The rationale for adopting current international breastfeeding guidelines in South Africa

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Abstract

Current international breastfeeding guidelines recommend exclusive breastfeeding for 6 months, followed by the appropriate and adequate introduction of complementary foods at 6 months, with continued breastfeeding for 2 years and beyond. This guideline is based on evidence to support exclusive and extended breastfeeding as the optimal method of feeding infants and young children. Not only do these breastfeeding practices meet the nutrition needs of infants and children for optimal growth and development, but they also offer a host of other health and socio-economic benefits at all levels of society. The poor breastfeeding rates and increase in infant and child morbidity and mortality in South Africa have led to increased prioritized attention towards the promotion, protection and support of breastfeeding. In 2000, the National Department of Health formally adopted the international breastfeeding guidelines for exclusive and extended breastfeeding practices. Therefore, it remains a priority to implement these guidelines in all current and future breastfeeding programmes and interventions, including the South African paediatric food-based dietary guidelines.

Keywords: breastfeeding guidelines, South Africa, paediatric food-based dietary guidelines.

Introduction

Research over the past few decades has established without doubt that breastfeeding is the best way of feeding infants and young children (WHO 2003). Its

unique formulation not only provides optimal nutrition for babies, but also offers a host of other benefits to mothers, households, communities and nations (Baumslag & Michels 1995). Public health measures to promote, protect and support the exclusivity and duration of breastfeeding have consequently received increasing international priority in recent years.

In May 2001, the World Health Assembly (WHA) passed Resolution 47.1 for optimal infant-feeding practices (WHO 2001). This was subsequently

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incorporated into the Joint World Health Organisation/United Nations International Children's Fund (WHO/UNICEF) 'Global Strategy for Infant and Young Child Feeding' in 2002 (WHO 2003). It affirms that optimal infant feeding consists of exclusive breastfeeding (EBF) for the first 6 months of life, followed by the appropriate and adequate introduction of complementary foods at around 6 months of age with continued breastfeeding for up to 2 years and beyond.

This paper aims to motivate the importance of implementing this guideline in all breastfeeding programmes and interventions in South Africa (SA), including the paediatric food-based dietary guidelines (PFBDG). The relevant PFBDG are 'Breastfeeding is best for your baby in the first 6 months' for the 0–6 months age group, and 'Keep breastfeeding your baby' for the 6–12 months age group.

The rationale for 6 months of exclusive breastfeeding

Exclusive breastfeeding is defined as the provision of no other liquids or solids, besides breastmilk, unless medically indicated (WHO 2003). Before 2001, much debate existed around the optimal duration for EBF.

In May 2001, the WHA urged member states to promote EBF for the first 6 months of life as a global public recommendation (WHO 2001). This recommendation followed a report by a WHO Expert Consultation on the Optimal Duration of Exclusive Breastfeeding (WHO 2003), which considered the results of a systematic review of the evidence (Kramer & Kakuma 2002). This review revealed that infants who are exclusively breastfed for 6 months show no deficits in weight or length gain from 3 to 7 months or thereafter (Kramer & Kakuma 2002). It was thus concluded that the available evidence demonstrates no apparent risks in recommending EBF for the first 6 months of life in both developed and developing countries.

Another review of the nutritional adequacy of breastmilk as a sole source of nutrition for the first 6 months had also been commissioned by the WHO in 2001 with particular focus on the adequacy of

energy, protein, calcium, iron, zinc, and vitamins A, B6 and D (Butte *et al.* 2002). This review concluded that the nutrient needs of the full term normal birthweight infant can be met by human milk alone for the first 6 months of life, as long as the mother is well nourished. However, in circumstances where mothers are not well nourished, some micronutrients may become limiting before 6 months (WHO 2003).

For instance, as human milk is a poor source of iron and cannot be altered by maternal iron supplementation, there may be concerns over the adequacy of iron, and perhaps also zinc, in meeting the needs of exclusively breastfed infants. However, these shortfalls are believed to be met by the infants endogenous iron and zinc depots that are laid down prenatally (Butte *et al.* 2002). Furthermore, in the case of iron, anaemia is also reported to be rare in the first year of life in exclusively breastfed infants (Rolfes & De Bruyne 1990; Baumslag 1992; Fairweather-Tait 1992). In addition, both iron and zinc have high bioavailability in breastmilk (Fairweather-Tait 1992).

However, it has been reported that exclusively breastfed infants may be at risk of iron deficiency where the iron status of mothers may be suboptimal (Kramer & Kakuma 2002). In these settings, medicinal iron supplementation may be necessary. In SA, this has particular relevance considering that maternal rates of anaemia are high, with iron deficiency appearing to be the most common cause. Currently, the prevalence of anaemia in pregnancy in SA ranges between 25% (Kruger *et al.* 1994) and 50% (Mamabolo *et al.* 2004; Kesa & Oldewage-Theron 2005) in different parts of the country. Coupled with this, a recent study has also shown that the intake of sources of high bioavailable iron in low-income pregnant women in Gauteng is inadequate (Kesa & Oldewage-Theron 2005).

In order to reduce or prevent iron deficiency anaemia in pregnant women, the SA Department of Health (DOH) introduced a policy for routine iron supplementation for all pregnant women attending antenatal clinics in SA (DOH 2002a). The Integrated Management of Childhood Illnesses (IMCI) guidelines further make provision for iron supplementation for clinical iron deficiency in infants in clinic settings (DOH 2003).

The WHO review on the nutritional adequacy of EBF for 6 months also reported that in populations at risk of vitamin A and B₆ deficiency, women might have inadequate levels of these vitamins in their breastmilk. Because this is dependent on maternal intake of these vitamins, it was recommended that supplementation might be required in these cases (Butte *et al.* 2002; WHO 2003).

As vitamin A deficiency in young children and women of childbearing age is of concern in South Africa, the SA DOH has implemented a universal vitamin A supplementation programme in public health facilities, targeting mothers who have recently given birth, as well as children under 5 years to address the problem (DOH 2002b). In addition, the DOH launched a mandatory national food fortification programme in 2001 involving the fortification of all wheat and maize flour with vitamin A, thiamin, riboflavin, niacin, vitamin B₆, folate, zinc and iron (DOH 2002c). This was in response to a recommendation from the National Food Consumption Survey (NFCS) that indicated a deficiency of these nutrients in the SA population (Labadarios 2001). Deficiencies in folate, iron, calcium, zinc, niacin, and vitamins A, C, E and B₆ have more recently also been reported in poor black pregnant women living in the Limpopo Province of SA (Mostert *et al.* 2005). The aforementioned interventions in SA should thus go a long way in supporting improved levels of a range of vitamins and minerals in the breastmilk of micronutrient-deficient female groups.

Although concerns have been raised over the adequacy of vitamin D in meeting the needs of infants who are exclusively breastfed for 6 months, vitamin D levels in breastmilk have been found to be biologically adequate to satisfy the needs of infants with adequate exposure to the sun (Butte *et al.* 2002). As such, vitamin D supplementation is not universally provided to breastfed infants in SA.

Further physiological evidence against the need to provide infants with anything other than breastmilk during the first 6 months has also been provided in other studies. It has been shown that exclusively breastfed infants maintain a good fluid balance, even in hot, dry climates, and require no additional fluids (Academy for Educational Development 1993; King

1993; UNICEF, WHO, UNESCO 1994). Research suggests that better support for the mother and baby to promote more effective suckling of the infant would reduce the risk of hypernatraemia and dehydration in infants who do not breastfeed adequately in the first few days of life (Caglar *et al.* 2006).

Finally, the early introduction of solids and liquids should be discouraged because it is associated with early discontinuation of breastfeeding and disrupts the hormonal response between breast stimulation and breastmilk supply. Early introduction of solids and liquids in the immature gut of an infant also increases the risk of persistent gut permeability, bacterial translocation and consequently diarrhoeal disease (Brown *et al.* 1998).

The rationale for extended breastfeeding beyond the 6- to 12-month period

Controversy has also surrounded the recommendation for extended breastfeeding after 6 months of age up to the second year of life and beyond. Some authors reported that children, particularly in developing countries, who are breastfed for long periods are more likely to have poor anthropometrical status compared with those who were fully weaned at the same age (Victora *et al.* 1984; Brakohiapa *et al.* 1988).

However, other authors have argued that poor growth stems from poor complementary feeding practices, particularly in the context of poverty in developing countries, rather than from prolonged breastfeeding (Prentice 1994; Fawzi *et al.* 1998; Hummel *et al.* 2000). In addition, after 6 months of age, breastmilk has still been found to make an important contribution to the total energy needs of infants, and it is estimated that it provides about 35–40% of total energy needs between 12 and 23 months of age (Dewey & Brown 2003). It has further been documented that in societies where children are allowed to nurse as long as they want, they usually self-wean between 3 and 4 years of age (Dettwyler 1995).

The WHO child growth standards (de Onis *et al.* 2006; WHO 2006) attempts to address the controversies surrounding the differences in the growth of breastfed and non-breastfed infants. The WHO

growth standards, resulting from a 15-year project, has been put forward as the best current representation of growth in infants and young children and are based on babies predominantly exclusively breastfed for at least 4 months, which was the recommendation at the time the data collection began. They present the growth of babies who are breastfed, exclusively for some months, then receiving appropriate complementary feeding with continued breastfeeding as the pattern for healthy physiological growth.

Benefits of breastfeeding for the infant

Breastmilk promotes sensory and cognitive development (Anderson *et al.* 1999), and protects the infant against infectious and chronic diseases through its nutritional and immunological benefits (Roskens 1990; Forsyth 1992; King 1993; Prentice 1994; UNICEF, WHO, UNESCO 1994). Breastfeeding reduces infant mortality due to common childhood illnesses, such as gastrointestinal infections (Wright & Deary 1992; Reves *et al.* 1993; Al-Ali *et al.* 1997), respiratory disease and pneumonia (Wright & Deary 1992; Riordan & Auerbach 1993), and helps infants to recover more quickly during illness. These effects can be measured in poor as well as wealthy societies (Howie *et al.* 1990; Cunningham *et al.* 1991; Beaudry *et al.* 1995; Dewey *et al.* 1995; Raisler *et al.* 1999) and is enhanced with greater duration and exclusivity of breastfeeding.

According to the 1998 South African Demographic and Health Survey (SADHS), the infant and child mortality rates in SA reached 45/1000 and 70/1000, respectively, in 1995 (DOH 2004), with infant mortality rates in black populations reported at up to 94/1000 in rural areas (as cited by Steyn 2000). These rates were underpinned by high rates of infectious diseases, with the second and third ranking cause of death in children and infants, respectively, being diarrhoeal disease (DOH 2004).

A meta-analysis reported that mortality especially due to infectious disease in developing countries can be markedly reduced with breastfeeding, even into the second year of life (WHO 2001). Other benefits of breastfeeding extend beyond reducing risks of mor-

bidity and mortality due to infectious disease, but those details fall outside the scope of this paper.

Although there is clear evidence that breastfeeding provides short-term benefits for child health, there has been some controversy about the long-term benefits of breastfeeding. A recent report containing systematic reviews and meta-analyses concluded that subjects who were breastfed had lower mean blood pressure and total cholesterol as well as a lower prevalence of excessive weight and type-2 diabetes in later life (WHO 2007). In SA, the burden of chronic disease risk factors is high, illustrated by high levels of hypertension, hypercholesterolaemia, obesity and overweight (Senekal *et al.* 2003) as well as diabetes, which is on the increase in the general population in overweight and obese adults (Steyn *et al.* 2006). Breastfeeding could thus act as a preventative measure for both infectious diseases and nutrition-related, non-communicable diseases (NR-NCDs) in SA.

Benefits of breastfeeding for the mother

Breastfeeding contributes to the health and well-being of mothers, including hormonal, physical and psychosocial benefits (Brown 2002). Breastfeeding may reduce the risk of postpartum haemorrhage (ADA 1989; King 1993), a condition that has been indicated as a leading cause of death of women in SA (DOH 2004). It enhances fat loss in the early postpartum weeks (Kjos *et al.* 1993; Kramer *et al.* 1993) and helps the mother to lose weight if continued beyond 6 months (Dewey *et al.* 1993). Breastfeeding also improves blood glucose control and increases high-density lipoprotein cholesterol levels in women with gestational diabetes (Dewey *et al.* 1993). More recently, breastfeeding has also been associated with a reduced incidence of type-2 diabetes (Stuebe *et al.* 2005).

Obesity and gestational diabetes are a major health risk among women in their childbearing years in SA. Kesa and Oldewage-Theron (2005) found that 79% of pregnant women and 80% of breastfeeding women of low socio-economic status in the Vaal Triangle were overweight or obese (body mass index cut-off of

25 kg/m²). Furthermore, the prevalence of gestational diabetes is increasing among overweight and obese women in SA (Mamabolo *et al.* 2004) and type-2 diabetes is a condition on the increase in the general SA population in overweight and obese adults (Steyn *et al.* 2006). Breastfeeding could thus act as a preventative measure for these conditions for women at risk of developing these NR-NCDs in SA.

It has been claimed that early skin-to-skin contact between mother and infant also increases the mother's self-confidence and bonding with her baby (King 1993). In addition, frequent EBF helps to delay the return of fertility of the mother (Academy for Educational Development 1993; Riordan & Auerbach 1993; UNICEF, WHO, UNESCO 1994) and thus helps to space children. It has been suggested that a short birth interval may adversely affect the nutritional status of the mother and child (King 2003). A recent systematic review, however, was unable to provide clear evidence to support this because of the presence of confounding variables and limitations among the available studies (Dewey & Cohen 2007).

Benefits of breastfeeding to society

Breastfeeding can increase family and national resources, because it is an economical feeding choice and is a safe way of feeding. As breastfed babies are generally healthier than babies fed breastmilk substitutes, this has far-reaching impacts on the broader economy at the level of families, employers and the national economy. It has been shown to translate into lower rates of absenteeism from work due to healthier babies (Cohen *et al.* 1995) and lower health-care costs (ILO 1999).

The SA government has placed strong emphasis on promoting economic development within the country since 1994 (Butler 2004). Breastfeeding has an important role to play in contributing to this overall development. However, for this to be better realized, more comprehensive national labour legislation in support of breastfeeding in the workplace will need to be instituted.

Breastfeeding also results in a considerable cost saving to families. In SA, breastmilk substitutes currently cost a minimum of 70 Rand (\$10, €7.3) per

week (excluding bottles, teats and sterilizing equipment) and may constitute a considerable proportion of a household budget, which may otherwise be better utilized. Considering that almost 20% of households in SA have been reported to earn less than 500 Rand (\$72, €52) per month (Head 1996), savings from breastfeeding may significantly improve their economic security.

Breastfeeding also benefits the environment as it requires no packaging, produces no waste and keeps the environment cleaner (Baumslag & Michels 1995).

Breastfeeding rates and practices in South Africa

Although breastfeeding initiation rates are reportedly high in SA, exclusive and extended breastfeeding is far from optimal. In 1994, the SA Vitamin A Consultative Group (SAVACG) study showed that at a national level, 12% of infants are never breastfed (Labadarios 1995). The SADHS showed that only 7% of infants under 6 months are exclusively breastfed, while up to 17% are never breastfed (DOH 2004). Other *ad hoc* studies have confirmed that mothers tend to introduce solids and other complementary foods or liquids too early (Steyn *et al.* 1993; Faber *et al.* 1996; Faber *et al.* 1997; Ransome *et al.* 1998).

The poor breastfeeding rates in SA are of concern considering the high prevailing rates of undernutrition and infant and child mortality in the country. Although SA is classified by the World Bank as a middle-income developing country (Butler 2004), it has high infant and child mortality rates relative to other middle-income countries.

The SAVACG (Labadarios 1995) and the NFCS (Labadarios 2001), respectively, highlighted high rates of stunting and underweight in young children. The SAVACG survey revealed that a third of SA children under 5 years of age have marginal vitamin A status, which by global standards constitutes a severe public health problem. This survey also revealed that 20% of SA children are anaemic and 10% have iron deficiency.

In SA, undernutrition and micronutrient malnutrition may be associated with the common practice of introducing complementary foods too early. This may

compromise the integrity of an infant's immature gut, consequently increasing the infant's susceptibility to diarrhoeal disease and undernutrition. Late introduction of complementary foods or the introduction of insufficient and poor quality complementary foods may also negatively impact on the nutritional status of children.

In the SA context, the vulnerability of children to these 'diseases of poverty' is particularly high with breastmilk substitutes. Breastmilk substitutes require good conditions of hygiene and sanitation, yet Statistics SA (2003), in 2003, revealed that over 30% of people across the country do not have access to clean, safe, running water, and over 40% do not have access to other adequate sanitation. Furthermore, in 2003, a study on bacterial contamination of infant formula feeds in SA revealed that over 60% of feeds sampled were contaminated with pathogenic bacteria, even in good conditions of hygiene and sanitation (Bergström *et al.* 2004). Breastmilk substitutes also lack the protective immunoglobulins and anti-infective agents found in breastmilk and, if prepared with unclean water, place infants at risk, particularly because of diarrhoeal disease (Baumslag & Michels 1995).

Breastmilk substitute-fed infants are also at high risk of undernutrition as a result of diluted feeds (Bergström *et al.* 2004). The risk of over-dilution of feeds is highest where mothers cannot afford the cost of breastmilk substitutes, and this is a reality for many considering that up to 45–55% of people in SA are currently reported to live below the poverty line (Head 2003). Bergström *et al.* (2004) found that more than half of all feeds sampled in their study were inappropriately diluted, exposing infants and young children to significant risks of malnutrition, despite relatively high educational levels of mothers.

Factors that have shaped breastfeeding rates and practices in South Africa

In the past, breastfeeding activities were largely limited to the promotion of the 'breast is best' message through health education. Considerable barriers to breastfeeding existed in birthing facilities and the wider community. It is only recently that measures

to support and protect breastfeeding through broader health-promoting activities aimed at overcoming these barriers have been truly prioritized through the initiatives of the DOH.

In addition, any attempts that were previously made at promoting breastfeeding had to compete against the unethical marketing and promotion of breastmilk substitutes by the major transnational producers of breastmilk substitutes. In their quest for expansion into global markets, they have widely promoted and idealized breastmilk substitutes in developing countries (Baumslag & Michels 1995), including SA (Taylor 1998), for decades. Their marketing practices have resulted in the degradation of exclusive and extended traditional breastfeeding practices in these countries, with a consequent rise in infant morbidity and mortality where breastmilk substitutes could not be sustained or safely practised (Baumslag & Michels 1995).

Changes in cultural and traditional nutrition and infant-feeding practices have also been compounded by rapid urbanization following the abolition of apartheid and urban influx control laws in SA. It is well documented that urbanization has been coupled with the adoption of a more westernized diet by migrating populations (Bourne *et al.* 2002).

The discouragement of breastfeeding as a means of reducing mother-to-child transmission of HIV through breastmilk will also contribute to worsening breastfeeding rates in SA. Reports from other countries have shown this to be the case (Latham 2001). (See Hendricks *et al.* 2007 for more detail on this topic.)

Current breastfeeding strategies in South Africa

In an attempt to reverse declining breastfeeding rates in South Africa, National Breastfeeding Guidelines for Health Workers were published in 2000 (DOH 2000), promoting the WHA Resolution for exclusive and extended breastfeeding. Since then, the promotion, protection and support of breastfeeding has also received increased prioritized attention in the DOH's comprehensive national nutrition strategy for

combating malnutrition: the Integrated Nutrition Programme (DOH 2002c).

The commitment to breastfeeding now extends beyond just educating mothers on the benefits of breastfeeding, and includes a combination of other health-promoting strategies. Reorienting health services by removing barriers to breastfeeding in birthing facilities is one of the major initiatives that has been undertaken. This includes the implementation of Kangaroo Mother Care for preterm infants, as well as the WHO/UNICEF Baby Friendly Hospital Initiative's 'Ten Steps to Successful Breastfeeding' (DOH 2002c). The latter initiative also prioritizes the establishment of community-based breastfeeding support programmes to create supportive environments for breastfeeding mothers once they have left the hospital.

In the Western Cape, studies have found that not enough emphasis is placed on the referral of mothers to support groups in both public and private clinics (Marais *et al.* pers. comm.). In contrast, researchers in Kwa-Zulu Natal have however, impressively shown an improvement of EBF rates to over 70% where appropriate support strategies have been implemented (DOH 2003). La Leche League International have offered breastfeeding peer counsellor support programmes in SA since 1992, but more extensive roll-out of these programmes is needed if breastfeeding rates are to improve to a more significant level (La Leche League International 2006).

The Mother Child and Women's Health Directorate of the DOH through the IMCI as well as the INP have also been active in the process of supporting optimal infant-feeding practices and guidelines in SA, by developing appropriate infant-feeding messages for HIV-positive mothers (DOH 2000). Steps have recently also been taken by the SA government to pass legislation prohibiting the unethical marketing and promotion of breastmilk substitutes by the major transnational producers of infant foods through the process of legislating the 1981 WHO International Code of Ethics for the Marketing of Breastmilk Substitutes. The proposed draft legislation is comprehensive and includes all the provisions, articles and subsequent resolutions of the original 1981 WHO Code. This contrasts with the original 1986 SA Code of Ethics for the Marketing of Breastmilk Substitutes,

which completely omitted Article 14 of the WHO Code relating to the monitoring of code compliance in SA (DOH 1986) and opened the way for gross violations of the Code to occur.

However, current legislation on the working conditions and maternity leave benefits for mothers in both the formal and informal sectors still remains grossly inadequate to meet the needs of breastfeeding mothers (Department of Labour 1997, 2003) and will urgently need to be revisited.

Conclusion

In recent years, concern for declining breastfeeding rates worldwide has sparked renewed global commitment to promoting, protecting and supporting breastfeeding. In 2001, international health agencies reached consensus on recommendations for optimal breastfeeding practices, culminating in the passing of the WHA Resolution for EBF for 6 months, followed by the appropriate and adequate introduction of complementary foods at 6 months with continued breastfeeding for 2 years and beyond.

The resolution was founded on a wealth of evidence showing that there are no apparent risks in recommending EBF for the first 6 months as a public health policy. Exclusive and extended breastfeeding also has significant social, health and economic benefits to infants, mothers and societies in both developed and developing countries. It remains one of the most significant global public health strategies to improve child survival.

Against the backdrop of poor breastfeeding rates and increasing rates of infant and child morbidity and mortality in SA, the WHA Resolution has subsequently been adopted in the country. Some other health and nutrition strategies have been implemented to address the identified nutrition-related problem areas in SA, and it is believed that these will positively impact on the health and well-being of pregnant and lactating mothers and their infants. It remains a priority, however, to implement and promote at a national level the WHA Resolution in all activities aimed at protecting, promoting and supporting breastfeeding. The PFBDG are an excellent nutrition education tool to further this cause.

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