



# Data Points

RESULTS FROM THE 2005 CALIFORNIA WOMEN'S HEALTH SURVEY

**N**eural tube defects (NTDs), which affect the formation of the brain and spine early in pregnancy, occur in one out of every 1,480 pregnancies in California.<sup>1</sup> These serious and often fatal birth defects often arise before a woman realizes she is pregnant and can be reduced by 50 percent to 70 percent by taking the daily B vitamin folic acid starting at least one month before conception and through the first three months of pregnancy.<sup>2</sup> About 95 percent of NTDs arise in pregnancies of women with no personal or family history of the problem. Risk factors include Hispanic ethnicity, young age, obesity, and poor diet.<sup>3-5</sup> Studies have shown that even among high-risk populations, daily folic acid consumption may reduce the incidence of NTDs.<sup>6</sup>

The United States (U.S.) Public Health Service and numerous other organizations recommend that women who could become pregnant should consume at least 0.4 mg of folic acid daily through dietary supplements, fortified foods, or a combination of the two. In addition, women should consume foods naturally containing folate from a varied diet.<sup>7</sup> Because many pregnancies are unplanned, it is important for all women of reproductive age to adhere to these national recommendations. The national Healthy People 2010 goal is for 80 percent of all women of reproductive age to consume 0.4 mg of folic acid daily.

In 1998, the U.S. Food and Drug Administration (USDA) required mandatory fortification of enriched cereal grains in an effort to increase folic acid levels among women of reproductive age. However, the

amount of folic acid added to most grain products is small, and many women are not eating enough servings of fortified grains or foods naturally high in folic acid daily to meet the U.S. Public Health Service recommendation.<sup>8</sup> The easiest way to achieve the recommended amount of folic acid daily is by eating one serving of breakfast cereal fortified with 100 percent of the recommended daily allowance (RDA) of folic acid or by taking a 0.4 mg folic acid-containing supplement.<sup>9</sup>

In 2004 and 2005, respondents to the California Women's Health Survey (CWHS) were asked whether they were currently taking a prenatal or multivitamin pill or a pill containing the B vitamin folate or folic acid, and whether they were taking these supplements daily. Data from both survey years were combined and limited to women of reproductive age (aged 18 to 44), forming a sample of 4,445 women. Their responses were stratified by age, race/ethnicity, pregnancy status and pregnancy intent, the number of births to the woman, and body mass index (BMI) for overweight status.

The CWHS also has an abbreviated six-item food insecurity scale adopted by the USDA,<sup>10</sup> which is a measure of access to food and availability of food in the household. Answers were examined with regard to daily folic acid supplement intake.

Highlights of these analyses are as follows:

- Of respondents aged 18 to 44 years, 39.8 percent reported taking a folic acid-containing supplement daily. Daily

## *Folic Acid Use Among California Women of Reproductive Age, 2004-2005*

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**Public Health Message:**  
*Population groups at the highest risk for NTDs—Hispanic women (especially those born outside the United States), younger women, obese women, and women with poor diet quality—are the least likely to take folic acid supplements. Folic acid should be as aggressively promoted to all women of reproductive age as prenatal vitamins now are to pregnant women.*

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supplement use varied significantly by pregnancy status, age, race/ethnicity, parity, BMI, and food insecurity.

- Women who were currently pregnant were much more likely to report taking a folic acid-containing supplement daily (88.8 percent) than women who were trying to become pregnant (54.1 percent) or women who were neither pregnant nor trying to become pregnant (36.5 percent).<sup>11</sup>
- Younger women (aged 18 to 24) were much less likely to report taking a daily supplement with folic acid (29.3 percent) than women aged 25 to 34 (41.5 percent) or age 35-44 (43.2 percent).<sup>11</sup>
- Hispanic women were much less likely to report the daily use of a folic acid-containing supplement (27.7 percent) than were Whites (49.8 percent), Black/African Americans (41.3 percent), or Other racial/ethnic groups (38.8 percent).<sup>11</sup>
- The daily use of a folic acid-containing supplement was reported by 40.1 percent of respondents who had never given birth, 46.3 percent of women with one previous birth, and 37.2 percent of women with two or more previous births.<sup>11</sup>
- Women of normal weight (BMI < 25) were more likely to report taking a daily supplement with folic acid (42.1 percent) than were overweight (BMI 25-29) and obese (BMI ≥ 30) women (40.2 percent and 37.6 percent, respectively).<sup>12</sup>
- Women who reported experiencing food insecurity within the previous 12 months were less likely to take a folic acid-containing supplement daily than those who did not (29.0 percent vs 44.9 percent).<sup>11</sup>

We explored two sub-groups of women because of their elevated risk for NTDs: women who are trying to become pregnant and Hispanic women. Among women who were trying to become pregnant (N=234), results were generally similar to the overall population, but distributions by age, number of births, and race/ethnicity were notable:

- Women aged 18 to 24 were much less likely to report the daily use of a folic acid-containing supplement (31.7 percent) than women age 25-34 (53.2 percent) and women age 35-44 (62.9 percent).<sup>13</sup>
- Women who had never given birth (59.3 percent) and women with one previous birth (61.8 percent) were more likely to report using a folic acid-containing supplement daily vs. women with two or more previous births (33.6 percent).<sup>13</sup>
- Hispanic women who were trying to become pregnant (30.0 percent) were much less likely to use a daily folic acid-containing supplement than were women of all other racial/ethnic groups (68.4 percent).<sup>11</sup>

Hispanic respondents were much less likely than women of other racial/ethnic groups to report daily use of a folic acid-containing supplement. This is especially troubling because the literature indicates that Hispanic women are at higher risk for NTDs. Pregnancies resulting in a NTD are five times more common among women in Mexico than among Caucasian women in the United States.<sup>1,14</sup> Hispanic women living in the United States also have a higher risk of NTDs, although the incidence is not nearly as high as for women in Mexico.<sup>7,15</sup>

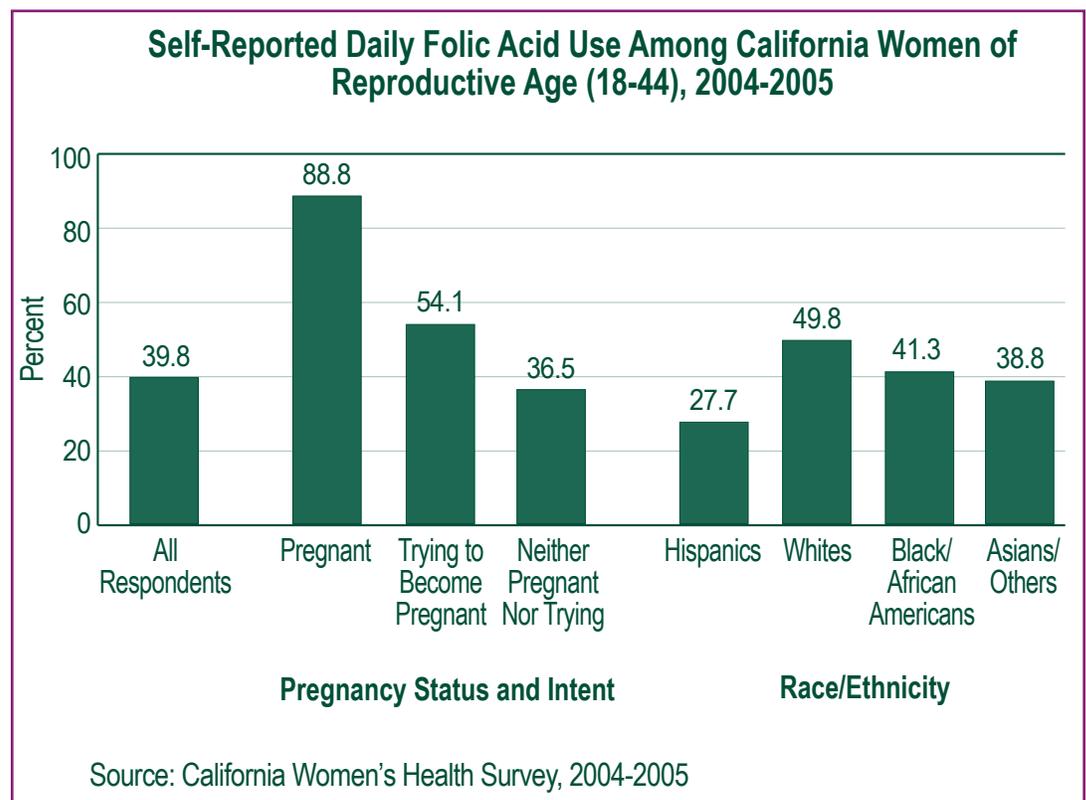
Among Hispanic women responding to the 2004 and 2005 CWHHS (N=1,894), daily folic acid-containing supplement use did not vary significantly by age or BMI, but did vary significantly by place of birth, number of births, and food insecurity.

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- Of Hispanic women born in the United States, 35.4 percent reported taking a folic acid-containing vitamin daily, compared to only 22.9 percent of Hispanic women born in Mexico, and 27.8 percent of Hispanic women born in a country other than the United States or Mexico.<sup>11</sup>
- Hispanic women who had never given birth (35.5 percent) were more likely to be taking daily folic acid than women with one previous birth (28.7 percent) and women with two or more previous births (25.0 percent).<sup>16</sup>
- Hispanic women who reported food insecurity within the previous 12 months were less likely to take a daily folic acid supplement than those who were food secure (23.0 percent vs. 32.9 percent, respectively).<sup>11</sup>

Prenatal vitamin promotion efforts appear successful at encouraging folic acid intake among pregnant women: 88.8 percent of pregnant California women and 83.4 percent of pregnant Hispanic women reported taking a vitamin supplement containing folic acid. But California is still far from meeting the Healthy People goal of 80 percent for women of reproductive age. Only about 40 percent of all women of reproductive age and 28 percent for Hispanic women of reproductive age reported taking folic acid supplementation.



## **Folic Acid Use Among California Women of Reproductive Age, 2004-2005**

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- 7 Institute of Medicine. *Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin and Choline*. Washington, DC: National Academy Press; 1998.
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- 9 Williams JL, Abelman SM, Fasset EM, et al. Health care provider knowledge and practices regarding folic acid, United States, 2002-2003. *Matern Child Health J* 2006;10(5 Suppl):67-72.
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- 11 Chi square test,  $P < .0001$ .
- 12 Chi square test,  $P < .05$ .
- 13 Chi square test,  $P < .01$ .
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- 16 Chi square test,  $P < .0007$ .

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