Changing the Prevention Paradigm:
The Role of Preconception Health and Health Care in the Prevention of Birth Defects

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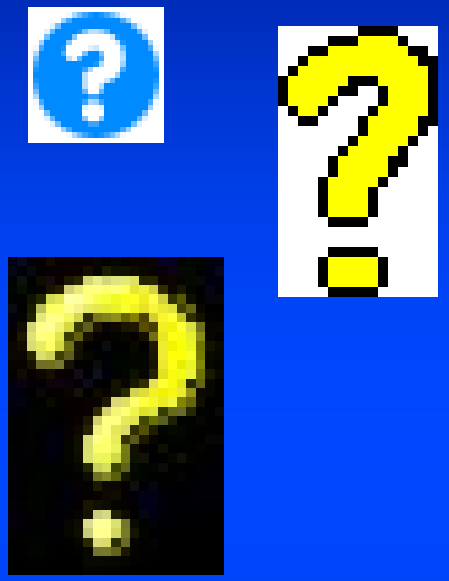
"The findings and conclusions in this presentation are those of the author and do not necessarily represent the views of the Centers for Disease Control and Prevention/the Agency for Toxic Substances and Disease Registry"

Why Preconception Care

1. The number of infants born with birth defects continues to be very high
2. Pregnant women and women entering pregnancy are “at risk” for having infants with birth defects
3. We currently intervene too late
4. There is consensus that we must act before pregnancy
5. Intervening before pregnancy will help prevent birth defects
6. It is time to change the prevention paradigm!

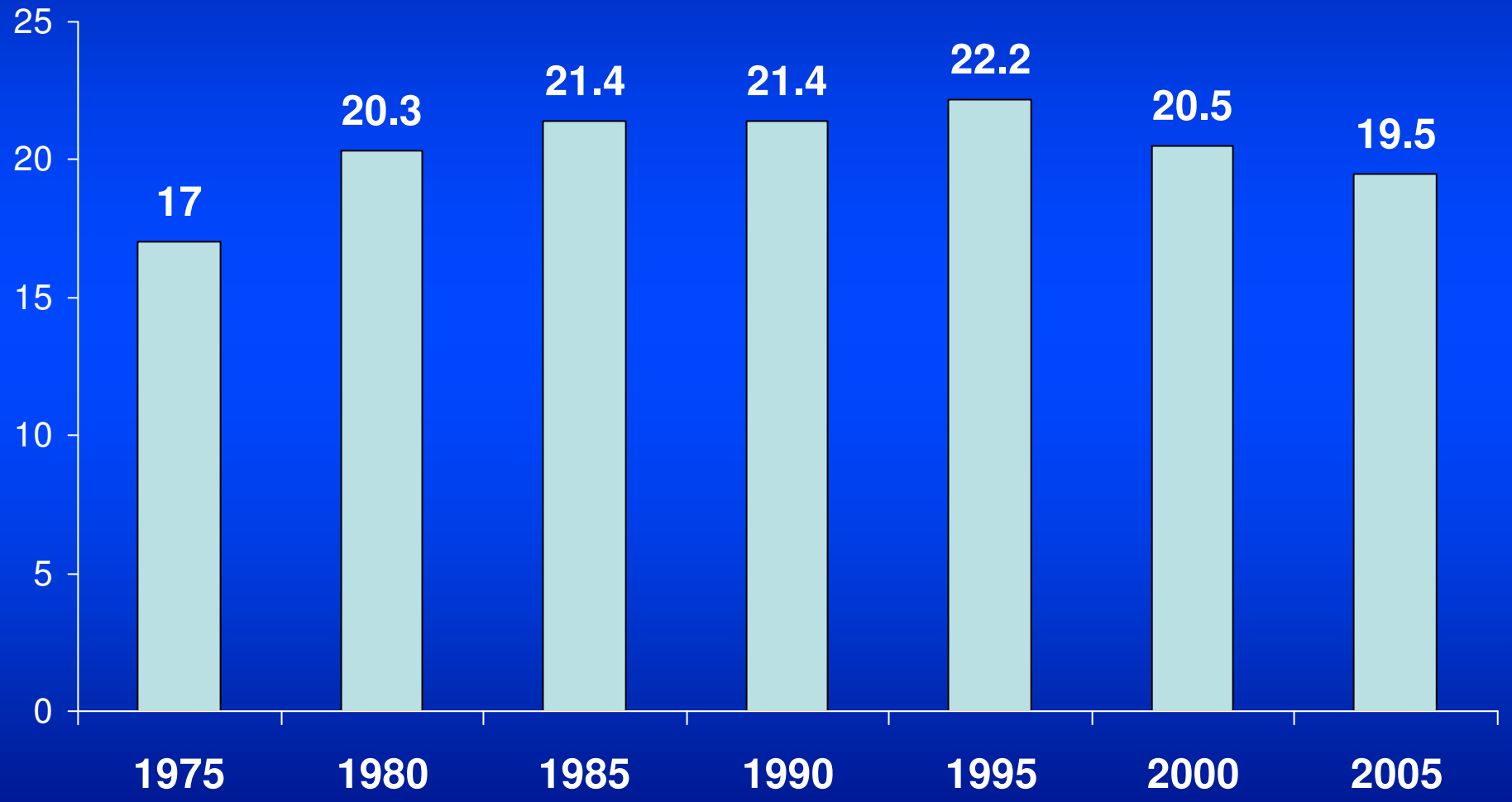


Birth Defects Are Very Prevalent

In The United States:

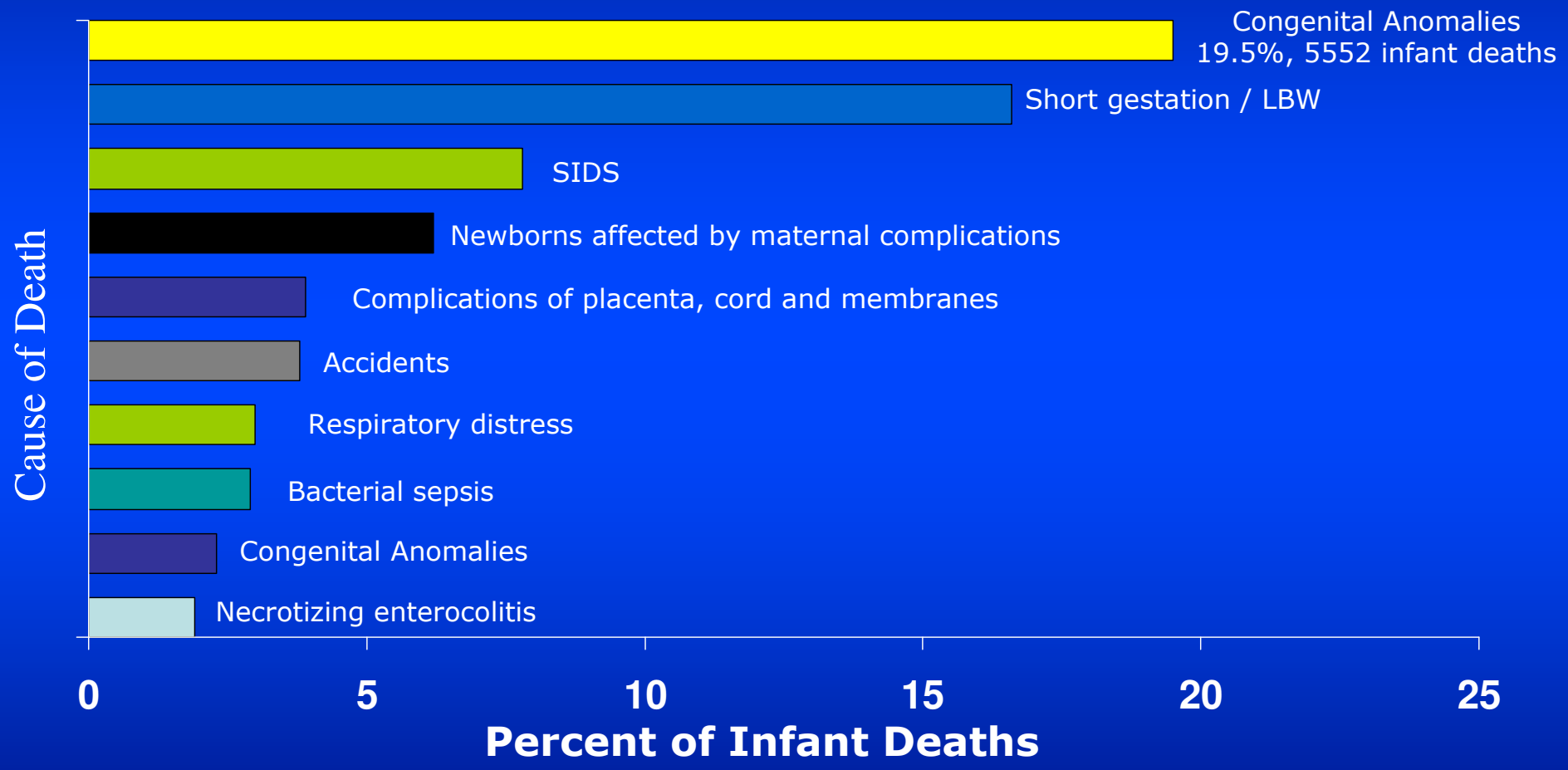
- About 3% of all babies are born with a birth defect
- Each year, the estimated lifetime cost to care for children born with birth defects exceeds $8 billion
- Birth defects are the leading cause of infant mortality

Percent of infant deaths due to birth defects, USA 1975 to 2005



Source: CDC-NCHS

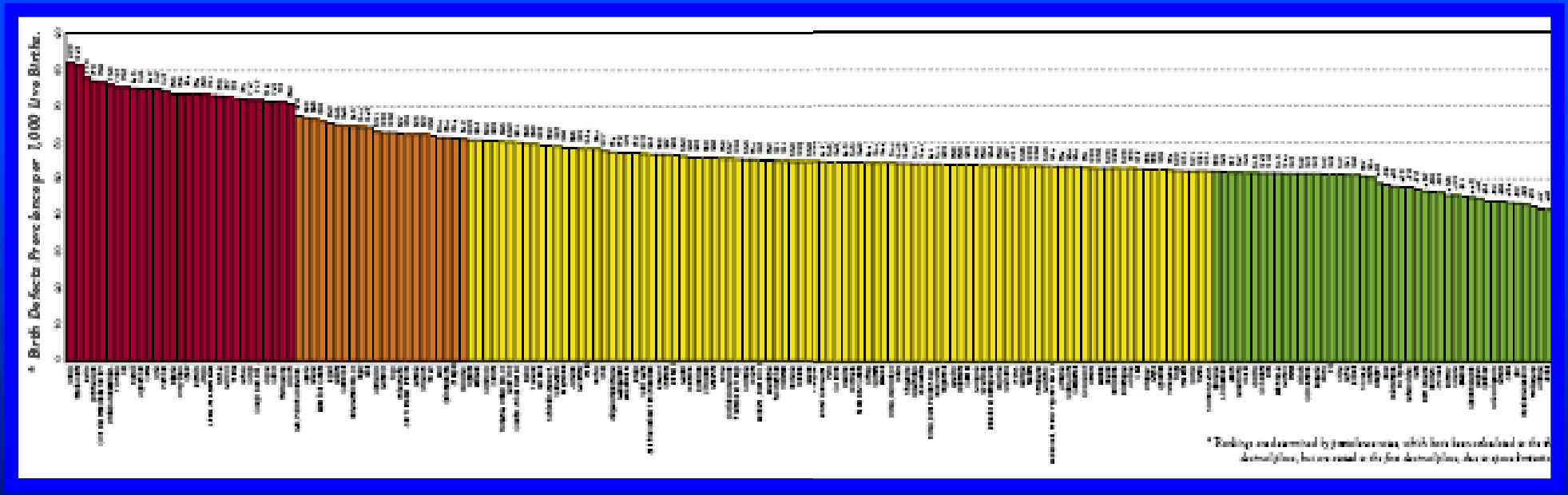
Ten leading causes of infant death – USA 2005



Source: CDC-NCHS, 2005

March of Dimes (2006): Global Report on Birth defects

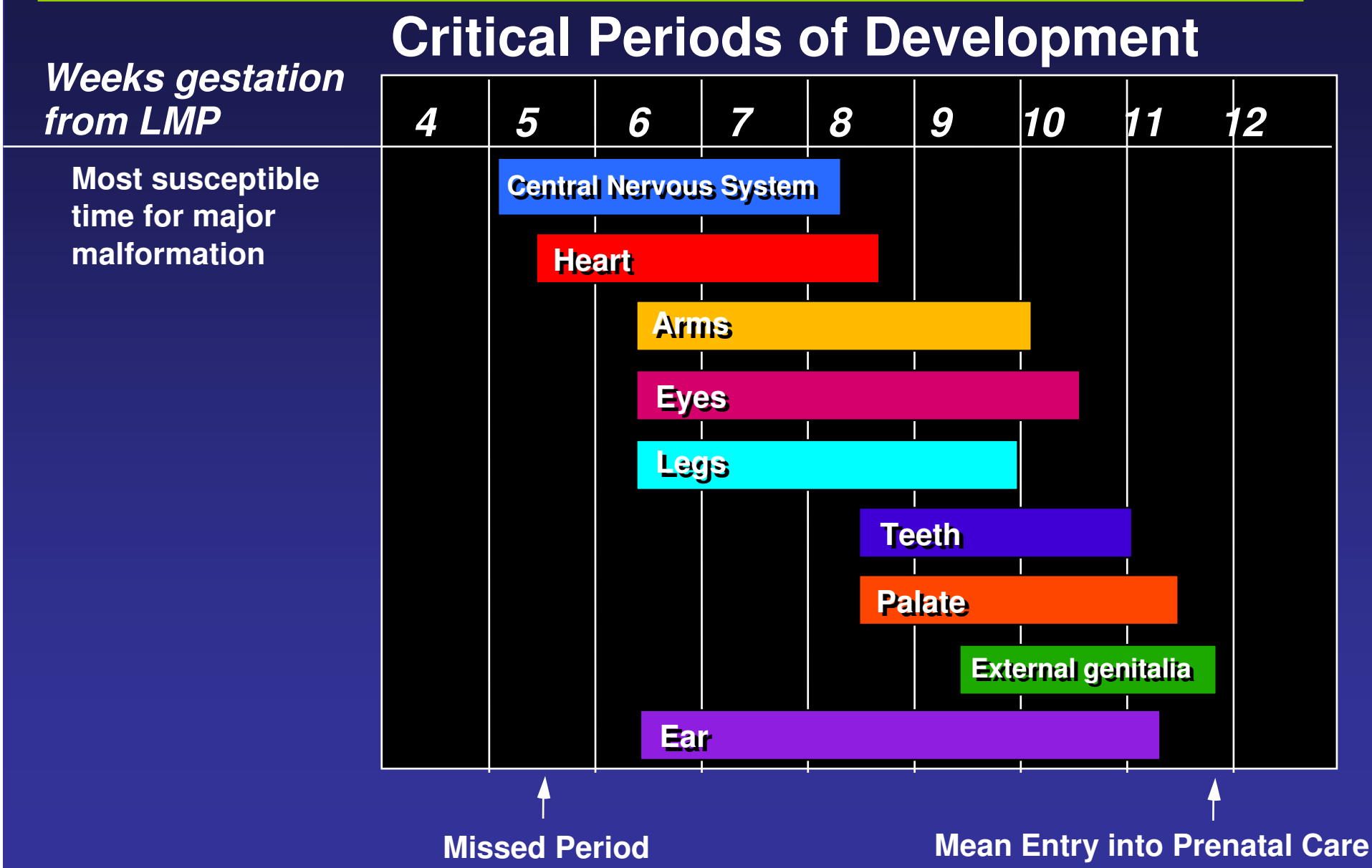
- Every year 7.9 million babies are born with a serious birth defect of genetic or partially genetic origin
- Hundreds of thousands more are born with serious BDs of post-conception origin, including maternal exposure to teratogens



2. Risk Factors Are Prevalent Among Women Likely to Become Pregnant

- Hypertension 3%
- Diabetes 9%
- On teratogenic drugs 2.6%
- Overweight 46% (BMI>25)
- Obese 7% (BMI >30)
- Not taking folic acid 44.8%
- Smoking 19.4%
- Alcohol past month 53.9%
- Binge drinking 10.7%

3. We Currently Intervene Too Late



Early prenatal care is not enough, and in many cases it is too late!

Preconception Care - Goal

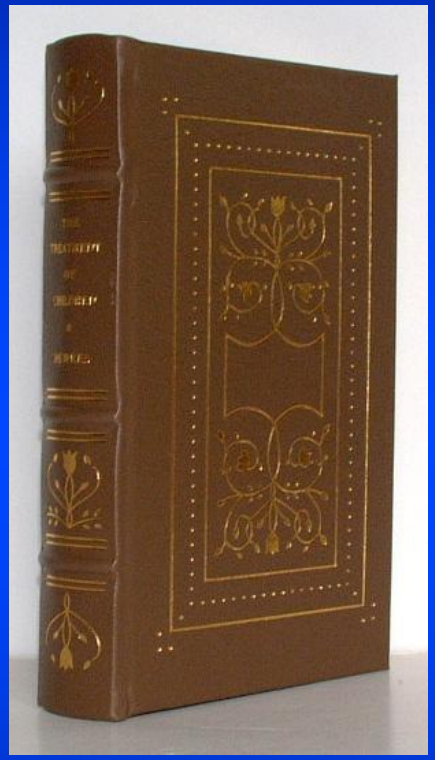
To promote the health of women of reproductive age before conception and thereby improve pregnancy-related outcomes

Combined Definition of PCC

A set of interventions that aim to **identify and modify biomedical, behavioral, and social risks** to a woman's health or pregnancy outcome through **prevention and management**, emphasizing those factors which must be acted on before conception or early in pregnancy to have maximal impact.

CDC's Select Panel on Preconception Care, June 2005

Not a New Concept



THE PHYSICAL AND MEDICAL TREATMENT OF CHILDREN
The Classics of Pediatrics Library
Gryphon Editions

Author: William P. Dewees, M. D. (1768-1841) credited with having written the first American pediatric textbook

"The physical treatment of children should begin as far as may be practicable, with the earliest formation of the embryo; it will, therefore, necessarily involve the conduct of the mother, even before her marriage, as well as during her pregnancy."

William Potts Dewees 1825
first American textbook on Pediatrics

4. There Is Consensus That We Must Act Before Pregnancy

- Recommendations and clinical practice guidelines have been published by many organizations

March of Dimes
Saving babies, together

- **MOD**
- **ACOG**
- **AAP**
- **AAFP**

HEALTHY PEOPLE 2000

- **ACNM**
- **USPHS Expert Panel on the Content of PNC, 1989**
- **HP 2000**

U.S. PUBLIC HEALTH SERVICE · 1798 ·

- More than 30 organizations worked and continue to work together to promote PCC

March of Dimes (2006): Global Report on Birth defects

- Selected Recommendations:
  - Educate the community about BDs and opportunities for effective care and prevention
  - Promote family planning
  - Ensure a healthy, balance diet during a woman's reproductive years.
  - Control infections in all women of reproductive age
  - Optimize maternal health through control of chronic illness associated with an increased risk of BDs
  - Establish peri-conception medical services
  - Implement pre-conception or prenatal genetic screening
  - etc

Preconception Care

Components of Preconception Care

Screening

HIV; Tests for specific indications: STDs; Tests to assess proven etiologies of recurrent pregnancy loss; Tests based on medical or reproductive history; Skin test for Tuberculosis; Screening for genetic Disorders based on family history: CF, Fragile X, mental retardation, Duchene muscular dystrophy; Screening for genetic disorders based on racial/ethnic background: Sickel hemoglobinopathies (African Americans), B-Thalassemia (Mediterraneans, SE Asia, AA/B), α-Thalassemia (AA/B and Asians), Tay Sachs disease (Ashkhenazi Jews, French Canadians, Cajuns), Gaucher's, Canavan, and Nieman-Pick Disease (Ashkenazi Jews), Cystic Fibrosis (Caucasians and Ashkenazi Jews)

Counseling

Exercising; Reducing weight before pregnancy, if overweight, Increasing weight before pregnancy, if underweight; Avoiding food additives; Preventing HIV infection; Determining the time of conception by an accurate menstrual history Abstaining from tobacco, alcohol, and illicit drug use before and during pregnancy; Consuming Folic Acid; Maintaining good control of any pre-existing medical conditions

Vaccination

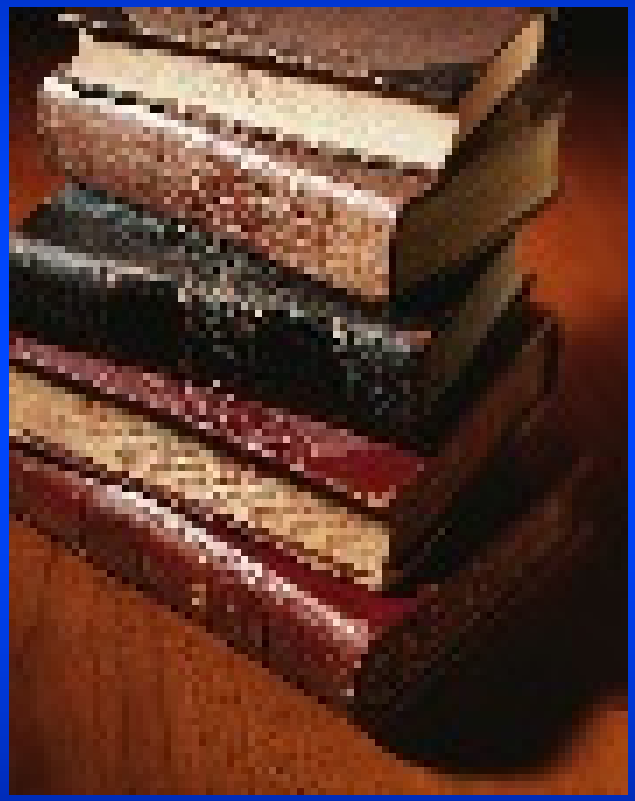
Vaccinations should be offered to women found to be at risk for or susceptible to:
Rubella
Varicella
Hepatitis B

Maternal Assessment

Family planning and pregnancy spacing; Family history;enetic history (maternal and aternal); Medical, surgical, pulmonary and neurologic history; Current medications (prescription and OTC); Substance use, including alcohol, tobacco and illicit drugs; Nutrition; Domestic abuse and violence; Environmental and occupational exposures; Immunity and immunization status; Risk factors for STDs; Obstetric history; Gynecologic history; General physical exam; Assessment of Socioeconomic, educational, and cultural context

Criteria for Effective Preconception Interventions

- Scientific evidence for improving pregnancy outcomes
- Existing clinical practice guidelines
- Implemented before pregnancy or in early pregnancy to be effective



Preconception Interventions: Give protection

- **Folic Acid Supplements:** Reduce the occurrence of neural tube defects by two thirds
- **Rubella Immunization:** Provides protective sero-positivity and prevents the occurrence of congenital rubella syndrome
- **HIV/AIDS Screening and Treatment:** Allows for timely treatment; pregnancies can be better planned
- **Hepatitis B Vaccination:** Prevents transmission to infants in utero and eliminates the risk to women of hepatic failure, liver carcinoma, cirrhosis, and death.

Preconception Interventions: Manage conditions

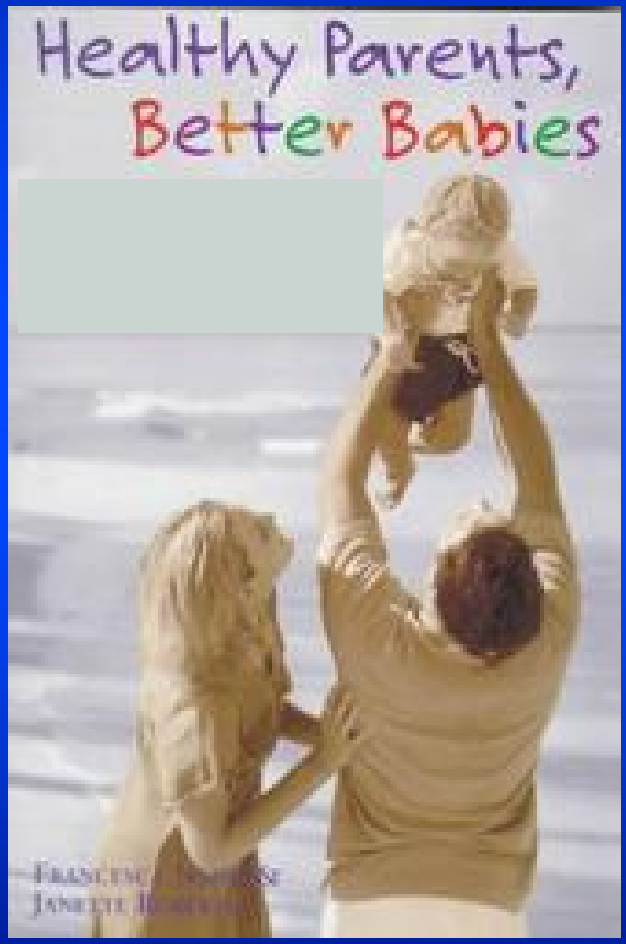
- **Diabetes Management:** Reduces the 3-fold increase in birth defects among infants of women with type 1 and type 2 diabetes
- **Hypothyroidism Management:** Adjusting the dosage of Levothyroxine early in pregnancy protects proper neurological development
- **Maternal PKU Management:** Low phenylalanine diet before conception and throughout pregnancy prevents mental retardation in infants born to mothers with PKU
- **Obesity Control:** Reduces the risks of neural tube defects, preterm birth, diabetes, c-section, hypertensive and thromboembolic disease.
- **STDs Screening and Management:** Reduce the risk of ectopic pregnancy, infertility, PID, and chronic pelvic pain; also reduce the risk to the fetus of fetal death, or physical and developmental disabilities, including mental retardation and blindness.

Preconception Interventions: Avoid Teratogens

- **Alcohol use:** Fetal alcohol syndrome (FAS) and other alcohol-related birth defects can be prevented.
- **Anti-epileptic drugs:** Some anti-epileptic drugs are known teratogens – changing to a less teratogenic treatment regimen reduces harmful exposure.
- **Accutane use:** Use of Accutane in pregnancy results in miscarriage and birth defects – avoiding pregnancy or ceasing Accutance use before conception eliminates harmful exposure.
- **Oral anticoagulants:** Warfarin is a teratogen; medications can be switched before the onset of pregnancy
- **Smoking:** Completing smoking cessation before pregnancy can prevent smoking-associated adverse outcomes include preterm birth, low birth weight.

Intervening Before Pregnancy Prevents Birth Defects

- Folic Acid Supplements
- Rubella Immunization
- HIV/AIDS Screening and Treatment
- Hepatitis B Vaccination
- Diabetes Management
- Hypothyroidism Management
- Maternal PKU Management
- Obesity Control
- STDs Screening and Management
- Alcohol Cessation
- Avoiding Anti-epileptic drugs
- Avoiding Accutane
- Avoiding Oral Anticoagulants
- Smoking Cessation



Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions Considered

Category	Potential Components of Preconception Care
Family Planning and Reproductive Life Plan	Physical Activity, Weight Status, Nutrient Intake, Folate, Immunizations, Substance Use Sexually Transmitted Infections, Human Papillomavirus (HPV), Hepatitis B, Varicella, Measles/ Mumps/Rubella, Influenza, Diphtheria/Tetanus/Pertussis (DTaP)
Infectious Diseases	HIV, Hepatitis C, Tuberculosis, Toxoplasmosis, CMV, Listerosis, Parvovirus, Malaria, Gonorrhea, Chlamydia, Syphilis, History of Gnital Herpes, Asymptomatic bacteruria Periodontal disease, Bacterial Vaginosis, Group B Strep,
Medical conditions	Diabetes, Thyroid Disease, PKU, Seizures, Hypertension, Rheumatoid Arthritis, Lupus, Renal Disease, Cardiovascular, Thrombophelia, Asthma
Psychiatric Conditions	Depression/Anxiety, Bipolar disease, Schizophrenia
Parental Exposures	Alcohol, Tobacco, Illicit Substances
Family and Genetic History	All Individuals, Ethnicity-based, Family history, Personal history
Nutrition	Dietary Supplements, Vitamin A, Folic Acid, Multivitamins, Vitamin D, Calcium, Iron, Essential Fatty Acids, Iodine, Underweight, Overweight, Eating Disorders
Environmental Exposures	Mercury, Lead, Soil and Water Hazards, Workplace Exposure, Household Exposure
Psychosocial Risks	Inadequate Financial Resources, Access to Care, Physical / Sexual Abuse
Medications	Prescription, Over-the-counter, Medication, Dietary Supplements
Reproductive History	Prior Preterm Birth Infant, Prior C-Section, Prior Miscarriage(s), Prior Stillbirth, Uterine Anomalies
Special Populations	Women with Disabilities, Immigrant and Refugee Populations, Cancer
Males	

Quality of the Evidence

- I-a Evidence obtained from at least one properly conducted RCT done before pregnancy.
- I-b Evidence obtained from at least one properly conducted RCT not necessarily done before pregnancy.
- II-1 Evidence obtained from well-designed controlled trials without randomization.
- II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.
- II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.
- III Opinions of respected authorities, based on clinical experience; descriptive studies and case reports; or reports of expert committees.

Strength of the Recommendation

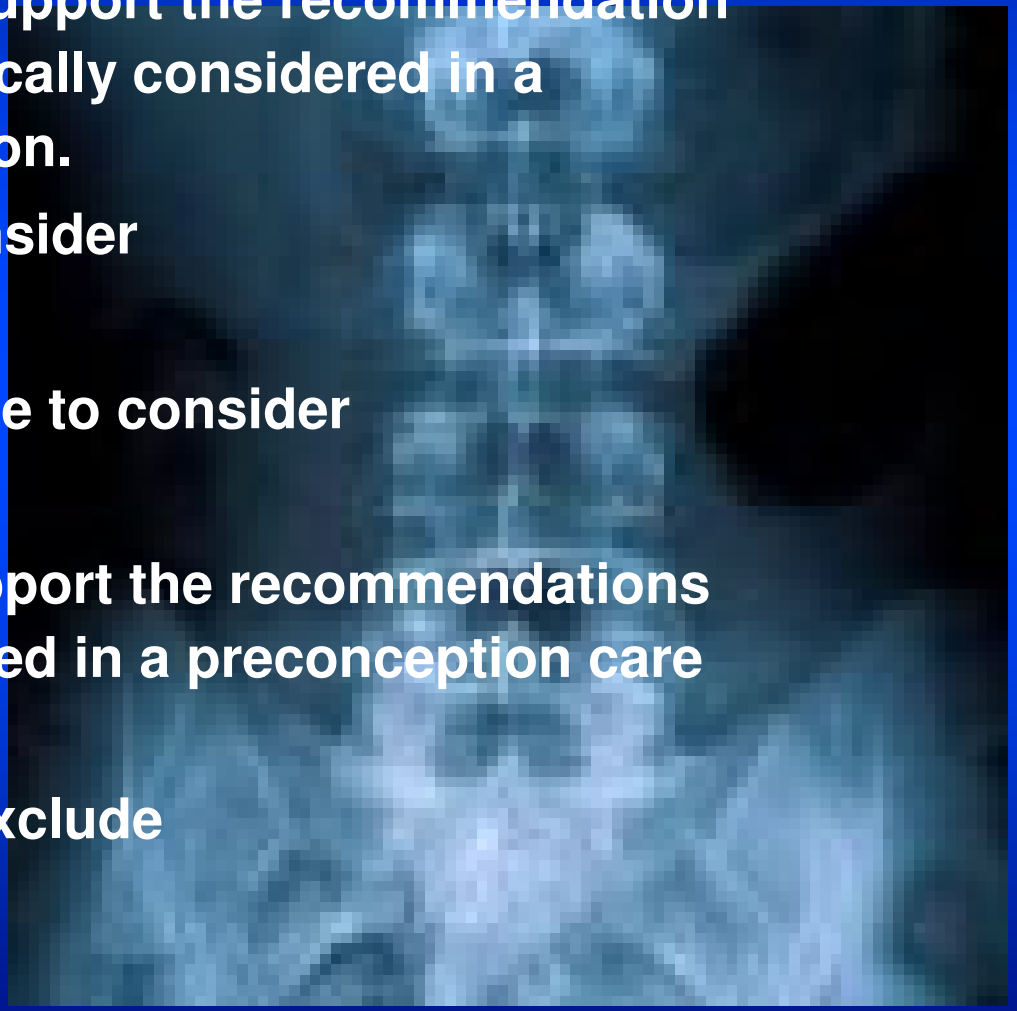
A There is good evidence to support the recommendation that the condition be specifically considered in a preconception care evaluation.

B There is fair evidence to consider

C There is insufficient evidence to consider

D There is fair evidence to support the recommendations that the condition be excluded in a preconception care evaluation.

E There is good evidence to exclude



Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's 1

Intervention Opportunity	Quality of Evidence	Risk Associated With Condition or Behavior
Health Promotion		
Assess reproductive life plan / provide family planning services	III	Unplanned pregnancies
Assess nutritional adequacy, recommend multivitamin	III	Malformations such as orofacial clefting, limb deficiencies, cardiac defects, urinary tract defects, and omphalocele
Advise folate supplements	I-a	Neural tube defects
Check immunization status for Td/Tdap, MMR, and varicella, update as needed	III	Spontaneous abortion, prematurity, low birth weight, and birth defects
Assess risks of STIs, provide counseling	III	Perinatal transmission
Immunizations		
Provide Hepatitis B vaccine to high-risk women	III	Perinatal transmission
Screen for rubella immunity, immunize if indicated	II-3	Congenital rubella syndrome

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's 2

Intervention Opportunity	Quality of Evidence	Risk Associated With Condition or Behavior
Medical Conditions		
Counsel women with diabetes	I	Birth defects
Counsel women with hypothyroidism	II-1	INeurodevelopmental outcomes; maternal hypertension, preeclampsia, anemia, postpartum hemorrhage, cardiac ventricular dysfunction, fetal death, low birth weight, and abnormal brain development.
Counsel women with phenylketonuria	II-1	Facial dysmorphism, microcephaly, growth restriction, developmental delay and learning difficulties, and heart defects
Counsel women with seizure disorders	II-2	Increased frequency of seizure; Malformations associated with medication use, miscarriage, low birth weight, diminished head circumference, preeclampsia, and perinatal death;
Counsel women with hypertension	II-2	Pre-eclampsia and the associated adverse pregnancy outcomes
Counsel women with rheumatoid arthritis / assess the need to modify the medication regimen	III	Active RA may increase the risk of low birth weight, and corticosteroid use may increase the risk of intrauterine growth restriction and preterm premature rupture of membranes.

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's 3

Intervention Opportunity	Quality of Evidence	Risk Associated With Condition or Behavior
Nutrition		
Advise to avoid excess vitamin A supplements	II-2	Miscarriage and birth defects that affect the central nervous system and craniofacial, cardiovascular, and thymus development
Screen for vitamin D deficiency	I-b	Disturbed skeletal homeostasis in the infant; and asthma, diabetes, autoimmune diseases, and certain cancers in women
Counsel on importance of recommended calcium intake	II-2	Degradation of maternal bone
Counsel women with Body Mass Index ≤18.5 kg/m^2	III	Nutrient deficiencies, heart irregularities, osteoporosis, amenorrhea, and infertility. Preterm birth, low birth weight, IUGR, may also increase the risk of birth defects such as gastroschisis
Counsel women with BMI ≥25 kg/m^2	I-b	Neural tube defects, preterm delivery, stillbirth, gestational diabetes, hypertensive and thromboembolic disorders, macrosomia, low Apgar scores, postpartum anemia, cesarean delivery, and shoulder dystocia.

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's 4

Intervention Opportunity	Quality of Evidence	Risk Associated With Condition or Behavior
Infectious Disease		
Encourage women and partners to know HIV status	I-b	Perinatal transmission
Screen for Chlamydia those at risk	1-a	PID, infertility, increased risk of HIV infection, ectopic pregnancies, neonatal eye infections, and pneumonia.
Parental Exposures		
Screen for tobacco use / provide counseling	I-a	Cancer, cardiovascular disease, and pulmonary disease. IUGR , prematurity, and low birth weight.
Assess use of alcohol / provide counseling	I-a	Miscarriage, growth retardation, and FASD
Environmental Exposures		
Assess household exposures modify exposures as needed	III	Adverse reproductive consequences

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's 5

Intervention Opportunity	Quality of Evidence	Risk Associated With Condition or Behavior
Medications		
Assess use of teratogenic medications	II-2	Birth defects
Assess over-the-counter medication	III	Birth defects
Assess use of dietary supplements	II-c	Birth defects
Reproductive History		
Assess history of preterm birth/low birthweight infant	I-a	Repeat preterm birth
Assess history of cesarean section	II-2	Repeat c-section
Assess history of miscarriage	I-a	Repeat miscarraige
Special Populations		
Educate newly diagnosed cancer survivors about fertility preservation	III	Permanent infertility or compromised fertility because of the cancer or its treatment

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's ALL

Intervention Opportunity	Qual. Evid.	Risk
Life plan / family planning	**III**	Unplanned pregnancies
Nutritional adequacy	**III**	Birth Defects
Folate supplements	**I-a**	Neural tube defects
Immunization status	**III**	SA, PTD, Birth defects
STIs	**III**	Perinatal transmission
Hepatitis B	**III**	Perinatal transmission
Rubella	**II-3**	Congenital rubella syndrome
HIV	**I-b**	Perinatal transmission
Chlamydia	**1-a**	PID, infertility, ectopic, other infections
Diabetes	**I**	Birth defects
Hypothyroidism	**II-1**	Maternal complications, neurodevelopment issues
Phenylketonuria	**II-1**	Developmental delays / birth defects
Seizure disorders	**II-2**	Malformations, LBW, maternal complications
Hypertension	**II-2**	Maternal complications
Rheumatoid arthritis	**III**	PTD and maternal complications

Intervention Opportunity	Qual. Evid.	Risk
Tobacco use	**I-a**	Cancer, CVD, PTD, LBW
Alcohol use	**I-a**	Miscarriage, growth retardation, and FASD
Excess vitamin A	**II-2**	Miscarriage, birth defects
Vitamin D deficiency	**I-b**	Maternal and infant complications
Calcium intake	**II-2**	Degradation of maternal bone
BMI ≤ 18.5 kg/m^2	**III**	Maternal& infant problems including Birth Defects
BMI ≥ 25 kg/m^2	**I-b**	NTDs, PTD, SB, maternal s
Household exposures	**III**	Adverse reproductive consequences
Teratogenic medications	**II-2**	Birth defects
Over-the-counter medication	**III**	Birth defects
Dietary supplements	**II-c**	Birth defects
Preterm birth/Low birthweight infant	**I-a**	Repeat preterm birth
Cesarean section	**II-2**	Repeat c-section
History of miscarriage	**I-a**	Repeat miscarriage
Cancer survivors	**III**	Compromised fertility

Do We Need To Change The Way We Do Business?

Should We Have a Paradigm Shift?

What Is a Paradigm?

The set of common beliefs and agreements shared between scientists about how problems should be understood and addressed.

Kuhn, 1962

Paradigm Shift

From The Current Paradigm of:

Care During Pregnancy
(Anticipation and Management)

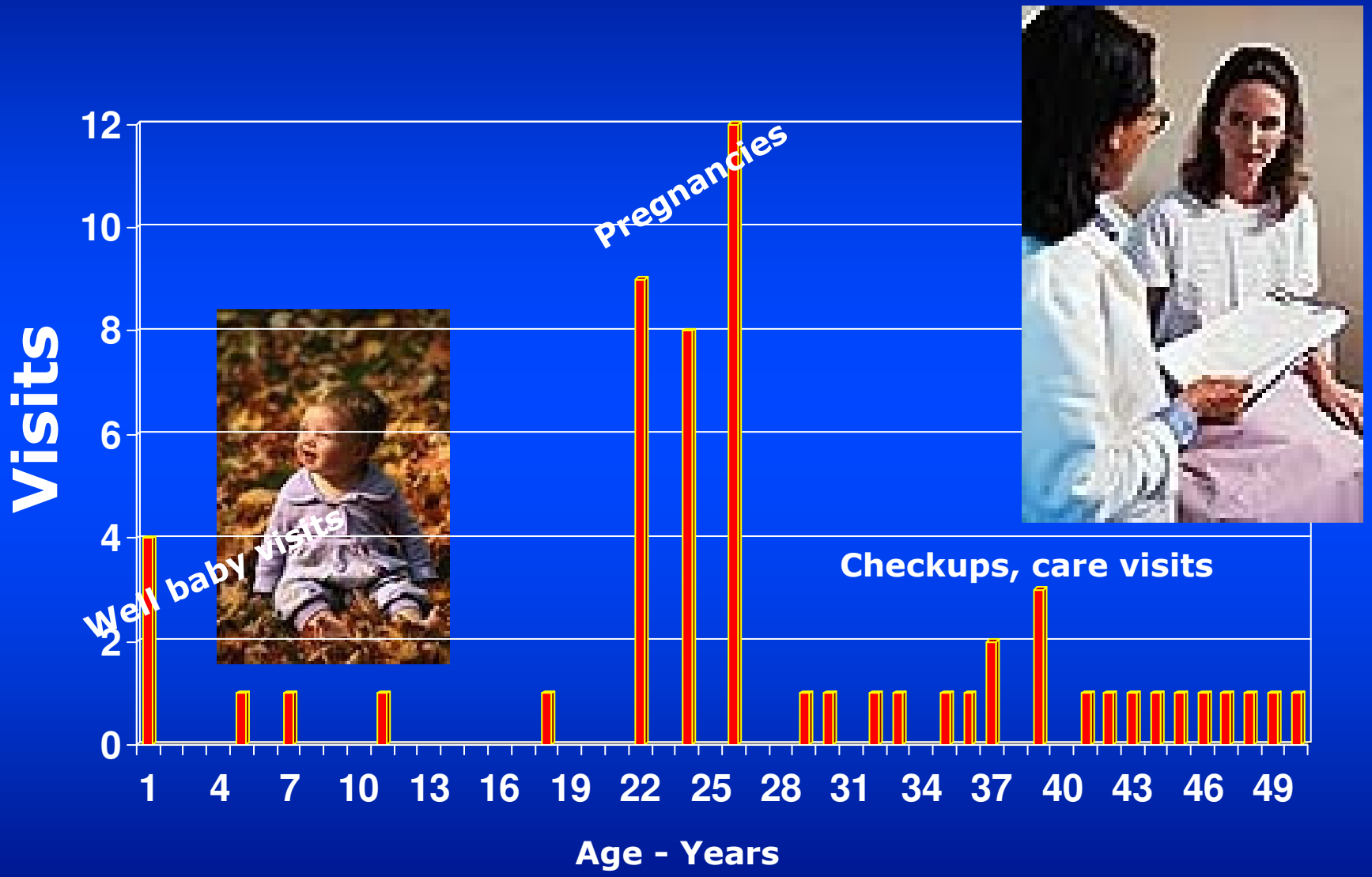
To a New Paradigm of:

Care Throughout The Lifespan
(Prevention and Health Promotion)

Current Approach to Caring for Women: Issues with Level (Quantity) of Care

Courtesy of Merry-K Moos

Opportunities for Intervention Exist



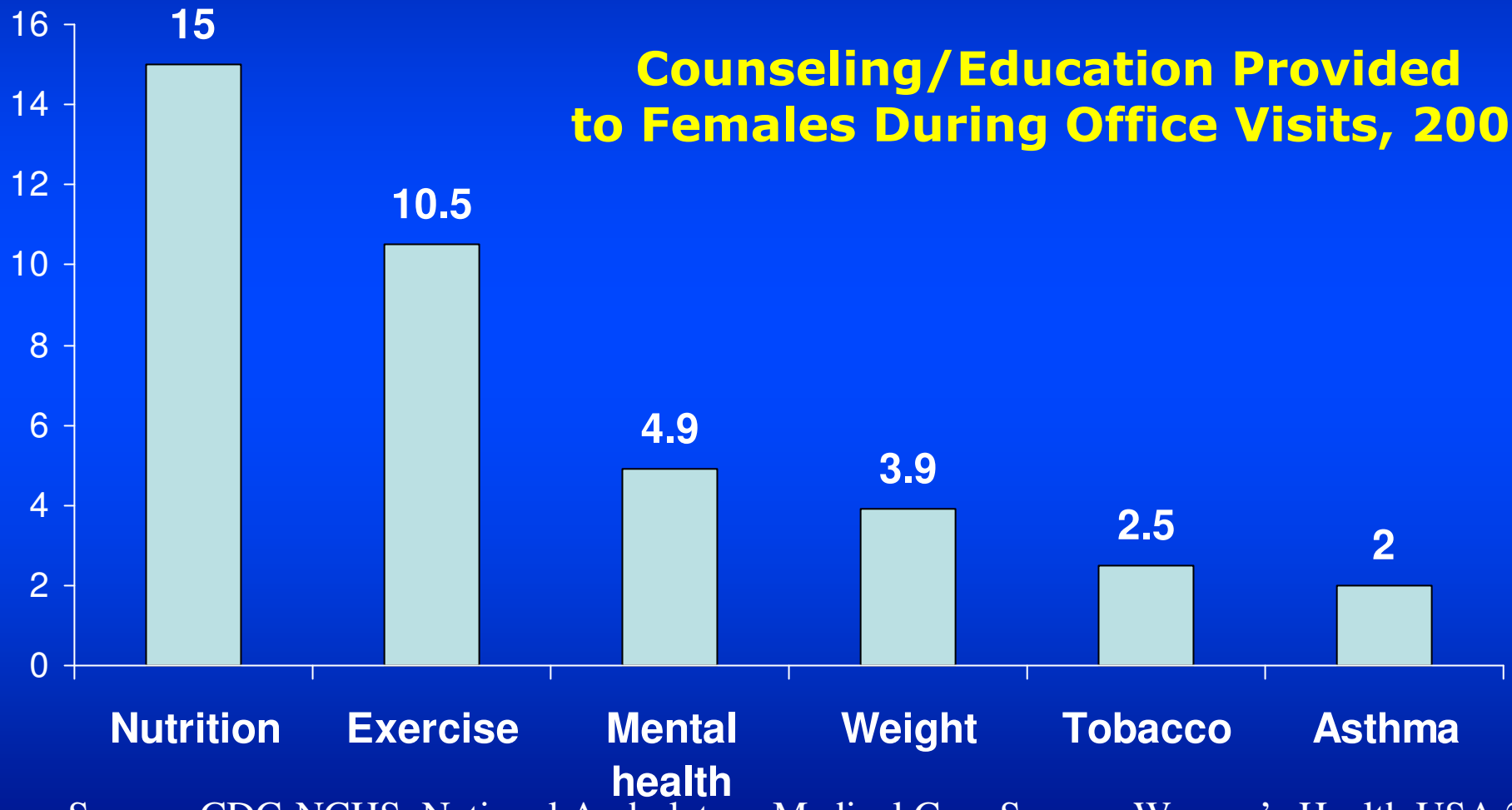
Opportunities for Intervention Exist

- 2001 report (NCHS)
  - Women ages 15-44 average 3.8 medical visits annually

But We Do Not Take Advantage of These Opportunities!

- In 2005 KFF report:
  - Just over 50% of women surveyed had talked to a health care professional in the last 3 years about diet, exercise or nutrition
  - Fewer than 50% had talked about calcium intake (43%), smoking (33%) and alcohol (20%)

But We Do Not Take Advantage of These Opportunities!



Source: CDC-NCHS, National Ambulatory Medical Care Survey; Women's Health USA 2005

Missed Opportunities: Providers' Influence

- 71% of women who received folic acid counseling from their clinician took the supplement;
- 17% of those who did not receive a specific recommendation from their provider took a FA supplement

Patuzsak et al, Canadian Family Physician, 1999

If you continue to do what you always did,

You will continue to get What You always got

Anonymous


It is Time to
Change That
Paradigm!
Thank You!

Saturday Program: Next Steps

- **Three Breakout Groups:**
  - Health Promotion Policies and Strategies
  - Monitoring Improvements
  - Regional and National Networks – Communications- Resources
- **Questions To Be Discussed:**
  - Defining priorities for action
  - Understanding current activities
  - Identifying needs/Gaps
  - Defining action steps
  - Developing strategies for action

Themes to Consider

Recommendations

- **Rec 1.** Individual responsibility across the life span
- **Rec 2.** Consumer awareness
- **Rec 3.** Preventive visits
- **Rec 4.** Interventions for identified risks
- **Rec 5.** Interconception care
- **Rec 6.** Pre-pregnancy check ups
- **Rec 7.** Health coverage for low-income women
- **Rec 8.** Public health programs and strategies
- **Rec 9.** Research
- **Rec 10.** Monitoring improvements

Special Supplement on the Clinical Content of Preconception Care
American Journal of Obstetrics and Gynecology
Guest Editors: Brian Jack and Hani Atrash

1. **Editorial -** Michele Curtis
2. **Where is the "W"oman in MCH? -** H Atrash, B Jack, MK Moos, D Coonrod, P Stubblefield, Cefalo, Johnson, Damus et al
3. **Clinical content of preconception care: an overview -** Brian Jack, Hani Atrash, D Coonrod, MK Moos, P Stubblefield, R Cefalo, K Johnson et al **4.**
4. **Preconception Health Promotion -** MK Moos, A Dunlop, B Jack, L Nelson, D Coonrod, R Long, K Boggess, P Gardner et al
5. **Immunizations** - D Coonrod, B Jack, J Iams, P Stubblefield, J Conroy, M Lu, L Hillier, A Dunlop et al
6. **Infectious Disease -** D Coonrod, B Jack, J Iams, P Stubblefield, J Conroy, M Lu, L Hillier, A Dunlop et al
7. **Medical Conditions -** Authors: A Dunlop, B Jack, P Bernstein, C Ruhl. M Lu, R Cefalo, S Shellhass, M Beckman, L. Nelson, M McDiarmid, B Solomon, J Bottalico, J Iams, et al
8. **Parental Exposures -** Authors: Louise Floyd, B Jack, Jean Mahoney, R Cefalo, YF Johnson, et al
9. **Family and Genetic History -** Authors: G Ferro, B Soloman, et al
10. **Nutritional Status -** Authors: P Gardner, L Nelson, C Shellhass, A Dunlop, C Hogue, et al
11. **Environmental Exposures -** Authors: M McDiarmid, P Gardner, B Jack, et al
12. **Psychosocial Risks** - Authors: L Klerman, L Floyd, B Jack, D Coonrod, M Lu, et al
13. **Medications** - Authors : A Dunlop, P Gardner, C Shelhaas, M Mcdiarmid, et al
14. **Reproductive History -** Authors: Phil Stubblefield, Uma Reddy, W. Nicholson, D Coonrod, R Sayegh et al
15. **Special Populations -** Authors: C Ruhl et al
16. **Fathers -** Authors: K Frey, M Lu, et al
17. **Psychiatric conditions -** Authors: Frieder, Dunlop, Bernstein, Culpepper

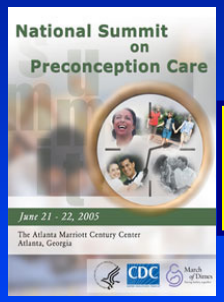
Special Supplement on Policy and Finance of Preconception Care

Women's Health Issues

Guest Editors: Kay Johnson and Hani Atrash

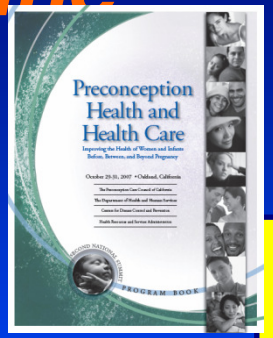
1. **OVERVIEW OF STATUS OF PRE-/INTERCONCEPTION HEALTH POLICY AND FINANCE** – Commentary; Author: Kay Johnson
2. **SYNTHESIS OF THEME ISSUE** – Type: Commentary. Authors: Hani Atrash and Allison Johnson
3. **SHIFTING THE FRAME TO A FOCUS ON WOMEN'S HEALTH: IMPLICATIONS FOR POLICY AND FINANCING** - Full-length article. Author: Paul Wise
4. **WHAT IS (ARE) THE STANDARD(S) OF PRE-/INTERCONCEPTION CARE?** Type: Full-length article. Author: Brian Jack
5. **KEY ATTRIBUTES OF A HIGH PERFORMING SYSTEM OF PRE-/INTERCONCEPTION FINANCING: THE RELATIONSHIP OF HEALTH CARE FINANCING TO HEALTH CARE ACCESS, HEALTH CARE QUALITY, AND THE OUTCOME OF CARE.** Type: Full-length article. Author: Sara Rosenbaum
6. **ROLE OF MEDICAID AND SCHIP IN ENHANCING ACCESS TO PRE-/INTERCONCEPTION CARE.** Type: Full-length article. Author: Alina Salganicoff
7. **HEALTHY START INTERCONCEPTION CARE PROJECTS:** Full-Length Article. Authors: Kay Johnson, Maribeth Badura, Madelyn Renteria
8. **ROLE OF MEDICAID FAMILY PLANNING WAIVERS AND TITLE X IN ENHANCING ACCESS TO PRE-/INTERCONCEPTION CARE.** Type: Full-length article. Author: Rachel Gold
9. **ROLE OF HEALTH CENTERS IN ENHANCING ACCESS TO PRE-/INTERCONCEPTION CARE.** Type: Full-length article. Co-Authors: Sara Wilensky, Michelle Proser
10. **EMPLOYER AND STATE APPROACHES.** Type: Full-length article. Co-Authors: Helene Kent, Kathryn Phillips Campbell and Ronald Finch
11. **PREVALENCE OF CHRONIC ILLNESS IN PREGNANCY, ACCESS TO CARE AND HEALTH CARE COSTS: IMPLICATIONS FOR INTERCONCEPTION CARE.** Type: Full-length article Co-Authors: Sharmila Chatterjee, Usha Sambmoorthi, and Milton Kotelchuck
12. **PRECONCEPTION COUNSELLING INCREASES WOMEN'S KNOWLEDGE ABOUT PREGNANCY-RELATED RISK FACTORS AND PREVENTIVE MEASURES' AND THE EFFECT OF PRECONCEPTION COUNSELLING ON LIFESTYLE AND OTHER BEHAVIOUR BEFORE AND DURING PREGNANCY**. Joyce Elsinga et al -
13. **PRECONCEPTION SERVICES FINANCING AND QUALITY: CODING AND REIMBURSEMENT.** Type: Full-length article. Co-Authors: Kate Menard and Anne Markus
14. **USING PUBLIC HEALTH DATA SYSTEMS TO MONITOR WOMEN'S HEALTH AND PRE-/INTERCONCEPTION CARE.** Type: Commentary. Author: Samuel Posner
15. **ROLE OF STATE TITLE V PROGRAMS IN ENHANCING ACCESS TO PRE- / INTERCONCEPTION CARE.** Type: Full-Length Article. Authors: Nan Streeter, Helene Kent, Maxine Hayes
16. **WELFARE REFORM AND INSURANCE COVERAGE DURING THE PREGNANCY PERIOD: IMPLICATIONS FOR PRECONCEPTION AND INTERCONCEPTION CARE.** Kosali Ilayperuma Simon et al.
17. **IMPROVING WOMEN'S PRECONCEPTIONAL HEALTH: FINDINGS FROM A RANDOMIZED TRIAL OF THE STRONG HEALTHY WOMEN INTERVENTION IN THE CENTRAL PENNSYLVANIA WOMEN'S HEALTH STUDY**. Marianne Hillemeier et al.
18. **TRANSLATING POLICY TO PRACTICE AND BACK AGAIN: IMPLEMENTING A PRECONCEPTION PROGRAM IN DELAWARE ARTICLE** Type: Commentary. Author: Dr. Charlan D. Kroelinger, PhD

The CDC PCC Initiative: *Timeline*



6/05
1st Summit

9/06
Supplement



10/07
2nd Summit

6/04
CDC Workgroup

5/06
Clinical, PH, Consumer Workgroup Meetings

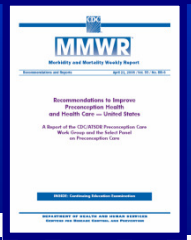
1/06
Steering Committee Meeting

5/07
2nd Select Panel Meeting

6/05
Select Panel Meeting

11/04
Meeting with Partners

4/06
Recommendations



3/07
Policy & Finance Workgroup Meetings

The National Center on Birth Defects
And Developmental Disabilities

Grants This Distinguished Service Award

To
Csaba Siffel

For
His Leadership in Organizing
The First Central and Eastern European Summit
on Preconception Health and Prevention of Birth Defects

Strategies for Implementation

1. CLINICAL GUIDELINES & TOOLS
2. CONSUMER INFORMATION
3. PUBLIC HEALTH PROGRAMS AND STRATEGIES
4. MONITORING & SURVEILLANCE
5. RESEARCH AGENDA
6. PUBLIC POLICY AND FINANCE
7. PROFESSIONAL EDUCATION AND TRAINING
8. BEST PRACTICES: Develop a catalogue of promising practices; Share promising practices; Maintain Internet web portals; Convene a national meeting in 2007
9. DEMONSTRATION PROJECTS
10. STATE & LOCAL INITIATIVES

Questions critical to the advancement of the clinical preconception care agenda

1. What are the clinical components of preconception care?
2. What is the evidence for inclusion of each component in clinical activities?
3. What health promotion package should be delivered as part of preconception care?
4. How can preconception risks be identified?
5. What are the best interventions for preconception risks, once identified?
6. What are the curriculum and teaching tools to teach these concepts to clinicians?
7. What is the research agenda for preconception care?

Criteria to choose clinical topics to be reviewed

1. There is a good chance that the health of the mother or the infant will be improved if the condition is identified and addressed before pregnancy;
2. The burden of suffering and prevalence of the condition are sufficient to justify screening and treatment;
3. The condition is detectable in clinical care, in either primary or specialty settings;
4. If screening is employed, the screening methods available to detect the condition are sufficiently predictive to justify screening; or
5. Clinical practice guidelines already exist suggesting that preconception interventions be implemented.

Strength of the Recommendation

- **A** There is good evidence to support the recommendation that the condition be specifically considered in a preconception care evaluation.
- **B** There is fair evidence to support the recommendation that the condition be specifically considered in a preconception care evaluation.
- **C** There is insufficient evidence to recommend for or against the inclusion of the condition in a preconception care evaluation, but recommendations to include or exclude may be made on other grounds.
- **D** There is fair evidence to support the recommendations that the condition be excluded in a preconception care evaluation.
- **E** There is good evidence to support the recommendations that the condition be excluded in a preconception care evaluation.

Quality of the Evidence

I-a Evidence obtained from at least one properly conducted RCT done before pregnancy.

I-b Evidence obtained from at least one properly conducted RCT not necessarily done before pregnancy.

II-1 Evidence obtained from well-designed controlled trials without randomization.

II-2 Evidence obtained from well-designed cohort or case-control analytic studies, preferably from more than one center or research group.

II-3 Evidence obtained from multiple time series with or without the intervention. Dramatic results in uncontrolled experiments could also be regarded as this type of evidence.

III Opinions of respected authorities, based on clinical experience; descriptive studies and case reports; or reports of expert committees.

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – A's (35)

Component of PCC	Strength	Quality	Component of PCC	Strength	Quality
Family Planning and Repro Life Plan	A	III	Dietary Supplements	A	II-c
Weight Status	A	III	Vitamin A	A	II-2
Nutrient Intake	A	III	Folic Acid	A	I-a
Folate	A	I-a	Multivitamins	A	I
Immunizations	A	III	Vitamin D	A	I
Substance Use	A	II-2/III	Calcium	A	II-2
STIs	A	III	Underweight	A	III
Hepatitis B	A	III	Overweight	A	I-a / II a
MMR	A	II-3	Eating Disorders	A	III
HIV	A	I-b	Household Exposure	A	III
Chlamydia	A	1-a	Prescription	A	II-2
Diabetes	A	I	OTC Medication	A	III
Thyroid Disease	A	II-1	Dietary Supplements	A	II-c
PKU	A	II-1	Prior PTB Infant	A	I-a
Seizures	A	II-2	Prior C-Section	A	II-2
Hypertension	A	II-2	Prior Miscarriage(s)	A	I-a
Rheumatoid Arthritis	A	III	Cancer	A	III
Tobacco	A	I-a			

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – B's (25)

Component of PCC	Strength	Quality	Component of PCC	Strength	Quality
HPV	B	II-2	Schizophrenia	B	III
Varicella	B	III	Alcohol	B	I-a
dTaP	B	III	All Individuals	B	III
Tuberculosis	B	II-2	Ethnicity-based	B	II-3
Gonorrhea	B	II-2	Family history	B	II-3
Syphilis	B	II-1	Mercury	B	III
HSV	B	II-1	Soil and Water Hazards	B	III
Lupus	B	II-2	Workplace Exposure	B	III
Renal Disease	B	II-2	Prior Stillbirth	B	II-2
Cardiovascular	B	III-3	Uterine Anomalies	B	II-3
Asthma	B	II-3	Women with Disabilities	B	III
Depression/Anxiety	B	III	Males	B	III
Bipolar disease	B	III			

Strength of Recommendations and Quality of Evidence for Preconception Clinical Interventions – C/D/E's (23)

Component of PCC	Strength	Quality	Component of PCC	Strength	Quality
Physical Activity	C	II-2	Essential Fatty Acids	C	II-b
Influenza	C	III	Iodine	C	II-3
Hepatitis C	C	III	Lead	C	II-2
Toxoplasmosis	C	III	Inadequate Financial Resources	C	III
CMV	C	II-2	Access to Care	C	III
Listerosis	C	III	Physical / Sexual Abuse	C	III
Malaria	C	III	BV (without PTD)	D	1-b
Periodontal disease	C	1-b	BV (with PTD)	C	1-b
Thrombophelia	C	III	Parvovirus	E	III
Illicit Substances	C	III	Asymptomatic bacteruria	E	II-1
Personal history	C	III	GBS	E	I-2
Iron	C	III			

Themes to Consider

Core Functions and Essential services of Public Health