We Were There: Folic Acid and Birth Defects

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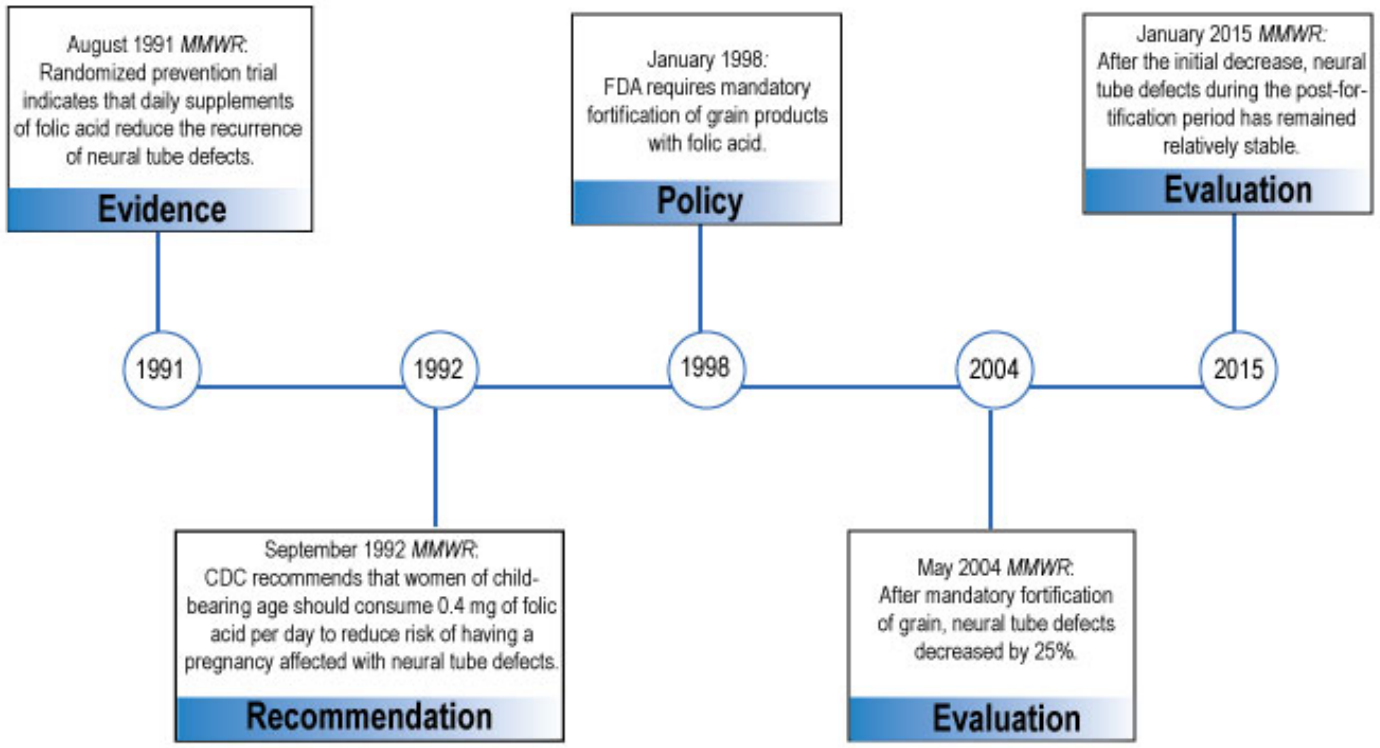

Centers for Disease Control and Prevention
MMWR
Morbidity and Mortality Weekly Report

Division of Public Health Information Dissemination
Center for Surveillance, Epidemiology, and Laboratory Services

MMWR Weekly, August 2, 1991 / **40(30); 513-516**

Effectiveness in Disease and Injury Prevention Use of Folic Acid for Prevention of Spina Bifida and Other Neural Tube Defects -- 1983-1991

Neural tube defects--including spina bifida, anencephaly, and encephalocele--are common, serious birth defects that are important causes of infant mortality and disability. Women in the United States who have had a pregnancy resulting in an infant or fetus with a neural tube defect have a 2%-3% risk for having another pregnancy resulting in an infant or fetus with a neural tube defect (i.e., a recurrence). The British Medical Research Council (MRC) Vitamin Study Group recently reported the results of a randomized prevention trial that indicated that daily oral supplementation with folic acid before conception and during early pregnancy substantially reduces the recurrence of neural tube defects. This report summarizes the findings of that study. Based on these and other findings, CDC recommends the use of folic acid supplementation (4 mg per day) for women who previously have had an infant or fetus with spina bifida, anencephaly, or encephalocele.

Available at **https://www.cdc.gov/mmwr/preview/mmwrhtml/00014915.htm**

MMWR Recommendations and Reports, September 11, 1992 / **41(RR-14);001**

Recommendations for the Use of Folic Acid to Reduce the Number of Cases of Spina Bifida and Other Neural Tube Defects

Spina bifida and anencephaly are common and serious birth defects. Available evidence indicates that 0.4 mg (400 ug) per day of folic acid, one of the B vitamins, will reduce the number of cases of neural tube defects (NTDs). In order to reduce the frequency of NTDs and their resulting disability, the United States Public Health Service recommends that: All women of childbearing age in the United States who are capable of becoming pregnant should consume 0.4 mg of folic acid per day for the purpose of reducing their risk of having a pregnancy affected with spina bifida or other NTDs. Because the effects of higher intakes are not well known but include complicating the diagnosis of vitamin B((12)) deficiency, care should be taken to keep total folate consumption at less than 1 mg per day, except under the supervision of a physician. Women who have had a prior NTD-affected pregnancy are at high risk of having a subsequent affected pregnancy. When these women are planning to become pregnant, they should consult their physicians for advice.

Available at **https://www.cdc.gov/mmwr/preview/mmwrhtml/00019479.htm**

MMWR Weekly, May 7, 2004 / **53(17);362-365**

Spina Bifida and Anencephaly Before and After Folic Acid Mandate --- United States, 1995--1996 and 1999--2000

Neural tube defects (NTDs) are serious birth defects of the spine (e.g., spina bifida) and the brain (e.g., anencephaly) that occur during early pregnancy, often before a woman knows she is pregnant; 50%--70% of these defects can be prevented if a woman consumes sufficient folic acid daily before conception and throughout the first trimester of her pregnancy. In 1992, to reduce the number of cases of spina bifida and other NTDs, the U.S. Public Health Service (USPHS) recommended that all women capable of becoming pregnant consume 400 μg of folic acid daily. Three approaches to increase folic acid consumption were cited: 1) improve dietary habits, 2) fortify foods with folic acid, and 3) use dietary supplements containing folic acid. Mandatory fortification of cereal grain products went into effect in January 1998; during October 1998--December 1999, the reported prevalence of spina bifida declined 31%, and the prevalence of anencephaly declined 16%. Other studies have indicated similar trends. To update the estimated numbers of NTD-affected pregnancies and births, CDC recently analyzed data from 23 population-based surveillance systems that include prenatal ascertainment of these birth defects. This report summarizes the results of that analysis, which indicate that the estimated number of NTD-affected pregnancies in the United States declined from 4,000 in 1995--1996 to 3,000 in 1999--2000. This decline in NTD-affected pregnancies highlights the partial success of the U.S. folic acid fortification program as a public health strategy. To reduce further the number of NTD-affected pregnancies, all women capable of becoming pregnant should follow the USPHS recommendation and consume 400 μg of folic acid every day.

Available at **https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5317a3.htm**

MMWR Weekly, **January 16, 2015 / 64(01);1-5**

Updated Estimates of Neural Tube Defects Prevented by Mandatory Folic Acid Fortification — United States, 1995–2011

In 1992, the U.S. Public Health Service recommended that all women capable of becoming pregnant consume 400 μg of folic acid daily to prevent neural tube defects (NTDs). NTDs are major birth defects of the brain and spine that occur early in pregnancy as a result of improper closure of the embryonic neural tube, which can lead to death or varying degrees of disability. The two most common NTDs are anencephaly and spina bifida. Beginning in 1998, the United States mandated fortification of enriched cereal grain products with 140 μg of folic acid per 100 g. Immediately after mandatory fortification, the birth prevalence of NTD cases declined. Fortification was estimated to avert approximately 1,000 NTD-affected pregnancies annually. To provide updated estimates of the birth prevalence of NTDs in the period after introduction of mandatory folic acid fortification (i.e., the post-fortification period), data from 19 population-based birth defects surveillance programs in the United States, covering the years 1999–2011, were examined. After the initial decrease, NTD birth prevalence during the post-fortification period has remained relatively stable. The number of births occurring annually without NTDs that would otherwise have been affected is approximately 1,326 (95% confidence interval = 1,122–1,531). Mandatory folic acid fortification remains an effective public health intervention. There remain opportunities for prevention among women with lower folic acid intakes, especially among Hispanic women, to further reduce the prevalence of NTDs in the United States.

Available at **https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6401a2.htm**

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We cordially invite you to the Stephen B. Thacker CDC Library to view current and historical folic acid and neural tube defects resources.

Special selections from R.J. Berry's collection also are on view!

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