
Evidence for breastfeeding

Fact sheet for Health care professionals

Breastfeeding is the biologically normal feeding method for infants and young children and ensures optimum growth and development.

There is a vast body of evidence to support the importance of breastfeeding for short and longer term health of the mother and the infant. The 2016 Lancet Breastfeeding Series reports that the evidence in relation to breastfeeding is stronger than ever and that 'recent epidemiological and biological findings from during the past decade expand on the known benefits of breastfeeding for women and children' (Victora et al. 2016).

The Department of Health and Children and the World Health Organisation (WHO) recommend exclusive breastfeeding of infants for the first 6 months, after which mothers are recommended to continue breastfeeding, in combination with suitably nutritious and safe complementary foods – semi-solid and solid foods – until their children are 2 years of age or older (Department of Health, 2005; WHO/UNICEF, 2002).

Breastfeeding is the biologically normal feeding method for infants and young children and ensures optimum growth and development. There is considerable evidence to demonstrate the importance of breastfeeding for the health of both mothers and infants. Children who are not breastfed have a higher incidence and severity of many illnesses including respiratory tract and urinary tract infections, gastroenteritis, otitis media, and diabetes (Victora et al. 2016; Ip et al, 2007, AHRQ, 2007), SIDS and childhood cancers (Ip et al, 2007, AHRQ, 2007).

Breastfeeding is also a significant protective factor against obesity in children (Yan et al 2014). The protective role of breastfeeding extends beyond childhood and is important in the prevention of chronic diseases in adulthood including diabetes (Victora, 2016). Breastfeeding also reduces a mother's risk of ovarian and breast cancer and diabetes (Victora et al. 2016). Breast milk is vital in preventing Necrotising Enterocolitis (NEC) in preterm infants, which is associated with increased morbidity and mortality, and neurodevelopmental impairment (AAP, 2012).

The evidence for breastfeeding

Breast milk is the most natural first food because of its unique properties that cannot be replicated in formula milk and because of this it offers the newborn baby strong protection against infection:

- Oligosaccharides retard the growth of enteric pathogens by producing acids that cause cell wall lysis (Spatz & Lessen R, 2011).
- Glycans which inhibit pathogenesis. Help to prevent pathogens from attaching themselves to host cell receptors in the gut of the newborn.
- Secretory Immunoglobulin A (sIgA) coat the intestinal mucosa and prevents bacteria and viruses from entering cells and neutralizes toxins. This is found in high concentration in human colostrum and is a strong immune defence in the gut of the newborn. This immunoglobulin also contains maternal antibodies against infections she has already encountered.
- Lysozyme and lactoferrin are proteins which protect the newborn against bacteria, viruses and fungi in the digestive tract.
- Xanthine oxidase is an enzyme which attracts bacteria to bind to it and thus inhibits the growth of certain bacteria such as E.coli, salmonella.
http://www.who.int/maternal_child_adolescent/documents/9789241597494/en/
- There are other bioactive factors within breast milk that are important for the development of a healthy gut which will offer the newborn greater protection against infection e.g. epidermal growth factor which stimulates the maturation of the lining of the newborn's gut and makes it less sensitive to foreign proteins. (WHO 2009)

The Agency for Healthcare Research and Quality's evidence report on breastfeeding in developed countries (AHRQ, 2007) reviews and analyses scientific literature on breastfeeding and health outcomes. Findings from AHRQ review report that children who are not breastfed have increased incidence and severity of childhood and adult illnesses. These include infectious diseases (including otitis media, gastroenteritis, and lower respiratory tract infections), sudden infant death syndrome, childhood cancer (including leukemia), type 1 and 2 diabetes, atopic dermatitis, cardiovascular disease (including hypertension), hyperlipidemia, and obesity.

Child health

Respiratory tract infection

A third of all respiratory infections could be avoided by breastfeeding (Victora et al, 2016). Risk of hospitalisation from lower respiratory tract infection is 72 % lower in infants who are exclusively breastfed for more than 4 months (AHRQ, 2007).

Gastrointestinal infection

Any breastfeeding is associated with a 64% reduction in non-specific GIT infection and this effects lasts 2 months beyond cessation of breastfeeding (AHRQ, 2007). Almost have of all diarrhoea episodes would be avoided by breastfeeding (Victora et al, 2016).

Sudden Infant Death Syndrome (SIDS)

Breastfeeding was associated with a 36% reduction in risk of sudden infant death syndrome (SIDS) compared to not breastfeeding (Victora et al, 2016).

Otitis Media

Breastfeeding provides important protection against otitis media in children younger than 2 years of age (Victora et al, 2016).

Diabetes

Breastfeeding is associated with a 35% reduction in risk of Type 2 Diabetes and a possible protective effect against Type 1 Diabetes (Victora et al, 2016). Lower incidence of obesity and intake self-regulation associated with breastfeeding are thought to have an impact on the lower risk of developing type two diabetes later in life. (AAP, 2012)

Childhood cancers

Breastfeeding for at least 6 months is associated with a 19% risk reduction of childhood acute lymphocytic leukaemia and a 15% risk reduction in childhood acute myelogenous leukaemia (AHRQ, 2007).

Obesity

Any breastfeeding in infancy is associated with a 15-30% reduction in adolescent and obesity rates. Irish research has shown that infants breastfed for 6 months or more are 51% less likely to be obese. (McCorry & Layte 2012). Duration of breastfeeding is a key factor in preventing obesity, each

month of breastfeeding is associated with a 4% reduction in risk. Breast fed babies self-regulate their intake regardless of the volume of milk that is produced and it is this factor that has an impact on adult weight gain. Infants fed milk by the bottle even expressed breast milk may have poorer self-regulation of intake (AAP, 2012).

Preterm infants

Such are the significant short term and long term benefits of feeding human milk to preterm infants that the American Academy of Paediatricians (AAP, 2012) recommend that all preterm infants be given human milk be it mother's own milk or donor milk from a milk bank and that NICU staff actively support this recommendation.

- Preterm infants who do not receive breast milk are at greater risk of necrotizing enter colitis (NEC) and sepsis the former of which carries a higher mortality rate. These infants will also have longer spells in neonatal intensive care units (NICU) and more re-admissions following discharge from NICU.
- Preterm infants fed with human milk have significantly improved neurodevelopment outcomes and cognitive development and greater general growth patterns. Although differences in cognitive development have been shown between infants who are fed formula milk and breastfed infants there are confounding factors such socioeconomic status, parental intelligence and education. The comparison is more obvious among preterm infants (AAP, 2012).
- Body temperatures were found to be lower in preterm infants who were bottle fed as opposed to breast fed.
- Episodes of apnoea and oxygen desaturation occurred in bottle fed preterm infants whereas no apnoea occurred when breastfeeding (Spartz and Lessen, 2011).

Maternal Health

Osteoporosis

The AHRQ review found no evidence that breastfeeding increases risk of osteoporosis (AHRQ, 2007). Victora et al (2016) found no evidence of an association between breastfeeding and bone mineral density.

Ovarian cancer

Not breastfeeding increases the risk of ovarian cancer because breastfeeding reduces lifetime ovulation. Meta-analysis undertaken by Victora et al (2016) showed a 30% reduction in ovarian cancer associated with longer duration of breastfeeding.

Breast cancer

There is a robust inverse association between breastfeeding and breast cancer (Victora, 2016).

Post-natal depression

Not breastfeeding or shorter duration of breastfeeding has been associated with Post-natal Depression. Women who breastfeed have been shown to have less depressive scores than women who bottle fed. Depression was associated with shorter duration of breastfeeding (AHRQ, 2007). Victora et al report clear associations between breastfeeding and reduced maternal depression, and state that 'it is more likely that depression affects breastfeeding than the opposite' (Victora et al, 2016).

Sleep deprivation

Women who become depressed are often advised to offer their breastfed babies formula in order to get more sleep however there is research to show that breastfed babies sleep more in a 24 period than babies fed formula and there is less disturbance (Kendall-Tackett, 2011).

Type 2 diabetes

Women who breastfeed for longer lifetime durations have a reduced risk of developing type 2 diabetes (AHRQ, 2007).

Environmental risks associated with use of formula

Bisphenol (BPA) in plastic bottles and formula is a compound found in hard plastic that mimic oestrogen. Repeated exposure puts adults at increased risk of uterine fibroids, breast cancer, prostate cancer and reduced sperm counts. It raises concerns because repeated cleaning bottles in the dishwasher or heating milk in the microwave can cause the BPA to leak out. Or boiling water in a bottle in a microwave and then using this water to reconstitute milk can increase BPA exposure (Spartz and Lessen, 2011).

<http://health.usnews.com/health-news/articles/2007/09/22/the-problem-with-plastic-bpa>

Risk of adulteration and contamination of formula. There have been incidences where Formula milk has been contaminated with melanine, salmonella, Clostridium, Klebsiella (Spartz and Lessen, 2011). Formula is at risk of manufacturing errors and warehouse contamination.

Formula powder is not a sterile product and is vulnerable to a pathogen named *Enterobacter sakazakii*. This pathogen has been linked to neonatal septicaemia, meningitis and necrotizing enterocolitis and death due to these severe infections.

Infants are at increased risk of ill health if formula is reconstituted incorrectly. Either using water not hot enough to kill harmful bacteria in water and the powdered formula or too hot that it interferes with the important nutrients in the formula (FSAI, 2012).

Cost of not breastfeeding

A Unicef UK study on cost saving associated with increases in breastfeeding found that if 45% women exclusively breastfed for four months and 75% of babies in neonatal units were breastfed at discharge there could be an estimated saving of £17 million in treatment cost annually by avoiding the costs of treating the four main acute diseases in infants, GIT infections, respiratory infections, acute otitis media and necrotizing enterocolitis (UNICEF UK, 2012).

The report also highlighted that if half the mothers who do not currently breastfeed were to breastfeed for up to 18 months in their lifetime there would be significantly fewer cases of breast cancer which will also result in cost savings.

http://www.unicef.org.uk/Documents/Baby_Friendly/Research/Preventing_disease_saving_resources.pdf

Mothers of babies fed with formula were more likely to have higher levels absenteeism than the mothers of breastfed babies.

<http://www.eatbettermovemore.org/SA/enact/workplace/documents/workplace.supportbreastfeeding.evidencebase.comparisonofmaternalabsenteeism.pdf>

Companies who have workplace breastfeeding programmes found no negative impact on productivity, caused fewer days of absenteeism and had higher staff retention rates.

file:///C:/Users/user/Downloads/Breastfeeding_Special_Report.pdf

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Suggested websites
www.breastfeeding.ie
www.kellymom.com
www.cuidiu.ie
www.lalecheleagueireland.com
www.llli.org