COMMUNITIES, CLINICIANS AND COLLECTIVE ACTION: OPPORTUNITIES TO REDUCE PRETERM BIRTH AND MATERNAL MORTALITY

Monday, May 21
10:20 AM - 11:50 AM

#prematuritycollab
Causes & Accountability: An epidemiologic argument for social determinants of birth equity

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Prematurity Prevention Summit: Building a birth equity movement
I have no financial or other conflicts of interest.

Views presented are mine, and do not necessarily reflect views of Emory University
America stands alone: Maternal mortality

The New York Times

Maternal Mortality Rate in U.S. Rises, Defying Global Trend, Study Finds

By Sabrina Tavernise
Sept. 21, 2016

WASHINGTON — One of the biggest worldwide public health triumphs in recent years has been maternal mortality. Global death rates fell by more than a third from 2000 to 2015. The United States, however, is one of the

U.S. Has The Worst Rate Of Maternal Deaths In The Developed World
May 12, 2017 - 10:28 AM ET

Rank 34 out of 35 high-income countries

Source: Lancet Global Burden of Disease, 2017
The U.S. Is Failing in Infant Mortality, Starting at One Month Old

By Aaron E. Carroll
June 6, 2018

Many more babies die in the United States than you might think. In 2014, more than 23,000 infants died in their first year of life, or about six for every 1,000 born. According to the Centers for Disease Control and

Rank 33 out of 35 high-income countries

Source: America’s Health Rankings 2017 Report
America stands alone: Preterm birth

U.S. Lags in Global Measure of Premature Births

Rank 34 out of 34 high-income countries

Source: Delnord, et al, 2017; Euro J Public Health
Geography

Socioeconomic Status

Dimensions of Equity

Race & Ethnicity

A growing income gap in infant mortality

Cumulative probability of infant death per 1,000 live births, by infant age, in U.S.


Source: Alice Chen, Emily Oster and Heidi Williams.
Race Black:White -> Preterm Birth

PTB - 2016
- NH Black: 14
- NH White: 9

1.6
Race Black:White 2.0 Low birthweight

LBW - 2016
NH Black 13.7
NH White 7
Race
Black:White    Infant mortality
2.3
IMR - 2015
11.3
NH Black
4.9
NH White
Race
Black:White

Very Low birth weight

VLBW - 2016

NH Black
NH White

2.8

3

1.1
Race
Black:White 3.4

Maternal Mortality

Maternal Mortality - 2013

NH Black 43.5
NH White 12.7
<table>
<thead>
<tr>
<th>Outcome</th>
<th>Black-White disparity (prevalence ratio)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preterm Birth (&lt;37 weeks)</td>
<td>1.6</td>
</tr>
<tr>
<td>Low birthweight (&lt;2500 grams)</td>
<td>2.0</td>
</tr>
<tr>
<td>Infant mortality</td>
<td>2.3</td>
</tr>
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<td>Maternal mortality</td>
<td>3.4</td>
</tr>
</tbody>
</table>
1. What **causes** inequity in maternal & infant health?

2. Who is **accountable** for equity research and action?
What differs within a population?

Why was this baby low birthweight?

Source: NCHS, 2013

Rose, 2001
What differs within a population?

- Infection
- Stress
- Smoking
- Genetics
- ...

Why was this baby low birthweight?

Source: NCHS, 2013

Rose, 2001
Source: NCHS, 2013

Rose, 2001
What differs between populations?

Why is the average birthweight lower for Black compared to White babies?

Black infants

White infants

Source: NCHS, 2013
What differs between populations?

- Stress
- Racism
- Segregation
- Opportunity structures
- Health access & health care
- Genes??

Why is the average birthweight lower for Black compared to White babies?

Source: NCHS, 2013
Very Preterm Birth Across 231 US Cities

Kramer & Hogue, 2008
Very Preterm Birth Across 231 US Cities

San Jose, CA
Lubbock, TX
San Francisco, CA
Florence, SC

Kramer & Hogue, 2008
Very Preterm Birth Across 231 US Cities

San Jose, CA

Lubbock, TX

San Francisco, CA

Florence, SC

Worst to Best Gap:
- 35 per 1,000
- 15 per 1,000

Kramer & Hogue, 2008
Health equity & Accountability
Health behaviors and conditions matter for individual outcomes

BUT...

Individual factors do not explain between-race differences in...

- Maternal mortality
- Infant mortality
- Preterm birth

Source: NCHS, 2013
Black infants

White infants

Is ‘health care’ accountable for health inequity?

Racial inequities in ‘health care’:
  • Insurance
  • Access to providers
  • Timing, quality, quantity of care

BUT...

Between-race differences persist among women with private insurance

Source: NCHS, 2013
1. Are we self-critical of implicit assumptions in the questions we ask?

2. Does our research further stigmatize at-risk communities?

3. Do we produce consequentialist evidence for action to eliminate inequity?

Are we (health equity researchers and advocates) accountable?

Source: NCHS, 2013

Galea, 2013
Reporting health disparities: Talk without walk?

Figure 1. Infant mortality rates, by race and Hispanic origin of mother: United States, 2007

- **Non-Hispanic black**: 13.31
- **American Indian or Alaska Native**: 9.22
- **Puerto Rican**: 7.71
- **Total**: 6.75
- **Non-Hispanic white**: 5.63
- **Mexican**: 5.42
- **Cuban**: 5.18
- **Asian or Pacific Islander**: 4.78
- **Central and South American**: 4.57

Reporting health disparities: Talk without walk?

Figure 1. Infant mortality rates, by race and Hispanic origin of mother: United States, 2007

<table>
<thead>
<tr>
<th>Ethnicity</th>
<th>Infant mortality rate per 1,000 live births</th>
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</table>

Etiology or action?
“The right answers to the wrong questions”

Etiology or action?
“The right answers to the wrong questions”

Mechanisms are important, and we need action-oriented evidence

Marginal adjusted risk for PT-LBW

Maternal Age

Maternal & Infant Health in All Policies

**Structural racism** (criminal justice, employment, education)
- Infant mortality; small for gestational age; preterm birth (Maeve Wallace, Tulane)

**Public housing and neighborhood development policy**
- Preterm birth; small for gestational age (Kramer, 2012)
- Gentrification and preterm birth (Lee, unpublished)

**Family economic security policy**
- Infant mortality (Kelli Komro, et al, later today!)
1. Causes of Inequity

- Preventing causes of cases of [preterm birth, infant mortality, maternal mortality] is important, but...

- To make progress on equity of these outcomes we need to look for and act on causes of between-population incidence.

Rose, 2001
2. Accountability for health equity evidence

- Describing trends and understanding etiologic mechanisms is important, but...

- Evidence-based action requires actionable evidence that...
  - Is self-critical of implicit assumptions
  - Locates drivers of inequitable health within and beyond individual health behavior and health care
Questions?

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References

Low dose aspirin for preterm birth prevention

Michelle Y. Owens, MD, MS, FACOG
March of Dimes Prematurity Prevention Summit
May 21, 2018
Disclosures

• Speaker’s bureau for AMAG Pharmaceuticals
Learning Objective:

• As a result of participating in this activity, you will be able to state the role of low dose aspirin in the prevention of preterm birth.
Burden and Challenges

• National preterm birth rate: 9.8%
  – Iatrogenic (Medically indicated)
  – Spontaneous
Burden and Challenges
Preterm birth “therapies”

- Antenatal corticosteroids
- Tocolytic therapy
- Antibiotic therapy
  - PPROM
  - GBS prophylaxis
“An ounce of prevention is worth a pound of cure”

A) Mark Twain
B) Ben Franklin
C) Thomas Edison
Prevention

• Direct
  – Behavioral/Medical Modifications
  – Pharmacologic
    • Progestogens
  – Structural/Physical
    • Cerclage

• Indirect
Preeclampsia

- A progressive syndrome characterized by hypertension, endothelial dysfunction and end organ damage.
- 2-8% of pregnancies worldwide
- 15% of preterm births in the US
- Significant contributor to maternal and infant morbidity and mortality.
Prevention

• ACOG
  – Hypertension Task Force (2013)
  – Practice Advisory (2016)

• USPSTF (2014)
  – Recommended low dose aspirin as a preventive medication after 12 weeks gestation in women with one or more high-risk factor(s) and consideration in women with “several” moderate-risk factors.
<table>
<thead>
<tr>
<th>Risk Level</th>
<th>Risk Factors</th>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High†</td>
<td>History of preeclampsia, especially when accompanied by an adverse outcome</td>
<td>Recommend low-dose aspirin if the patient has ≥1 of these high-risk factors</td>
</tr>
<tr>
<td></td>
<td>Multifetal gestation</td>
<td></td>
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<tr>
<td></td>
<td>Chronic hypertension</td>
<td></td>
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<tr>
<td></td>
<td>Type 1 or 2 diabetes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Renal disease</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Autoimmune disease (systemic lupus erythematosus, antiphospholipid syndrome)</td>
<td></td>
</tr>
<tr>
<td>Moderate‡</td>
<td>Nulliparity</td>
<td>Consider low-dose aspirin if the patient has several of these moderate-risk factors§</td>
</tr>
<tr>
<td></td>
<td>Obesity (body mass index &gt;30 kg/m²)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Family history of preeclampsia (mother or sister)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sociodemographic characteristics (African American race, low socioeconomic status)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Age ≥35 years</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Personal history factors (e.g., low birthweight or small for gestational age, previous adverse pregnancy outcome, &gt;10-year pregnancy interval)</td>
<td></td>
</tr>
<tr>
<td>Low</td>
<td>Previous uncomplicated full-term delivery</td>
<td>Do not recommend low-dose aspirin</td>
</tr>
</tbody>
</table>

* Includes only risk factors that can be obtained from the patient medical history. Clinical measures, such as uterine artery Doppler ultrasonography, are not included.
† Single risk factors that are consistently associated with the greatest risk for preeclampsia. The preeclampsia incidence rate would be approximately ≥8% in a pregnant woman with ≥1 of these risk factors.‡
‡ A combination of multiple moderate-risk factors may be used by clinicians to identify women at high risk for preeclampsia. These risk factors are independently associated with moderate risk for preeclampsia, some more consistently than others.
§ Moderate-risk factors vary in their association with increased risk for preeclampsia.
Benefits of Baby Aspirin

- 14% risk reduction for preterm birth
- 20% reduction for IUGR
- Increase in average birthweight of 130g
- 24% risk reduction for preeclampsia
- No developmental harms identified
Barriers

- Provider education
- Public awareness
- Access to medication
The End!

Thank you!