





Disclosures

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Acknowledgements

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- Area L AHEC for their support in providing continuing education credit for this webinar



Housekeeping

- Obtaining credits
 - Groups should email swright@marchofdimes.com
- Asking questions
- Accessing slides at a later date



Objectives

- Identify the importance of daily folic acid consumption in preventing neural tube defects (NTDs)
- Discuss current recommendations for folic acid consumption
- Apply strategies for counseling women about folic acid in a manner relevant to their unique ages and perspectives
- Describe barriers to daily multivitamin consumption and methods of addressing these barriers

"Opportunistic" care



- Preconception care is for every woman of childbearing age every time she is seen
- Every woman, every time



Preconception Health: Folic acid & neural tube defects

- The most effective method for preventing the majority of NTD-affected pregnancies is daily folic acid supplementation prior to pregnancy
- NTDs occur so early in pregnancy that folic acid supplementation must begin BEFORE women become pregnant
- Latina women are 1.5 times more likely than other racial and ethnic populations in N.C. to have a baby born with an NTD

NC, SC, NC Birth Defects Monitoring Program 2002-2010; National Institute of Child Health and Human Development (30 November 2012). "How many people are affected by it, are at risk for it, and how to prevent it." <http://www.ncbi.nlm.nih.gov/pmc/articles/PMC3517914/> National Institutes of Health.

The neural tube

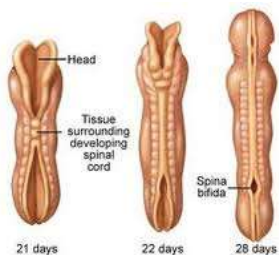
- The neural tube, which forms the spinal cord and brain, closes between days 17 and 28 after conception, before most women even know they are pregnant.
- The neural tube begins as a tiny pancake of tissue.
 - First, it folds inward. Then the tube fastens or zippers up.
 - When the zipper does not close completely, a small hole is left, and an NTD is formed.
 - As the fetus develops, the hole does not close.
- The exact place of the defect along the neural tube determines the type of NTD that develops.



NC State Center for Health Statistics, 2004-2010; NC Birth Defects Monitoring Program.



Spina bifida



- **Spina bifida** occurs when the lower end of the developing neural tube fails to close
 - Just 23-28 days after conception
- What is the size of the embryo at this time?

SpinaBifidaAssociation.org

Answer



Spina bifida

Disabilities may include:

- Paralysis of legs
- Loss of bowel control
- Loss of bladder control
- Learning disabilities



Photo source: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities

Quality of life



- 90% of infants born with spina bifida live to adulthood, and 80% have normal intelligence.
- Thanks to advancements in treatment, those born with this challenging birth defect are living longer, more productive lives than was dreamed of just a few decades ago.

Spina Bifida Association, 2014 www.spina-bifida.org

Anencephaly

- **Anencephaly** is a fatal condition in which the upper end of the neural tube fails to close.
- In these cases, the brain either never completely develops or is totally absent.
- Prognosis:
 - Spontaneous loss
 - Stillborn
 - Neonatal death



Photo source: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities

NTDs in North Carolina

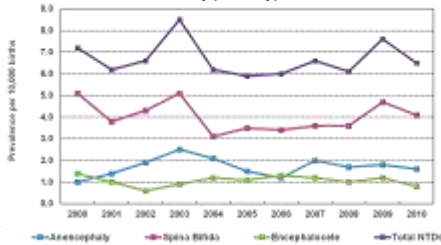
- Higher than the national average
- Incidence varies by NTD
 - Spina bifida is the most prevalent NTD
- Incidence varies by geography
 - Highest number of cases in NC in the Northwestern, Northeastern, and Southeastern perinatal regions
- Incidence varies by race
 - Highest rates among Hispanic population



NC State Center for Health Statistics, Birth Defects Monitoring Program, 2005-2010; Ai, Ashley-Koch, & Northrup (2008). Epidemiologic and genetic causes of neural tube and other congenital malformations. *Developmental Disabilities Research Review*, 34(1), 8-17.

NTDs in North Carolina

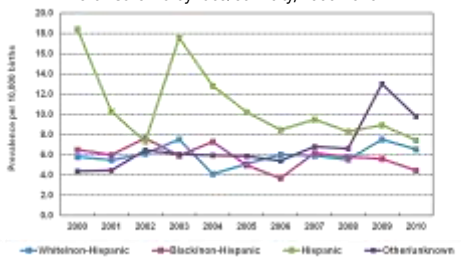
Prevalence of total neural tube defects in North Carolina by phenotype, 2000-2010



Source: NC State Center for Health Statistics, 2013

NTDs in North Carolina

Prevalence of Total Neural Tube Defects
North Carolina by race/ethnicity, 2000-2010



Source: NC State Center for Health Statistics, 2011

Why is folic acid so important?

- "All women of childbearing age in the United States who are capable of becoming pregnant should consume 400 mcg of folic acid per day for the purpose of reducing their risk of having a pregnancy affected with spina bifida or other NTDs." - US Public Health Service recommendation
- If taken BEFORE pregnancy, folic acid can prevent up to 70% of neural tube defects (NTDs) like spina bifida and anencephaly



Pregnancy intent



Approximately 43%
of pregnancies are
"unintended" in NC



However...



More than two-thirds of women in N.C. do not take a daily multivitamin with folic acid prior to pregnancy!



Recurrence recommendation

- For women who have had a previous pregnancy affected by a neural tube defect their risk of having another NTD affected pregnancy is 20 times greater.
- The U.S. Public Health Service recommendation for these women is to take 400 mcg daily when not planning to become pregnant and 4 milligrams of folic acid one month before planning a pregnancy and through the first three months of pregnancy.

Womenshealth.gov 2012

Other birth defects

- Folic acid may have a protective effect against development of infant heart defects and cleft lip with/without cleft palate
- There may be a link between folic acid deficiency in men and birth defects in their children



Photo source: Centers for Disease Control and Prevention, National Center on Birth Defects and Developmental Disabilities; Wilson, Schvill, & McCannaghay et al. 2007. Folic acid supplements and the risk of fetal defects: a national population-based control study. British Medical Journal; Lambert, Xu, & Saine-Phu et al. (2013). Low paternal dietary folate alters the mouse sperm epigenome and is associated with negative pregnancy outcomes. Nature Communications.

Other important research



Studies show that folic acid may reduce the risk of:

- Alzheimer's
- Cervical cancer
- Colon cancer
- Autism



Stern, Ruth, & Brouha, et al. (2013). Association between maternal use of folic acid supplements and autism spectrum disorders in children. The Journal of the American Medical Association, 309(1), 10-16.

Folic acid 101

Folic acid is a B-vitamin that:

- Aids cell growth, cell repair, and energy production
- Is soluble in water
- Should be taken every day through a multivitamin
- Can also be found in a synthetic form in certain foods such as fortified breads and cereals, pasta and rice
- Folate, the naturally occurring form, can be found in broccoli, spinach, and beans



How do you get enough folic acid?

- Food (folate)
 - Leafy green vegetables, orange juice, beans
- Fortified food (folic acid)
 - Cereals, breads, nutrition bars
- **Multivitamins!**
 - With folic acid, once every day



Folate



- Folate is an essential nutrient that humans cannot easily synthesize and is found naturally in foods.
- Absorption depends on the food itself, how it is cooked, and individual's ability to metabolize folate.

Important Facts



It's almost impossible to obtain the recommended amount of folic acid from food alone



Fortified Food



- In 1996, the FDA took action and ordered "enrichment" of all flour or grain products, 140mcg/100g of grain product
- Approved the use of health claims on products that contain significant amounts of folic acid
- However, these efforts have proven to be insufficient for full prevention of birth defects.



Multivitamins!



Your patients are listening!

- "Reinforcement of public awareness campaigns has been demonstrated to increase the use of folic acid supplementation." ¹
- March of Dimes Gallup Survey results show that 89% of women who do not take a daily multivitamin state they would likely do so if advised by their health care provider. ²

1) Healthier women, healthier reproductive outcomes: recommendations for the routine care of all women of reproductive age, 2008, ACOG; 2) Gallup Organization and March of Dimes Foundation (2008). Increasing Prenatal Health: Women's Knowledge and Use of Folic Acid.

The multivitamin/folic acid message

- May vary slightly depending on the patient
- May be a 15-30 second message
- May save lives!



Targeting your message

- Not all women are the same. They may need slightly different messages.
 - Teenagers
 - Young women who are NOT thinking about pregnancy and babies
 - Young women who ARE thinking about pregnancy and babies
 - Post-partum women who have had a successful birth outcome



Teens

- Most teenagers do not think about having a baby, getting pregnant and the consequences of unprotected sex.
- To start the conversation with them, talk about vitamins and health, not babies and birth defects.



Young women who are NOT thinking about babies & pregnancy

- Like teenagers, a lot of young women do not think about having a baby, getting pregnant and the consequences of unprotected sex.
- To start the conversation with them, talk about vitamins and health, not babies and birth defects.



Young women who are thinking about babies & pregnancy

- Young women who express an interest in becoming pregnant or having more children are open to conversations about how to have a healthy pregnancy and a healthy baby.
- You can give these women very direct messages about pregnancy, folic acid and birth defects.

Providing written information

- One FREE tool available when providing written MV/folic acid information is "Take Care of Yourself: Your body will thank you for it," available from the Campaign
- Can be ordered at: <http://everywomannc.com/order-materials> or from the NCDHHS Women's Health Branch



Postpartum women who have had a successful birth outcome



- It is essential for these women to continue taking a prenatal or a regular multivitamin after giving birth.
- Use the "Congratulations, Mom!" from the CDC: <http://www2.cdc.gov/ncbddd/faorder/orderform.htm> (Spanish & English versions)
- Spanish version (¡Felicidades!) available at <http://everywomannc.com/order-materials>


Responding to roadblocks

Common reasons given for not taking a multivitamin	Your response
I forget.	Place your vitamins near your car keys, coffee maker, or toothbrush.
They upset my stomach.	Try taking the vitamin with food or at bedtime.
They are too expensive.	Buy the store brand. Each pill will only cost you pennies a day!
I don't like swallowing pills.	Vitamins without minerals are typically quite small. Chewables (gummies) are a good option too!
I eat healthy enough, so I don't need vitamins.	It is extremely difficult to get enough folic acid through food alone.
They might make me gain weight.	There are no calories or fat in vitamins and they should not affect appetite.
I just don't.	Education matters! Give your patient a brochure to read later.

Summary

- If taken BEFORE pregnancy, folic acid can prevent up to 70% of neural tube defects (NTDs) like spina bifida and anencephaly
- All women of childbearing age need to take a multivitamin 400 mcg of folic acid every day
- Latina women have a higher risk than other racial and ethnic populations in N.C. to have a baby born with an NTD
- Many resources are available for patients and are free from the March of Dimes NC Preconception Health Campaign

We are counting on you!



- Be a good role model; take your multivitamin daily!
- YOU can make a difference!
- This message can be delivered by anyone dedicated to improving the health of NC's girls and women and reducing the number of babies born with NTDs!
 - Health care providers
 - Health educators
 - Nutritionists
 - Social workers
 - Community

March of Dimes North Carolina Preconception Health Campaign

- A statewide initiative aimed at improving birth outcomes in NC by reaching out to women with important health messages before they become pregnant
- Formerly functioned as the NC Folic Acid Campaign
- Goals of the Campaign are to reduce infant mortality, birth defects, premature birth, and chronic health conditions in women, while also aiming to increase intended pregnancies in NC
- Seeks to raise awareness and inspire positive action among the general public, health care professionals, and community agencies

