

Clinical Practice

Babies Without Borders

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Mission: The mission of Babies Without Borders (BWB) is to offer on-site education to host facilities in developing nations and to afford those personnel the basic tools and materials they need to provide a higher level of ongoing medical care through a network of voluntary medical personnel.

Vision: The vision of Babies Without Borders is to dramatically lower rates of morbidity and mortality from easily preventable causes in infants in developing countries.

The Primary Objective of Babies Without Borders is to help ameliorate suffering and to promote better health care practices through practical and humanitarian interventions, including hands-on care, education, and outreach programs.

Reports from the World Health Organization indicate that infant and neonatal morbidity and mortality are elevated in many regions of the world. The principal causes of infant and neonatal deaths, such as birth asphyxia, infections, respiratory diseases and malnutrition are usually preventable or treatable with relatively simple interventions. "Babies without Borders" (BWB) is a non-profit organization of people concerned with the high rates of infant and neonatal mortality and morbidity in the developing world, and who are willing to put forth their own voluntary efforts to effect change. There are many organizations that provide much needed assistance and services to developing countries. However, it is very clear that the need for such assistance is endless. Many individuals in developed countries desire to share their knowledge and skills to improve the lives of others but do not know how to go about finding projects for which they can help. Babies Without Borders is not just for babies, but serves as a clearing house to match skilled volunteers with towns, hospitals, organizations and individuals who need assistance in developing areas. Babies Without Borders has developed seven primary programs to improve the survival and outcomes of these most vulnerable babies. To implement these seven initiatives, BWB enlists the services of volunteer medical personal such as neo-

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natologists, pediatricians, other physicians, nurses, Advanced Registered Nurse Practitioners (ARNPs), respiratory therapists, nutritionists, lactations specialists, pharmacists, pediatric residents, fellows, medical students, and non-medical personal.

1. Practical education:

Currently there is a worldwide abundance of medical education conferences, symposia and courses. However, these well-intentioned efforts frequently fail to reach the places where they are most needed. Furthermore, the actual implementation of the information gathered at these conferences is lacking because of the tremendous gap between current medical knowledge and technology and the reality of very limited resources in the vast majority of developing nations.

Voluntary medical and non-medical personnel from "Babies Without Borders" travel to different parts of the world to collaborate on site with the local health care providers in the care of infants and neonates. This "hands on" practice involves an evaluation of the true capabilities of the host centers, maximization of the use of local resources, and the sharing of practical knowledge and medical equipment which can be used to improve outcomes. The

voluntary personnel reside in these regions for short periods of time, but the relationship between the volunteers and host centers continues long after the volunteers have returned to their home country.

2. "Bags of Life"

It is estimated that 4,000,000 newborn infants will suffer from some degree of birth asphyxia each year. One million will die and a million more will have permanent brain damage. It is estimated that, with the appropriate and simple intervention of neonatal resuscitation, the incidence of death and/or disability in these newborns could be decreased by as much as 50%. Recent reports mention that the majority of neonatal mortality occurs in rural areas, in regions where access to medical centers is limited, or where medical facilities have very limited resources. Babies Without Borders volunteers not only teach practical neonatal resuscitation to the native medical personnel, but would also provide resuscitation bags without cost. The outcomes of these practical interventions is monitored continuously through follow-up visits and on site evaluations.

3. "Bubbles of Life"

A major cause of neonatal mortality and morbidity in premature infants is respiratory distress syndrome (RDS). Many of the medical facilities of the developing world have limited resources and cannot afford the high cost of the neonatal respirators necessary to care for these babies. Therefore, a high percentage of these babies die each year due to lack of appropriate equipment.

Research has shown that the use of Continuous Positive Airway Pressure (CPAP), using a water seal which produces bubbles (bubble CPAP), is an effective tool to treat premature newborns with respiratory distress syndrome, frequently obviating the need for neonatal ventilators. These devices can be produced on site at relatively low cost, using materials available in even the most rudimentary medical facility. In a major university hospital in the USA with many years of experience with bubble

CPAP, the majority of the premature infants with RDS treated solely with bubble CPAP had the lowest incidence of chronic lung disease in the world without a concomitant increase in mortality. Furthermore, other medical centers around the world are now using this modality effectively with similar results, and the need for neonatal ventilators in these centers has actually decreased. It is estimated that, for the price of one neonatal ventilator, approximately 10 to 15 units of bubble CPAP could be produced. Volunteers from Babies Without Borders who have experience with this mode of treatment in babies with RDS educate the medical personnel at the host hospital in the use of this effective and simple technology, and also provide, at no cost, the methodology and equipment necessary to produce bubble CPAP units.

4. "Light of Life"

The leading cause of blindness in childhood is retinopathy of prematurity (ROP). This disease has been associated with the use of oxygen in premature infants, especially when its administration is excessive and not adequately monitored. Several recent reports have shown that careful use of oxygen and maintenance of appropriate oxygen saturation in these premature infants can decrease the incidence and severity of ROP. Babies Without Borders volunteers not only support the proven evidence-based efforts to decrease the incidence and severity of ROP, but would also provide the equipment necessary to accomplish this goal.

5. "Nectar of Life"

One of the most common problems of the developing world is neonatal and infant malnutrition. The effects of malnutrition at this crucial age have been proven to have a negative impact on the somatic growth of babies, as well as on their neurological development, leading to disabilities lasting for the rest of their lives. Malnutrition affects complete regions and its cumulative impact has consequences not only at the level of the individual, but

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also throughout an entire community and region. Babies Without Borders encourages and supports the optimization of best nutritional practices for these infants at this crucial age, primarily through education about breastfeeding and encouragement in its practice. BWB recognizes this “nectar of life” is the most practical and appropriate nourishment for these babies, and enlists the support of lactation consultants to further the practice and implementation of breast-feeding.

6. “Hugs of Life”

Many neonatal units in developing countries often are crowded with infants, and have a shortage of nurses to supply basic individual care and attention that these most vulnerable patients require. An innovative program known as “Kangaroo Care” has been developed in NICUs worldwide to help overcome these shortcomings. The active participation of the parents in the care of their premature infants is well accepted and several reports have shown substantial benefits for premature infants undergoing this care. BWB volunteers teach and promote Kangaroo Care techniques at the host facilities.

7. Life without bugs

Worldwide, infections are a leading cause of neonatal and infant mortality and morbidity. Although the etiology of neonatal infections varies from region to region, implementation of basic principles of hygiene and aseptic techniques could significantly diminish the incidence of infections in babies who live in the developing world. Many facilities throughout the world are sorely lacking in even the most basic knowledge and practice of medical hygiene. Babies Without Borders personnel educate not only medical personnel in the host region but also the indigenous population to attempt to stem the tide of neonatal mortality due to hygienic practices.

The birth of the organization, Babies Without Borders, is merely the first step in a more extensive approach to helping underdeveloped nations cope with the tremendous burden of health care in their countries. It is hoped that this will provide the framework within which healthcare providers will be able to develop additional programs for neonates and older infants. It also presents the vehicle for public service for those providers who desire to care for the most vulnerable segment of our world’s population.

Effects of Intrauterine Cocaine Exposure

Intrauterine cocaine exposure may compromise the developing brain through disruption of neural ontogeny in dopaminergic systems, fetal hypoxia or altered cerebrovascular reactivity. Weighted magnetic resonance imaging suggests that the caudate nucleus is significantly adversely affected in adolescents whose mothers used cocaine for approximately 2% of days during pregnancy.

Avants B, Hallam H, et al. Effects of Heavy In Utero Cocaine Exposure on Adolescent Caudate Morphology. *Pediatr Neurol* 2007; 37(4):275-279.

PCP Visits Offset Asthma Emergencies

One of the critical factors in decreasing Emergency Department (ED) visits of children with asthma is the number of asthma-related primary care physician (PCP) visits. Asthmatic children who see their PCP regularly, and have a filled inhaled corticosteroid prescription appear to have 20% of the ED visits compared to a comparable group of children who rarely see their PCP and have no available inhaled steroid.

Smith SR, Wakefield D, Cloutier M. Relationship between pediatric primary provider visits and acute asthma ED visits. *Pediatr Pulmonol* 2007; 42(11):1041-1047.