



## Maternal, Infant and Child Health: Public Health Implications

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### Lecture Objectives

- Review the importance of monitoring and supporting interventions to improve the health of mothers and their children.
- Describe national health trends and issues that are unique to the populations of mothers and children.
- Review public health interventions designed to improve the health of mothers and children.
- Discuss the Healthy People 2020 objectives supporting maternal, infant and child health.

### Why is this important?

- Measure of society's effectiveness of the disease prevention and health promotion services
- Impact on next generation, predict future public health challenges for families, communities and the health care system
- Many risk factors can be reduced or prevented with early intervention or education services for women, infants, children

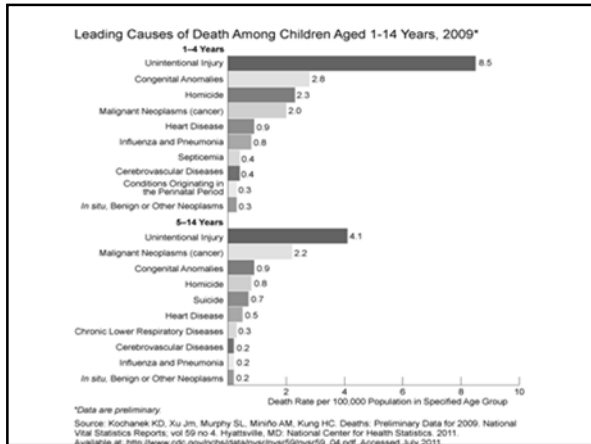
### Important Definitions

- Maternal Health – health of women in the childbearing years, during pregnancy, childbirth and the postpartum period
- Maternal Mortality – death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management
- Newborn Infant or Neonate Health – health status of any child under 28 days of age – impacted by prematurity and birth defects - highest risk for death

### Important Definitions (continued)

- Infant Health – health of children between 28 days and age 1
- Infant Mortality Rate - number of deaths of infants under one year old in a given year per 1,000 live births in the same year; often used as an indicator of the level of health in a country
- Children's Health – health of children over 1 but under 18, see changes through adolescents

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### Emerging Issues in Maternal, Infant and Child Health

- Address persistent disparities in maternal, infant, and child health
- "Life course" perspective to health promotion and disease prevention.
- Unintended pregnancy is associated with a host of public health concerns.
- Preconception health initiatives have been aimed at improving the health of a woman *before* she becomes pregnant through a variety of evidence-based interventions
- Examination of quality of life, including the challenges of male and female fertility.

### Determinants of Maternal Health

- Social: prepregnancy health behaviors and health status (influenced by environmental and social factors such as access to health care and chronic stress)
- Physical: barriers include lack of access to appropriate health care, environmental factors by affecting health directly or ability to engage in healthy behaviors.

### Maternal Health Contributors

- Pre-Conception Health – age, hypertension, diabetes, depression
- Access to Prenatal Care - poverty
- Family Planning – process of determining the preferred number and spacing of children in one's family and choosing the appropriate means to achieve this preference
- Sexually Transmitted Diseases
- Tobacco/Alcohol
- Post-partum depression

### Determinants of Infant and Child Health

- Social : Those that influence maternal health also affect pregnancy outcomes and infant health
  - Racial and ethnic disparities in infant mortality exist (African American infants)
  - Child health status varies by both race and ethnicity, as well as by family income related factors, including educational attainment among household members and health insurance coverage
- Physical:
  - Health, nutrition, and behaviors of their mothers during pregnancy and early childhood (Breast milk)
  - Safe and nurturing families and neighborhoods, free from maltreatment and other social adversities

### Infant and Child Health Contributors

Infant Health Contributors

- Birth Defects
- Sudden Infant Death Syndrome
- Prematurity
- Low Birth Weight

Child and Adolescent Health Contributors

- Unintentional Injuries – motor vehicles, drowning
- Child Abuse/Neglect
- Infectious Diseases
- Cancer
- Substance Abuse
- Mental Health

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**National Goals of Maternal and Child Health Program – Healthy People 2020**

- Morbidity and Mortality:
  - MICH 1- 9 Reduce the rate of fetal and infant deaths, child deaths, adolescent and young adult deaths, maternal mortality)
  - and Reduce cesarean births among low-risk (full-term, singleton, vertex presentation) women
  - birth Reduce low birth weight (LBW <2,500 grams) and very low weight (VLBW < 1,500 grams)
  - Reduce preterm births
- Pregnancy Health and Behaviors:
  - MICH 10-13 Increase the proportion of pregnant women who receive early and adequate prenatal care
  - Increase abstinence from alcohol, cigarettes, and illicit drugs among pregnant women

**National Goals of Maternal and Child Health Program – Healthy People 2020**

- Preconception Health and Behaviors
  - MICH 14-17: Increase proportion of women of childbearing age with intake of 400 µg of folic acid from fortified foods or supplements
  - Increase proportion of women delivering a live birth receiving preconception care and practicing key recommended preconception health behaviors
  - Reduce proportion of persons aged 18 to 44 years who have impaired fecundity (i.e. barrier preventing pregnancy or carrying to term)
- Postpartum Health and Behavior
  - MICH 18-19: Reduce postpartum relapse of smoking among women who quit smoking during pregnancy
  - Increase the proportion of women giving birth who attend a postpartum care visit with a health worker

**National Goals of Maternal and Child Health Program – Healthy People 2020**

- Infant Care
  - MICH 20-24: Increase proportion of infants who are put to sleep on their backs
  - Increase proportion of infants who are breastfed
- Disability and Other Impairments
  - MICH 25-29: Reduce the occurrence of fetal alcohol syndrome (FAS)
  - Reduce proportion of children diagnosed with a disorder through newborn screening who experience developmental delay requiring special education services
  - Reduce occurrence of neural tube defects
  - Increase proportion of young children with an autism spectrum disorder and other developmental delays screened, evaluated, and enrolled in early intervention services in a timely manner
- Health Services
  - MICH 30-33 Increase proportion of children, including those with special health care needs, who have access to a medical home
  - Increase appropriate newborn blood-spot screening and follow-up testing
  - Increase the proportion of very low birth weight (VLBW) infants born at Level III hospitals or subspecialty perinatal centers

**USPSTF Recommendations**

- Pregnancy - Recommended
  - Screening for Rh (D) Incompatibility (A)
  - Folic Acid to prevent neural tube defects (A)
  - Screening for hepatitis B virus (HBV) infection in pregnant women at their first prenatal visit (A)
  - Screen all pregnant women for HIV, including those who present in labor who are untested and whose HIV status is unknown (A)
  - Screening for chlamydial infection in all pregnant women ages 24 and younger and in older pregnant women who are at increased risk (B)
  - Routine screening for iron deficiency anemia in asymptomatic pregnant women (B)

**USPSTF Recommendations**

- Pregnancy – not recommended
  - BV Screening in pregnancy to prevent preterm delivery (D)
  - Insufficient to recommend for or against routine screening for gestational diabetes (I)
  - Insufficient evidence to recommend for or against routine screening for gonorrhea infection in pregnant women who are not at increased risk for infection (I)

**USPSTF Recommendations**

- Newborns: Recommended
  - Screening for congenital hypothyroidism (CH) in newborns (A)
  - Screening for phenylketonuria (PKU) in newborns (A)
  - Screening for sickle cell disease in newborns (A)
  - Prophylactic ocular topical medication for all newborns for the prevention of gonococcal ophthalmia neonatorum (A)
  - Screening for hearing loss in all newborn infants (B)
  - Primary Care Interventions to Promote and Support Breastfeeding (B)

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USPSTF Recommendations

- Newborns: Not Recommended
  - Insufficient to recommend routine screening for

USPSTF Recommendations

- Infants and Children: Recommended
  - Primary care clinicians prescribe oral fluoride supplementation at currently recommended doses to preschool children older than 6 months of age whose primary water source is deficient in fluoride (B)
  - Vision screening for all children at least once between the ages of 3 and 5 years, to detect the presence of amblyopia or its risk factors (B)

USPSTF Recommendations

- Infants and Children: Not Recommended
  - Evidence is insufficient to assess the balance of benefits and harms of primary care interventions to prevent child maltreatment (applies to children who do not have signs or symptoms of maltreatment) (I)
  - Evidence is insufficient to assess the incremental benefit, beyond the efficacy of legislation and community-based interventions, of counseling in the primary care setting, in improving rates of proper use of motor vehicle occupant restraints (child safety seats, booster seats, and lap-and-shoulder belts) (I)

USPSTF Recommendations

- Infants and Children: Not Recommended
  - Evidence is insufficient to recommend screening infants for hyperbilirubinemia to prevent chronic bilirubin encephalopathy (I)
  - Evidence is insufficient to recommend for or against routine screening for iron deficiency anemia in asymptomatic children ages 6 to 12 months (I)
  - Evidence is insufficient to recommend for or against routine screening for elevated blood lead levels in asymptomatic children aged 1 to 5 who are at increased risk (I)

USPSTF Recommendations

- Adolescents: Recommended
  - Counseling children, adolescents, and young adults aged 10 to 24 years who have fair skin about minimizing their exposure to ultraviolet radiation to reduce risk for skin cancer (B)
  - Screen children aged 6 years and older for obesity and offer them or refer them to comprehensive, intensive behavioral interventions to promote improvement in weight status (B)

USPSTF Recommendations

- Adolescents: Not Recommended
  - Recommends against the routine screening of asymptomatic adolescents for idiopathic scoliosis (D)
  - Evidence is insufficient to recommend for or against routine screening for lipid disorders in infants, children, adolescents, or young adults (up to age 20) (I)

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### USPSTF Recommendations

- In Progress:
  - Hypertension in children and adolescents screening being updated from 2003
  - Screening for Autism Spectrum Disorder in Young Children – in progress
  - Speech and Language Delay: Screening– in progress

### Public Health Interventions

- Women, Infants and Children (WIC)
  - Special supplemental nutrition program
  - Provides nutritious foods (through retail grocery stores), nutrition counseling, and referrals to health care and social services
  - Serves low-income pregnant, postpartum and breastfeeding women, infants and children up to age 5 who are at nutritional risk

### Public Health Interventions

- Medicaid, CHIP – access to insurance
  - Medicaid finances 40% of all births in the United States
  - Coverage for pregnant women includes prenatal care through the pregnancy, labor, and delivery, and for 60 days postpartum as well as other pregnancy-related care
  - Children's Health Insurance Program (CHIP) covers children in families with incomes too high to qualify for Medicaid, but can't afford private coverage
  - Federal matching funds to states to provide this coverage
  - Medicaid covers comprehensive set of health care services known as Early, Periodic Screening, Diagnosis and Treatment (EPSDT)
  - CHIP covers comprehensive set of benefits for children, but states have flexibility to design the benefit package

### Public Health Interventions

- Title X: Family Planning
  - Federal program dedicated solely to the provision of family planning and related preventive services
  - The Office of Population Affairs (OPA) administers and serves as the focal point to advise the Secretary and the Assistant Secretary for Health on a wide range of reproductive health topics, including family planning, adolescent pregnancy, sterilization and other population issues.

### Public Health Interventions

- FMLA: The Family and Medical Leave Act
  - Provides certain employees with up to 12 work weeks of unpaid, job-protected leave a year, and requires group health benefits to be maintained during the leave as if employees continued to work instead of taking leave
  - Administered by the Employment Standards Administration's Wage and Hour Division within the U.S. Department of Labor

### Public Health Interventions

- Breastfeeding
  - Vitaly important to the health of mothers and babies
  - Recommend that mothers breastfeed exclusively for six months, continue to breastfeed while adding supplementary foods for at least a year
  - Breastfed babies less likely to get certain infections, and to develop certain chronic diseases such as diabetes and obesity
  - Mothers have a reduced risk of diabetes and certain cancers, including ovarian and breast cancer
  - Support from doctors, nurses and other healthcare professionals impact how long mothers breastfeed and whether they breastfeed exclusively. (The Baby Friendly Hospital Initiative (BFHI))

### Public Health Interventions

- Immunizations – Vaccine Preventable Diseases
  - Greatest public health achievement
  - Infants and children more vulnerable (i.e. influenza)
  - Herd Immunity
  - Seeing reemergence of certain diseases as immunization rates dropping in certain populations



*Questions?*

### References

- Healthy People 2020:  
<http://healthypeople.gov/2020/topicsobjectives2020/overview.aspx?topicid=26>
- US Preventive Services Task Force:  
<http://www.uspreventiveservicestaskforce.org/tfchildcat.htm>
- CDC Maternal and Infant Health – Reproductive Health:  
<http://www.cdc.gov/reproductivehealth/maternalinfanthealth/>
- HRSA Maternal and Child Health Bureau:  
<http://mchb.hrsa.gov>