

Preterm Birth Among American Indians: Impact on Health Equity

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Oglala Lakota

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Mary J. Berg Distinguished Professor of Women's Health

Traditional View of Public Health

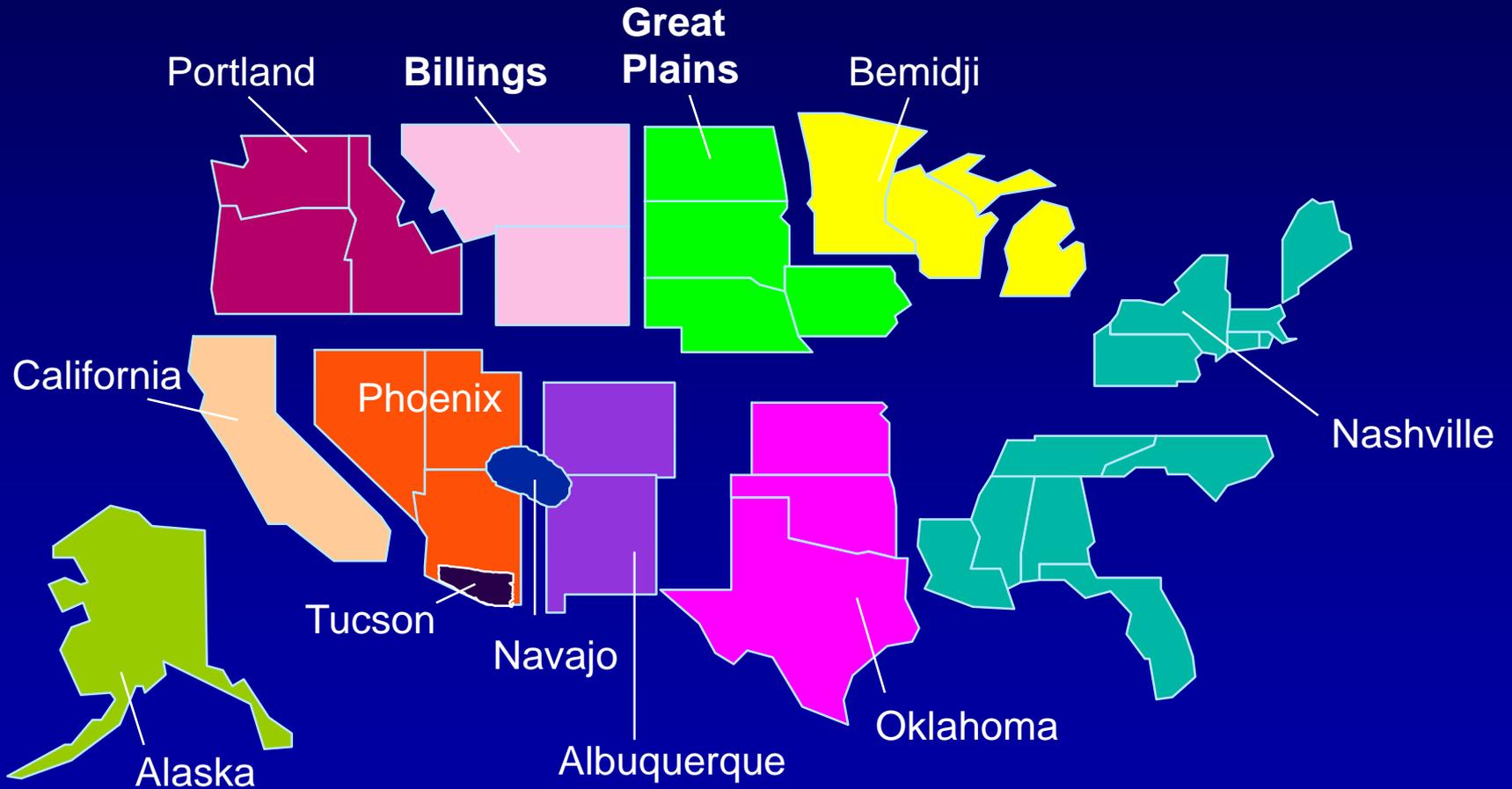


STUDENT FOCUSED • LAND GRANT • RESEARCH UNIVERSITY **NDSU**

Pine Ridge Reservation Kyle, S.D.

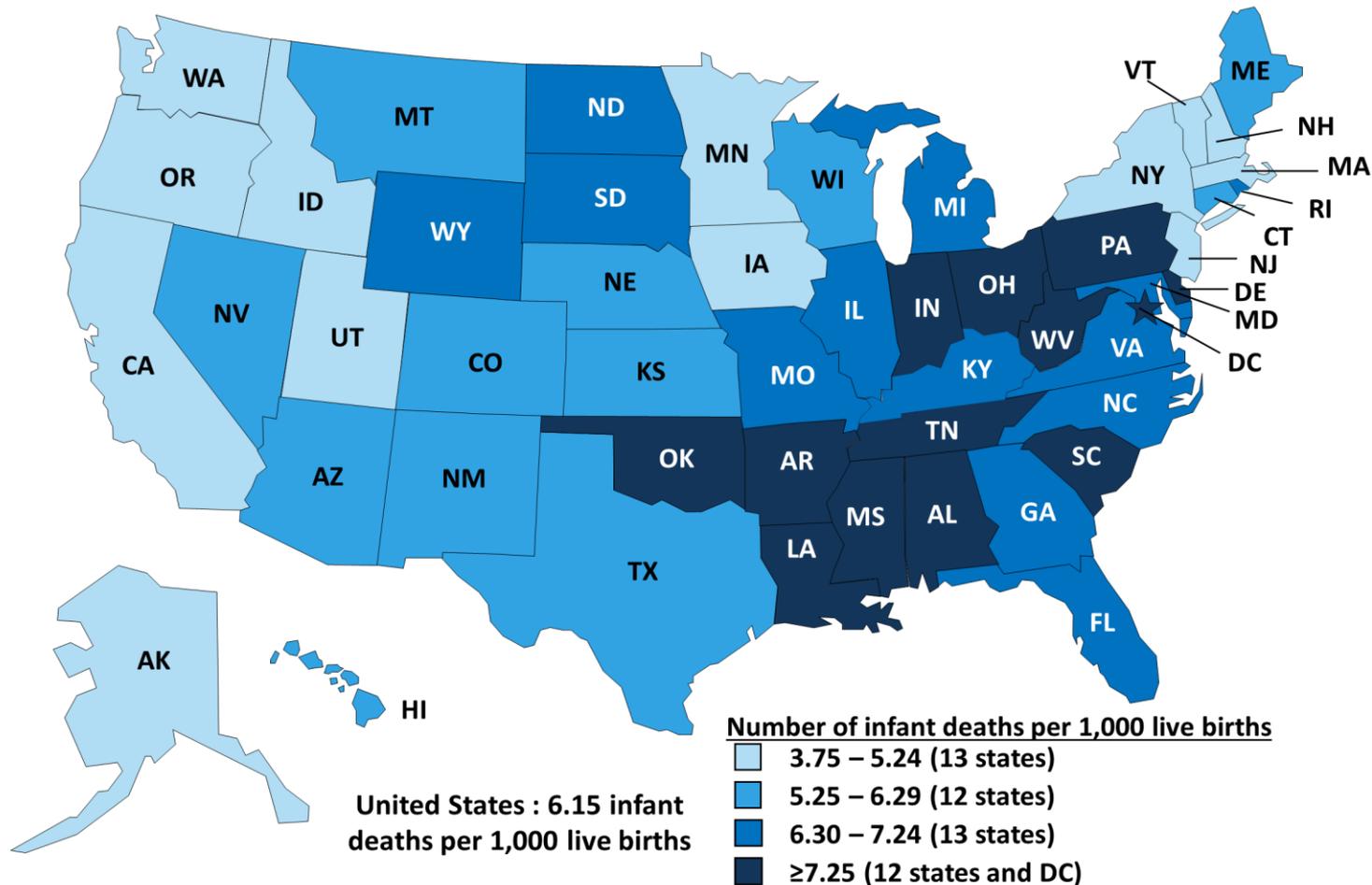


IHS Areas



States in the South have among the highest infant mortality rates in the country.

Infant Mortality Rate, by State, 2011



SOURCE: CDC/NCHS, National Vital Statistics System, mortality data set.

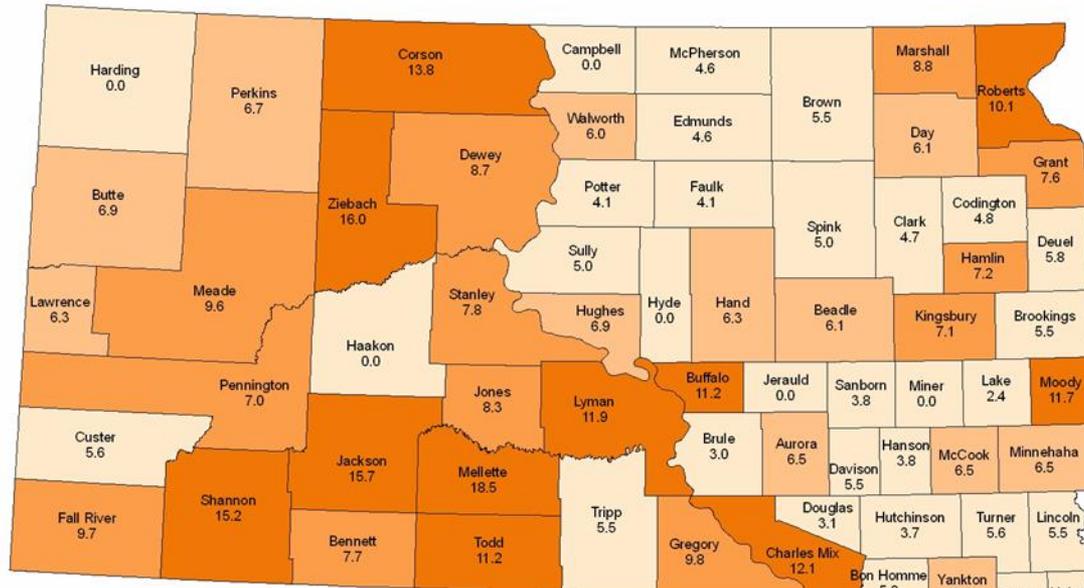
South Dakota Reservations



Infant mortality rates, South Dakota, 2000-2009

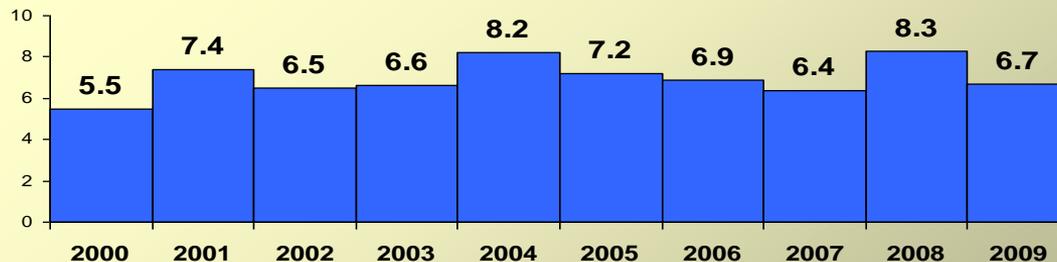
Campbell	0.0
Haakon	0.0
Harding	0.0
Hyde	0.0
Jerauld	0.0
Miner	0.0
Lake	2.4
Union	2.9
Brule	3.0
Douglas	3.1
Clay	3.2
Hutchinson	3.7
Sanborn	3.8
Hanson	3.8
Faulk	4.1
Potter	4.1
McPherson	4.6
Edmunds	4.6
Clark	4.7
Codington	4.8
Bon Homme	5.0
Sully	5.0
Spink	5.0
Brookings	5.5
Davison	5.5
Brown	5.5
Tripp	5.5
Lincoln	5.5
Turner	5.6
Custer	5.6
Deuel	5.8
Walworth	6.0
Day	6.1

Beadle	6.1
Hand	6.3
Lawrence	6.3
Minnehaha	6.5
Aurora	6.5
McCook	6.5
Yankton	6.6
Perkins	6.7
Butte	6.9
Hughes	6.9
Pennington	7.0
Total	7.0
Kingsbury	7.1
Hamlin	7.2
Grant	7.6
Bennett	7.7
Stanley	7.8
Jones	8.3
Dewey	8.7
Marshall	8.8
Meade	9.6
Fall River	9.7
Gregory	9.8
Roberts	10.1
Buffalo	11.2
Todd	11.2
Moody	11.7
Lyman	11.9
Charles Mix	12.1
Corson	13.8
Shannon	15.2
Jackson	15.7
Ziebach	16.0
Mellette	18.5



Infant Mortality Rate

(per 1,000)



American Indian Health Disparities

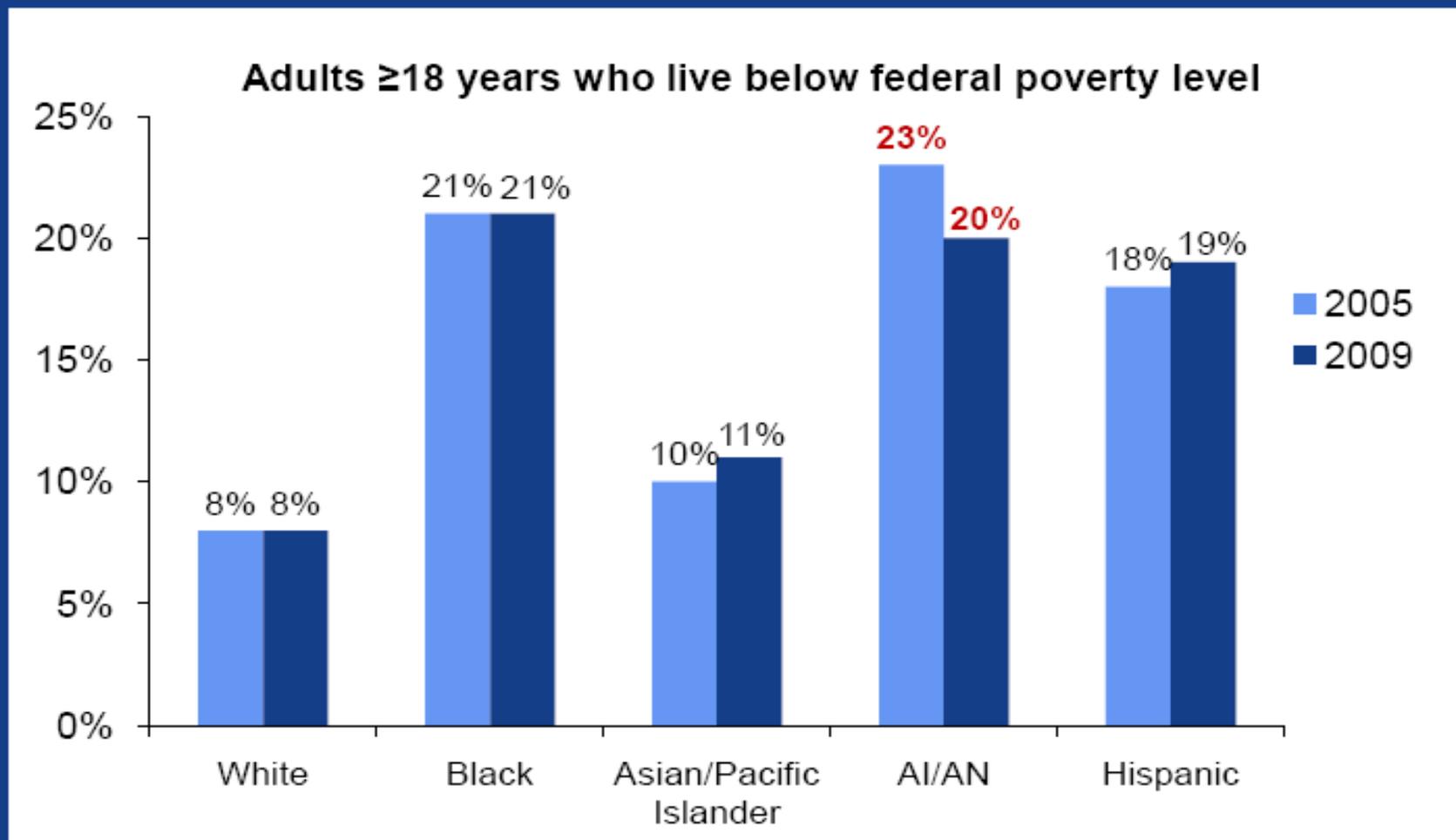
Life Expectancy in Years:

	<u>Men</u>	<u>Women</u>	<u>Total</u>
U.S.	74.1	79.5	76.9
GPAIHS	63.5	71.0	67.3
Disparity:	10.6	8.5	9.6

Average Age at Death in ND (2010-2014):

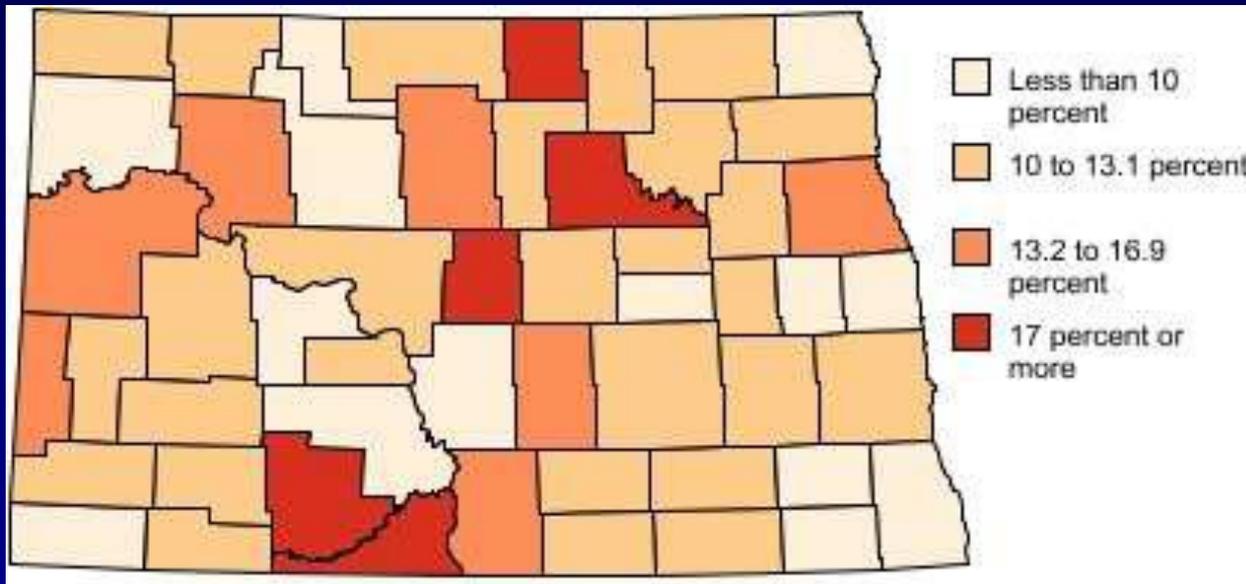
- **76.6** years in the White population
- **56.8** years in the American Indian population

2.5 times as many AI/ANs as whites live below poverty level

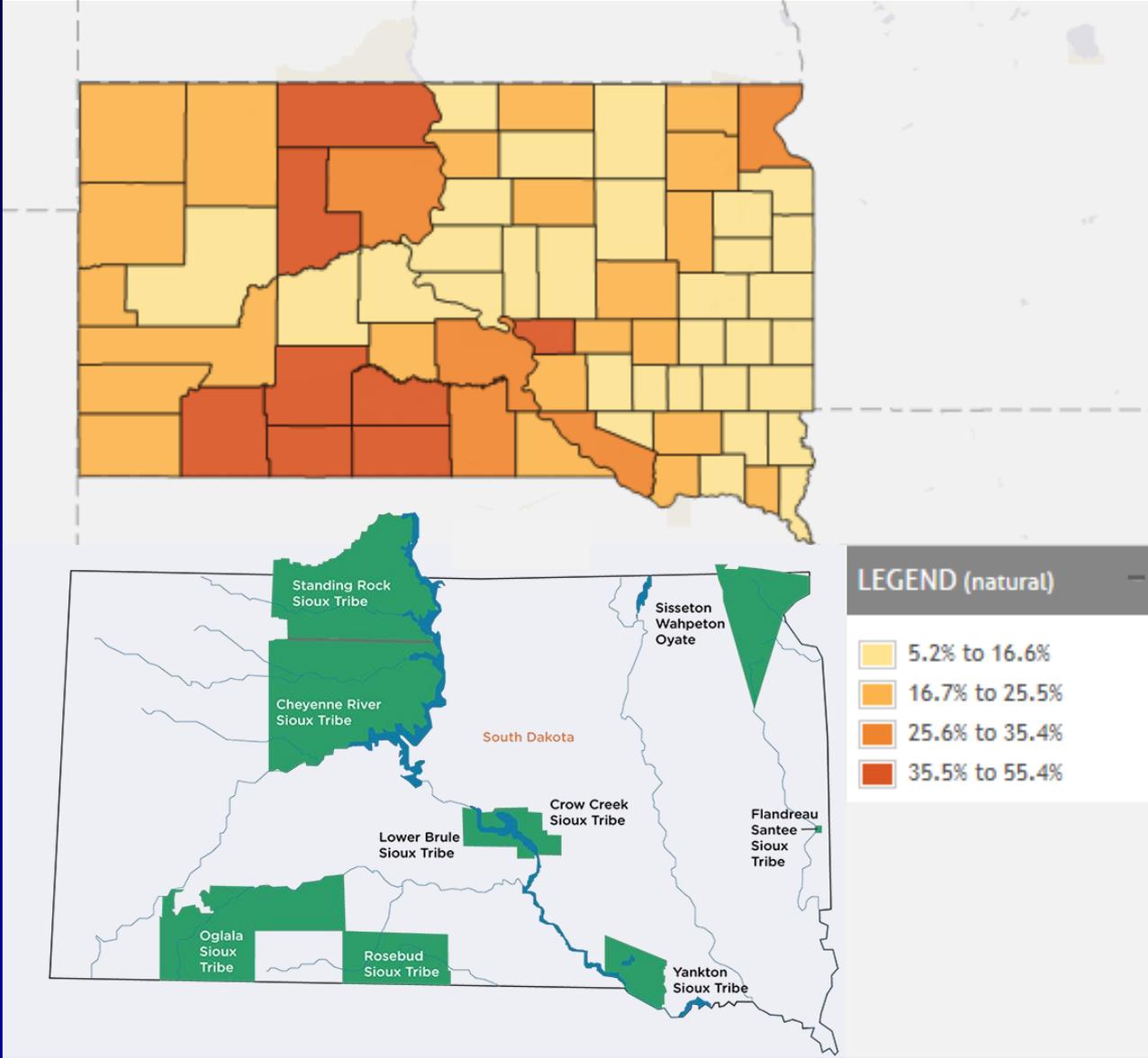


Source: CDC Health Disparities and Inequalities Report 2011, MMWR, Vo. 60

Poverty in North Dakota



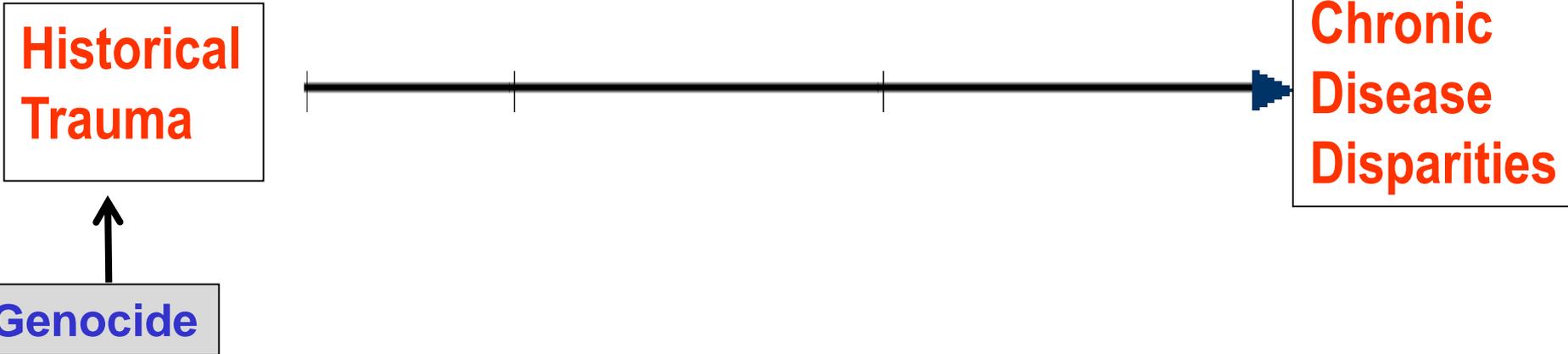
Poverty in South Dakota



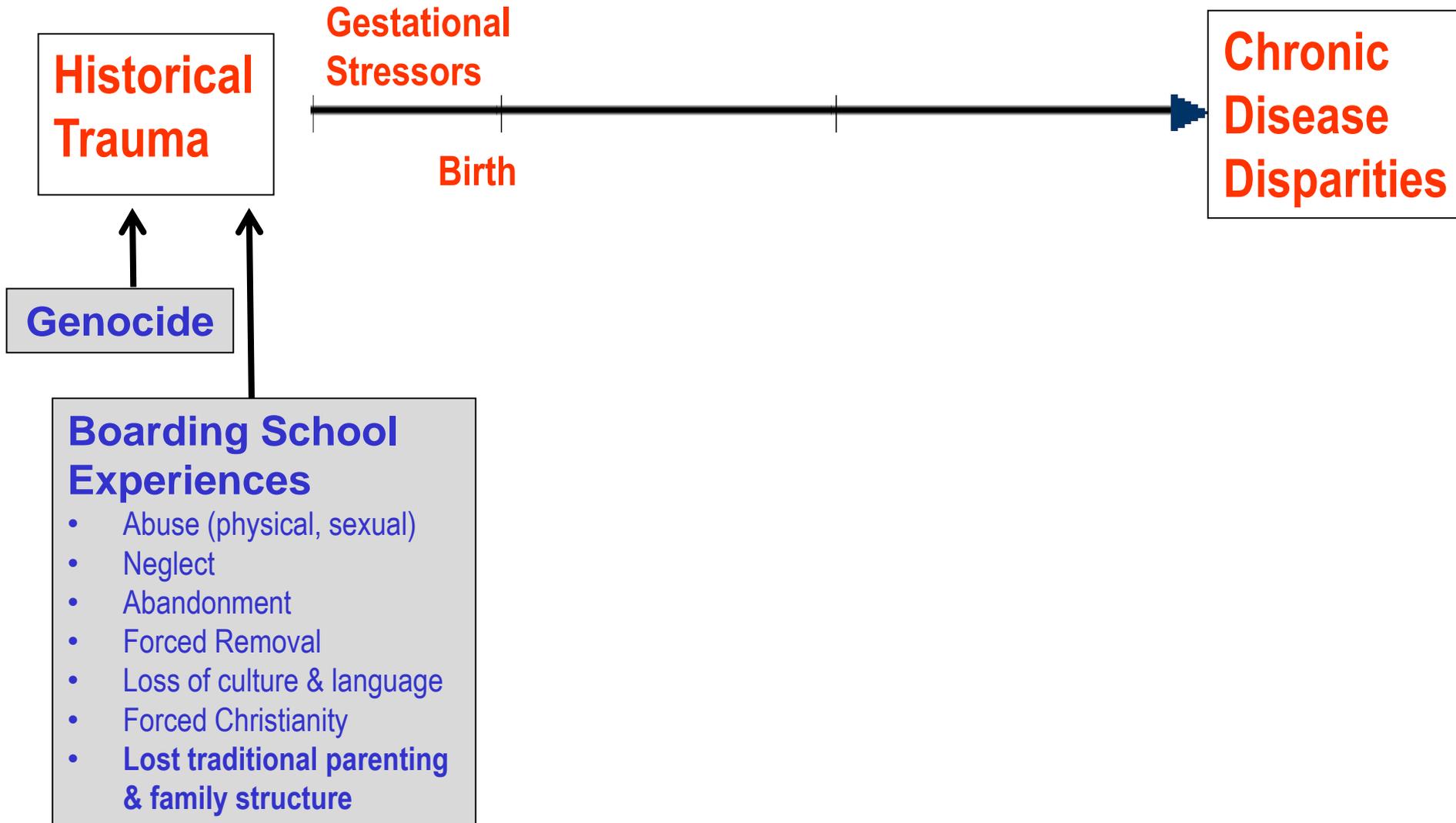
Counties with highest poverty rates (2012)

- 1. Ziebach County, SD 50.1**
- 2. Todd County, SD 49.1**
- 3. Shannon County, SD 47.3**
4. Issaquena County, Miss. 43.3
5. Humphreys County, Miss. 42.2
6. Washington County, Miss. 42.2
- 7. Sioux County, ND 41.3**
8. Holmes County, Miss. 41.2
- 9. Corson County, SD 40.9**
- (T) 10. Lake County, Tenn. 40.4
- (T) 10. Allendale County, SC 40.4

Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives



Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives



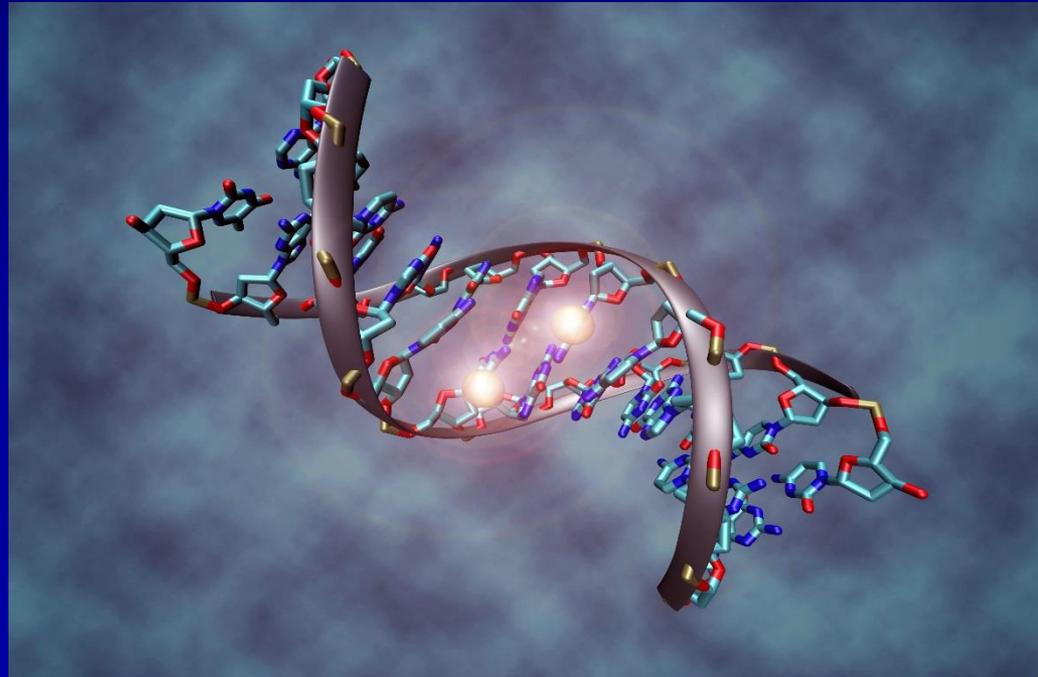
Historical trauma is the collective emotional wounding across generations that results from massive cataclysmic events – Historically Traumatic Events (HTE)*



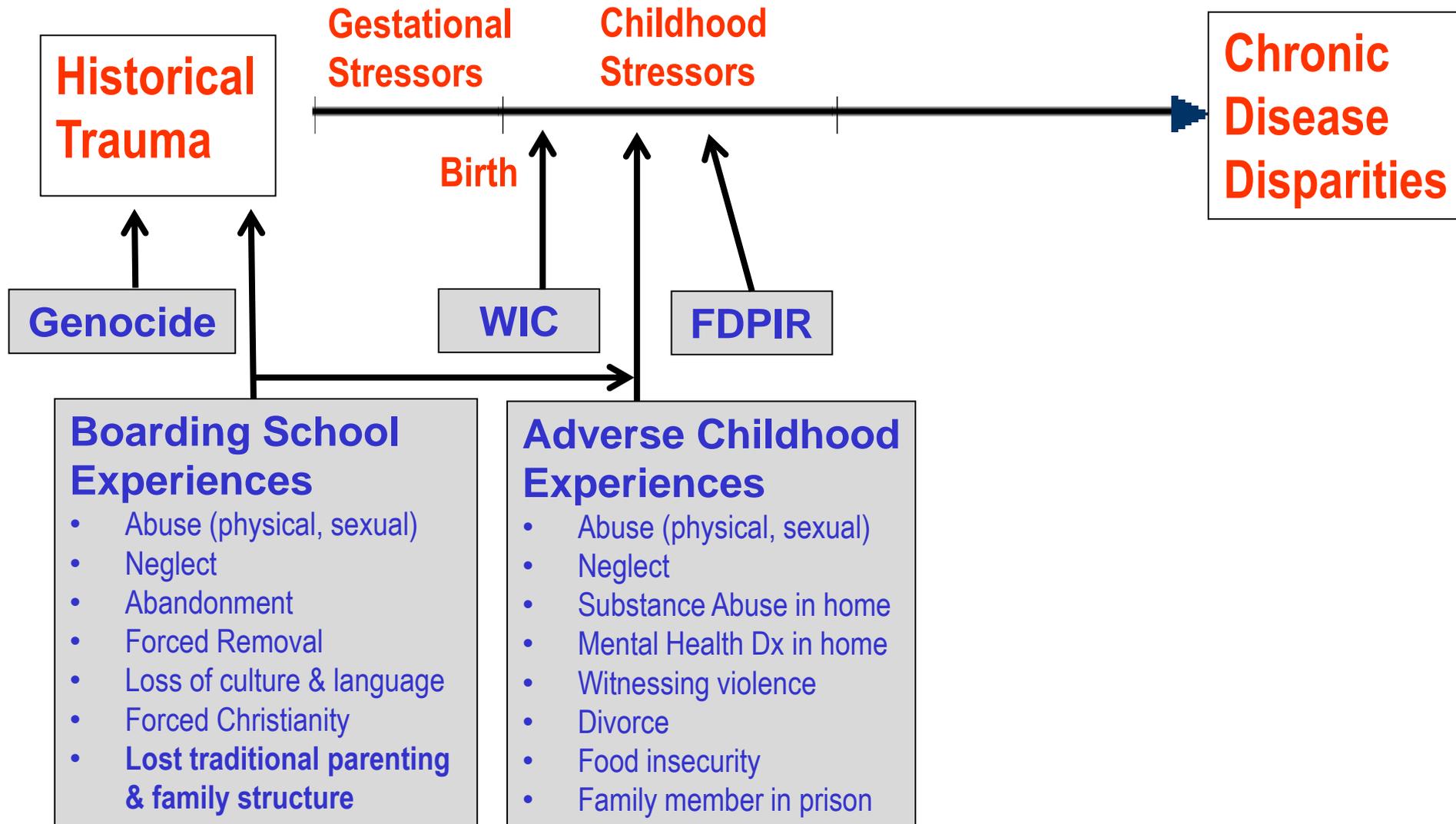
- The trauma is held personally and transmitted over generations. Thus, even family members who have not directly experienced the trauma can feel the effects of the event generations later

Epigenetics

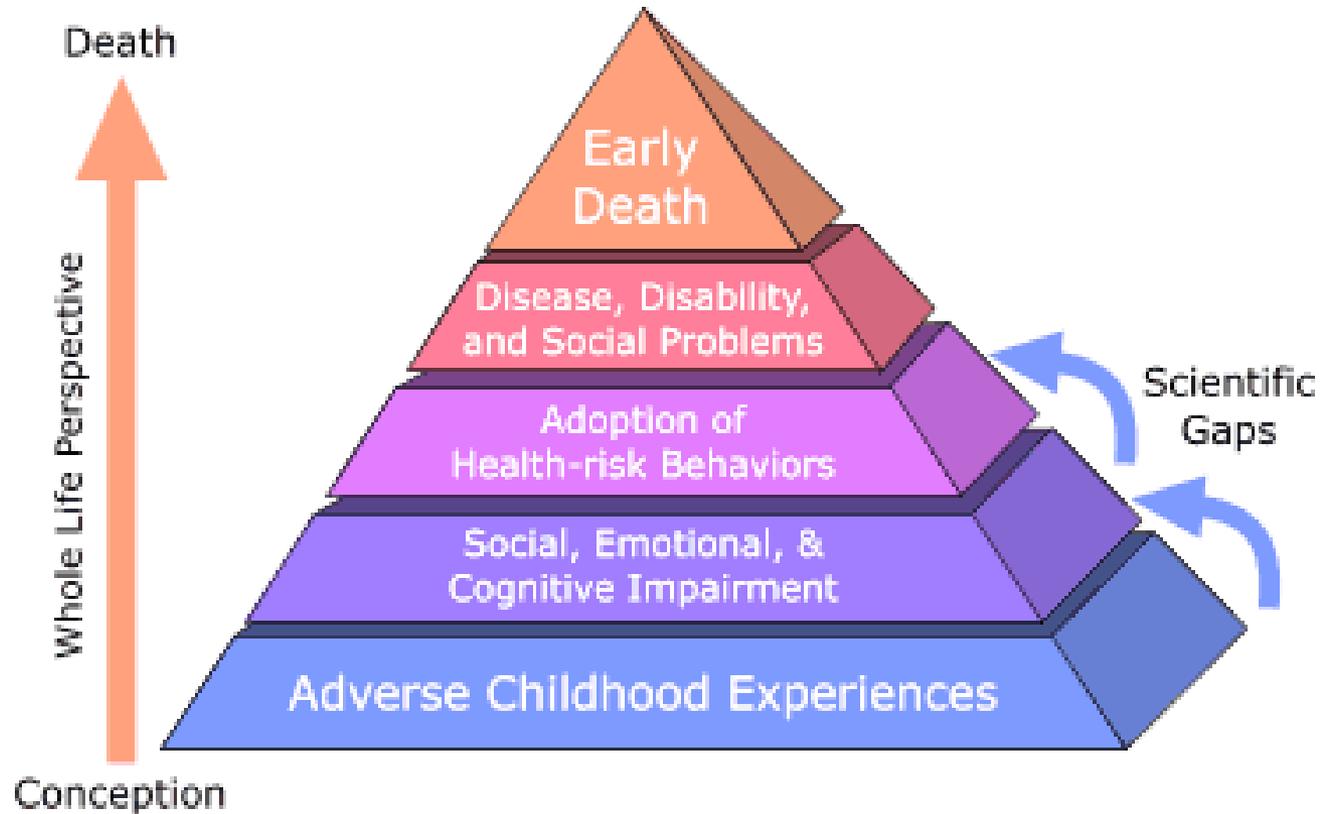
- Epigenetics refers to the study of changes in the regulation of gene activity and expression that are not dependent on DNA sequence.



Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives



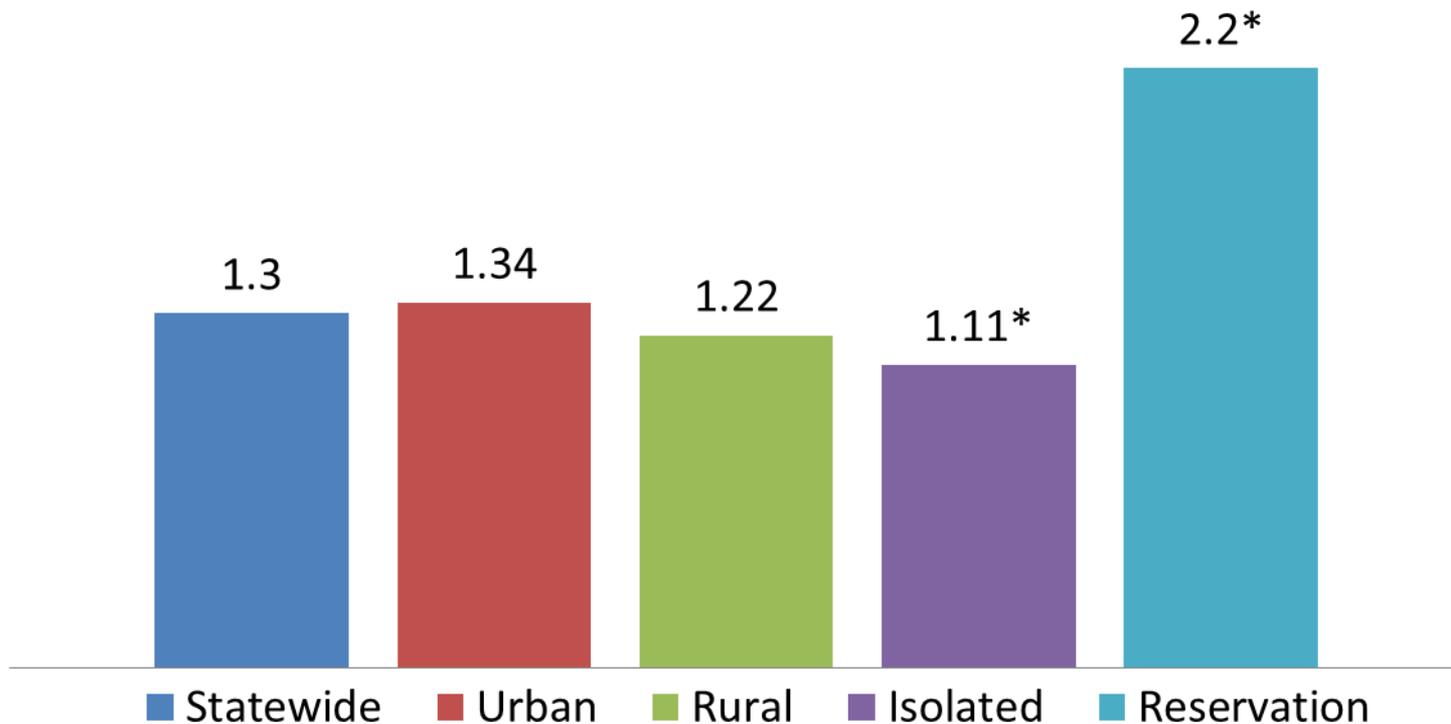
ACE Study Pyramid



Adverse Childhood Experiences (ACEs)

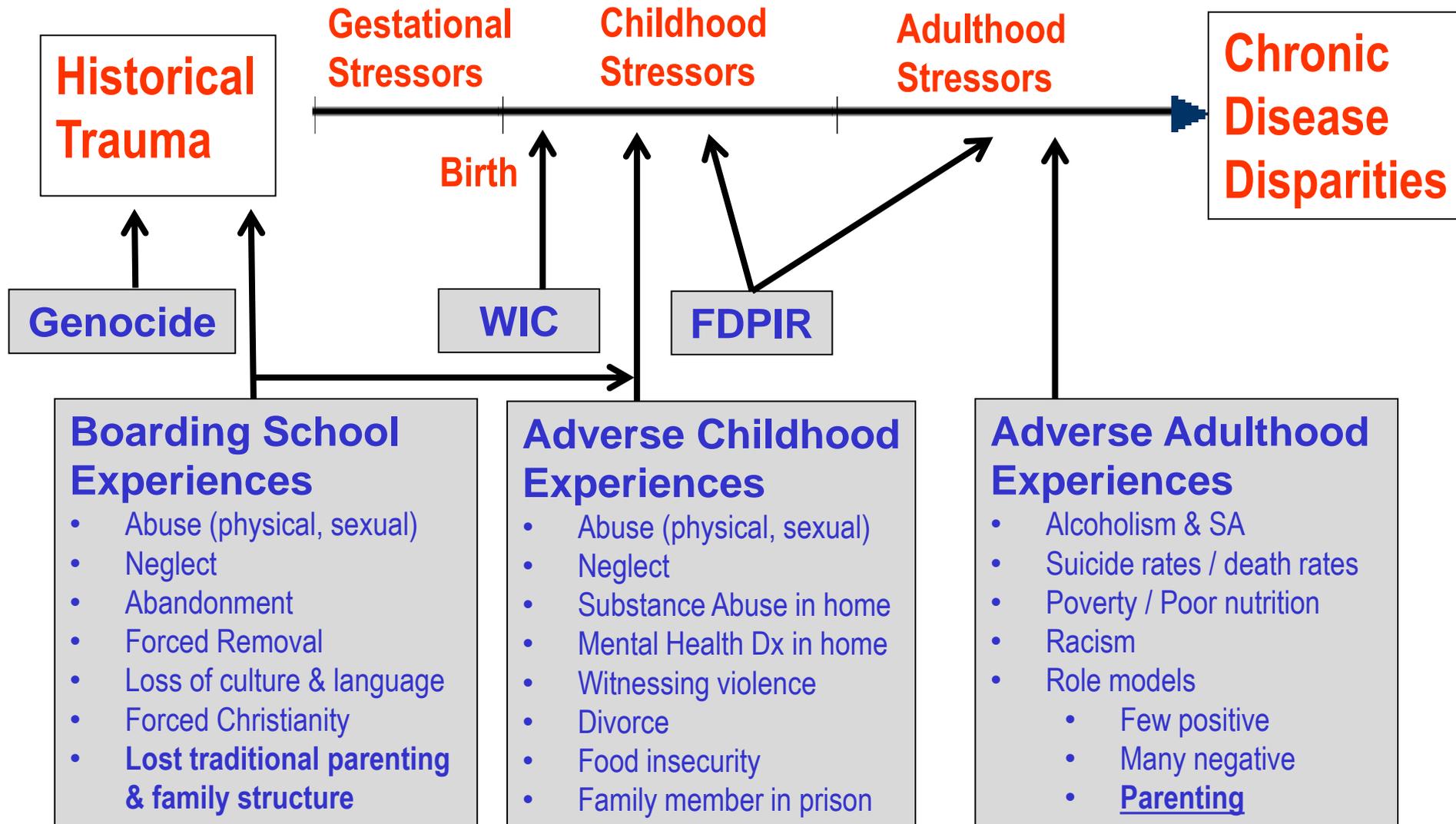
SD Health Survey

Mean score on the standardized ACE questionnaire

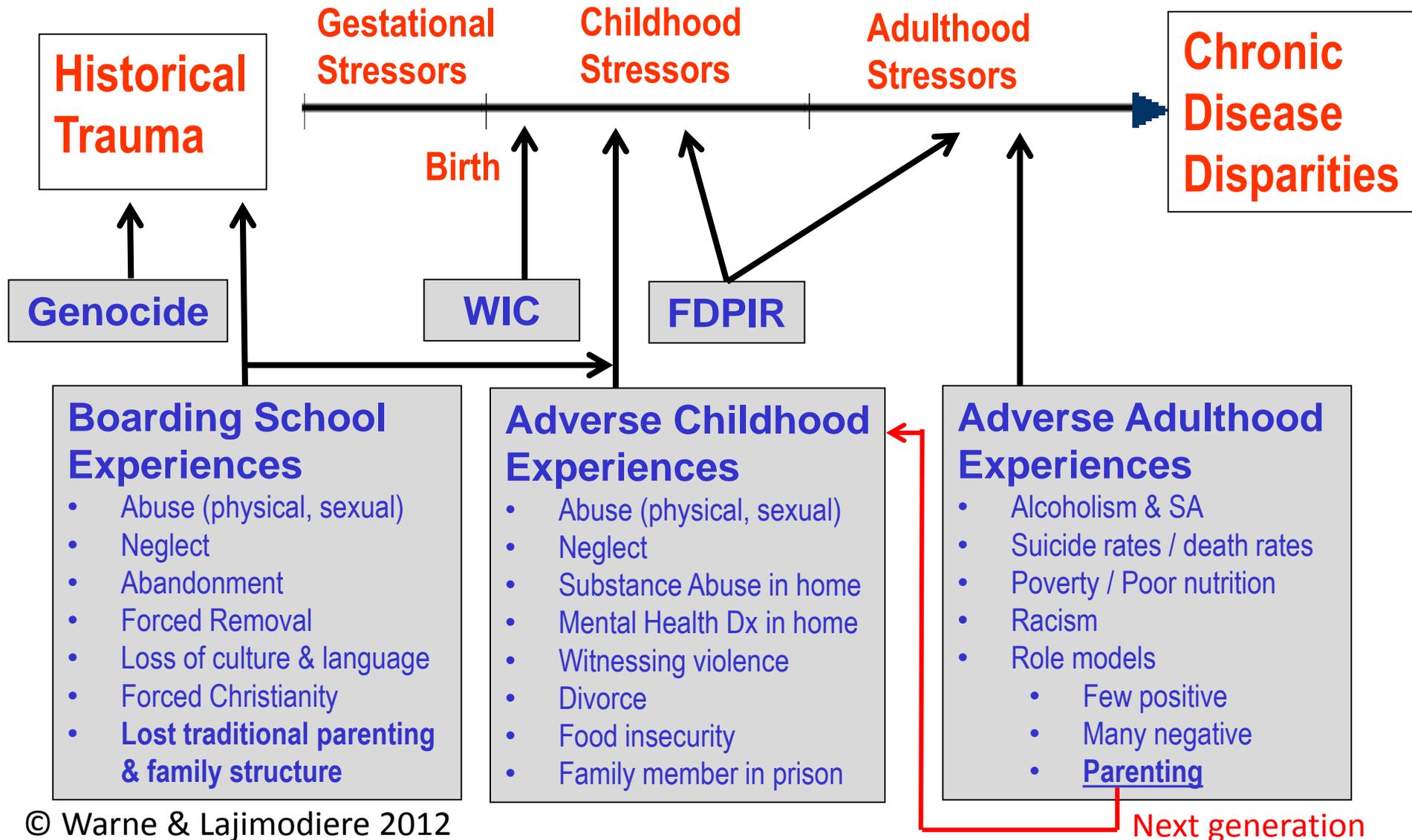


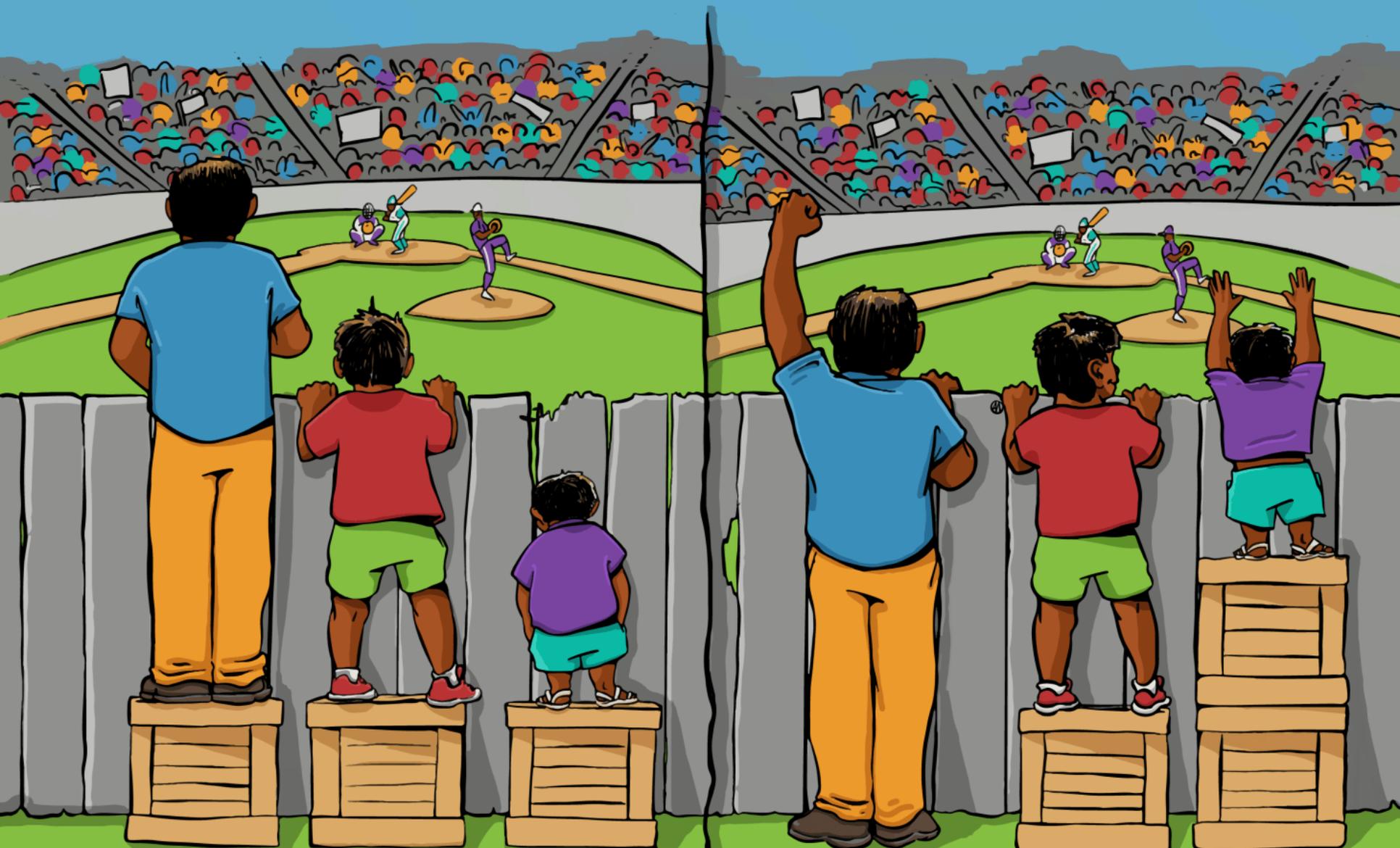
* Significantly different from urban population, adjusted for demographic variables

Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives



Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives





EQUALITY

EQUITY

MEDICINE WHEEL

MENTAL

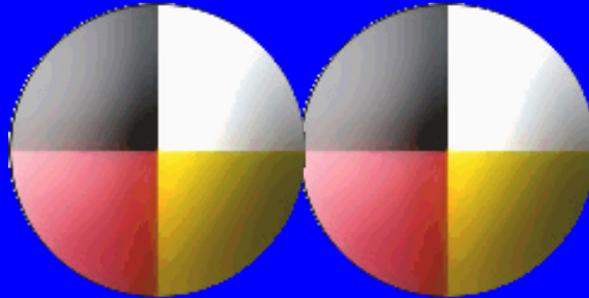
PHYSICAL



SPIRITUAL

EMOTIONAL

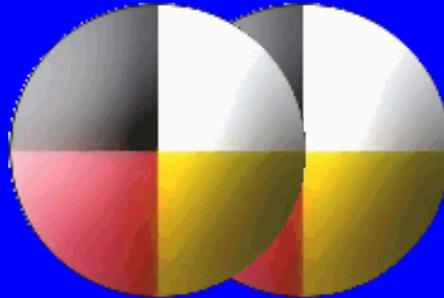
Medicine Wheel Assessment Interpersonal Relationships



Surface Interactions

- Professional Relationships,
Acquaintances, etc.

Medicine Wheel Assessment Interpersonal Relationships



Medicine Wheel Assessment Interpersonal Relationships

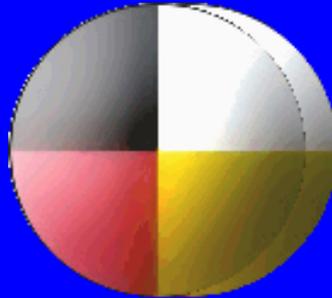


**Core Interactions—Encompass all Four
Directions—Family, Close Friends**

Medicine Wheel Assessment Family Relationships

MENTAL

PHYSICAL



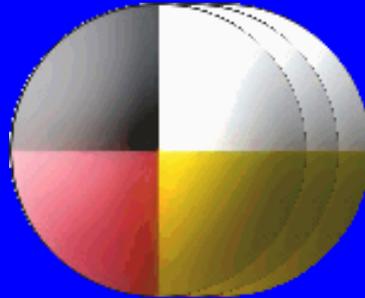
SPIRITUAL

EMOTIONAL

Medicine Wheel Assessment Family Relationships

MENTAL

PHYSICAL



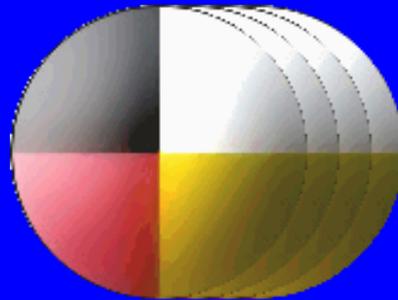
SPIRITUAL

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Medicine Wheel Assessment Family Relationships

MENTAL

PHYSICAL



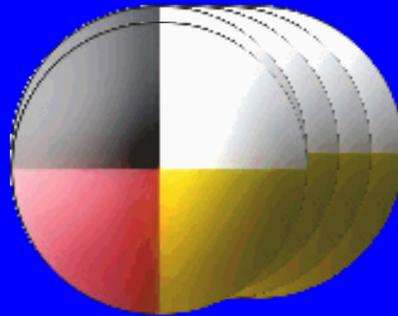
SPIRITUAL

EMOTIONAL

Medicine Wheel Assessment Family Relationships

MENTAL

PHYSICAL



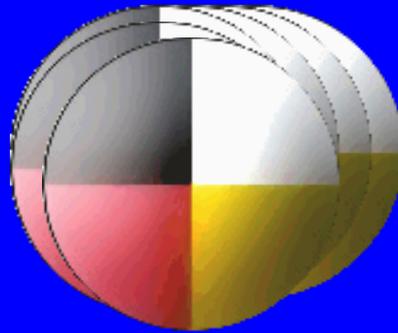
SPIRITUAL

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Medicine Wheel Assessment Family Relationships

MENTAL

PHYSICAL



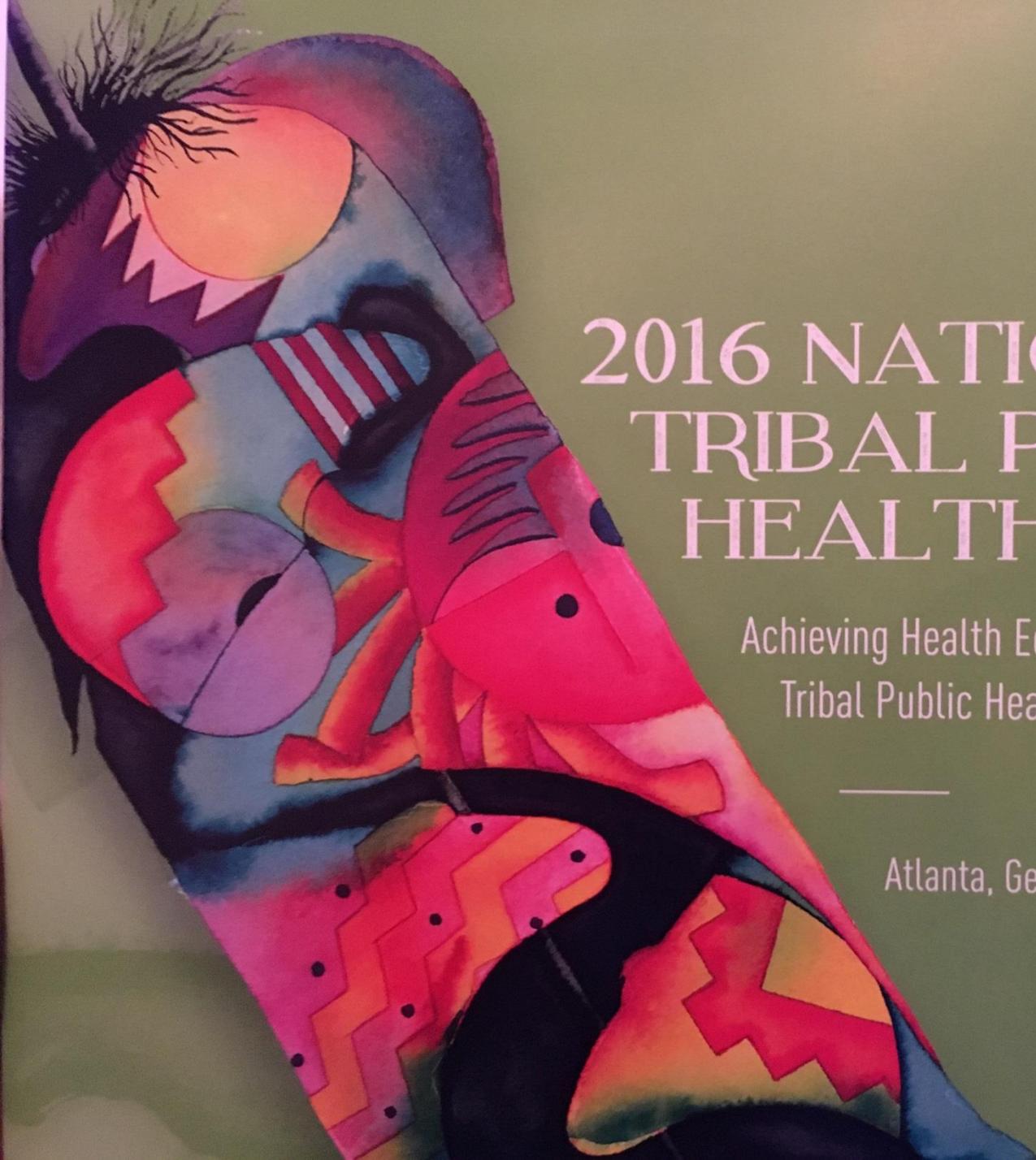
SPIRITUAL

EMOTIONAL

Medicine Wheel Assessment Family Relationships



Connectedness to both ancestry and to
future generations (7th Generation)



2016 NATIONAL TRIBAL PUBLIC HEALTH SUMMIT

Achieving Health Equity: Re-envisioning
Tribal Public Health for Seven Generations

Atlanta, Georgia • April 11-13, 2016

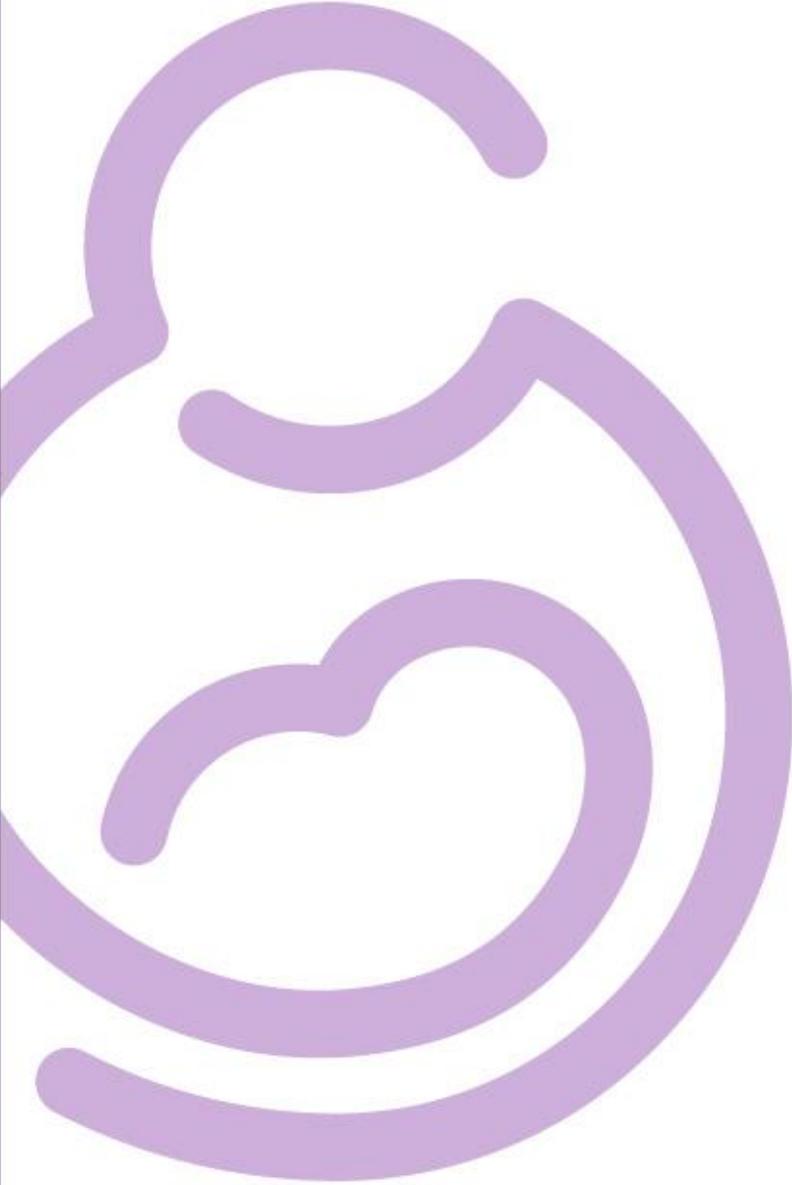
NDSU MPH Program Mission

The program's mission is to promote health and well-being in diverse populations with an emphasis on American Indian and other underserved populations by providing educational, practical, and research opportunities for public health professionals.

Blackfeet Saying

A child is sacred. And when that child comes into the home, the family must welcome it. And if the child is happy and feels the want, he will come into this world very, very strong. And not to know this is to know nothing.





A Successful Collaborative Effort: The Coming of the Blessing® - How far we have come

Presented by:
Dr. Carol Arnold



.....

American Indian and
Alaska Native Women's
Committee, Oct. 2014
Dallas, Tx



A Successful Collaboration



- **Between American Indian/Alaska Natives and the March of Dimes**



A Successful Collaboration



**Shoshone/Arapaho
Prenatal Education
Project with March of
Dimes, Early Head
Start, & volunteer
faculty**

- Began in 1998
- Teaching in the traditional way from mother, aunts, grandmothers

Evaluation in 2006



Qualitative evaluation Served more than 400

- Education
- Support
- Access
- Empowerment

Waiting List Needs

- **Culturally appropriate prenatal information**



Nationwide Survey by Cherokee Nation of Oklahoma



Reviewed **510**
maternal-child
pamphlets used by
health care
professionals

Only 48 or 9.4% of
pamphlets were
culturally appropriate
for American Indian or
Alaska Native families

march  of dimes®

A Commitment to Action



March of Dimes - West Region American Indian/Alaska Native Women's Committee

Summer of 2006

AI/AN women volunteering
to review prenatal
education needs

- 13 different
Nations/Tribes
- A common goal

The Challenge to the Committee



- American Indian and Alaska Natives
 - Culturally Diverse
- Health challenges including
 - High rates of late and no prenatal care
 - Multiple barriers to care



U.S. Census Bureau ,2012; U.S. Department of Health and Human Service OMH(2015)



Strengths of the community

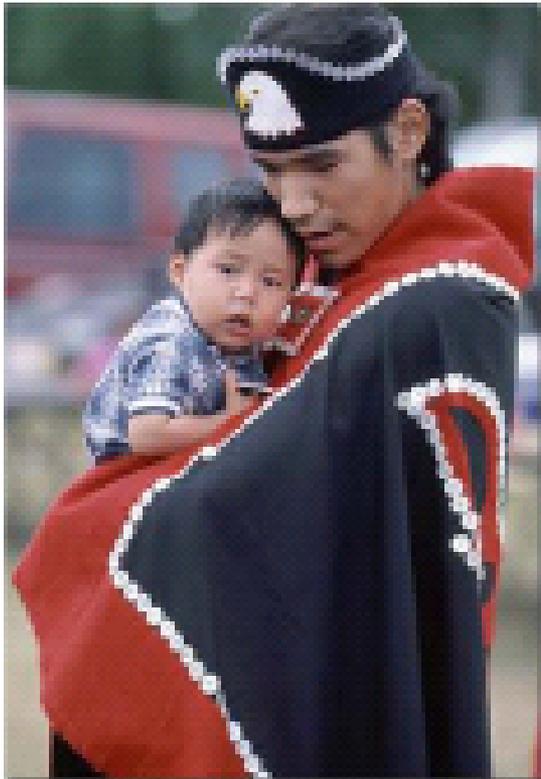
Family Values/Spirituality-



- Strong family connections
- Extended family considered immediate family.
- Spiritual and may blend traditional with Christian beliefs

Strengths of the Community

Common Health Beliefs



- Health is balance between physical, emotional and spiritual self in relationship to world
- Mind, body and spirit are part of healing.
- May use traditional healing: Sweat lodge, talking circles, songs, prayers, herbs, sacred grasses

The Importance



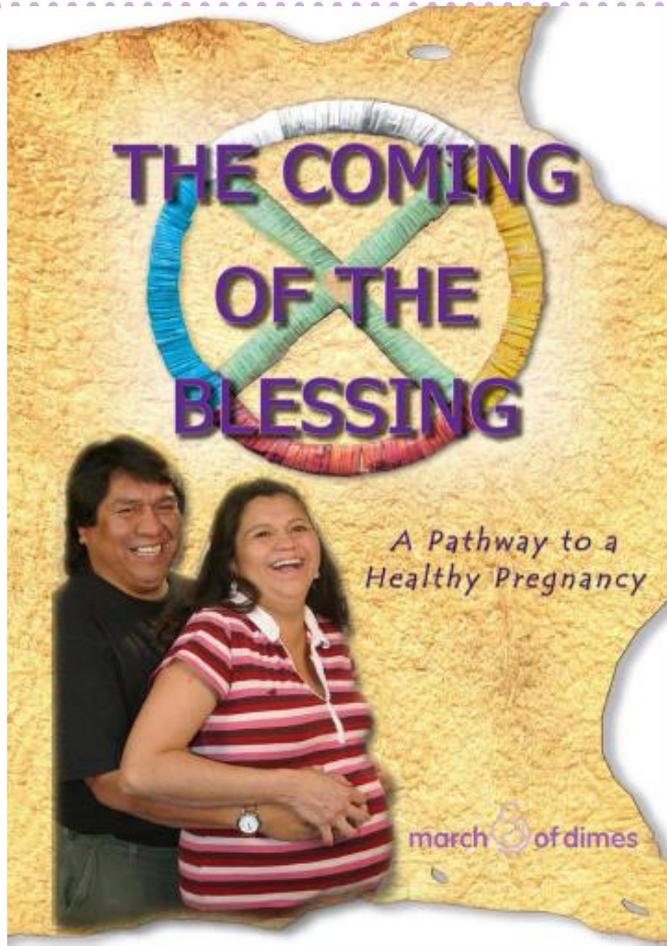
- The health of the baby during pregnancy depends upon on the health of the Mother and what she does or does not do during her pregnancy
- One of the most important things a woman can do is to get early and regular prenatal care and take good care of herself

How the Committee Worked



- Reviewed available AI/AN prenatal literature
- Conducted focus groups
 - Providers and clients
 - Community
- **THE NEED**
One comprehensive booklet on prenatal care targeting the American Indian and Alaska Native families

The Coming of the Blessing®



Based on the core values common to all AI/AN Nations

- Love of family
- Honor of mother and child
- Sacred time of pregnancy
- Importance of the father and family
- Spirituality

The Coming of the Blessing®



Knowledge for a healthy pregnancy using the circle of life

Value the traditional pathway of teaching by mothers, grandmothers

Traditional and ancestral wisdom



The Coming of the Blessing®

- A Positive and Supportive Message

- Preconception Care
- Trimesters of Pregnancy
- Risks to Pregnancy



Distribution for Pilot Year 2008

Pilot printing of 7,500

- Selected reservations and Pueblos across the Western US and Alaska
- Given by a provider with discussion
- Evaluation from the Moms/readers
 - incentives



Evaluation Results - Making a Difference!!!!

Women from 44 different Nations and 10 states

88% between 18-35

13 preterm births with 1 twin birth

- Preterm birth rate of 7.5% vs. 14.1% for AI/AN



Evaluation Results - Making a Difference.....



Behavior changes - **90%**

- Changed eating habits
- Reduced stress
- Started to Exercise
- Decided to breastfeed

**Stopped or reduced
smoking or taking drugs**



Evaluation Results - Making a Difference.....



88% kept all of their prenatal appointments

88% believed the ancestral wisdom was helpful

78% believed that the traditional beliefs were helpful



Evaluation Results - Making a Difference

THE MEDICINE WHEEL



What the Women Wrote

- Helpful information for my life
- Values my traditional heritage
- Makes me proud to be a part of my culture
- Helped me stay true to our beliefs



Evaluation Results - Making a Difference



What the Women Wrote

- Lets you know about our ancestors
- Family is most of all important for supporting each other
- Great information by Natives for Natives
- It talks to you
- THANK YOU

Evaluation Results

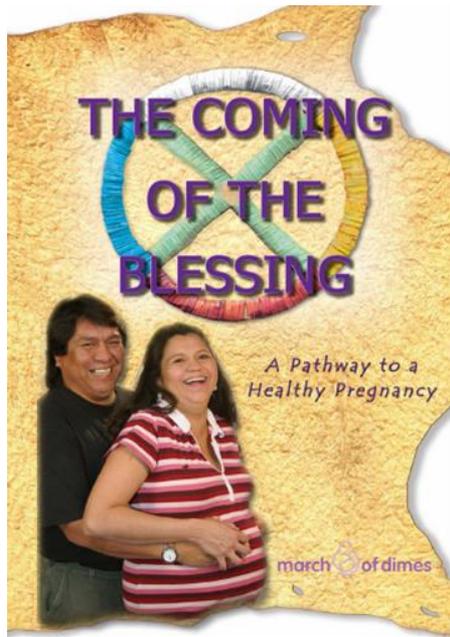


Message from the committee

- 12 Non AI/AN women did respond
- They did not like the booklet
- **May demonstrate the importance of cultural relevance in patient education materials**



Award Winning Committee/ Initiative



2009

National Perinatal Association-
Transcultural Award

2010

National Indian Health Board-
Regional Impact Award

2011

APHA - Effective Practice MCH
Award

march of dimes



IHS Promising Practice



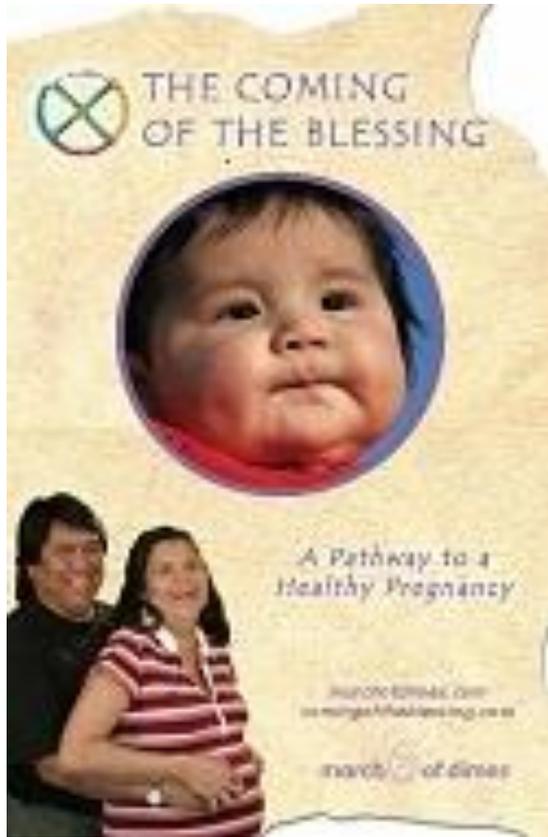
2010

The Coming of the Blessing was designated as a “Promising Practice” by Indian Health Service.

Results of a 2nd evaluation could upgrade the initiative to “evidence-based”.



We have a second edition...and



- Our second edition came out in 2013
 - More inclusive of all the Western Nations
- In 2014 we added representatives from the Seneca Nation and we want to make the 3rd edition more inclusive to the Eastern Nations

Posters, Table Top Exhibit and Photo Stories

HAVING A BABY?
It is best to . . .



PREPARE your mind, your body and your spirit.

CHOOSE to abstain from alcohol, tobacco and drugs.

PURIFY with traditional, healthy foods and vitamins.

SEEK prenatal care early and often.

AIM for a full-term pregnancy of 9 months (about 40 weeks).

KNOW the signs of labor and what to do.

FIND wellness through your circle of support.

Ask us about The Coming of the Blessing® prenatal education!





THE COMING OF THE BLESSING
Offering Native families the gift of knowledge and the peace of knowing how to care for themselves and their babies during pregnancy.

In many Native cultures, the cycle of life is represented by a perfect circular and balanced shape. The cycles of life move like a circle, with no beginning and no ending.

The greatest gift of all creation is our children. Blessings come in all forms, and there is no greater blessing than new life.

Becoming a parent is a sacred event. It is important to prepare spiritually, emotionally, mentally and physically.

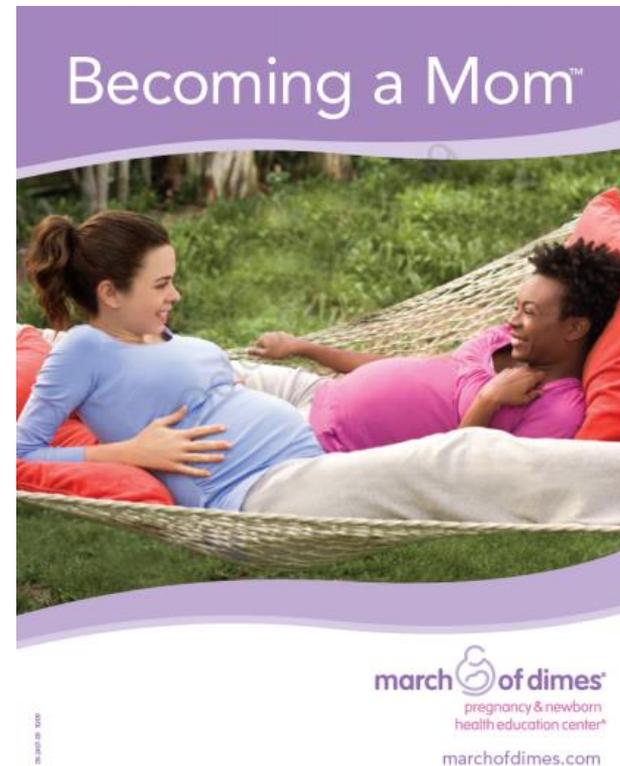


Coming of the Blessing website



Prenatal Education

- Uses March of Dimes curriculum *Becoming a Mom*
- Includes appendix to guide facilitators in adapting content for American Indian/Alaska Native audience.



Facilitator Trainings



Alaska

Arizona

Montana

Nebraska

New Mexico

Nevada

New York

North Dakota

Oklahoma

South Dakota

Wisconsin

Wyoming

march  of dimes®

Most Remote - Alaska



**St. Paul Island by
Leatha
Mercurieff**



The Initiative

The Coming of the Blessing is....

- an umbrella for any activity implemented by March of Dimes specifically for American Indian/Alaska Native families.
- Including
 - Facilitator trainings
 - Prenatal classes
 - Support for families with NICU babies
 - Traveling AI/AN photo exhibit



Successful Collaboration

- Listen to the community
- Honor the traditional pathways of teaching and learning



Success of Collaborative Efforts



- **Matching Mission and Need**
- **Building trust***
 - Takes work on all sides
- **Empowerment***
 - “I never knew I had a voice before”
- **Commitment**



**Can you imagine the day when
every baby is born healthy?**



We can.



You can reach us

- Denise Aragon (Chair of the AI/AN Women's Committee at sahstar@tribcsp.com)
- Carol Arnold at carnold@twu.edu
- March of Dimes at marchofdimes.com



References

American Indian/Alaska Native Committee of the March of Dimes West Region. (2008). *Coming of the Blessing*®. [Brochure]. March of Dimes, White Plains:NY.

Arnold, C. (2006). Pregnancy Workshop and the Shoshone and Arapaho Tribes Early Head Start Prenatal Education Program Evaluation. Unpublished Report for the March of Dimes.

Khan, S. (2008). Director of Health Research Cherokee Nation

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References

U.S. Department of Health and Human Services. (2015). Indian Health Services: *Indian Health Disparities*. Retrieved from <http://www.ihs.gov/newsroom/factsheets/disparities>

Photos: *Coming of the Blessing*®; Dr. Carol Arnold, and Google images American Indian/Alaska Native women





Improving Preterm Birth and Health Equity

Paul Jarris MD, MBA
Senior Vice President,
Maternal and Child Health Program Impact
Deputy Medical Officer

March of Dimes History

Founded January 5, 1938 by President Franklin Roosevelt...



...to find a vaccine for Polio.



April 12, 1955: Salk Vaccine declared
“safe & effective”



Today and tomorrow, March of Dimes is
preventing child disability and mortality

What is preterm birth?

Definition of preterm birth:

Babies born alive before 37 completed weeks of pregnancy

Late and moderate preterm
32 to <37 weeks



Very preterm
28 to <32 weeks

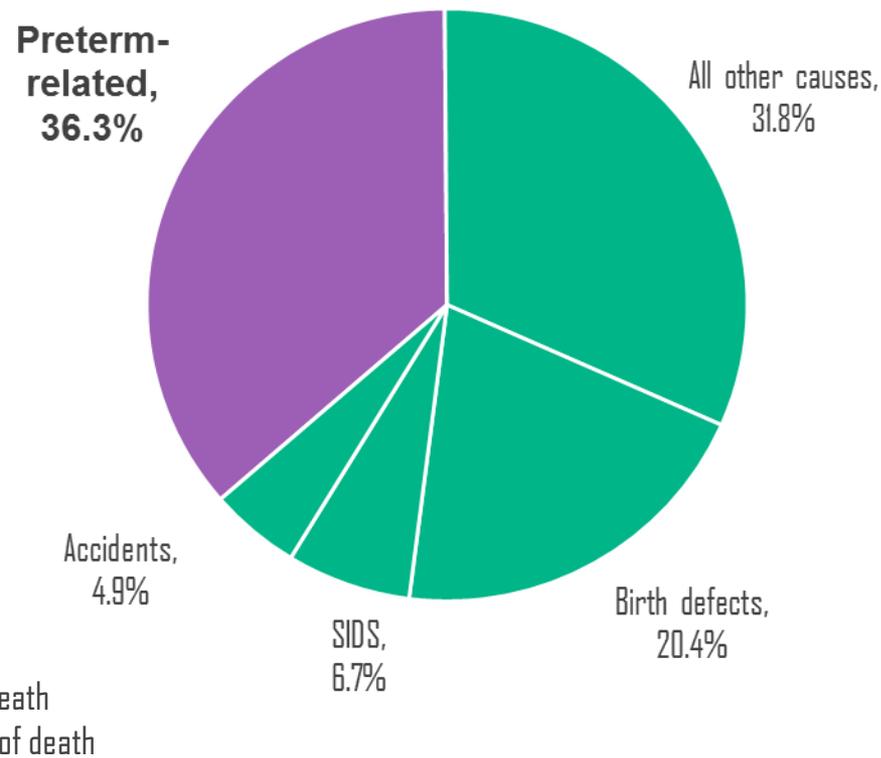


Extremely preterm
< 28 weeks



Preterm birth is the leading cause of infant death

Causes of Infant Mortality
United States, 2013

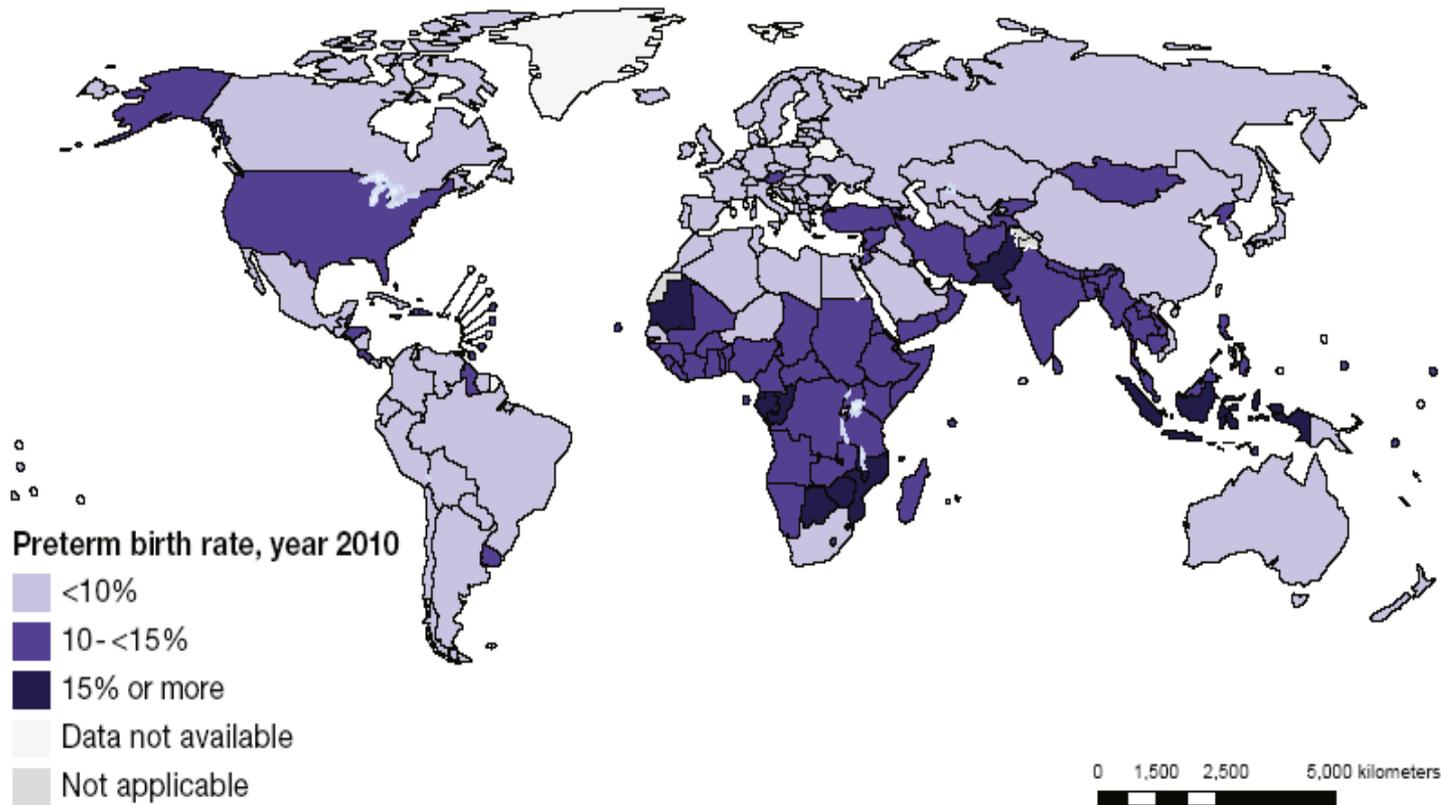


Preterm is less than 37 weeks gestation. Gestational age based on obstetric estimate.

Source: National Center for Health Statistics, 2013 period linked birth/infant death data

Prepared by March of Dimes Perinatal Data Center, July 2015

Preterm births – where are the highest rates?



11 countries with preterm birth rates over 15% by rank:

1. Malawi
2. Congo
3. Comoros
4. Zimbabwe
5. Equatorial Guinea
6. Mozambique
7. Gabon
8. Pakistan
9. Indonesia
10. Mauritania
11. Botswana

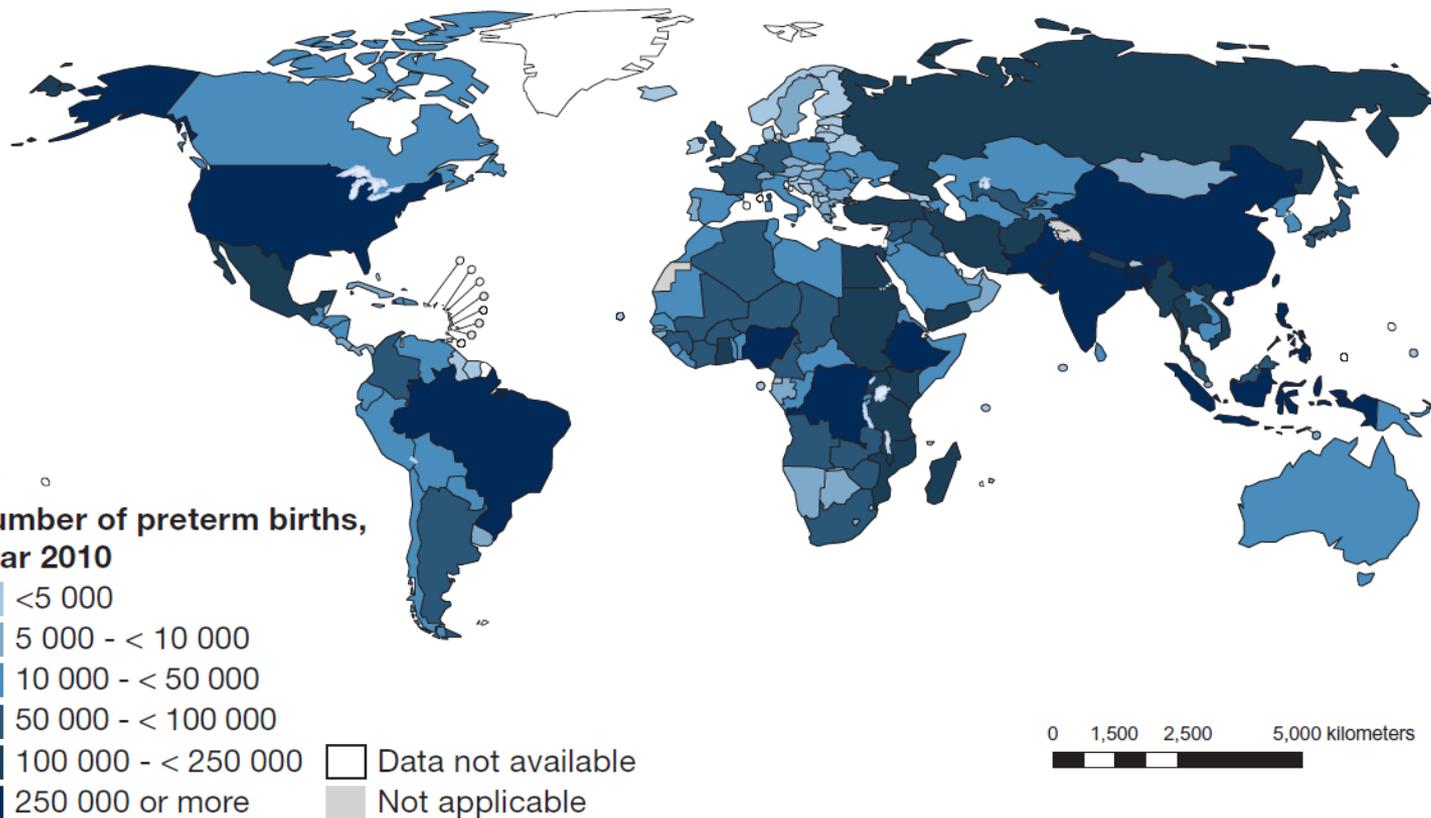
The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

Data Source: World Health Organization Map Production: Public Health Information and Geographic Information Systems (GIS) World Health Organization

Source: Blencowe et al National, regional and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications.

Estimates for 184 countries for 2010

Preterm births – where are the biggest numbers?



10 countries account for 60% of the world's preterm births:

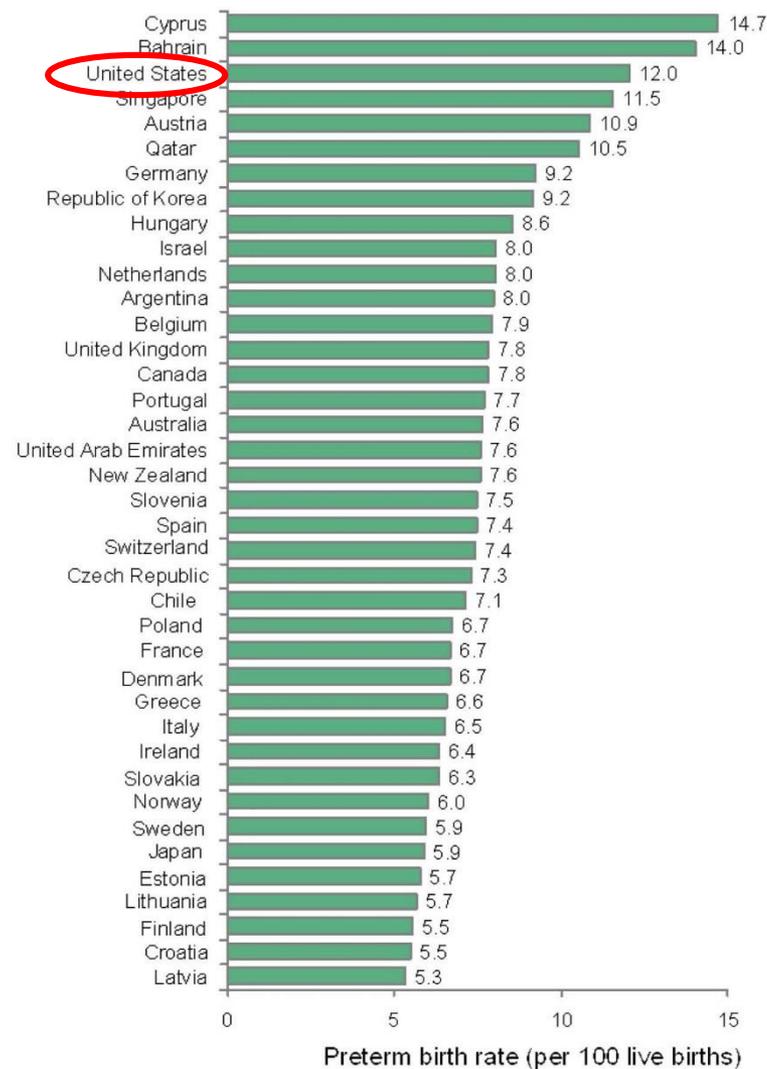
1. India
2. China
3. Nigeria
4. Pakistan
5. Indonesia
- 6. United States of America**
7. Bangladesh
8. Philippines
9. Dem Rep Congo
10. Brazil

The boundaries and names shown and the designations used on this map do not imply the expression of any opinion whatsoever on the part of the World Health Organization concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted lines on maps represent approximate border lines for which there may not yet be full agreement.

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Source: Blencowe et al National, regional and worldwide estimates of preterm birth rates in the year 2010 with time trends since 1990 for selected countries: a systematic analysis and implications.

Preterm birth affects all countries

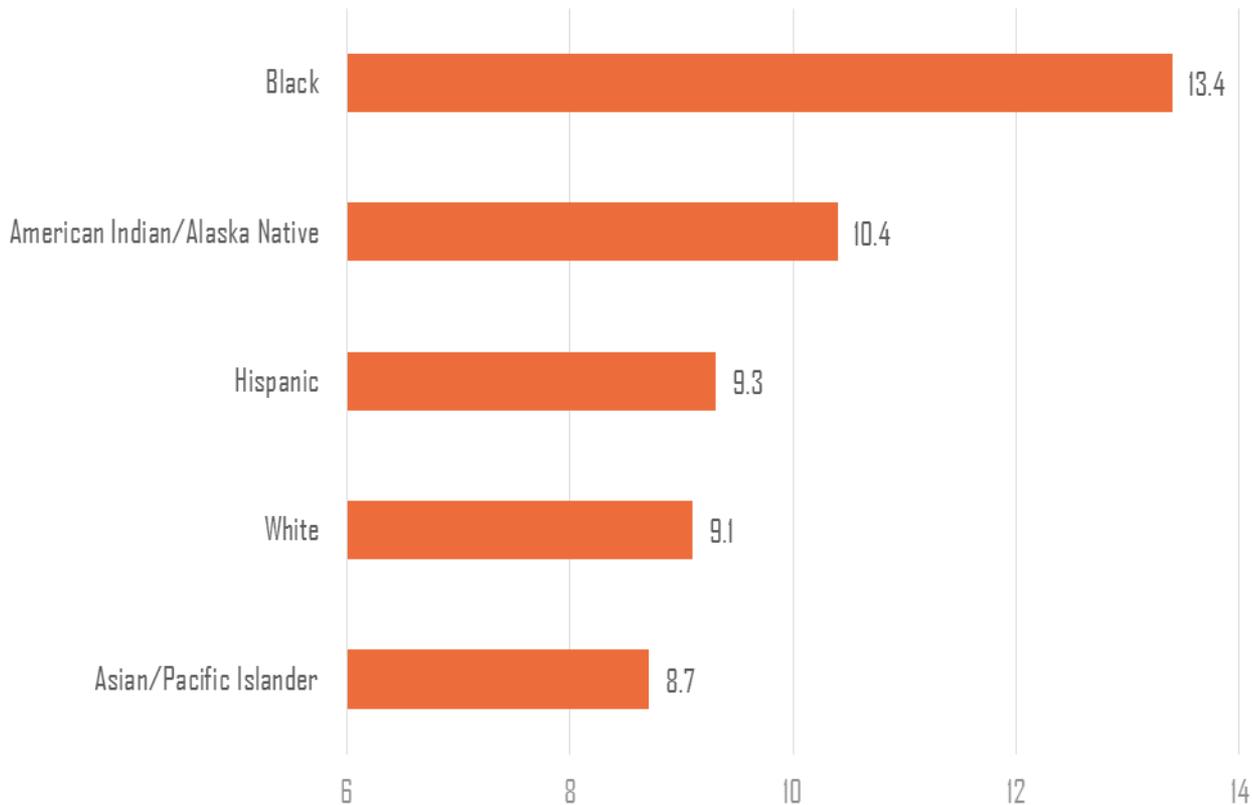
Preterm Birth Rates for Very High Human Development Index Countries*



*Preterm birth rates per 100 live births in 2010 (baseline) for 39 countries with VHDI.

Chang, H., Larson, J., Bienicowe, H., et al. (2013). Preventing preterm births: Analysis of trends and potential reductions with interventions in 39 countries with very high human development index. *The Lancet*, 381(9862), 223-234.

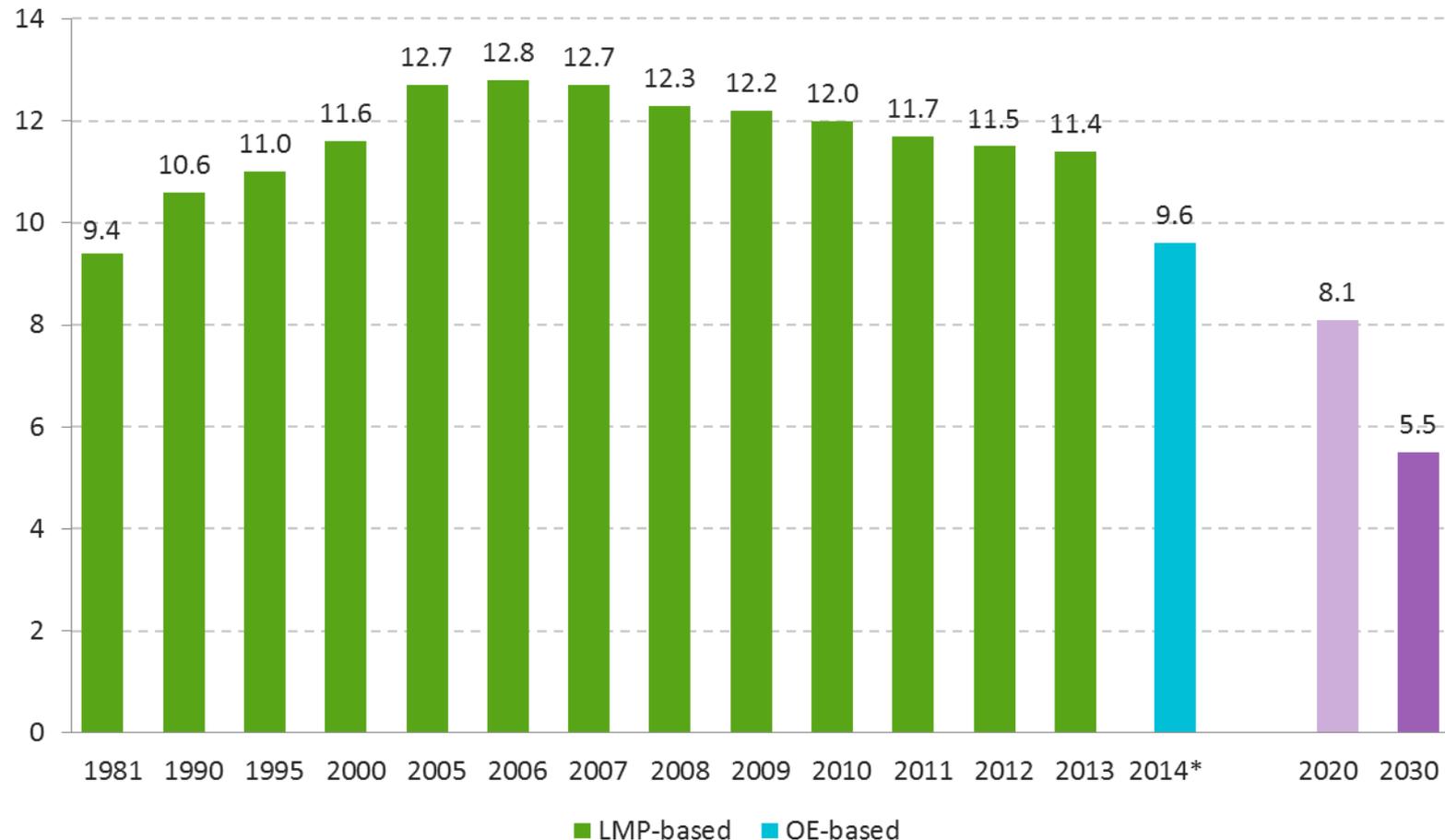
Preterm Birth Rates by Maternal Race/Ethnicity United States, 2011-2013 (Average)



Preterm is less than 37 weeks gestation. Gestational age is determined using obstetric estimate.
Source: National Center for Health Statistics, 2011-2013 final data.
Prepared by March of Dimes Perinatal Data Center, 2015.

Preterm birth rates

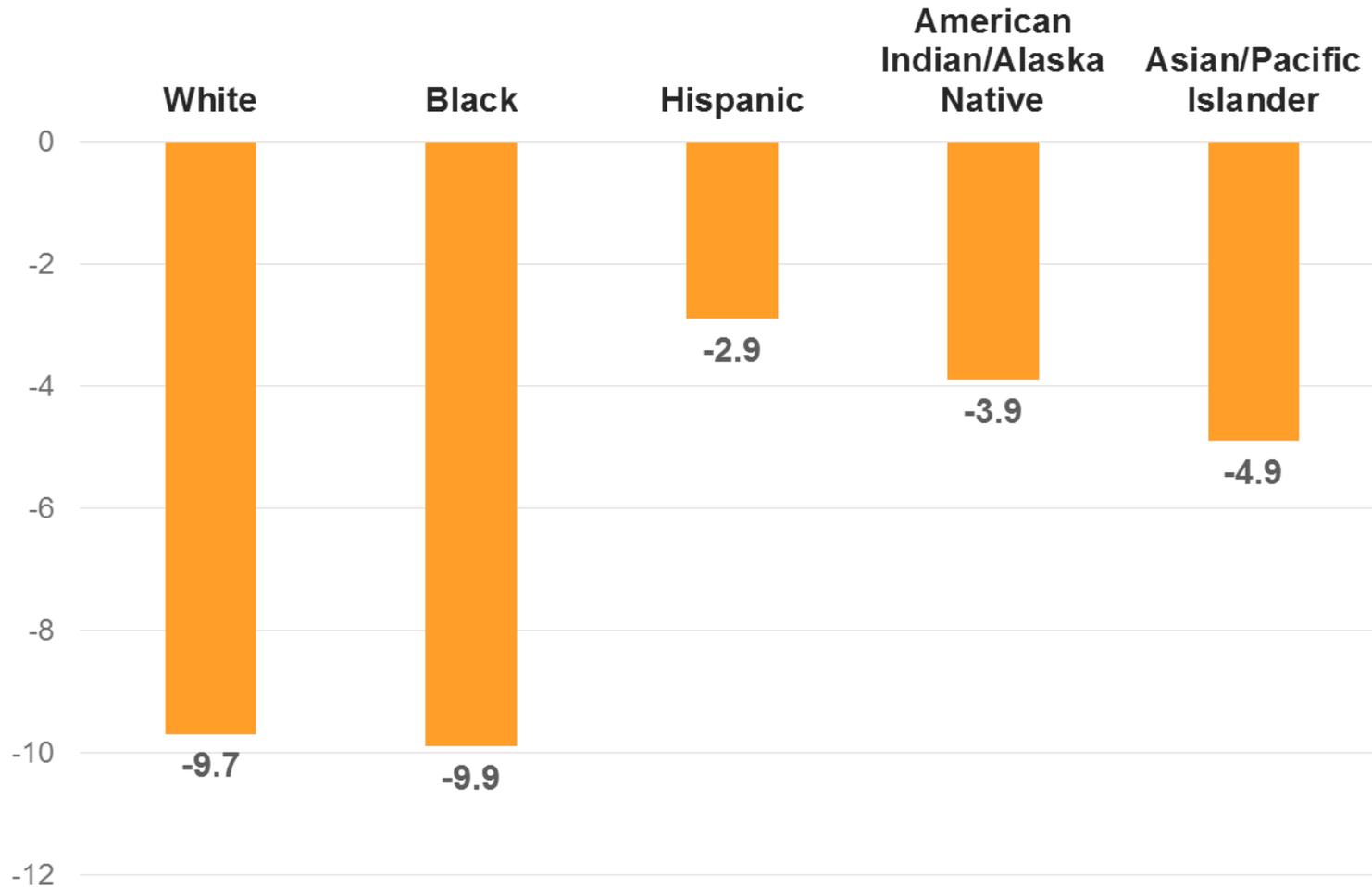
*United States, 1981, 1990, 1995, 2000, 2005-2014**



*2014 data based on obstetric estimate (OE) of gestational age; all previous years based on last menstrual period (LMP).
Preterm is less than 37 weeks gestation.

Source: National Center for Health Statistics, 1990-2013 final and 2014 preliminary natality data.

Percent Change in Preterm Birth Rates By Race and Hispanic Origin, 2007 to 2013



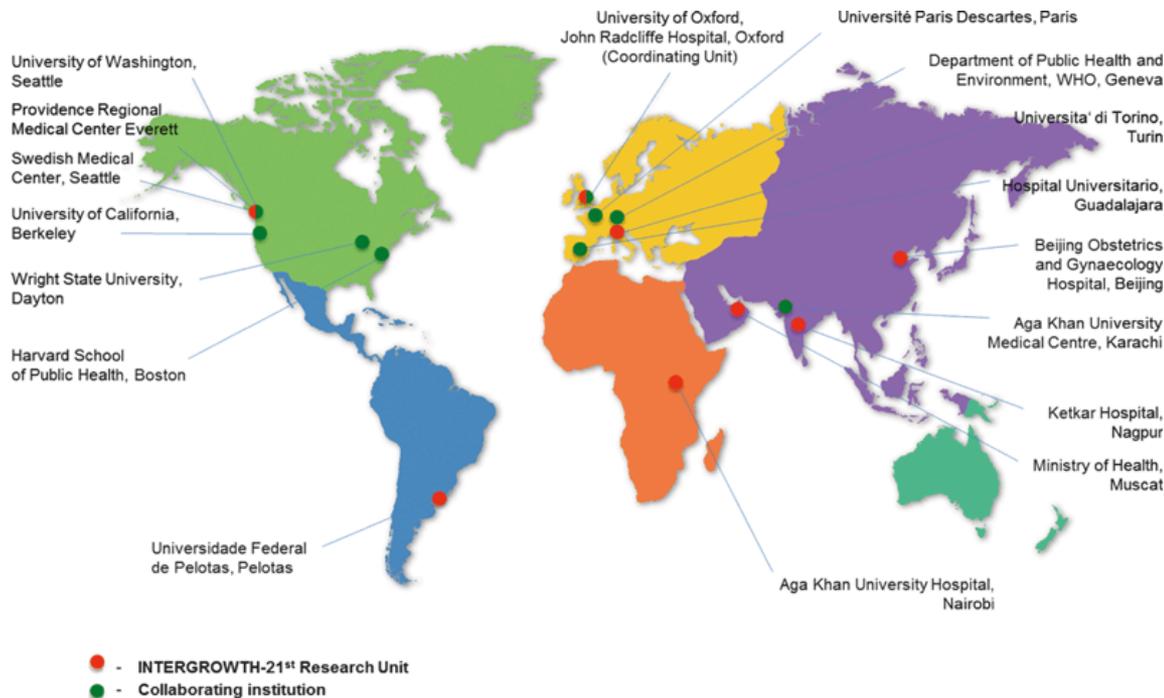
Preterm is less than 37 weeks gestation. Gestational age based on obstetric estimate.

Source: Martin JA, et al. Measuring Gestational Age in Vital Statistics Data: Transitioning to the Obstetric Estimate. NVSR; 2015:64(5).

The likeness of fetal growth and newborn size across non-isolated populations in the INTERGROWTH-21st Project: the Fetal Growth Longitudinal Study and Newborn Cross-Sectional Study



José Villar, Aris T Papageorgiou, Ruyan Pang, Eric O Ohuma, Leila Cheikh Ismail, Fernando C Barros, Anri Lambert, Maria Carvalho, Yasmin A Jaffer, Enrico Bertino, Michael G Gravett, Doug G Altman, Manorama Purwar, Ibhunnaya O Frederick, Julia A Noble, Cesar G Victora, Zulfiqar A Bhutta*, Stephen H Kennedy*, for the International Fetal and Newborn Growth Consortium for the 21st Century (INTERGROWTH-21st)



Sites

- Brazil *
- China*
- India*
- Kenya
- Oman
- UK
- USA*
- Italy

Source: Villar J, et al. The likeness of fetal growth and newborn size across non-isolated populations in the INTERGROWTH-21ST Project: the Fetal Growth Longitudinal Study and Newborn Cross-Sectional Study. *Lancet Diabetes Endocrinol* 2014;2:781-92.

BJOG: An International Journal of Obstetrics & Gynaecology
 pages 9-26, 17 MAY 2013 DOI: 10.1111/1471-0528.12047
<http://onlinelibrary.wiley.com/doi/10.1111/1471-0528.12047/full#f2>

Outcomes in Optimal Conditions

- **Diverse geographic areas with adequate:**
 - Health and nutrition
 - Sanitation and environment
 - Prenatal and health care
- **The mothers were:**
 - 18-35 years of age
 - > 5 feet in height
 - Normal body weight (BMI \geq 18.5 and \leq 30)
 - No relevant OB/GYN history
 - Began prenatal care <14 weeks gestation
 - Met criteria for “optimal”:
 - Health
 - Nutrition
 - Education
 - Socioeconomic status

INTERGROWTH-21ST

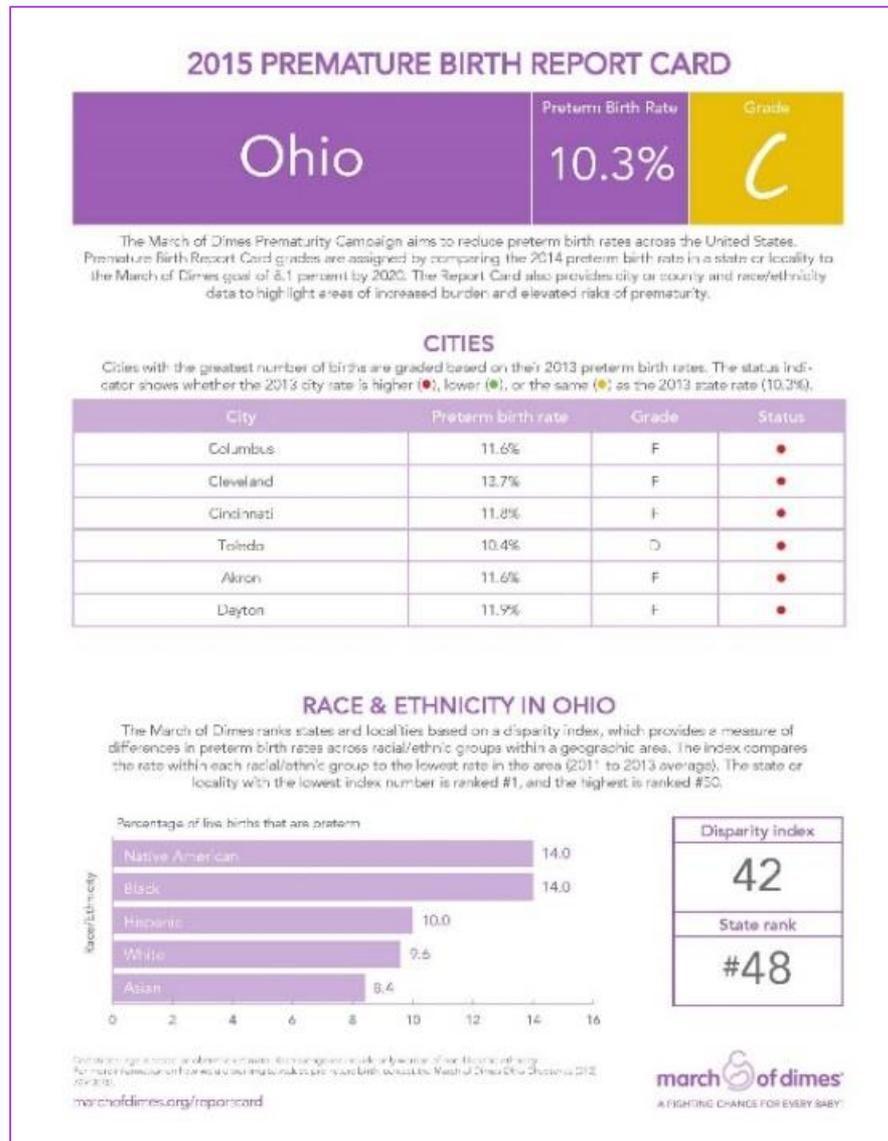
Findings

- Fetal growth and newborn length are similar across diverse geographical settings
- The average Preterm Birth Rate across geography, race and ethnicity was 5.5 %
- Variation within sites was greater than variation between sites.

Implications of Intergrowth 21st

- Under optimal conditions women of different races and ethnicities living on different continents have similar birth outcomes.
- Therefore, race, ethnicity and national origin are not THE determinants of birth outcomes.
- Genetics is not the basis for birth disparities. Environmental and social factors cause differences in outcomes.
- We cannot continue to use the excuse that we are a diverse country.

Report Cards Engage Stakeholders to Increase Awareness of Disparities and Evidence-based Practices

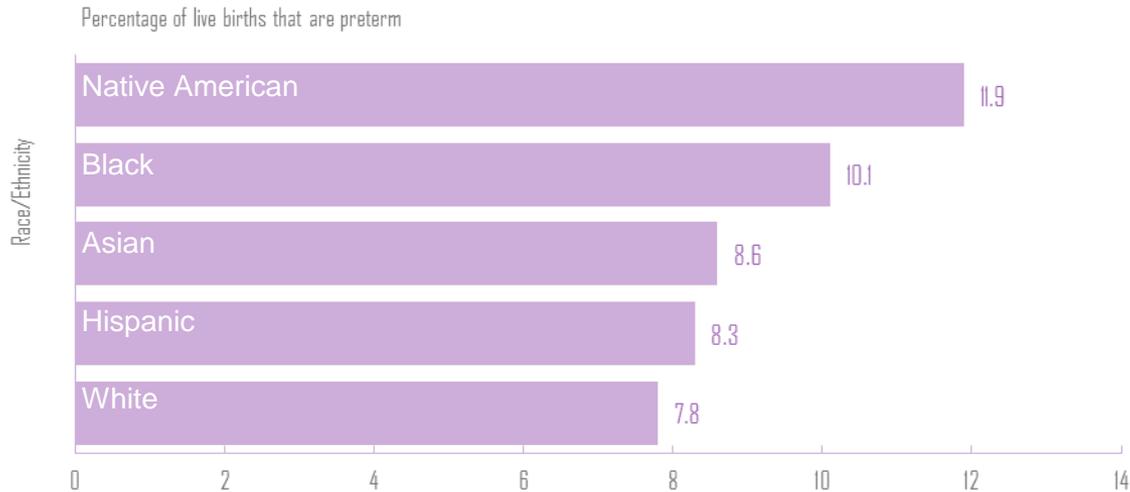


2015 PREMATURE BIRTH REPORT CARD

Washington	8.1%	A
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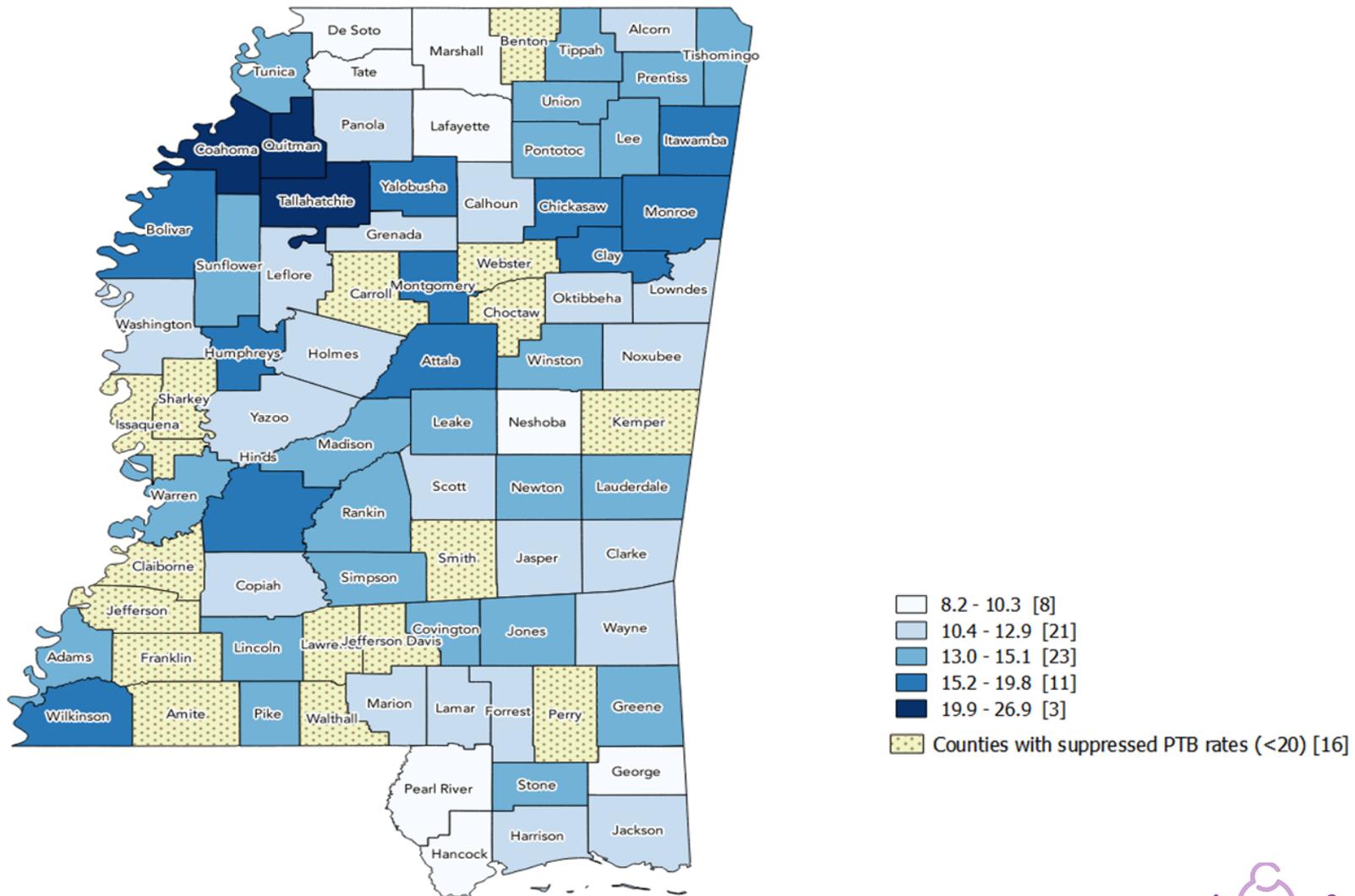
The March of Dimes Prematurity Campaign aims to reduce preterm birth rates across the United States. Premature Birth Report Card grades are assigned by comparing the 2014 preterm birth rate in a state or locality to the March of Dimes goal of 8.1 percent by 2020. The Report Card also provides city or county and race/ethnicity data to highlight areas of increased burden and elevated risks of prematurity.

RACE & ETHNICITY IN WASHINGTON



Gestational age is based on obstetric estimate. Race categories include only women of non-Hispanic ethnicity. For more information on how we are working to reduce premature birth, contact the March of Dimes Washington Chapter at (206) 624-1373.

Preterm Birth Rates, Mississippi *by county, 2013*



Gestational age based on obstetric estimate. Preterm is defined as less than 37 weeks gestation.
 Source: National Center for Health Statistics, 2013 final natality data.
 Prepared by March of Dimes Perinatal Data Center, September 2015.

Prematurity Campaign Roadmap

Sets out plan for meeting 2020 and 2030 goals

- Optimize known interventions.
- Target areas and populations with high preterm birth rates.
- Improve health equity.



Roadmap Interventions: target delivery to increase health equity

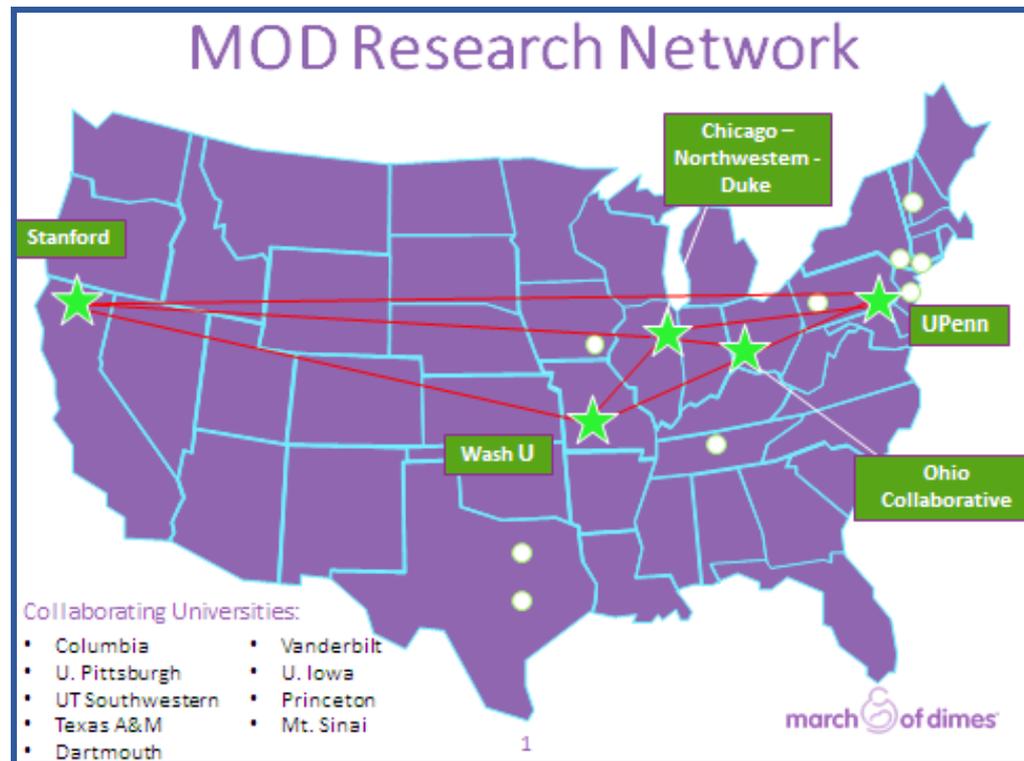
- Birth spacing and interconception care
- Elimination of non-medically indicated early elective deliveries (inductions and c-sections)
- Smoking cessation
- Low-dose aspirin to prevent preeclampsia
- Access to progesterone shots for women with a previous preterm birth
- Vaginal progesterone and cerclage for short cervix
- Reduce multiple births conceived through Assisted Reproductive Therapy (ART)

Bundle interventions through the **Healthy Babies are Worth the Wait®** Community Program and Group Prenatal Care.

Research essential to meeting goals

Identify new treatments based on translation of discovery research

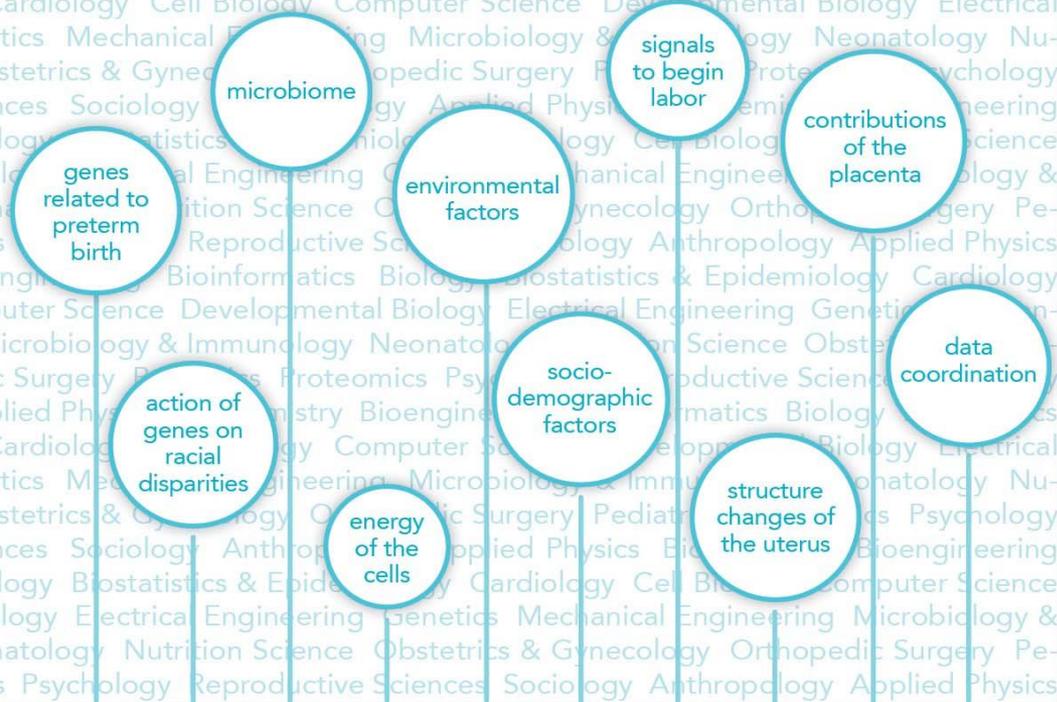
- March of Dimes five Prematurity Research Centers



Prematurity Research Centers

TEAM SCIENCE: AREAS OF FOCUS

Anthropology Applied Physics Biochemistry Bioengineering Bioinformatics Biology Biostatistics & Epidemiology Cardiology Cell Biology Computer Science Developmental Biology Electrical Engineering Genetics Mechanical Engineering Microbiology & Immunology Neonatology Nutrition Science Obstetrics & Gynecology Orthopedic Surgery Pediatrics Proteomics Psychology Reproductive Sciences Sociology



Stanford University

Ohio Collaborative

Washington University

University of Pennsylvania

University of Chicago –
Northwestern – Duke

Through Partnerships, We Will Make Progress

March of Dimes will continue to focus on prevention of prematurity by

- Implementing what is known and translating discovery research into new interventions
- Enhancing partnerships
- Focusing the nation on improvements to preterm birth rates and health equity

