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Hospital Costs for Florida Infants with Spina Bifida

Contributed by Elizabeth Radcliff, MSPH, University of North Carolina at Charlotte and Jane Correia, Florida Department of Health

A new study on hospital resource use among infants with spina bifida was recently published in a special 2012 issue of the Journal Birth Defects Research (Part A). The study, titled “Hospital Use, Associated Costs, and Payer Status for Infants Born with Spina Bifida”, linked population-based, state-wide data from the Florida Birth Defects Registry to hospital discharge data from the Florida Agency for Health Care Administration.

This study provided the number and length of hospitalizations, hospital costs, and payer source for each hospitalization of live-born infants with spina bifida without anencephaly in Florida born between January 1, 1998, and December 31, 2007. Unlike previous studies, the authors of this study looked at costs related to both public and private insurance. The authors also examined for each hospital admission and for each child, the insurance type by length of hospital stay, hospital costs, and number of hospitalizations for hospitalizations initiated in the first year of life.

Infants with spina bifida had a median number of two hospitalizations during the first year of life. About 18% of infants with spina bifida had more than three hospitalizations initiated in their first year of life. Some infants with spina bifida had as many as 12 hospitalizations.

The median total length of hospital stay for an infant with spina bifida was 14 days. The authors reported a median total cost of \$21,937 per child for hospitalizations initiated during infancy. These costs included only hospital costs and did not include other costs, such as physicians’ fees, prescription drug costs, or caregiver costs. The presence of other birth defects seemed to influence the length of hospital stay and hospital costs.

The authors reported that hospital costs for infants with spina bifida were higher for those with only public health insurance or those with a combination of private and public health insurance compared with costs for those with only private insurance during infancy. Also, there were differences in the length of stay between those infants who had public insurance only compared to those infants with private insurance only. Longer hospital stays among infants with public insurance may indicate a poorer health status. These differences in both hospital costs and lengths of hospital stay may be the result of infants with greater medical needs who thus change from private to public health insurance and may have multiple payers throughout the first year of life.

Findings from this study underscore the economic hospital burden of spina bifida and reinforce the value of continued efforts

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CDC Evaluates Folic Acid Educational Materials with Women of Childbearing Age

Contributed by Alina L. Flores MPH, CHES, National Center on Birth Defects and Developmental Disabilities, CDC

In the summer of 2012, the Centers for Disease Control and Prevention's National Center on Birth Defects and Developmental Disabilities (NCBDDD) conducted formative research to gauge whether existing folic acid educational materials were still appropriate for women of reproductive age. Specifically, the research aimed to identify levels of folic acid knowledge among this audience and understand their attitudes and beliefs about the messages, visuals, and formats of the current materials (tri-fold brochure, two-sided card, and print advertisement).

CDC conducted eight small focus groups in both Atlanta, Georgia and St. Louis, Missouri. Each group included a mix of women with and without children, vitamin users and non-users, and was segmented by pregnancy contemplation status (wanting versus not wanting to become pregnant within the year). During the focus group sessions, a moderator showed participants four materials and asked a series of questions about messages, visuals, and formats.

Messages

Participant responses by city were more similar than different. In both cities, participants requested that the materials include more information about benefits of folic acid beyond pregnancy, sources of foods

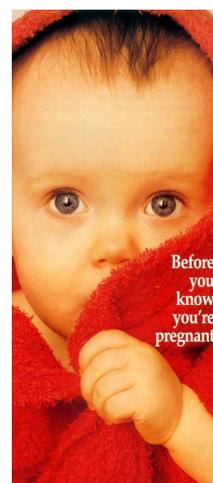
containing folate, and statistics about neural tube defects. Most participants were overwhelmed by reading text with more than a few short bulleted points. Participants 'contemplating' pregnancy rated the materials more favorably than those not contemplating pregnancy. Many noted a disconnect between the tagline in the materials ("All Women, Every Day"), which seemed to target all women, and the text, which included information about pregnancy.

Visuals and Formats

Participants in both cities felt the materials were 'dated,' preferring brighter colors, and more modern visuals of sources of foods containing folate, and of non-pregnant women representing various racial and ethnic groups. There was no clear preference for drawings versus photographs, although some participants mentioned that drawings were less likely to become dated. They also mentioned social media (Facebook™ mentioned most often) as a preferred way to receive information. Participants, primarily in Atlanta, mentioned a desire for a quick response (QR) code that could be scanned using their smartphones and then read at a later time. Finally, participants preferred a two-sided card format to either a tri-fold brochure or print ad format. They indicated that the tri-fold brochure was too long and confusing, and that a print ad was too big to fit in a purse

and was something they would see in a health care provider's office.

Findings from these groups indicate that educational materials about folic acid should limit the amount of text, include visuals of non-pregnant women, and expand beyond traditional formats to include social media. Materials should also include information about folic acid that is related to a woman's overall health, beyond pregnancy. As a result of these findings and limited resources for printing, NCBDDD will design one communication item for the public. NCBDDD also is developing a plan to disseminate information through social media. CDC will begin to discontinue the current print materials in the coming year, but partners will still be able to download printable PDF versions of all materials from the CDC Web site: www.cdc.gov/folicacid. Look for more information on this new folic acid communication product soon.



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New Data on Hospital Costs for Florida Infants with Spina Bifida (Continued from page 1)

to increase awareness and uptake of daily folic acid among women of childbearing age. Additionally, information from this study may be important to healthcare providers, public health practitioners, and health services researchers as they examine hospital resource use and access to care for infants with spina bifida and other birth defects. A better understanding of the patterns of hospital resource use associated with spina bifida may be useful for planning healthcare services. Ultimately, this study may contribute to improved health care delivery, quality of care, and improved health outcomes for infants born with these conditions and their families.

Acknowledgements

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Resources:

Radcliff et al. Birth Defects Res A Clin Mol Teratol 2012; 94:1044-53.

Centers for Disease Control and Prevention. (2013) Folic Acid: Data and Statistics. Accessed March 9, 2013 from <http://www.cdc.gov/ncbddd/folicacid/data.html>.

Folic Acid Use Among New Mothers: Florida PRAMS, 2009-2011

Contributed by Avalon Adams-Thames, MPH, CHES and Deon Peoples, Florida Department of Health

Folic acid intake before and during the first trimester of pregnancy reduces the risk of neural tube defects (NTDs). Data from the Pregnancy Risk Assessment Monitoring System (PRAMS), a population-based surveillance system of maternal behaviors and experiences before, during, and after pregnancy, was analyzed to determine the proportion of new moms in Florida who learned about folic acid from a health care provider and who consumed folic acid prior to pregnancy. PRAMS results are weighted to be representative of all new moms in Florida.

To assess folic acid supplement use prior to pregnancy, the following question was included in the PRAMS Survey: “Before you got pregnant with your new baby, did a doctor, nurse, or other health care worker talk with you about taking vitamins with folic acid before pregnancy?” Women were also asked, “During the month before you got pregnant with your new baby, how many times a week did you take a multivitamin, a prenatal vitamin, or folic acid vitamin?” Responses were analyzed by race/ethnicity, educational attainment, age, household income, Medicaid enrollment, and marital status.

Nearly 77% of Florida mothers discussed taking a vitamin with folic acid with a health care provider before becoming pregnant. Moms 25 years of age and older were more likely to hear about taking vitamins with folic acid prior to pregnancy from a health care provider than younger moms. The likelihood of discussing folic acid with a health care worker increased with maternal age. Mothers who earned more than a high school education were twice as likely to learn about folic acid from a health care provider than those with less than a high school education. Talking to a health care provider about folic acid consumption prior to pregnancy did not differ by maternal race/ethnicity, household income, marital or Medicaid status.

Approximately 42% of Florida mothers took a vitamin with folic acid during the month before becoming pregnant. The highest percentage of folic acid consumption was reported among moms 35 years and older (57%). Mothers age 35 and older were two times more likely than moms 19 years of age and younger to take a vitamin containing folic acid. Mothers who reported greater than a high school education were 30% more likely to take a multivitamin compared to moms with a high school education. Moms with a household income of at least \$35,000 were 40% more likely to take a multivitamin containing folic acid than those with income less than \$15,000. New mothers not receiving Medicaid services were twice as likely to take vitamins containing folic acid before pregnancy when compared to new mothers receiving Medicaid services.

Data from the PRAMS program provides evidence for the need for targeted health protection messages designed to educate women of childbearing age about the importance of taking 400 micrograms of folic acid prior to and early in pregnancy to prevent serious birth defects. Florida PRAMS and the Florida Birth Defects Registry continue to collaborate and disseminate information about this important public health prevention opportunity.

Folic Acid Research Update

Contributed by Gail Rampersaud MS, RDN, LDN and Claire Marie Fassett, University of Florida

Folic acid supplementation and cancer risk: a meta-analysis of randomized controlled trials. Qin et al. *Int J Cancer*. 2013 Jan 22. [Abstract](#)

Effects of folic acid supplementation on overall and site-specific cancer incidence during the randomized trials: meta-analysis of data on 50 000 individuals. Vollset et al. *The Lancet*. 2013 Jan 24. [Abstract](#)

Modeling fortification of corn masa flour with folic acid: the potential impact on exceeding the tolerable upper intake level for folic acid, NHANES 2001-2008. Hamner et al. *Food Nutr Res*. 2013; 57. [Abstract](#)

Folate status and homocysteine levels during a 24-week oral administration of a folate-containing oral contraceptive: a randomized, double-blind, active-controlled, parallel-group, US-based multicenter study. Bart et al. *Contraception*. 2012; 85(1): 42-50. [Abstract](#)

Neural tube defects on the Texas-Mexico border: what we've learned in the 20 years since the Brownsville cluster. Suarez et al. *Birth Defects Res A Clin Mol Teratol*. 2012; 94(11):882-92. [Abstract](#)

Prevalence and correlates of folic acid supplement use in Canada. Colapinto et al. *Health Rep*. 2012; 23(2):39-44. [Abstract](#)

Impact of folic acid fortification of flour on neural tube defects: a systematic review. Castillo-Lancellotti et al. *Public Health Nutr*. 2013; 16(5): 901-11. [Abstract](#)

Use of folic acid supplements and risk of cleft lip and palate in infants: a population-based cohort study. Kelly et al. *Br J Gen Pract*. 2012; 62(600): e466-72. [Abstract](#)

Does obesity modify the association of supplemental folic acid with folate status among nonpregnant women of childbearing age in the United States? Tinker et al. *Birth Defects Res A Clin Mol Teratol*. 2012; 94(10):749-55. [Abstract](#)

Association between maternal use of folic acid supplements and risk of autism spectrum disorders in children. Surén et al. *JAMA*. 2013; 309(6):570-7. [Abstract](#)

Lack of periconceptional vitamins or supplements that contain folic acid and diabetes mellitus-associated birth defects. Correa et al. *Am J Obstet Gynecol*. 2012; 206(3):218.e1-13. [Abstract](#)

Uptake of folic acid supplements before and during pregnancy: focus group analysis of women's views and experiences. Barbour et al. *J Hum Nutr Diet*. 2012; 25(2):140-7. [Abstract](#)

Dietary supplement use and folate status during pregnancy in the United States. Branum et al. *J Nutr*. 2013; 143(4):486-92. [Abstract](#)

Maternal obesity, folate intake, and neural tube defects in offspring. McMahon et al. *Birth Defects Res A Clin Mol Teratol*. 2013; 97(2):115-22. [Abstract](#)

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Florida Folic Acid Coalition

Mission:

Decrease the incidence of folic acid preventable birth defects and promote optimal folate status among Floridians.

Vision:

As a result of the Coalition's efforts, this simple primary prevention strategy will result in fewer pregnancies affected by folic acid preventable birth defects. More Floridians will recognize the benefits of achieving and maintaining optimal folate status.