Black Father’s Wager: Leading Life Course (ACEs, Cockpit Management, Virtuous Loop, Transgenerational Informed) Pathways to H.O.M.E.

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Topics:
- Pretest
- Pascal’s Wager
- Scope of Challenge; Disparities
- “Life Course” vs “Ecological” Solutions
- Racism, institutional allostatic
- ACEs Multigenerational mechanisms
- Epigenetic vs Genetics
  1. Dutch Hunger Winter 1944–1945
  2. Holocaust survivors
  3. Barker Hypothesis
  4. Slavery (epigenetic scars
- Biology @ stress, PTSD, Metabolic Diseases
- Forward loops; virtuous vs vicious
- Means to improve
- “Cockpit management”; Crew management
- Checklists, behavior changes
- Action plans: personal, policy
- Post test
- What’s your ACE score?

Fathers, Fathering and Child Psychopathology

- Father involvement beneficially influences development
  - ↑ in reading ↑IQ measures
- Insecure father–child attachment independently predicts multiple childhood adverse outcomes
- Paternal engagement benefits childhood outcome measures
Blaise Pascal’s Wager

- 13th Century polymath: mathematician, physicist
- “Hobson’s Choice”
- Morton’s Fork
- Henry Ford “any color model T as long as it’s black”

“More and less equal” How men factor in the reproduction equation

R Almeling, M Waggone

- Consider male roles in reproduction
- “New research agenda”
- Understand @
  A. Men’s reproductive contributions, age, alcohol, tobacco, domestic violence, toxins
  B. “Men’s experiences”
  C. “proprietary interest” but not “responsibility”
  D. “Men’s studies”
Pascal’s Wager: Pénéeses
Wikipedia 5.2017

- Pascal’s Wager is an argument made by 17th century polymath (1623–63) (mathematician, physicist)
- Popular arguments @ God and Religion
- Pascal argues that a rational person should live as though God exists (and follow “church rules”); If God actually exists, such a person will have only finite losses (“forbidden” pleasures, luxuries, etc.); where they stand to receive infinite gains (eternity in heaven) and avoid losses (eternity in Hell)

- "You must wager" = "incomprehensible" damage, vs "limited losses"
- "Live as though God exists" cure yourself of disbelief = "act as if believe taking holy water, going to masses"
Progeny → F₁ → F₃

Adolescent Care checklist

Ancestors

Pregnant Checklist:
- Nutrition
- Supplements
- Centering Medically optimized preventive care
- Infections/Vaccines
- Substances (ETOH, Tobacco, THC)
- Microbiome Abuse prevention
- Environment

Early child life
- Family life
- Home Visitation
- Head Start

It takes a village/community

PROGENY H.O.M.E.

Breathing

Attachment

Epigenetics

Trauma & Genetic Scars

Pregnancy Support

Preconception checklist

Breast feeding

Parental Support

Parental Support

H.O.M.E. Family

H.O.M.E. Family

Adolescent Care checklist

Pre-conception checklist

H.O.M.E.

PROGENY H.O.M.E.

Black Fathers—Leading Life Course
Pathways to H.O.M.E.

Ancestors

Epigenetics Tissue & Cell Scars

Preconception checklist

Pregnant

Breastfeeding

Attachment

Birthin

Pregnancy Support

Family

Ethics

Medical

Behavioral

Societal

Taiwanese, Thai

Minnesotan

African

Amish

Hmong

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Finding your ACE Score

• 10 Questions @ “Abuse” “Neglect” “Disruption”

1. Swear, insult, humiliate, hurt
2. Touch in a sexual way
3. Parents separated, divorced, jail, mentally ill

HYPOTHESIS

• “Post-traumatic Slave Syndrome and Intergenerational (Epigenetic) Trauma: Slavery is like a curse passing through the DNA of African Americans”

› Dutch Winter Famine  IGF2 gene
› Holocaust Survivors  5kbp5 gene

› Similar to Native American Indians and other *suppressed people
Social Status Alters Immune Regulation and Response to Infection in Macaques

- Social status is one of the strongest predictors of human disease risk and mortality
- Complex study @ combining genomics and social status manipulation ≈ immune cells/functions
- Results
  1. Low social status assoc. dysfunction toll-like receptor 4 signaling pathway=proinflammatory
  2. Social status effects are PLASTIC
  3. “Direct biologic effects if social inequality an immune functions”

Proinflammatory Primates
Robert M. Sapalsky (Stanford) Science 2016:354 967-8

“If you have a choice; don’t be a low-ranking female rhesus monkey”

- Rhesus features: Stable, linear, dominance hierarchies
- Those at the bottom:
  - work harder for their calories,
  - have less access to social support (grooming), and
  - are more subject to “displacement aggression” from dominant individuals
- Adverse effects species specific
  1. Elevated glucocorticoids
  2. Hypertension
  3. Cardiovascular disease
  4. Reproductive dysfunction
  5. Proinflammatory response

Glucocorticoid release is ↓↓ by psychosocial stress in female rhesus macaques, which resembles similar low response observed in several human psychopathologies. “chronic unpredictable nature of certain stressors can overwhelm reactive and restorative mech. and result in dysregulation of stress and behavioral responses.”
Prior studies:
1) involvement pos effects: Father’s health
   - ↓ IPV, ↓ PTB, ↓ LBW
2) vs. ↑ marital stress/conflict
3) IPV assoc.
   - High stress
   - Poor health behaviors (ETOH, Drugs)
   - Rigid gender roles
   - Low marital/life satisfaction
   - Unequal dominance

Study: 6,184 men ~ ↓ ↓ IPV
- presence prenatal visit
- paternity leave
- Helping children homework

P<0.05

NEED MORE FAMILY-FRIENDLY POLICIES

Can Epigenetic Dysfunction be Corrected/Mediated?

- "Epigenetic" @ essential reversible regulation of genetic functions;
  independent of DNA (f)
1. Histone gene controls @
2. “small non-coding RNAs”
3. Deacetylases

- Heritable during MEIOSIS and thus potentially transmitted across generations
  ($F_0 \rightarrow F_3$)

Epigenetics: Linking Social & Environmental Exposures to Preterm Birth

1. * Prior PTB
   a. Mother OR 1.3
   b. Grandmother
2. Pollution ↑↑ PTB: air (toxicants, small particles < 2.5 μm)
3. Diet: “western diet”
4. Toxic stress: ACEs, Abuse, Safety, insecurity

*No info @ fathers, grandfathers
Closing the Black–White Gap in Birth Outcomes: A Life Course Approach
Black infants worse (2–3 x) birth outcomes versus white infants
Purpose a 12 point plan using Life Course Health Approach
1. Interconception care
2. Preconception care
3. Quality prenatal care
4. Quality healthcare across life
5. Strengthen further involvement
6. Systems integration
7. Reproductive “social capital”
8. Community building
9. Close education gap
10. Reduce poverty
11. Support working mothers
12. Undo racism

Life Course Preconception Packages, Protocols, and Checklists
Everywoman California www.everywomancalifornia.org

Each checklist contains:
• Alcohol (ETOH)
• Dental health (periodontal infection)
• Drugs, THC
• Smoking
• Folic Acid (400 μg)
• Food Safety tips
• Genetic Conditions
• Healthy Eating
• Hazardous materials
• Healthy Community
• Healthy Relationships
• Mental Wellness
• Physical activity guide
• STIs “Screen and treat”
• Vaccine: influenza, pertussis, varicella, HPV, HBV, HAV, rubella
Participation of Prospective Fathers in Preconception Care
Andrew E Czeizel et al (Hungary)

- Present data from Center for Preconception Service 1984–2010
- Objective involvement of male partners in preparation for pregnancy/family formation
  1. Check up for reproductive health
  2. 3 month preparation for conception*
     - Nutrition, folate, ETOH, substances, environment ≥ 20%
  3. Achieve optimal conception

* obesity, medications

Pregnancy Checklist

- Transvaginal cervical length screen*
  - < 25 mm before 20 weeks
  - By CLEAR provider
- Progesterone indication?
- GBS screen @35–36 weeks
- GBS history
- Bacteriuria
- HIV/Syphilis
- GDM
- Preeclampsia
- Low dose ASA
- DHA (250 mg/day) fish (2 x wk)

* Abnormal screen TA vs CL
  - Symptoms
  - Vag bleeding
  - ** genitourinary infection
  - AR techniques
  - Institute of Medicine. 2007
A National Strategic Plan for Reducing the Burdens of STIs in Israel by 2025

- Suggest
  1. Active surveillance
  2. Active case finding
  3. Screen HIV, Syphilis in MSM

Safe Sex @ healthdirect.Aus

- Long term monogamous relationship
- Always use condom with water based lubricant
- Dental dams with oral sex
- Regular STI check–up

Mediterranean Diet Reduces Risk for Pregnancy Complications
Vitamin D – binding Protein and Vit. D Status of Black Americans and White Americans
- "Levels of total Vit. D are low among Black Americans but less osteoporosis and ↓ BMD
- "Healthy aging study" 2085 participants
  √ Vit. D; Vit. D binding protein; BMD (density)
  √ Genetic polymorphisms
- Results: Blacks & Whites same for free Vit. D
  √ Blacks ↓ Vit. D and Binding Protein
  √ Same bioavailable Vit. D
  √ Among homozygous participants
- More research on free Vit. D
- Low Vit. D linked to PTB, BP, CVD, Stroke, CHF

Health Benefits of Reducing Air Pollution
RA Broome, et al Environ Res 2015
- Applied fine particle (<PM 2.5 μm) and ozone levels in Sydney Aus. MAP-CE software
- 2007 430 premature deaths 5800 YLL
- “Reducing air pollution by a small amount yields a range of health benefits
- * Similar to other studies death, carotid stenosis, PTB, SGA
- Kurhanewicz N. Part. Fibru Toxicol 2014

Is it safe to bring your (unborn) baby to work?
- Job stress
- Bullying
- Standing
- Shift rotations
- “Work to Fatigue”
- Chemicals
Prior studies of skin-to-skin contact excluded fathers

Study: 83 first-time fathers age ≥ 20 yrs
• 15 mins S-2-S x three days vs usual care
• All received Early Child care for fathers;
• Assessment: Father Child Attachment Scale (FCAS)

Results:
• Intervention ↑↑↑ scores R <0.001
• Same as: Kuan, 2012
  Tarabulsy, 1996
• ↑ oxytocin in mothers and fathers
• ↓ Anxiety @ caring for baby
• “Heart warming experience; fascination and competence for caring for the newborn”

Parenting factors are one of the biggest GAPS in growth and development

“Serve and return”

Need sensitive responsivity as primary variable?
Values that (AA) Fathers Communicate to Sons about Sex, Sexuality, Relationships, and Marriage

- Protection @ Sexual Health Risks
- Qualitative Study in 2015
- 29 AA fathers who had sons age 10–15 yrs
- Themes fathers shared values with sons:
  - Sex
  - Sexuality
  - Relationships
  - Marriage

Effectiveness of Early Head Start for 3 year old children and their parents

- Pattern of modest impacts across range of child and parent outcomes
  1. Measures: cognition, language, social & emotional functioning
  2. Larger effects:
    a. African American families
    b. Enrolled during pregnancy
    c. Moderate if "risk factors"
  3. No impact families with “highest risk factors”: aggressive behaviors

Prenatal Screening for Psychosocial Risks in a High Risk Population Using KINDEX Interview

- Prenatal stress and associated factors (IPV) have negative effects in pregnancy and enduring neurocognitive, behavioral and physical health of the child
- KINDEX (11 item) given by MIDWIVES
- "Study completed"
- No measures of outcome
- "make EARLY INTERVENTIONS"
**Very PTB (VPTB) is reduced in Women Receiving an Integrated Behavioral Intervention: a RCT**  

- **Study**: RCT @ integrated behavioral intervention – tobacco, depression, IPV in 819 women AA in Washington DC
- **Multivariate logistics regression/Bivariate analysis**
- **Associated with improved pregnancy outcomes among women with at least one risk factor**
- **Results**:
  1. ↑↑ PTB, vPTB, with smoking, depression, IPV,
  2. ↑↑ multiple risks ~ 1.5-2.0

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<th>Counseling</th>
<th>Usual</th>
<th>OR (95% CI)</th>
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<tr>
<td>LBW</td>
<td>10.9%</td>
<td>12.8%</td>
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<td>vLBW</td>
<td>1.0%</td>
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<td>0.45 (0.14–1.48)</td>
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<td>vPTB</td>
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NNT - 36

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**Do Parental Interactive Behaviors Correlate with Developmental Outcomes and Mastery Motivation in Toddlers** Dj Wann, et al Phys Ther 2014:

- **Study studied**: Mother/toddler Interaction
  - "High quality maternal behaviors correlate with master/pleasure perseverance" Nursing child assessment teaching scale 2

† Parent Interaction = Mastery Pleasure Perseverance Motivation

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**Baby Brain Experiment**  
Nature 2017
5 things to remember:
1. Pascal’s Wager
2. Transgenerational Effects – ACEs
3. Scars of racism, slavery, Jim Crow
5. Apply what we know at feed forward loops
→ Action plans to reduce disparities over generations

Pop Quiz
1. Would Blaise Pascal (smart guy, but French) fully participate in his family’s formation (pre/conception, genetic counseling, no substances, conception, early pregnancy care, birthing attachment/bonding, breastfeeding, early child development, home visiting, and preschool).
2. Can epigenetics adverse childhood influences (ACEs) during ancestors & or parent’s life be mediated/mitigated.
3. Can male partners intelligently support mothers through reproduction and family formation.
4. Are checklists available to optimize health/wellness during all phases of the "Life Course"
5. Where is H.O.M.E

Questions?
The Promise Neighborhood Initiative is the Obama Administration’s signature education and anti-poverty program strategically developed to transform schools and communities into vibrant centers of opportunity and excellence.