Preterm Birth Among American Indians: Impact on Health Equity

2016 National Tribal Public Health Summit
Atlanta, GA
April 12, 2016

Donald Warne, MD, MPH
Oglala Lakota
Chair, Department of Public Health
Mary J. Berg Distinguished Professor of Women’s Health
Traditional View of Public Health
Pine Ridge Reservation

Kyle, S.D.
States in the South have among the highest infant mortality rates in the country.

Infant Mortality Rate, by State, 2011

United States: 6.15 infant deaths per 1,000 live births

Number of infant deaths per 1,000 live births

- 3.75 – 5.24 (13 states)
- 5.25 – 6.29 (12 states)
- 6.30 – 7.24 (13 states)
- ≥7.25 (12 states and DC)

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
## American Indian Health Disparities

### Life Expectancy in Years:

<table>
<thead>
<tr>
<th></th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>U.S.</strong></td>
<td>74.1</td>
<td>79.5</td>
<td>76.9</td>
</tr>
<tr>
<td><strong>GPAIHS</strong></td>
<td><strong>63.5</strong></td>
<td><strong>71.0</strong></td>
<td><strong>67.3</strong></td>
</tr>
<tr>
<td><strong>Disparity:</strong></td>
<td>10.6</td>
<td>8.5</td>
<td>9.6</td>
</tr>
</tbody>
</table>

### 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

Adults ≥18 years who live below federal poverty level

- White: 8% (2005), 8% (2009)
- Black: 21% (2005), 21% (2009)
- Asian/Pacific Islander: 10% (2005), 11% (2009)
- AI/AN: 23% (2005), 20% (2009)
- Hispanic: 18% (2005), 19% (2009)

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

Historical Trauma

Genocide

Chronic Disease Disparities

© Warne & Lajimodiere 2012
Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives

Historical Trauma

Gestational Stressors

Birth

Chronic Disease Disparities

Boarding School Experiences
- Abuse (physical, sexual)
- Neglect
- Abandonment
- Forced Removal
- Loss of culture & language
- Forced Christianity
- Lost traditional parenting & family structure

© Warne & Lajimodiere 2012
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

Historical Trauma

Gestational Stressors

Childhood Stressors

Birth

Chronic Disease Disparities

Genocide

WIC

FDPIR

Boarding School Experiences

- Abuse (physical, sexual)
- Neglect
- Abandonment
- Forced Removal
- Loss of culture & language
- Forced Christianity
- Lost traditional parenting & family structure

Adverse Childhood Experiences

- Abuse (physical, sexual)
- Neglect
- Substance Abuse in home
- Mental Health Dx in home
- Witnessing violence
- Divorce
- Food insecurity
- Family member in prison

© Warne & Lajimodiere 2012
ACE Study Pyramid

- Death
- Early Death
- Disease, Disability, and Social Problems
- Adoption of Health-risk Behaviors
- Social, Emotional, & Cognitive Impairment
- Adverse Childhood Experiences

Scientific Gaps
Adverse Childhood Experiences (ACEs)

SD Health Survey

Mean score on the standardized ACE questionnaire

<table>
<thead>
<tr>
<th></th>
<th>Statewide</th>
<th>Urban</th>
<th>Rural</th>
<th>Isolated</th>
<th>Reservation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Score</td>
<td>1.3</td>
<td>1.34</td>
<td>1.22</td>
<td>1.11*</td>
<td>2.2*</td>
</tr>
</tbody>
</table>

* Significantly different from urban population, adjusted for demographic variables
Historical Trauma

Gestational Stressors

Childhood Stressors

Adulthood Stressors

Chronic Disease Disparities

Boarding School Experiences
- Abuse (physical, sexual)
- Neglect
- Abandonment
- Forced Removal
- Loss of culture & language
- Forced Christianity
- Lost traditional parenting & family structure

Adverse Childhood Experiences
- Abuse (physical, sexual)
- Neglect
- Substance Abuse in home
- Mental Health Dx in home
- Witnessing violence
- Divorce
- Food insecurity
- Family member in prison

Adverse Adulthood Experiences
- Alcoholism & SA
- Suicide rates / death rates
- Poverty / Poor nutrition
- Racism
- Role models
  - Few positive
  - Many negative
  - Parenting

© Warne & Lajimodiere 2012
Inter-Generational Basis for Chronic Disease Disparities Among American Indians and Alaska Natives

Historical Trauma

- Genocide

Gestational Stressors

- Birth

Childhood Stressors

- WIC

- FDPIR

Adulthood Stressors

Chronic Disease Disparities

Boarding School Experiences

- Abuse (physical, sexual)
- Neglect
- Abandonment
- Forced Removal
- Loss of culture & language
- Forced Christianity
- Lost traditional parenting & family structure

Adverse Childhood Experiences

- Abuse (physical, sexual)
- Neglect
- Substance Abuse in home
- Mental Health Dx in home
- Witnessing violence
- Divorce
- Food insecurity
- Family member in prison

Adverse Adulthood Experiences

- Alcoholism & SA
- Suicide rates / death rates
- Poverty / Poor nutrition
- Racism
- Role models
  - Few positive
  - Many negative
  - Parenting

Next generation

© Warne & Lajimodiere 2012
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

EMOTIONAL
Medicine Wheel Assessment
Family Relationships

MENTAL

PHYSICAL

SPIRITUAL

EMOTIONAL
Medicine Wheel Assessment
Family Relationships

MENTAL

PHYSICAL

SPIRITUAL

EMOTIONAL
Medicine Wheel Assessment
Family Relationships

MENTAL

PHYSICAL

SPIRITUAL

EMOTIONAL
Medicine Wheel Assessment
Family Relationships

MENTAL

PHYSICAL

SPIRITUAL

EMOTIONAL

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

Sohail Khan, Director of Health Research, Cherokee Nation Health Service
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

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 infants
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

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
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 p labor and what to do.

FIND wellness through your circle of support.

march of dimes

In many Native cultures, the cycle of life is represented by a perfect circular and balance of shapes.

The cycle of life begins like a circle, with no beginning and no ending.

march of dimes
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

02/17/2011

march of dimes
Most Remote - Alaska

St. Paul Island by
Leatha Merculieff
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


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

References


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*
Preterm birth is the leading cause of infant death

Causes of Infant Mortality
United States, 2013

- Preterm-related, 36.3%
- SIDS, 6.7%
- Birth defects, 20.4%
- Accidents, 4.9%
- All other causes, 31.8%

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
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

Preterm birth affects all countries

Number of preterm births, year 2010


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.
Preterm Birth Rates for Very High Human Development Index Countries*

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

- Black: 13.4%
- American Indian/Alaska Native: 10.4%
- Hispanic: 9.3%
- White: 9.1%
- Asian/Pacific Islander: 8.7%

Preterm birth rates

*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.
March of Dimes Premature Birth Report Card 2008 - 2014
Percent Change in Preterm Birth Rates
By Race and Hispanic Origin, 2007 to 2013

<table>
<thead>
<tr>
<th>Race</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>-9.7</td>
</tr>
<tr>
<td>Black</td>
<td>-9.9</td>
</tr>
<tr>
<td>Hispanic</td>
<td>-2.9</td>
</tr>
<tr>
<td>American Indian/Alaska Native</td>
<td>-3.9</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>-4.9</td>
</tr>
</tbody>
</table>

Preterm is less than 37 weeks gestation. Gestational age based on obstetric estimate.
The likeness of fetal growth and newborn size across non-isolated populations in the INTERGROWTH-21\textsuperscript{st} Project: the Fetal Growth Longitudinal Study and Newborn Cross-Sectional Study


BJOG: An International Journal of Obstetrics & Gynaecology
pages 9-26, 17 MAY 2013 DOI: 10.1111/1471-0528.12047
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 >/= 18.5 and </= 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.

Preterm birth rates for singleton deliveries without congenital malformations.
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

Ohio

Premature Birth Rate: 10.3%
Grade: C

CITIES
Cities with the greatest number of births are graded based on their 2013 premature birth rates. The status indicator shows whether the 2013 city rate is higher (●), lower (○), or the same (●) as the 2013 state rate (10.2%).

<table>
<thead>
<tr>
<th>City</th>
<th>Premature Birth Rate</th>
<th>Grade</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Columbus</td>
<td>11.6%</td>
<td>F</td>
<td>●</td>
</tr>
<tr>
<td>Cleveland</td>
<td>12.7%</td>
<td>F</td>
<td>●</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>11.6%</td>
<td>F</td>
<td>●</td>
</tr>
<tr>
<td>Toledo</td>
<td>10.4%</td>
<td>F</td>
<td>●</td>
</tr>
<tr>
<td>Akron</td>
<td>11.6%</td>
<td>F</td>
<td>●</td>
</tr>
<tr>
<td>Dayton</td>
<td>11.9%</td>
<td>F</td>
<td>●</td>
</tr>
</tbody>
</table>

RACE & ETHNICITY IN OHIO

The March of Dimes ranks states and localities based on a disparity index, which provides a measure of differences in premature birth rates across racial/ethnic groups within a geographic area. The index compares the rate within each racial/ethnic group to the lowest rate in the area (2012 to 2013 averaged). The state or locality with the lowest index number is ranked #1, and the highest is ranked #50.

- Native American: 14.0
- Black: 14.0
- Hispanic: 10.0
- White: 9.5
- Asian: 9.4

Disparity Index: 42
State rank: #48
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**

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Percentage of live births that are preterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Native American</td>
<td>11.9</td>
</tr>
<tr>
<td>Black</td>
<td>10.1</td>
</tr>
<tr>
<td>Asian</td>
<td>8.6</td>
</tr>
<tr>
<td>Hispanic</td>
<td>8.3</td>
</tr>
<tr>
<td>White</td>
<td>7.9</td>
</tr>
</tbody>
</table>

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
- Cardiology
- Cell Biology
- Computer Science
- Developmental Biology
- Electrical Engineering
- Genetics
- Mechanical Engineering
- Microbiology & Immunology
- Neonatology
- Nutrition Science
- Obstetrics & Gynecology
- Orthopedic Surgery
- Psychology
- Reproductive Sciences
- Sociology
- Anthropology
- Applied Physics
- 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
- Psychology
- Reproductive Sciences
- Sociology
- Anthropology
- Applied Physics
- 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
- Psychology
- Reproductive Sciences
- Sociology
- Anthropology
- Applied Physics

- Genes related to preterm birth
- Microbiome
- Environmental factors
- Signals to begin labor
- Contributions of the placenta
- Action of genes on racial disparities
- Energy of the cells
- Socio-demographic factors
- Structure changes of the uterus
- Data coordination

Institutions:
- 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