572	4,470	2,086	1,372	497	351	275	20,142
2-<3	7,349	5,404	4,750	2,255	1,448	459	385	291	22,341
3-<4	7,920	5,651	4,962	2,425	1,592	494	435	304	23,783
4-<5	8,109	5,708	5,138	2,461	1,611	492	416	327	24,262
5-<6	7,936	5,794	5,155	2,551	1,620	486	411	322	24,275
6-<7	7,868	5,775	5,180	2,614	1,579	492	410	327	24,245
7-<8	8,187	5,977	5,499	2,679	1,680	519	453	370	25,364
8-<9	8,076	5,826	5,199	2,571	1,624	537	430	313	24,576
9-<10	7,665	5,762	4,749	2,376	1,560	453	431	293	23,289
10-<11	7,977	5,812	4,911	2,509	1,525	512	419	327	23,992
11-<12	8,160	6,187	4,920	2,570	1,669	577	452	316	24,851
12-<13	8,561	6,204	5,036	2,690	1,699	557	415	329	25,491
13-<14	7,997	5,833	5,043	2,535	1,621	554	441	278	24,302
14-<15	7,991	5,989	5,103	2,458	1,576	518	424	339	24,398
15-<16	8,202	5,995	5,124	2,582	1,672	542	461	319	24,897
16-<17	7,690	5,681	5,088	2,491	1,555	517	396	326	23,744
17-<18	8,150	5,954	5,451	2,647	1,612	560	404	362	25,140
18-<19	8,242	5,888	5,265	2,699	1,634	556	431	327	25,042
19-<20	8,202	5,922	5,250	2,640	1,706	534	393	340	24,987
20-<21	8,105	5,919	5,307	2,680	1,648	507	413	328	24,907
21-<22	7,932	5,591	4,985	2,437	1,603	528	404	305	23,785
22-<23	8,347	5,915	5,150	2,463	1,668	574	433	286	24,836
23-<24	7,948	5,860	4,878	2,352	1,551	531	418	283	23,821
Total	185,449	134,640	118,416	58,420	37,350	12,240	9,726	7,414	563,655

Table A2: Sample distribution, by age of child and state/territory (number)

Child's age range (months)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Less than 1	2,141	1,330	1,696	604	489	229	93	85	6,667
1-<2	2,182	1,364	1,728	635	444	128	121	65	6,667
2-<3	2,269	1,621	1,367	660	446	126	113	65	6,667
3-<4	2,170	1,571	1,438	672	467	144	129	76	6,667
4-<5	2,263	1,519	1,450	682	430	136	120	67	6,667
5-<6	2,192	1,618	1,454	681	421	136	107	58	6,667
6-<7	196	167	135	78	50	17	15	9	667
7-<8	219	163	137	75	44	13	8	8	667
8-<9	223	179	138	67	37	11	9	3	667
9-<10	230	159	133	64	50	11	16	4	667
10-<11	218	156	145	62	42	17	18	9	667
11-<12	234	159	110	78	55	17	5	9	667
12-<13	218	177	128	67	44	13	12	8	667
13-<14	206	153	142	74	68	10	10	4	667
14-<15	218	161	143	58	50	12	14	11	667
15-<16	227	162	121	75	41	16	18	7	667
16-<17	228	159	133	67	51	9	15	5	667
17-<18	208	171	142	76	43	11	8	8	667
18-<19	201	180	124	76	52	15	11	8	667
19-<20	209	165	138	72	55	14	10	4	667
20-<21	229	165	133	58	45	20	10	7	667
21-<22	223	171	142	69	38	9	8	7	667
22-<23	219	157	136	60	43	31	14	7	667
23-<24	218	159	146	69	42	18	14	1	667
Total	17,141	11,986	11,559	5,179	3,547	1,163	898	535	52,008

Adjustment for differential response rate across strata

The original sample size drawn for the survey was 52,008 children across Australia (the external territories were excluded in the sampling frame). Of these, 15 records were excluded from subsequent mailing after a match was found in the fact-of-death data file. There were 975 survey forms that were returned unopened due to incorrect address (either respondents had moved without updating their address at the time of sample selection; or respondents had moved after the sample selection).

The overall response rate was 56% (see next section). The response rate varied by age of the child and state/territory. The highest response rate among the sampled infants aged 6 months or less was among respondents from the Australian Capital Territory (65%) and the lowest response among this group was from the Northern Territory (48%).

To adjust for this differential non-response, a second weight (w_2) was applied. This weight is the ratio of usable sample divided by the number of respondents within each age/state stratum. As the stratum detail for the 'return-to-sender' component was not known, w_2 was created using the sample size rather than usable sample. This had a negligible effect on the overall weighting scheme. The distribution of respondents is shown in Table A3.

Table A3: Respondents, by age of child (at time of sample) and state/territory (number)

Child's age range (months)	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Total
Less than 1	1,147	753	888	331	280	121	54	41	3,615
1-<2	1,280	856	1,004	370	272	78	85	25	3,970
2-<3	1,364	1,082	793	427	300	88	69	36	4,159
3-<4	1,233	951	820	394	283	83	87	36	3,887
4-<5	1,262	926	732	399	273	93	81	34	3,800
5-<6	1,153	897	638	383	266	85	65	29	3,516
6-<7	115	104	54	44	27	12	9	3	368
7-<8	116	89	54	39	24	5	7	3	337
8-<9	110	98	57	37	25	10	6	2	345
9-<10	122	68	65	37	33	7	8	1	341
10-<11	98	71	62	21	21	7	8	1	289
11-<12	126	78	45	42	21	8	3	3	326
12-<13	95	95	59	42	22	12	9	5	339
13-<14	95	79	54	37	31	5	4	3	308
14-<15	92	66	53	28	28	9	4	5	285
15-<16	100	70	50	37	14	5	9	2	287
16-<17	90	89	64	27	25	5	9	2	311
17-<18	82	95	64	41	19	6	3	2	312
18-<19	91	94	56	29	28	3	6	2	309
19-<20	95	78	59	32	20	5	6	4	299
20-<21	99	73	58	31	26	5	4	1	297
21-<22	90	81	48	33	15	10	1	2	280
22-<23	81	72	65	24	19	12	6	1	280
23-<24	52	45	39	15	14	6	5	0	176
Total	9,188	6,910	5,881	2,900	2,086	680	548	243	28,436

Note: This table does not include 329 respondents for whom age and/or state and territory was not reported.

Post-stratification adjustment weight

In order to make the total survey estimates sum to the population of children for each age (in months) and stratum, a final weight (w_3) was created. This weight is the ratio of the population (as of September 2010) of children at each month of age (up to 24 months) at stratum divided by the population from the sampling frame.

When the composite weight (as a product of w_1 , w_2 and w_3) is applied to the survey responses, the total survey estimate sums to the number of children at the stratum level. In all, there are 192 unique weights (24 age groups by 8 states/territories).

Response rate

The survey was officially 'closed' on 11 February, 2011. By that time there were:

- survey forms received by mail: 27,106
- online survey forms completed (including duplicates and partial complete): 1,763

This resulted in a total received at EAA of 28,869. Of these, there were 48 blank and a further 104 duplicates, as some respondents returned a second set of survey forms when they received the reminder letter. When we received two completed forms from a single respondent, we used the responses from the first form and discarded those from the second form. After removing duplicates and blank survey forms, the number of completed, usable forms totalled 28,759.

The response rate calculation is based on the following information:

1. Total sample selected:	52,008
2. Records deleted from mail-out due to a match in fact-of-death file	15
3. Survey forms returned unopened ('return to sender')	975
4. Respondents chose to opt out (via email or by calling the hotline)	266
5. Total completed and usable (including partially complete)	28,759

$$\begin{aligned}\text{Response rate} &= \frac{\text{Total completed (including partial)}}{\text{Total sample selected} - (\text{fact-of-death deletions} + \text{forms returned to sender})} \\ &= \frac{28,759}{52,008 - (15 + 975)} \\ &= 56.4\%\end{aligned}$$

Respondents' characteristics

The survey form was addressed to the primary cardholder on whose Medicare card the selected child was listed. Although children were the survey sample, primary carers of these selected children responded to the survey. In Table A4 selected characteristics of the respondents are shown. More than a third (36%) of the respondents were aged between 30 and 34 years, two-fifths (41%) had given birth to one child and a similar proportion had a bachelor degree or higher level of education. Nearly one in ten respondents smoked (either regularly or occasionally). The vast majority of respondents were born in Australia (73%) and reported English as the main language spoken at home (88%). Only a small proportion of respondents were Indigenous (1%) and some 4% respondents were carers (not the biological mother of the child).

Table A4: Characteristics of the survey respondents

Characteristics	Number	Per cent
Age (years)		
24 or younger	2,540	8.8
25–29	6,863	23.9
30–34	10,223	35.6
35 or older	8,832	30.7
missing	301	1.1
Parity		
Primiparous	11,795	41.0
Multiparous	15,897	55.3
missing	1,067	3.7
Education		
Bachelor degree or higher	11,838	41.2
Diploma/certificate	10,322	35.9
Year 12 or equivalent	3,881	13.5
Year 11 or below ^(a)	2,653	9.2
missing	65	0.2
Smoking status		
Daily	1,890	6.6
Occasionally	898	3.1
Not at all	24,915	86.6
missing	1,056	3.7
Country of birth		
Australia	21,054	73.2
Overseas	7,705	26.8
Main language at home		
English	25,373	88.2
Other	3,153	11.0
missing	233	0.8
Indigenous status		
Indigenous	401	1.4
Non-Indigenous	28,214	98.1
missing	144	0.5
Currently working in a job or business		
Yes	6,489	22.6
No	864	3.0
Not worked since the birth of the child or still on leave	21,406	74.4
Biological mother of the child		
Yes	27,307	95.0
No	993	3.5
missing	459	1.6

(a) Includes 'Did not go to school'.

Differential non-response

When response patterns were analysed by socioeconomic status and locality, the data showed that slightly higher proportions responded from socioeconomically less disadvantaged areas than from more disadvantaged areas (Table A5), and from *Major city* areas than from other areas (Table A6). Note that it is not possible to calculate response rates as such, because Medicare Australia only provided denominator data in aggregate form.

Table A5: Response proportions by SEIFA decile (per cent)

SEIFA decile	Respondents	Non-respondents
1 (most disadvantaged)	6.5	11.5
2	6.8	9.1
3	6.7	9.0
4	9.3	11.1
5	10.3	11.0
6	10.7	10.8
7	10.8	10.5
8	12.3	9.5
9	14.3	9.7
10 (least disadvantaged)	12.3	7.9

Table A6: Response proportions by remoteness (per cent)

Region	Respondents	Non-respondents
Major cities	72.5	68.3
Inner regional	17.9	19.1
Outer regional	8.0	10.0
Remote/Very remote	1.7	0.3

Analytical approach

General

In general, the AIHW has taken a 'conservative' approach to analysis of key indicators, based on the following principles:

- Where responses to later questions contradicted responses to an earlier question, the earlier response was used. For example, if at Q23 'Has your child ever had breastmilk?' the response was 'No', and at Q28 'Is your child currently receiving breastmilk?' the response was 'Yes', the child was classified as 'Never breastfed'.
- Where other anomalies needed to be resolved, the chosen solution was one that produced a more conservative prevalence estimate. For example, if the response at Q22 'What was your child's first feed?' was missing, and the response at Q25a 'While in hospital, did your child have any other fluids or food' was 'Yes', this child was classified as 'Missing' on the derived variable 'Initiated exclusive breastfeeding' and was subsequently excluded from any analysis of exclusive breastfeeding.

The AIHW acknowledges the input of staff from DoHA's Nutrition section in resolving some of the analytical challenges. More details of these decisions are provided in the next section on editing and derivation of key variables.

Survival analysis

Another feature of the data was ‘censored’ responses, that is, children who had not experienced a relevant ‘event’ (for example, introduction of water to disqualify them as exclusively breastfed) by the time the survey was completed. For exclusive and predominant breastfeeding, relevant responses were combined with the ‘retrospective’ responses; that is, children who *had* experienced relevant disqualifying events. For exclusive and predominant breastfeeding, the indicator results were derived using a non-parametric survival analysis technique, essentially constructed on synthetic ‘cohorts’ of children *to* each month of age. This cohort method is consistent with international practice on reporting breastfeeding duration (CDC 2011).

Editing and derivation of key variables

As described earlier, the survey was conducted using a postal survey where respondents marked their responses in the hard copy survey form. (The survey also provided an ‘online’ option, but only 1,730 respondents (6%) completed the survey using the online option. The data entry was automatic for the online responses where all the ‘skip patterns’ were automatically controlled by the software.) Since not all questions in the survey forms were applicable to all respondents, there were a lot of ‘skip’ instructions. Data entry for the hard copy forms was completed using optical character recognition (OCR) technology, where survey responses were captured by scanning the survey forms (including any written responses). Not all the respondents followed all skip patterns as instructed. As a result, there was a need to edit the data for some inconsistencies.

Derivation of survey variables used for the core indicators

Proportion of children ever breastfed

The survey asked a number of questions about a child’s breastfeeding history. Question 22 asked about child’s first feed. Respondents were asked to mark only one response – either ‘breastmilk’, ‘infant formula’ or ‘other’. If they answered ‘other’, they were asked to specify ‘other’. From the responses specifying ‘other’ categories, over 80 responses were identified as being a form of breastmilk. If a respondent chose a response other than breastmilk (including colostrum, expressed milk from mother or from a donor) as a first feed they were directed to Question 23. Question 23 asked whether their child ever had breastmilk.

The responses from these two questions (questions 22 and 23) were used to classify whether a child ever had any breastmilk. If a respondent reported that either the first feed was breastmilk (Question 22) or responded ‘Yes’ to whether their child ever had breastmilk (Question 23), then the child was classified as ‘ever had breastmilk’. If a child’s first feed was not breastmilk or if a response was missing to this question and a ‘No’ response was given for Question 23 then the child was classified as ‘never had breastmilk’.

If responses to both of these questions were missing, these cases were not assigned to any category, and were subsequently excluded from the analysis for this indicator. This indicator can also be used as breastfeeding initiation rate.

Proportion of children currently breastfed

The survey included a question (Question 28) about whether the child was currently receiving breastmilk (including expressed breastmilk or breastmilk from a donor). If the response to this question was 'Yes' then the child was categorised as receiving breastmilk at survey completion date. If the response to this question was 'No', the child was categorised as not receiving any breastmilk at survey completion time. No other information was used to identify 'currently' breastfed children.

Proportion of children exclusively breastfed

To estimate the proportion of children exclusively breastfed we first estimated the exclusive breastfeeding initiation rate. The numerator comprised children whose first feed was breastmilk (from Question 22) and the denominator comprised all who provided a valid response for the child's first feed. That is, unless information about the child's first feed was available, that child's information was not used in the exclusive breastfeeding analysis. The initiation of exclusive breastfeeding rate was calculated as the proportion of all children whose first feed was breastmilk.

Once initiation of exclusive breastfeeding was established, the duration of exclusive breastfeeding could be calculated as follows. For children whose first feed was breastmilk, who had not been introduced to any other fluid or food and who were still receiving breastmilk when the mother/carer completed the survey, the duration of exclusive breastfeeding for these children was their current age. This meant that if a child was 3 months old when the mother/carer completed the survey and up to that time their child had only received breastmilk, then 3 months was assigned as the duration of exclusive breastfeeding for that child.

For other children who had initiated exclusive breastfeeding, but by the time the survey was completed had been introduced to other fluids or foods, then the estimation of the duration of exclusive breastfeeding consisted of a few extra steps. First the child's age when he/she first drank infant formula (Question 37), water (Question 41), cow's milk (Question 44), soy milk (Question 49), water-based drinks (Question 53) or fruit juice (Question 56) or ate any soft or semi-solid or solid food (Question 62) was determined. We then determined the child's age when the earliest 'event' occurred – the child was exclusively breastfed until the age when this 'event' happened. We then estimated the duration of exclusive breastfeeding using techniques that are used for event history analysis.

There were two additional criteria employed to estimate the duration of exclusive breastfeeding. First, even if a child's first feed was breastmilk, if he/she drank any water, infant formula or other milk/solids while in hospital, then the duration of exclusive breastfeeding was set to 0 months. Second, a child may have had breastmilk as their first feed and not received any other milk or solids other than breastmilk while in hospital but if when he/she came home from hospital the child was not receiving breastmilk; here again the duration of exclusive breastfeeding was set to 0 months. Of all the children surveyed, about 8,000 reported that they had other fluids or food while in hospital.

For those children who were exclusively breastfed during the survey period, we are not able to know how long they will be continued to be exclusively breastfed into the future. In survival analysis terms, these are termed 'censored cases'. Analysing event history for a group who has not yet experienced an 'event' requires specific analytical tools.

Proportion of children predominantly breastfed

To estimate the proportion of children predominantly breastfed, we used a similar technique to that used to estimate the proportion of children ever breastfed. For a child to be classified as predominantly breastfed, the child is allowed in addition to breastmilk (including colostrum, expressed milk, donor milk) oral rehydration solutions, vitamins and mineral drops and syrups, water and water-based drinks, and fruit juice. Therefore, the numerator was the number of children who initiated exclusive breastfeeding as well as those children whose first feed was glucose solution, juice or water-based drinks. The denominator was the number of all children who reported a valid response for the child's first feed.

Once the proportion of children predominantly breastfed was established, the duration of predominant breastfeeding could be estimated. For all the children this duration is equal to or greater than the duration of exclusive breastfeeding. For 'censored' cases, the duration of exclusive breastfeeding and the duration of predominant breastfeeding is the same. For other children, the age at which they were first introduced to infant formula (Question 37), cow's milk (Question 44), soy milk (Question 49) and soft, semi-soft and solid food (Question 62) was determined first; the child was predominantly breastfed until the age when this 'event' happened. An estimation of the duration of predominant breastfeeding could then follow, using techniques that are used for event history analysis.

Proportion of children receiving soft/semi-solid/solid food

The survey has a soft/semi-soft /solid food module, comprising four questions. The first question asked whether a child has ever eaten any soft or semi-solid or solid food. If the response was 'No', further questions in this module were not asked. If the answer was 'Yes', then the respondent was asked to state the age of the child when they first ate soft or semi-soft or solid food. A further question was asked to determine the type of fluids that were added to the food and, a final question on last time the child ate soft or semi-soft or solid food.

For this indicator, the numerator was the number of children who had ever eaten any soft or semi-soft or solid food and this event had occurred 24 hours before survey completion. The denominator was the total number of children.

Note, though, that for the tables in Chapter 3, the numerator did not include the 'past 24 hours' qualifier, and the proportions were derived from event history analysis.

Proportion of children receiving non-human milk or formula

To estimate the proportion of children receiving non-human milk or formula, we first identified whether a child had ever received non-human milk or formula. To do this, we used information about the first feed (Question 22); any infant formula (Question 35); cow's milk (Question 43); and/or soy milk (Question 48).

The numerator comprised children who had ever had non-human milk or formula and had consumed the same within 24 hours before survey completion. The denominator was the total number of children.

Note, again, for the tables in Chapter 3, the numerator did not include the 'past 24 hours' qualifier, and the proportions were derived from event history analysis.

Derivation of variables used for geographical classification and socioeconomic status

Socioeconomic status

Socio-Economic Indexes for Areas (SEIFAs) are categories that summarise the socioeconomic conditions of an area. They are derived by the ABS from the 2006 population Census.

Respondents' usual residence was allocated a postal area (ABS equivalent of Australia Post's postcode). Then each postal area was assigned an Index of Relative Socioeconomic Disadvantage (SEIFA) quintile. Lower SEIFA quintile means that the postal area in general is more disadvantaged compared to other postal areas with higher SEIFA quintile.

Geographical classification

Geographical remoteness in this report is classified according to the Australian Standard Geographical Classification Remoteness Areas, developed by the ABS to allow quantitative comparisons between 'city' and 'country' Australia.

Using information on mother/carer's usual residency, the area was classified into one of the ABS remoteness structures: major cities; inner regional; outer regional; and remote/very remote. Due to small number of cases in rural and very remote areas, the two groups were combined to one.

Reliability of estimates

Sampling error

The prevalence estimate obtained from a sample will differ from the prevalence rate obtained from counting the whole population. The error in this estimate is known as sampling error. This error occurs because observations are only made on the sample. Other things remaining the same, sampling error can be minimised by selecting a higher proportion of the population in the sample. The confidence bands for the estimates are based on the sampling error. The lower the sampling error, the tighter the confidence boundaries. Confidence boundaries are presented in tables on this report's web page at <www.aihw.gov.au>. The confidence intervals are calculated using the *svy* command in Stata.

Non-sampling error

Non-sampling error can be attributed to many sources. These include respondents understanding questions differently, respondents not providing correct information, definitional problems, processing errors and recall errors. To minimise non-sampling error, we piloted the survey instrument to assess whether respondents understood the concepts and questions and whether they were able to provide coherent answers. The pilot for this survey was conducted nationwide on a sample of 1,000 mother/carers of children up to 24 months of age. Over 600 respondents completed the pilot survey. The pilot showed that there were no major issues with the questionnaire, other survey-related materials or with the method of contacting the respondents. After the pilot, minor changes were made to the survey instrument.

Responses are based on mother's/carer's recall of infant feeding practices without reference to written records. As such, the prevalence estimates may overestimate or underestimate actual breastfeeding rates.

Limitations of the data

As with all self-reported survey data, the major limitation is that the estimates are based on recall of infant feeding practices. Poor memory, misunderstanding of the question or intentional deception can all contribute to inaccuracies in the data. Further, although the sample size was reasonable for the national level, any estimates for subpopulations are based on a smaller sample size and are less precise.

Since the survey used the Medicare Australia enrolment database, children who were not enrolled at the time of sample selection date were excluded from the survey. Further, Medicare Australia performed an activity test, and only those children who had at least one Medicare service or Australian Childhood Immunisation Register episode in the previous 12 months (including enrolment) were included in the survey.

Access to the survey data

The de-identified survey data can be obtained from the Australian Social Science Data Archive (ASSDA), Australian National University.

Glossary

Any breastfeeding: The child receives some breastmilk but can also receive any food or liquid including non-human milk.

Breastfeeding duration: The total length of time a child receives any breastmilk from initiation through until weaning is complete.

Breastmilk: Human milk and colostrum (including expressed breastmilk and breastmilk from a donor or donor milk bank).

Breastmilk substitute: Any milk (other than breastmilk), or food-based fluid used in infant feeding as a replacement for breastmilk, whether or not it is suitable for that purpose (commonly includes infant formula, cow's milk, and other milks fed to infants).

Complementary feeding (partial breastfeeding): The child receives both breastmilk and any other fluid or food (this may include any food or liquid including non-human milk).

Complementary foods: Any nutrient-containing foods or liquids (other than breastmilk) given to children who are receiving breastmilk.

Current practices: Respondents are asked about very recent infant feeding practices, usually in the previous 24 hours. Compare with *Retrospective (recalled) practices*.

Dummy: (also known as a pacifier or soother): An artificial teat typically made of rubber or silicone, on which the child sucks for comfort.

Ever breastfed: An infant has been put to the breast, if only once, and/or an infant has received expressed breastmilk or breastmilk from a donor or donor milk bank.

Exclusive breastfeeding: An infant receives only breastmilk from their mother or a wet nurse, or expressed breastmilk, and no other liquids or solids with the exception of drops or syrups consisting of vitamins, mineral supplements or medicines including oral rehydration solutions.

Fully breastfed: See *Predominant breastfeeding*.

Indicator: An indicator is used to describe a specific and measurable statistical construct for monitoring progress towards a goal (a broad statement of desired improvement).

Infant: Refers to a child less than 12 month of age. In this report, the term 'children' includes infants.

Initiation: The infant was introduced to breastmilk at some point. For initiation to exclusive breastfeeding, the infant's *first* feed has to be breastmilk, colostrum, expressed breastmilk or breastmilk from a donor or donor milk bank.

Multiparous: A woman who has given birth more than once.

Pacifier: See *Dummy*.

Parity: The classification of a woman by the number of times she has given birth (see *Primiparous* and *Multiparous*).

Primiparous: A woman who has given birth once.

Predominant breastfeeding: An infant's predominant source of nourishment is breastmilk but the infant may also receive water and water-based drinks (sweetened and flavoured water, teas, infusions etc.); fruit juice; oral rehydration solutions (ORSs); drop and syrup forms of vitamins, minerals and medicines; and ritual fluids (in limited quantities). All other food-based fluids are excluded, in particular non-human milk.

Remoteness: Geographical remoteness in this report is classified according to the Australian Standard Geographical Classification Remoteness Areas, developed by the ABS to allow quantitative comparisons between 'city' and 'country' Australia.

Retrospective (recalled) practices: Practices measured retrospectively; that is, respondents are asked to recall and report their behaviours that may be in the past.

SEIFA: Socio-Economic Indexes for Areas (SEIFAs) are categories that summarise the socioeconomic conditions of an area. They are derived by the Australian Bureau of Statistics (ABS) from the 2006 population Census.

Soft, semi-solid or solid foods: Any nutrient-containing foods (soft/semi-solid/solid); for example, dilute infant cereals. Does not include breastmilk or breastmilk substitutes, fruit and vegetable juices, sugar water etc.

Weaning: The period during which children are introduced to breastmilk substitutes and/or solid foods with the intention of replacing some or all of the breastmilk in the diet.

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Related publications

The following AIHW publications relating to children, youth and families might also be of interest:

- AIHW (Australian Institute of Health and Welfare) 2010. Health and wellbeing of young Australians: indicator framework and key national indicators. Bulletin no. 77. Cat. no. AUS 123. Canberra: AIHW.
- AIHW 2011. Headline indicators for children's health, development and wellbeing. Cat. no. PHE 144. Canberra: AIHW.