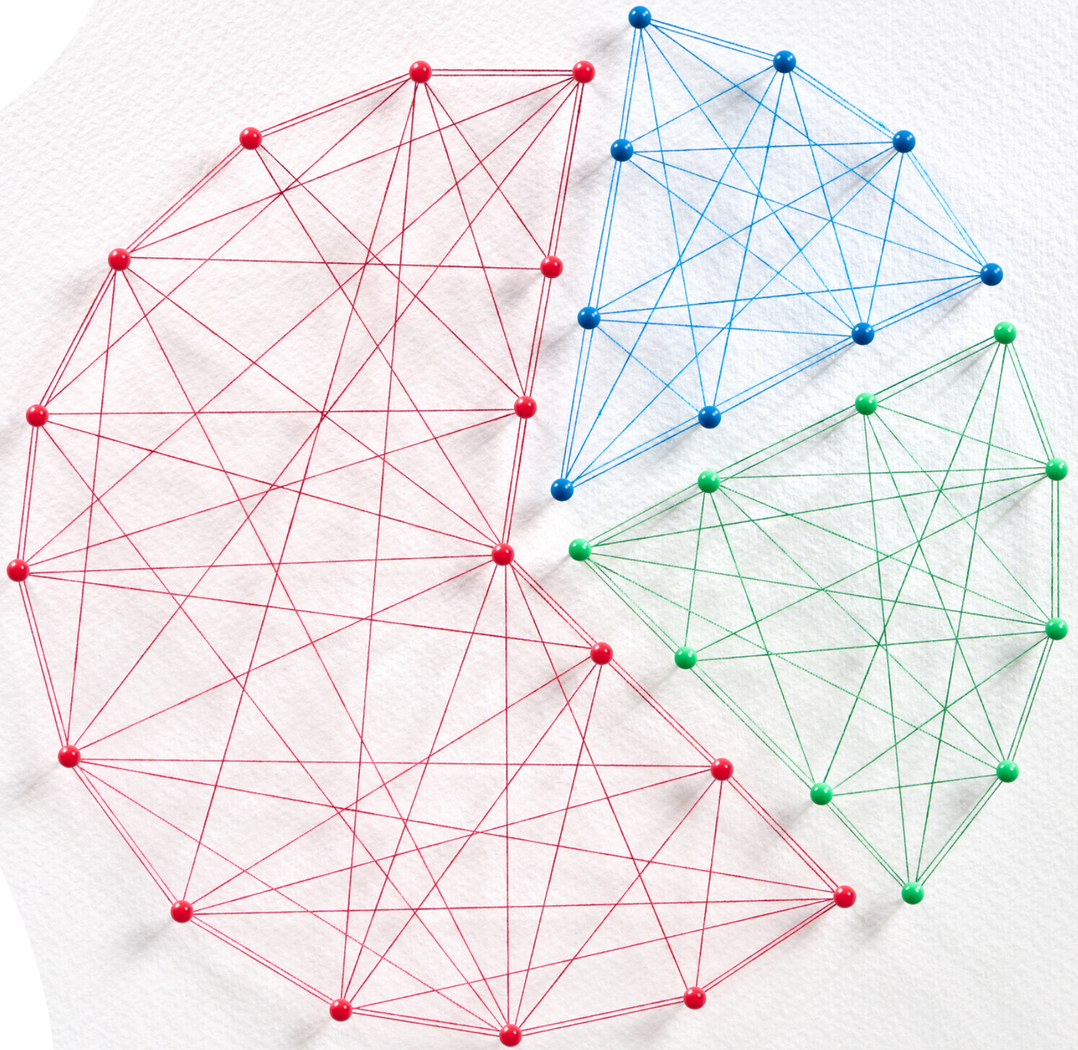
Session: Empowering Your Journey to a Sustainable Research Career:

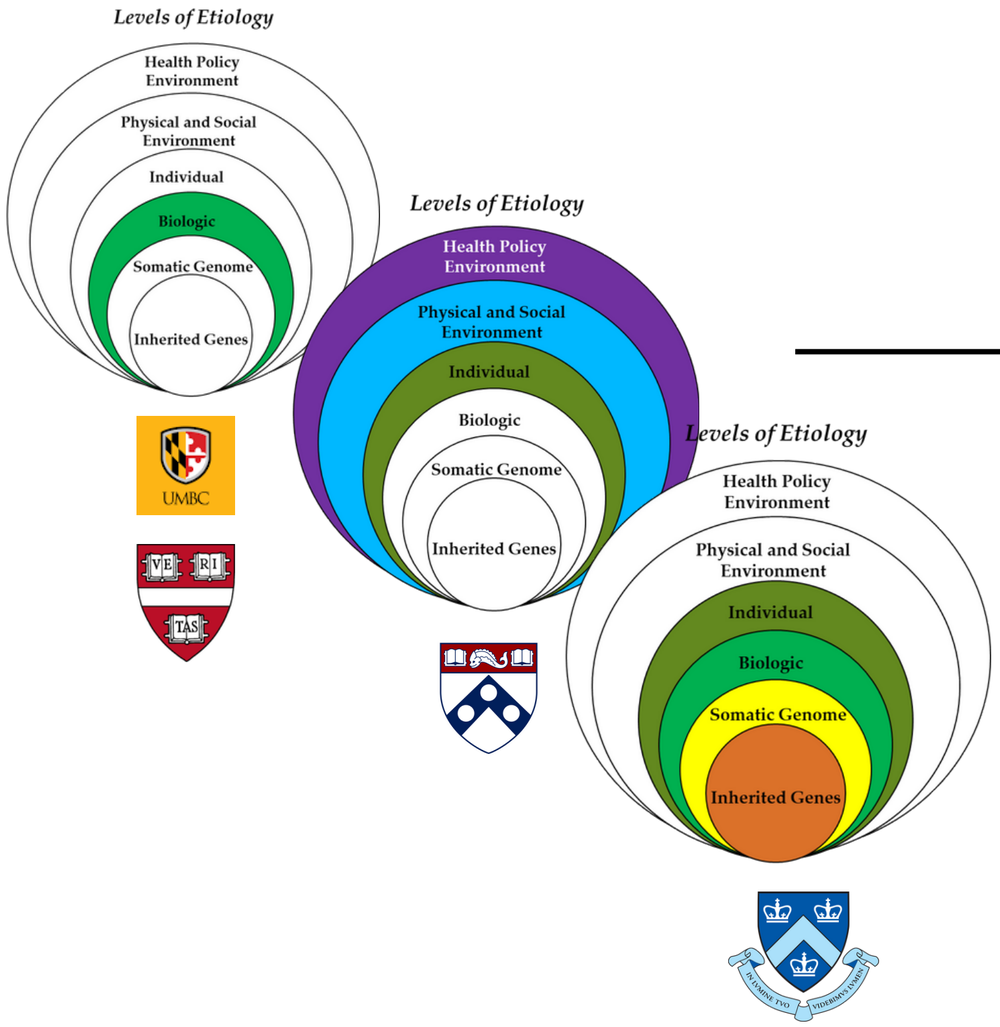
The 80/20 Rule of Academia

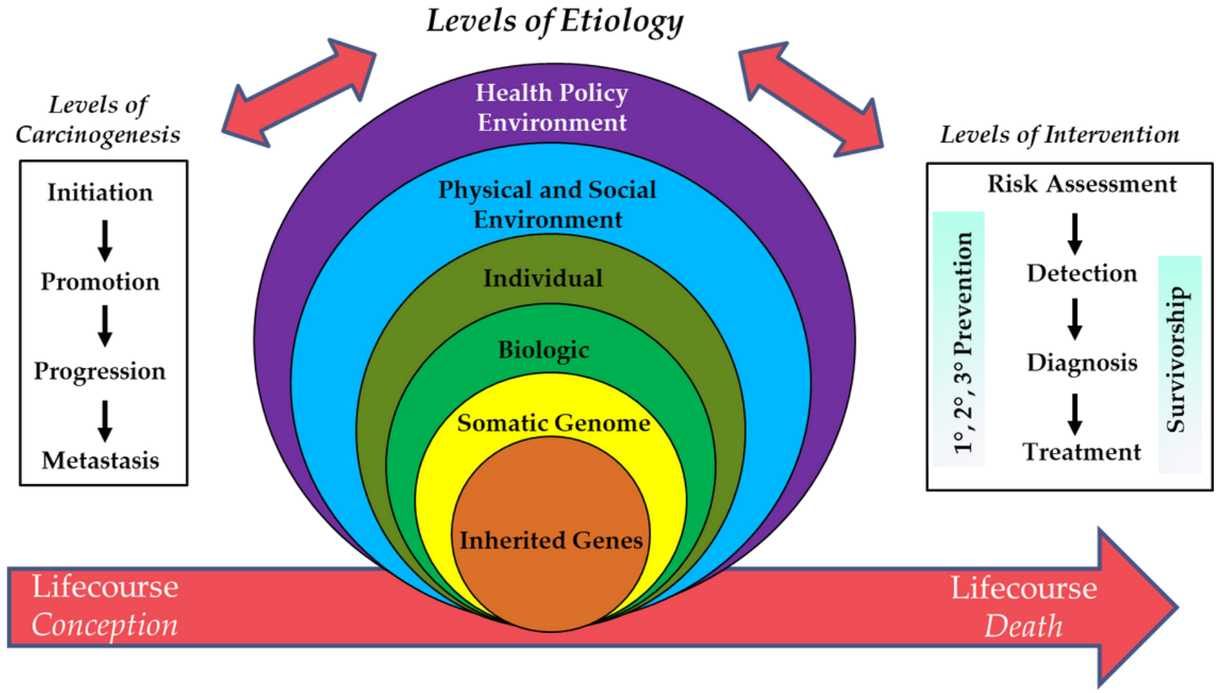


Jasmine A. McDonald, PhD

Assistant Professor
Department of Epidemiology
Mailman School of Public Health
Columbia University Irving Medical Center
jam2319@cumc.columbia.edu
Twitter @DrMamaBoss

A Life Course Framework for Navigating Breast Cancer Risk Reduction within a Multilevel Model





Modified from Lynch and Rebbeck CEBP 2013; Webb, Suglia, and Tehranifar Curr Diab Rep 2013

Think Outside of the Box:

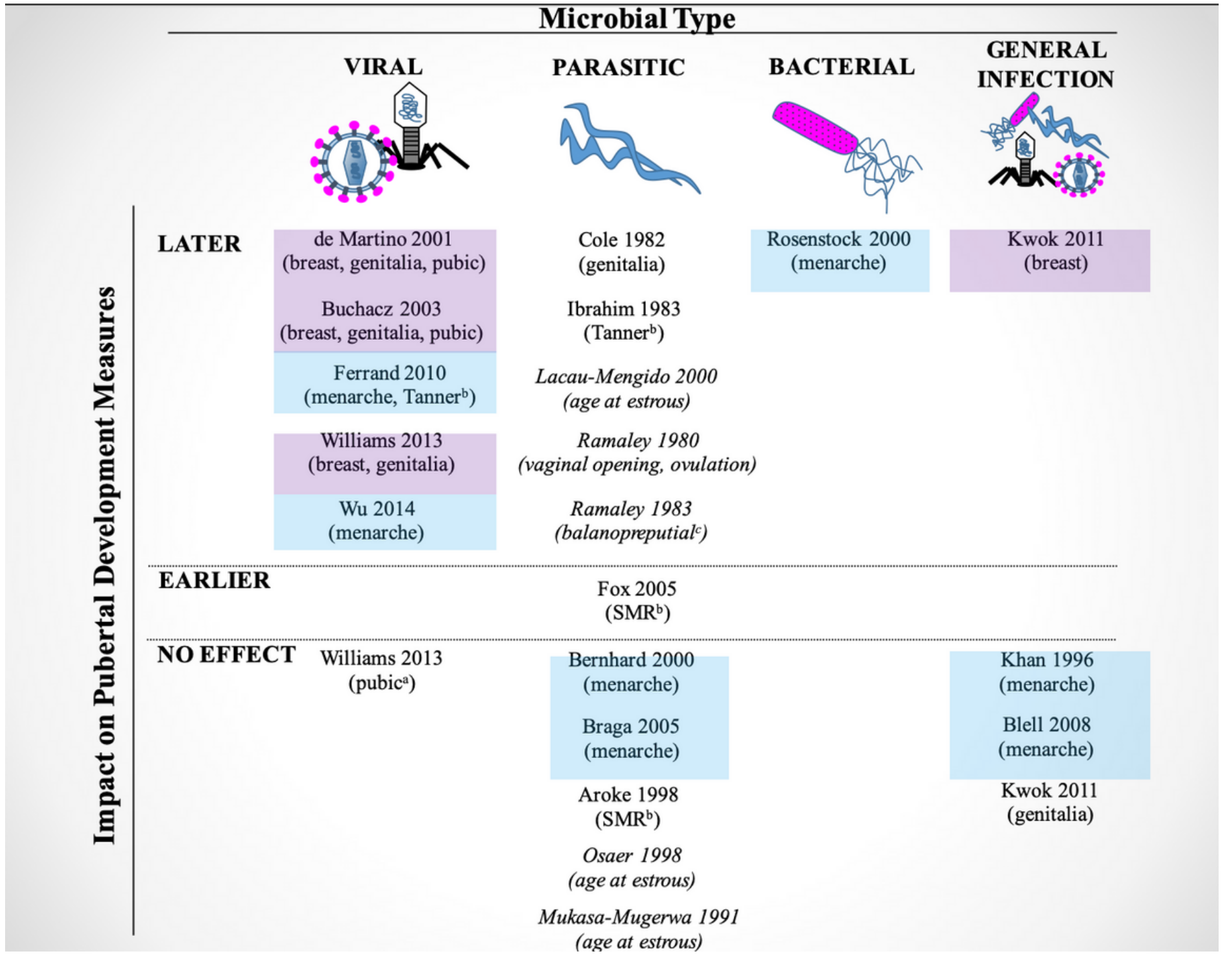
Applying the Hygiene Hypothesis to Pubertal Development

Infection and Pubertal Timing

Systematic Review TO.....

→

Empirical Evidence



Embrace the hard lessons

(or at least a nod of acknowledgement).

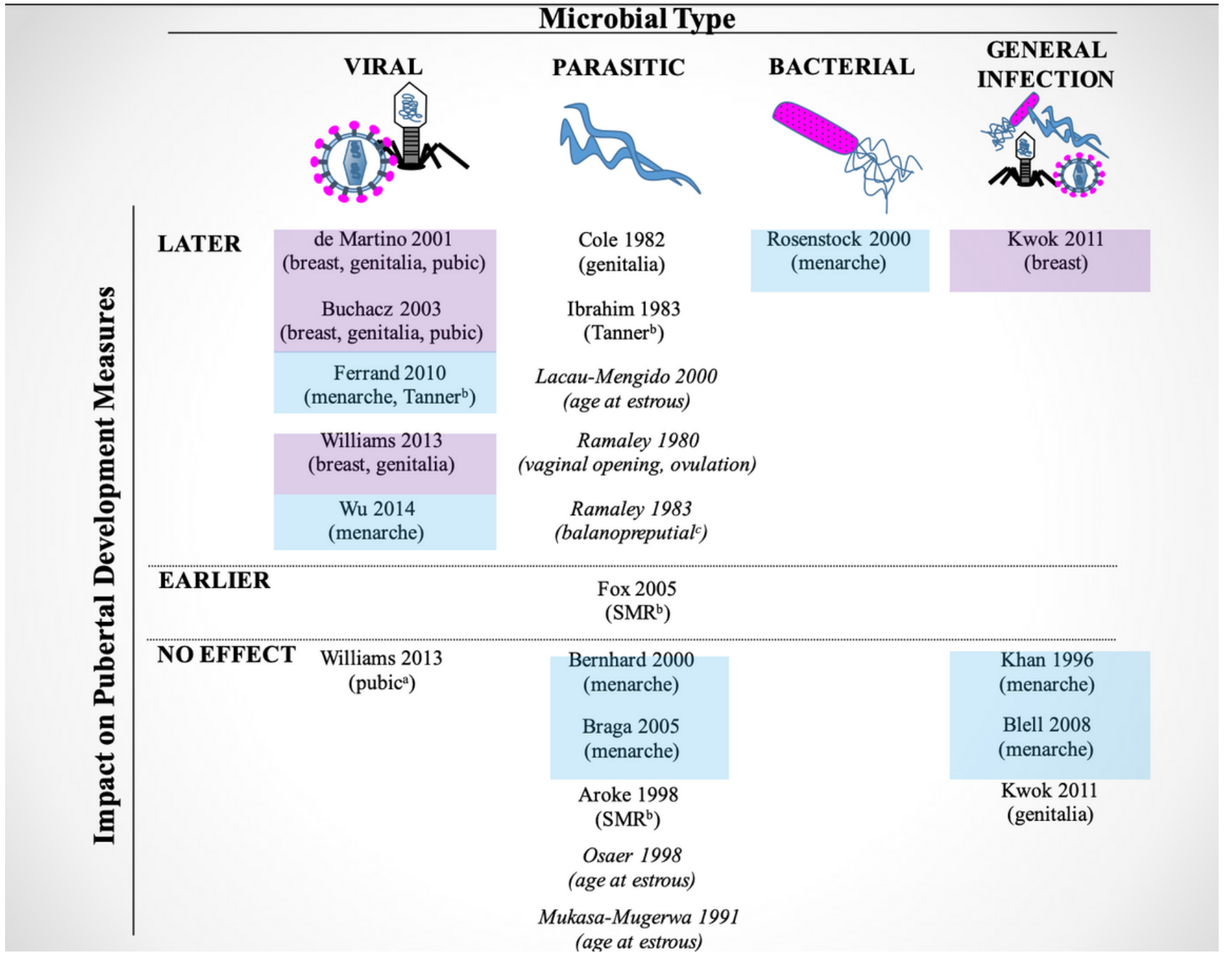
McDonald JA et al. Infection and Pubertal Timing: A Systematic Review. *J. Develop. Origins of Health and Dis*. 2016.

Infection and Pubertal Timing

Systematic Review TO.....

→

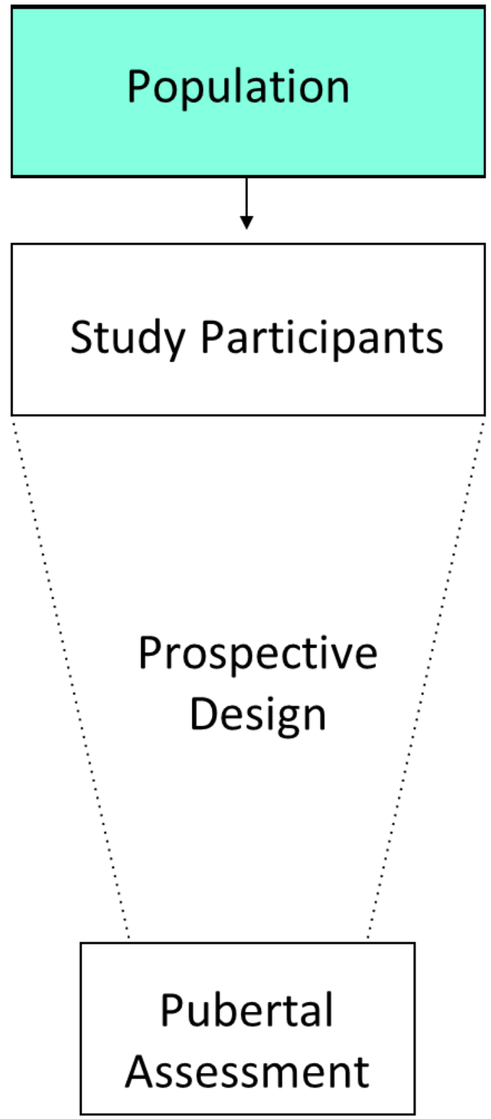
Empirical Evidence



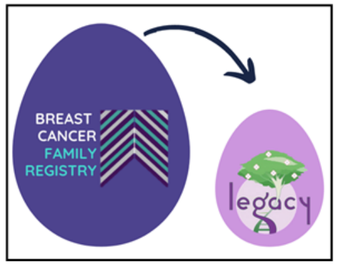
PILOT DATA?

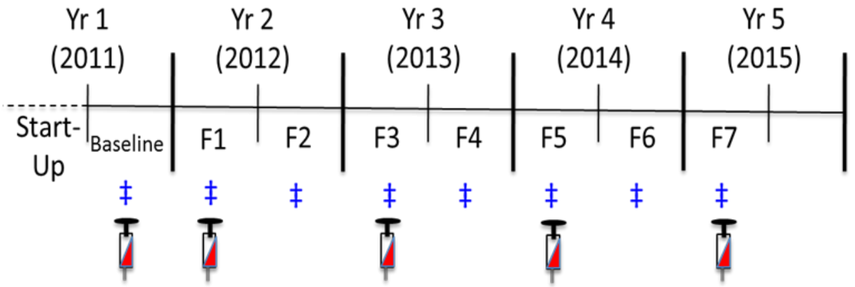
McDonald JA et al. Infection and Pubertal Timing: A Systematic Review. *J. Develop. Origins of Health and Dis*. 2016.

Study Design



- **Population:** The LEGACY Girl's Study Cohort





F# Follow-up Assessments; ‡ Puberty and Anthropometric Measures (every 6 months)

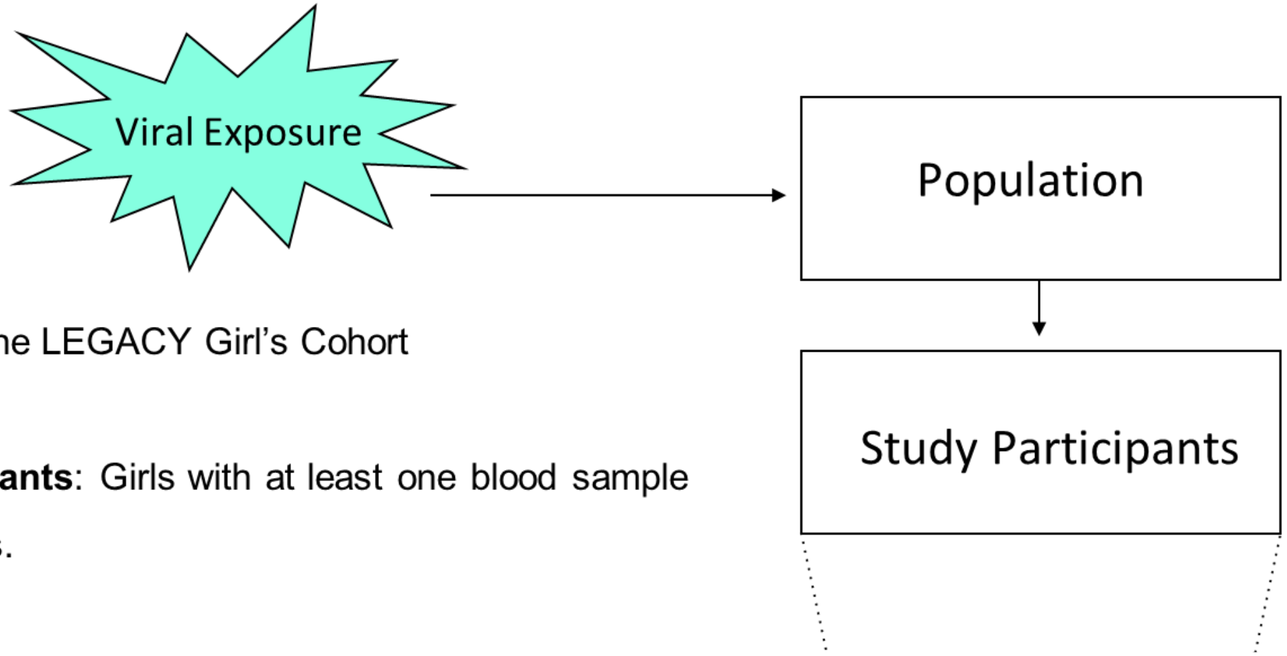
Blood Biospecimen Collected

Lessons in Epidemiology and Genetics of Adult Cancer from Youth - www.legacygirlsstudy.org

McDonald JA, Cherubin S, Goldberg M, … Terry MB. Common Childhood Viruses and Pubertal Timing: The LEGACY Girls Study, American Journal of Epidemiology, , kwaa240, https://doi.org/10.1093/aje/kwaa240 (pre-print, 2020)

Schemata courtesy of Dr. Sharon Schwartz, MSPH

NCI T32-CA 09529 & R01CA104842



- **Population:** The LEGACY Girl's Cohort
- **Study Participants**: Girls with at least one blood sample prior to menses.
- **Viral Exposure: Seroprevalence Pilot on Common Childhood Viral Infections**

Pilot Objective: Examine distribution of Cytomegalovirus, Epstein Barr Virus, and Herpes Simplex Virus 1/2 in NY LEGACY (n=54)

- HSV1 and HSV2 monoclonal antibodies became available post-pilot

Conclusions: Infections are measurable and prevalent in a contemporary cohort of girls, with prevalence similar to NHANES data.

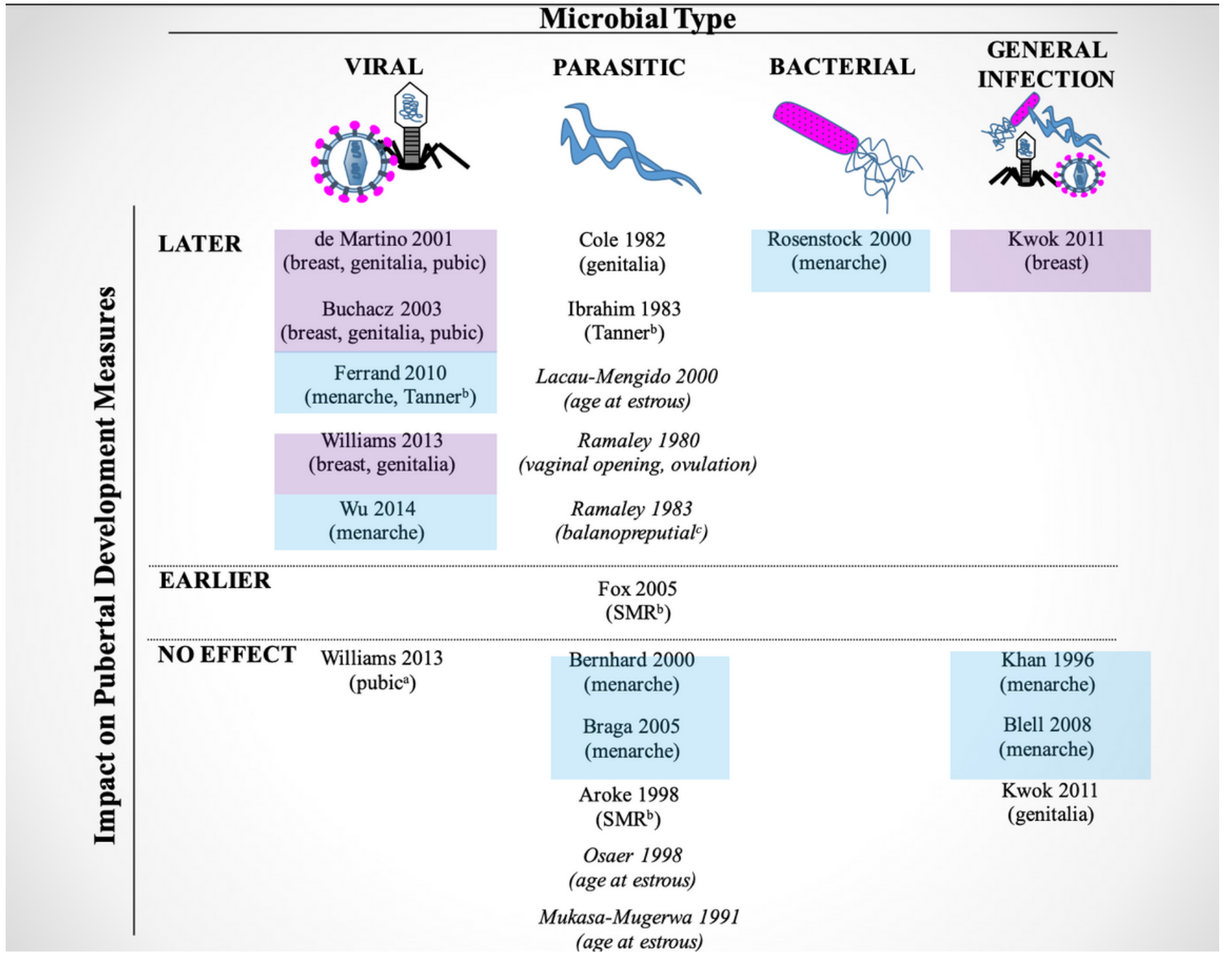
NCI T32-CA 09529 & R01CA104842

Infection and Pubertal Timing

Systematic Review TO.....

→

Empirical Evidence

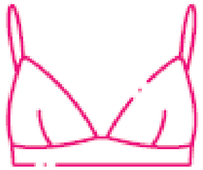


Given viral infections can impact host biology differently, we created a categorical measure.

- No infection (Referent)
- CMV+ only
- CMV+ and EBV+ coinfection only
- EBV+ only
- HSV1+ and/or HSV2+ infection(s) only
- All other infection combinations

McDonald JA et al. Infection and Pubertal Timing: A Systematic Review. *J. Develop. Origins of Health and Dis*. 2016.
McDonald JA et al Am J Epidemiol. 2021 May 4;190(5):766-778

Purely Prospective Analysis Datasets



N=279

N=305

N=457

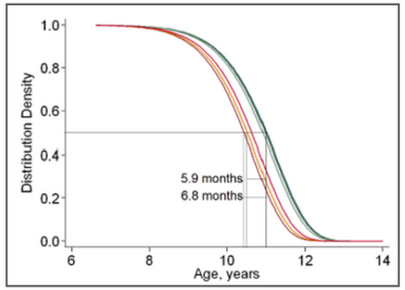
Viral Seroprevalence and Pubertal Timing

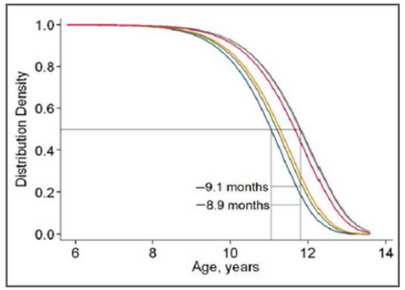
- First prospective study to demonstrate an association between common asymptomatic herpesviruses and pubertal development.

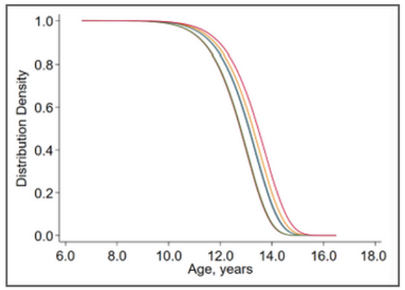
- CMV and HSV1/2 associated with later age at pubic hair development

- CMV associated with earlier age of breast development.

Viral Serology Measures	MODEL 2		Age at Median Development
	HR	95% CI	years
Onset of Breast Development			
Categorical Viral Serology			
No Infection	1	Referent	11.0
CMV^+ only	2.1	(1.3, 3.4)	10.5
CMV^+/EBV^+ coinfection	1.0	(0.6, 1.7)	11.0
EBV^+ only	1.9	(1.2, 3.1)	10.6
$HSV1^+$ and/or $HSV2^+$	1.1	(0.6, 2.1)	11.0
All other combinations	1.6	(1.0, 2.8)	10.7
Onset of Pubic Hair Development			
Categorical Viral Serology			
No Infection	1	Referent	11.1
CMV^+ only	0.4	(0.2, 0.7)	11.8
CMV^+/EBV^+ coinfection	0.8	(0.5, 1.5)	11.2
EBV^+ only	0.8	(0.5, 1.2)	11.3
$HSV1^+$ and/or $HSV2^+$	0.4	(0.2, 0.8)	11.8
All other combinations	0.5	(0.2, 1.0)	11.7
Onset of Menses			
Categorical Viral Serology			
No Infection	1	Referent	13.1
CMV^+ only	1.5	(0.9, 2.6)	12.8
CMV^+/EBV^+ coinfection	1.5	(0.9, 2.3)	12.8
EBV^+ only	0.8	(0.5, 1.3)	13.3
$HSV1^+$ and/or $HSV2^+$	1.0	(0.5, 1.8)	13.1
All other combinations	0.7	(0.3, 1.5)	13.5





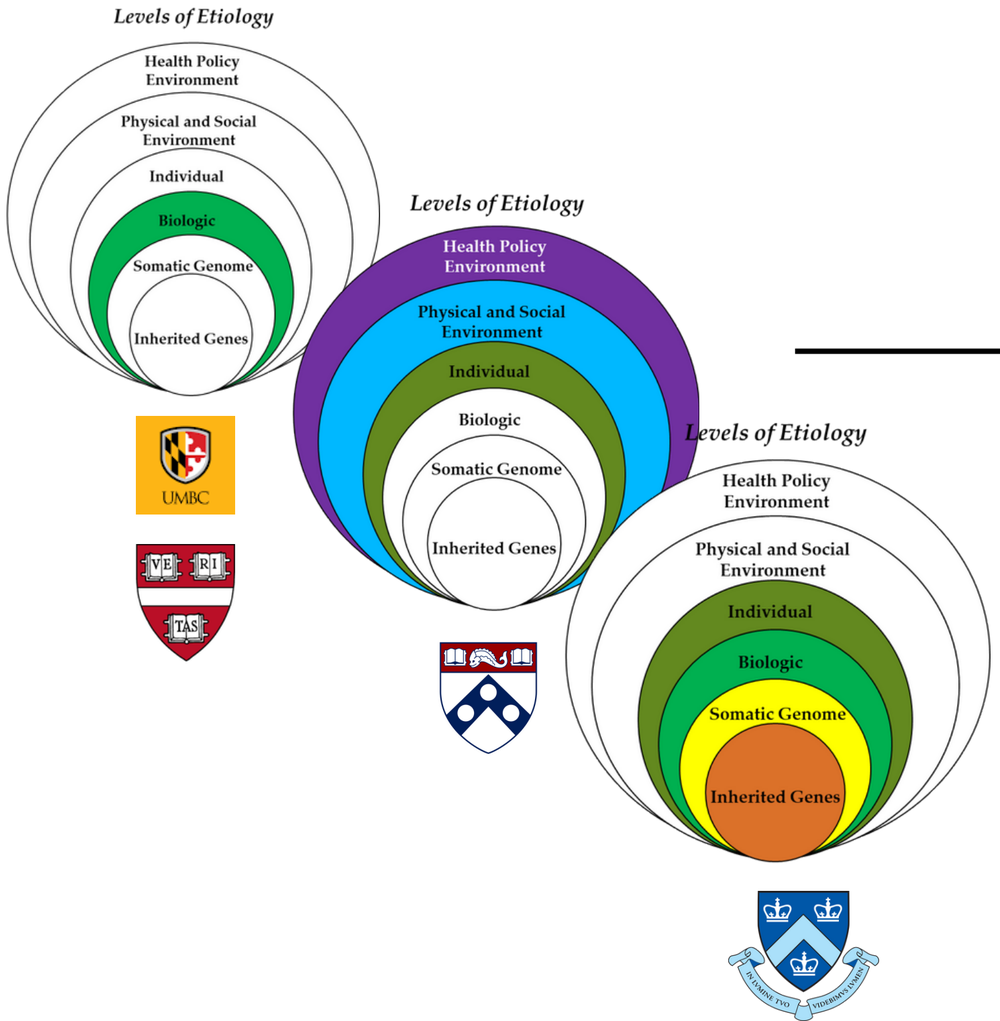


HRs were adjusted for age as the underlying time scale and the interaction between each viral measure as an indicator variable and the daughter's age, BMI percentile, BMI percentile*age. We present the most parsimonious models, excluding variables with P>0.05.

McDonald JA et al Am J Epidemiol. 2021 May 4;190(5):766-778
NCI K01 CA186943

Mentoring!

"If your actions inspire others to dream more, do more and become more, then you are a leader." ~ John Quincy Adams



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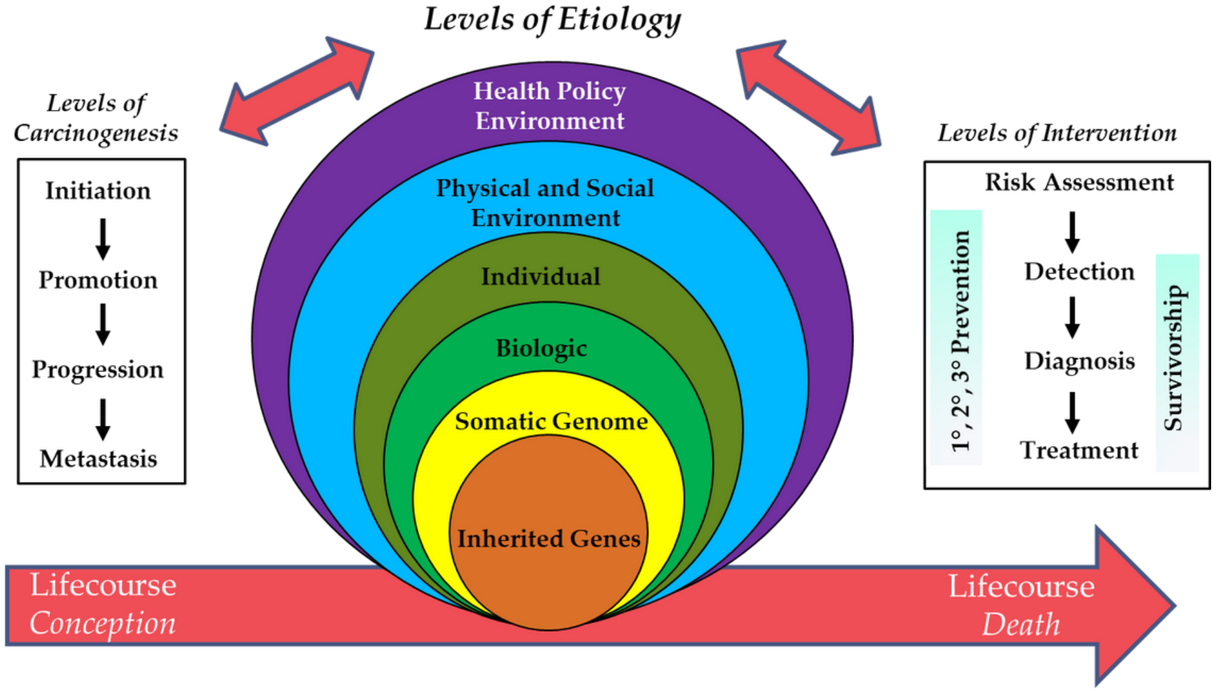
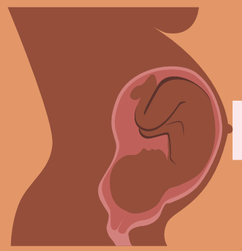


Modified from Lynch and Rebbeck CEBP 2013; Webb, Suglia, and Tehranifar Curr Diab Rep 2013

Pregnancy to Postpartum:

Exogenous Exposures and Adverse Health Outcomes

Prenatal



Childhood

Puberty

Pregnancy to Postpartum

Peri to Postmenopausal

“Dr. Gardner’s mission at Columbia University is to **expand his groundbreaking research on breast cancer pathogenesis** and to help lead our precision medicine initiatives, particularly in underrepresented minority communities,” said Kevin A. Roth, MD, PhD, chair of the Department of Pathology and Cell Biology.

CUIMC News, 2018

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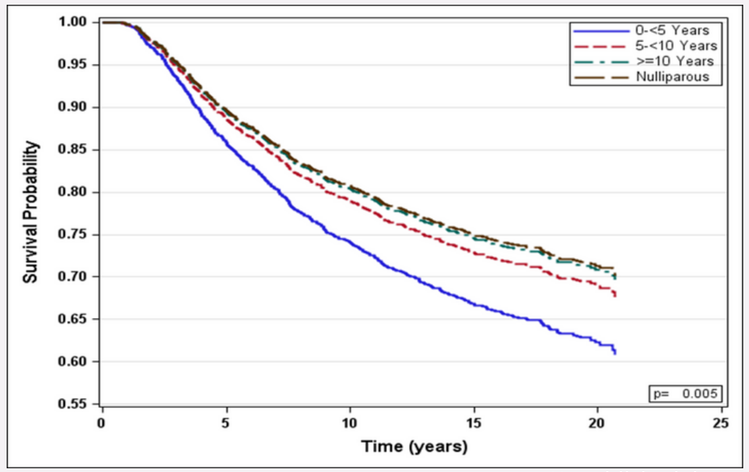
Overall Survival by Years Since Last Full-Term Pregnancy Prior to Breast Cancer Diagnosis, Adjusted for Age at Diagnosis



Unpublished data

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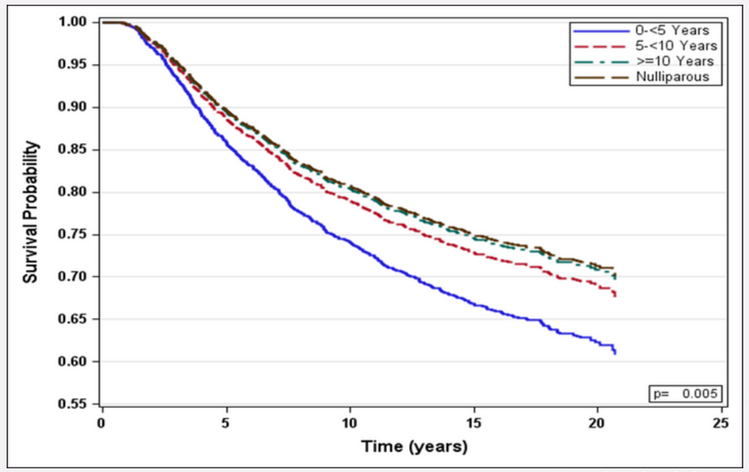

Unpublished data

Weekly Attendance @Gardner Lab Meetings

Effective collaborations requires your professional investment and commitment.

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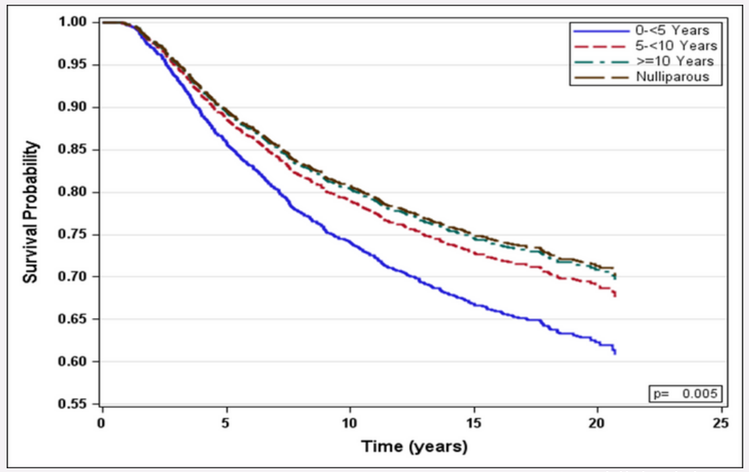

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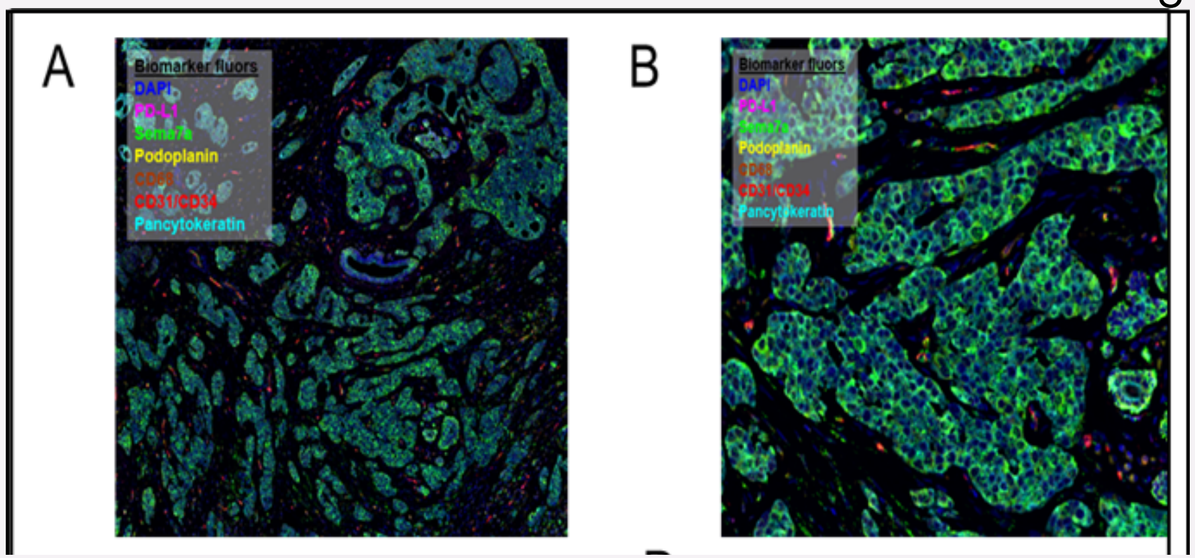
V Foundation to Support Jasmine McDonald's Research in Understanding Postpartum Breast Cancer

By Melanie A. Farmer / April 8, 2021



Funding:
V Foundation Stuart Scott Memorial Fund 2021 (V2021-008); HICCC Populations Sciences Program

"Tell Your Story" and "Stay Ready" for what comes next!

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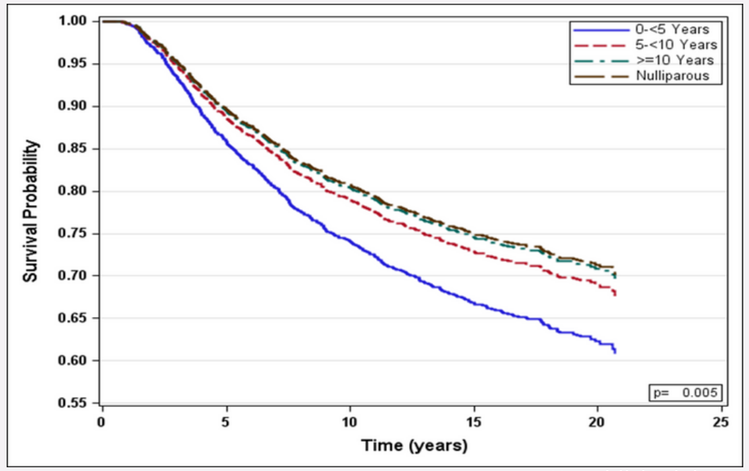

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Weekly Attendance @Gardner Lab Meetings

Department of Health and Human Services
National Institutes of Health
NATIONAL CANCER INSTITUTE

Notice of Award
FAIN# R01CA267897
Federal Award Date
06/29/2023

Recipient Information	Federal Award Information
1. Recipient Name TRUSTEES OF COLUMBIA UNIVERSITY IN THE CITY OF NEW YORK, THE 630 W 168TH ST FL 4 NEW YORK, NY 10032	**11. Award Number** 5R01CA267897-02 **12. Unique Federal Award Identification Number (FAIN)**

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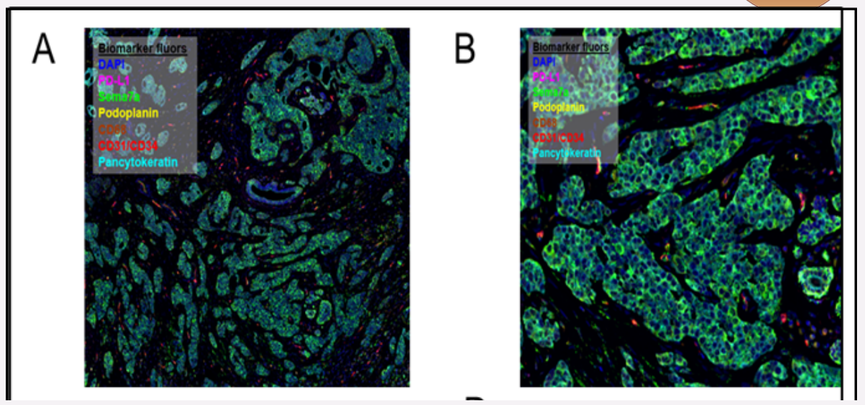

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McDonald et al. Environmental Health (2018) 17:1
DOI 10.1186/s12940-017-0345-y

Environmental Health

RESEARCH Open Access

Hair product use, age at menarche and mammographic breast density in multiethnic urban women

Jasmine A. McDonald[1,2*], Parisa Tehranifar[1,2], Julie D. Flom[1], Mary Beth Terry[1,2] and Tamarra James-Todd[3,4]

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THE NON-TOXIC BLACK BEAUTY PROJECT

WE ACT FOR ENVIRONMENTAL JUSTICE

YSC

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YSC

Hair Care Product Use among Women of Color: A Northern Manhattan Intervention

An intervention to reduce phthalate exposures during the pregnancy & postpartum window

WE ACT FOR ENVIRONMENTAL JUSTICE

YSC

RUTGERS

BROWN

You are not the community expert, so don't act like one.

Know your lane.

McDonald et al. Environmental Health (2018) 17:1
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Environmental Health

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"**Tell Your Story**" and "**Stay Ready**" for what comes next!

Let's Reclaim Our Ancestral Roots
R01 Submission

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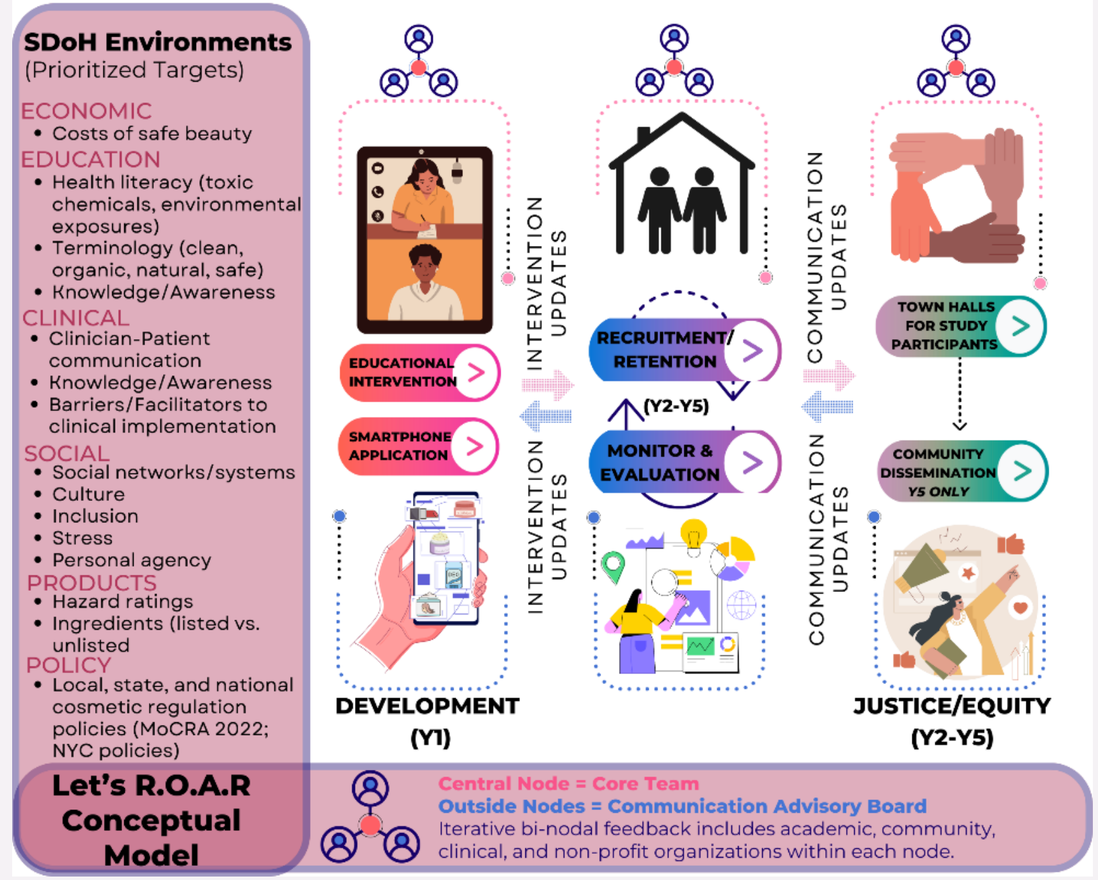

Embrace Criticism

Criticism is something we can easily avoid by saying nothing, doing nothing, and being nothing. ~ Aristotle

He has a right to criticize who has the heart to help.
~ Abraham Lincoln

If you want something you never had, you have to do something you've never done.

MAMA BOSS (GMaP Region 5)

Know Thy Self!

I *despise* admin work.

Sitting down to write is not my strength; thus, I will stall on the completion of manuscripts/publications.

I am a strong mentor & excellent teacher.

I am strong at aggregating, synthesizing, and communicating complex hypotheses, study designs, and overall science (written and orally), to diverse audiences.

Etcetera

Etcetera

Quarterly meetings with grant administrator on the books BEFORE the quarter ends.

Bold & Audacious accountability partner.

Diversify my funding stream. Be the hammer.

Forge collaborations. Be on other's grants as a Hammer or a Nail.

Etcetera

Etcetera

Think Outside of the Box.

Stay ready.

Collaborate.

Embrace the Hard Lessons.

Tell Your Story/Network.

Embrace Criticism.

Know thy self.

Questions

jam2319@cumc.columbia.edu
Twitter @DrMamaBoss