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Goals of Exclusive Breastfeeding and the Effectiveness of Programs and Initiatives in
Attaining Them

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Abstract

Over recent years, breastfeeding has gained renewed significance in research and practice. Both in the United States and around the world, especially in poor countries that do not have easy access to quality healthcare, breastfeeding has been shown to dramatically and positively affect the health and lifespan of infants. However, there is still a low prevalence of effective breastfeeding practices universally. Even with the presence of global programs and goals that are geared toward exclusive breastfeeding habits, global rates are lower than what is desired. There are various determinants of breastfeeding that factor into a woman's decision and practice of breastfeeding. Suggestions can further improve healthy breastfeeding practices, especially in the form of exclusive breastfeeding.

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In 2010, over 7.7 million children below the age of five died. Around 98% of these deaths occurred in developing countries. It is estimated that hundreds of thousands of these deaths happened as a direct result of suboptimal breastfeeding practices. Suboptimal breastfeeding is defined as any feeding practice that is inconsistent with the recommendations that have been made by the World Health Organization (WHO) and UNICEF, the United Nations International Children's Emergency Fund (Zakarija-Grković et al., 2015). Many studies show that suboptimal breastfeeding is a more serious risk factor for children than even sanitation or water quality (Roberts, Carnahan, & Gakidou, 2013). One way to measure the extent of suboptimal breastfeeding on global health is by using Disability-Adjusted Life Years (DALY). DALYs are a measure of the overall burden of disease. One year lost due to disease is the equivalent of one Disability-Adjusted Life Year (DALY). According to the World Health Organization (2010), the proportion of the Disability-Adjusted Life Years for children that can be attributed to suboptimal breastfeeding techniques is 7.6% globally and in some places such as Swaziland reaches up to 20.2%. The Lancet's 2013 Maternal and Child Nutrition Series also found that suboptimal breastfeeding is the cause of about 804,000 deaths in the year 2011 (Lamberti, Walker, Noiman, Victora, & Black, 2011). This is 11.6% of all the deaths of children under the age of five. As seen by these values, suboptimal breastfeeding is an enormous risk factor in developing countries (Roberts et al., 2013).

Not only is suboptimal breastfeeding a risk factor for early deaths, but breastfeeding done correctly can develop healthier children in comparison to those who

are not breastfed. Bo Vahlquist, a renowned pediatrician from Sweden, wrote in 1981, “In all mammalian species the reproductive cycle comprises both pregnancy and breast-feeding: in the absence of the latter, none of these species, man included, could have survived” (as cited in Victora et al., 2016a, p. 475). The specific benefits that occur with breastfeeding have been seen repeatedly through evidence based research.

Benefits of Breastfeeding

In 1984 the American Academy of Pediatrics published a report on the scientific evidence for breastfeeding. In the report, they stated that “if there are benefits associated with breast-feeding in populations with good sanitation, nutrition and medical care, the benefits are apparently modest” (as cited in Victora et al., 2016a, p. 475). Yet the most up-to-date research and studies on breastfeeding since 1984 strongly show that infants gain the most benefits from breastfeeding exclusively for six months after birth, followed by complementary feeding along with breastfeeding up until two years. In fact, exclusive breastfeeding has been found to be the single most effective intervention in low-income settings for reducing mortality under the age of five years (Jones, Steketee, Black, Bhutta, & Morris, 2003).

What has exclusive breastfeeding been shown to do for the health of infants and their mothers? Perhaps the primary positive outcome is the increased immunity given from mother to child. Breastfeeding is a way for a mother’s antibodies to be directly transferred to her child. This process of passive immunity also includes “immunomodulatory components” that help develop the immune system of the child (Kuhn & Aldrovandi, 2010, p. 848).

Exclusively breastfed infants generally have a lower mortality rate compared with those who are not breastfed. One study performed by the Lancet *Breastfeeding Series Group* showed that infants who were exclusively breastfed had only 12% of the risk of death compared with those who were not breastfed. The relative risk of death was 1% in exclusive breastfed infants compared to a relative risk of 14.4% in non-breastfed infants (Victora et al., 2016a). Even for children who were not exclusively breastfed, there was a 50% reduction in deaths in children who were breastfed at all between the ages of six and twenty-three months (Victora et al., 2016a). These studies were performed in lower/middle income countries. In high-income countries, the results were similar. Specific health conditions that led to death were analyzed. Researchers from the Tufts-New England Medical Center Evidence-Based Practice Center conducted high-quality studies and performed a meta-analysis of six of these studies, showing that “breastfeeding was associated with a 36% reduction in sudden infant deaths” (Ip et al., 2007, p. 5). They performed another meta-analysis of “four randomized controlled trials [which] showed a 58% decrease in necrotizing enterocolitis, a disorder with high case-fatality in all settings” (Victora et al., 2016a, p. 479).

Not only is there a decrease in mortality, but there is also a decrease in other problems of infancy. For example, around half of all episodes of diarrhea and a third of all respiratory infections could be avoided by breastfeeding (Victora et al., 2016a). Breastfeeding also reduces the risk of pneumonia, ear infections, meningitis, urinary tract infections, and Haemophilus influenza. Additionally, breastfeeding during infancy decreases the chances of the child growing overweight, becoming obese, or developing type-2 diabetes because it is associated with lower blood pressure and total serum

cholesterol (Labbok, Brownlee, Clark, & Becker, 2009). The only detrimental effect found from breastfeeding infants was that there was an increase in tooth decay when children were breastfed for longer than twelve months. As Victora et al. (2016a) explained, this result should not lead to the decision to stop breastfeeding after twelve months; rather it should lead to the decision to increase oral hygiene.

Breastfeeding does not only benefit the child, but it benefits the mother as well. Because exclusively breastfeeding around the clock delays another pregnancy for the woman by preventing ovulation, it decreases the risks of post-partum hemorrhage, premenopausal cancer, ovarian cancer, and other reproductive stresses (Labbok et al., 2009). Exclusive breastfeeding also has been found to decrease the incidence of experiencing breast health problems such as mastitis, engorgement, and cracked nipples by about 50% in comparison to non-exclusive breastfeeding. Multiple studies done in South Africa and Zambia have shown an increased risk of experiencing a breast health problem in women who do not exclusively breastfeed (Doherty et al., 2012).

In addition to the physical effects on children and mothers, breastfeeding has an effect on decreasing health inequities. Health inequities, as defined by the Centers for Disease Control and Prevention, are “difference[s] or disparit[ies] in health outcomes that [are] systematic, avoidable, and unjust” (2014b, para. 9). The global focus on health equity has resulted in an increase in interventions that reach most population groups regardless of economic status. Research has shown that interventions such as vaccinations, antenatal care, and diarrhea/pneumonia care are used primarily for the wealthy, for those who can afford these interventions. When implemented on a large scale, the use of these interventions actually increases child health inequalities because

they cater to the wealthier populations first before they reach the less wealthy. According to Roberts et al. (2013), the increase in exclusive breastfeeding between 1990 and 2013 was consistent across wealth quintiles in different countries. Options such as breastfeeding, which are shown to have significant health benefits for children yet are independent of health infrastructure, are therefore beneficial options for promoting equity while increasing health status worldwide (Roberts et al., 2013).

When comparing breastfeeding with formula feeding there are noticeable differences that support the notion that exclusive breastfeeding for six months is ideal. Kuhn and Aldrovandi spoke to one of the primary differences between the two:

Breast milk is exquisitely regulated such that the content varies from the beginning to the end of the feed so that a child can be most quickly satiated even with a short feed but can continue to feed for comfort and not become overfed on longer feeds. The composition of human milk also varies based on the amount the child consumes and over time is regulated to adapt to the unique needs of a specific child. (2010, p. 847)

With formula, although it can be nutritionally adequate if it is given in the correct volumes and at the right times, there is no individualization from child to child as there is naturally with breastfeeding. Another issue comes with incorrect mixing or over-dilution, which can easily be done when preparing formula at home. As Kuhn and Aldrovandi further explained, buying formula brings with it the potential concern of sustained supply and running out of stock. Breastmilk, on the other hand, is available in unlimited quantities.

Another problem that arises with formula feeding is the problem of contamination. This issue is more prevalent in developing countries whose water supplies are not clean. In settings where resources are poor, preparing formula hygienically is very difficult. A study done in KwaZulu-Natal, South Africa, showed that about 80% of all the formula that was prepared at home was contaminated with fecal bacteria. The formula preparation was even done following direct instruction from counselors on the correct way to prepare the formula. Twenty percent of the samples that were prepared by these counselors during their demonstrations were also found to be contaminated (Kuhn & Aldrovandi, 2010).

Even if the contamination problem were to be solved, there would still be risks to formula-feeding. A clinical study performed in Kenya to compare antiretroviral therapy effects during lactation of women with HIV brought the investigators to a conclusion that they were not looking for. During the study, some of the women with HIV were asked to stop breastfeeding their babies by the six-month mark, which was the duration of the antiretroviral therapy. When the mothers weaned their children off the breastmilk at that time, there was an increase in deaths from diarrhea. The investigators decided to implement an effective, contemporary water quality-improvement program. After this intervention, the infants who were still being breastfed experienced a decrease in diarrhea while the infants who had been weaned off breastmilk and onto artificial feeding experienced no effect on their diarrhea. This shows that “contamination plays a role in exaggerating the risks of artificial feeding but clean water is insufficient to mitigate artificial feeding’s risks” (Kuhn & Aldrovandi, 2010, p. 847). Even with the implementation of a public health program that could minimize environmental risks such

as contamination and inadequate nutrition, the lack of immunologically active components of breastmilk would still be a risk that comes with artificial feeding (Kuhn & Aldrovandi, 2010).

When to Avoid Breastfeeding

Amid the numerous benefits of breastfeeding, there are times when abstaining from breastfeeding is the better option. Depending on certain health issues of the infants or of the mother, it may be necessary to abstain completely from breastmilk or to supplement alongside breastmilk. Infants should receive specialized formula if they have health concerns, such as galactosemia, maple syrup urine disease, or phenylketonuria. If infants are born with an especially low birth weight (less than 1500 g), at less than 32 weeks of gestation, or with a risk of hypoglycemia because of increased glucose demand, they may need to receive additional nutrition alongside breastmilk from the mother (Centers for Disease Control, 2014a).

Avoidance of breastfeeding may be warranted in some situations due to the mother's health. If a mother is infected with HIV, the decision to breastfeed should take into account other factors, which will be discussed later. Other conditions of the mother, such as severe illness (ex. sepsis), herpes simplex virus, the taking of certain medications that could transfer through breastmilk, and substance use could warrant a delay in breastfeeding. If the mother and her child are not experiencing any of these health concerns, breastfeeding is decidedly the healthiest option (Centers for Disease Control, 2014a).

Definition of Exclusive Breastfeeding

Any discussion of exclusive breastfeeding trends must first begin with defining what is meant by exclusive breastfeeding. WHO and UNICEF are two organizations that are in the midst of the push toward increasing breastfeeding around the world. These public health organizations clearly recommend six months of exclusive breastfeeding for optimal growth and health of infants (Badham, 2013). Despite the clarity of this message, exclusive breastfeeding for six months is not being practiced to the extent that these organizations recommend. As Jane Badham explained, “there are many real and perceived barriers to the message being heard and attainment” (2013, p. 1). One such barrier is that the meaning of the word “exclusive” is oftentimes misunderstood.

Exclusive breastfeeding traditionally has been used to refer to the use of breastmilk without the addition of any other substance including water. Using the term “exclusive” can be misleading because in certain situations a woman may feed her infant nothing but breastmilk but then supplement with water for a brief time before returning to solely breastmilk. Would this still be considered exclusive breastfeeding? Greiner (2014) argued that the indicator that is used to define exclusive breastfeeding is the purpose for which the data are being used. For example, if the data are attempting to measure the impact of an infant’s diet on the development of HIV or food allergies, perhaps it would be necessary to measure the length of time up until any other substance (including water) was introduced into the infant’s diet. This is called a life-long or since birth indicator. This indicator, Greiner claimed, may underestimate the total number of women who are exclusively breastfeeding. He stated that in other instances, the inclusion of water for a period may still be considered exclusive breastfeeding (Greiner, 2014).

When using the term “exclusive breastfeeding,” it is helpful to identify the time period before any substances are introduced into the diet, the substances that are introduced, and if the mother reverts to solely breastmilk after a period. For the purpose of this discussion, exclusive breastfeeding refers to the period of time before a mother introduces any food or substance, including water, into the infant’s diet.

Following the six months of exclusive breastfeeding, the international guidelines give further direction as to the schedule of introducing foods up until two years of age. For the general population, at approximately six months of age, complementary foods should be introduced into the diet alongside breastfeeding to two years. The term complementary refers to foods that are added to the diet to complement the nutrients that are already available through breastmilk. From six to twenty-four months, the nutrients a child receives from complementary foods increases while the nutrients they receive from breastmilk gradually decreases. A child is weaned off breastmilk over a period of about a year to a year and a half. A child is fully weaned once he/she no longer receives any breastmilk from his/her mother. This pattern of feeding has been shown to be the healthiest for infants in both developing and developed countries (Kuhn & Aldrovandi, 2010).

Old Beliefs about Breastfeeding

The years following World War II brought a dramatic increase in the use of formula feeding over breastfeeding in the United States. With many children being born in hospitals during the baby boom years and society moving toward a time of scientific and technological research and discovery, formula feeding was viewed as scientifically advanced, sterile, and more modern than breastfeeding. Stemming from the Progressive

Era, maternal behaviors and perceptions were shaped by the scientific motherhood ideology. Motherhood was seen as a biological identity which was based in the bearing of children. Scientific motherhood put great emphasis on the opinions of experts who were trained scientifically, such as pediatricians, to help raise mothers' children (Martucci, 2012). Martucci stated, "Scientific motherhood was entangled with the social imperatives to be 'modern', hygienic, and technologically advanced, and so helped fuel the early 20th-century switch from breast to bottle" (2012, p. 74). Overall, during the 20th century perceptions of breastfeeding were low. To many high-income populations, breastfeeding was seen as something that the poor population took part in. Formula and breastmilk substitutes were regarded as "modern" and esteemed. These perceptions caused breastfeeding to become less popular in high-income countries and even in low and middle-income countries among the wealthier and more educated women (Victora et al., 2016b). As more research was done to discover the long-term effects of breastfeeding versus bottle-feeding and the positive outcomes of exclusivity in breastfeeding up to six months, the push toward breastfeeding increased with the development of policies and recommendations from various organizations around the globe (Martucci, 2012).

Breastfeeding Policies and Recommendations

The Innocenti Declaration

In light of the researched benefits to breastfeeding, especially exclusive breastfeeding for six months, various organizations around the world have implemented policies and goals in order to encourage breastfeeding globally. The Innocenti Declaration is a document that was created in 1990 by policy makers of the World Health Organization and UNICEF during a meeting held at the Spedale degli Innocenti in

Florence, Italy. It was co-sponsored by the United States Agency for International Development and the Swedish International Development Authority. This document affirmed the view that all infants should be exclusively breastfed for six months followed by breastfeeding with supplementation. According to UNICEF Executive Director Ann M. Veneman, the Innocenti Declaration is a tool that has brought the world closer to meeting the Millennium Development Goals (UNICEF, 2005).

That same year, the U.N. Convention on the Rights of the Child called on the states to protect the rights of children regarding nutrition. This included efforts to ensure that the public was not being deceived or receiving biased information that would keep them from attempting or continuing to breastfeed their children. It also included measures for states to take in the protection of children who had working mothers. This international human rights treaty labeled breastfeeding as a legal right of the child and any state who ratified the Convention as having a legal obligation of promoting breastfeeding. These movements were based on the research that had shown the benefits of exclusive breastfeeding (Victora et al., 2016b).

The Baby-Friendly Hospital Initiative

A year later, in 1991, the Baby-Friendly Hospital Initiative (BFHI) was started by the World Health Organization with the goal of supporting successful breastfeeding in hospitals and birthing centers (Victora et al., 2016b). BFHI is composed of ten interventions that are geared toward helping moms and their babies in the beginning processes of developing a breastfeeding rhythm that will allow them to successfully breastfeed exclusively for six months. The basis of the BFHI was grounded in research studies showing how early supplementation and delaying breastfeeding after birth in the

hospital setting are correlated with lower rates of exclusive breastfeeding afterward. The BFHI gives hospitals a crucial part to play in the maternity stay of mothers that can increase the length of exclusive breastfeeding following discharge (Labbok et al., 2009).

The Ten Steps to Successful Breastfeeding are a set of minimum requirements that need to be met for a healthcare facility to be deemed “Baby-Friendly.” To attain Baby-Friendly status, every facility needs to do the following:

1. Have a written breastfeeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breastfeeding.
4. Help mothers initiate breastfeeding within a half-hour of birth.
5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breastmilk unless medically indicated.
7. Practice rooming-in; allow mothers and infants to remain together 24 hours a day.
8. Encourage breastfeeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothes) to breastfeeding infants.
10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic. (Yotebieng et al., 2015, p. e548)

At this point over 20,000 hospitals in the world are distinguished as Baby-Friendly (UNICEF, 2005).

Healthy People 2020

Healthy People 2020 was developed by the United States government in order to outline a list of objectives that aim to decrease illness, premature deaths, disabilities, and health disparities in the United States. This document is managed by the Office of Disease Prevention and Health Promotion (ODPHP) at the Department of Health and Human Services. One of the objectives listed as a goal for the year 2020 is to increase the proportion of infants who are breastfed. This goal is split among five specific objectives, including to increase the proportion of infants who are breastfed at six months to 60.6% and to increase the proportion of infants who are exclusively breastfed through six months to 25.5%. Although these goals are specific to the United States, they are similar to the global goals set forth by the World Health Organization and UNICEF. The World Health Assembly (WHA), which is basically the decision-making group of the World Health Organization, developed a set of goals in 2012 that looked forward to 2025. The global target set forth for the WHA in relation to breastfeeding is that, by the year 2025, the rate of exclusive breastfeeding in the first six months reaches at least 50% (United States, 2010).

Global Breastfeeding

The policies that have been developed in the past, including the Innocenti Declaration, the Baby-Friendly Hospital Initiative, and others, work toward increasing the global rates of breastfeeding. Through these programs and the people involved, more than 20,000 hospitals in 150 countries can be labeled as Baby-Friendly. Over 60

countries have regulations that execute the International Code of Marketing of Breast-milk Substitutes. This health policy framework derived from the World Health Organization lays out guidelines for the producers and sellers of infant formula in the hopes of ensuring the proper use of breast-milk substitutes, including any marketing and distribution (World Health Organization, 1981). In addition, many countries have a national breastfeeding authority in place (UNICEF, 2005).

Yet more is needed in addition to the programs that are already in place if substantial goals are going to be met. As mentioned previously, the global goal of the World Health Assembly is for exclusive breastfeeding rates to reach at least 50% by 2025. When examining the trends around the world, low-income and middle-income countries with data show that exclusive breastfeeding rates went up from 25% in 1993 to 37% in 2013. Similarly, during the same time span, data on the wealthiest 20% in each country shows that breastfeeding increased from 16% to 35% (Victora et al., 2016b). When compared with the goal that has been set forth by the World Health Organization to increase the rate of exclusive breastfeeding to at least 50%, these statistics obviously still fall short (Global Nutrition Report, 2015).

Labbok et al. wrote this in the Baby-Friendly Hospital Initiative: Revised, Updated and Expanded for Integrative Care:

The BFHI has measurable and proven impact, however, it is clear that only a comprehensive, multi-sector, multi-level effort to protect, promote and support optimal infant and young child feeding, including legislative protection, social promotion and health worker and health system support via BFHI and additional approaches, can hope to achieve and sustain the behaviours and practices

necessary to enable every mother and family to give every child the best start in life. (2009, p. 1)

As they acknowledged, more must be done to increase the global trend toward exclusive breastfeeding. What issues are playing into the results that are being seen? A closer look at the determinants of breastfeeding can help put focus on areas that need further attention in order to increase exclusive breastfeeding rates (Labbok et al., 2009).

Determinants of Breastfeeding

Maternal Attitudes

Many factors contribute to a woman's decision to breastfeed her infant. Often the woman's attitude, including her own intention of breastfeeding during her pregnancy and her own self-efficacy, is one of the strongest predictors of whether exclusive breastfeeding will occur. A woman has generally decided on her own intentions of how she will nourish her baby (breastfeeding or not) by the third trimester (Victora et al., 2016b). In the study mentioned earlier, performed by the PROMISE-EBF group, one of the subgroups was a group of HIV-positive South African women who were breastfeeding. More than two-thirds of these women had previous intentions while they were still pregnant to not breastfeed their infants. However, they eventually decided to breastfeed instead of facing a stigma with accepting free formula milk. This stigma came from the idea that the women would be assumed to be HIV-positive if they decided to accept free milk from clinics. To this population of mothers, free formula meant that the women were sick and not able to breastfeed (Nor et al., 2012). Later, their original intention not to breastfeed during the antenatal period was the strongest predictor of early cessation of breastfeeding for this population (Doherty et al., 2012). The Theory of

Planned Behavior (TPB) states that intent is an immediate antecedent to producing a change in behavior. This theory has been studied in the postpartum setting among women who are breastfeeding. Much evidence has been found on the effectiveness of this theory in predicting breastfeeding behavior in women. Looking closer at the intent of breastfeeding in the antenatal period logically leads to the idea that these women hold a positive view of breastfeeding and its norms (Hamade, Chaaya, Saliba, Chaaban, & Osman, 2013).

In two other studies, one done in Midwest United States and another done in regional Queensland, self-efficacy was found to play a part in the length of breastfeeding. Mothers with a greater level of confidence and self-efficacy in breastfeeding at two weeks after birth were more likely to breastfeed for six months than those who had a lower level of confidence (Cox, Binns, & Giglia, 2015; O'Brien, Buikstra, & Hegney, 2008).

Workplace Attitudes

In the United States and other countries where many women are in the workplace, women often experience negative reactions from coworkers or employers who are uncomfortable with breastfeeding or pumping while at work (Victora et al., 2016b). However, nursing mothers may have no options for an adequate maternity leave. A community-based cluster-randomized trial done in South Africa by the PROMISE-EBF group in 2012 showed that South African women who were providing their own income were twice as likely to quit breastfeeding completely by week 12 compared to those who were not providing their own income. The researchers attributed this to a lack of or vastly inadequate provision of maternity leave (Doherty et al., 2012). Researchers from the

Lancet Breastfeeding Series Group estimated that when a woman only has a short maternity leave of less than six weeks, she is four times more likely to either not breastfeed at all or to stop breastfeeding early (Victora et al., 2016b).

Quality of Knowledge Gained from Professionals

Nurses and physicians play a key role in influencing a woman's feeding practices. One of the most pressing responsibilities is to educate their patients on topics involving health and wellness. Breastfeeding is an area that women need much education on in the hospital. A study done in Brazil in a Primary Health Care Unit analyzed twenty breastfeeding mothers and their experiences with breastfeeding. Many of the women communicated that when their babies cried, they assumed that it was because they were still hungry even after being breastfed. The mothers called their milk "weak," indicating their belief that their breastmilk was not substantial enough to fulfill their child's nutritional needs. Furthermore, the more their infants cried, the more likely the mothers were to introduce other foods and wean their infants early. This false thinking points to a shortfall in communication between the healthcare workers and the mothers. The healthcare workers failed to teach the moms that their babies would experience normal difficulties when coping to life outside the womb. Their crying was most likely not related to the fact that their moms were not producing *adequate* breastmilk (Frota, Lopes, Lima, Branco Sales, & Bruno da Silva, 2016). Although each infant is different and requires different amounts of breastmilk, the proper ways to assess adequate milk supply and infant intake involve assessing the frequency and characteristics of wet diapers and the amount of daily and weekly weight gain of infants. The healthcare workers were not

thorough in educating the mothers in how to adequately assess their infant's intake (Gatti, 2008).

To facilitate positive learning outcomes, health professionals should be prepared to listen to mothers and their concerns. Each mother's situation is different and will present unique challenges. It is imperative that health professionals are well-versed in how to educate women in a variety of circumstances on the production and volume of breast milk as well as the techniques in breast handling (Frota et al., 2016). As Victora et al. (2016b, p. 492) have observed: "substantial gaps in knowledge and skills to support breast feeding are reported at all levels of health-care staff."

Recommendations for Better Support and Outcomes

Professional Support

One logical suggestion to increase exclusive breastfeeding rates is to increase the professional support given to women after they give birth. Labbok et al. (2009) pointed directly to the tenth step to successful breastfeeding, claiming that support following discharge from healthcare facilities is lacking. Veneman of UNICEF proposed that there is a lack of awareness amongst mothers regarding how much their children could benefit from exclusive breastfeeding and a lack of support from professional health care workers to assist these mothers (UNICEF, 2005). Perhaps there is a lack of breastfeeding guidance from nurses and clinicians in the period soon after birth. Would the addition of even more professional support have a positive effect on breastfeeding trends?

Early education geared toward exclusive breastfeeding for six months. Two clinical trials support the conclusion that exclusive breastfeeding rates remain low among mothers *despite* the addition of extra support from health care professionals. The first

study, a Cochrane systemic review done in 2012, observed 56,451 mother/infant pairs among 21 different countries and 52 different breastfeeding support trials. The meta-analyses confirmed that with any support, there was a positive effect on the duration and exclusivity of breastfeeding up to six months post-partum. However, the study showed that the addition of extra *professional* support versus standard care showed no significant difference in breastfeeding outcomes at six months (Fu et al., 2014).

The second study was a cluster randomized controlled trial performed in Hong Kong in 2014 among 722 women. Like the first study, this was done to examine the effects of additional professional support on the rates and outcomes of exclusive breastfeeding. Three randomized groups of primiparous women were created: the first group received standard hospital care, the second group received standard hospital care with an additional three breastfeeding sessions in the hospital, and the third group received standard hospital care with the addition of weekly telephone calls during the first four weeks out of the hospital. It was found that although the overall proportion of women who performed exclusive breastfeeding or who had longer breastfeeding duration increased with the additional support, the women who received extra professional support were no more likely to breastfeed exclusively *up to the six-month mark* than those who received standard care (Fu et al., 2014).

The question that logically follows is this: With the addition of professional support, why was there change in the women's behavior only in the early postpartum period but not up until six months? In the second study, 42.3% of the mothers had no intention from the beginning to exclusively breastfeed their babies up to six months (Fu et al., 2014). There is an issue of mothers not having the desire to even attempt exclusive

breastfeeding. As explored earlier, the intent during the pregnancy period is a strong indicator of whether a mother will exclusively breastfeed her child for six months postpartum. As Dennis (2014) of the University of Toronto proposed, perhaps the reason for this lack of desire to breastfeed exclusively for six months is that the current research in support of breastfeeding has established the benefits of any breastfeeding rather than the unique benefits of exclusive breastfeeding up to six months. Although mothers are being taught and educated in the effects of breastfeeding in general, there is a lack of teaching about the effects of exclusive breastfeeding up to six months. Dennis recognized that the early initiation of breastfeeding in general has gone up over the years, as outlined in the sections above. However, the rates of exclusive breastfeeding are still low, even in low and middle-income countries. He recommended that in order to increase the number of mothers who exclusively breastfeed their babies to the six-month mark, the research in support of breastfeeding needs to focus directly on breastfeeding without supplementation for six months. Consequently following the evidence-based research, education in the healthcare setting will trend toward exclusive breastfeeding for the first six months rather than just *any* breastfeeding (Dennis, 2014).

Cognitive behavioral therapy. When discussing education between patients and healthcare workers, communication techniques should be considered. Cognitive Behavioral Therapy (CBT) is a form of communication between a client (patient) and a therapist or healthcare worker. This therapy focuses on changing the client's non-healthy thinking or cognitions that produce unfavorable behaviors and replacing them with healthy thinking to improve behavior. This has been tested in low-literacy populations where routine counselling on breastfeeding by community health workers was found to

be ineffective. CBT techniques were incorporated into the routine process of education and counselling on breastfeeding. The community health workers were able to use psychotherapeutic principles to counsel their patients in a very individualized way, taking into account their personal backgrounds, traditions, and biases. This psychotherapeutic approach puts a high focus on the mother, recognizing that her well-being and attitude greatly influence her own actions. The use of CBT was found to be especially relevant in populations with low-income, low-educated women and deeply embedded cultural practices, yet it could arguably be expanded to other populations with higher educated patients. All individuals have personal biases and faulty beliefs that could be contributing to a poor healthcare decision. Through uncovering and exploring these faulty beliefs and replacing them with evidence-based research and accurate facts, cognitive-behavioral therapy could improve women's attitudes and beliefs about breastfeeding, thus increasing the likelihood of exclusive breastfeeding (Rahman et al., 2012).

Greater connection between hospital and community support. In the studies reviewed above, it is helpful to consider the interventions used (in-hospital breastfeeding sessions and phone calls to home) as an attempt to increase support groups for breastfeeding mothers, which is the tenth step in the BFHI. As demonstrated, the support did not produce an adequate result. Labbok et al. (2009) recognized this problem. They said that despite the efforts, results have not been optimal. They suggested that perhaps there is a lack of skill among hospital or facility staff members to influence what happens once the mothers leave that facility and re-enter the community. In the community setting, many times the educators and the support come from volunteers. Because these volunteers may not have the clinical knowledge background that professional health-care

personnel have, it is necessary to have refreshers and activities that support the volunteers. In developing countries, most births take place in the community or household setting to begin with. Mothers in these countries are not able to receive the initial support from any professionals (Labbok et al., 2009).

Professional support in the Baby-Friendly Hospital Initiative. So what about the professional support that is already recommended in the Baby-Friendly Hospital Initiative? When following the Ten Steps to Successful Breastfeeding, what results do healthcare facilities see in breastfeeding trends? To explore deeper the results of Baby-Friendly breastfeeding support in the outcomes of exclusive breastfeeding, a study was published in the *Maternal and Child Health Journal* in 2015 that studied a group of mothers in Yokohama, Japan. In the face of the BFHI put forth by WHO, still only 8.5% of maternity hospitals are designated as Baby-Friendly in thirty-one developed countries. The study examined the criticism that Baby-Friendly breastfeeding support could actually be mother unfriendly, thus keeping the number of Baby-Friendly facilities relatively low (Hongo, Nanishi, Shibamura, & Jimba, 2015).

This attitude of the BFHI's being mother unfriendly could have multiple roots. Some Japanese health care providers have a negative view of the initiative because they do not want to put pressure on mothers or make them feel guilty if they decide to formula feed. Other Japanese health care providers believe that the Ten Steps for Successful Breastfeeding that are outlined in the BFHI overlook the perspectives of the mothers and focus too much on increasing the rates of breastfeeding (Hongo et al., 2015).

The cross-sectional study measured the satisfaction of 601 Japanese mothers following the implementation of the BFHI. At their four-month check-ups at two health

wards in Japan, the women completed questionnaires which asked various questions about their experiences with breastfeeding, including support from health care workers and overall outcome. From the women's responses, the study concluded that the best tool to measure the outcome of breastfeeding was to look at the mother's perceived breastfeeding satisfaction at the four-month mark. The majority of women felt the most satisfied with their breastfeeding and they felt that it was the most beneficial to their children when they were encouraged by their healthcare providers to feed on demand and when they started early skin-to-skin contact soon after birth. The commonality between these two factors is the involvement of health-care professionals early in the post-partum period. Starting early skin-to-skin contact and encouraging mothers to feed on demand are both actions that the nurses and physicians have a direct role in from the time of birth to the few days following (Hongo et al., 2015).

From this study it can be concluded that early interaction with mothers and their infants should be sensitive to the mother as well as the infant. The view that the BFHI puts pressure on moms to breastfeed or that it overlooks their perspective is valid. These issues can be avoided by providing education in a manner that is sensitive to each mother's unique situation and health status. Giving factual information to patients about their options is an important responsibility of healthcare professionals. In caring for mothers and babies, education should be readily given to the mother regarding skin-to-skin contact and feeding on demand. Questions should be answered, and physicians and nurses should make it a priority to make the woman as comfortable as possible with the process of breastfeeding before she leaves the hospital and reenters the community (Hongo et al., 2015).

The Baby-Friendly Community Initiative

When the mother and her child leave the hospital or healthcare facility, they enter their own households and communities and are often left on their own to continue with their breastfeeding. As seen in multiple studies, there is a need for greater support in the household and community environment to increase breastfeeding satisfaction, thus increasing the likelihood for mothers to breastfeed exclusively for six months (Hongo et al., 2015). From these observations, the idea of Baby-Friendly Communities has emerged. As a branch off the BFHI, this newer initiative is geared toward the tenth step of successful breastfeeding: support. In many countries, the initial support system is non-existent because women give birth in the home or in the community setting (Labbok et al., 2009). This model can serve to push Baby-Friendly breastfeeding practices past the hospital and into the community, where most women are having to develop long-lasting breastfeeding habits.

An example of success in the Baby-Friendly Community Initiative (BFCI) is seen in Gambia where the model was tested. Each community that participated trained and certified five women and two men to be part of Village Support Groups on infant feeding. The training of these individuals was found to be very important in the outcome of the BFCI, largely because of the involvement of men. In an area that is commonly thought only to involve women, the men held roles of influence, giving the message that infant feeding and nutrition involved not only the mother, but also the father. Men's involvement and partnership is likely a crucial component of BFCI that will bring sustainability in communities (Labbok et al., 2009).

During World Breastfeeding Week, politicians, government officials, and international breastfeeding agencies were able to meet in Gambia to discuss recommendations to further Baby-Friendly Communities in the country. Their meeting led to multiple propositions; these included having intensified information, education, and communication (IEC) activities to dispel any traditional taboos and practices that hinder optimal breastfeeding practices, including breastfeeding teaching in school curriculums, and holding similar seminar meetings at the smaller regional and community levels. When these recommendations were implemented, Gambia experienced an increase from 60% to 100% initiation of breastfeeding during the first day out of the womb and a decline in the introduction of foods other than breastmilk at the age of four months from 90% to almost 0%. The effect on exclusive breastfeeding rates at six months were not analyzed. However, it is clear that the community-focused interventions that are seen with Baby-Friendly Communities can dramatically improve breastfeeding trends (Labbok et al., 2009).

Better Workplace Support

In the twenty-first century, with more women in the workforce than ever before, targeting the workplace to better cater to breastfeeding women could substantially increase exclusive breastfeeding rates. An overview of policies in 182 countries showed that 71% of the countries allowed paid breastfeeding breaks, 4% of countries allowed unpaid breaks, and 25% of countries had no policy in place about breastfeeding breaks. In one analysis, guaranteed paid breaks over the course of six months in order to breastfeed were associated with an 8.9% increase in exclusive breastfeeding rates. In the United States a study was done that showed a 25% increase in breastfeeding at six months with

the use of lactation rooms and breaks made especially to express breastmilk. The inclusion of lactation rooms and breaks for mothers to nurse or pump could therefore not only increase breastfeeding retention rates, but also benefit employers and companies. These are low-cost interventions that ultimately increase performance in the workplace, workplace retention and commitment, and decrease absenteeism among working mothers (Victora et al., 2016b).

Special Attention to HIV-Positive Mothers

With the prevalence of the increasing growth of HIV around the world and the high rates of mother-to-child transmission (MTCT), the discussion of breastfeeding versus artificial feeding is vital to determining the safest guidelines for HIV-infected mothers and children. It is estimated that in 15-25% of cases, mothers pass HIV onto their children through pregnancy or delivery. Another 5-20% of infants become infected after birth through breastfeeding. As such, breastfeeding contributes to about a third of all HIV-transmissions from mother to child. Exclusive breastfeeding for six months is associated with a decrease of three to four times in the transmission of HIV compared to non-exclusive breastfeeding or mixed feeding (World Health Organization, 2008). According to the World Health Organization, in middle and high-income countries, replacement feeding can be affordable, feasible, acceptable, sustainable, and safe. In these cases, the total abstaining from breastfeeding is recommended to avoid any risk of transmitting HIV to the infant. For women in countries such as the United States and in Europe, replacement feeding is most likely affordable, feasible, acceptable, sustainable, and safe. In these countries, breastfeeding is often completely contraindicated (Torres, Bedell, Wachira, & Dalmau, 2014).

In recent years, studies have been done that show a reduction in the risk of mothers passing on HIV to their children through breastmilk if they or their children are taking antiretroviral (ARV) medications during the breastfeeding period (Chasela et al., 2010). The Centers for Disease Control, still recommends that women in the United States abstain from breastfeeding even if they are taking ARVs (Centers for Disease Control, 2014a). There are a couple of reasons for this recommendation. One is because it is impossible to eliminate the risk of an HIV-positive mother transmitting the infection to her child. Another reason is because there is a risk for the infant to build-up ARV resistance in the case that they do develop HIV despite prophylaxis (Torres et al., 2014). Extensive research has been done on the specific recommendations depending on each woman's situation. A common theme is the need for making replacement feeding safer for women with HIV in developing countries who do not breastfeed (World Health Organization, 2008).

Conclusion

Over the past thirty years, research has shown the distinctive benefits of breastfeeding exclusively for six months before adding any supplemental food into an infant's diet. It is a cost-effective and accessible way for infants to get the best possible nutrition as they grow. As breastfeeding has become more recognized as the gold-standard in infant feeding and decreasing infant mortality, organizations have developed plans and recommendations for countries to use in their healthcare systems. The World Health Organization, UNICEF, and the Office of Disease Prevention and Promotion in the United States (among others) have all developed goals to increase the rates of exclusive breastfeeding around the world. Global rates of exclusive breastfeeding are still

running low despite these attempts. Whether from faulty beliefs about or negative attitudes toward breastfeeding, poor opinions from employers, a lack of effective professional support from health care workers, or an underlying health issue such as HIV, many women are not reaching the six-month mark of exclusive breastfeeding. Some women are not even attempting. From reviewing the available literature, a greater level of knowledge about breastfeeding techniques and recommendations of breastfeeding is needed among healthcare professionals. By having a greater depth and width of knowledge, health care workers will better be able to counsel and educate women in whatever unique situation and community setting they are in to follow the best feeding practices to promote health for mothers and infants. In addition, a push toward education in the community is needed, as many women stop exclusive breastfeeding once they leave the healthcare setting and settle into their home and work setting. The BFCI is one such program that could help increase the rates of exclusive breastfeeding in the community setting. Further research should be done to measure the long-term effects of this initiative.

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