

Preventing Birth Defects—A Collaborative Effort

Information about
Preventing Birth Defects

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Michigan WIC

Outline

- ❑ Introduction to Birth Defects
- ❑ WIC Data and Birth Defects Research
- ❑ Health Messages for Clients
- ❑ Break
- ❑ Medications and Birth Defects
- ❑ Summary

Goal

Reduce the number of Michigan WIC babies born with a birth defect by increased awareness of **preventable factors** and adoption of **healthy behaviors**.



Objectives

- ✓ To describe causes of birth defects with a focus on preventable risk factors in the Michigan WIC population;
- ✓ To recognize the increased risk of birth defects to WIC clients through the review of WIC client health indicators; and
- ✓ To identify prevention strategies for WIC clients that improve reproductive outcomes and reduce the occurrence of birth defects; and
- ✓ To emphasize the importance of good preconception and interconception health practices in lowering the risk for birth defects and other adverse reproductive outcomes in the Michigan WIC population.

Please Note

This presentation:

- Is intended for information purposes only and does not constitute medical advice.
- Includes technical terms for medical conditions and abnormal development.
- Includes pictures and photographs of birth defects.

WIC's Role

- A. Client and staff awareness.
- B. Aid client access to health care.
- C. Encourage and support continuity of care with primary care provider (PCP).

What is a birth defect?

"Birth defect, congenital malformation, and congenital anomaly are synonymous terms used to describe structural, behavioral, functional, and metabolic disorders present at birth."

Langman's Medical Embryology, ed. 9

"...an abnormality of the body's structure or inherent function present at birth, whether the abnormality is detected at the time of delivery or becomes apparent at a later date."

MBDR Reporting Manual

How common are birth defects?

- ✓ 3-5% of live births are affected by birth defects
- ✓ 5-10% of conceptions have a chromosome abnormality
- ✓ 30-50% of post-neonatal deaths are due to birth defects
- ✓ Most recurrent (≥ 3) miscarriages and most sporadic early miscarriages to women over 35 yrs of age have chromosome abnormalities

How common are birth defects?

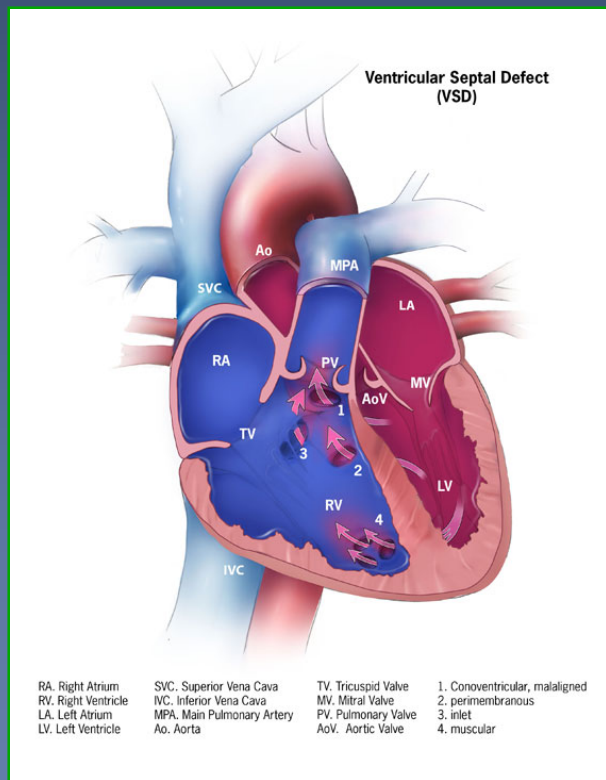
Birth defects are rare.

But they are a common cause of serious problems, including lifelong disability and death.

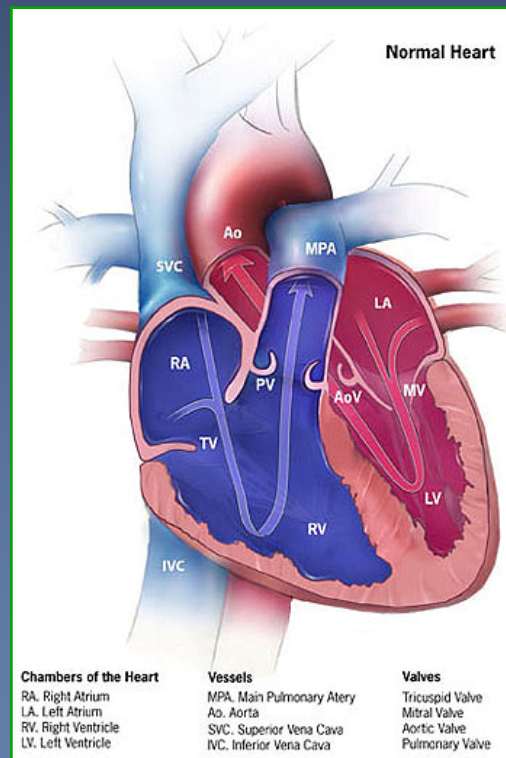


Examples of Birth Defects

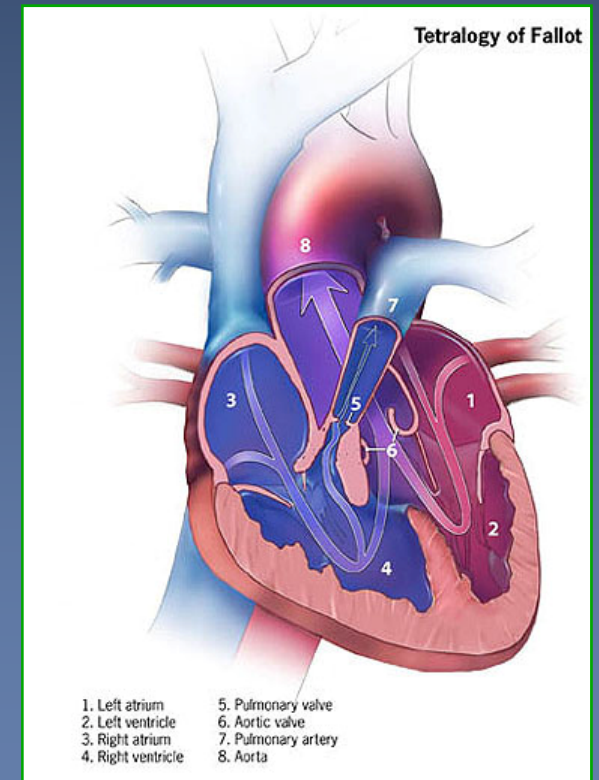
Congenital Heart Defects (CHDs)



Ventricular Septal Defects (VSD)



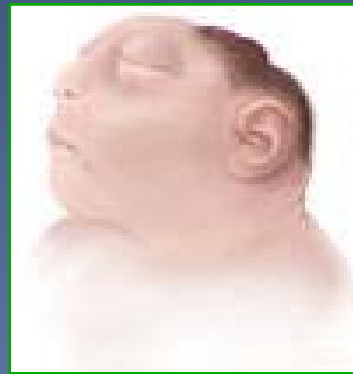
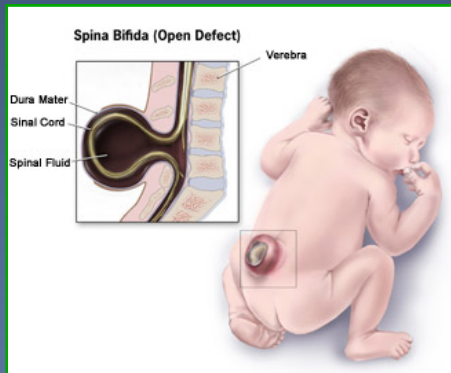
Normal



Tetralogy of Fallot (TOF)

Examples of Birth Defects

Neural Tube Defects (NTDs)

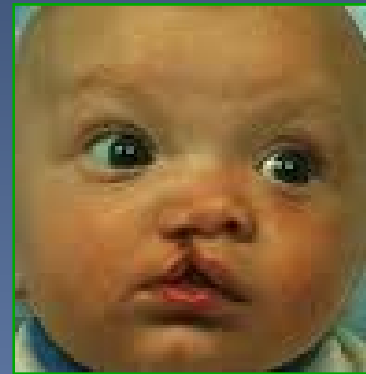


Anencephaly



Spina bifida

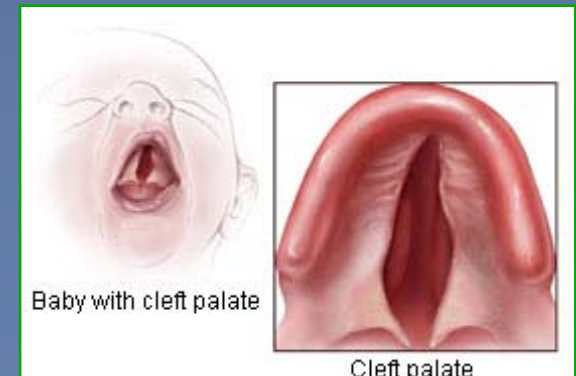
Orofacial Clefts (OFCs)



Cleft lip



Baby with cleft lip

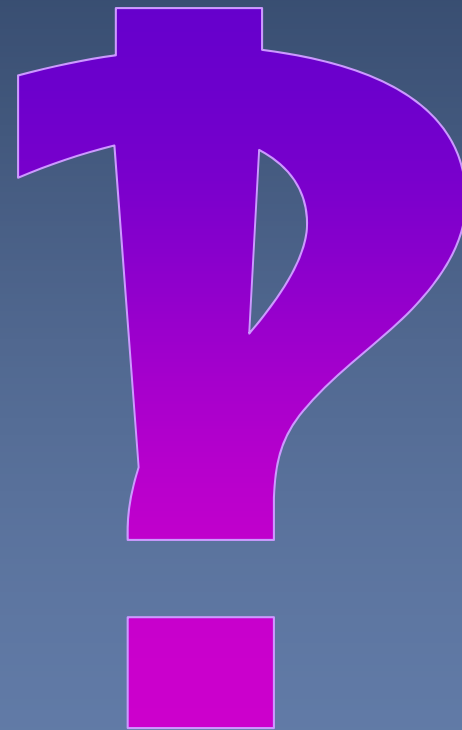


Cleft palate

What causes birth defects?

Some result from factors outside of our control.

Some have a genetic component or are due to unknown causes.

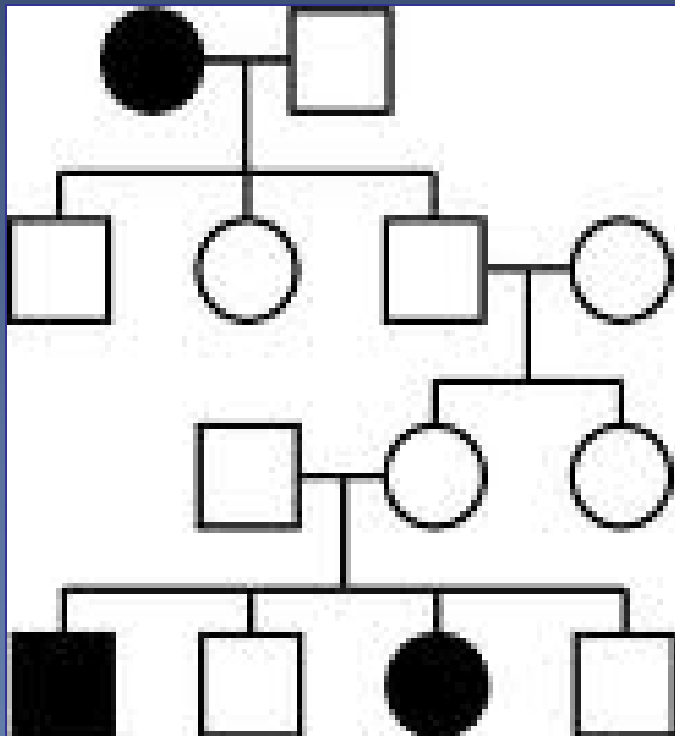


Genetic Causes of Birth Defects



- Inherited genes from **both** parents (Sickle Cell Disease) and other syndromes
- New single gene changes (mutations) or spontaneous chromosome abnormality (Down Syndrome)
- Genes and syndromes inherited from **one** parent
- Unknown

Family History



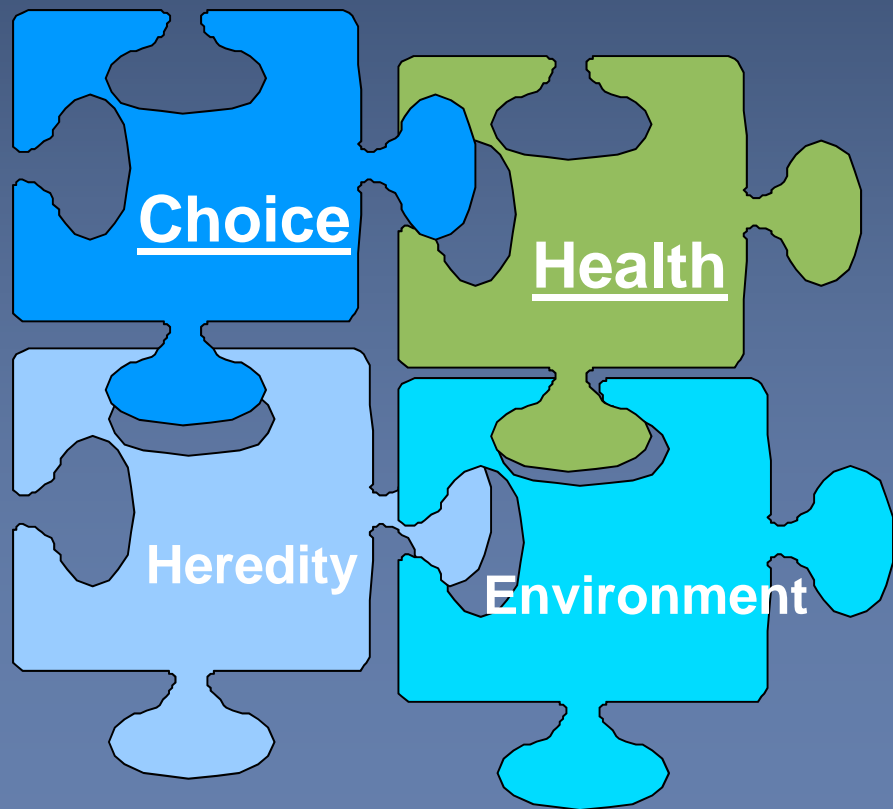
Family history diagram (pedigree).

Every woman should--

Know her and her partner's medical and family history

- Be aware of birth defects, genetic disorders, and developmental disabilities
- Know history of miscarriage, stillbirth, and chronic illness
- Share this information with her healthcare provider

Some birth defects are preventable



Certain medications, drugs, chemicals, infections, and other avoidable factors may cause birth defects.

Client Behaviors & Indicators

FOCUS ON FIVE

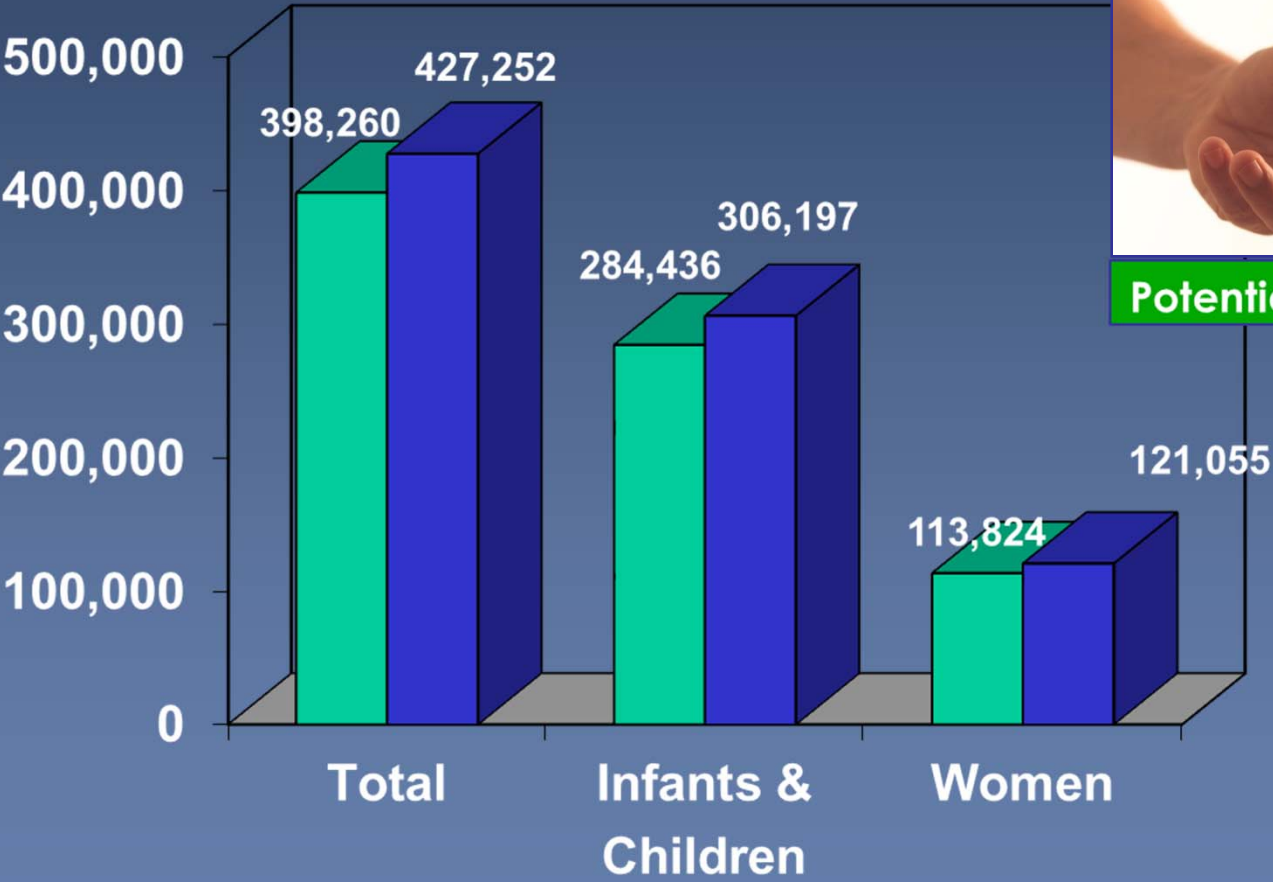
- ✓ Drinking
- ✓ Smoking
- ✓ Multivitamin Consumption
- ✓ Nutrition & Physical Activity
- ✓ Overweight/Obese



What about Michigan WIC Mothers?



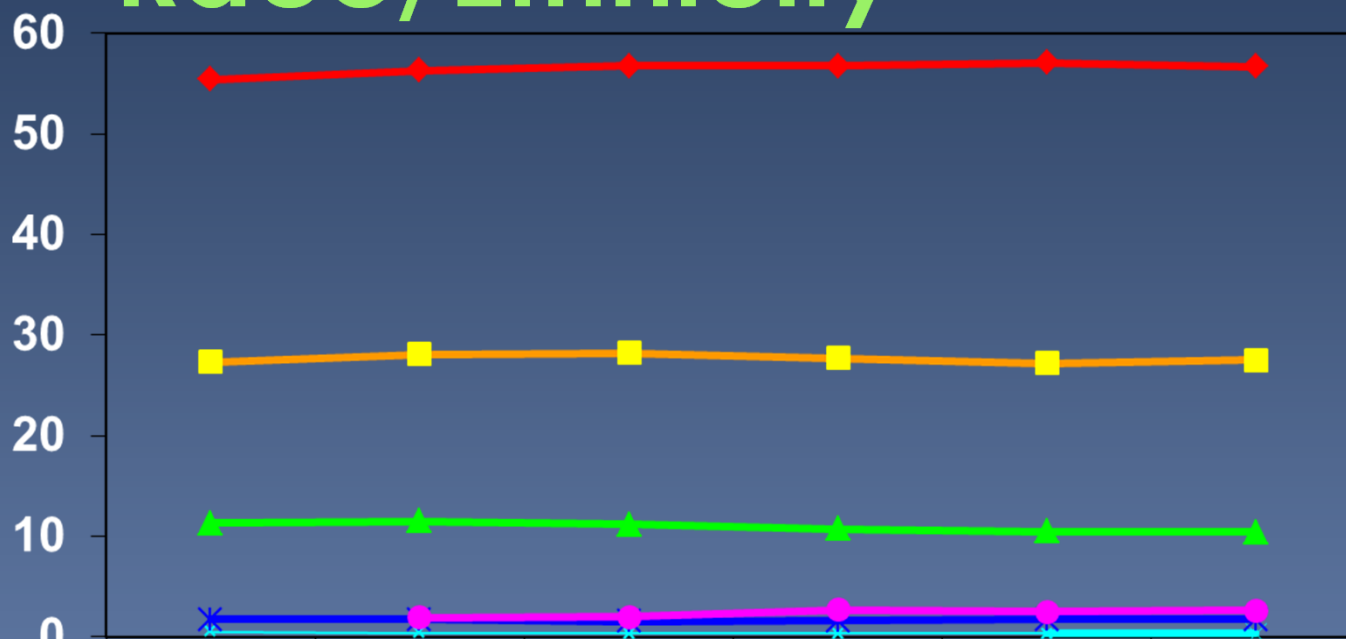
2010 Michigan WIC Enrollment



■ 2000 Enrollment ■ 2010 Enrollment

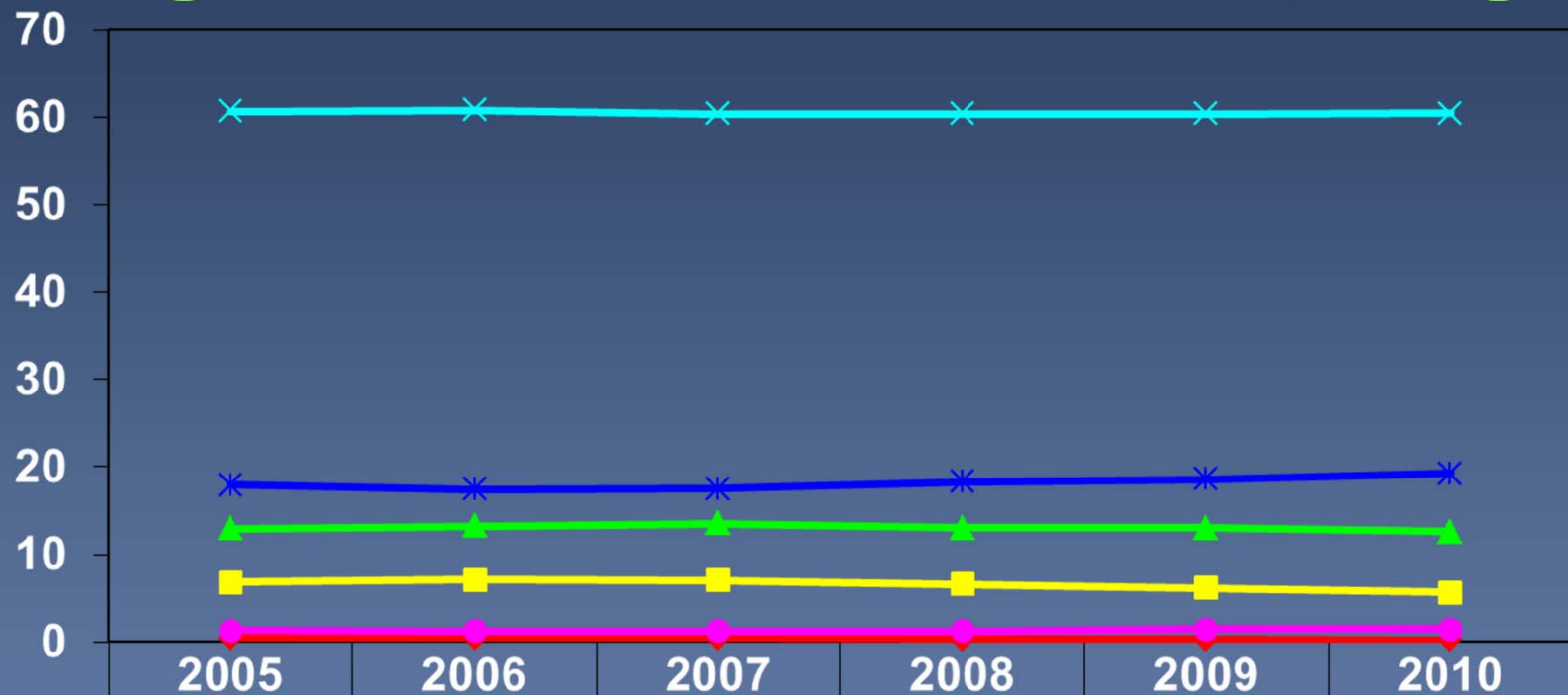


Michigan WIC Mothers by Race/Ethnicity



	2005	2006	2007	2008	2009	2010
White	55.4	56.3	56.8	56.8	57.1	56.7
Black	27.3	28.1	28.2	27.7	27.2	27.5
Hispanic	11.3	11.5	11.2	10.7	10.5	10.4
Native American	0.5	0.4	0.3	0.3	0.3	0.3
Asian	1.7	1.7	1.5	1.6	1.7	1.7
Multiple		1.9	2	2.7	2.5	2.6

Michigan WIC Mothers by Age



◆ <15	0.4	0.4	0.4	0.3	0.3	0.2
■ 15-17	6.8	7.1	7	6.6	6.1	5.6
▲ 18-19	12.9	13.2	13.5	13	13	12.6
✕ 20-29	60.7	60.8	60.4	60.4	60.4	60.5
✱ 30-39	17.9	17.4	17.5	18.3	18.6	19.2
◆ =>40	1.3	1.2	1.2	1.2	1.4	1.4

Michigan WIC Mothers



- <High School
- High School
- >High School
- <=150% FPL
- SNAP
- Medicaid
- TANF

Michigan WIC Top Ten



Indicators	2000	2010	Progress Direction
First Trimester Entry into WIC	31.0	37.5	↑
Birthweight: • LBW <2500 g • Full Term LBW • HBW >4000 g • % Preterm Infants	7.1 ---- 9.0 ----	8.5 3.6 7.2 12.0	↓ ↑
Breastfeeding: • Initiation • 6 Months Duration	46.9 12.4	59.8 17.8	↑ ↑
Prenatal Weight Gain: • < Ideal • > Ideal	30.8 44.2	18.1 50.9	↑ ↓
Anemia, Low Hgb, 3 rd Trimester	30.2	35.9	↓
Anemia, Low Hg, 6 months - 5yrs	14.6	15.6	↓
Prenatal Smoking-Last Trimester	26.9	17.3	↑
First trimester Prenatal Care	71.9	80.9	↑
Prepregnancy: • Overweight • Underweight	48.2 6.1	54.7 4.3	↓ ↑
Body Weight: • 85 th -<95 th %, ≥2 years • ≥95 th %, ≥2 years	15.5 12.0	16.3 13.3	↓ ↓

Michigan WIC Five Year Plan

Health Outcome Indicators
January 2009 to December 2013

- Increase first trimester entry into the WIC program from 32.5% to 35.0%.
- Increase ideal prenatal weight gain from 28.8% to 31.5% among Michigan WIC mothers.
- Reduce the percent of low birthweight infants born to women enrolled in Michigan WIC from 8.4% to 8.0%.
- Increase breastfeeding initiation rate from 57.2% to 65.0% and the six-month duration rate from 18.5% to 24.0%.
- Decrease the prevalence of early childhood obesity, in children 2 to 5 years of age, from 13.7% to 12.0%.
- Decrease the prevalence of low hemoglobin level from 15.0% to 13.0% among children less than five years of age.

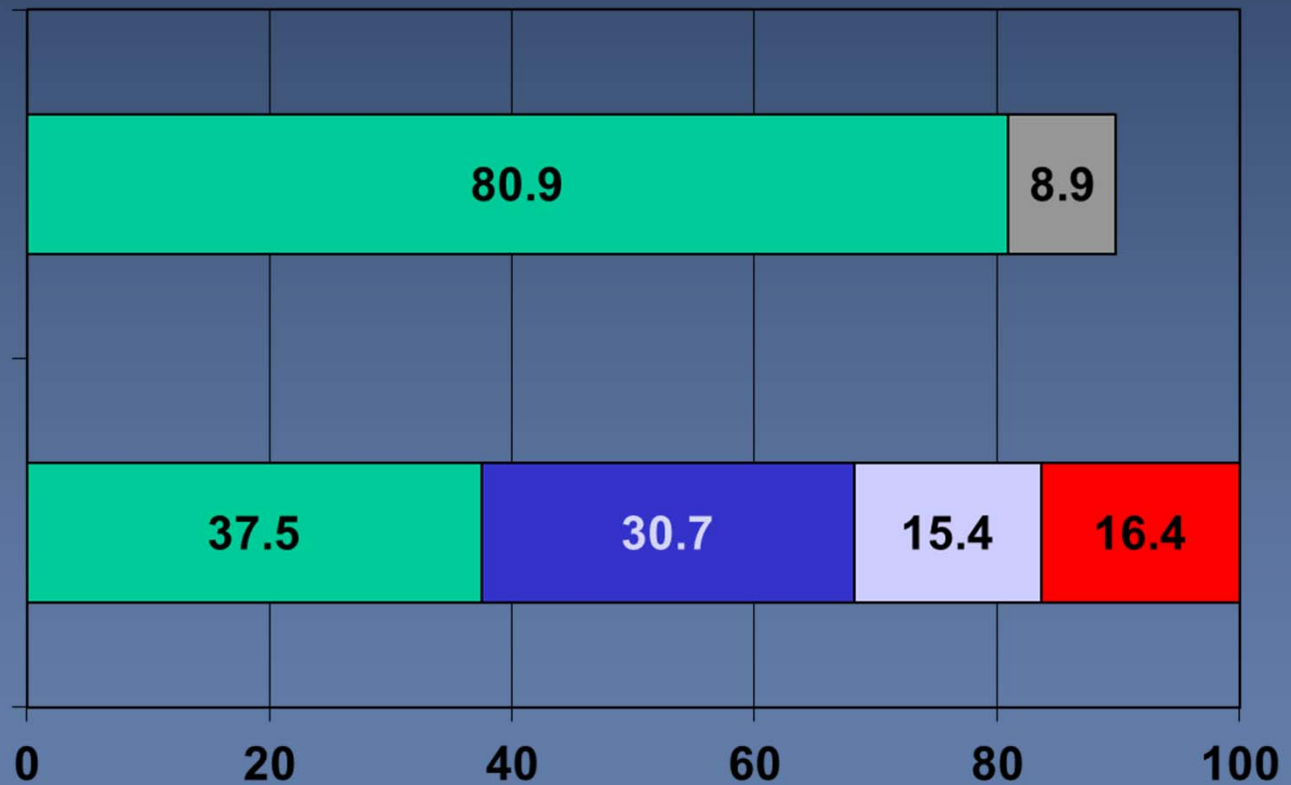
The projections are based on the 1994-2009 trend data from Michigan PNSS and PedNSS. 2009 data is used as the baseline for a five-year-plan from Jan. 2009 to Dec. 2013.

Trimester & Access to Care



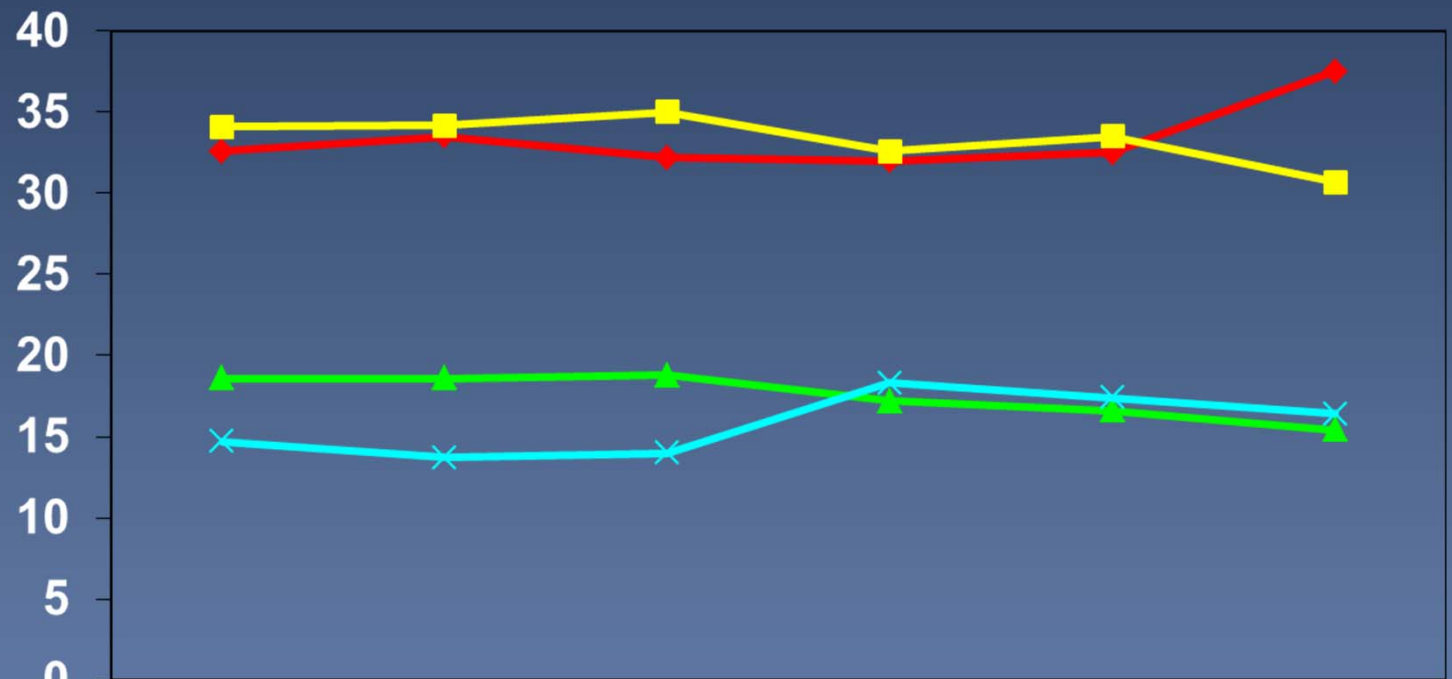
Medical Care

WIC Enrollment



■ 1st Trimester ■ 2nd Trimester ■ 3rd Trimester ■ Postpartum ■ No Care

Trimester of WIC Enrollment

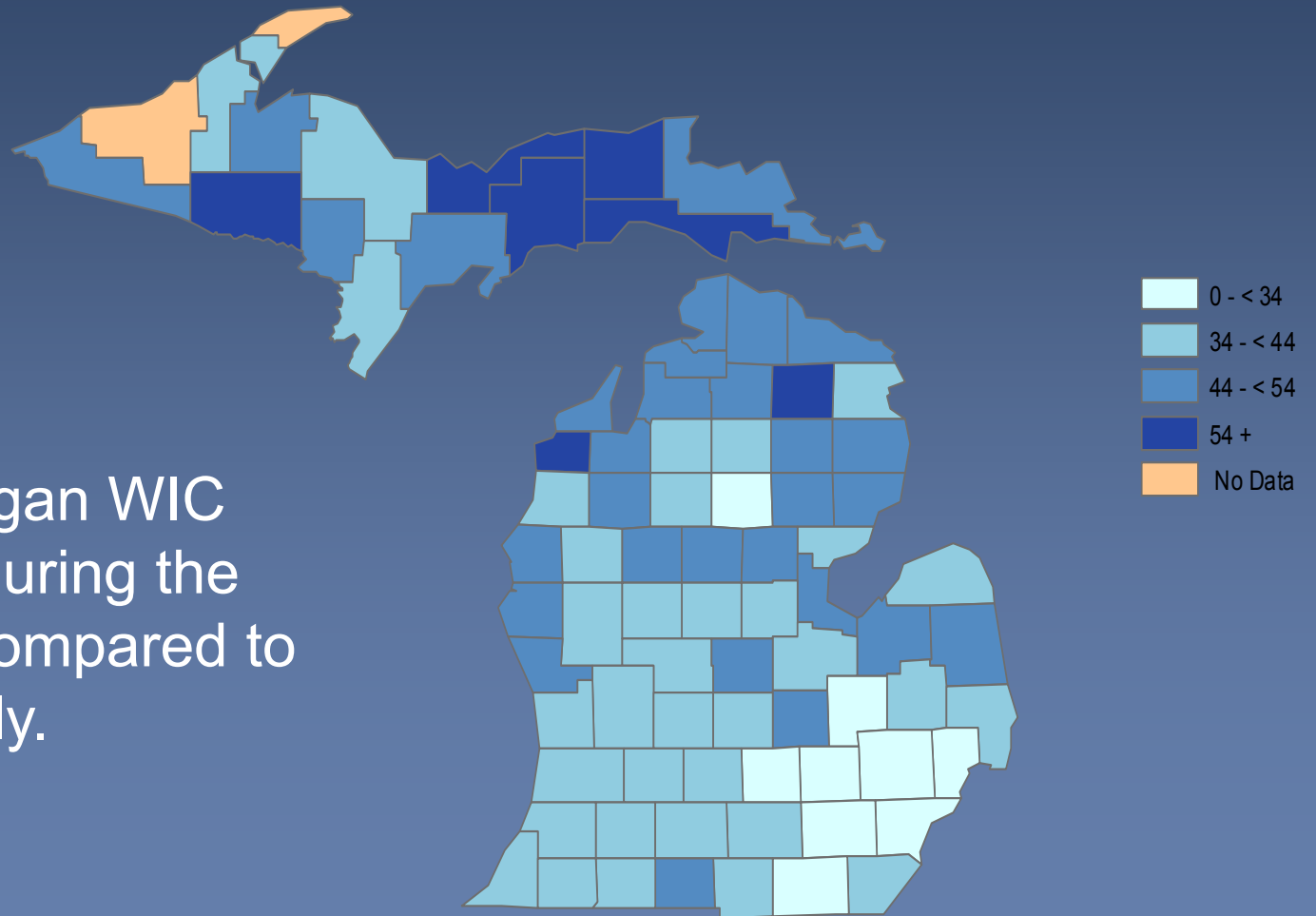


	2005	2006	2007	2008	2009	2010
◆ 1st	32.6	33.5	32.2	32	32.5	37.5
■ 2nd	34.1	34.2	35	32.6	33.5	30.7
▲ 3rd	18.6	18.6	18.8	17.2	16.6	15.4
× Postpartum	14.7	13.7	14	18.3	17.4	16.4

First Trimester WIC Enrollment



37.5% of Michigan WIC women enroll during the first trimester compared to 34.1% nationally.



2008-2010 PNSS

Michigan WIC Mother Profile



Multivitamin Consumption

Smoking

Drinking



■ During Pregnancy

■ Prior to Preg

■ Last 3m of Preg

Michigan WIC & Birth Defects

- WIC Client Data was combined with Michigan Birth Defects Registry (MBDR) Data from 2003-2007
- Mothers with babies with BD compared to mothers with babies with no BD
- 39.3% of infants reported to MBDR were linked to a WIC Mother
- **Relationship found between a mother's BMI prior to pregnancy and BD**

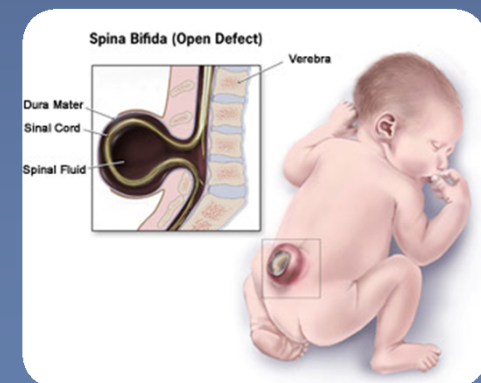


Obesity & Birth Defects

Risks for Neural Tube Defects (NTDs)

Weight category*	Increase above background risk**
Overweight (BMI ≥ 25)	1.2 x
Obese (BMI ≥ 30)	1.7 x
Severely Obese (BMI > 35)	3 x
<i>*As defined by IOM 2009</i>	**1-2/2000 births
The chance increases with the degree of overweight.	

Risk also increases for heart defects and many other types of birth defects with the degree of overweight.



Rasmussen et al., 2008

Prepregnancy BMI and Birth Defects



Increased odds of a birth defect if
prepregnancy BMI >26



Increased odds* of birth defects:

- ✓ 10% increase for any birth defect
- ✓ 20% increase in CNS (brain and spine) BD
- ✓ 10-30% increase in Heart BD
- ✓ 10-40% increase in Respiratory BD

**Adjusted for maternal race and age, gestational age, maternal weight gain, and parity*

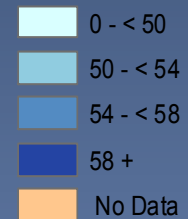
Trends in Prepregnancy Weight



Current BMI Definition: from 2009 IOM, underwt. BMI is <18.5 and overwt. BMI is >25.0



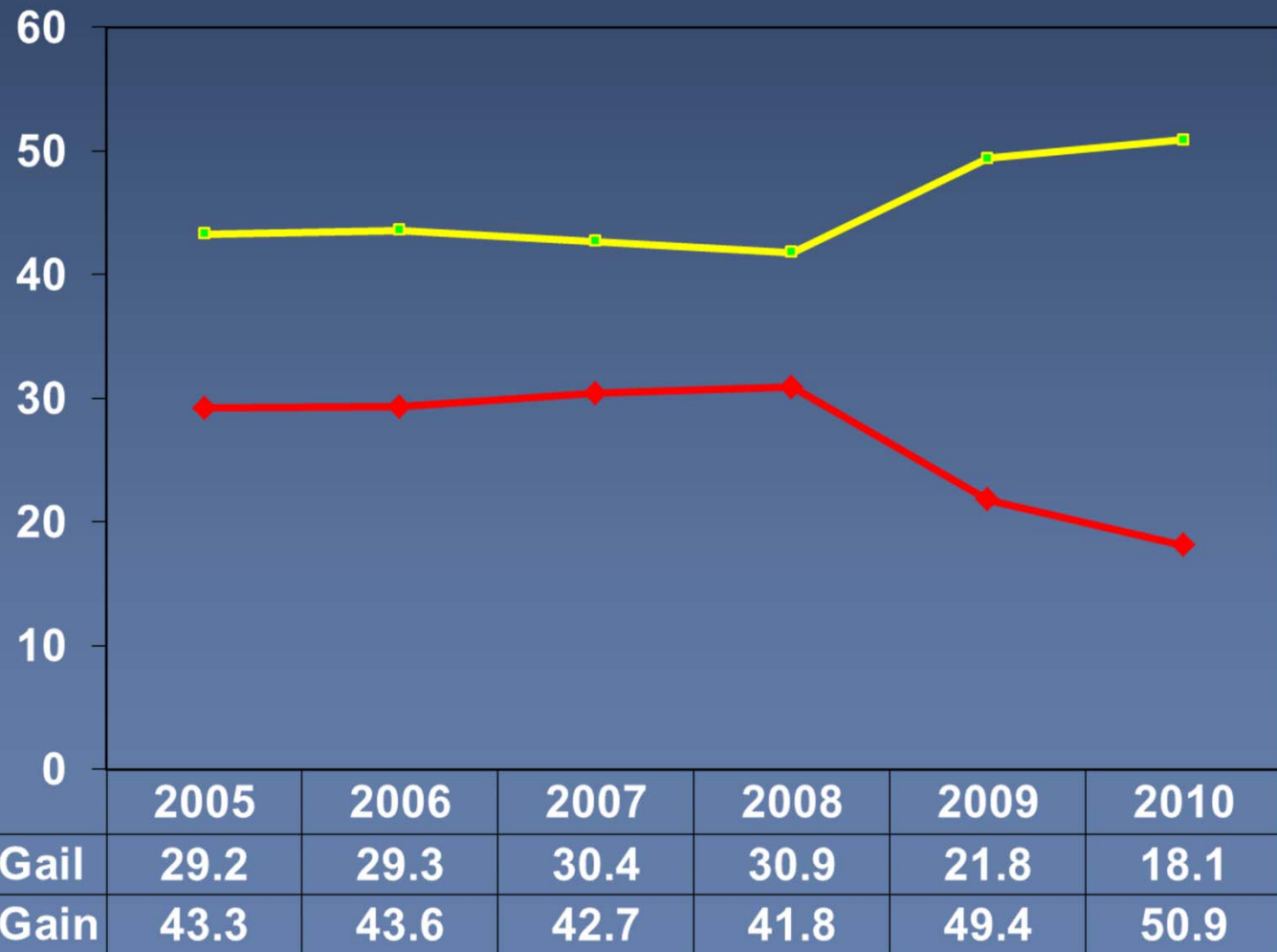
Prepregnancy Overweight, by County



54.7% of Michigan women enrolled are overweight or obese prepregnancy compared to 52.9% nationally.

2008-2010 PNSS

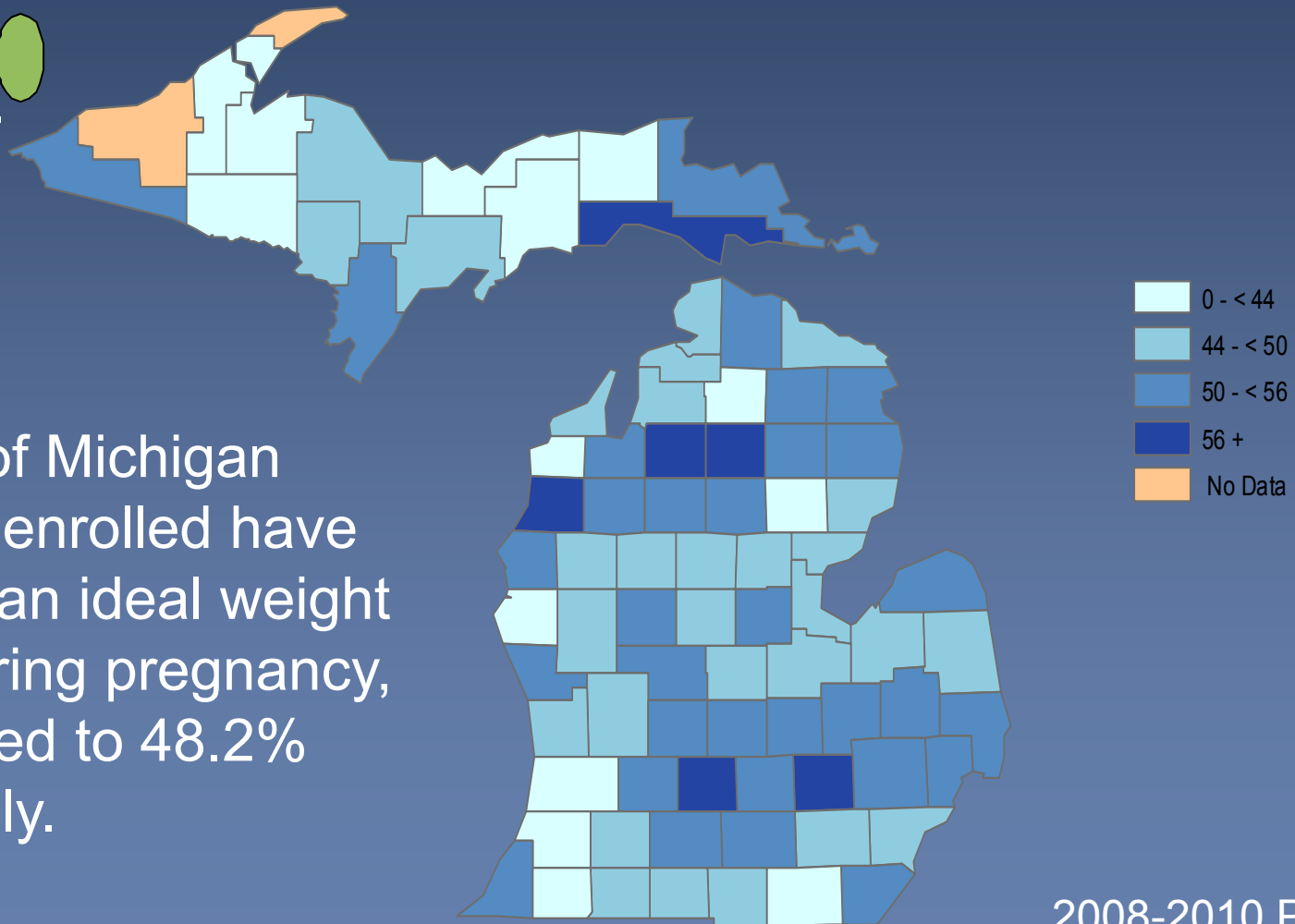
Trends in Maternal Weight Gain



Prevalence of More than Ideal Weight Gain



50.9% of Michigan women enrolled have more than ideal weight gain during pregnancy, compared to 48.2% nationally.



2008-2010 PNSS

Michigan WIC Behaviors

Nutrition and Exercise



	Fruits & Vegetables %	Sweetened Drinks %	Fast Food, >2x/wk %	TV Viewing, ≥2h/day %
WIC Mothers	88.9	45.3	10.2	ND
WIC Children 1-5	ND	30.3	10.9	19.7

Data → Education

What can
we do?



Diet and Exercise



- ✓ Get to a healthy weight before pregnancy
- ✓ Remain physically active
- ✓ Eat a healthy diet and meet the recommended daily values of vitamins and minerals

Obesity & Birth Defects

What can we do?

Recommend pregnancy weight gain by weight status:

- Normal = 25-35 lbs
- Overweight = 15-25 lbs
- Obese = 15 lbs

Screen for:

- Hypertension
- Diabetes Mellitus

Provide postpartum support for return to a healthy weight.

Healthy Diet

Follow individual nutritional guidelines for:

- a balanced diet,
- saturated fat and cholesterol,
- added calories needed in pregnancy,
- iron and calcium intake.



Prior to pregnancy: take a vitamin containing 400 micrograms of folic acid every day!

WIC Guidance

Inappropriate Nutrition Practices for Women



427.2 Consuming a diet very low in calories and/or essential nutrients; or impaired caloric intake or absorption of essential nutrients following bariatric surgery.

- Strict vegan diet;
- Low-carbohydrate, high-protein diet;
- Macrobiotic diet; and
- Any other diet restricting calories and/or essential nutrients.



Exercise

Every woman should--



- Take moderate exercise for 30 minutes most days,
- Walking, dancing, swimming, and yoga are great exercises,
- Avoid high-risk activities and sports in which she could get hit in the belly,
- Not perform exercises requiring her to lie on her back after the first trimester.

Medical Care



- Schedule and attend regular medical and dental examinations
- Avoid unnecessary x-rays
- Keep immunizations current
- ✓ Know and share family history
- ✓ Review lifestyle choices
- ✓ Evaluate medications
- ✓ Manage chronic conditions

Prenatal Check-ups

- Schedule
 - Weeks 4-28: every 4 weeks
 - Weeks 28-36: every 2 weeks
 - Weeks 36-40: one per week
- If mother has high-risk pregnancy or chronic condition, more frequent exams may be needed
- ✓ **Optimal time to make changes in treatment is often *prior* to conception**



Lifestyle Choices



Avoid using certain substances

- ✓ alcohol
- ✓ tobacco
 - recreational drugs
 - caffeine

Avoid using hot tubs and saunas before and during pregnancy

Make good nutrition and daily exercise a priority

Alcohol

Alcohol consumption during pregnancy can lead to:

Fetal Alcohol Syndrome or FASD

- Low birth weight
- Heart and growth problems
- Miscarriage or stillbirth
- Cognitive, behavioral, and emotional impairment

There is no safe level of alcohol consumption during pregnancy.



FASD is 100% PREVENTABLE!

Smoking & Pregnancy

- Smoking during pregnancy can lead to:
 - Infant death
 - Decreased oxygen to the brain
 - Premature birth
 - Low birth weight
 - Decreased lung function of the baby
 - Childhood behavioral issues and learning disabilities
- Second hand smoke can also impact the health of the unborn baby



Smoking & Birth Defects

Risks increased for-

- certain heart defects = about 2 times background (highest for smoking > 1 pk/day)
- cleft lip and cleft palate = about 1.5-2.5 times background (higher with certain gene variants)



Smoking & Birth Defects

What can we do?

Help women quit smoking

- Find MDCH resources at www.michigan.gov/tobacco



National Resources

- March of Dimes (www.marchofdimes.com)
- Smokefree.gov (1-800-Quit-Now)
- Centers for Disease Control and Prevention (www.CDC.gov/tobacco)

Medical Conditions & Birth Defects

- ✓ Obesity
- ✓ Diabetes Types 1 and 2
- Thrombophilia
- Epilepsy
- Cancer
- Rheumatoid arthritis
- Phenylketonuria
- Hypertension
- Maternal heart defect

Maternal medical conditions can cause birth defects.

Better control means better outcomes.

Best treatment may have risk.

Careful planning may be needed to protect mother's health.

Medications & Birth Defects

- Women should continue taking medication as prescribed until changes are approved by their PCP.
- All medication, including over-the-counter (OTC), herbal and vitamin supplements should be considered.



Medical needs may favor use:

Some medicines are strongly associated with birth defects.

Some medicines have great benefit and little or no birth defect risk.

Many may increase the chance for birth defects or other poor pregnancy outcomes a little or in certain instances.

Diabetes Type 1 and Type 2 & Birth Defects



Smith's Recognizable Patterns of Human Malformation, 4th Edition

Major anomalies*

- Heart defects
- Neural tube defects
- Hydrocephaly
- Cleft lip with/without cleft palate
- Anorectal atresia
- Anotia/microtia
- Renal agenesis/hypoplasia
- Limb deficiencies

* Correa, et. al., 2008

Diabetes Type 1 and Type 2 & Birth Defects

Risks increased
for--

- Any birth defect
- Multiple birth defects

Overall risk for birth defects among infants of diabetic mothers is about 2-4 times that of infants of non-diabetic mothers!

Type of Birth Defect*	Increase above background risk**
Heart	4.6 x
<i>Heart plus (multiple)</i>	10.7 x
Non-heart	2.3 x
<i>Non-heart plus (multiple)</i>	7.8 x
<i>Background risk</i>	1/33

Correa et al., 2008

Diabetes Type 1 and Type 2 & Birth Defects

Exposure Potential

- Nearly 3% of Michigan women 18-44 years have been told by a doctor that they have diabetes*
 - About 86% are overweight or obese
- About 1% of women who delivered a baby in the last year had problems with their blood sugar prior to pregnancy**

*Michigan Behavioral Risk Factor Survey (BRFS), 2008

**Michigan Pregnancy Risk Assessment Monitoring System (PRAMS), 2006

Preventive Measures

- Plan pregnancy
- Achieve and maintain control (monitor A1C; keep <7% *prior* to conception)
- Check blood sugar often
- Treat low blood sugar early



WIC Data & Birth Defects Resources

- WIC training site ⇒ <http://www.wichealth.org/>
- MDCH Preconception Health Facts (Series) ⇒ http://www.michigan.gov/mdch/0,1607,7-132-2945_5104-185449--,00.html
- March of Dimes (MOD) ⇒ www.marchofdimes.com
- Organization for Teratology Information Specialists (OTIS) ⇒ www.OTISPregnancy.org
- Teratology Society ⇒ www.teratology.org
- National Toxicology Program (Center for the Evaluation of Risks to Human Reproduction) ⇒ <http://cerhr.niehs.nih.gov>
- Food and Drug Administration (FDA) ⇒ www.fda.gov
- Center for Disease Control and Prevention (CDC) ⇒ www.cdc.gov
- National Center on Birth Defects and Developmental Disabilities (NCBDDD) ⇒ www.cdc.gov/ncbddd

Thank You, Together, We Can Make a Difference!



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More to Come!

**Medication: Before, During and
After Pregnancy**

Medications

Before, During and After
Pregnancy

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Defects Program



Objectives

- ✓ To describe causes of birth defects with a focus on preventable risk factors in the Michigan WIC population;
- ✓ To recognize the increased risk of birth defects to WIC clients through the review of WIC client health indicators; and
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Goal

Reduce the number of Michigan WIC babies born with a birth defect by increased awareness of **preventable factors** and adoption of **healthy behaviors**.



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Medical Care



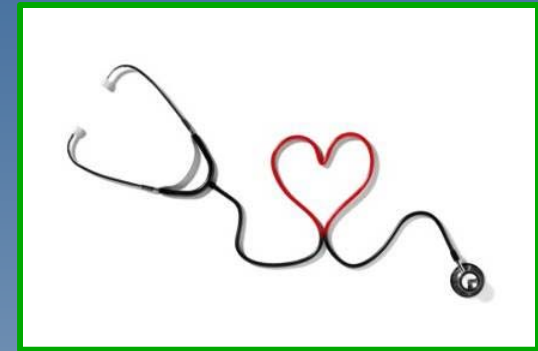
Work with a health care provider:

- Schedule and attend regular medical and dental examinations
- Avoid unnecessary x-rays
- Know and share family history
- Keep immunizations current
- ✓ Manage chronic conditions
- ✓ Evaluate medications



Prenatal Check-ups

- Schedule (routine)
 - Weeks 4-28: every 4 weeks
 - Weeks 28-36: every 2 weeks
 - Weeks 36-40: one per week
- If mother has a high-risk pregnancy or chronic condition, more frequent exams may be needed



✓ **Optimal time to make changes in treatment is often *prior* to conception**



Medical Conditions & Birth Defects

- ✓ Epilepsy (seizure disorder)
- ✓ Thrombophilia (blood clotting disorder)
 - Cancer
 - Rheumatoid arthritis
 - Phenylketonuria (PKU)
 - Diabetes (DM Type 1 and Type 2)
 - Obesity
 - Hypertension (high blood pressure)
 - Maternal heart defect

Maternal medical conditions can cause birth defects.

Better control means better outcomes.

Careful planning may be needed to protect mother's health.



Medication & Birth Defects

- Women should continue taking medication as prescribed until changes are approved by their PCP.
- All medication, including over-the-counter (OTC), herbal and vitamin supplements should be considered.



Medical needs may favor use:

Some medicines have great benefit and little or no birth defect risk.

Many may increase the chance for birth defects or other poor pregnancy outcomes a little or in certain instances.

Some medicines are strongly associated with birth defects.



FDA Classification of Drug Safety in Pregnancy¹⁰

<i>Category</i>	<i>Description (shortened)</i>
A	Controlled studies in women fail to show risk to the fetus in the first trimester (and no evidence of risk in later trimesters) <i>and</i> the possibility of fetal harm appears remote.
B	Either animal reproduction studies have not shown fetal risk but there are no controlled studies in pregnant women, <i>or</i> animal studies have shown an effect not confirmed in women in the first trimester (and no evidence of risk in later trimesters).
C	Either studies in animals have shown adverse effects on the fetus (teratogenic or embryocidal or other) <i>and</i> there are no controlled studies in women, or studies in women and animals are not available. ✓Drugs should be given only if the potential benefit justifies the potential risk to the fetus.
D	There is evidence of human fetal risk, but the benefits from use in pregnant women may be acceptable (e.g., if the drug is needed in a life-threatening situation or for a serious disease in which safer drugs cannot be used or are ineffective.)
X	Studies in animals or human beings have shown fetal abnormalities <i>or</i> there is evidence of fetal risk based on human experience, and the risk of the use of the drug in pregnant women clearly outweighs any possible benefit. ✓The drug is contraindicated in women who are or may become pregnant.
References	Food and Drug Administration - Code of Federal Regulations Title 21 (official language): http://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfCFR/CFRSearch.cfm?fr=201.80



Prescription Medications

**DO NOT USE
OR USE WITH
CAUTION**



- ✓ **Accutane (Isotretinoin)**
acne
- ✓ **Coumadin (Warfarin)**
heart valve disease, clotting tendency
- ✓ **Depakote (Valproic Acid)**
seizures, mental illness
- **Thalidomide**
certain cancers; certain skin conditions
- **Methotrexate**
certain cancers; rheumatoid arthritis



Retinoids (Vitamin A)

Indications

- Acne (severe, nodular, scarring)
- Melanoma (metastatic)
- Acute nonlymphocytic leukemia

Oral form = major concern

Medications

Isotretinoin:

- ✓ Accutane[®]
- Amnesteem[®]
- Claravis[®]
- Sotret[®]

Etretinate:

- Tegison[®]

Acitretin:

- Soriatane[®]



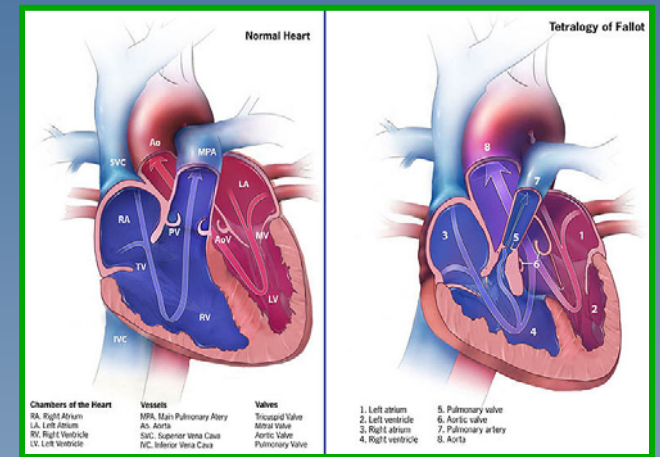
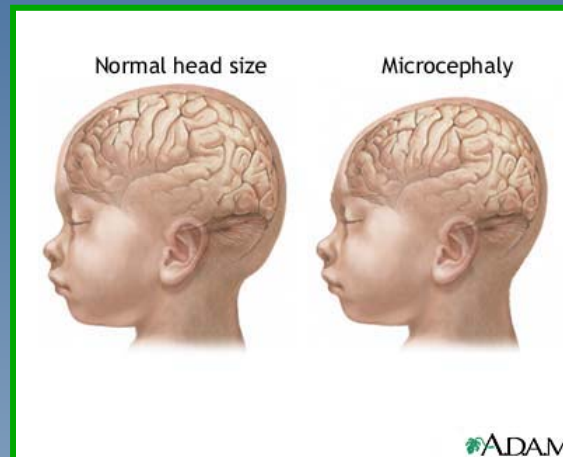
Retinoids (Vitamin A)

Major anomalies

- Microtia/Anotia
- Heart defects
- Microcephaly, hydrocephalus

Minor features

- Flat nasal bridge
- Tooth enamel mottling
- Ocular hypertelorism (widely spaced eyes)



Growth and development

- Developmental delays and cognitive impairment



Retinoids (Vitamin A)

Exposure potential

- Lack of written medical recommendation = 64%
- Failure to use two contraceptive methods = 78%
- Lack of pregnancy test before prescribing = 66%
- Failure to wait for menstrual cycle to begin = 82%

Risk estimates

- Miscarriage ~ 40%
- Birth defects ~ 35%
- Pregnancy rate ~2.7/1000 using isotretinoin (US)

Preventive Measures

CONTRACEPTION

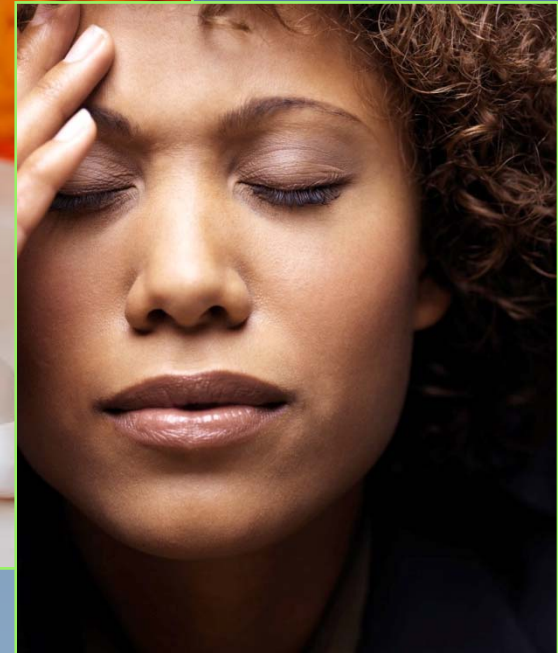
iPLEDGE: www.ipledgeprogram.com



Epilepsy & Antiepileptics

Indications

- Epilepsy (seizures)
- Mood disorders
- Headaches



Epilepsy & Antiepileptics

Medications

- Benzodiazepines
 - Clonazepam (Klonopin[®])
 - Diazepam (Valium[®])
- Carbamazepine (Tegretol[®])
- Gabapentin
- Lamotrigine (Lamictal[®])
- Levetiracetam (Keppra[®])
- Oxcarbazepine (Trileptal[®])

Medications (continued)

- Phenobarbital (barbiturate)
- Phenytoin (Dilantin[®])
- Primidone
- Topiramate (Topamax[®])
- ✓ **Valproate (Depakote[®])**
- Vigabatrin (Sabril[®])
- Zonisamide (Zonegran[®])
(sulfonamide)



Epilepsy & Antiepileptics

Major anomalies

- Cleft lip/palate
- Heart defects
- Spina bifida
(~1-5% of exposed fetuses)



Minor features

- Midface hypoplasia
- Digit hypoplasia
(fingers and toes)

Growth and development

- Low birth weight
- Developmental delays and cognitive impairment



Epilepsy & Antiepileptics

Exposure Potential

- About 0.5% (1/200) pregnant women have epilepsy.

Preventive Measures

Plan pregnancy; suggested preconceptional folic acid supplementation of up to 4 mg/day (prescription required).

Risk Estimates

- 4-10% overall risk for birth defects in children of women treated for epilepsy.
- Results mixed concerning baseline risk in children of untreated women with epilepsy.



Warfarin (Anticoagulant)

Indications

- Heart valve disease
- Heart valve replacement
- Anti-phospholipid antibody
- Thrombophilia
(blood clotting disorder)
- Deep vein thrombosis (DVT)
(blood clot in leg veins)
- Pulmonary embolism
(blood clot in lung artery)

Medication

- Coumadin[®]

Action

- Blood thinner
- Inhibits synthesis of Vitamin K dependent clotting factors II, VII, IX, X and proteins C, S



Warfarin (Anticoagulant)

Fetal Warfarin Syndrome

- Stippling of epiphyses of proximal femur (hip) and calcaneus (heel) (chondrodysplasia punctata)
- Hypoplastic distal phalanges (under-developed tips of fingers and toes)
- Low birth weight (usual catch-up)
- Increased risk for CNS anomalies seen with 2nd and 3rd trimester exposure (e.g., microcephaly, hydrocephalus)
- Fetotoxicity (miscarriage; stillbirth; neonatal death) ~50%
- Scoliosis
- Hypoplastic nose
- Depressed nasal bridge
- Hearing loss
- Eye anomalies; blindness
- Heart defects
- Cognitive impairment
- Seizures



Warfarin (Anticoagulant)

Exposure Potential

- Valvular heart disease affects <1% of all pregnancies
- Heart disease affects 1-4% of pregnancies

Risk Estimates

- 6% to 25% of exposed fetuses
- Susceptibility dependent on genetic variants/slow metabolizers

Preventive Measures

Plan pregnancy; decrease coumadin to ≤ 5 mg/day; some suggest to use heparin in first trimester.



Over-the-Counter Medications



- ✓ Aspirin
- ✓ Ibuprofen
 - Cough syrup
 - Allergy medication



Aspirin (Salicylates)

Indications

- Pain management
- Rheumatic disease
- Heart disease

Low dose may
be protective.

High dose risk near term:

Mother = prolonged gestation, complicated delivery, increased pre- and post-partum bleeding

Fetus = early closure of ductus arteriosus, increased risk for stillbirth, intracranial hemorrhage, low birth weight, transient renal failure and oligohydramnios (low amniotic fluid)



Ibuprofen

Indications

- Pain management
- Rheumatic disease

Medications

- Motrin[®]
- Advil[®]
- Nuprin[®]

High dose risk near term:

Mother = prolonged gestation, complicated delivery, increased pre- and post-partum bleeding

Fetus = early closure of ductus arteriosus, increased risk for stillbirth, intracranial hemorrhage, low birth weight, transient renal failure and oligohydramnios (low amniotic fluid)



Herbal Supplements

- Not regulated by FDA
- Manufacturers are not required to perform safety and effectiveness studies
- Improper labels or misguided information
- Few trials so not enough information on safety
- May be adulterated with other drugs or contaminated with heavy metals or bacteria



Vitamins

Inappropriate Nutrition Practices for Women

WIC NUTRITION Risk

427.4 Inadequate vitamin/mineral supplementation recognized as essential by national public health policy.



- Consumption of less than 27 mg of iron as a supplement daily by pregnant woman.
- Consumption of less than 150 mcg of supplemental iodine per day by pregnant and breastfeeding women.
- Consumption of less than 400 mcg of folic acid from fortified foods and/or supplements daily by non-pregnant woman.



Talking Points

- ✓ Many birth defects develop early in pregnancy, before many women know they are pregnant
- ✓ Some birth defects are preventable
- ✓ Certain medical conditions in women can cause birth defects
- ✓ Certain medications can cause birth defects
- ✓ The best time to optimize medical management is before pregnancy
- ✓ Planning pregnancy gives time to make changes that increase the chances of a healthy pregnancy and healthy baby
- ✓ Medicines should be taken as directed; changes should be made with a health provider's guidance

Resources

- Organization for Teratology Information Specialists (OTIS) ⇒ www.OTISPregnancy.org [Toll Free 866-626-6847 in English and Spanish]
- Teratology Society ⇒ www.teratology.org
- March of Dimes (MOD) ⇒ www.marchofdimes.com
- Food and Drug Administration ⇒ www.fda.gov
- MotheRisk ⇒ www.motherisk.org
- Dietary Supplements Database ⇒ <http://dietarysupplements.nlm.nih.gov/dietary>
- Teratogen Information System (TERIS) and Shepard's Catalog of Teratogenic Agents ⇒ <http://depts.washington.edu/terisweb/teris/> (annual subscription fee \$150.00 3-2011)



Thank You
Together, we can make a
difference!



Genomics & Birth Defects
Program

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For birth defects prevention information
and educational materials



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