Breastfeeding is a public health imperative

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Breastfeeding: At the forefront of international health agendas for 40+ yrs

• **International Code of Marketing of Breastmilk Substitutes (World Health Assembly 1981)**

• **Innocenti Declaration (1990)** - all infants should receive exclusive breastfeeding from birth to 4-6 months of age……Amended to 6 months by WHO (2001)

• **UN Convention on the rights of the Child** - enshrined the benefits of breastfeeding as a legal right and to protect the public from improper and biased information designed to persuade mothers to give up breastfeeding

• **Baby Friendly Hospital Initiative (1991)**
Internationally

• Breastfeeding rates remain far below global targets
• Policy and investment commitment to breastfeeding is in a state of fatigue

Regionally

• NZ: Breastfeeding Advisory Committee recommendations
• Australia: National Breastfeeding Strategy 2010-2015
• If breastfeeding did not already exist, someone who invented it would deserve a dual Nobel prize in medicine and economics

Breastfeeding success is not the sole responsibility of a woman… but a collective societal responsibility.

The Lancet Breastfeeding Series Group, 2016
Breastfeeding makes the world healthier, smarter and more equal.

The Lancet, Jan 2016
The deaths of 823,000 children [<5 yrs] (~14% of all deaths under aged 2) and 20,000 mothers each year globally could be averted through universal breastfeeding, along with economic savings of US$300 billion [cost of preventable infant morbidity]

The Lancet, Jan 2016
Breastfeeding – an amazing evolutionary adaption

• Mammary glands - specialised apocrine gland...modified sweat/sebaceous gland

• The *post-natal placenta* supports the transition of the human neonate from intra-utero to external environment - nutrient, fluid, immuno-protection, gastrointestinal maturation in the newborn, microbiome establishment...etc etc.

• Breastmilk composition changes to reflect infant age, stage of feed, environmental context

• Contraceptive function (Lactational amenhorea)

• Keeping humans alive since 1 million BC
From a public health nutrition perspective

Virtually the only scenario in nutrition where we have a diet for a population group that:

- Optimally meets the changing needs of the consumer (appetite, immunity, age, time of day, climate etc)
- Requires no preparation - the ultimate convenience food
- Is free
- Has limited environmental impact ....... no waste, packaging ..... sustainable
- Has benefits beyond nutrition - the ultimate functional food

The challenge is getting people to use it
The public health “lens”

- Health and health inequalities are determined by multiple factors (determinants) that impact on health and wellbeing.
  - Biological
  - Socio-cultural (including political)
  - Economic
  - Environmental
A public health approach

• Populations, prevention, promotion- health and wellbeing in its broadest context

• Solutions to public health problems require:
  – rationale analysis of public health intelligence to inform strategic action,
  – Understanding and managing risk (doing nothing vs doing something),
  – building capacity for action (with, and for, populations)
  – Critical analysis of intervention options and alignment of strategy to “upstream” determinants
Benefits of breastfeeding for 6 months +

- Physiological - mother + baby
- Psychological - mother + baby
- Economic - Family + broader economy
- Environmental
Health benefits of breastfeeding - For Infants

- reduced incidence and duration of diarrhoeal illnesses
- **protection** against respiratory infection and reduced prevalence of asthma
- reduced occurrence of otitis media and recurrent otitis media
- possible protection against neonatal necrotising enterocolitis, bacteraemia, meningitis, botulism and urinary tract infection
- possible reduced risk of auto-immune disease, such as type 1 diabetes and inflammatory bowel disease
- possible reduced risk of developing cow’s milk allergy
- possible reduced risk of adiposity later in childhood
- improved visual acuity and psychomotor development
- higher IQ scores
- reduced malocclusion - better jaw shape and development.
Health benefits of breastfeeding -

For Mothers

• promotion of maternal recovery from childbirth
• prolonged period of postpartum infertility, leading to increased spacing between pregnancies
• possible accelerated weight loss and return to pre-pregnancy body weight
• reduced risk of pre-menopausal breast cancer
• possible reduced risk of ovarian cancer
• possible improved bone mineralisation and thereby decreased risk of post-menopausal hip fracture.
Economic costs to family unit- of not breastfeeding

• $30-$50 per week in formula, bottles, hygiene chems etc etc
• Opportunity costs- forgone opportunity to invest in other things
Societal economic benefit of breastfeeding

The Lancet 2016

• The economic costs of lower cognition
  • US$70.9 Billion LIC & MIC, US$231.4 Billion for HIC......US$300 Billion (~0.5% GNI worldwide)
  • Similar in magnitude to economic costs of Iron Deficiency Anaemia

• The economic cost of childhood morbidity
  • A 10% increase in exclusive breastfeeding up to 6 months or continued breastfeeding up to 1-2 years would translate to reduced treatment costs of at least $US$312 million (USA), US$7.8 Million (UK), $30 million (China)
Key objectives of breastfeeding protection/promotion/support

• To educate and support mothers (families) to make the decision to breastfeed (informed and supported choice)

• To support breastfeeding survival - successfully breastfeeding to at least 6 months of infant age when mothers chose to breastfeed
• Paradoxically, breastfeeding is one of the few positive health behaviours that is more common among the poor countries than the richer countries

• Paradoxically +++: in rich countries (like NZ), socioeconomically disadvantaged are less likely to BF6+
Breastfeeding Epidemiology
### Terminology for Dose Exposure

<table>
<thead>
<tr>
<th>Exclusive</th>
<th>The infant has never, to the mother's knowledge, had any water, formula or other liquid or solid food. Only breastmilk from the breast or expressed breastmilk and prescribed medicines have been given from birth. Prescribed as per the Medicines Act 1981.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Full</td>
<td>The infant has taken breastmilk only. No other liquids or solids except a minimal amount of water or prescribed medicines in the past 48 hours.</td>
</tr>
<tr>
<td>Partial</td>
<td>The infant/child has taken some breastmilk and some infant formula or other solid food in the past 48 hours</td>
</tr>
<tr>
<td>Artificial</td>
<td>The infant/child has had no breastmilk, but has had alternative liquid such as infant formula, with or without solid food, in the past 48 hours.</td>
</tr>
</tbody>
</table>
**Breastfeeding terminology**

| Initiation | • Breastfeeding exclusively as the initial method of feeding  
|            | • Colostrum exposure  
|            | • Skill acquisition required—attachment etc  
|            | • ~90% initiate (NZ, Australia)  
|            | • So ~10% decide in advance of birth not to breastfeed |

| Duration   | • The length of time baby receives breastmilk/is breastfed  
|            | • Recommendations 6 months exclusively.....2 yrs and beyond BF as complement  
|            | • Exposure benefits concentrate in first 6 months, after which other foods required to provide infant nutritional needs for development (e.g. Iron ) |
Breastfeeding initiation and duration - current

<table>
<thead>
<tr>
<th>Time</th>
<th>Percent Exclusive BF</th>
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<tbody>
<tr>
<td>Initial</td>
<td>90%</td>
</tr>
<tr>
<td>6 weeks</td>
<td>55%</td>
</tr>
<tr>
<td>13 weeks</td>
<td>43%</td>
</tr>
<tr>
<td>26 weeks</td>
<td>17%</td>
</tr>
</tbody>
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Source: Plunket 2014 data - trend stable last 5 years
Breastfeeding Trends NZ

- Breastfeeding initiation dip in the early 70s
- reflecting significant socio-economic change
- Dip led by women of advantaged SE background
## Determinants of breastfeeding practices

<table>
<thead>
<tr>
<th>Level</th>
<th>Factors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual</td>
<td>• Attributes of the infant</td>
</tr>
<tr>
<td></td>
<td>• Attributes of the mother</td>
</tr>
<tr>
<td></td>
<td>• Attributes of the mother/infant dyad</td>
</tr>
<tr>
<td>Group</td>
<td>• Hospital and health services</td>
</tr>
<tr>
<td></td>
<td>• Home/Family environment</td>
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<tr>
<td></td>
<td>• Work environment</td>
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<tr>
<td></td>
<td>• Community environment</td>
</tr>
<tr>
<td></td>
<td>• Public policy environment</td>
</tr>
<tr>
<td>Society</td>
<td>• Cultural norms</td>
</tr>
<tr>
<td></td>
<td>• Role of women and men in society</td>
</tr>
<tr>
<td></td>
<td>• Sexuality norms</td>
</tr>
<tr>
<td></td>
<td>• Food system</td>
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DEMOGRAPHIC DETERMINANTS

• adolescent/young mothers
• limited number of years in full-time education
• low-income level/socioeconomic status
• mothers from a culturally and linguistically diverse background
• Aboriginal mothers [Maori, Pasifika, Aust Aborigine, Torres Strait Islanders] particularly in urban areas
• high parity
PHYSICAL DETERMINANTS

- maternal obesity/maternal diabetes
- low birth weight, infant prematurity and/or admission to special care nursery
- cracked or sore nipples
- various congenital malformations, e.g. cleft palate
- multiple births
- infant medical or physical influences, e.g. rare metabolic disorders such as galactosaemia, swallowing difficulties etc.
PSYCHOLOGICAL DETERMINANTS

- mother’s lack of confidence in breastfeeding (self efficacy)
- perceived insufficient supply of breast milk
- perception of baby demanding too many feeds
- maternal depression
SOCIO-CULTURAL DETERMINANTS

- mother’s attitude towards breast or infant formula feeding
- knowledge and attitudes of partner, relatives and the public towards breast or infant formula feeding
- maternal smoking
- returning to work
- media portrayal of breastfeeding and infant formula (bottle) feeding
HEALTH SERVICE DETERMINANTS

• certain interventions during and after labour
• the provision of supplemental feeds
• extended separation of mother and baby for non-medical reasons
• restricted feeding practices
• free provision and/or promotion of infant formula
• knowledge, attitudes, education and beliefs of health workers
• poor diagnosis and/or management of common breastfeeding problems
ENVIROMENTAL DETERMINANTS

• lack of facilities to breastfeed in public areas
• employment and work environments that lack breastfeeding policies, paid maternity leave, lactation breaks, flexible working arrangements and appropriate places to express and store breast milk
COMPETING INTERESTS- “BIG FORMULA”

- International Code of Marketing of Breastmilk Substitutes (World Health Assembly 1981)- only effective if enforced by Governments
- Big industry with a vested interest in breastfeeding cessation.
- The global market for baby milk formula is US$44.8 Billion, projected to grow to US$70.6 Billion by 2019.
- Marketing of infant formula, including free sample distribution, increases rates of artificial feeding.
- Marketing (where allowed/unaddressed) promotes formula as good or better than BM, “help settle fussy babies”, “a lifestyle choice”…..
- Need for vigilance….even in NZ

Rollins et al. The Lancet, Jan 30, 2016
Managing risks

• Stigmatisation of breastfeeding failure
• HIV and other transferable infection
• Environmental contamination (PCBs etc)
  – Humans at the top of the food chain- fat stores
  – Priority to address contamination, avoid maternal contaminant exposure
Interventions to protect, promote and support breastfeeding

- Legislative and policy interventions
- Ante-natal education and support
- Health professional training
- Birth and postpartum hospital and clinical practices
- Postpartum education and support
- Community support
- Workplace support

NZ Breastfeeding Advisory Committee
Legislative mechanisms

- Countries with high statutory involvement in protecting breastfeeding (e.g. Scandinavians) have higher rates of breastfeeding
- Legislative mechanisms that protect breastfeeding focus on three areas:
  1. Having the right to breastfeed in a venue
  2. Supporting employment during breastfeeding through the protection of employment, the provision of universal paid maternity leave, and supporting the woman on her return to the workforce through the provision of paid breastfeeding breaks
Policy and strategic initiatives

There is very little qualitative material available about the impact of national strategies on breastfeeding duration.

Similarities:

• A commitment to and/or acknowledgement of international strategies and policies;
• Ensuring that exclusive breastfeeding is recognised as the normal and preferred;
• Taking a comprehensive approach to protecting, promoting and supporting breastfeeding.
Policy and strategic initiatives (cont)

- Commitment to reducing inequalities concerning breastfeeding and health benefits, with a particular focus on indigenous peoples;
- Research on barriers and enabling factors;
- Prioritising of key areas for action and related recommendations, often at local, regional and national levels;
- Requiring maternity facilities to adhere to the 10 steps required under the Baby Friendly Hospital Initiative;
- Target setting against stated goals and objectives; and
- Evaluation and monitoring frameworks including regular data collection.
Breastfeeding promotion interventions: Factors influencing effectiveness

- The **timing of breastfeeding interventions** is crucial for effectiveness.
- Interventions can occur at **different stages** within the breastfeeding continuum.
- **Combinations of interventions** addressing both the antenatal and postnatal stages were considered more effective in improving initiation rates and prolonging the duration of breastfeeding.
- **Continuity of care** enables women to develop a relationship with the same caregiver(s) throughout pregnancy, birth and the postnatal period.

*Australian Breastfeeding Strategy 2010-2015*
Interventions that are effective

- Training health professionals - psycho-social and physiological elements of breastfeeding and lactation management;
- Accreditation to the Baby Friendly Hospital Initiative and implementation of the 10 Steps to successful breastfeeding;
- Skilled peer support;
- Home visitation;
- Workplace facilities in which to express breast milk or to breastfeed; and
- Childcare that is supportive of breastfeeding.
Interventions that are “promising”

- Prenatal education – tailored, targeted, adult learning
- Social marketing of breastfeeding
- Support for fathers, families/whānau, and friends to be positive and supportive
- Developing breastfeeding friendly businesses and public spaces.
Inconclusive or “harmful” interventions

- telephone and internet counselling
- Written materials about breastfeeding, when these are not supported by face-to-face discussions of the material;
- Single session pre-natal classes on breastfeeding, where these are not supported by other breastfeeding-related activities for both mothers and others;
- A one-off visit to a primary care provider in the first few weeks postpartum.
Reliance on artificial infant formulas

By 4 months of age, half of NZ babies are artificially fed.
Environmental impacts of artificial feeding

- Breastmilk is a natural, renewable food, non-polluting and with very little waste.
- Most artificial infant formulas based on modified cows milk
  - Dairy cows fart massive amounts of greenhouse gases
  - Animal agriculture is a leading cause of species extinction, ocean dead zones, water pollution and habitat destruction
  - A farm of 2500 dairy cows produces the same amount of waste as a city of 411,000 people
What a waste

• More than 4000 Litres of water are estimated to be needed to produce 1 kg of breastmilk-substitute powder.
• In the USA alone, more than 86,000 tons of metal and 364,000 tons of paper from breastmilk substitute packaging ends up each year in landfill.
• The environmental costs of not breastfeeding are enormous, if not difficult to quantify in $$ terms.
• Future generational impacts???????
Sum up

- Breastfeeding is a priority public health issue for social, cultural, economic and environmental reasons.
- It IS a big deal, particularly in rich countries like NZ.
- Needs societal commitment, support, investment and vigilance.
- Complacency and ignorance will be at future cost to the most vulnerable in society.
References

• The Lancet, Jan 31, 2016
• http://www.cowspiracy.com/facts/
• New Zealand Breastfeeding Advisory Committee
• Australian Breastfeeding Strategy 2010-2015