



## Folic Acid Prevents Common Birth Defects

### **BREAKTHROUGH**

Folic acid can prevent neural tube defects, the most common class of birth defects.

### **SCOPE OF THE PROBLEM**

Neural-tube defects (NTD) are common birth defects that can lead to severe disability or even death. Approximately 1 in 1300 babies are born in the U.S. with an NTD. One form of NTD is anencephaly, where the baby is born with an open head and is always fatal. Spina bifida is an NTD where the baby's neural tube is open in the lower back, resulting in life-long paralysis.

### **ECONOMIC BURDEN**

Average total lifetime cost to society for each infant born with spina bifida is more than \$532,000 per child. For many, the cost can exceed \$1 million per child. Estimated total annual medical care and surgical costs for persons with spina bifida in the United States exceed \$200 million.

### **LANDMARK STUDY**

Two landmark studies in the early 1990s provided unequivocal evidence that maternal supplementation with folic acid during pregnancy prevents at least 70% of both NTD recurrence and occurrence.<sup>1-2</sup>

### **PUBLIC HEALTH & EDUCATION APPLICATION**

In 1992, the U.S. Public Health Services and Institute of Medicine issued the recommendation that all women of childbearing age consume a vitamin supplement containing 400 micrograms of folic acid daily, and that women with a previous NTD-affected birth who were planning another pregnancy should consume 4 mg/day folic acid to prevent NTDs. In the late 1990s, public efforts to endorse supplement use were deemed inadequate, and the decision was made by the U.S. Food and Drug Administration (FDA) to mandate fortification of enriched grain products in the United States with folic acid to enable individuals to achieve an additional intake of 100 micrograms of folic acid/day (FDA, 1996). This fortification initiative has prevented 30 percent of NTDs in the general U.S. population, providing additional support for the preventative effect of folic acid supplementation on NTD occurrence.<sup>3</sup>

### **REFERENCES**

1. Medical Research Council. Prevention of neural tube defects: results of the medical research council vitamin study. *Lancet* 1991; 338: 131-137.
2. Czeizel and Dudas. Prevention of the first occurrence of neural-tube defects by periconceptional vitamin supplementation. *New England Journal of Medicine* 1992; 327: 1832-1835.
3. Mills JL and Signore C. Neural tube defect rates before and after food fortification with folic acid. *Birth Defects Research Part A: Clinical and Molecular Teratology* 2004; 70: 844-845.