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## **Taking Advantage of the First Natural Nutrients of Life: Reducing Infant Mortality, Disease, and Pediatric Stunting In Nigeria Through Immediate and Exclusive Breastfeeding**

Regardless of where a baby is born in the world, no matter its parentage, social status, race, or gender, its first nutrients come from milk. The most vulnerable of the world's citizens are infants and children. The first five years of life are crucial in human development and growth. Nigeria has the second highest mortality rate for children under five in the world.<sup>1</sup> The main contributing factors are malnutrition, diseases preventable through vaccination, and birth complications. Within one year, a baby should normally gain three times its birth weight.<sup>2</sup> This normality is absent in Nigeria. Children under age five are also far more susceptible to disease, stress, bacteria, viruses, parasites and other pathogens because of their underdeveloped immune system. The mother shares her immune system and antibodies with the fetus before birth, and after birth this can continue through the act of breastfeeding.

Mother's milk is specially designed to continue to provide live antibodies, proteins, fats, carbohydrates, and vitamins as nourishment, adjusting for their best proportions, as the baby grows. Components of the milk change in nutritional value from the first colostrum through late lactation according to the baby's needs and nursing habits.<sup>3</sup> Only 40% of the world's six-month-old babies are exclusively breastfed.<sup>4</sup> According to the World Health Organization, babies should be exclusively breastfed for the first six months, with other foods being introduced after this time, with nursing continuing for a minimum of a year and preferably at least two years.<sup>5</sup> In a movement to empower women into the work force, and in a misguided attempt at better nutrition, and to increase sales of cow milk products,<sup>6</sup> mothers have been encouraged to use a formula as a convenience or in the hope to give better nutrition. While formula may provide some necessary components, formula or other infant feeding substitutes do not contain the "live" antibodies and the immunological link and it can never achieve the lifelong health benefits of breast milk.<sup>7</sup>

Substitutes for mother's milk may also introduce harmful pathogens, especially where sanitation and food and water safety are an issue,<sup>7</sup> including Nigeria. Formula usage also introduces a high level of waste in food processing and packaging and leaves a large ecological footprint.<sup>8</sup>

Nigeria is on the West Coast of Africa with 530 miles of Atlantic coastline, bordering the Gulf of Guinea. The country, which is 551.1 miles wide by 499.79 miles long, shares its borders with Benin, Niger, Chad, and Cameroon. The geography and climate of Nigeria vary widely because Nigeria has several diverse ecosystems. Bordering the southern coast are mangrove forests and swamps. Further inland are jungles and hardwood forests. Nigeria's largest regions are The Niger and Benue river valleys that converge and form a Y. Southeast of the Benue River are hills and mountains containing the Manbilla Plateau, and at 7,936 feet, it is the country's highest point. Alpine climate can be found in this region. Between the far south and far north is a vast savanna separated into three zones. The Guinean Forest-Savanna mosaic is the most wet savanna, with tall grasses and trees, Sudan Savanna, and the Sahel Savanna that is the driest of the savannas. The rainy, cooler season in the north lasts between April and October. The rest of the year is hot and dry with temperatures as high as 100\* F.<sup>9,10</sup>

The economy of Nigeria remains primarily agricultural. Work in Nigeria is 70% agriculture related, including forestry, fishing, and farming. Only 20% of the economy is devoted to services and 10% to industry.<sup>11</sup> The major crops and exports are oil, sweet potatoes, fruit, corn, palm oil, cocoa, cotton, rice and fish. Most people still sell and shop in open air markets. 33% of Nigeria is under cultivation. 80% of total agriculture food production is owned by small farms. Much of the agriculture remains subsistence farming, using non-mechanized methods.<sup>12</sup>

Nigeria is a Federal Presidential Republic as of 1999. Nigeria has a rich history as far back as 9000 BC as a tribal society. In the 9<sup>th</sup> century, the country made progress under the rule of the Kanem-Bornu Empire and in the 11<sup>th</sup> century as a trading post between northern and western Africa. In the 1600s, Nigeria became a main export of the European slave trade, and was under British influence and control until 1960, when the country gained complete independence. Nigeria has been and remains a strongly tribal nation. Because of religious and ethnic tension between tribes (Hausa-Fulani in the north, Yoruba in the southwest, and Igbo in the southeast borders are distinguished by the Y shape of the Niger and Benue rivers) the country suffered through unrest, culminating in the Nigerian Civil War that lasted from 1967 to 1970. The military took over between the end of the war in 1970 and 1999 when the Federal Presidential Republic was formed.<sup>15</sup> Although the government is now stable, tension still remains among the different tribes, the military and the current Republic.<sup>13, 14</sup>

Nigeria, in 2018 with a population of 194,617,137 is the most populous country in Africa and seventh in the world.<sup>15</sup> Over 62% people in Nigeria live in poverty. Approximately half of the population are living in an urban setting. Cities are unplanned, overcrowded, and accustomed to frequent power cuts. The rural population typically live in bamboo or wooden shacks. In both the urban and rural situations, water sanitation is an ongoing issue. Many people are also lacking proper nutrition, less than half have access to the internet, and transportation of goods and people is an ongoing struggle, because of inadequate funding and neglect.<sup>16</sup> Access to further education is limited, especially for women, who only get on average eight years of school. The average family size in Nigeria is five, with one or more members working full time. Family life is most times multi-generational.<sup>17</sup>

Malnutrition among children under the age of five is a real problem on a massive scale for a country as populous as Nigeria. The United National Children's Fund (UNICEF) says "States in the North-West of Nigeria are fighting to stem the scourge of malnutrition which has affected more than 1,594,462 children in the region." It is estimated that 2,300 children under the age of five and 145 women die every day in Nigeria, the underlying cause being malnutrition. Of the under age five population, one out of every five die before age five, and a quarter are physically or mentally stunted. In this case, stunted refers to failure to grow to full potential, leading to poor quality of life and lack of productivity and independence as an adult.<sup>18</sup>

In Nigeria, newborns are seen as the future and regarded with pride. Much of a family's resources and time are given to ensure its survival. Death takes its toll on a family, putting a lot of physical and emotional stress on the mothers and other family members, limiting the care given to them as well as the daily problems and improving the circumstances of life.

Malnutrition is most severe in rural places where change and information and medical care are harder to come by. A remaining barrier is how to contact women in Nigeria to inform them of the importance of exclusive breastfeeding. Villages are secluded, and many social norms would need to be addressed and challenged. Formula is donated in a well-meaning attempt to help stave off hunger, but this money could be put to better use. Supplementing breastfeeding with herbal teas and cornmeal is encouraged by the traditional methods under the misconception that the mother's milk is too thin and the perception that infant formula is superior to breast milk. These alternatives are dangerous for mothers and children at risk because it reduces the mother's milk supply, may introduce pathogens and to begin with have little nutrient value. Families are searching for a way to feed and treat sick and malnourished children through buying expensive formula and bottles that uses great resources to manufacture and transport, leaving a large ecological footprint. All the while the solution to better health, and nutrition for mother and baby is readily available and at no cost.<sup>19</sup>

The solution is to inform mothers and girls of the importance of exclusive breastfeeding for at least the first six month of life. This could dramatically help reduce child mortality rates in Nigeria. The harmful pathogens in the water that introduce disease, bacteria, viruses, and parasites to the babies' under-developed immune systems (through the use of formula, teas and cornmeal supplements) would not reach

the infants if only breast milk was offered. Instead, the mothers' developed immune system would have passed over to the child through exclusive breastfeeding; therefore, giving the infant the chance to grow to full potential with the most high-calorie and nutrient-rich food of mother's milk. The idea is to take care of the mother, giving her proper nutrition, information and encouragement so she can feed the baby with confidence.

La Leche League International (LLLI) is a nonprofit organization centered around breastfeeding and mothers. La Leche League was formed in 1956 by seven American mothers. "La Leche" in Spanish is translated, "The Milk." The mission of La Leche League International "Is to help mothers worldwide to breastfeed through mother-to-mother support, encouragement, information, and education, and promote a better understanding of breastfeeding as an important element in the healthy development of baby and mother." LLLI offers training for leaders, support of the larger community and materials to distribute. A yearly membership fee and the purchase of a few books are required for leaders.<sup>20</sup>

There is no La Leche League International presence in Nigeria. Groups have been formed in over 80 countries on every continent around the world not only in developed nations, but in impoverished nations such as Nigeria. La Leche League International has had a great impact in other nations with similar problems and has been influential in creating positive change for infant and maternal care, helping thousands of mothers in the past 60 years.<sup>20</sup>

World Watch Institute, founded in 1974, is an independent research institute devoted to global environmental concerns. In 2012, World Watch Institute published the article *Increasing Breastfeeding Rates and Improving Global Health*<sup>21</sup> which describes a case in point:

Beginning in 1982, in partnership with UNICEF/Brazil, LLLI developed a project to train low-income mothers as breastfeeding counselors and assist communities in forming mother-to-mother support groups. In 1988, LLLI trained over 200 mothers from low-income neighborhoods Guatemala City to be breastfeeding counselors and assisted in forming community breastfeeding support groups that reached over 31 percent of mothers with infants in the communities. A similar project in Honduras that worked in 20 rural communities found that mothers who had contact with the peer counselors were three times more likely than other mothers to practice exclusive breastfeeding three months after giving birth.

When Hurricane Mitch devastated Guatemala and Honduras in 1998, LLLI chapters in Guatemala visited shelters and counseled mothers on breastfeeding benefits, especially as a means of preventing infections caused by contaminated water and poor sanitation. Today, Brazil, Honduras, and Guatemala are all home to in-country LLLI chapters, providing support to mothers and communities.<sup>21</sup>

With this example, the effects of purposeful partnership-based intervention can be seen expanding over time and across a region as self-sufficiency is approached.

Modern tools of technology and communication have the potential to reach people and spread awareness, especially to those who have internet access and the inclination to inquire. This can be a powerful way to deliver information to parents and health care providers.

In 2011, La Leche League of Bulgaria established a pioneer website for mothers with information, expert advice and support on breastfeeding, while also publishing the first of its kind breastfeeding magazine for both parents and healthcare workers

in Bulgaria.<sup>21</sup>

These precedents provide relevant insight for building maternal and child health and nutrition for Nigerians. However, barriers exist in Nigeria, such as a 49% overall rate of illiteracy, which is disproportionately higher in rural areas and consistently higher for women.<sup>22</sup> Another barrier relevant to modern society is known as the digital divide, which in *The Impact of Digital Divide on E-learning in Nigeria*, is defined as “inequality in access to and use of telecommunication infrastructure by citizens to solve personal and societal problems.” A non-inclusive educational system, corrupt leadership, lack of electrical infrastructure, income disparity, and a variety of other social and political factors contribute to Nigeria's digital divide.<sup>23</sup>

To combat digital divide in Nigeria, the organization known as CAWD (Committee for African Welfare and Development) working with the OOCDC (Oke-Ogun Community Development, from the Oyo State of Nigeria) is taking steps to narrow the digital divide.<sup>24</sup>

Personal communication links between Nigerians in London, and the community in Oke-Ogun, help OOCDC and CAWD, and strengthen the foundations on which the project is being built.

In Oke-Ogun the information network relies largely on word of mouth, through the village markets, the weekly meetings for religious worship, and the trading networks between the village markets and urban centres. The main urban centres have telephone lines and public e-mail access. Some e-mail and telephone communication is possible between the urban centres and the UK, but web access is virtually impossible.

In the UK access to the internet is easy, so contacts can be made and information can be collected on behalf of the project.

Contact between Nigeria and the UK is enhanced when people visit friends and relatives in Nigeria, and physically carry internet printouts, videos and letters between the two countries.

The speed of implementation will depend on the resources the project can attract, but we anticipate an incremental approach, growing in response to expressed needs of the community.<sup>24</sup>

Breastfeeding supporters throughout the world may utilize this existing digital bridge project and the existing human communication networks and communicate to the people of Nigeria through verbal and personal contact.

These examples of progress in communication suggest that the impetus for this life-giving effort needs to begin in parts of the world where active La Leche League groups and social awareness of the problems of breastfeeding and African malnutrition already exist, as well as sources of monetary donations to begin this quest. To establish a La Leche League presence in Nigeria, the organization would need to be contacted to explain the great need for their services in Nigeria. Taken to the next step, a spokeswoman and coordinator, known to the people and with a history in Nigeria, should be sought to communicate among Nigerians, relevant organizations, and La Leche League.

Interested parties could spread awareness of this issue by soliciting support from an influential celebrity as an ambassador. She would have the influence to start a fund and social media campaign, challenge and change the negative view of breastfeeding, and raise money. Businesses, grant money and individuals can donate to start and support a La Leche League organization in Nigeria. With this money, volunteer leaders with a passion about the benefits of exclusive breastfeeding, and good social skills, could be trained by

La Leche League, then go out and personally contact mothers in Nigeria, teaching them and setting up small local La Leche League groups. Churches, medical facilities, homes, local markets, or other meeting places can be requested to provide space for local gatherings. Spreading information, educating, and using the resources available through La Leche League International has the proven potential to effectively pave the way for better child and maternal health in Nigeria.<sup>25</sup>

People in Nigeria deserve a better life. One where all can work and progress, feed their families and grow as a nation. Malnutrition in children does not only affect the children. It affects the mothers, the families, the communities, and the country as a whole, and adversely affects a society's ability to deal with challenges and face the future. Armed with this information, influential, inspired and passionate people could intervene and change this terrible downward course of child malnutrition in Nigeria. Life is precious. Give the children of Nigeria the best start in life through breastfeeding. Therein lies their future.

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