

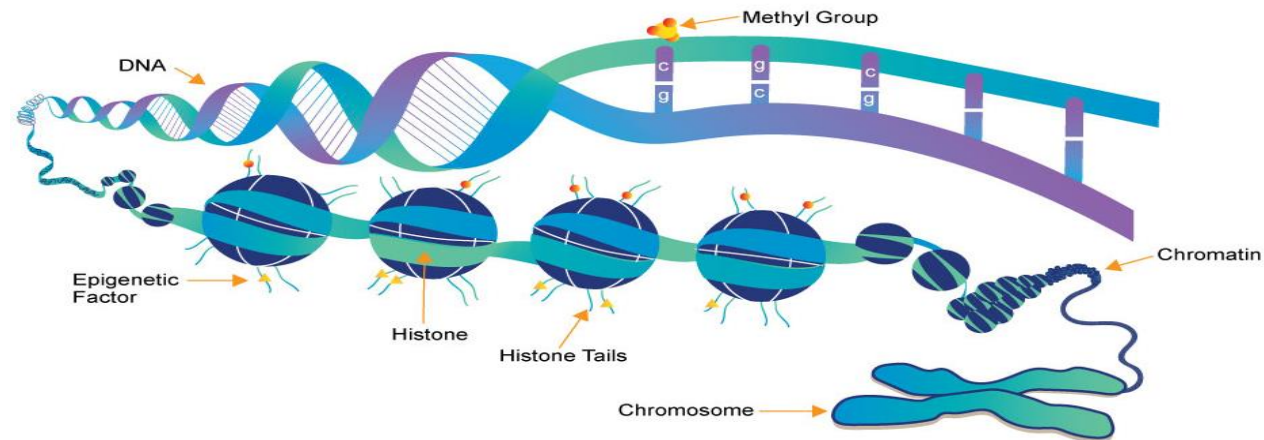
The background features a complex design with vertical stripes in shades of teal and light blue. Interspersed among these stripes are vertical bands of geometric patterns, including triangles, diamonds, and crosses. Several white feathers with dark tips are arranged vertically along the left and right sides of the central text area.

Indigenous People and Epigenetics

Candi Cornelius, MSN RN, CLC
Oneida and Menominee Nation

Session Objectives:

- Define epigenetics and related terms
- Review epigenetic studies
- Discuss interventions and/or ways providers can help



Terminology:

- **Historical Trauma**

- A shared experience of traumatic events by a group of people with a multigenerational effect
- Also called Generational, Intergenerational, Multigenerational
- Referred to as Secondary Trauma or Generational Post Traumatic Stress
- Is correlated with health disparities and associated with epigenetics



- **Historical Trauma continued:**

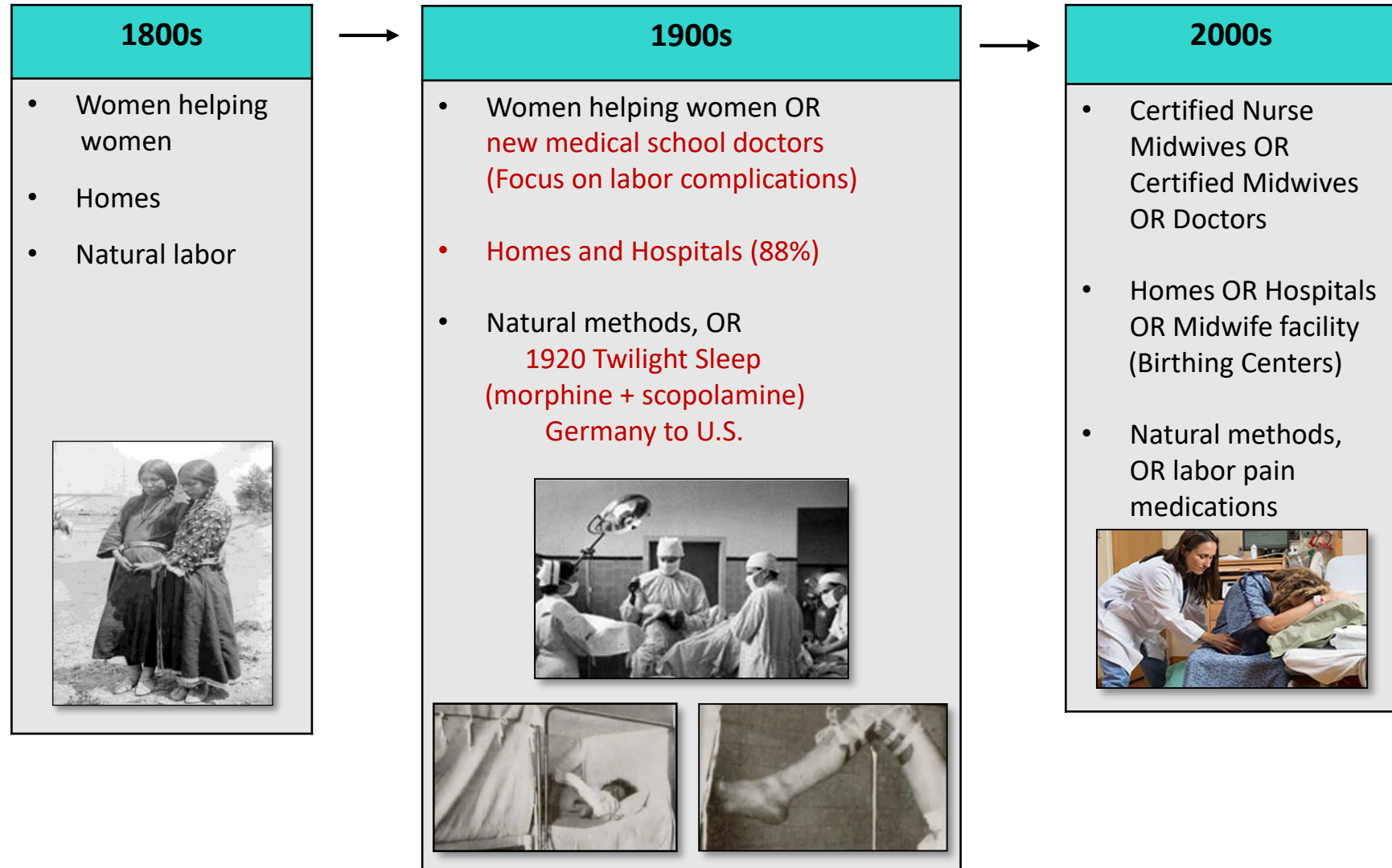
Trauma effects can be related to current health disparities

TYPE OF TRAUMA	FIRST GENERATION	MULTI GENERATIONS
1) <u>ACTS OF VIOLENCE:</u> Warfare Extermination	Loss of men providers Fear/Hypervigilance	Altered Stress Response Mental Health Disorders
2) <u>ACTS OF SEPERATION:</u> Treaties / Relocation Boarding Schools	Lack of land No indigenous foods Loss of large family unit Loss of culture and language Victims of abuse	Chronic Diseases /Isolation No support system Loss of identity Self medicate/Substance Use Mistrust education system
3) <u>ACTS OF INJUSTICE:</u> Child Removal (1960s) Sterilization (1970s)	Fear / Loss of identity Loss of traditional role of life giver	Isolation Mistrust Child Services Mistrust Health Care



- **Historical Trauma cont.**

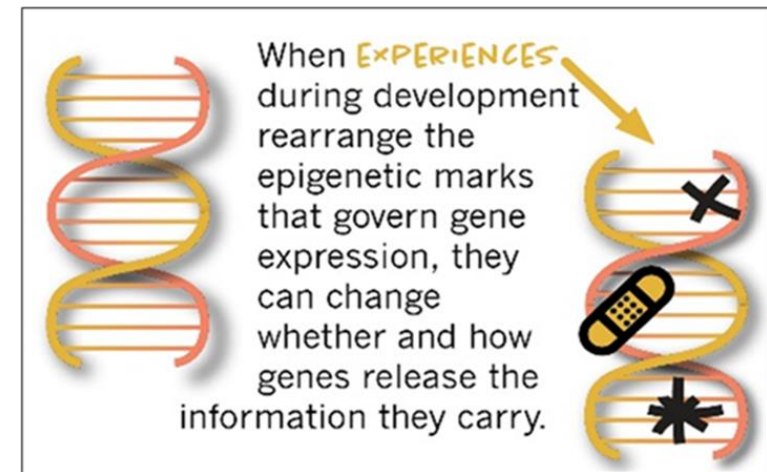
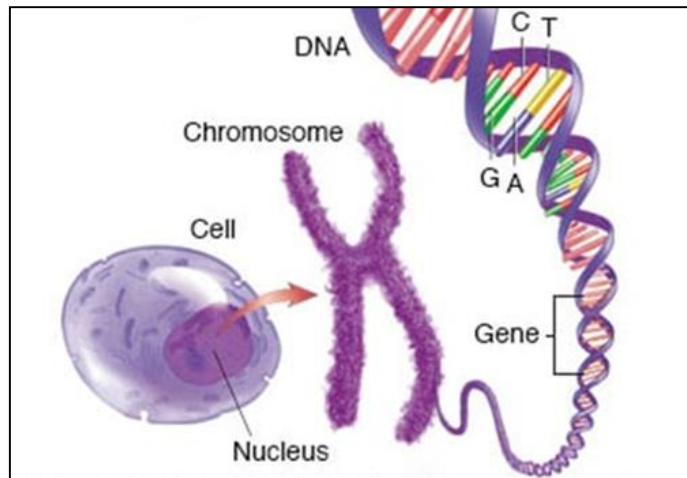
- Childbirth can also be considered a past and current trauma



Terminology cont.:

- **Epigenetics**

- An emerging science that shows how experiences can affect a person's genes
- Refers to changes in a person's phenotype independent of genotype
- Epi literally means above or on top of genetics
- Refers to external modifications to DNA, not changes to DNA sequence

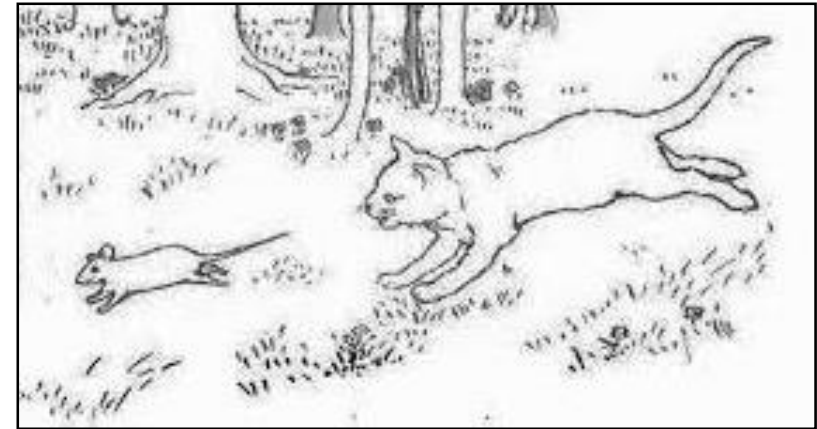


Epigenetic Studies:

❑ Original Epigenetic Test:

Lab Rat Test:

- Studied 2nd generation lab rats with no exposure to dangerous cats
- Altered stress response noted with introduction of cat hair

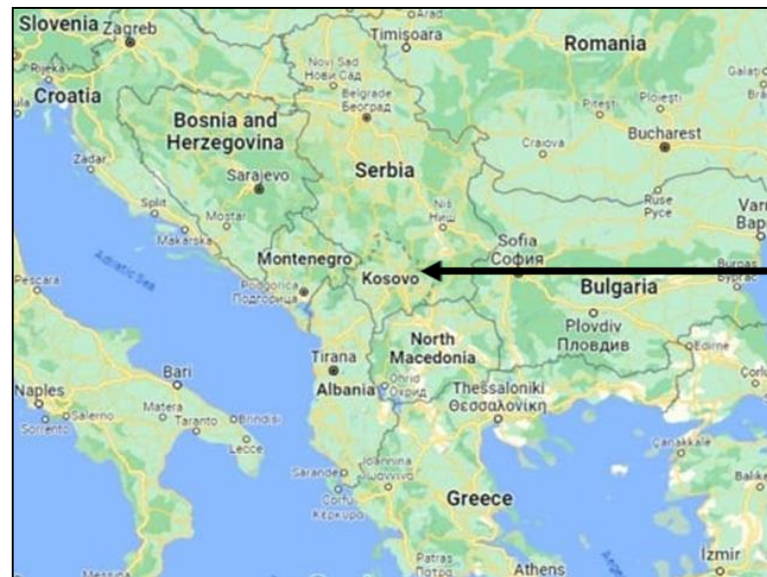


Epigenetic Studies:

□ 2021: Kosova Rehabilitation Center

“A mother’s trauma can be traced in a blood sample from her child”

- Project done by five researchers from the Kosova Rehabilitation Center
- 130 women over age of 18 were interviewed who had experienced sexual violence during Kosovo war (1990s)
- All women gave birth to at least one child after the war not related to previous violence
- 76% reported to likely have PTSD symptoms during pregnancy
- Blood samples were collected from 120 of the youngest children born to each women



Kosova, Serbia

Epigenetic Studies:

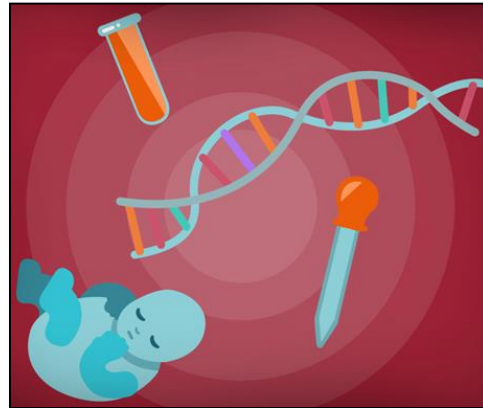
□ 2023 Kosova Rehabilitation Center

Results

- 25% of the children had abnormal levels of cortisol
 - High levels = possible heightened stress activity
 - Low levels = possible aggressiveness and anti-social behavior
- External modifications to DNA noted among children which can alter stress response system

Next Steps:

- Re-examine the same children after three months of family therapy



Epigenetic Studies:

□ 2023 International Journal of Equity in Health:

“Association between gene methylation and experiences of historical trauma in Alaska Native Peoples”

- First study among Alaskan Natives to report connection between historical loss and DNA methylation (epigenetics), initiated by an Indigenous provider
- 117 Alaska Natives over the age of 18 (from two regions-Kenai and Southeast)
- Consisted of completing a survey and blood draw



Kenai, Alaska

Epigenetic Studies:

❑ 2023 International Journal of Equity in Health cont.:

Survey Questions

Table 2 Historical loss scale aggregated survey responses

Variable

- Overall Score
Score for questions endorsed above sample median
1. The loss of our land
 2. The loss of our language*
 3. Losing our traditional spiritual ways*
 4. The loss of our family ties because of boarding schools
 5. The loss of families from the community to government relocation
 6. The loss of self-respect from poor treatment by government officials
 7. The loss of trust in whites from broken treaties
 8. Losing our culture*
 9. The losses from the effects of alcoholism on our people*
 10. Loss of respect by our children and grandchildren for elders*
 11. Loss of our people through early death*
 12. Loss of respect by our children for traditional ways*

Table 3 Historical loss associated symptoms scale aggregated survey

Variable

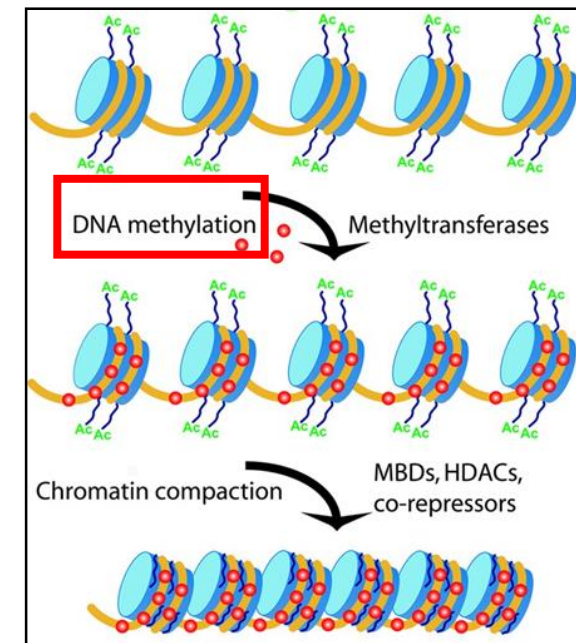
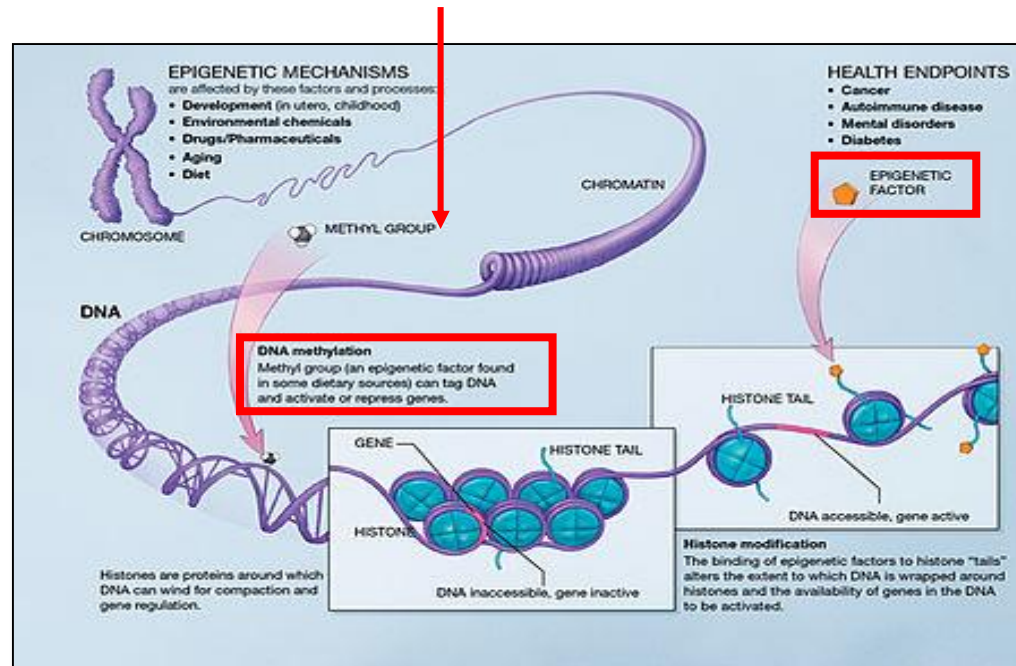
- Overall Score
Score for questions endorsed above sample median
1. Sadness or depression*
 2. Anger*
 3. Anxiety or nervousness*
 4. Uncomfortable around white people when you think of these losses*
 5. Shame when you think of these losses*
 6. A loss of concentration*
 7. Feel isolated or distant from other people when you think of these losses*
 8. A loss of sleep*
 9. Rage
 10. Fearful or distrust the intention of white people
 11. Feel like it is happening again*
 12. Feel like avoiding places or people that remind you of these losses

Epigenetic Studies:

❑ 2023 International Journal of Equity in Health cont.:

Results:

- Historical Trauma loss symptoms were associated with DNA methylation =
Methyl group tags DNA and activates or represses genes



Epigenetic Studies:

❑ 2023 International Journal of Equity in Health cont.:

Protective Factors

- Positive association between cultural identification and general well-being
- “Braided Resilience” (Elm et. al. 2016): using multiple resources to heal



Evidence Based Intervention:

FACT: Reclaiming indigenous culture and traditions improves wellness

- Providers: Important to be knowledgeable about community cultural activities

RIBBON SKIRT MAKING

If you are interested in participating in TAP's Community Smudge Walks or the Missing and Murdered Indigenous Women's (MMIW) Walk, but don't have a ribbon skirt please register for a FREE class.

Must be able to dedicate 2 evenings to complete your skirt.

Register by contacting
TAP@oneidanation.org or call (920) 490-3845

No previous experience required. Space and supplies are limited.

1st Class	2nd Class
April 7th & 8th 5 - 9 PM Social Service Community Room	April 26th & 27th 5 - 9 PM Social Service Community Room



COVID-19 safety measures will be implemented to keep participants safe.

COVID-19 safety measures determined in consultation with Oneida Nation Tribal Health Department.



ONEIDA
CULTURAL HERITAGE
PRESENTS

HARVEST CEREMONY

CEREMONY EDUCATION

Food Provided by
ONEIDA HOUSING
DIVISION

**WEDNESDAY
OCTOBER
11**

ONEIDA LONGHOUSE
W370 REFORMATORY ROAD
FROM 5:00PM-7:00PM

JOIN US TO LEARN ABOUT
THE HARVEST CEREMONY

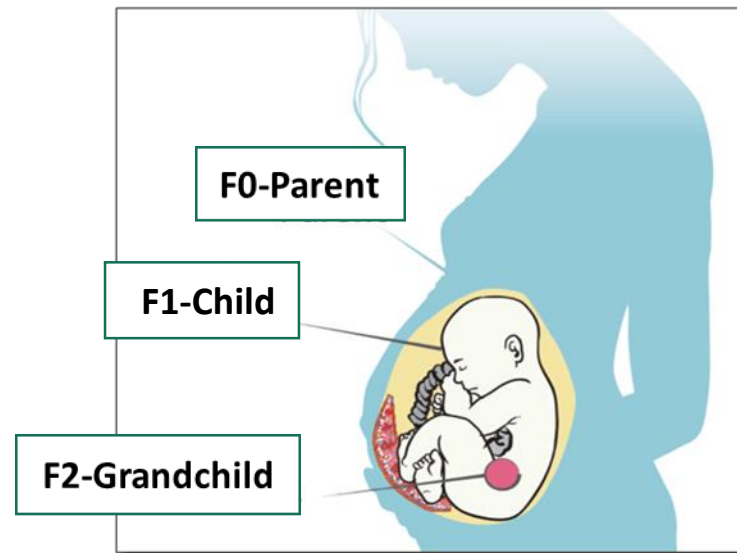
Contact: Teyonah 920-496-5391 | Idagad1@oneidanation.org

ONEIDA | TAP
tribal action plan

Other Intervention Ideas:

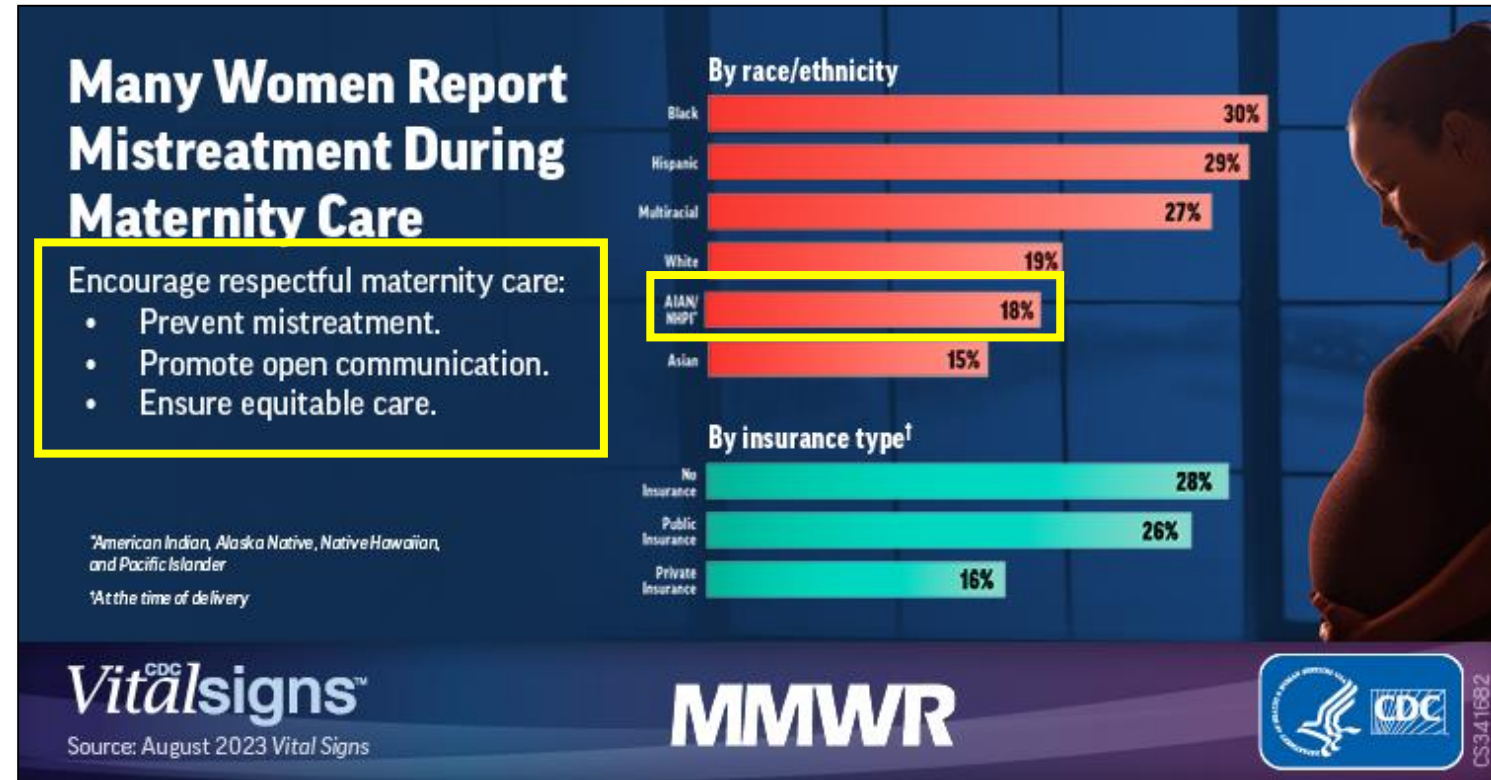
FACT: Toxic stress prenatally can chemically change the structure of genes that can have a lasting impact on an infant's developing brain

- Providers: Expand stress reduction education, Refer to or create stress reduction programs for expecting parents, More screening for stress



Other Intervention Ideas:

FACT: Indigenous women continue to be mistreated in health care facilities



- Providers: Recommend annual Trauma Informed Care training for all staff

Questions/Comments

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References:

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2. Brave Heart MYH, Chase J, Elkins J, Altschul DB. Historical Trauma Among Indigenous Peoples of the Americas: Concepts, Research, and Clinical Considerations. *J Psychoactive Drugs.* 2011;43:282–90.
3. Brave Heart MYH. The return to the sacred path: Healing the historical trauma and historical unresolved grief response among the Lakota through a psychoeducational group intervention. *Smith Coll Stud SocWork.* 1998;68:287–305.
4. Rogers-LaVanne et al. Association between gene methylation and experiences of historical trauma in Alaska Native peoples. *International Journal for Equity in Health* (2023). 22:182. <https://doi.org/10.1186/s12939-023-01967-7>.
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