

Cost Consequences of Folic Acid Supplementation — Synthesis of Research Findings

OVERVIEW

Neural tube defects (NTDs) are serious birth defects involving both the spine (spina bifida) and the brain (anencephaly). They occur when the spinal cord of a developing fetus fail to form completely, typically leaving a portion of the spinal cord or brain exposed at birth and resulting in lifelong physical and mental handicaps. These two defects account for approximately 90% of all NTDs, and affect around 4,000 pregnancies a year in the US.¹ It is well established that increasing folic acid intake prior to conception can greatly reduce the risk of NTDs^{2,3} and the U.S. Preventive Services Task Force has ranked folic acid supplementation as one of its top clinical priorities.⁴

INTERVENTIONS

In 1996 the Food and Drug Administration required that manufacturers fortify enriched cereal-grain products with folic acid. Since the implementation of this policy, neural tube defects have decreased by 20-30%, or approximately 612 live births per year.⁵ Unfortunately, a 2005 Gallup survey found that just 33% of U.S. women of childbearing age were taking a folic acid supplement, and only 7% of women knew folic acid should be taken prior to conception.⁶ These data are especially troubling for those responsible for paying for the care of children with NTDs.

ECONOMIC IMPACT

Inflation adjusted for the first half of 2006, the total lifetime costs of treating spina bifida was \$729,000, with \$331,350 attributable to direct medical costs⁷. Folic acid supplementation can greatly reduce these costs; it is estimated that since fortification \$158 million per year has been saved through prevention of NTDs.³⁹

STATE ACTIVITIES

State Maternal and Child Health agencies are taking the lead on increasing awareness and adherence to folic acid recommendations by:⁸

- Forming partnerships with the March of Dimes, Girl Scouts, and members of the state folic acid council to educate the public (TN)
- Providing folic acid supplements with WIC coupon booklets (TN)
- Educating family planning clinic staff on folic acid and providing folic acid containing multivitamins to all clients (AL)

¹ Wyszynski DF, ed. *Neural Tube Defects: From Origin to Treatment*. New York, NY: Oxford University Press; 2005: preface.

² Wald N, Sneddon J, Densem J, Frost C, Stone R. Prevention of neural tube defects: results of the MRC Vitamin Study. *Lancet* 1991; 338: 132-37.

³ Wald N, Law M, Morris J, Wald D. Quantifying the effects of folic acid. *Lancet* 2001; 358: 2069-73.

⁴ Maciosek MV, Coffield AB, Edwards NM, Flottesmesch TJ, Goodman MJ, Solberg LI. Priorities among effective clinical preventive services: results of a systematic review and analysis. *Am J Prev Med*. 2006 Jul;31(1):52-61.

⁵ Grosse SD, Waitzman NJ, Romano PS, Mulinare J. Reevaluating the benefits of folic acid fortification in the United States: economic analysis, regulation, and public health. *Am J Public Health*. 2005 Nov;95(11):1917-22.

⁶ CDC. Use of Dietary Supplements Containing Folic Acid Among Women of Childbearing Age—United States, 2005. *MMWR* 54(38):955-958.

⁷ Watizman NJ, Romano PS, Frosse SD. Half-life of cost of illness estimates: the case of spina bifida. In: Wyszynski DF, ed. *Neural Tube Defects: From Origin to Treatment*. New York, NY: Oxford University Press; 2005: 342-351.

⁸ Maternal and Child Health Bureau. Title V State Grant Narratives.
<https://perfddata.hrsa.gov/mchb/mchreports/Search/search.asp>