Improving Pregnancy Outcomes: Should We Change Our Ways? The Role of Preconception Health and Health care

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And,

The CDC/ATSDR Workgroup on Preconception Care, and The CDC Select Panel on Preconception Care

MCAH Action Education Day
May 22, 2008

Maternal, Child, and Adolescent Health Program

Preconception Health In California

"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"

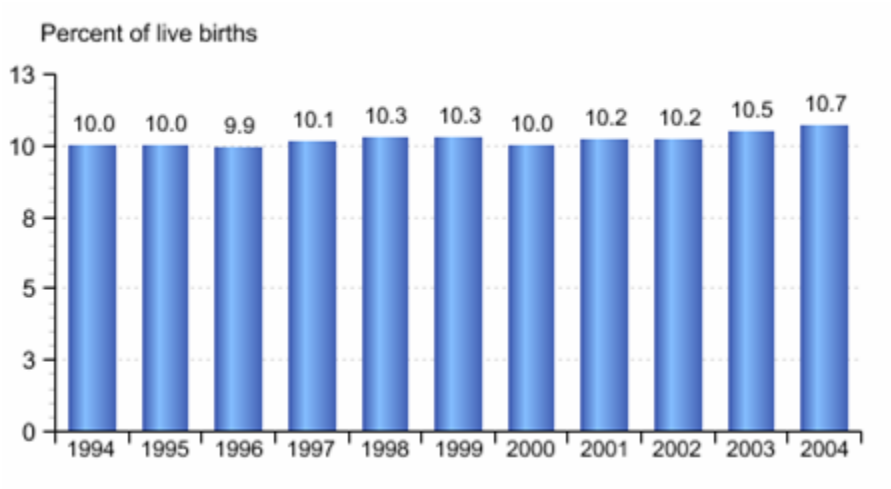
Why Preconception Care

1. Poor pregnancy outcomes continue to be at un-acceptable levels
2. We currently intervene too late
3. Pregnant women and women entering pregnancy are “at risk” for adverse outcomes
4. There is evidence that intervening before pregnancy will improve outcomes
5. There is consensus that we must act before pregnancy

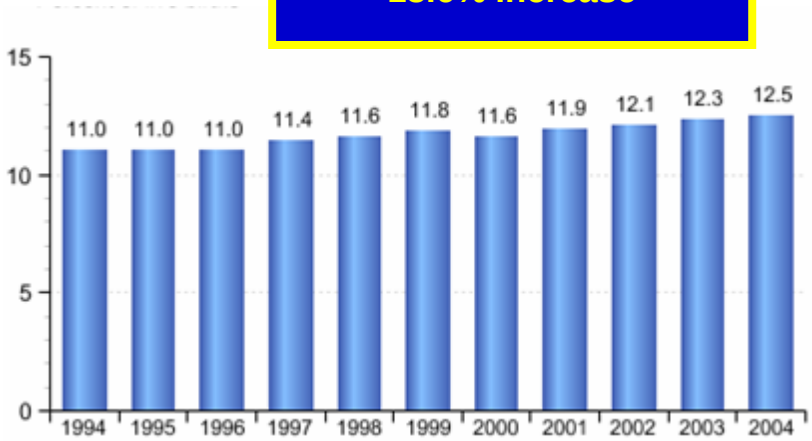
We need to change the way we do business

Preterm birth

California, 1994-2004
7% Increase



US, 1994-2004
13.6% Increase



Preterm is less than 37 completed weeks gestation.
Source: National Center for Health Statistics, final natality data. Retrieved June 1, 2007, from www.marchofdimes.com/peristats.

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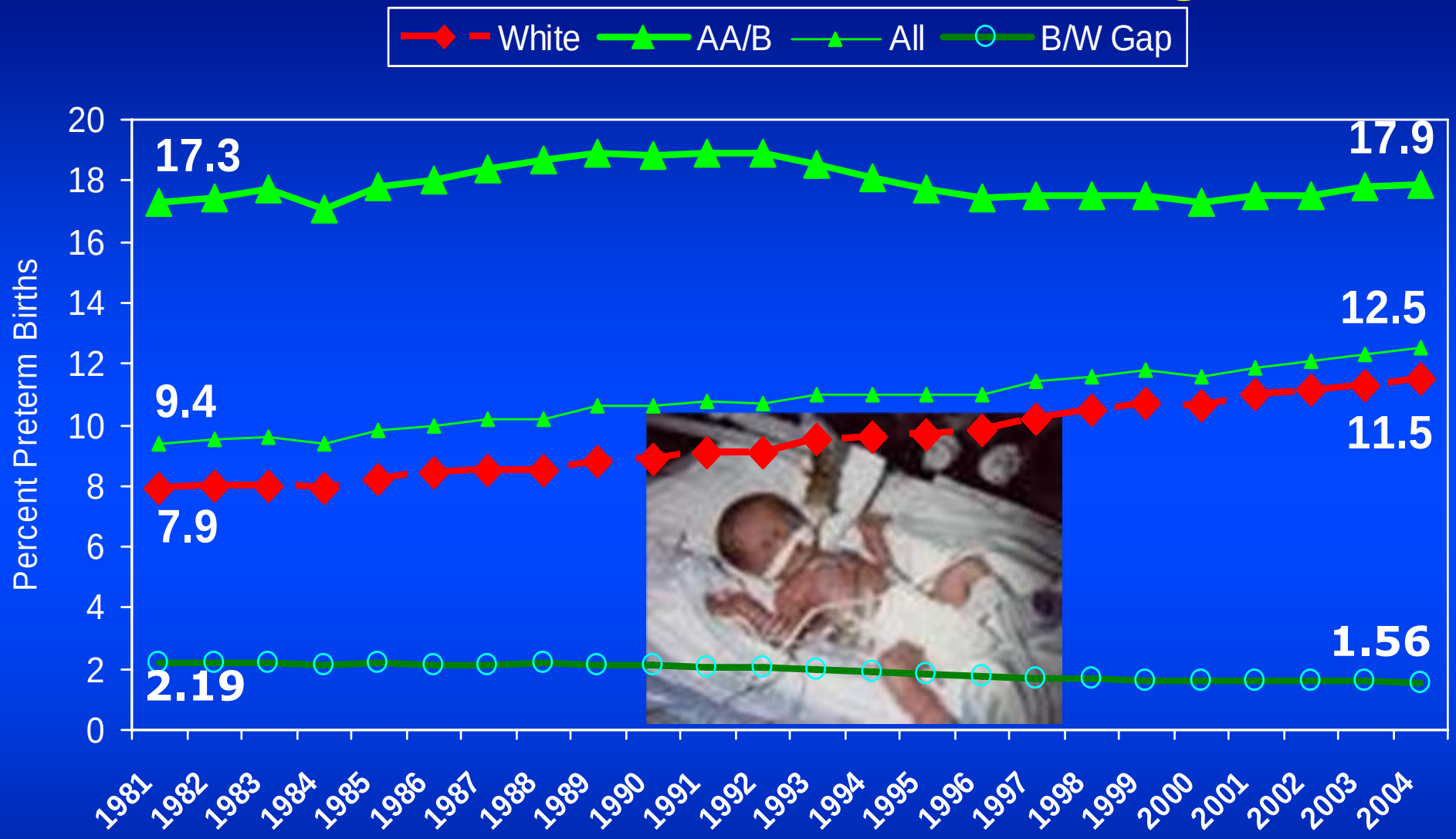
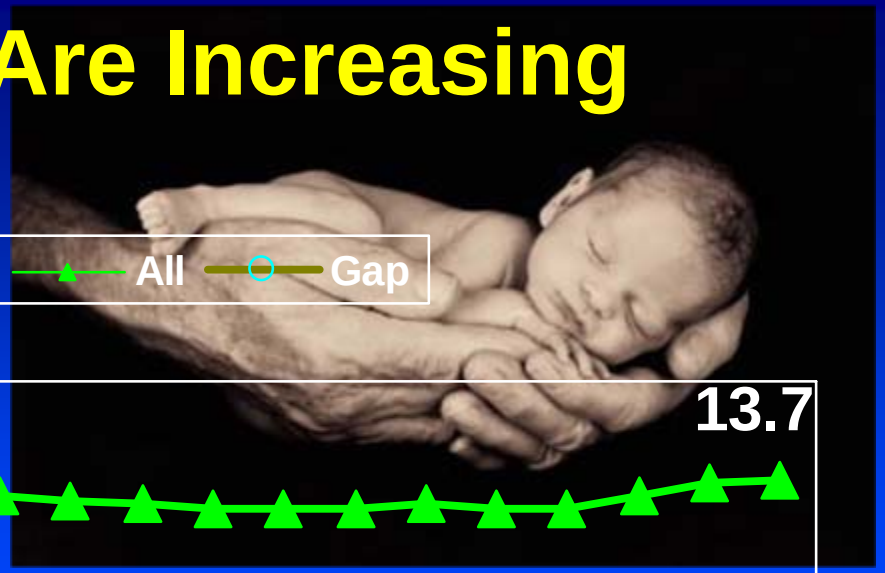
Your online source for perinatal statistics

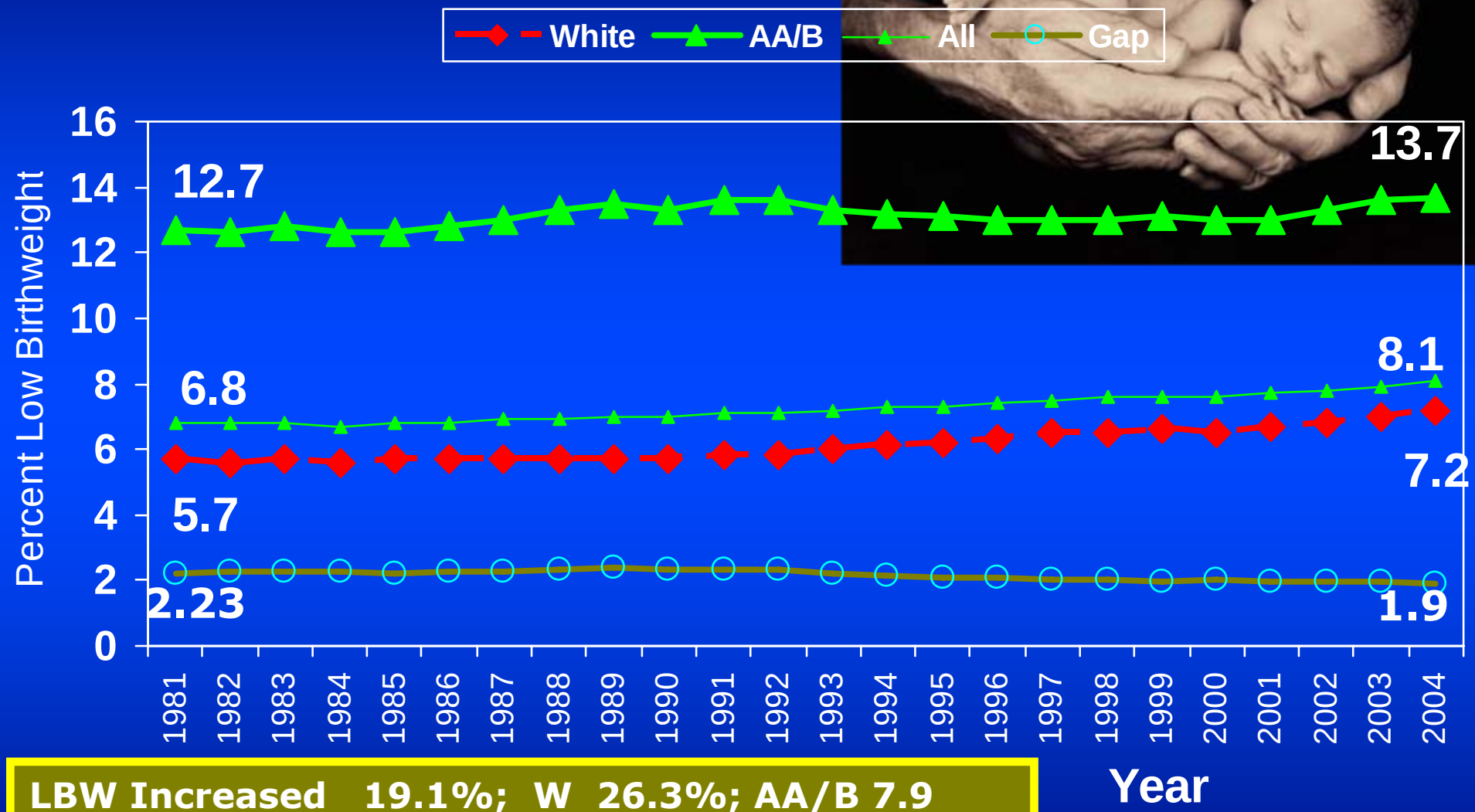
Preterm Deliveries Are Increasing



PTD Increased 32.9%; W 45.6%; AA/B 3.5%
VPTB Increased 10.5%

Low Birthweight Births Are Increasing

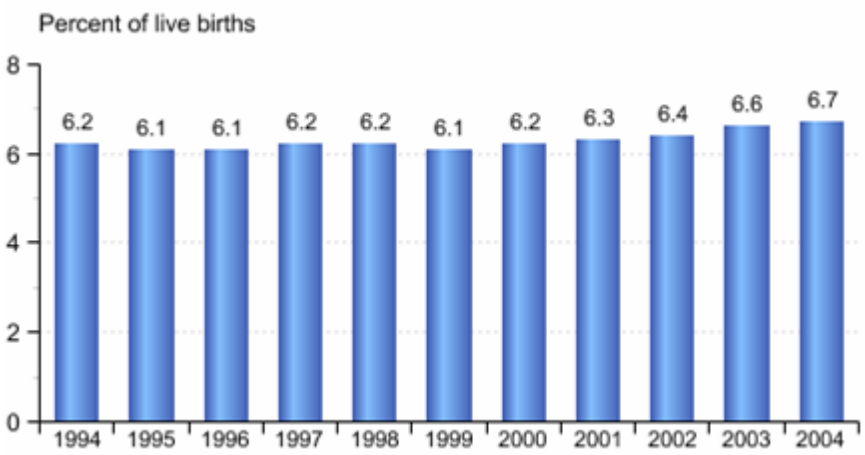




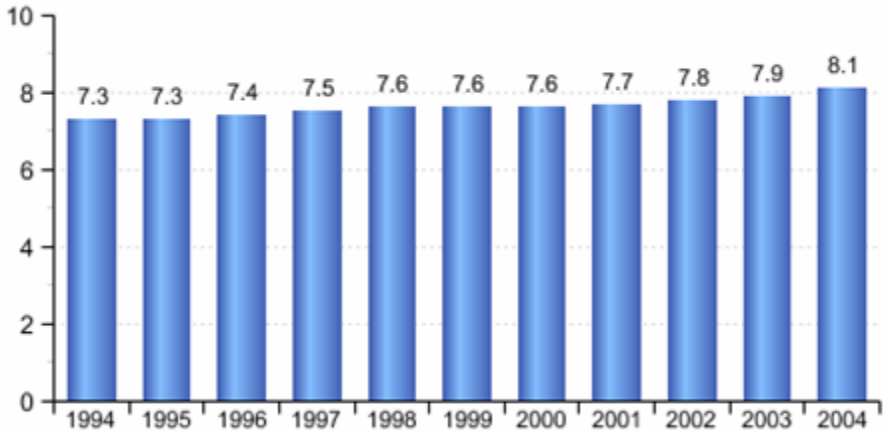
LBW Increased 19.1%; W 26.3%; AA/B 7.9
VLBW Increased 29.3%

Low birthweight

California, 1994-2004
8% Increase



US, 1994-2004
11% Increase



Low birthweight is less than 2500 grams (5 1/2 pounds).
Source: National Center for Health Statistics, final natality data. Retrieved June 1, 2007, from www.marchofdimes.com/peristats.

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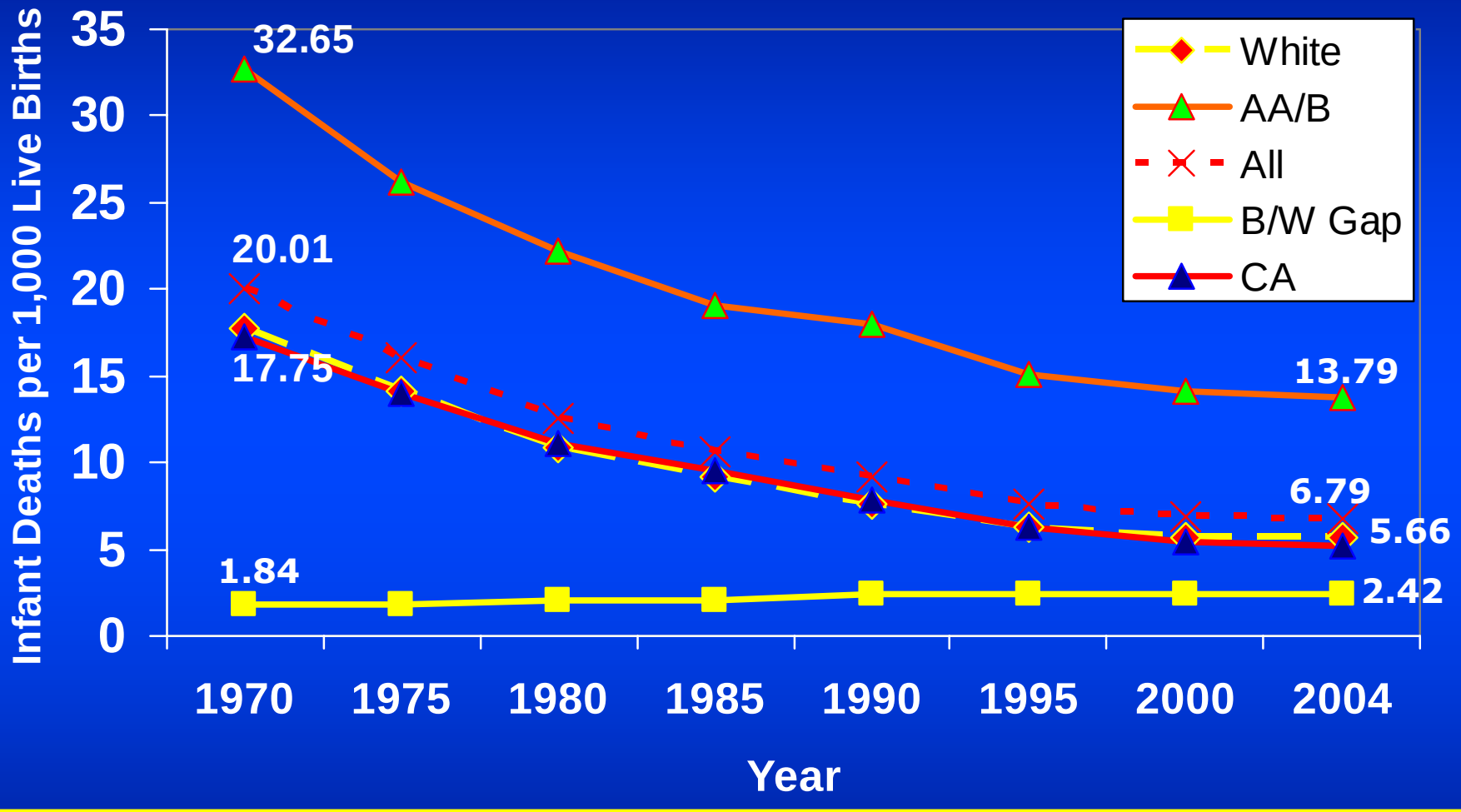
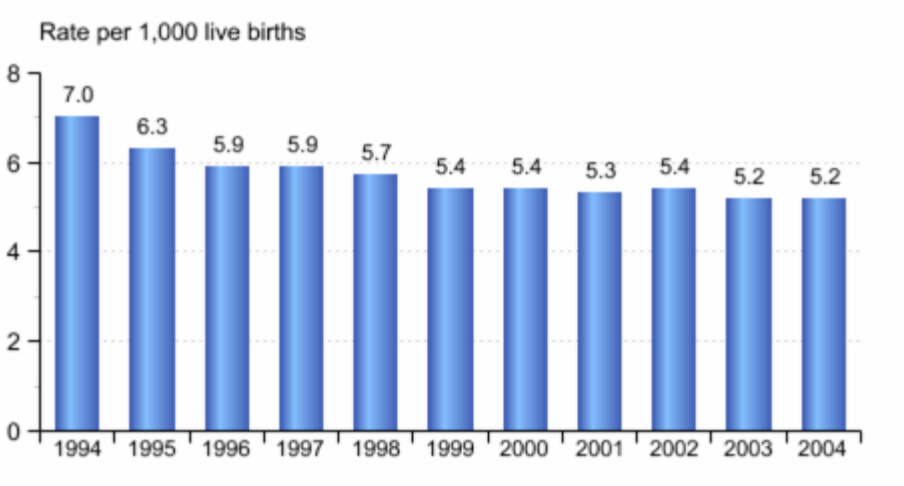
Infant Mortality Rates Improved But Are Still High



IM Decreased 66.2%; AA 57.7% (32.6 to 13.8), W 68.1% (17.7 to 5.66)

Infant Mortality

California, 1994-2004
25.7% Reduction

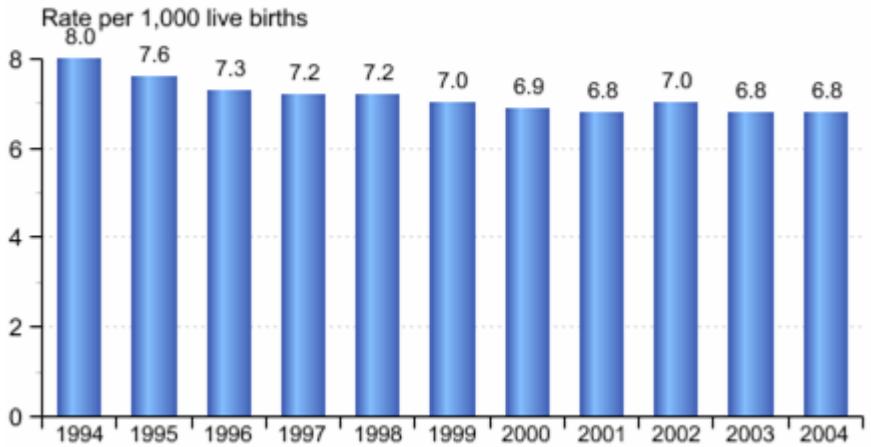


COMMUNITIES

Infant death rate 'apalling'

Commissioners want answers

US, 1994-2004
15% Reduction



Preterm is less than 37 completed weeks gestation.
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Infant Mortality Rankings (Ascending) – 1960-2002; Selected Countries (Health United States 2007)

	1960	1970	1980	1990	2000	2004
1	Sweden	Sweden	Sweden	Japan	Singapore	Singapore
2	Netherlands	Netherlands	Japan	Finland	Hong Kong	Hong Kong
3	Norway	Norway	Finland	Sweden	Japan	Japan
4	Czech Rep.	Japan	Norway	Hong Kong	Sweden	Sweden
5	Australia	Finland	Denmark	Singapore	Finland	Norway
6	Finland	Denmark	Netherlands	Switzerland	Norway	Finland
7	Switzerland	Switzerland	Switzerland	Canada	Spain	Spain
8	Denmark	New Zealand	France	Norway	Czech Rep.	Czech Rep.
9	Eng. & Wales	Australia	Canada	Germany	Germany	France
10	New Zealand	France	Australia	Netherlands	Italy	Portugal
11	United States	Engl. & Wales	Ireland	France	France	Germany
12	Scotland	Canada	Hong Kong	Denmark	Austria	Greece
13	N. Ireland	Israel	Singapore	N. Ireland	Belgium	Italy
14	Canada	Hong Kong	Engl. & Wales	Spain	Switzerland	Netherlands
15	France	Ireland	Scotland	Scotland	Netherlands	Switzerland
16	Slovakia	Scotland	Belgium	Austria	N. Ireland	Belgium
17	Ireland	United States	Spain	Engl. & Wales	Australia	Denmark
18	Japan	Czech Rep.	Germany	Belgium	Canada	Austria
19	Israel	Belgium	United States	Australia	Denmark	Israel
20	Belgium	Singapore	New Zealand	Ireland	Israel	Australia
21	Singapore	Germany	N. Ireland	Italy	Portugal	Ireland
22	Germany	N. Ireland	Austria	New Zealand	Engl. & Wales	Scotland
23	Cuba	Slovakia	Italy	United States	Scotland	Eng. &Wa
24	Austria	Austria	Israel	Greece	Greece	Canada
25	Greece	Bulgaria	Czech Rep.	Israel	Ireland	N. Ireland
26	Hong Kong	Puerto Rico	Greece	Cuba	New Zealand	New Zealand
27	Puerto Rico	Spain	Puerto Rico	Czech Republic	United States	Cuba
28	Spain	Greece	Cuba	Portugal	Cuba	Hungary
29	Italy	Italy	Bulgaria	Slovakia	Poland	United States
30	Bulgaria	Hungary	Costa Rica	Puerto Rico	Slovakia	Poland
31	Hungary	Poland	Slovakia	Bulgaria	Hungary	Slovakia
32	Poland	Cuba	Russian Fed.	Hungary	Puerto Rico	Puerto Rico
33	Costa Rica	Romania	Hungary	Costa Rica	Costa Rica	Chile
34	Romania	Portugal	Portugal	Chile	Chile	Costa Rica
35	Portugal	Costa Rica	Poland	Russian Fed.	Bulgaria	Russian Fed.

CA

CA

CA

CA

CA

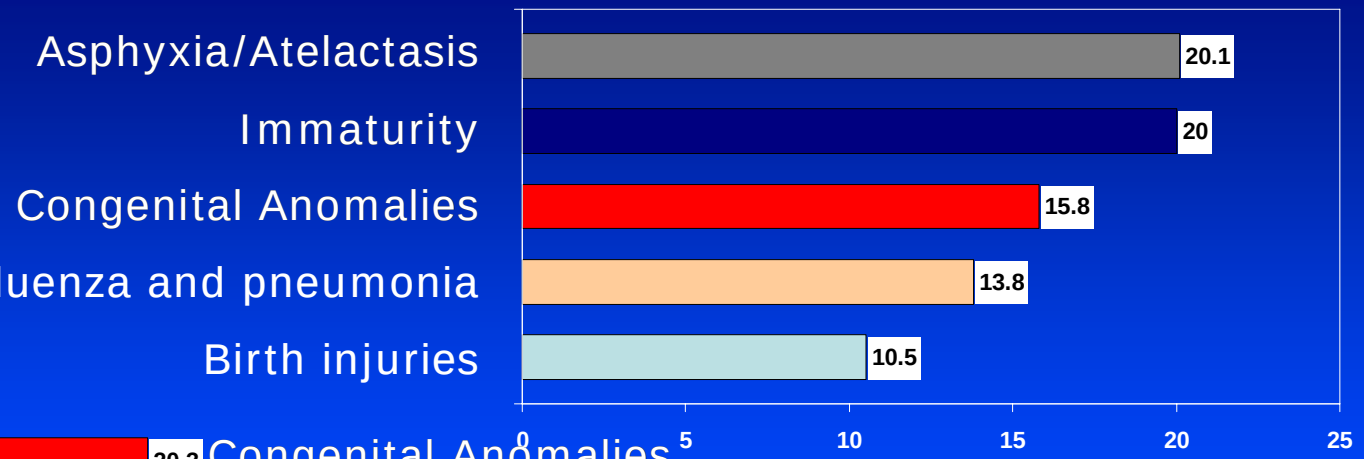
CA

Leading Causes of Infant Mortality by Race, United States 2004

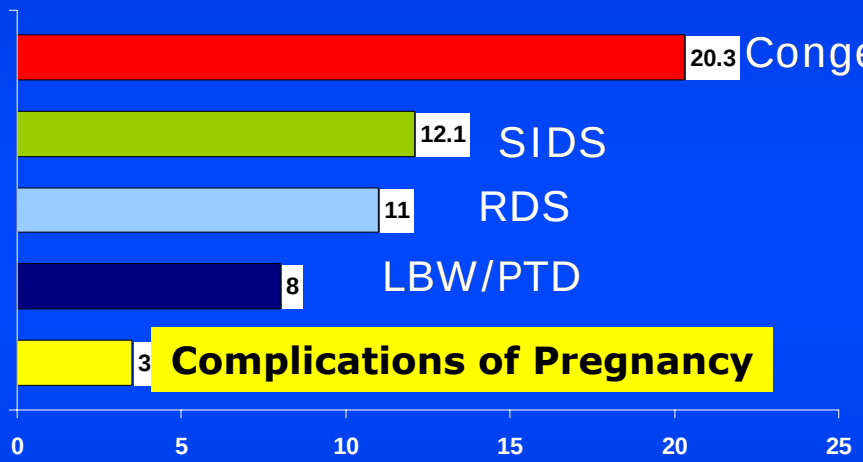
Causes of death – All Races	US	CA
Congenital malformations, deformations and chromosomal abnormalities	20.1	24.7
Disorders related to short gestation and low birth weight, not elsewhere classified	16.6	14.7
Sudden infant death syndrome	8.0	6.1
Newborn affected by maternal complications of pregnancy	6.1	3.8
Accidents (unintentional injuries)	3.8	2.4
Newborn affected by complications of placenta, cord and membranes	3.7	3.5
Respiratory distress of newborn	3.1	3.4
Bacterial sepsis of newborn	3.0	2.5
Neonatal hemorrhage	2.2	3.1
Diseases of the circulatory system	2.1	
All other causes	31.2	

Leading causes of Infant Death Have Changed – Maternal Complications Are Now Third Leading Cause of Infant Death

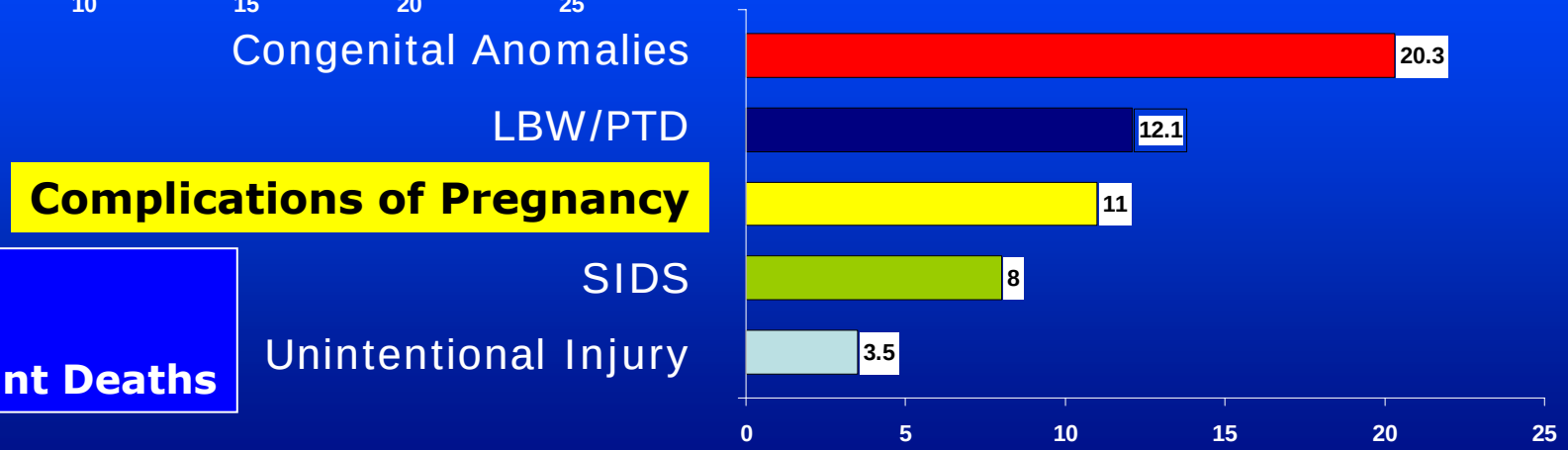
1960
IMR = 26.0
110,873 Infant Deaths



1980
IMR = 12.6
45,526 Infant Deaths

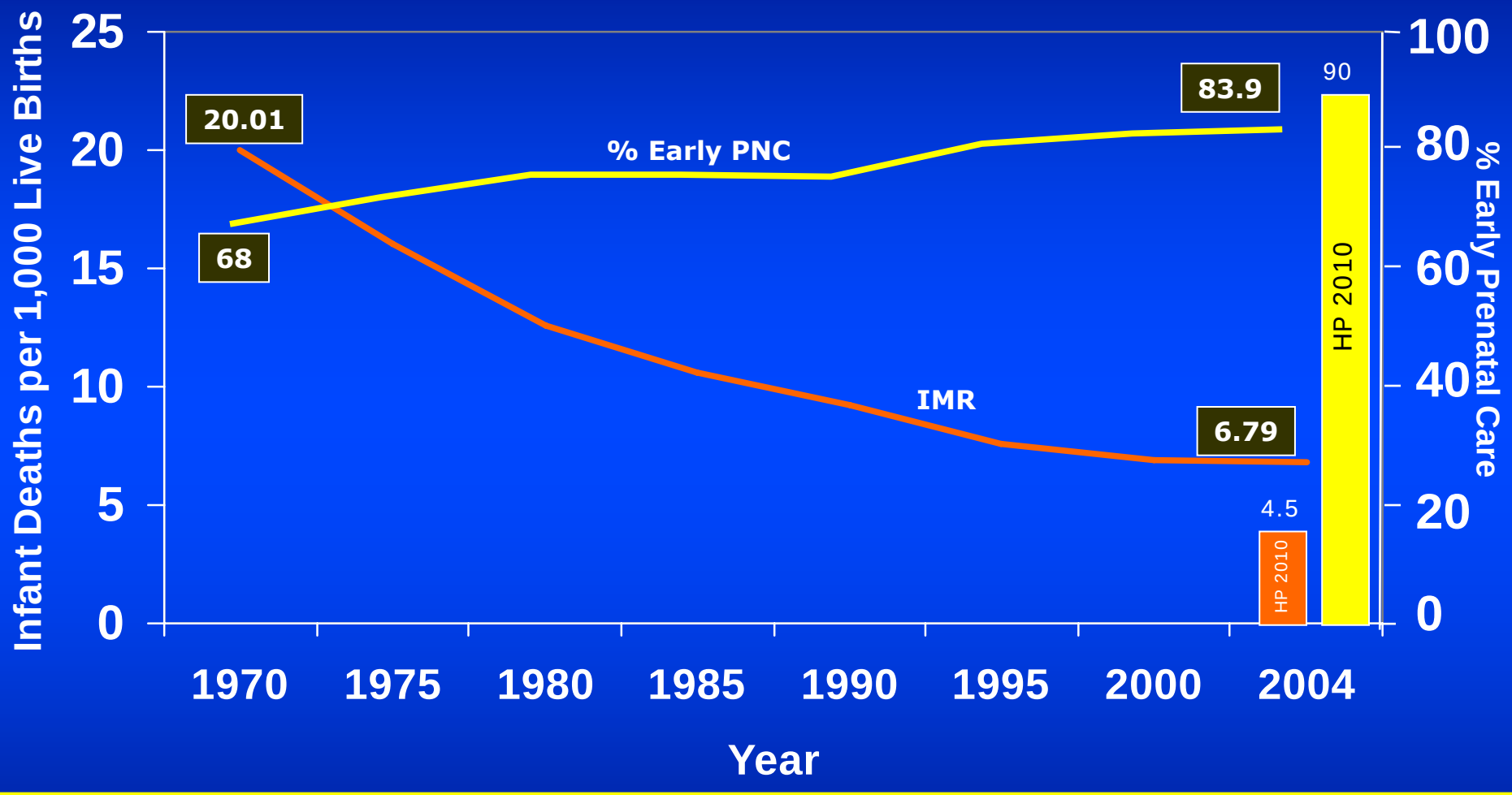


2002
IMR = 7.0
28,034 Infant Deaths



Should We Change Our Ways?

We made progress in caring for pregnant women



IM Decreased 66.2%; AA 57.7% (32.6 to 13.8), W 38.4% (17.7 to 10.9)
Early PNC increased 23.5% {AA 72.9% (44.2 to 76.4), W 18.1% (72.3 to 85.4)}

Risk factors for adverse pregnancy outcomes among women 18-44, California 2005

Behavior/Condition	All	White	AA/B	Hisp.
	Percent			
Unintended pregnancy	41	36.5	60.9	42.6
Smoking	14	6.9		17.1
Alcohol (past month)	55	68.8	46	38.4
Folic Acid	34	36	39	19.3
Intimate partner physical violence (past month)	6.5	5		8.7
Overweight	25	20.1	29.4	32
Obese	20	16.8	36.8	26.2

Risk factors for adverse pregnancy outcomes among women who recently delivered a live-born baby – PRAMS 2004 – Preconception behaviors and experiences

Behavior/Condition	All	White	AA/B	Hisp.
	Percent			
Tobacco (3 months bef preg)	23.2	29.1	16.6	12.3
Alcohol (3 months bef preg)	50.1	61.6	35.7	31.1
Multivitamins (>=4/week)	35.1	41.3	24.4	24.0
No contraception/not planning	53.1	53.1	53.8	52.1
Dental visit ever	77.8	83.4	71.3	52.4
Pre-preg counseling	30.3	34.2	23.3	19.4
>=4 stressors (of 13)	18.5	16.7	27.9	16.6
Physical abuse experience	3.6	2.7	5.4	4.8

Risk factors for adverse pregnancy outcomes among women who recently delivered a live-born baby – PRAMS 2004 – Preconception health conditions

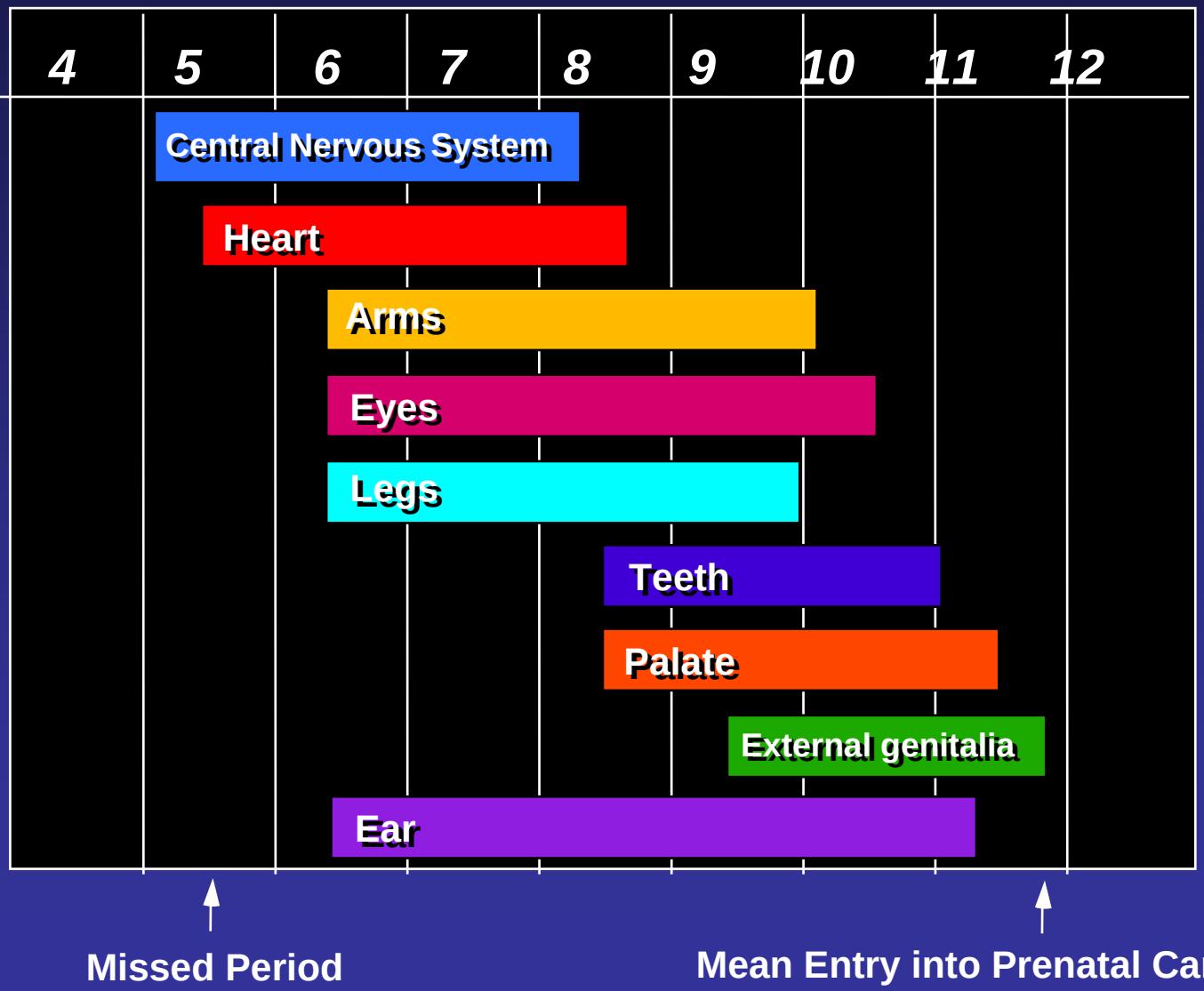
Behavior/Condition	All	White	AA/B	Hisp.
	Percent			
Underweight (BMI < 19.8)	13.2	13.8	10.5	11.1
Overweight (BMI 26 to 29)	13.1	12.2	14.7	15.9
Obese (BMI > 29)	21.9	22.9	37.9	24.7
Diabetes	1.8	1.2	3.3	2.6
Asthma	6.9	7.7	7.7	4.3
Hypertension	2.2	1.9	3.8	1.6
Heart problems	1.2	1.1	1.5	1.0
Anemia	10.2	7.0	21.4	9.5
Previous Low Birthweight	11.6	7.9	18.7	16.3
Previous preterm delivery	11.9	10.4	16.2	12.3

We Currently Intervene Too Late

Critical Periods of Development

Weeks gestation from LMP

Most susceptible time for major malformation



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

Intervening to Prevent Infant Death*

Maternal Health	Health promotion/Protection Management of known conditions Avoiding teratogens
Maternal Care	Prenatal care High Risk Referrals Obstetric care
Infant Care	Perinatal management Neonatal care Pediatric Surgery
Infant Health	Safe Sleep Breast Feeding Injury Prevention

Adapted from CityMatCH's PPOR Model

Leading Causes of Infant Mortality, United States 2004

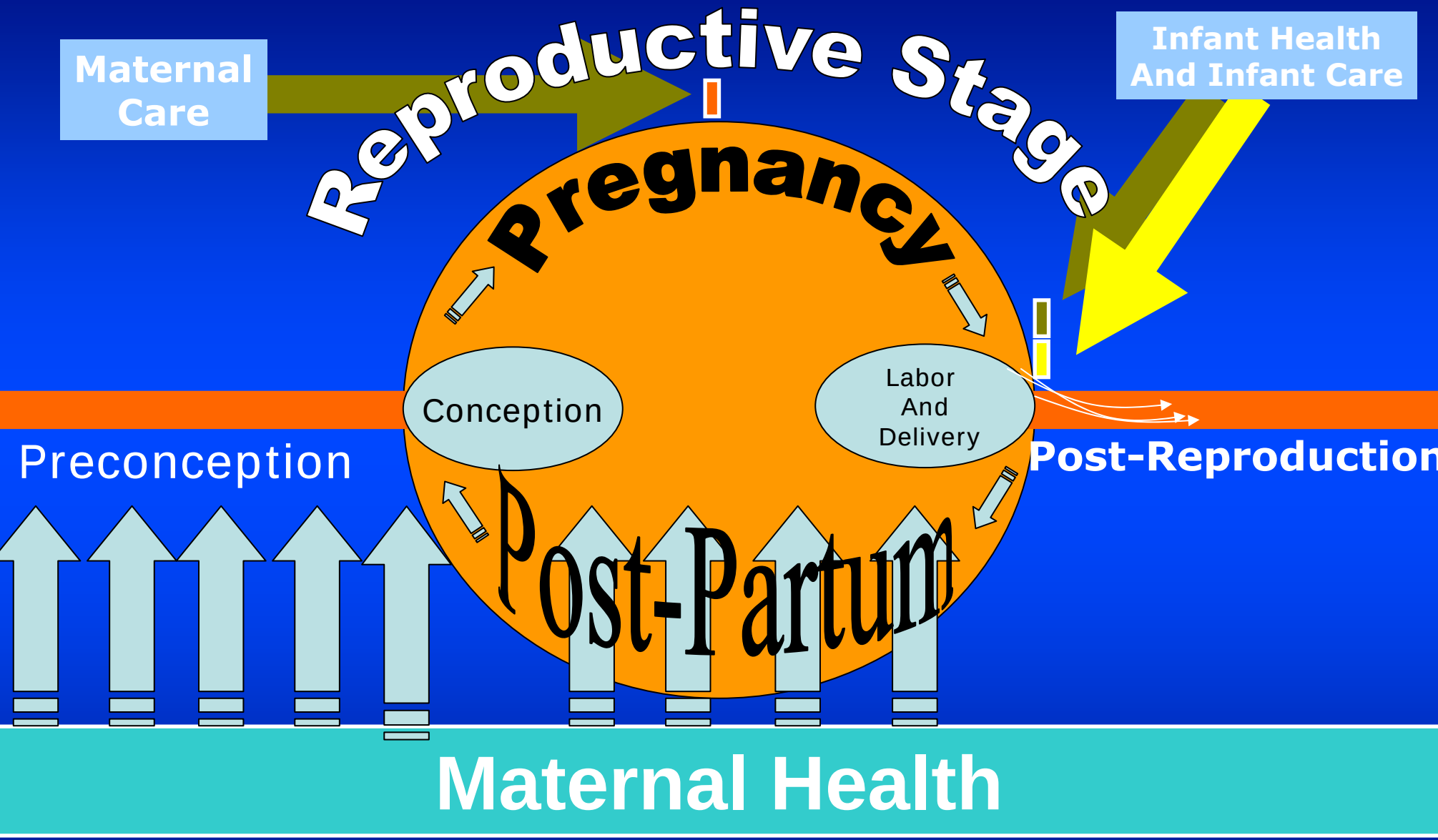
Rank	Causes of death	#of Deaths	% of Deaths
Total	All Causes	27,936	100
1	Congenital malformations, deformations and chromosomal abnormalities	5,622	20.1
2	Disorders related to short gestation and low birth weight, not elsewhere classified	4,642	16.6
3	Sudden infant death syndrome	2,246	8.0
4	Newborn affected by maternal complications of pregnancy	1,715	6.1
5	Accidents (unintentional injuries)	1,052	3.8
6	Newborn affected by complications of placenta, cord and membranes	1,042	3.7
7	Respiratory distress of newborn	8	
8	Bacterial sepsis of newborn	8	
9	Neonatal hemorrhage	6	
10	Diseases of the circulatory system	5	
	All Other Causes	8,	

Maternal Health
Maternal Care
Infant Care
Infant Health

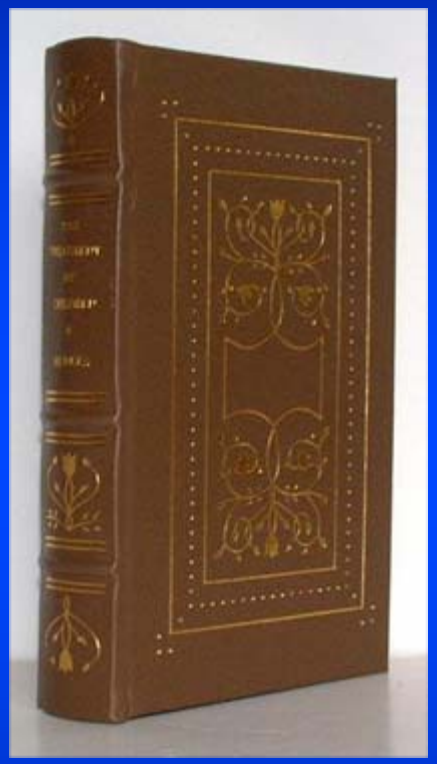
Preconception Care - Goal

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

Opportunities for Intervention



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

There Is Consensus That We Must Act Before Pregnancy

- Recommendations and clinical practice guidelines have been published by many organizations
  - **MOD**
  - **ACOG**
  - **AAP**
  - **AAFP**
  - **ACNM**
  - **USPHS Expert Panel on the Content of PNC, 1989**
  - **HP 2000**
  - More than 30 organizations worked and continue to work together to promote PCC

ACOG/AAP (2002)

All health encounters during a woman's reproductive years, particularly those that are a part of preconceptional care should include counseling on appropriate medical care and behavior to optimize pregnancy outcomes.

ACOG/AAP Guidelines for perinatal care, 5th edition, 2002

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

Some Common Conditions Amenable to Preconception Care

- Diabetes
- Hypertension
- Seizure disorder
- Thyroid disorders
- Thrombo-embolic disease
- Hemoglobin disorders
- STDs
- Repetitive pregnancy losses
- Eating disorders
- Alcohol, tobacco and other drug use
- Domestic violence
- Poor nutrition

Preconception Issues for Well Women

- Family planning
- Genetic risks: familial, ethnic, racial
- Nutrition and weight
- Tobacco, alcohol, OTC medications, illicit drugs
- Occupational and environmental hazards
- Domestic violence
- Infections and immunization
- Screening for inapparent medical disease

Preconception Care

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.

The Interpregnancy Care Program – 1

A pilot evaluation of the Feasibility and Impact of Delivering Interpregnancy Care to Mothers of Very-low-birthweight Infants

- *The largest contributor to Georgia's infant mortality rate is the birth of LBW and VLBW infants:*

	% of Births	% of Infant Deaths
LBW (< 2500 g)	11%	70%
VLBW (< 1500 g)	2%	50%

- *The single best predictor of a preterm/LBW delivery is a history of a previous preterm/LBW delivery*

- *Goals of the ICP: To evaluate the effectiveness of interpregnancy care in improving subsequent reproductive outcomes for women who have delivered a VLBW infant by:*
  - *Improving the woman's interpregnancy health, and*
  - *Assisting the woman in developing and achieving her reproductive goals*

Alfred W. Brann, Jr, MD; Anne Lang Dunlop, MD, MPH, Emory University

The Interpregnancy Care Program - 5

Outcome	IPC Intervention Cohort	GMH Historical Cohort
≥ 1 pregnancy within 9-mns	0/29 (0%)*	18/58 (31%)*
≥ 1 pregnancy within 18-mns	5/29(17.3%)*	29/58(50%)*
Total No. of Pregnancies	7	36
Outcomes:		
Adverse outcomes	3(42.8%)	21(58.3%)
Liveborn ≥2500 gms	3(42.8%)	8(22.2%)
Elective abortion	1(14.3%)	6(16.7%)
Unknown outcome		1(2.7%)
Average number of adverse outcomes	0.103*	0.362*

Adverse outcomes:

- Intervention group: 1 liverborn intermediate BW, 2 spontaneous abortions
- Comparison group: 7 LB int. BW, 3 VLBW, 4 SB, 3 ectopics, 3 spon ab, 1 molar pregnancy

Alfred W. Brann, Jr, MD; Anne Lang Dunlop, MD, MPH, Emory University

Early prenatal care is often too late!

- **Perinatal Periods of Risk projects in New York City, Tulsa, and Kansas City concluded:**
  - **racial and ethnic disparities in feto-infant mortality were largely related to maternal health, and**
  - **interventions to reduce feto-infant mortality should include preconception care and improvements in women's health**

- *Besculides M, Laraque F. Racial and ethnic disparities in perinatal mortality: applying the perinatal periods of risk model to identify areas for intervention. JAMA 2005;97:1128–32.*
- *Cai J, Hoff GL, Dew PC, Guillory VJ, Manning J. Perinatal periods of risk: analysis of fetal-infant mortality rates in Kansas City, Missouri. Matern Child Health J 2005;9:199–205.*
- *Burns PG. Reducing infant mortality rates using the perinatal periods of risk model. Public Health Nurs 2005;22:2–7.*

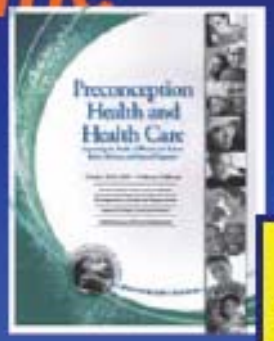
Why the CDC Initiative?

- Facilitate collaboration among internal and external groups to achieve common goals
- Develop consensus national recommendations to improve preconception health
- Identify and address clinical, public health, consumer, policy, finance and system obstacles and opportunities to the implementation of the recommendations:
  - Improve provider and consumer knowledge, attitudes, and behaviors
  - Integrate PCC programs and policies into federal, state, local health programs
  - Develop tools and promote guidelines for practice
  - Evaluate existing programs for feasibility and demonstrated effectiveness

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

5/07
2nd Select Panel Meeting

1/06
Steering Committee Meeting

6/05
Select Panel Meeting

11/04
Meeting with Partners

4/06
Recommendations

3/07
Policy & Finance Workgroup Meetings

CDC

2nd National Summit on Preconception Health and Health Care

Improving the Health of Women and Infants Before, Between, and Beyond Pregnancy

Oakland, California October 29-31, 2007

Framework

Guiding Principals

Recommendations Guiding Principals

- Specific to improving women's health throughout the lifespan
- Emphasize individual behavior and responsibility
- PCC is NOT a single visit but a process of care
- Focus on changes in:
  - consumer knowledge
  - clinical practice
  - public health programs
  - health-care financing, and
  - data and research activities

A Vision for Improving Preconception Health and Pregnancy Outcomes

- All women and men of childbearing age have high reproductive awareness
- All women have a reproductive life plan
- All pregnancies are intended and planned
- All women of childbearing age have health coverage
- All women of childbearing age are screened prior to pregnancy for risks related to outcomes
- Women with a prior pregnancy loss have access to intensive interconception care aimed at reducing their risks

Goals for Improving Preconception Health

- **Goal 1.** Improve the knowledge and attitudes and behaviors of men and women related to preconception health
- **Goal 2.** Assure that all women of childbearing age in the United States receive preconception care services (i.e., evidence-based risk screening, health promotion, and inter-ventions) that will enable them to enter pregnancy in optimal health
- **Goal 3.** Reduce risks indicated by a previous adverse preg-nancy outcome through interventions during the interconception period, which can prevent or minimize health problems for a mother and her future children, and
- **Goal 4.** Reduce the disparities in adverse pregnancy outcomes

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

Recommendations for Improving Preconception Health: 1&2 = Individual Responsibility

- **Recommendation 1. Individual responsibility across the life span.** Encourage each woman and every couple to have a reproductive life plan.
- **Recommendation 2. Consumer awareness.** Increase public awareness of the importance of preconception health behaviors and increase individuals' use of preconception care services using information and tools appropriate across varying age, literacy, health literacy, and cultural/linguistic contexts.

Recommendations for Improving Preconception Health: 3&4 = Prevention & Interventions

- **Recommendation 3. Preventive visits.** As a part of primary care visits, provide risk assessment and counseling to all women of childbearing age to reduce risks related to the outcomes of pregnancy.
- **Recommendation 4. Interventions for identified risks.** Increase the proportion of women who receive interventions as follow up to preconception risk screening, focusing on high priority interventions.

Recommendations for Improving Preconception Health: 5&6 = Interconception & Pre-pregnancy

- **Recommendation 5. Interconception care.** Use the interconception period to provide intensive interventions to women who have had a prior pregnancy ending in adverse outcome (e.g., infant death, low birthweight or preterm birth).
- **Recommendation 6. Pre-pregnancy check ups.** Offer, as a component of maternity care, one pre-pregnancy visit for couples planning pregnancy.

Recommendations for Improving Preconception Health: 7&8 = Public Programs

- **Recommendation 7. Health coverage for low-income women.** Increase Medicaid coverage among low-income women to improve access to preventive women's health, preconception, and interconception care.
- **Recommendation 8. Public health programs and strategies.** Infuse and integrate components of preconception health into existing local public health and related programs, including emphasis on those with prior adverse outcomes.

Recommendations for Improving Preconception Health: 9&10 = Research and Evaluation

- **Recommendation 9. Research.** Augment research knowledge related to preconception health.
- **Recommendation 10. Monitoring improvements.** Maximize public health surveillance and related research mechanisms to monitor preconception health.

Challenges to Implementation

1. Limited awareness / acceptance of the importance of preconception health among consumers and providers
2. Lack of efficient clinical tools and quality benchmarks
3. Lack of proven models for integrated service delivery and public health programs
4. Limited incentives for clinicians (financial, peer recognition)
5. Lack of health coverage for women and services

Strategies to Implement The Recommendations

- **Workgroup Meetings:**
  - **Clinical**
  - **Public Health**
  - **Consumer**
  - **Policy and Finance**

Implementation: The Goals

- Changing **consumer** knowledge, attitudes, and practices
- Changing **clinical providers'** knowledge, attitudes, and practices
- Change **public health professionals'** knowledge, attitudes, and practices

Strategies for Implementation

1. CLINICAL GUIDELINES & TOOLS

Develop guidelines; Assess screening tools; Disseminate products; Redesign postpartum visit; Implement demonstration / quality improvement / research projects

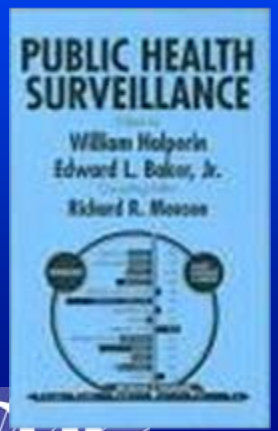
2. CONSUMER INFORMATION

Develop consumer messages; Conduct community participatory action research; Compile consumer self-assessment tools; Study effectiveness of bundled messages

Strategies for Implementation

3. PUBLIC HEALTH PROGRAMS AND STRATEGIES

Encourage integration of PC practices; Develop, evaluate, and disseminate integrated approaches; Analyze and evaluate Healthy Start PCC activities; Encourage action at the community; Support a Preconception Health Practice Collaborative



4. MONITORING & SURVEILLANCE

Improve surveillance and monitoring; Conduct needs / gaps assessment; Link to laboratory leadership; Link to prevention of birth defects

Strategies for Implementation

5. RESEARCH AGENDA

Develop a list of priority research projects; Generate research project proposals

6. PUBLIC POLICY AND FINANCE

Develop a menu of public policy options; Develop Medicaid demonstration; Develop a private health plan finance pilot / demonstration project

7. PROFESSIONAL EDUCATION AND TRAINING

Promote education and training for public health and clinical care professionals; Review and disseminate existing and new training modules

Strategies for Implementation

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

Evaluate current projects; Initiate new projects; Identify opportunities in public health settings

10. STATE & LOCAL INITIATIVES

Support state and 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 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	

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			

PH workgroup: 3 Priority Areas

1. **Data -** Identify data systems and associated indicators related to preconception health and health care.
2. **Integration -** Encourage and promote integrated preconception and interconception health practices and policies in public health at federal, state and local levels
3. **Public Health Workforce-**

   Advance PCC/PCH in practice through public health workforce education and training

Consumer Workgroup: Communication Research

Extramural Project

Message bundling and preconception health care

Intramural Projects

- Gathering consumer research
- Placing several questions on a market research survey
- Segmenting women of childbearing age and creating audience profiles

Exploring Message Bundling

- A grant funded by the National Center on Birth Defects and Developmental Disabilities and the National Center on Health Marketing (CDC)

- **Effectiveness**
  - Are bundled messages equally, more, or as effective as single messages?
- **Quantity**
  - How many messages can be bundled and still be effective?
- **Types**
  - What types of messages can/ should not be bundled?

UGA's Planned Activities

- Convene a research advisory panel of experts
- Review existing messages on preconception health/care
- Conduct formative research
- Develop message bundles for testing
- Test message bundles qualitatively and quantitatively

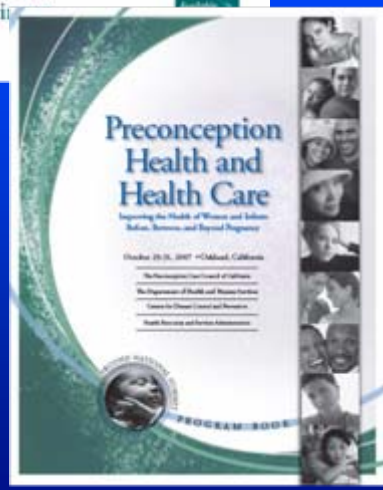
The University of Georgia

What Can You Do? What Have Others Done?

- Use state money to build a program (FL, IL)
- Fit some services into the family planning waiver (AL, NC) (won't work in CA)
- Build a more unified women's health and infant mortality reduction approach (OH, UT, FL)
- Maximize the use of the postpartum coverage under Medicaid (e.g., make sure women have an appointment for postpartum visit, make sure they get depression screening and initiative mental health visits, get prescriptions up to date) - this seems like a real opportunity in CA
- Develop a community health center and local health department clinic initiative

Preconception Health Resources

- CDC's information on preconception:
  http://www.cdc.gov/ncbddd/preconception/default.htm
- Recommendations
  http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5506a1.htm
- MCH Journal Supplement on Preconception Care
  http://www.springerlink.com/content/t5g03236gw01/
- 2nd National Summit Website
  http://www.marchofdimes.com/california/4947_25340.asp
- 2nd National Summit Program Book
  http://www.marchofdimes.com/files/chapterFiles/summitprogram.pdf
- 2nd National Summit Presentations
  http://cdc.confex.com/cdc/pcs2007/techprogram/MEETING.HTM



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

Thank You

Questions??? hka1@cdc.gov