Maternal Morbidity and Mortality: Tip of a Lifecourse Iceberg

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Maternal Morbidity and Mortality are the Tip of the Iceberg

Adapted with permission from Sattar N & Greer I, BMJ 2002

Historical Depth
Discontinuous healthcare
Inadequate healthcare
Intergenerational poverty
Enslavement/Colonialism

Lifecourse Breadth
Before pregnancy
Subclinical CVD risk
Pregnancies
Clinical CVD risk
After pregnancy
Because of our disciplinary silos, we missed the obvious
Reproductive Health

Cardiovascular Health

Streetlight Effect

Illustrations from the Objective Standard, 2019 and Ayoud Tabout
Bikini Medicine ≠ Women’s Health

“The tendency of medicine to concentrate on the breasts and the reproductive organs, while essentially ignoring the rest of the woman”

- Nanette Wenger, MD

“The Health of Women encompasses all diseases and conditions that affect a woman from head to toe and recognizes that individual-level biological factors interact with numerous influences across a woman’s life course”

ADVANCING SCIENCE FOR THE HEALTH OF WOMEN
The 2019-2023 Trans-NIH Strategic Plan for Women’s Health Research
Meanwhile, we’ve been losing ground


MM Risk accumulates across the lifecourse in Black and AI/AN women

These data suggest:

- A lifecourse approach to MMM
- Socially determined and inequitably distributed: Each of the leading causes of maternal death is 2-5x more common for NH Black mothers compared to NH White mothers

https://www.cdc.gov/reproductivehealth/maternal-mortality/disparities-pregnancy-related-deaths
We’ve known this for some time

Weathering Hypothesis:
Rates of very low birthweight by maternal age and race, Michigan 1989

“The stressors that impact people of color are chronic and repeated through their whole life course”
- Arline Geronimus

Weathering hypothesis:
The effects of social inequality on health compound with age, leading to growing gaps in health status through young and middle adulthood

Violence Against Women and MMM

“To have a full picture of MMM, it is crucial to understand all the factors that contribute to the overall health of women.”

- Noursi, Clayton, Campbell & Sharps, Curr Women’s Health Review 2020

- Conspicuously missing: Violence against women
- Lifetime: 18% sexual, 31% physical, 36% psychological violence (NISVS 2015)
- Physical abuse affects 6% in pregnancy or year before pregnancy (PRAMS)
- Dose-response associations with physical, mental & behavioral health – including many underlying contributors to MMM
- Homicide, suicide, drug overdose while pregnant or within 1y of pregnancy:
  - Count as ‘pregnancy-associated deaths’ by CDC
  - Do not count as ‘pregnancy-related death’ -> missing from MMM statistics
- Underestimate of impact of violence against women on MMM
Pre-pregnancy Chronic Conditions Increasing: Now 10% of deliveries

Marked increases in:
- Chronic hypertension
- Asthma
- Pre-pregnancy diabetes
- Substance Use Disorders
- Low income communities, rural communities, Medicaid Insurance

Admon et al. Obstet Gynecol 2017
At least half of MM related to cardiometabolic health

New understanding of health

These ‘systems’ are not separate
MMM may tell us about more than just CVD

Adjusted hazard ratios (HRs) and 95% confidence intervals (CI) for the risk of cause-specific premature mortality (before age 70 y) according to the occurrence of hypertensive disorder of pregnancy among 88,395 parous women, Nurses’ Health Study 2, 1989-2017

Wang et al. J Am Coll Cardiol 2021
“NIH is made up of 27 Institutes and Centers, each with a specific research agenda, often focusing on particular diseases or body systems.”
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Does our siloed strategy mean we miss important insights for women’s health?
What MMM teaches us about NIH strategy:

- **Cross-Disciplinary Work**
  - Across Institutes
  - Across Agencies

- **Lifecourse Approach**
  - All RFAs and proposals should consider events before and after the period under study
  - Prioritize research on health of girls *and* women, including reproductive health, across IC’s

- **Promote Translation**
  - All proposals should include not just dissemination, but actual translation, visions
  - Scientists need more training in translation, especially community-based research (a new K?)

- **We need to keep moving beyond ‘bikini medicine’**
  - Women’s Health merits more investment in cross-disciplinary finding and coordination
  - Need a coordinating body with large purse and the mandate to ensure a holistic, translated Women’s Health research agenda (probably a larger role for ORWH, if not an NIWH)

- **Maternal Health is one part of a larger Women’s Health agenda. Both will fail if we revert to bikini medicine.**
Thank you