

Building on a Public Health Achievement: Folic Acid



*Ms. Abdulmumuni and her son
Imam Anifa*

Anifa is an 18-month-old boy who was born with spina bifida, a serious birth defect of the spine. Like most children with spina bifida, Anifa is paralyzed and has no bowel or bladder control. He lives with his family in a village in Nigeria where there is no primary health center to help him. As a result, Anifa could not have surgery to close the opening in his spine until he was nine months old. During this time, his spinal cord was exposed

and without protection. In the U.S., the first surgery for a baby born with spina bifida usually takes place within the first 24 hours of life to avoid complications or death. But Anifa had no choice but to wait.

Anifa will likely face lifelong medical challenges associated with spina bifida, and the financial and emotional impacts his family will endure are overwhelming. In the United States, children born with spina bifida often live long and productive lives, even though they face many challenges. In many other countries, however, the outlook for children like Anifa is not as positive.

Worldwide, more than 300,000 babies are born every year with neural tube defects (NTDs), which include spina bifida and anencephaly, a birth defect of the brain. NTDs are a significant cause of infant death and lifelong disability, and many are preventable. This year marks the 20th anniversary of the U.S. Public Health Service (PHS) recommendation that all women capable of becoming pregnant should consume 400 micrograms (mcg) of folic acid daily to help prevent NTDs. Although the United States has seen a significant decline in NTD rates since the implementation of fortification of flour with folic acid in 1998, NTD rates remain very high in other countries throughout the world.

The Centers for Disease Control and Prevention (CDC) first began researching folic acid's role in preventing

birth defects in the early 1980s. Early studies found the risk for having a baby with an NTD was reduced if the mother had taken folic acid around the time of conception. As a result, PHS released the 1992 recommendation that all women who could become pregnant should get 400 mcg of folic acid each day.

The recommendation highlighted three ways that women can get folic acid: diet, vitamin supplements, and flour fortification. Experts agreed that getting 400 mcg of folic acid from naturally-occurring food sources alone was impractical—women would have to eat a lot of folate-rich foods which are expensive and not readily available in many communities. Additionally, Gallup polls showed low intake of folic acid through supplementation among women of reproductive age, despite many efforts to promote the use of supplements. This information justified moving toward fortification of flour with folic acid.

In January 1998, in response to requests from the CDC and its collaborators, the FDA mandated fortification of cereal grain products labeled as enriched in the United States. "At that point, we had what we thought was the best possible coverage of women of child-bearing age to get folic acid for the prevention of NTDs," says former CDC scientist Joe Mulinare, MD, MSPH. With a 36 percent reduction in the rates of NTDs by the end of 2006, folic acid fortification was recently named one of the Ten Great Public Health Achievements in the United States.

Building on the success of folic acid fortification in the United States, CDC's National Center on Birth Defects and Developmental Disabilities has a global initiative to expand the reach of folic acid fortification in low- and middle-resource countries and strengthen neural tube defects surveillance systems. The initiative aims to increase folic acid intake among women of reproductive age. These efforts can lead to the prevention of 150,000-210,000 of the more than 300,000 neural tube defects that occur worldwide each year.

"We're in the midst of making NTDs go away," says Godfrey Oakley, MD, a former CDC scientist involved in folic acid research, "so we can't tell the end of the story yet." CDC's global initiative is a critical step toward reducing the challenges faced by children like Anifa.

For more information, visit [NCBDDD's webpage on folic acid](#), [CDC Features on Folic Acid](#), or call 1-800-CDC-INFO (800-232-4636).