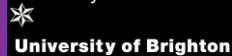


Complementary Feeding in Emergencies



Pic: Ali McLaine

Carol Williams, Public Health Nutritionist
 Snr Lecturer Health Promotion & Public Health,
 School Nursing & Midwifery



Terminology: Complementary Feeding – not ‘weaning’

- Giving other foods and drinks in addition to breastmilk (or infant formula*)
 ..after the ‘milk-only’ period of ~ 6 months.

*View endorsed by ESPGHAN J Ped Gast & Nut 2008

- The foods should ‘**complement**’ – **make complete** – the nutrients provided by breastmilk.
- The foods should **not displace breastmilk**

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WHO/UNICEF Recommendation for Optimal Infant and Young Child Feeding (IYCF)



- BF initiated within one hour of delivery (colostrum, skin-to-skin)
- Exclusive breastfeeding for the first 6 months of life,
- Continued BF for up to 2 years of age or beyond
- Alongside nutritionally adequate and safe complementary feeding from 6 months

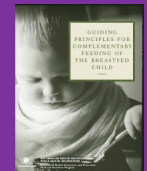
Adapted from Global Strategy 2002

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WHO says Complementary Feeding should be

- **Timely,**
- **Nutritionally Adequate,**
- **Safe,**
- **Properly Fed.**

Nutritionally Adequate – provide sufficient energy, protein and micronutrients **to top up that provided by breastmilk**, to meet a growing child’s nutritional needs

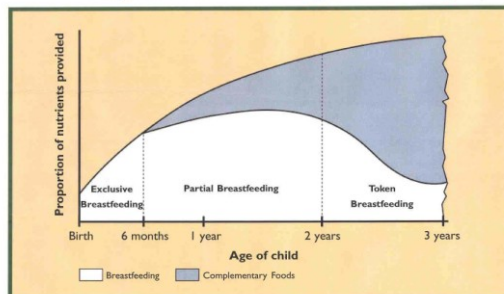


PAHO 2003



IBFAN

Stages of Infant and Young Child Feeding



IBFAN

Starting complementary foods from 6M – Why the change from 4 - 6 M?

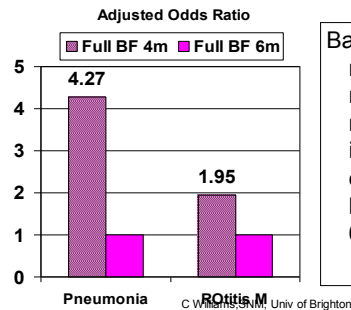
- Better understanding of developmental issues
- Review of evidence of health impact of starting solids at 6m compared with 4m. *WHO 2002.*
Kramer & Kakuma, The Optimal Duration of Exclusive Breastfeeding.

- evidence that most babies under 6 months didn't need more nutrients than could be provided by exclusive breastfeeding
- giving additional solids didn't improve growth but did increase the risk of infections

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Study in USA shows 6m rather than 4m BF has health benefits in western country.

Chantry et al Pediatrics 2006;117(2) 425-432



Babies fully BF for 4 months were 4 x more likely to get respiratory infection and 2 x ear infection than babies fully BF for 6 months

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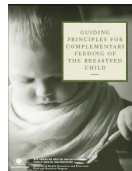
When do babies need to start solid foods?

1. When breastmilk alone (and/or infant formula) is no longer enough
2. When it is better for their health and development to have additional foods
3. When they are developmentally ready

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Guidance was underpinned by WHO Technical Consultation on Complementary Feeding.



- Since 2002
- A. new Growth curves
- B. new energy requirements

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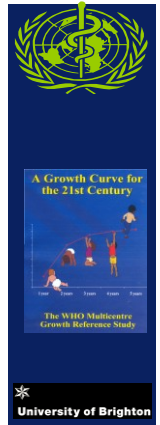
A. Growth Curves based on Breastfed babies

“The Standards show how EVERY child in the world SHOULD grow.”

• WHO Key Message 2006

- Tool to assess compliance with a child’s “right to grow” (not a growth reference)

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Comparison with previous charts

- BF babies and formula-fed babies grow differently
- BF grow faster in weight and height <6m
- BF babies gain weight more slowly after 6m
- Mean wt BF baby lighter than formula fed 12m-6years

Implications

- ‘Normal’ weight for 12month – 6 years is lower
- Global prevalence of Obesity ↑

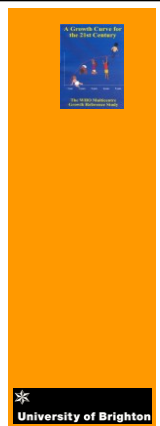
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Comparison with previous charts

Implications

- Children over 6months at the borderline of being severely malnourished on the old charts, fall into the malnourished category on the new charts.
- Rates of severe malnutrition will ↑ for all ages



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B. Estimates of energy requirements have come down.

FAO/WHO/UNU 1985

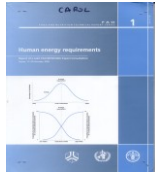
- energy expenditure
- mainly formula-fed babies

UK 1990 Reports

- Mainly formula-fed babies

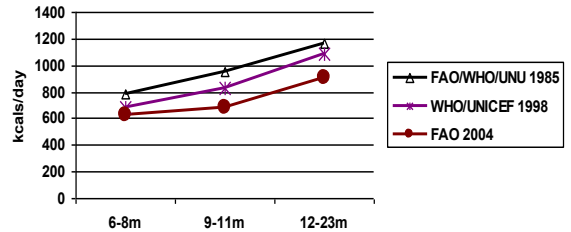
FAO/WHO/UNU 2004

- Figures much lower
- Separates breastfed and formula fed babies



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Changes in Energy Requirements for infants 1985, 1998, 2004. (kcal/day)



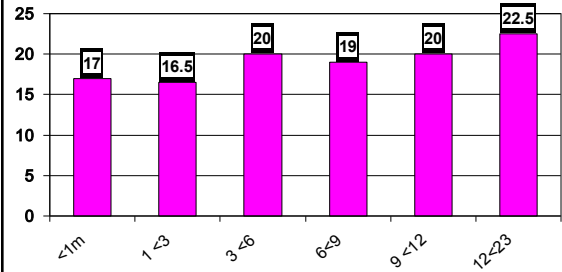
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Energy requirements kcal/day

Age groups	FAO/WHO /UNU 1985	WHO/ UNICEF 1998	FAO 2004
6-8m	784	682	615
9-11m	949	830	686
12-23m	1170	1092	894

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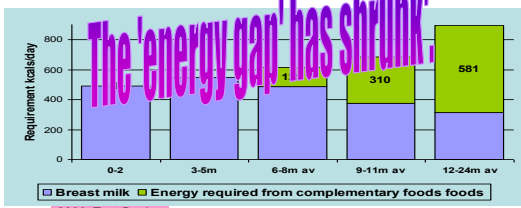
2004 FAO Energy Requirements 6-24m are approx 20% lower than previous international recommendations. kJ/kg body wt



Graph of percent reduction 2004 to 1985 Univ of Brighton

Implications for complementary feeding

Energy needed from CF = Requirement (RDA) - Energy from Breastmilk



2000 Text Book

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This isn't new- is in these technical documents - but is it fully recognised in practice?

Theme WBW 2005

Breastfeeding and Family Foods: LOVING & HEALTHY

Feeding other foods while breastfeeding is continued

2003

2005

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Energy required (Kcals) from complementary foods assuming an average breastmilk intake.

Dewey & Brown WHO 2002

Age	RNI 2004	Intake from BM	2002 Need from comp foods	1998 comp food
6-8m	615	413	200	270
9-11m	686	379	300	440
12-23m	894	346	550	750

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So our ideas about HOW MUCH food is needed should have been reduced by:

- About half for 6-8m
- About a third for 9-11m
- About a fifth for 12-24m

...on average...BUT

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Key Point

- the energy needed for 6-24m is lower than pre <1998 estimates
- BUT Vitamin and mineral RDAs unchanged/ increased.

Implication for practice 1:

Got to deliver micronutrients in a smaller number of calories – **Nutrient Density even more important.**

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Implication 2

Nutrient density not calorie density

- **Need shift in emphasis away from adding calories (oil or sugar - 'empty calories')** which lower the nutrient density of the diet, **and can lessen appetite for more nutrient-dense foods.**
- (Some old practices now BAD practices)
- Babies who are BF or receiving formula alongside comp foods don't always need extra fat.

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Percent energy from complementary foods that should be provided as fat to prepare diets with recommended 30-45% energy as fat. WHO Guiding principles

% dietary energy as fat	Level BM energy intake	6-8 Months	9-11 months	12-23 months
30%	low	19%	24%	28%
	med	0	5	17%
	high	0	0	0
45%	low	42%	43%	44%
	med	34%	38%	42%
	high	0	7%	34%

Implications 3

no rush to mush

- breastfeeding can meet a greater proportion of energy requirements than previously thought.
- The most significant nutrient gaps are usually for iron and zinc.

Formula-fed babies can get all the nutrients they need from formula beyond 6 months

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Continued Breastfeeding – the forgotten partner in complementary feeding?



- WABA workshop statement on protecting, promoting and supporting continued breastfeeding 6-24+ months.
- www.waba.org.my

- BM continues to provide living cells and immuno-protective factors against infections beyond 6m
- Demand BF can continue family spacing
- Many of the health benefits for mothers are associated with BF >6m

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Value of continued breastfeeding

- Breastmilk is very nutrient dense.
- 50% energy from fat,
- Contains plenty of 'healthy' Long Chain fats.
- Breastmilk contains high quality protein, which can meet most of protein needs in first year life if continue breastfeeding on demand

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What about the other nutrients?

BM generally provides generous quantities of

- Protein
- Essential fatty acids
- Vitamin A
- Folate (natural folic acid)
- Vitamin B12 (? mother vegan)
- Vitamin C
- Iodine
- Selenium.

If the complementary foods are just plain rice – breastmilk is more nutritious

and there is little requirement for these from comp foods.

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Breastmilk should remain the main food for infants during most of the first year.

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Developmental readiness for foods other than breastmilk (or infant formula)

Young babies have

- Immature immune systems
- Immature Digestive systems
- Limited capacity in their kidneys to process salts and substances in food and drinks and maintain water balance.

Starting at around 6 months.

This gives a baby's digestive system time to develop so that they cope fully with solid foods.



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3. Developmental readiness for foods other than breastmilk (or infant formula) continued

As babies grow their

- cheeks get less chubby
- lower jaw gets bigger and comes forward
- tongues develop ability to move more
- gag-reflex shifts to the back of their tongues



This means there is more space in their mouths and the tongue has the skills to move food from front to back of mouth for swallowing.

They also develop the ability to sit up and control their heads

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Your baby is ready if they can:

1 Stay in a sitting position and hold their head steady

2 Co-ordinate their eyes, hand and mouth so that they can look at the food, pick it up and put it in their mouth all by themselves

3 Swallow food. Babies who are not ready will push their food back out, so they get more round their face than they do in their mouths!

It's rare for these signs to appear together before 6 months.

start 4 life

Page 6

Skills for feeding

- Babies around 6 months are developmentally very different from babies around 4 months of age.
- If babies are introduced to solid foods when they are developmentally ready for foods, **they do not need to progress through purees before they can have lumpier textures or soft pieces.**
- If parents choose to start with purees they need move to a lumpier texture fairly swiftly.

Whether your baby has mum's milk or infant formula, waiting till your baby is ready for food will save a lot of time too, as they will quickly be able to feed themselves and with less mess, as they'll be able to swallow properly.

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S4L PAGE 5

Exploring food and starting to eat – New Tastes & Textures. (6-8m)

Aim - introduce baby to new experience of having food in their mouth.
Breast or formula feeding much same as before.

- Start by offering a small amount (couple of teaspoons or soft pieces), once a day.
- Give your baby whatever foods you feel comfortable with offering as 'first foods'

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Eating more – Eating Regularly (9-11 months)

- Build up to offering 3 or 4 meals a day, plus fruit and other healthy snacks between meals, by one year of age.
- Babies need to be given proportionately more of the most nutritious 'best bits' of household meals, and less of the filling starchy foods like bread or pasta.

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• In my opinion commercially produced baby foods are convenience foods.

start 4 life

Products Handy - but all similar texture
May stop your baby liking other foods
Use when short time or when out

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8. Give Nutrient Rich Foods.

Once your baby has got beyond 'tastes'.. each day give

- Meat, chicken, fish and/or eggs – give daily or as often as possible
- Beans, lentils, pulses and/or milk products
- Vegetables – give with most meals.
- Fruit – give as a snack and with meals
- Colourful flesh best
- Breastmilk, infant formula
- Milk products if doesn't take much milk
- Starchy foods – bread, cereals, potatoes, rice, pasta. Give with other foods

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- Give proportionately more of the 'Best Bits' (most nutritious parts) of family foods.
- Try not to give the staple food on its own.



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Encourage offering iron-rich foods



Naomi – 6m, 'gums' some chicken

Animal-source foods eg meat, fish, eggs provide:

- Bio-available iron, zinc, B6 and B12
- high quality protein
- well accepted by 6-7M olds
- ?Preferable to iron fortified cereals.

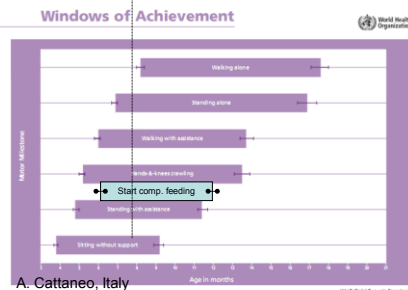
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What about Iron?

- Babies' body-stores plus breastmilk is usually sufficient to meet iron needs in first 6 months of life.
- From 6-9m, this can still be enough to prevent anaemia, but tend to have low iron stores.
- Lack of data on iron needs of 6-24m olds, haemoglobin cut-offs set too high, and accordingly RDAs over cautious. (UK SACN 2009)
- Iron regulation 6-9m is immature, and if given too much, baby will absorb can get iron excess

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This developmental readiness baby-led feeding approach is new – mother led, but in evolutionary biology terms – makes sense.



A. Cattaneo, Italy

University of Brighton

Complementary feeding: sub-optimal practices are common – but become risky in Emergencies

Introducing foods too Early

Introducing foods too Late

Not giving nutritionally adequate foods

Poor hygiene

Giving too much poor quality food which displaces breastmilk

Foods not suitable – child can't digest.

Replacing breastmilk with infant formula or cows milk

Feeding not suitable – child not eating

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CFE – what usually happens to the feeding of 6-24m olds?

- Vulnerable
- Ration not suitable
- Maybe a baby and a toddler
- Continued breastfeeding low?
- Feasibility of cooking/feeding



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Delivering the 10 Guiding principles in emergencies?

- Responsive feeding – is family in a position to feed responsively in crisis??
- Feeding 3-4 times a day hygienically?
- Time?
- Spoon and utensil?

Have we got the emphasis right in our emergency programming ?

Protect the breastfeeding and share family foods?

If we introduce complementary feeding products, how to ensure no spill over into early solids?

What if there isn't a tradition of 'special' foods for babies – are we expanding niche processed food markets through the back door of an emergency?



- The best complementary food is not as good as breastmilk for young children, particularly in an emergency, because it cannot replicate the protective properties of breastmilk.

- Complementary feeding is more than the FOOD.
- Socio-cultural-educational aspects of starting solid foods.