Presented by Nebraska Department of Health & Human Services Maternal & Infant Health Program

**OBJECTIVES**

- Describe opportunities for prematurity prevention education in the context of home visiting.
- Describe opportunities for obesity prevention in the context of home visiting.
- Describe opportunities for maternal depression prevention in the context of home visiting.
- Describe best practices for safe sleep, infant illness care, and infant feeding problems

**PREMATURE STATISTICS**

- Babies born before 37 weeks gestation are premature.
- In 2009 in the United States 12.2% babies (more than half a million) were born prematurely.
- In 2009 in Nebraska 10.3% babies (2598) were born prematurely.
- In 2009 the cesarean delivery rate rose 2% to 32.3% of all U.S births (approx 1-3 births).
- In 2009 31.7% of all births were c-section (8,536) in Nebraska.

**PREDICTING GESTATIONAL AGE**

- From conception vs last menstrual period (LMP)
  The average length of pregnancy is 38 weeks (266 days) from conception. The most accurate way to calculate one’s due date is based on prediction of conception, but usually the date of conception is not known. Therefore, the due date is generally calculated from the first day of the last menstrual period (LMP). Two weeks are added to the calculation giving a total of 40 weeks (280 days). LMP is based on the assumption that ovulation/conception occurs on cycle day 14 in the “average” 28 day menstrual cycle.

- From ovulation
  Calculating the due date from LMP is subject to error since ovulation varies from the onset of menstruation among different women and from cycle to cycle. Calculating the pregnancy due date from ovulation is more accurate than from the last menstrual period.


- Fundal Height Measurement
  Fundal Height is defined as the distance in centimeters, from the top of the uterus to the pubic bone. After the first 12 wks (1st trimester) the fundal height usually matches the number of weeks pregnant.

  It isn’t unusual to measure smaller or larger than expected.

Ultrasound - use of ultrasonic sound to visualize internal body structure or a developing fetus
- Crown Rump Length
- Head Circumference (Biparietal Diameter)
- Gestational sac (yolk sac)


- Women who have had a premature baby
- Women who are pregnant with twins, triplets +
- Women with abnormalities of the uterus or cervix
- Certain lifestyle factors
  - Delayed or absent prenatal care
  - Cigarette Use
  - Alcohol & Drug Use
  - Exposure to DES meds
  - Domestic Violence (physical, sexual and/or emotional)
  - Lack of Social Support
  - High stress
  - Long periods of standing & long work hours
  - Environmental pollutant exposure (air/traffic pollution)

- Medical Conditions
  - Infections (UTI's, vaginal, sexually transmitted, periodontal disease etc.)
  - Hypertension & preeclampsia
  - Diabetes
  - Thrombophilia
  - Underweight
  - Obesity
  - Less than 18 months between pregnancy
  - Assisted Reproductive Technology (ART)
  - Birth defects (baby)
  - Vaginal Bleeding (placenta previa, placenta abruptio)

- Demographic Characteristics
  - Non-Hispanic Black
  - Younger than 17 yrs old
  - Older than 35 yrs old
  - Poverty

- Advanced Maternal Age (particularly with 1st birth)
- Multiple Pregnancy
- Breech Presentation
- Suspected low infant birth weight
- Increasing maternal BMI
- Obstetrician’s Care Practices

Cesarean Delivery

- Indications
  - Cesarean Delivery:
  - “it is appropriate to schedule delivery at 39 weeks gestation or later on the basis of menstrual dates. Another option is to await the onset of spontaneous labor. If delivery before 39 weeks of gestation or if the above criteria are not met, an amniocentesis to confirm the presence of indices of fetal pulmonary maturity is required before performing an elective cesarean delivery.”
  - ACOG Committee on Obstetric Practice & AAP Committee on Fetus & Newborn (2007) Guidelines for Prenatal Care, 6, 160.
**Complications of Prematurity**

- Immature lungs (most babies' lungs mature by 36 wks)
- Respiratory Distress Syndrome (RDS)
- Transient tachypnea
- Bronchopulmonary Dysplasia (BPD)
- Pneumonia
- Apathy & Bradyardia
- Infection
- Jaundice-immature liver
- Intraventricular hemorrhage
- Inability to maintain body heat
- Immature gastrointestinal & digestive system—problems with food absorption & poor suck & swallow

**Public Health Indicators**

- Prematurity is the leading cause of infant mortality in the United States.
- Cost to care for premature babies exceeds 26 million dollars a year.
- Average inpatient (hospital) length of stay for the delivery and the 12 months following delivery was 14.2 days for premature/LBW infants, nearly 12 more days compared to uncomplicated newborns.
- Long term morbidities include chronic lung disease (CLD), cognitive and motor delays and visual problems.

**Messages for Prematurity Prevention**

- Consider accurate gestational age. If uncertain, err on the side of longer gestation vs delivery prior to 37 wks.
- Encourage regular prenatal care.
- Educate and give resources to prevent risk factors ie cigarette, alcohol etc.
- Domestic violence
- Assist client with goal setting to decrease problems related to poverty.

**Obesity**

Of the 1.7 million people who live in Nebraska, 51% are women and girls. Nebraska's women live an average of 81 years. Since 1994 women in Nebraska have had a 27% increase in overweight and obesity.

Nebraska's Women's Health Report Card—2006 Focus on Preventing Chronic Disease

27% of Nebraska children and 21% of Nebraska teens are obese. One out of every six students in grades K-12 (16.2%) is overweight and one out of every three (33%) in K-12 are overweight and at risk of being obese.
50-70% of obese children will become obese as an adult. Family issues with weight and age increase obesity risk.

Data show that more than 20% of children are overweight by kindergarten.

Several factors are involved in the development of childhood obesity and two of the most influential are genetics and environment. 50-70% of obese children will become obese as an adult. Family issues with weight and age increase obesity risk. The risk for obesity is the greatest if both parents are obese. The risk that the child will be obese or overweight is increased by 2-3 fold if both parents are overweight/obese. Twin and adoptive studies have shown that children who have biological parents who are obese tended to become obese even when the adoptive parents are slim. A child who has a genetic tendency to become overweight will have various levels of adiposity.

Institute of Medicine Guidelines for Gestational Weight Gain (2009)

- Underweight women 28-40 lbs
- Normal weight women 25-35 lbs
- Overweight women 15-25 lbs
- Obese women 11-20 lbs

Obesity in Pregnancy

- BMI at the beginning of pregnancy has a major influence on infant weight at birth
- There is an increased incidence of large-for-gestational-age (LGA) infants when maternal weight gain in obese women during pregnancy was more than 25 lb

In a study published in the American Journal of Public Health 2007;97(2)

- Thirty-five percent of the study children were overweight or obese.
- Hispanic children were 2x’s as likely as either Black or White children to be overweight or obese.
- Greater than normal birth weight, taking a bottle to bed, and mother’s weight status were important predictors of children’s overweight or obesity at age 3 years.

Rapid Weight Gain (RWG)

One study looked at the relationship between birth weight and RWG in a low-income, inner city minority population. If children were born LGA they were over nine times more likely to be obese and 31 times more likely to be extremely obese during early childhood if they experienced RWG between birth and 1 year of age.

**Obesity in Pregnancy and Childhood**

- Breastfeeding
  - Breastfeeding reduces the risk of obesity
  - Insurance companies spend over 3.6 billion dollars every year to treat medical conditions and illnesses that are preventable by breastfeeding

In a study published in Public Health Nutrition 2012 Aug 24:1-9

The feeding practices of 14,726 children aged 2-9 from eight European countries were analyzed.

Results: exclusive breast-feeding for 4-6 months was protective of overweight and obesity compared to children who were never breast fed.

*“Food and language are the cultural habits humans learn first and the ones they change with the greatest reluctance.”*


**Parent Influences on Child Feeding Practices**

A 12 month study published in the Aug-Sept issue of *Pediatrics* 2012

- Cohort of 292 mothers and infants were randomly assigned to 3 groups
  - 1. Bright Futures Pocket Guide – standard infant dietary counseling including breastfeeding & best ways to introduce table foods
  - 2. Anticipatory guidance aimed at the mothers eating habits
  - 3. Ounce of Prevention Program *

Results


**Parent Influences on Child Feeding Behaviors**

- Developmentally, children begin to imitate their parents around age two. We will notice children participating in imitation play. Imitation is a natural way to approach developmental milestones such as feeding his/herself, dressing, walking and communicating.

- It is very important that caregivers and parents give accurate instructions and guidance.

- Girls prefer to imitate their mothers, other women or older girls. Boys imitate their fathers, other men and older boys.

- Parental modeling of healthy eating
  - Parents preference for high fat foods predict children’s preference for high fat food
  - Parents inability to control food intake predicts child’s inability to regulate food intake from one meal to the next
  - Parents food patterns predicts food intake patterns of older children, but not younger children

- Mothers intake of milk & soft drinks frequently predicts daughters intake of milk & soft drinks

- Parental restriction of snack foods results in an increased intake of these foods when they are available and a decreased ability to regulate intake

- Parental restriction of access to favorite foods increases desire of those foods and increases the child’s attempt to eat those foods

- Parents control over food intake
  - Parents who greatly control the child’s food intake have children who are less able to regulate calorie intake from one meal/snack to the next
**Parent Influences on Child Feeding Behaviors**
- The toddler, preschooler and older child eat and grow best when they have both structure and support. Parents and other care providers of older children are responsible for the *what*, *when* and *where* of feeding; children remain responsible for the *how much* and *whether* they eat.

**Messages for Obesity Prevention**
- Breastfeeding reduces the incidence of Childhood Obesity.
- It is important for mom to gain the recommended amount of weight during pregnancy.
- Parental eating habits influence child’s eating habits.
- Children should be offered well balanced meals and occasionally enjoy snacks.

**Depression**
- Maternal or perinatal depression
  - Great range of physical, emotional, and mood disorders
  - Occur either during pregnancy or within the 12 months after delivery.
  - Centered around the mother’s fears and issues about the baby’s well being.
  - Centered around feelings of inadequacy as a mother.

**Depression**
- Baby Blues (birth – 3 wks, most common)
  - Approximately 70% of mothers have the “Blues.”
  - Contributing Factors
    - Hormone changes
    - Fatigue
    - Physical & emotional stress of birth
    - Physical discomfort or pain
    - Anxiety related to greater responsibility
    - Disappointments related to birth
    - Spousal or partner support
    - Nursing

**Depression**
- Baby Blues
  - Symptoms
    - Moodiness
    - Crying
    - Sadness
    - Anxiety
    - Difficulty concentrating
    - Feelings of being dependent

**Symptoms of Maternal Depression**
- Fatigue
- Constant worrying (Anxiety or Panic disorder)
- Obsessive Compulsive Disorder
- Uncomfortable around the baby
- Lack of bonding with baby
- Instability
- Feels overwhelmed
- Can’t make up her mind (indecisiveness)
- Sad
- Feels guilty
- Phobias
- Hopelessness
- Unfocused
- Gains or losses
Additional Symptoms
- Loss of enjoyment of usual activities
- Loss of self-esteem & confidence
- Weight loss and loss of appetite
- Disrupted sleep (separate from interference by baby)
- Sense of hopelessness and/or failure
- Wish for death (feels baby would be better w/o her)
- Straightforward thoughts or ideas of suicide
- Panic attacks
- Fear for baby’s or partners safety
- Hallucinations (visual or auditory)
- Delirium or mania

Risk Factors
- Recent stressful events
- Unmarried
- Teen mother
- Unwanted pregnancy
- Current or history of domestic violence
- Sexual abuse
- Substance abuse
- Diagnosis of major clinical depression
- Past poor birth outcome
- Social isolation
- Very little social support
- History of PMS
- Dysfunction of endocrine system

Other risk factors for maternal depression:
- Recent stressful life event (death, moving, loss, illness)
- Unmarried
- Teen pregnancy
- Unwanted pregnancy
- Poor social support
- Hx of domestic violence
- Hx of childhood sexual abuse
- Hx of substance abuse

Panic Disorder
- Occurs in about 10% of postpartum women
- If panic disorder is evident, screen for depression
- Needs immediate medical attention
- Extreme anxiety
- Shortness of breath, chest pain, choking or smothering sensation
- Irritable, agitation
- Fear of losing control of mind, dying
- Awake with panic
- No obvious trigger for panic
- Excessive fear of additional panic attacks

Obsessive-compulsive Disorder
- 3%-5% of mothers develop symptoms
- Repetitive, frequent thoughts
- Sense of horror about reoccurring thoughts of hurting the baby
- Behavior to decrease anxiety following thoughts (ie hiding knives)
- Repetitive behaviors (counting, cleaning, checking etc)

Postpartum Psychosis (onset 2-3 days after delivery)
- Risk Factors
  - Family history of psychosis, bipolar or schizophrenia
  - Can occur in women with no family history of mental illness
- Symptoms
  - Hallucinations (Visual or Auditory Hallucinations)
  - Delusional thinking (about infant death, need to kill baby etc)
  - Delirium and/or mania
Before an age limit was added in late 2008, more than 30 children were dropped off under Nebraska's safe haven law. The majority of the children dropped off were teens or preteens with mental, emotional and behavioral problems. Many had received behavioral health services, parents reported that they didn’t know where to turn for help. LB603 was passed in 2009 and focused on making behavioral health and other services for children and teens more accessible.

After LB603 was passed, the state of Nebraska, in collaboration with Boys Town, developed the Nebraska Family Helpline and Family Navigator Service. The helpline staff will assist the caller in identifying resources, provide referrals and connect Nebraska families with help. The helpline is run by Boys Town and available 24 hours a day, 7 days a week with trained health professionals taking calls.

This website is designed to help with the identification of behavioral health services and related laws.

SAFE SLEEP

- SIDS (Sudden Infant Death Syndrome)
  - SIDS is defined as the sudden death of an infant under one year of age, which remains unexplained after a thorough case investigation, including performance of a complete autopsy, examination of the death scene, and review of the clinical history.
  - Rates of SIDS as an official cause of death have declined significantly since the Back to Sleep Campaign in the early 1990’s. National research suggests that the decrease in SIDS since 1999 can be explained by the use of other classifications of causes of death. Among the longstanding challenges to understand unexpected infant deaths has been incomplete investigation and inaccurate reporting.

SAFE SLEEP

- Who is at risk for SIDS?
  - SIDS is the leading cause of death for infants between 1 month and 12 months of age.
  - SIDS is most common among infants that are 2-4 months old. However, babies can die of SIDS until they are 1 year old.
  - Because we don’t know what causes SIDS, safe sleep practices should be used to reduce the risk of SIDS in every infant under the age of 1 year.

SAFE SLEEP

- SUID is a term used to describe these unexpected deaths and is not an official diagnosis. Upon further investigation, the cause of death may be found to be one of these:
  - Metabolic Disorders
  - Hypothermia or Hyperthermia
  - Neglect or Homicide
  - Poisoning
  - Accidental Suffocation
  - Other

After a thorough and comprehensive investigation, if no cause has been identified, the infant death may be most accurately described as SIDS.

http://dhhs.ne.gov/publichealth/Pages/sids_suid.aspx
SAFE SLEEP

1. Put baby on his/her back to sleep (See Study)
2. Use a firm mattress covered with a fitted sheet in a safety approved crib. See Consumer Safety for Cribs www.cpsc.gov/cribs

New Crib Standard as of June 28, 2011

3. There should not be more than a soda's can’s width between bars. No more than two fingers width between mattress and bars.
4. Remove pillows, blankets, stuffed toys, bumper pads and other soft objects from the crib. Don’t use devices to prop baby on side*
5. Consider using a “blanket sleeper” instead of blankets, which can get wrapped around baby’s head.

6. Avoid overheating or covering the infant’s head. Baby should not be sweating or hot to the touch.
7. Consider offering a pacifier once breastfeeding is established (approx 4 weeks).*
8. Create a smoke-free zone around baby.
(See Study)

9. Baby should have a separate sleeping space in the parent’s room. Don’t let baby sleep on an adult bed, waterbed, armchair, couch or other soft surface with another child or adult.

10. Remember to have supervised tummy time when baby is awake to minimize development of flat areas on baby’s head.
(See Study & Child Death Review Table)

Breastfeeding is protective against SIDS
If a baby is immunized, there is a 50% decreased risk for SIDS.

ILLNESS CARE

- Establish a medical Home
  - Healthy Mothers Healthy Babies Helpline 1-800-862-1889
  - Access Nebraska 1-800-383-4278

- Help parents recognize when to call a Dr
  - Poor weight gain
  - Inconsolable crying
  - No wet diaper in 8 hours or more
  - No BM in 4 days or more
  - Yellow, thick nasal discharge
  - Blood in the diaper
  - Trouble breathing
  - Changes in normal color of skin (bluish, red, rash)

Dr Sears Guide to top 7 Illnesses (2012) Retrieved September 6, 2012
http://www.parenting.com/article/dr-sears-guide-to-the-top-7-infant-illnesses?page=0,4
ILLNESS CARE

Prevention
- Keep smoke free environment
- Breastfeed
- Keep immunizations Up to date

Nebraska Immunization Program
http://dhhs.ne.gov/publichealth/Pages/immunization_index.aspx

FEEDING PROBLEMS

Milk Soy Protein Intolerance (MSPI) – the body is unable to fully digest the proteins found in milk or soy products.

The American College of Gastroenterology reports that the small intestines do not produce enough of the needed enzymes to digest milk and soy proteins. This leads to irritation and inflammation in the gut.

Symptoms of MSPI
- Excessive gas & bloating
- Cramping pain
- Nausea & vomiting
- Diarrhea
- Blood or mucus in the stool

Treatment
- Eliminate milk & soy proteins from diet (list of ingredients)
- After diet if breastfeeding
  - Keep diet journal
  - Change formula

To prevent allergy mom should avoid all types of dairy from several weeks prior to birth.

Gastric Reflux - is the most common gastric complaint that leads to referral to pediatric gastroenterologist during infancy. Immaturity of lower esophageal sphincter function causes frequent lower esophageal relaxations which causes the gastric contents to flow back into the esophagus.

- Degree & severity of reflux episodes increase during infancy during the 1st year of life.
- 60-70% of infants vomit after 1 feeding per 24 hours day by 3-4 mos of age.

Physiologic (functional or normal) gastro-esophageal reflux and Pathologic (gastroesophageal reflux is defined not only by the number and severity of episodes but most importantly by the presence of reflux-like complications.
- Failure to thrive (weight loss or slow wt gain)
- Erosive esophagitis
- Esophageal stricture formation
- Chronic respiratory disease

Preamaturity Resources

“Nebraska Department of Health & Human Services, Lifespan Health Services Unit/MCH Epidemiology”. Nebraska Vital Records 2011


PREMATUREITY RESOURCES


SAFE SLEEP REFERENCES


Nebraska Department of Health & Human Services Sudden Infant Death (SIDS) Retrieved September 4, 2012 http://dhhs.ne.gov/publichealth/Pages/sids_cuid.aspx


OBSITY REFERENCES


OBSITY RESOURCES


SAFE SLEEP RESOURCES


Nebraska Department of Health & Human Services Sudden Infant Death (SIDS) Retrieved September 4, 2012 http://dhhs.ne.gov/publichealth/Pages/sids_cuid.aspx


OBSITY RESOURCES


Feeding Problems Resources


Copies of brochure can be obtained from: Allergy Unit, RPA Hospital at allergy@email.csnsw.gov.au


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