OzFITS

What are Aussie kids really eating?

First results from the OzFITS study

SAHMRI South Australian Health & Medical Research Institute

SAHMRI Women and Kids

Breastmilk is the ideal food for infants

OzFITS TEAM

Prof Tim Green
Dr Merryn Netting
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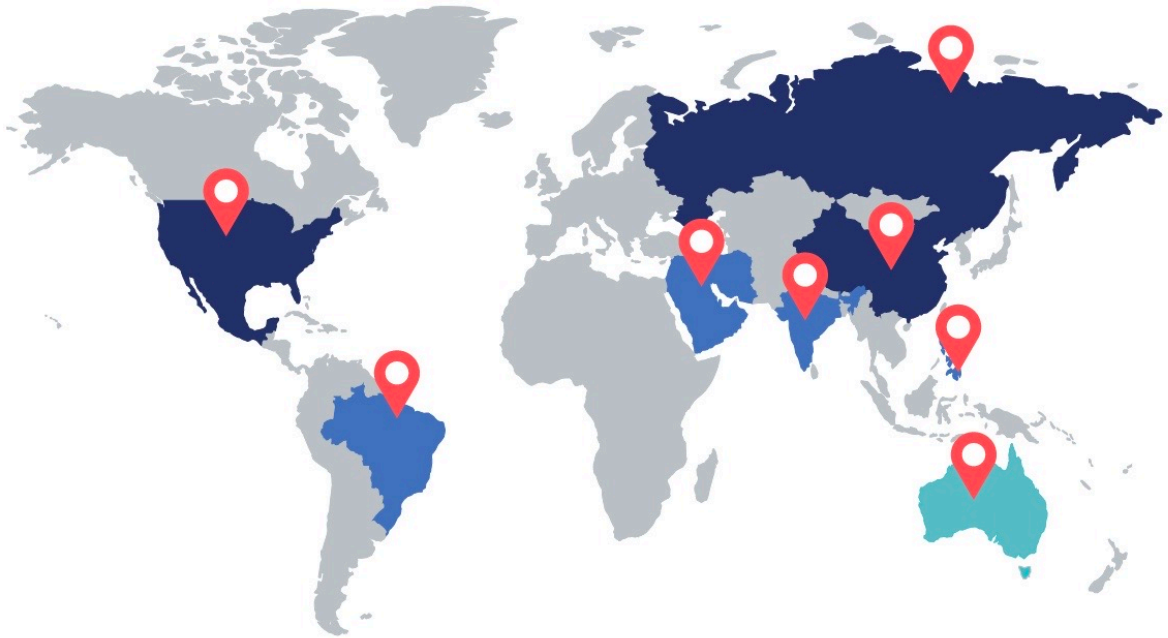
Dr Chelsea Mauch
Dr Emma Knight

- Funded by SAHMRI with an unrestricted grant from NNI
- Support from NHMRC and Adel University (salaries)
- The design of this study, its execution, analyses, interpretation, or decision to submit results was independent of NNI

SAHMRI South Australian Health & Medical Research Institute | SAHMRI Women and Kids

fits

around the world



COMPLETE

UNDERWAY

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Nestlé Nutrition Institute

What are Aussie kids really eating? – first results from the OzFITS study

- why this group has been missed in previous dietary surveys
- methodology of OzFITS 2021
- key findings - breastfeeding, timing of solid foods, allergens

A deep dive into the OzFITS study: implications for health professionals

- principles behind determining adequate intakes
- comparison of dietary intakes with recommendations
- areas for future research

OzFITS

What are Aussie kids really eating? – first results from the OzFITS study

- why this group has been missed in previous dietary surveys
- methodology of OzFITS 2021
- key findings - breastfeeding, timing of solid foods, allergens

The Australian Feeding Infants and Toddlers Study (OzFITS) 2021: Study Design, Methods and Sample Description

by Najma A. Moumin, Rebecca K. Golley, Chelsea E. Mauch, Maria Makrides, Tim J. Green and Merryn J. Netting

Nutrients **2021**, *13*(12), 4524; **https://doi.org/10.3390/nu13124524** - 17 Dec 2021

The Australian Feeding Infants and Toddler Study (OzFITS 2021): Breastfeeding and Early Feeding Practices

by Merryn J. Netting, Najma A. Moumin, Emma J. Knight, Rebecca K. Golley, Maria Makrides and Tim J. Green

Nutrients **2022**, *14*(1), 206; **https://doi.org/10.3390/nu14010206** - 03 Jan 2022

OzFITS

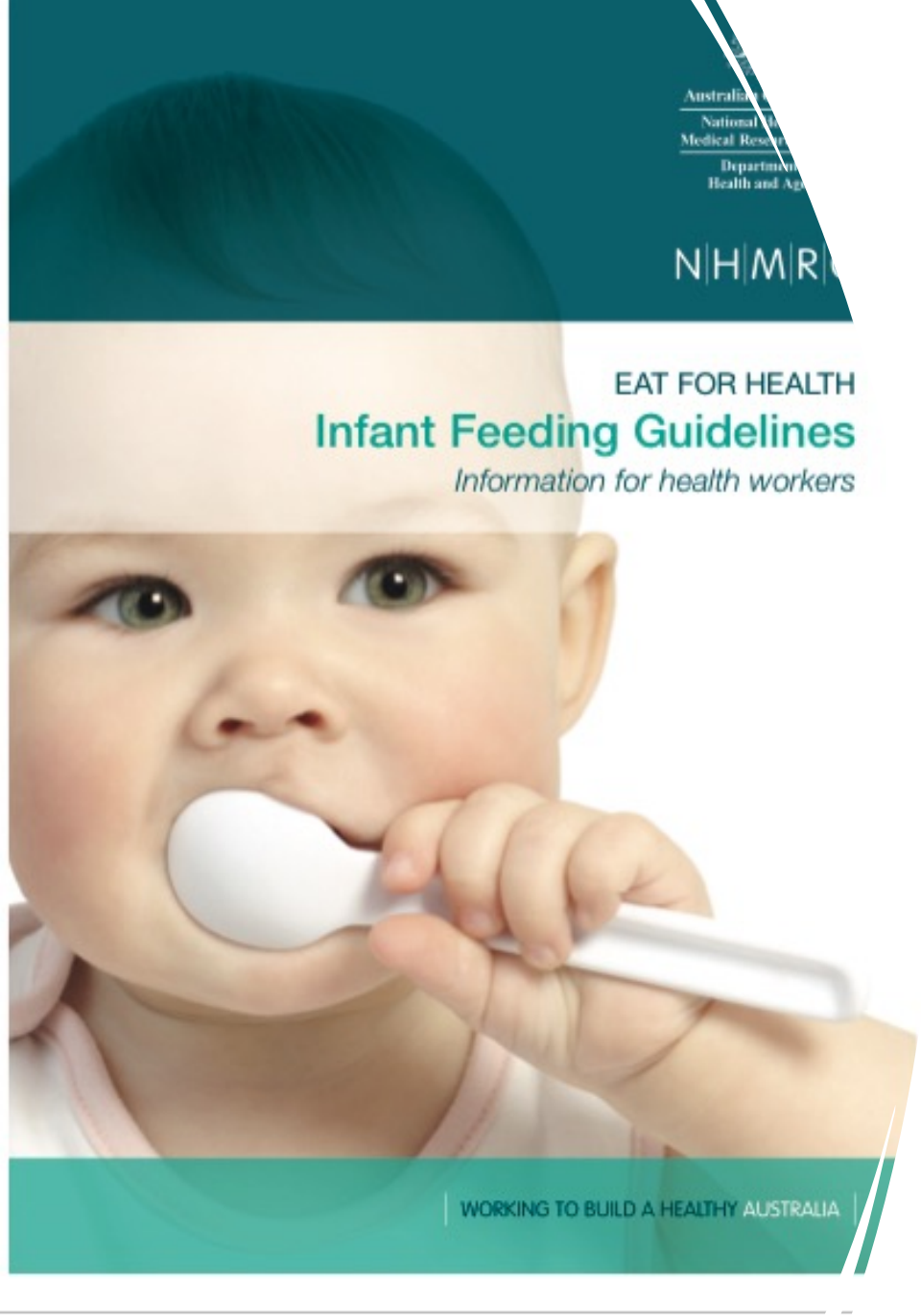
A time of growth and change

- Establishing early feeding
- Transition from breastmilk based diet to other sources of nutrition
- Many development milestones
- Periods of rapid growth
- Vulnerable to developing nutritional deficiencies
- Food related behavioral patterns are being established

Breastfeeding

- NHMRC recommends:
  - early initiation of breastfeeding within 1 hour or so of birth
  - exclusive breastfeeding for around the first 6 months of life
  - continued breastfeeding to 12 months and beyond

NHMRC 2012, 2015 revision



Complementary Foods

Foods can be introduced in any order, provided iron-rich nutritious foods are included and the texture is suitable for the infant's stage of development

Iron rich foods include iron-fortified cereals, pureed meats and poultry dishes. Cooked plain tofu and legumes/beans are also sources of iron

NHMRC Infant Feeding Guidelines. Information for health workers (2013)

Active introduction of food allergens

NHMRC Infant Feeding Guidelines

.. Delaying the introduction of solid foods, including allergenic foods may increase the risk of allergies

…foods can be introduced in any order and at a rate that suits the infant, as long as iron rich foods are offered first

Australasian Society Clinical Immunology and Allergy (ASCIA)

When your infant is ready, at around 6 months, but not before 4 months, start to introduce a variety of solid foods, starting with iron rich foods, while continuing breastfeeding.

All infants should be given allergenic solid foods including peanut butter, cooked egg, dairy and wheat products in the first year of life. This includes infants at high risk of allergy.

NHMRC IFG (2013, 2015 revision)
Joshi et al MJA 2019

CLINICAL REPORT Guidance for the Clinician in Rendering Pediatric Care

American Academy of Pediatrics
DEDICATED TO THE HEALTH OF ALL CHILDREN™

The Effects of Early Nutritional Interventions on the Development of Atopic Disease in Infants and Children: The Role of Maternal Dietary Restriction, Breastfeeding, Hydrolyzed Formulas, and Timing of Introduction of Allergenic Complementary Foods

Frank R. Greer, MD, FAAP,[a] Scott H. Sicherer, MD, FAAP,[b] A. Wesley Burks, MD, FAAP,[c] COMMITTEE ON NUTRITION, SECTION ON ALLERGY AND IMMUNOLOGY

sacn
Scientific Advisory Committee on Nutrition

Committee on TOXICITY

Assessing the health benefits and risks of the introduction of peanut and hen's egg into the infant diet before six months of age in the UK

A Joint Statement from the Scientific Advisory Committee on Nutrition and the Committee on Toxicity of Chemicals in food, Consumer products and the Environment

DOI: 10.1111/cea.13218

EDITORIAL

WILEY

Implementing primary prevention of food allergy in infants: New BSACI guidance published

Guideline summary

The Australasian Society of Clinical Immunology and Allergy infant feeding for allergy prevention guidelines

Preeti A Joshi[1,2], Jill Smith[1], Sandra Vale[1], Dianne E Campbell[3]

Consensus Document

A Consensus Approach to the Primary Prevention of Food Allergy Through Nutrition: Guidance from the American Academy of Allergy, Asthma, and Immunology; American College of Allergy, Asthma, and Immunology; and the Canadian Society for Allergy and Clinical Immunology

David M. Fleischer, MD[a], Edmond S. Chan, MD[b], Carina Venter, PhD, RD[a], Jonathan M. Spergel, MD, PhD[c], Elissa M. Abrams, MD, MPH[d], David Stukus, MD[e], Marion Groetch, RD[f], Marcus Shaker, MD, MS[g], and Matthew Greenhawt, MD, MBA, MSc[a] *Aurora, Colo; Vancouver, BC, Canada; Philadelphia, Pa; Winnipeg, MN, Canada; Columbus, Ohio; New York, NY; and Lebanon, NH*

Received: 16 March 2017 | Revised: 3 October 2017 | Accepted: 15 October 2017
DOI: 10.1111/pai.12820

REVIEW ARTICLE

WILEY

Early introduction of allergenic foods for the prevention of food allergy from an Asian perspective—An Asia Pacific Association of Pediatric Allergy, Respirology & Immunology (APAPARI) consensus statement

Elizabeth Huiwen Tham[1,2] | Lynette Pei-Chi Shek[1,2] | Hugo PS Van Bever[1,2] | Pakit Vichyanond[3] | Motohiro Ebisawa[4] | Gary WK Wong[5] | Bee Wah Lee[1] | On behalf of the Asia Pacific Association of Pediatric Allergy, Respirology & Immunology (APAPARI)

Received: 24 February 2021 | Accepted: 27 February 2021
DOI: 10.1111/pai.13496

ORIGINAL ARTICLE

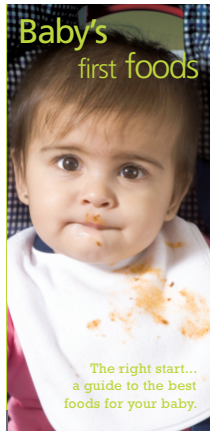
WILEY

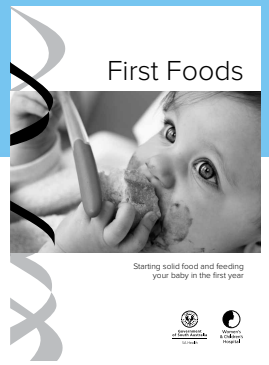
EAACI guideline: Preventing the development of food allergy in infants and young children (2020 update)

Susanne Halken[1] | Antonella Muraro[2] | Debra de Silva[3] | Ekaterina Khaleva[4] | Elizabeth Angier[5] | Stefania Arasi[6] | Hasan Arshad[7,8,9] | Henry T. Bahnson[10] | Kirsten Beyer[11] | Robert Boyle[12,13] | George du Toit[14] | Motohiro Ebisawa[15] | Philippe Eigenmann[16] | Kate Grimshaw[8,17] | Arne Hoest[1] | Carla Jones[18] | Gideon Lack[19,20,21,22] | Kari Nadeau[23] | Liam O'Mahony[24] | Hania Szajewska[25] | Carina Venter[26] | Valérie Verhasselt[27] | Gary W. K. Wong[28] | Graham Roberts[4,7,9] | European Academy of Allergy and Clinical Immunology Food Allergy and Anaphylaxis Guidelines Group

Guidelines are incorporated into general feeding advice

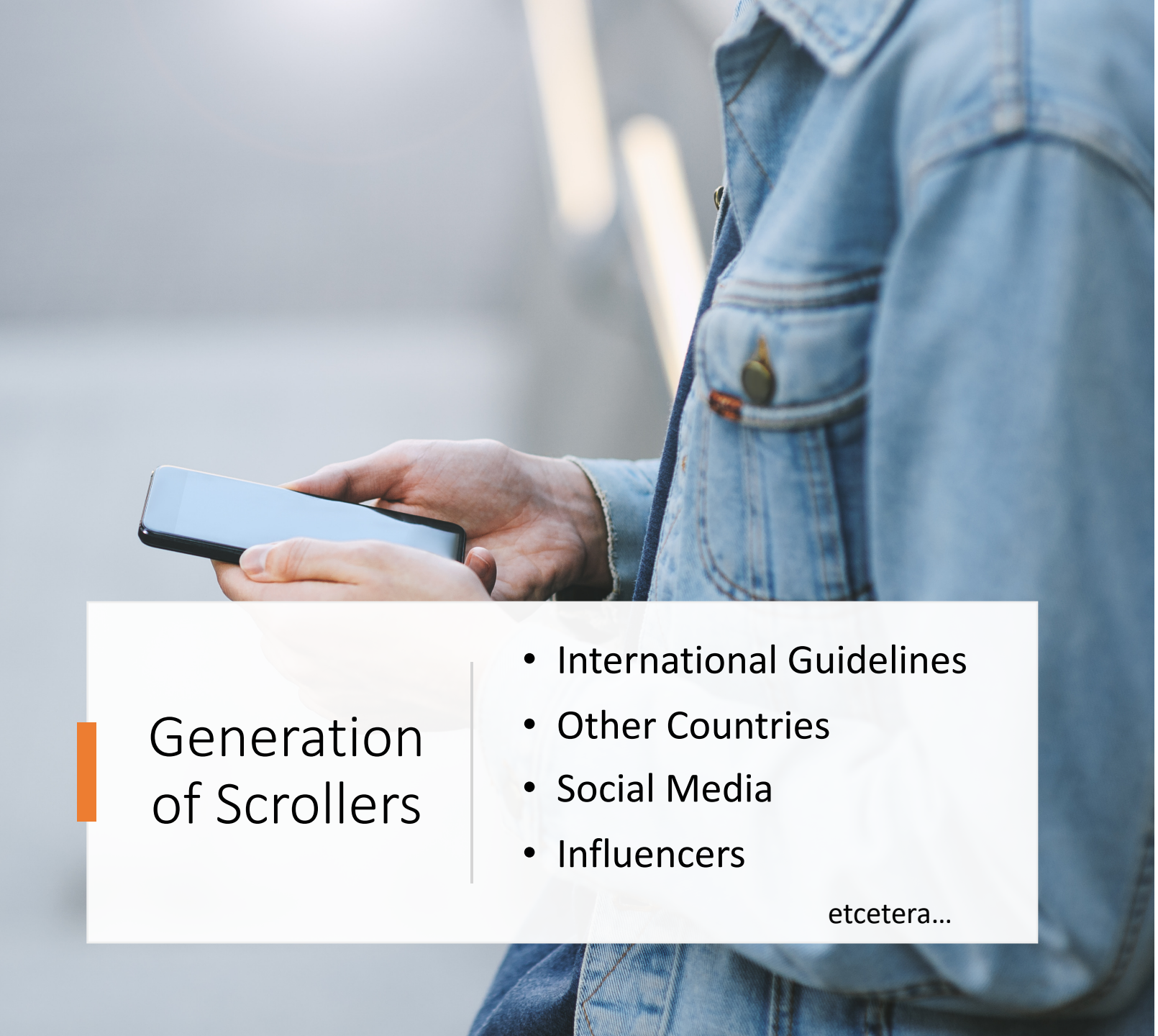
Northern Territory Infant Feeding Guidelines





n > 25 ...plus information on websites

Netting & Allen
J Ped Child Health 2017



Generation of Scrollers

- International Guidelines
- Other Countries
- Social Media
- Influencers

etcetera…

?


ɑllian Guide to Healthy Eatiiy
wide variety of nutritious foods
iese five food groups every day.
ĸ plenty of water.
Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties
Vegetables and legumes/beans
rolled oats
Muesli
Polenta
couscous
Quinoa
Fettuccine
Penne
brown rice
white rice
Wheat flakes
Red kidney beans
Red lentils
Chickpeas
Lentils
Mixed nuts
tofu
milk
low fat milk
yoghurt

Dietary Surveys

	Breastfeeding initiation	Breastmilk substitutes	Exclusive Breastfeeding	Timing of solid foods	Food Groups	Nutritional intake
ABS	✓	-	✓	✓	-	-
ANIFS 2010	✓	✓	✓	✓	-	-
Australian National Health Survey 2011	-	-	-	-	-	-

*Australian Bureau of Statistics National Health Survey (2017-18 Breastfeeding Module; no diet data for < 2 years)

** Australian National Infant Feeding Survey 2010

***Australian National Health Survey 2011. No data for <2 years

OzFITS Study Design and Sample

- **First** Australian dietary survey of children 0-2 years
- n = 1140

- Data Collection
  - Questionnaire
    - Family characteristics
    - Breastfeeding history and use of breastmilk substitutes
    - Timing of solid foods including common allergens
  - 24-hour food record (with repeats in 30%)

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Recruitment

- Targeted online advertising
- Participants self-select and are pre-screened by recruitment company
- Potential participants were referred to OzFITS team and eligibility is confirmed
- Participants complete telephone based questionnaire and are enrolled to the study
- Posted OzFITS study pack

Study Steps

STEP 1: CHILD-FEEDING QUESTIONNAIRE

STEP 2: FOOD RECORD

STEP 3: 24-HOUR RECALL INTERVIEW

OzFits

OzFITS

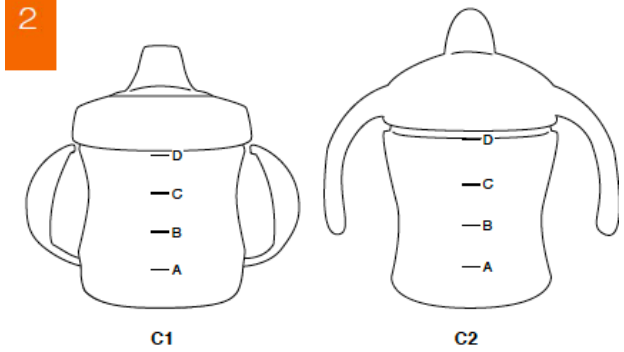
The Australian Feeding Infants and Toddlers Study

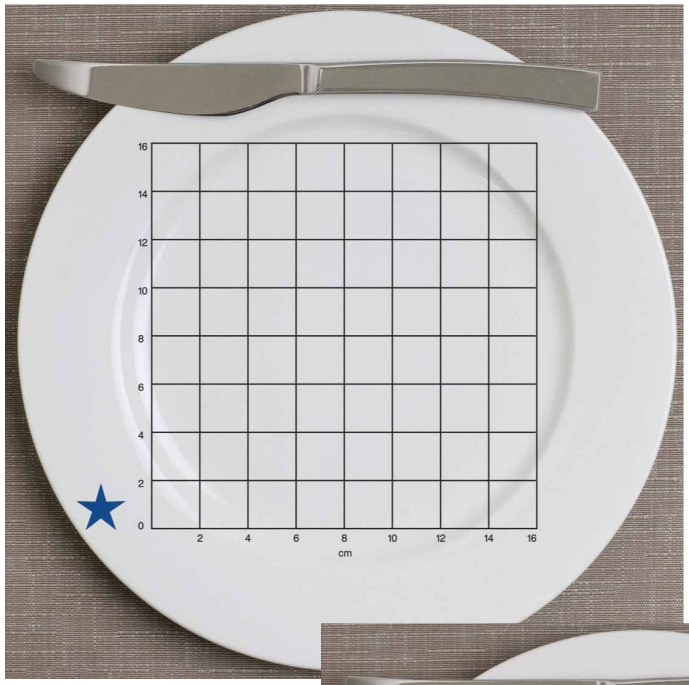
The ozFITS Study

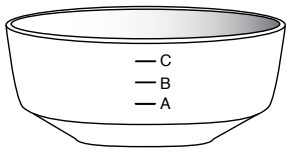
Food Measurement Book

SAHMRI South Australian Health & Medical Research Institute

2







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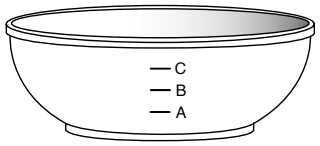

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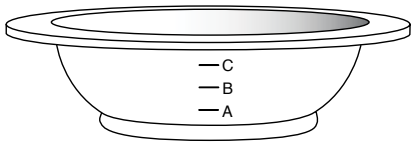

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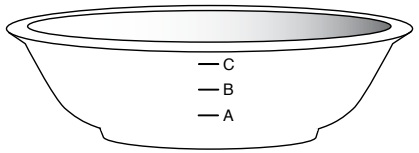

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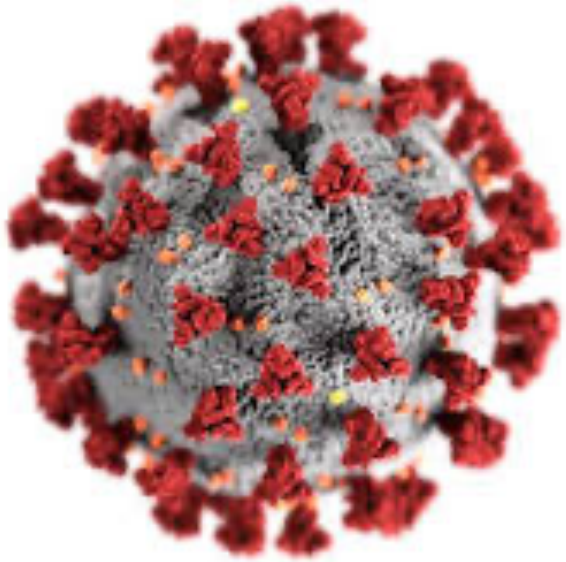
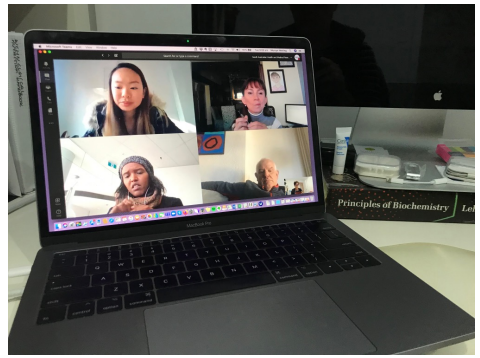


WFH essentials for study start up



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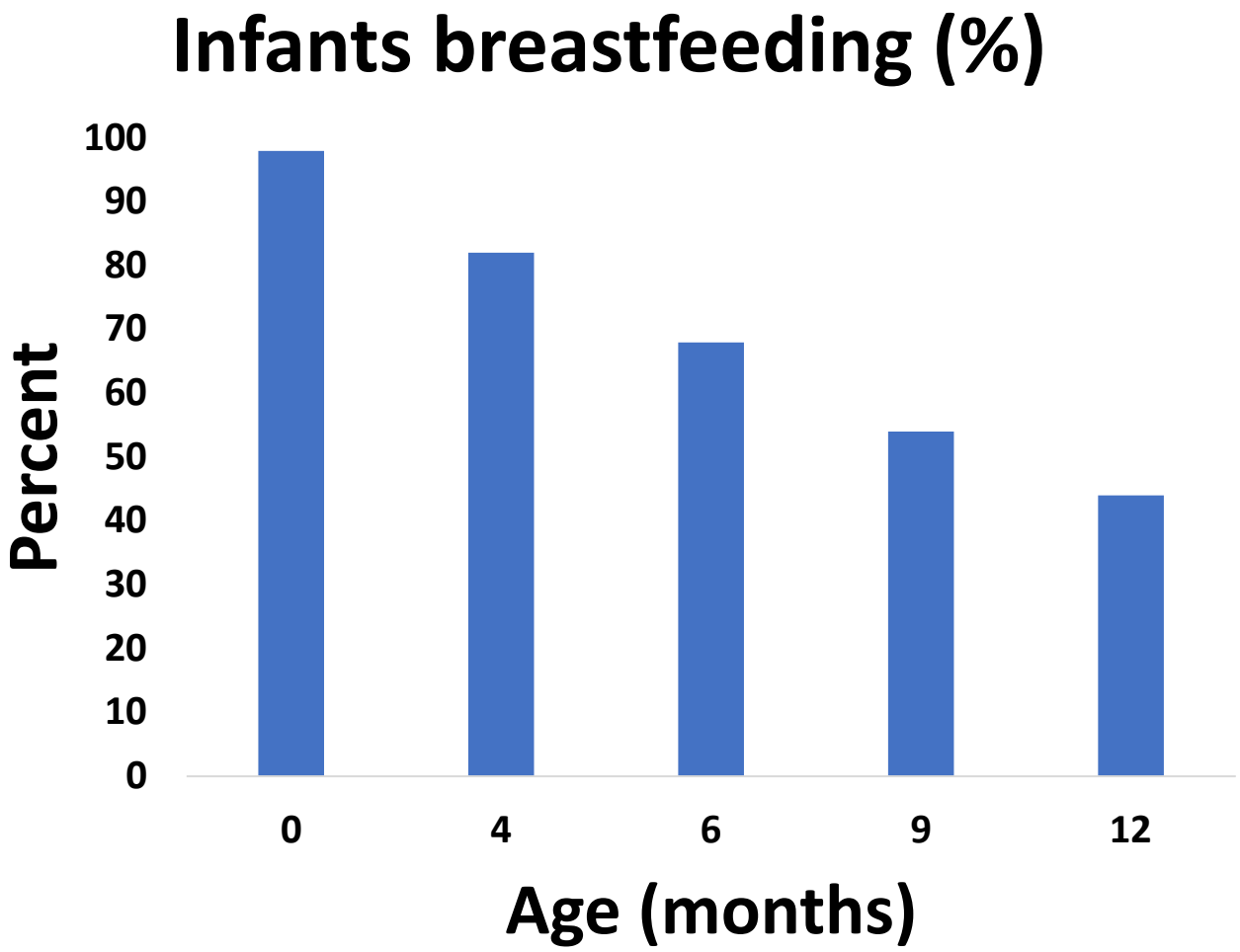
Results – Early Feeding

Breastfeeding Definitions

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), and oral rehydration salts, drops, or syrups (vitamins, minerals, medicines)	Anything else
Solid feeding or 'partial' breastfeeding	Breastmilk (including expressed milk)	Anything else	
Any breastfeeding	Any of the above definitions	Anything else	
Ever breastfed	Breastfed or received expressed breastmilk at least once		

Australian National Infant Feeding Survey

Any Breastfeeding



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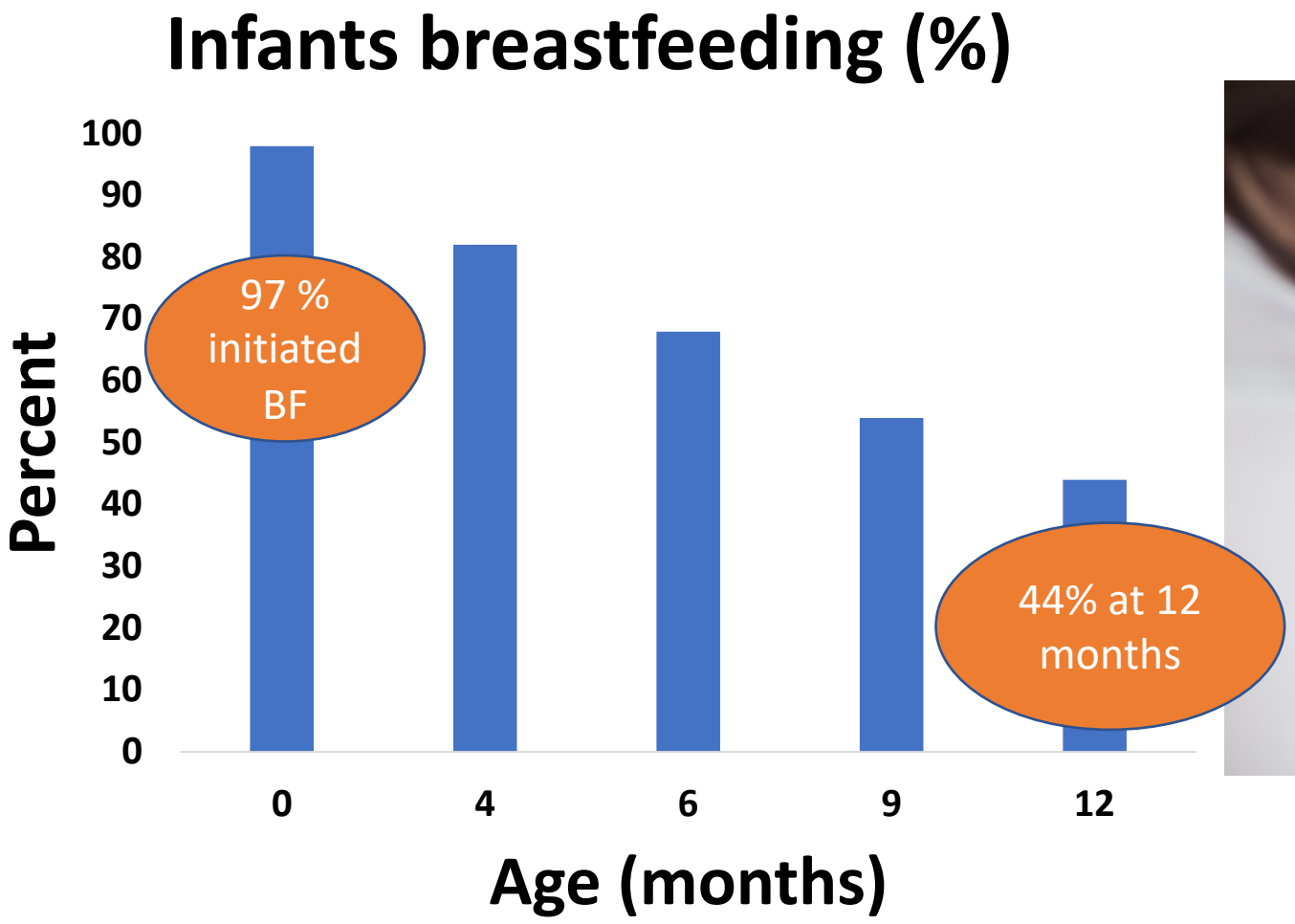
Any Breastfeeding



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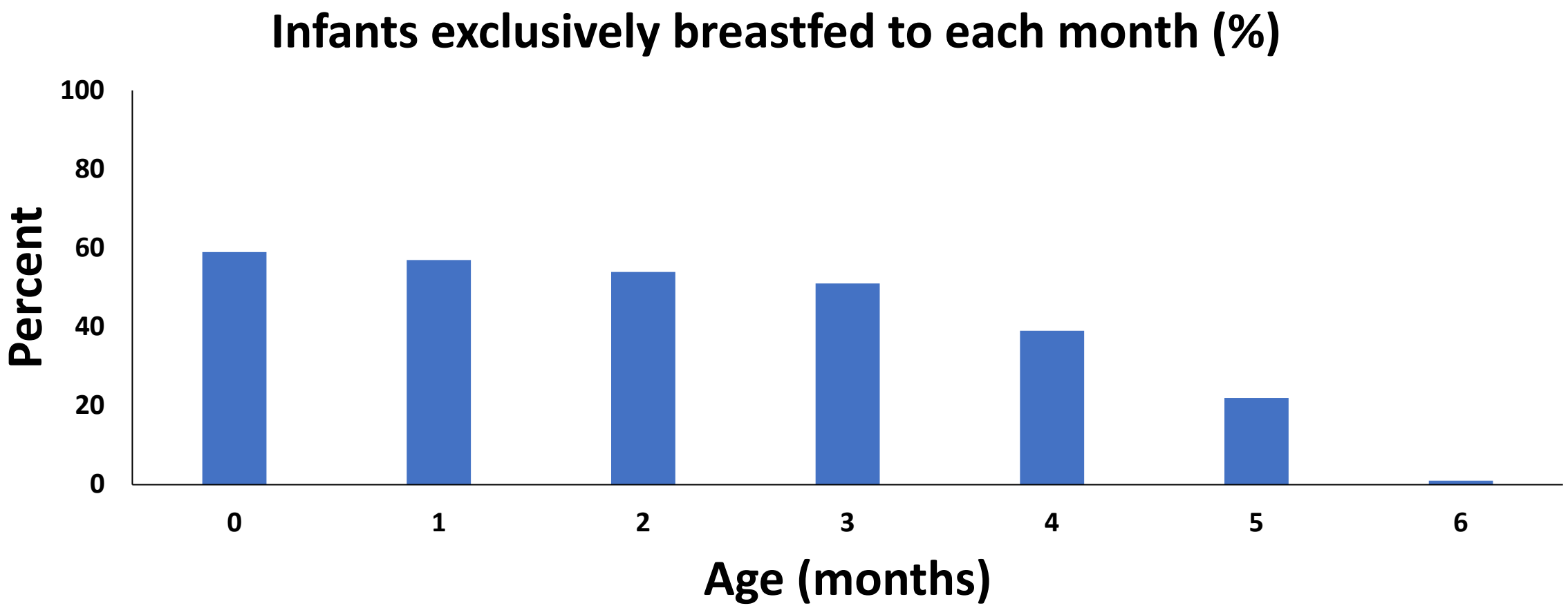
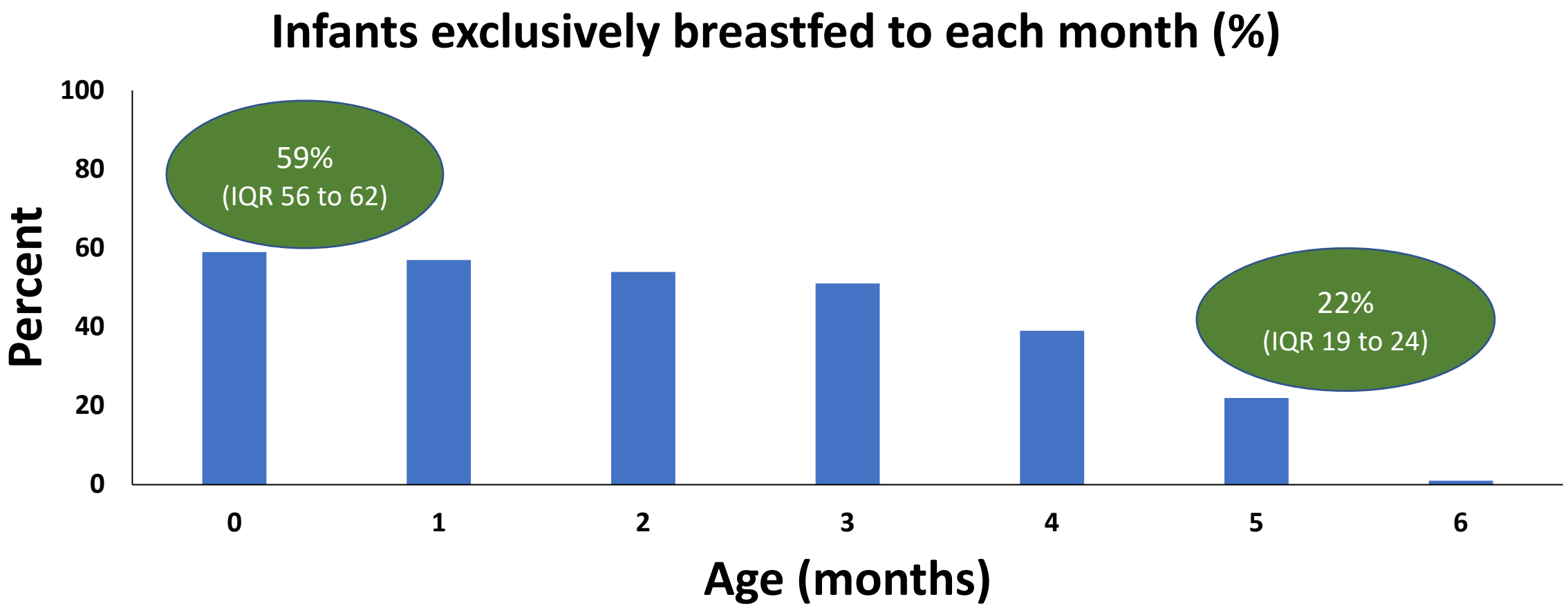
Exclusive Breastfeeding



Exclusive Breastfeeding



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Early feeding

- 1/3 of infants were only ever breastfed
- Of the infants consuming breastmilk substitutes, 86% also breastfed

- Breastmilk is the ideal source of nutrition for infants
- Any breastfeeding is beneficial to both mother and baby

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Solid Foods

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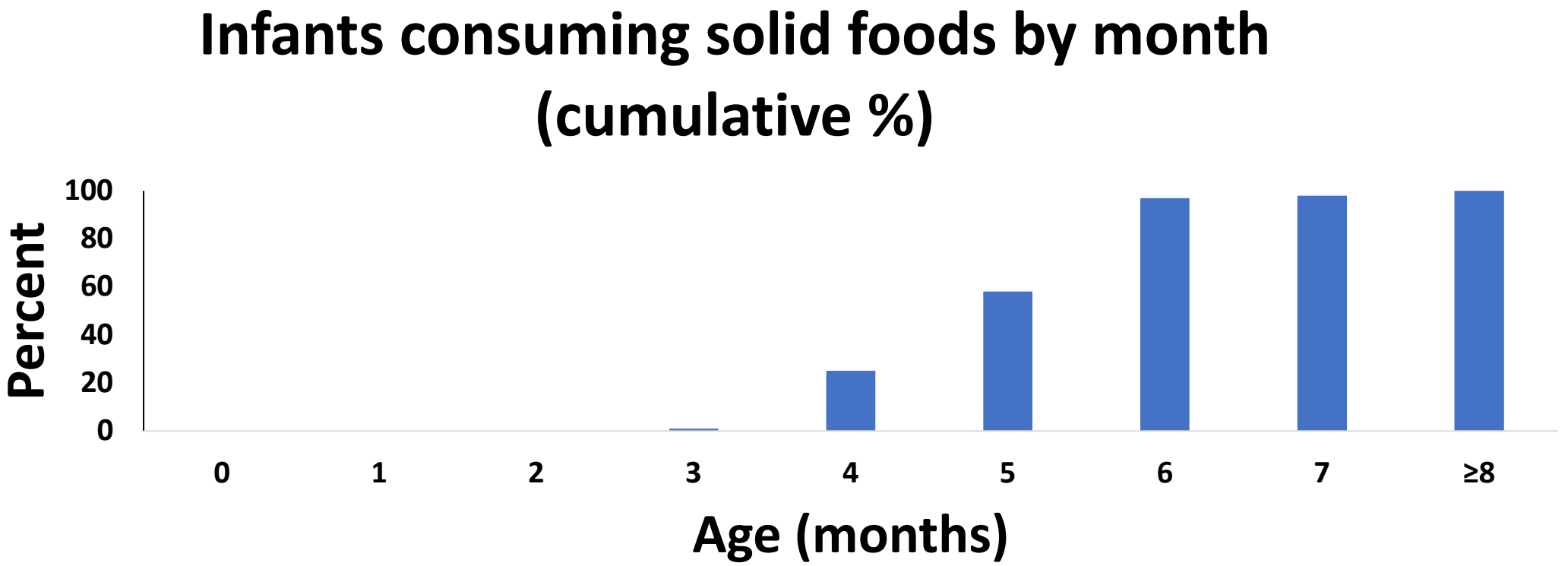
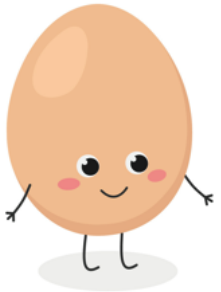
Timing of solid foods



Most children were exposed to common allergens by 1 year

94%
Peanuts



97%
Egg

76%
Tree nuts

82%
Sesame

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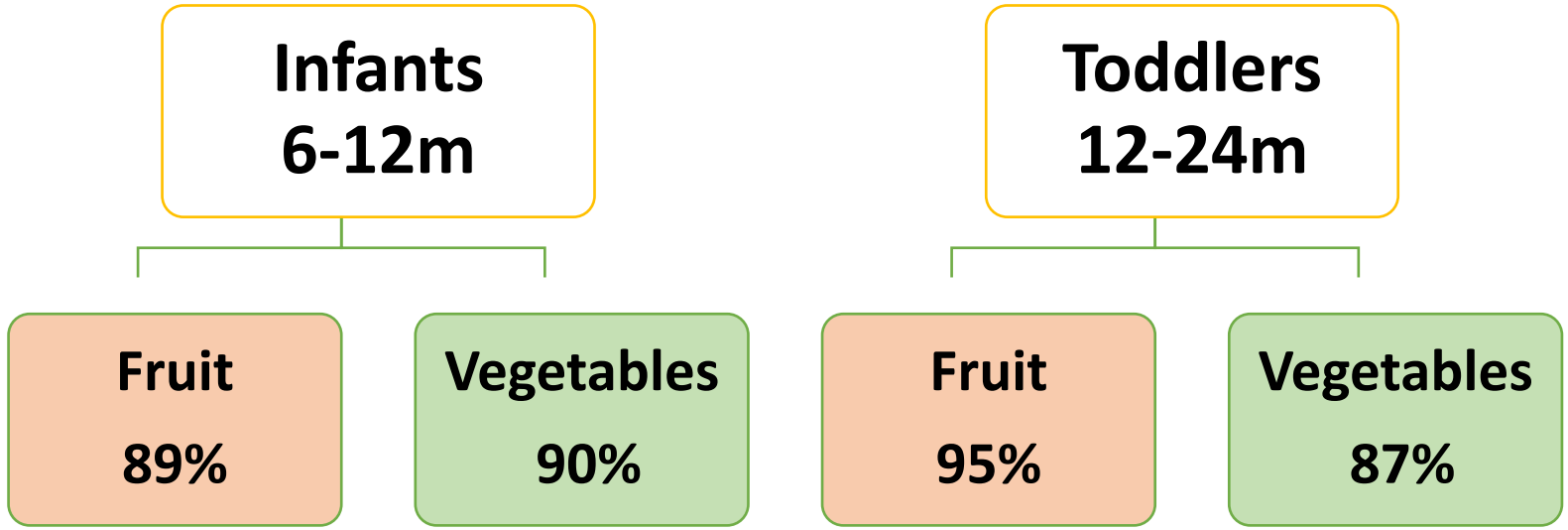
Most infants and toddlers were consuming fruit and vegetables



Top five fruits consumed by infants 6-12m

41%

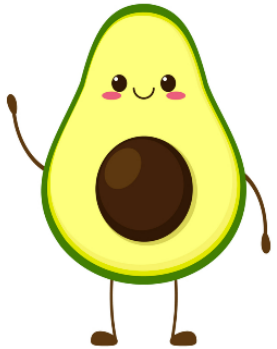
Banana

33%

Pear & Apple

29%

Strawberries & Raspberries



23%

Avocado

19%

Blueberries

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Top five vegetables consumed by infants 6-12m

30%

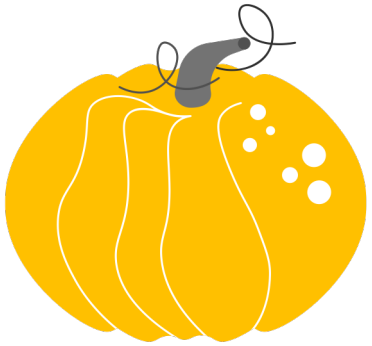
Broccoli & Cauliflower

24%

Carrots

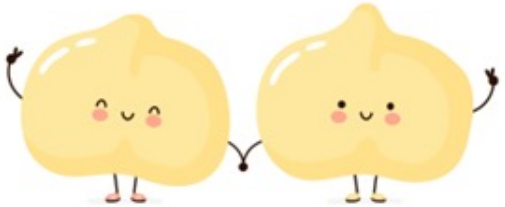
22%

Mixed vegetables (soup)



20%

Pumpkin



18%

Legumes

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Most toddlers consumed foods from all core food groups

Food group	Consumers, n (%)	% Total energy intake, median (IQR)—consumers
Fruit	457 (96)	9 (5-14)
Vegetables	458 (96)	4 (1-10)
Cereals and grains	466 (98)	20 (12-31)
Meats only	334 (70)	8 (3-15)
Meat alternatives only	339 (71)	5 (0-10)
Dairy Foods	450 (95)	18 (10-28)
Unsaturated fats and oils	298 (63)	3 (2-7)

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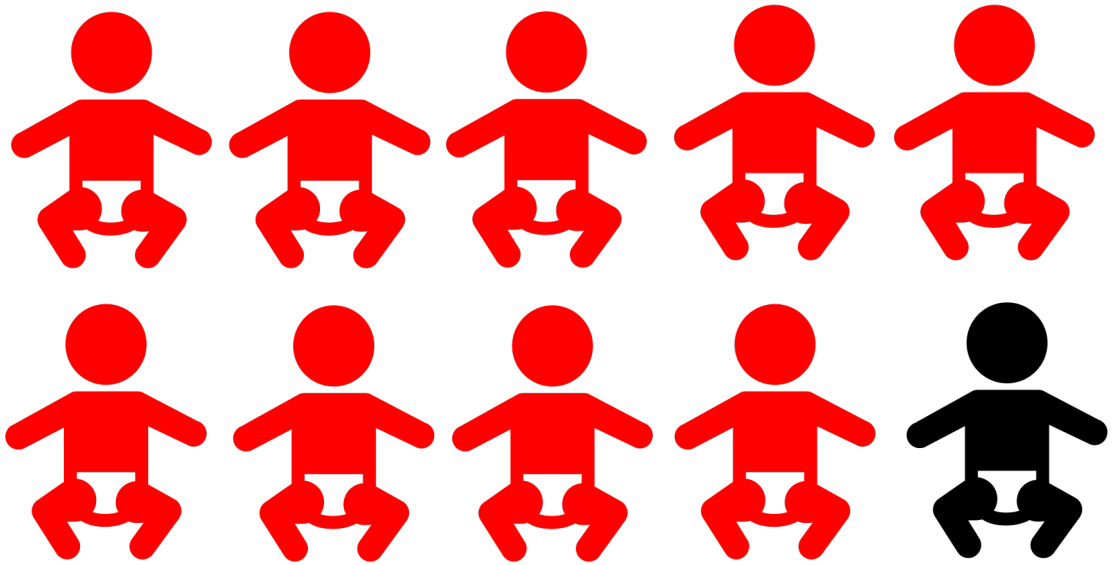
9/10 toddlers consumed discretionary foods



Discretionary foods contributed 13% of total energy intake

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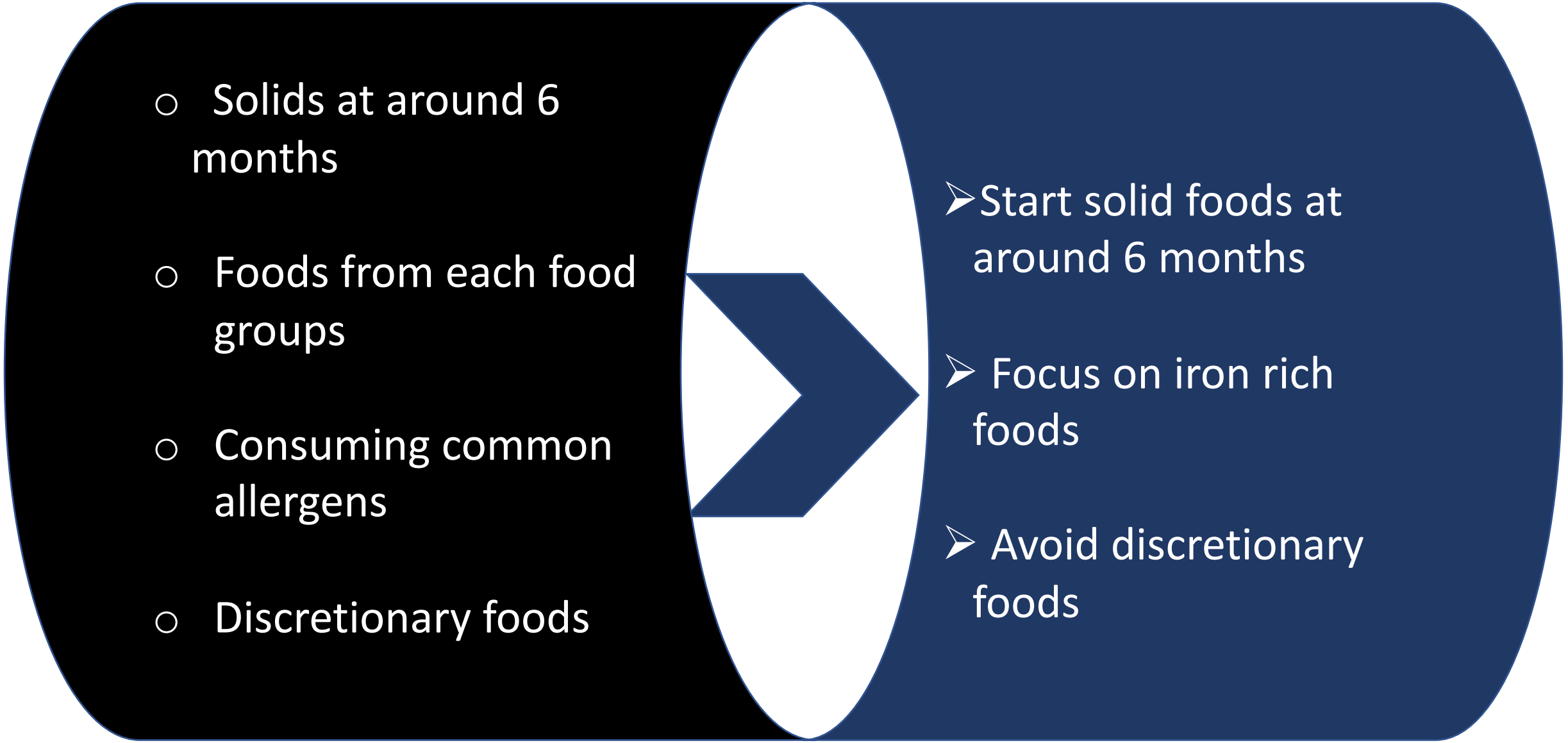
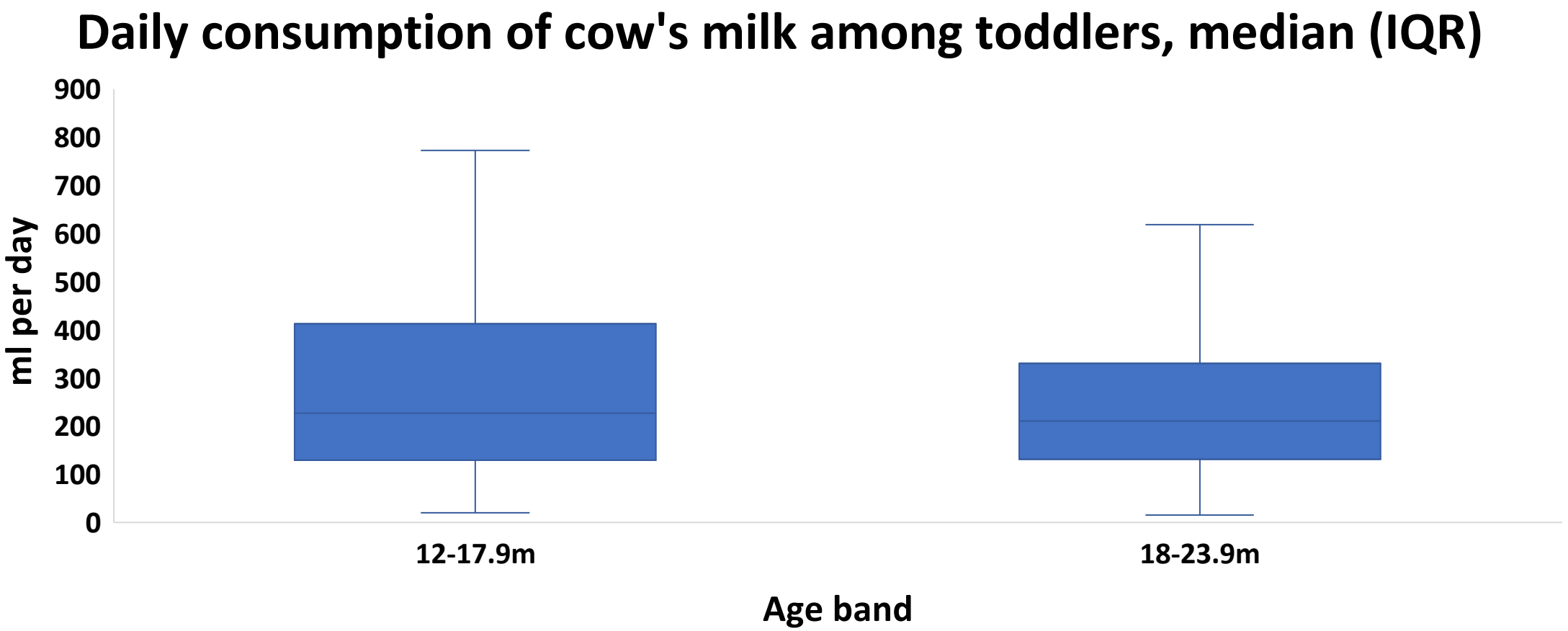

Solids at around 6 months
Foods from each food groups
Consuming common allergens
Discretionary foods
Start solid foods at around 6 months
Focus on iron rich foods
Avoid discretionary foods

Drinks

Toddlers consumed ~1 cup milk per day



Main drinks for toddlers 12-24m

	Consumers, n (%)	Intake g/d, median (IQR)	% Total energy intake, median (IQR)—consumers
Breastmilk	209 (44)	340 (200-540)	24 (13-38)
Formula/toddler milk	89 (19)	385 (220-551)	20 (12-32)
Cow's milk	184 (39)	211 (130-371)	15 (8-23)
Water	458 (96)	270 (159-420)	NA
Sweetened beverages	16 (3)	260 (156-272)	5 (4-8)

OzFits

Main drinks for toddlers 12-24m

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Water	458 (96)	270 (159-420)	NA
Sweetened beverages	16 (3)	260 (156-272)	5 (4-8)

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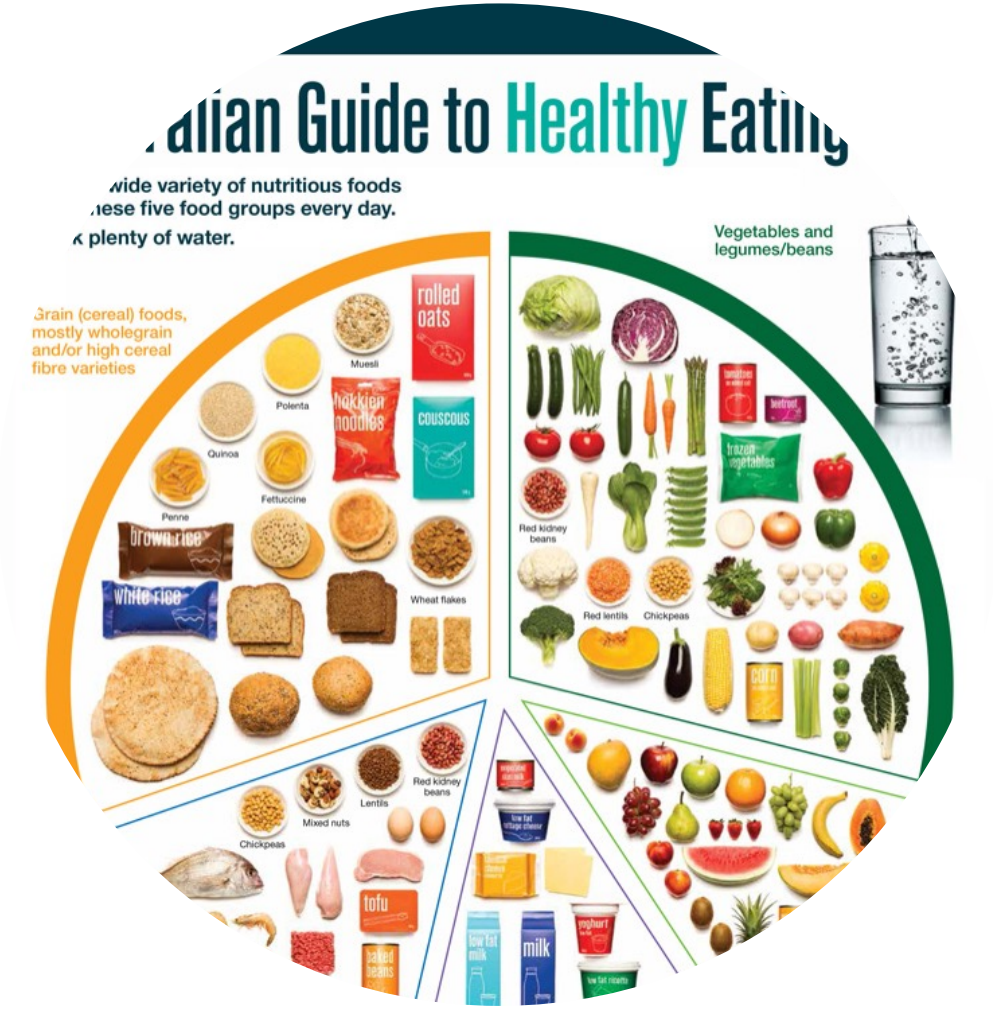
Drinks

- 20% of toddlers consumed formula / toddler milks
- 3% consumed sweetened drinks
- Water was the main drink for most children

- Formula/toddler milks are not necessary for healthy children
- Fruit juice and sweetened beverages should be limited


alian Guide to Healthy Eating
wide variety of nutritious foods
ese five food groups every day.
k plenty of water.
Grain (cereal) foods, mostly wholegrain and/or high cereal fibre varieties
Vegetables and legumes/beans
rolled oats
couscous
Muesli
Polenta
Quinoa
Fettuccine
Penne
brown rice
white rice
Wheat flakes
Red kidney beans
Red lentils
Chickpeas
Lentils
Mixed nuts
tofu
milk

Webinar 1: Summary

Encouraging findings	Findings of concern
Breastfeeding	Early BMS exposure
Timing of solid foods	30% no meat / meat substitutes
Range of foods	Energy from drinks
Allergens	Discretionary foods

A deep dive into the OzFITS study: implications for health professionals

- principles behind determining adequate intakes
- comparison of dietary intakes with recommendations
- areas for future research

Usual Nutrient Intake Distribution and Prevalence of Inadequacy among Australian Children 0–24 Months: Findings from the Australian Feeding Infants and Toddlers Study (OzFITS) 2021

by Najma A. Moumin, Merryn J. Netting, Rebecca K. Golley, Chelsea E. Mauch, Maria Makrides and Tim J. Green

Nutrients **2022**, *14*(7), 1381; **https://doi.org/10.3390/nu14071381** - 25 Mar 2022

OzFITS

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