

INFANT FEEDING: 0 - 12 MONTHS - FORMULA FEEDING AND INTRODUCTION OF SOLIDS PRACTICE GUIDELINE[®]

DOCUMENT SUMMARY/KEY POINTS

- This document contains details on issues concerning infant feeding. Details covered include:
 - Formula (bottle) feeding
 - Infant appetite and introduction of solids to an infant

A few points worth noting:

- Every ward where infants are nursed should have a refrigerator specifically for the storage of formula. If there is no separate refrigerator, formulas and expressed breast milk must be kept in a separate container and clearly labelled. The temperature of the refrigerator should not exceed 5°C^{1,2}.
- If a baby who is normally breast fed requires infant formula, **written permission** should be sought from the breastfeeding mother, recorded on the [Consent for Formula/Complementary, Supplementary feeds](#) and placed in the infant's medical record.
- No infant formula feeds are to be made up or decanted at ward level **other than in an emergency**. In this situation staff must follow the guidelines set out in this document.
- **There are a variety of staff who are resources for issues regarding infant feeding. They are**
 - **At CHW:** Child and Family Health CNC, Speech Pathologists, Dietitians and
 - **At SCH:** Staff from C1 South, Dietitians or Speech Pathologists.

Note: For breastfeeding information, refer to **SCHN Infant Feeding: Breastfeeding Practice Guideline**.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

Approved by:	SCHN Policy, Procedure and Guideline Committee	
Date Effective:	1 st July 2017	Review Period: 3 years
Team Leader:	Clinical Nurse Consultant	Area/Dept: Child & Family Health

CHANGE SUMMARY

- When a breastfed baby requires infant formula a **Consent for Formula/Complementary, Supplementary feeds** form should be filled in and signed and stored in the infant's medical records.
- When additives are used to fortify breast milk feeds then written consent is also required on the [Consent for Formula/Complementary, Supplementary feeds](#) form should be filled in and signed and stored in the infant's medical records.
- Hyperlink to Consent form added
- Iron rich foods are recommended as first foods.
- A variety of textured foods may be offered.
- All infants should be given allergenic solid foods including peanut butter, cooked egg and dairy and wheat products in the first year of life
- The correct diet code in patient Management table has been updated.
- The list of teats used has been updated to reflect current practice.

READ ACKNOWLEDGEMENT

- This document is relevant for any NSW Health staff members who care for formula feeding babies and their mothers, or who may be called on to do so.
- It is also relevant for any NSW Health staff members who care for babies who are starting to consume food other than infant formula or who may be called on to do so.
- The above mentioned staff should read and acknowledge this document.

This document reflects what is currently regarded as safe practice. However, as in any clinical situation, there may be factors which cannot be covered by a single set of guidelines. This document does not replace the need for the application of clinical judgement to each individual presentation.

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Introduction

Health Professionals in the Sydney Children's Hospital Network (SCHN) support and are committed to providing optimal health care to promote normal growth and development in all infants. This document relates to feeding an infant aged from birth to one year during hospitalisation.

For further information and support, please contact the following staff – Child & Family Health Clinical Nurse Consultant, staff from C1 South, Lactation Consultants and Dietitians via the hospital switchboard.

Each ward should have a copy of the National Health & Medical Research Council (NHMRC) references for easy access to information^{1,2}. These are available either for purchase from Kids Health or they can be viewed in the CHW library and on the NHMRC web site. Additional information can be obtained via the World Health Organisation website³.

1 General Principles of Infant Feeding

- Staff members should encourage and support breastfeeding.
- If infants are formula fed mothers should be aware of their options and supported in their choice.
- The chosen formula should meet the standards for quality, composition and labelling as regulated through Standard 2.9.1 of the Australian and New Zealand Food Standards Code^{4, 4a, 4b}. All formulas used in SCHN meet these standards.
- Feeding should be encouraged on demand both day and night unless there is a valid reason to do otherwise.
- **If a baby who is normally breast fed requires infant formula, written permission should be sought from the breastfeeding mother, recorded on the Consent for Formula/Complimentary, Supplementary feeds and placed in the infant's medical record.**
- When additives are used to fortify breast milk feeds then written consent is also required on the [Consent for Formula/Complimentary, Supplementary feeds](#) form should be filled in and signed and stored in the infant's medical records.
- [Hyperlink to Consent form added](#)
- When appropriate, if a mother has decreased milk supply, is unable to breastfeed or provide expressed breast milk, lactation advice should be provided.
- After weaning from breast milk, infant formula is recommended as the main drink until one year of age^{1,2}
- Fruit juice and tea (including herbal teas) are not necessary or recommended for infants. Consumption of whole fruit and drinking breast milk, formula or water are preferable for infants over 6 months^{1,2}.
- Microwave heating is not recommended for heating infant formula¹.

2 Appetite and Introduction of Solids

- Demand feeding is preferred when breast milk or formula is the predominant food (i.e. for infants less than 6 months). Normally appetite is the guide for intake in infants if there is no medical reason to alter frequency or volume of feeds.
- For the first six months of life, breast milk or infant formula provides adequate nutrition. The World Health Organisation³ recommends exclusive breastfeeding for the first six months. Australia supports this recommendation as indicated in the 2013 NHMRC guidelines^{1,2}.
- Introduction of solids is usually appropriate at around 6 months of age depending on the child's development, but should not be introduced earlier than 4 months of age. This includes those infants who were born prematurely.
- Iron rich foods are recommended as first foods. Other foods can be introduced in any order and at any rate that suits the infant^{5,6,7}. Iron rich foods include iron-enriched infant cereals, meat, chicken, fish, eggs, nut butters, tofu and legumes^{5,6,7}. A variety of vegetables, fruits, grains and dairy products should also be introduced.
- A variety of textures may be offered from puree to finger food as appropriate for the infants feeding development and preference⁶.
- All infants should be given allergenic solid foods including peanut butter, cooked egg and dairy and wheat products in the first year of life^{5,6,7}.
- Initially solids are offered once a day after milk feeds and increased to three times a day usually over several weeks.
- Once the eating of solids has been established, sometime around 8 - 9 months of age parents are encouraged to give solids prior to breastfeeds or formula feeds.
- Honey and glycerine are not recommended on dummies or teats, or as additives to infant foods¹.
- Salt and sugars are unnecessary in infant foods including formula, unless medically indicated¹. In this case a Dietitian should be consulted.
- Low fat diets are not recommended for infants¹. A Dietitian should be consulted if a low fat diet is medically indicated.
- Food and drinks provided from outside the hospital need to have been prepared under hygienic conditions and safely transported to the hospital. They should be consumed immediately or labelled and stored in the fridge on the ward if necessary.
- While in hospital all meals are ordered through CBORD (the hospital's computerised Food Service and Dietetics package) in the Patient Management System . The appropriate diet code needs to be entered into the Patient Management system on the ward by the Nursing Staff in order for the infant to receive appropriate meals (see table below). Dietary Assistants can help with any issues with food selection or suitability of the meals provided. They can be contacted by ringing the Diet Office in the Department of Nutrition and Dietetics.

Developmental feeding stage	Diet Code in Patient Management System	Description of diet and suggested use
4-6 months	INFANT FIRST	Smooth puree cereal, fruit and veg for infants' first tastes
4-8 months	INFANT 6MTHS +	Puree texture only cereal, fruit, veg, meat/chicken, dairy for infant on early stages of solids
7 – 12 months	INFANT 7-12 MTHS	Mixed textures: puree – finger foods: cereal, bread, fruit, veg, meat/chicken, egg, dairy
1 – 3 years	TODDLER	Full diet with finger foods, soft to slightly firm texture easily chewed.

3 Growth and Development

Bare weight, length and head circumference should be assessed on admission and at regular intervals as dictated by the infant's medical condition during the hospital stay and recorded on growth charts in EMR in PowerChart. The use of the World Health Organisation 2006 growth charts⁸ is recommended for infants and children from birth – 24 months and the CDC 2000 growth curves⁹ for children 2-18 years. Parents or Health Professionals should continue to plot growth and development in the Personal Health Record Book (PHR / blue book) after discharge.

4 Mode of Feeding

Infant formula may be given via:

- standard bottles – narrow or wide neck styles
- squeeze bottles
- Medela Special needs feeder (previously the Habermann flow sensitive feeder)
- Finger feeder
- Pipette (eye dropper)
- Cup
- Enteral feeding systems such as nasogastric tube, orogastric tube
- Gastrostomy/Jejunostomy
- Supplementary Nursing System (Supply Line)

Many different teats are available for bottle feeding – it is important to choose a teat based on the infant or child's needs and abilities (see [Appendix A](#))

For more information contact the Child and Family Health Clinical Nurse Consultant for ward areas at CHW or the Speech Pathology Department. At SCH contact the Speech Pathology Department.

5 Managing Bottle Feeding

Infants who are well should be held for feeding in a similar manner to a breast fed baby. Suggested feed volumes may not meet the individual baby's needs, and a well-baby should be allowed to take what he/she wants. It is important to support and encourage parents with feeding their infant whilst in hospital.

5.1 Preparing the bottle for feeding in ward

- Wash hands well, put together the bottle and an appropriate teat in a hygienic manner.
- Use a teat which is suited to the infant's sucking ability.
- Check that the correct formula is selected and that feed is labelled with the correct infant's name and date (if applicable).
- Safely warm the bottle of milk in a container of hot water in the ward kitchen.
- Check milk temperature by dripping some milk from the teat onto your skin on the inside of your wrist. It should feel warm, not hot.
- Never use the microwave to heat milk as the milk temperature is uneven and may cause scalding¹.

5.2 Feeding Position

- The infant should be fed when he/she shows signs of hunger, or according to medical need.
- Change nappy, wash your hands and then wrap infant appropriately.
- Sit comfortably in a quiet area, with the feed ready nearby.
- Hold the infant in a curled arm close to your body. Making eye contact and talking to the baby while feeding are important and appropriate techniques to use while feeding.
- Correct body posture will provide for optimal feeding performance. The infant's head, neck, trunk and extremities should be in proper alignment with the head, neck and the overall body slightly flexed with the trunk well supported.
- Encourage open gape of the infant's mouth and gently insert the teat.
- Allow the infant to determine the pace of feeding, stopping as and when needed.
- It may be necessary to change the teat if the flow is too fast or slow.

If an infant has feeding difficulties please contact the Child and Family Health Clinical Nurse Consultant or staff from C1 South at SCH. It is important to assess the need for Speech Pathology intervention.

6 Infant Formula

Where breastfeeding or use of expressed breast milk is not possible the use of an infant formula is recommended¹.

Hospital Stock – Ready to Feed Formula (RTF)

There are no clinically significant differences between most brands of standard infant formula on the market, thus for hospital use one brand of standard infant formula in RTF bottles is provided. The RTF bottles are 100ml volume and are available on the wards. RTF formula should be stored in the carton or in a closed cupboard to avoid light sensitive vitamins being destroyed. Expiry dates should be checked before use. If an infant refuses the RTF then standard infant formula made from powder may be ordered from the Formula Room.

If the parents do not wish to change their infant's formula during hospitalisation to the standard RTF, the parents can provide powdered infant formula to the Formula Room who will prepare feeds for the infant. The parents need to supply an unopened tin of formula labelled with the child's Identification sticker and ward abbreviation. This formula needs to be taken to the Formula Room so that it can be prepared under hygienic conditions.

Sterilised bottles, caps and teats are kept in the ward kitchen

- Caps are ordered via the Formula Room.
- Teats are ordered through Stores.
- At **CHW** empty sterilised bottles are supplied by Formula Room to wards usually for mothers who are expressing breast milk. These bottles have a 4 day Use By date.

6.1 Hospital Stock - Other Formula

All babies (< 1 year of age) admitted on a standard infant, progress or follow-on milk formula, modified milk or cow's milk are to be offered the RTF bottles of standard infant formula as outlined above.

Please contact the ward Dietitian for the following:

- Lactose free and soy formulas
- Different dilutions of formulas, e.g. 1.1 concentration
- Feeds requiring additives e.g. food thickener, glucose polymer or fat
- Specialised formulas. If a specialised formula is required, the hospital will supply the formula where possible. For some particularly rare conditions, (e.g. metabolic diseases) the family may need to provide the formula. Please check with the ward Dietitian if unsure.

7 Ordering of Formula from the Formula Room

The Formula Room is open 7 days a week with hours varying at each campus. All formulas (other than the RTF) are to be ordered via the Formula Room. **At CHW** all infants under 12

months of age require feeds including cow's milk and diluted juices to be prepared in a clean environment in the Formula Room.

No infant formula feeds are to be made up or decanted at ward level other than in an emergency. In this situation the guideline for preparation of formula at ward level (below) must be followed.

Parents should be encouraged to have feeds made up in the Formula Room according to Food Safety Guidelines. If feeds do need to be made up on the wards the following guidelines apply:

1. Prepare feeds in ward kitchen. Ensure the bench area has been well cleaned prior to starting to prepare the formula.
2. Sterilise any utensils required to make up formula (e.g. spoon or knife).
3. Wash hands well before preparing formula.
4. Use sterile bottles from ward kitchen.
5. Use sterile water from the ward stock.
6. Use recipe on the formula can or recipe provided by the Dietitian.
7. Keep prepared and labelled formula in the fridge and use within 24 hours of preparation.

At CHW: Any feeds required prior to 7.00am or after 5.30pm need to be organised through the After Hours Nurse Manager who has access to the Formula Room. A small supply of frozen formulas is kept for use at these times.

At SCH: Spare formulas are available from the formula room refrigerator located on level two.

8 Use of Cow's and Goat's Milk

The use of cow's or goat's milk as the main drink for infants under 12 months of age is inappropriate and is to be discouraged. These milks are not nutritionally suitable as infant formulas^{1,2}. Small amounts of cow's or goat's milk may be used in food.

For parents who wish to use cow's milk or goat's milk for their child, a commercially available cow's milk, or goat's milk based infant formula is recommended.

The use of any other animal milk (camel, buffalo) is not recommended and should be discussed with the ward dietitian.

If the parents wish to use cow's milk this needs to be modified in the Formula room to make it suitable for infants with the inclusion of water, lactose and multivitamins. The practice of feeding infants less than 12 months of age whole cow's milk is **NOT** recommended¹.

9 References

1. National Health and Medical Research Council (2012). Infant Feeding Guidelines [https://www.eatforhealth.gov.au/sites/default/files/files/the_guidelines/n56_infant_feeding_guidelines_160822\(1\).pdf](https://www.eatforhealth.gov.au/sites/default/files/files/the_guidelines/n56_infant_feeding_guidelines_160822(1).pdf) Commonwealth of Australia (accessed 25th November 2016)
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 - a. <http://www.foodstandards.gov.au/code/proposals/Pages/P1039MicroReviewInfantFormula.aspx>
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8. World Health Organisation: WHO child growth standards: methods and development. Geneva: WHO, 2006. <http://www.who.int/childgrowth/en/>
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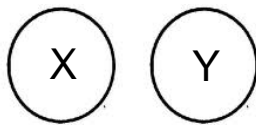

Appendix A: Teats and specialised bottles Information Guide

When choosing a teat, consider:

Size, Shape, Material, Flow rate

Teat choice should depend on your child's needs and abilities. It is not necessary that you progress through teats according to age ranges, particularly if your child has difficulty feeding. If the teat works for your child - stick with it!

If your child is having feeding difficulties, a Speech Pathologist or Child and Family Health Nurse can help to decide which teat best suits your child.

Standard teat e.g. supermarket variety	
<ul style="list-style-type: none"> - Hole at tip of the teat - Some milk will drip out of teat, even when not sucked - Provides midline stimulation of tongue - Slow, medium, and fast flow rates - Suitable for babies with normal oral and swallowing skills 	
Orthodontic teat e.g. Nuk and Pur brands	
<ul style="list-style-type: none"> - Hole at top of the teat - Place the hole against the palate - Some milk will drip out of teat, even when not sucked - Breast fed babies or hypersensitive babies may prefer the shape of this teat - Slow, medium, and fast flow rates 	
Variable flow e.g. Pigeon	
<ul style="list-style-type: none"> - Larger cross-cut or Y-cut at tip of the teat - Flow rate depends on babies sucking - Requires less effort than chu chu cross cut teat - Milk can drip into mouth - Suitable when giving thickened feeds or for older children 	
Peristaltic teat e.g. Pigeon	
<ul style="list-style-type: none"> - More elastic than a standard teat - Ridges in teat - Does not provide as much midline tongue stimulation as standard teat - Babies who normally breast feed may prefer it - Wide or standard base <p>Super slow, slow, medium, and fast flow rates</p>	

Specialised Teats

<p>Pigeon Cleft Palate teat</p> <ul style="list-style-type: none"> – More rigid on upper surface, resting against the palate – The white valve prevents milk flowing back into the bottle from the teat during sucking and reduces the intake of air. This valve is an important component of the teat. – May be used in conjunction with a squeeze bottle or standard bottle – Available through CleftPALS (www.cleftpals.org.au) and Havenhall (02 9316 9810) 	
<p>Chu Chu Easy Feed</p> <ul style="list-style-type: none"> – Made of silicone – Cross-cut at tip of the teat and longer nipple – More rigid and flatter on the upper and lower surfaces – No valve needed – Suitable for babies with a cleft palate – Available through CleftPALS (www.cleftpals.org.au) – 	
<p>Medela Special Needs feeder (previously known as Habermann)</p> <ul style="list-style-type: none"> – Designed for babies with weak sucking but good swallowing skills – Slit-cut teat allows the flow to be varied from slow to medium to fast. This is controlled by the feeder. – The white valve prevents milk flowing back into bottle. This valve is an important component of the teat. – The teat can be squeezed to assist infants with weak sucking to draw milk from the bottle. – Mini teat or standard teat size available – Available from Chemists or can be purchased online 	
<p>Sepal Teats</p> <ul style="list-style-type: none"> – – Developed by Sepal in collaboration with the Royal Children's Hospital in Melbourne – Designed to be anatomically suitable for babies and to deliver accurate and consistent flow rates – The length of the teat is related to the age group, identified by the letter moulded into the front of the teat – XS for Extra Small (0-1mth), S for Small (0-5mth), M for Medium (4-9mth) & L for Large (8-12+mth) – 4 flow rates quickly identified by the collar colour – blue for Extra Slow, green for Slow, yellow for Medium, & orange for Fast – Available online (www.sepal.com.au) or from Kids Health at The Children's Hospital at Westmead (02 9845 3585) 	

Developed by: Speech Pathology, Children's Hospital Westmead (July 2016)