RESEARCH ON TAP

Women's Health and Cultivating a Research Community at BU

Wednesday, November 6 | 4-6 pm

bu.edu/research/events

Agenda

Opening Remarks

Thomas Bifano
Vice President and Associate Provost ad interim for Research

Presentations

Brianne Connizzo
Cara Lewis
Carolyn Hodges-Simeon
Heather Hsu
Jesse Moreira-Bouchard
Julie Palmer
Kimberly Bertrand
Kim McCall
Lauren Wise
Miguel Jimenez
Naima Joseph
Robin Ingalls
Wendy Kuohung

Closing Remarks

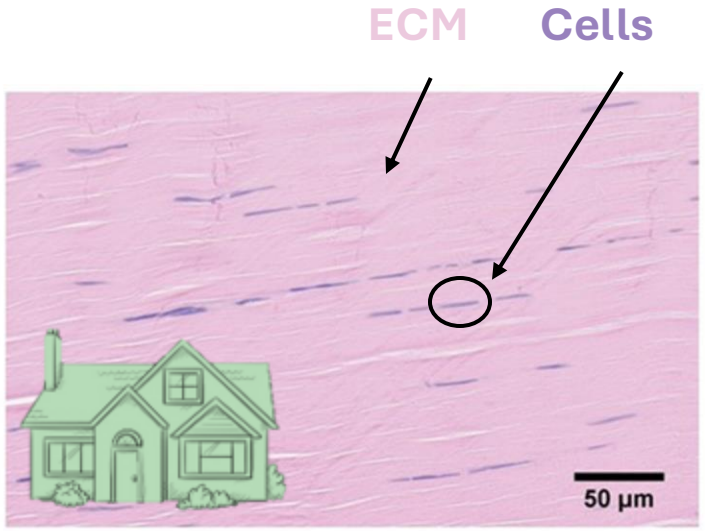
Emelia Benjamin
Catherine Klapperich
Elisha Wachman
Joyce Wong

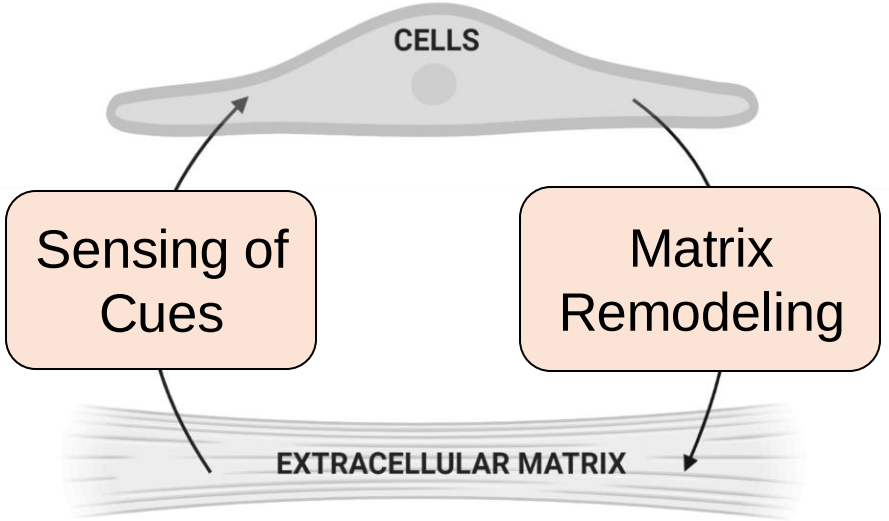
Building sex-specific models for studying tissue maintenance

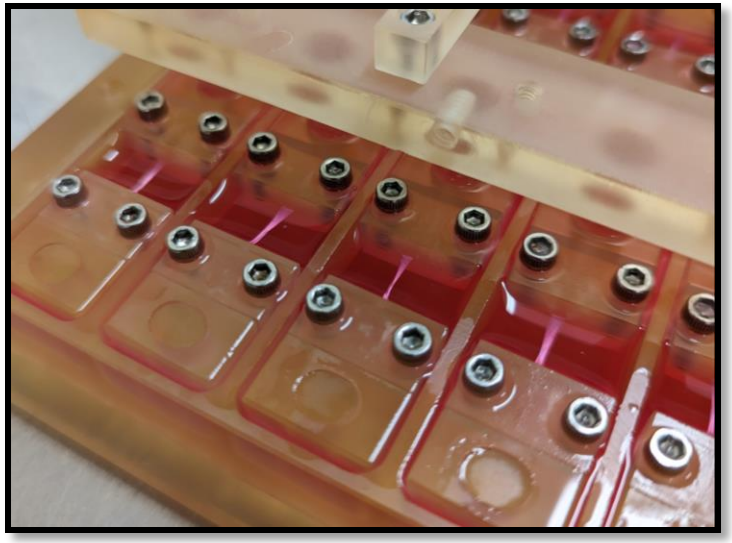
Brianne Connizzo

Assistant Professor
Biomedical Engineering, ENG

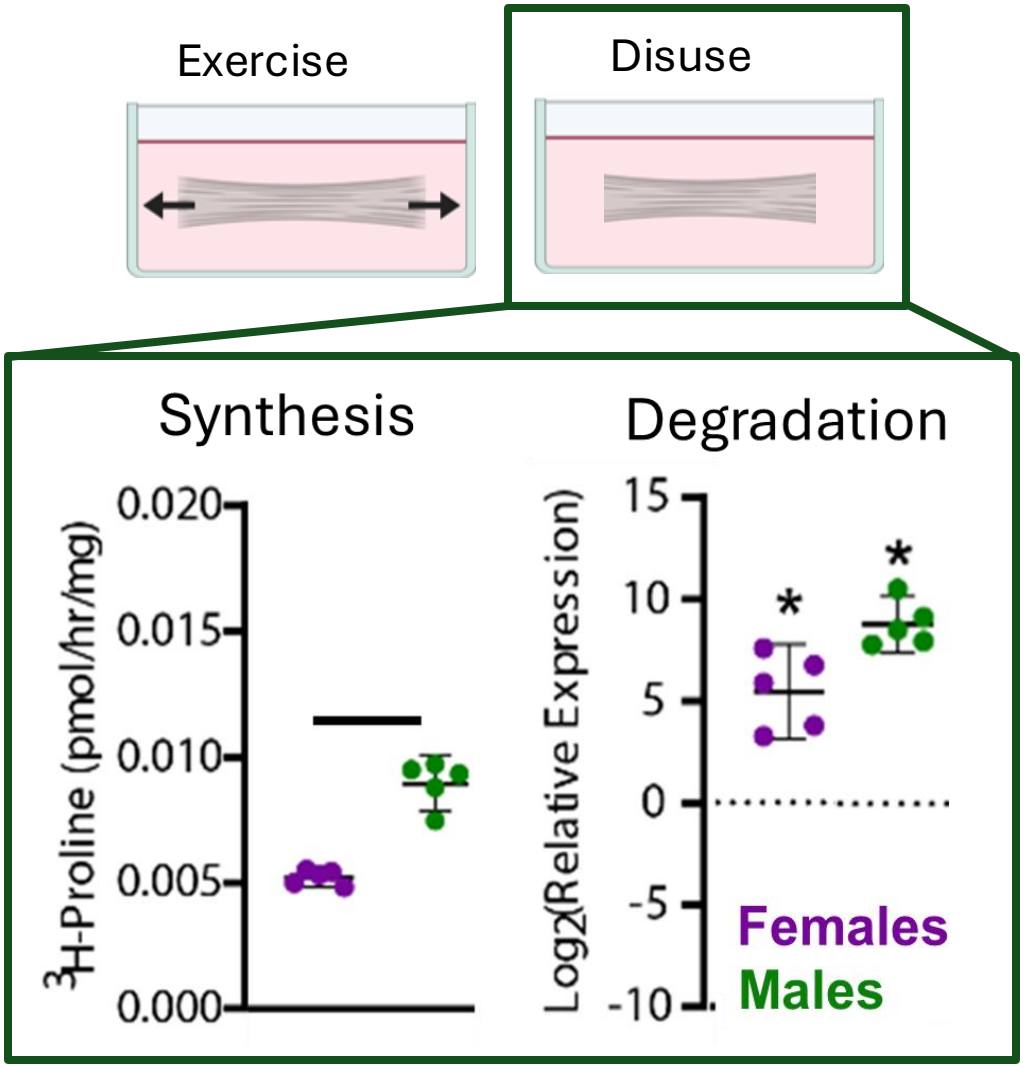
Tissue maintenance relies on ECM remodeling.

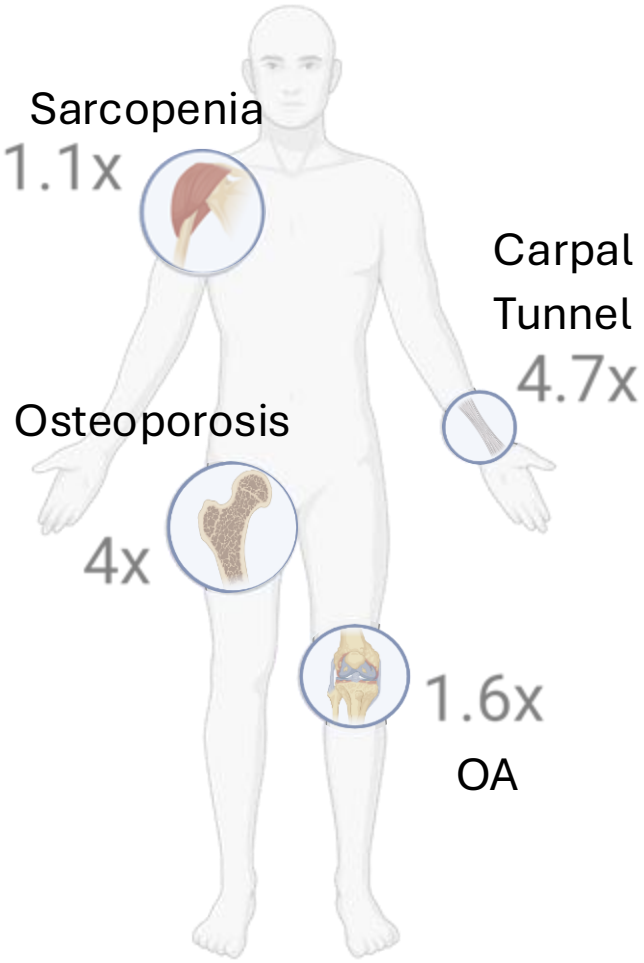




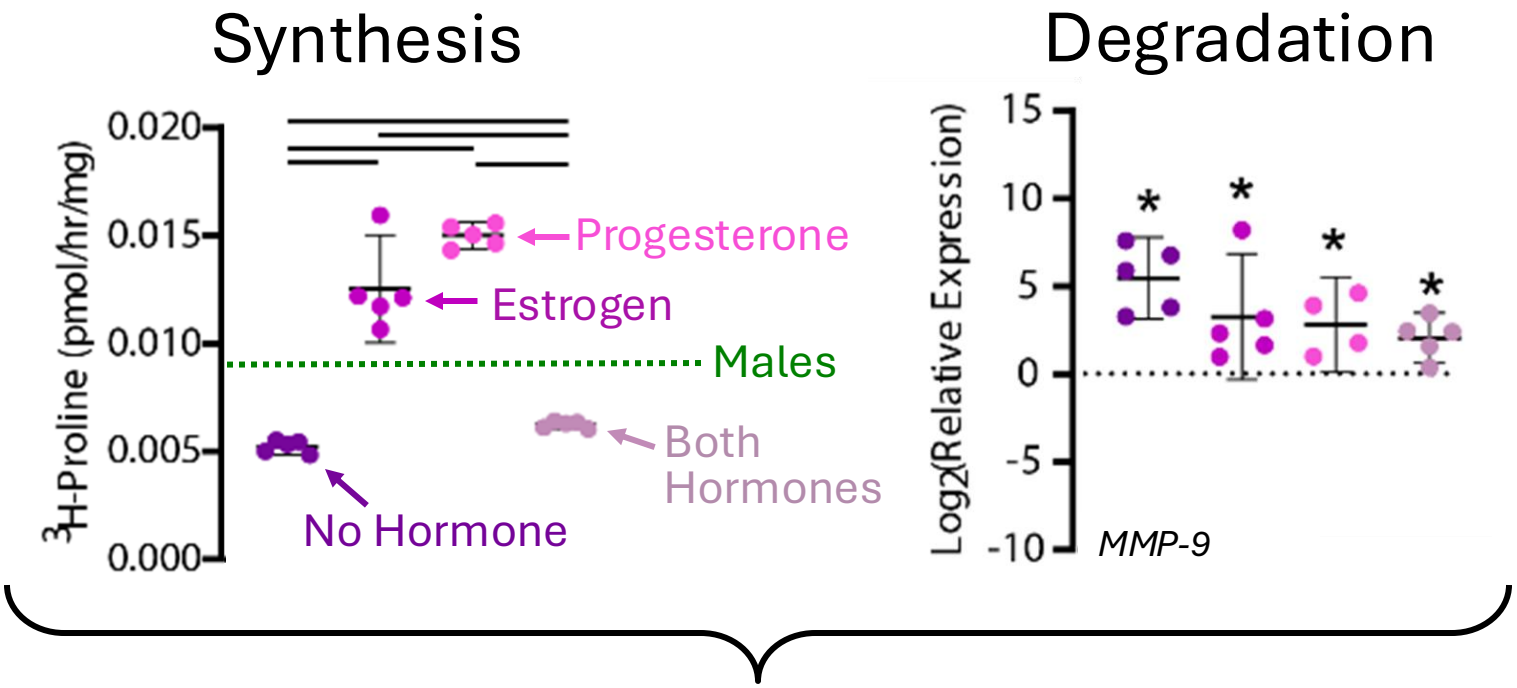


ECM remodeling is dependent on biological sex.





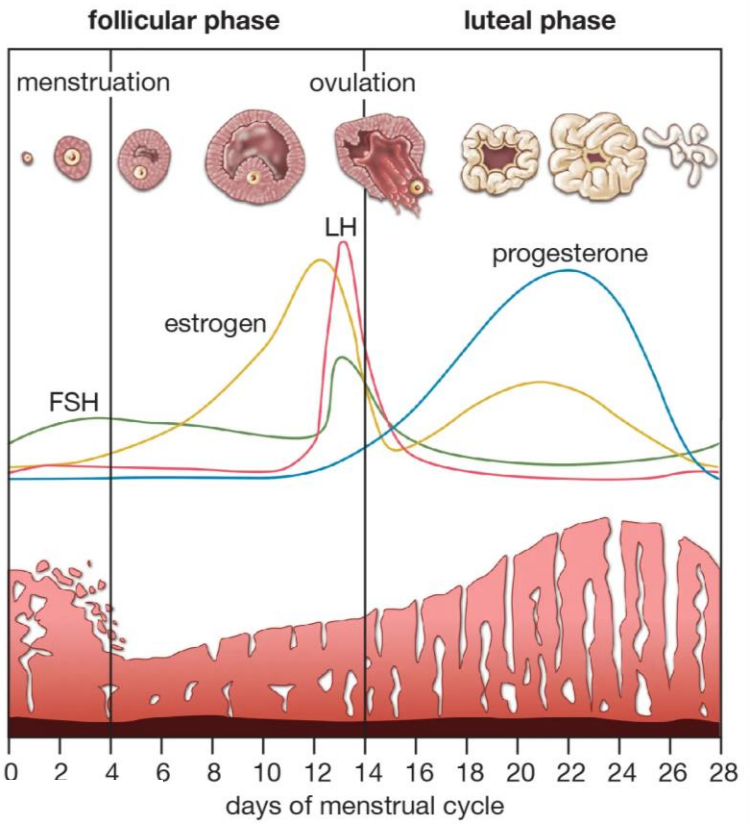
Sex steroid hormones influence ECM turnover.

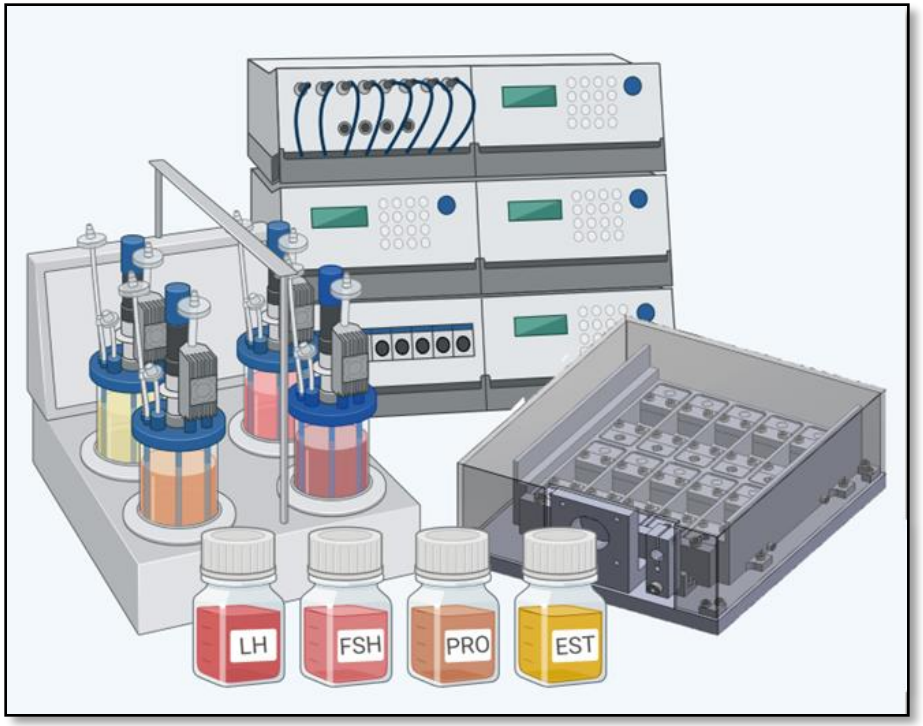


Hormone effects are dependent on:

- **Sex**
- **Mechanical Environment**
- **Hormone Interactions**

Can we mimic hormonal fluctuations and interactions in the lab to study them?





Building an accessible model of female-specific biology for mechanobiology research

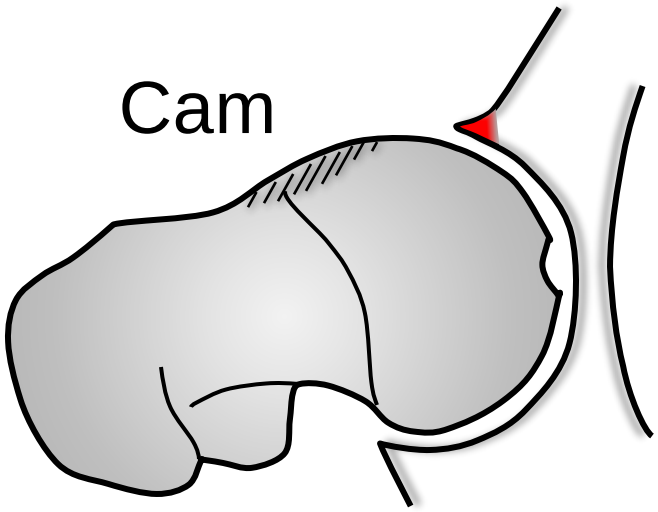
Lost in translation: the need to investigate hip structure and function in young female athletes

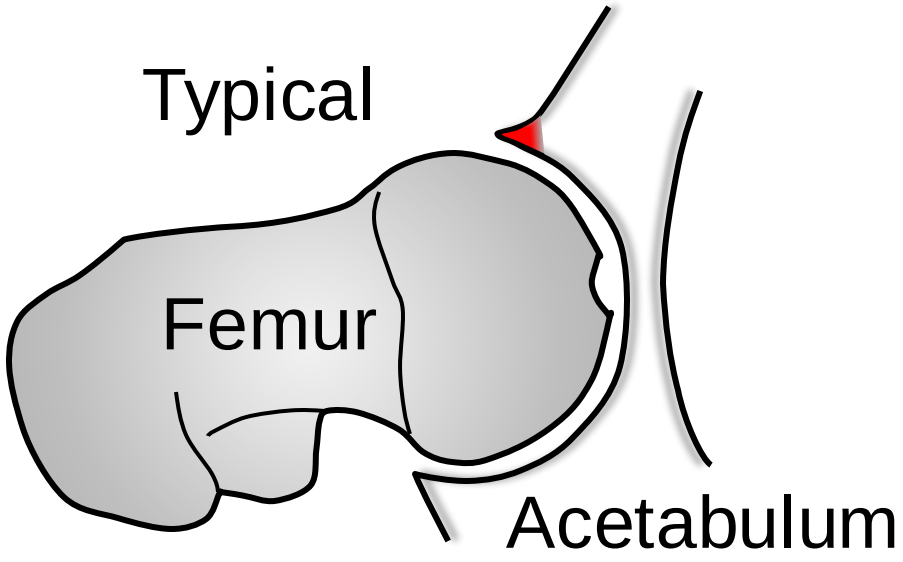
Cara L. Lewis, PT, PhD

Associate Professor

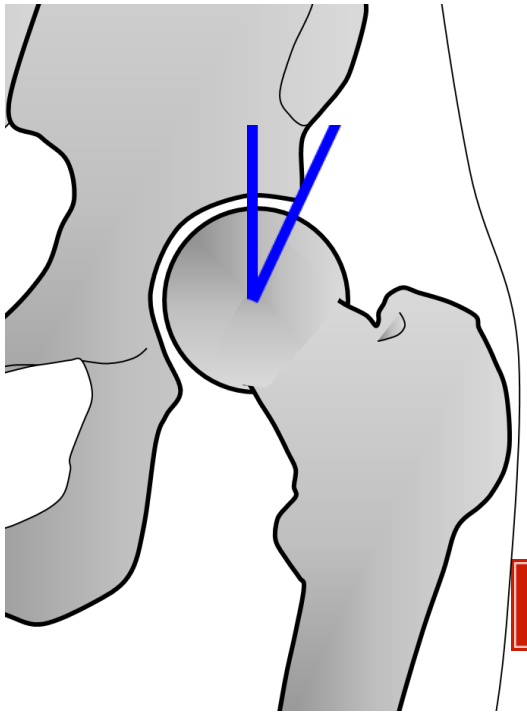
Physical Therapy, Sargent College

Hip structure

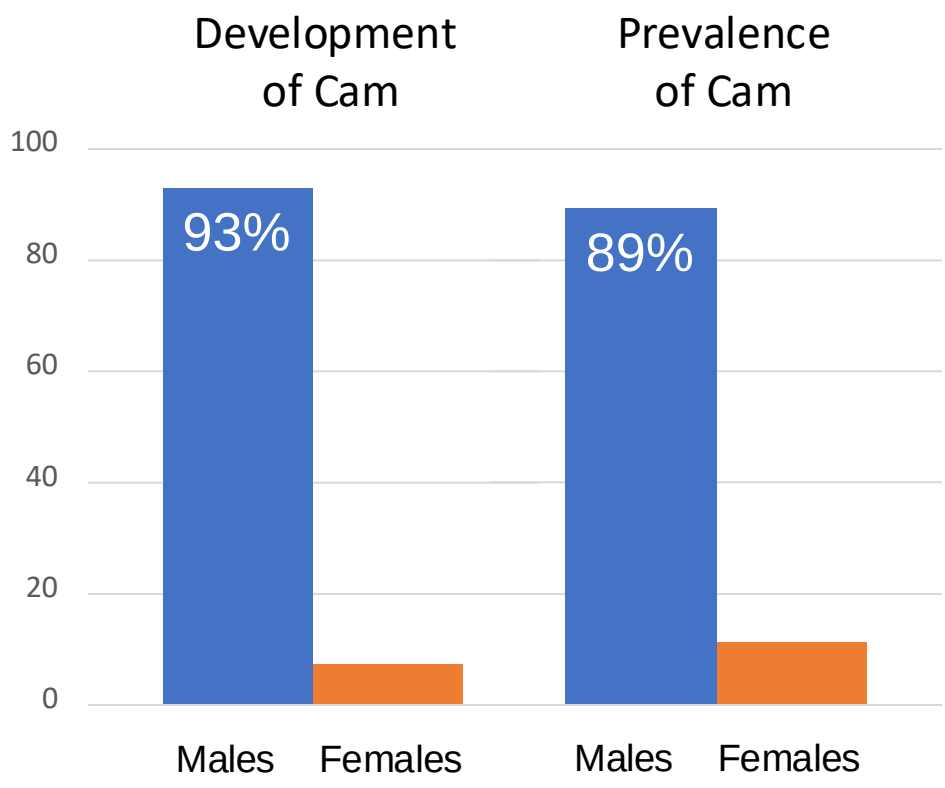


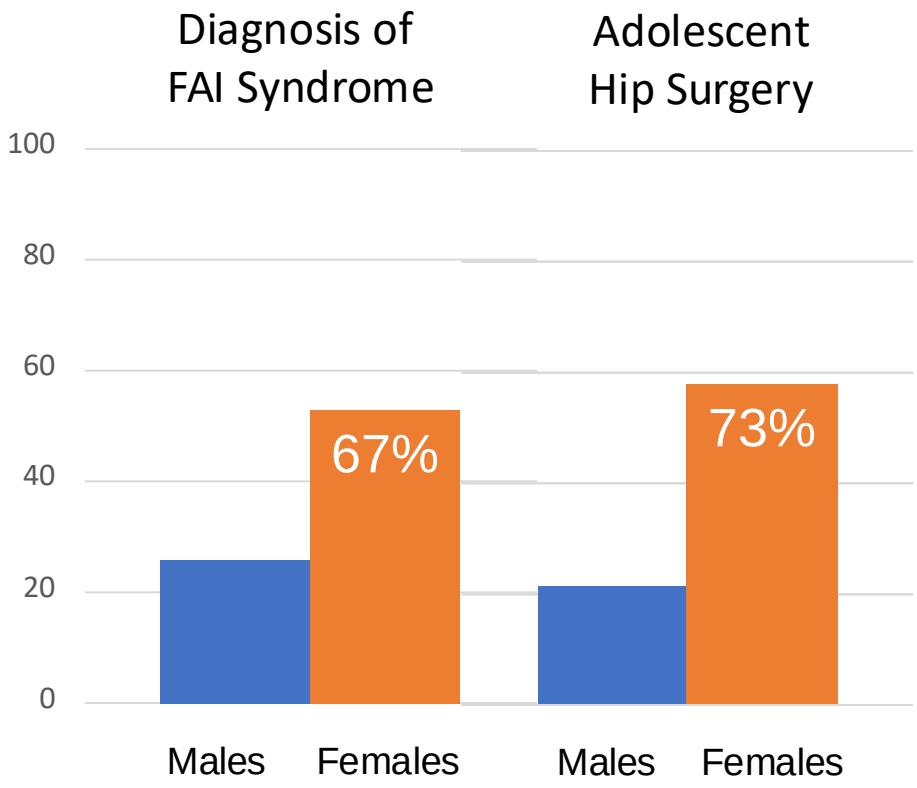


- Hip pain
- Femoroacetabular impingement (FAI) syndrome
- Early hip osteoarthritis
- ➢ Prevent the development of cam morphology!



Research Population Clinical





Disconnect between **who** is being studied and **who** is being affected by cam morphology

Lost in Translation

- Hip structure
  - Pelvis
  - Femur
- Timing of puberty and maturation
- Joint hypermobility
- Activity levels
- Movement patterns

Loading during bone growth → development of hip shape and symptoms

Take home points…

1. Cam morphology of the femur is both present and problematic in females
2. Disconnect between who is being studied and who is being affected by cam morphology
3. Lost in translation: ineffective or inappropriate recommendations
4. Female athletes are not male athletes
5. Critical need for more female-focused research

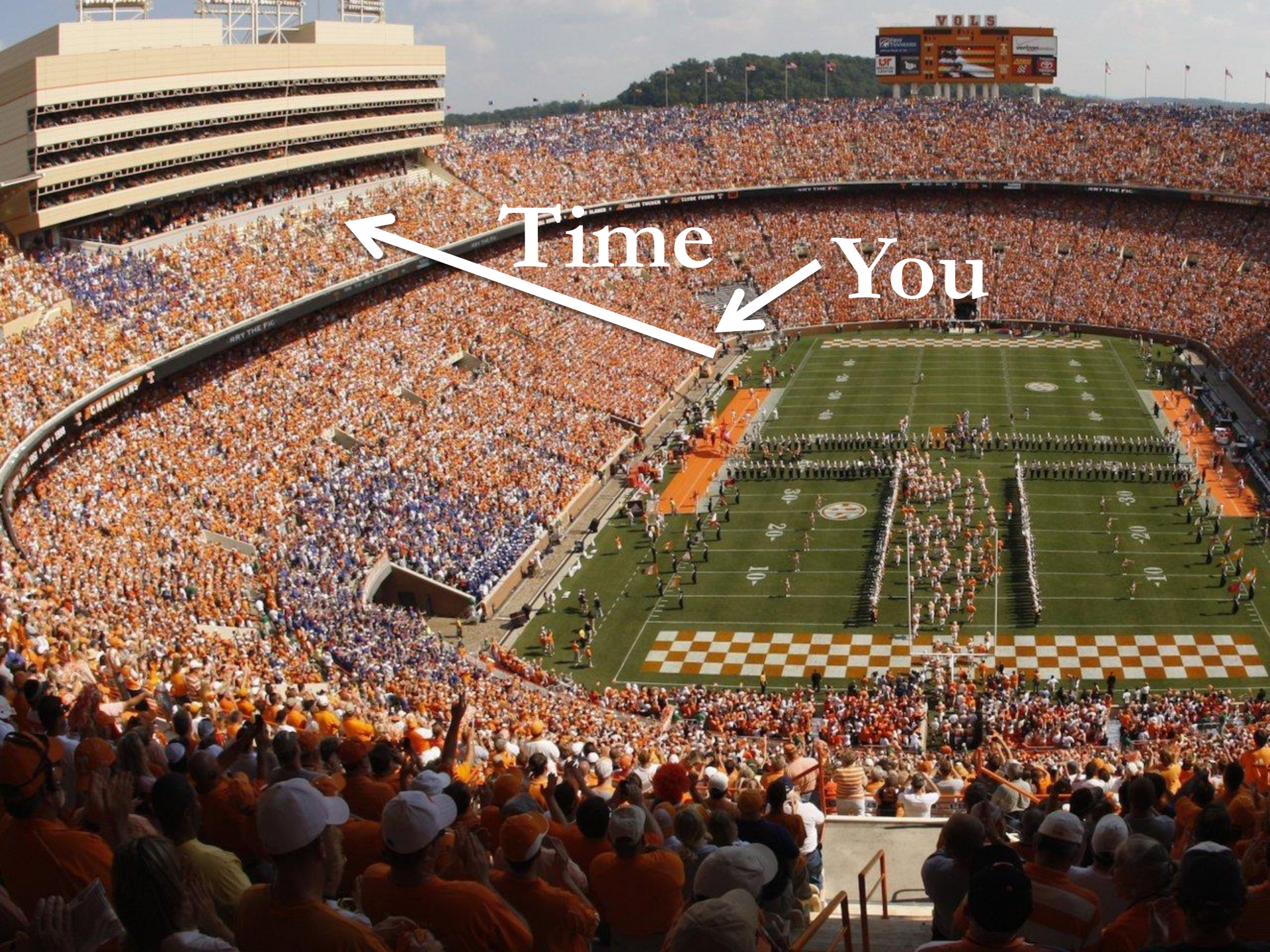
- Now enrolling females 8-17 years of age to investigate hip structure and function (hipstudy@bu.edu)

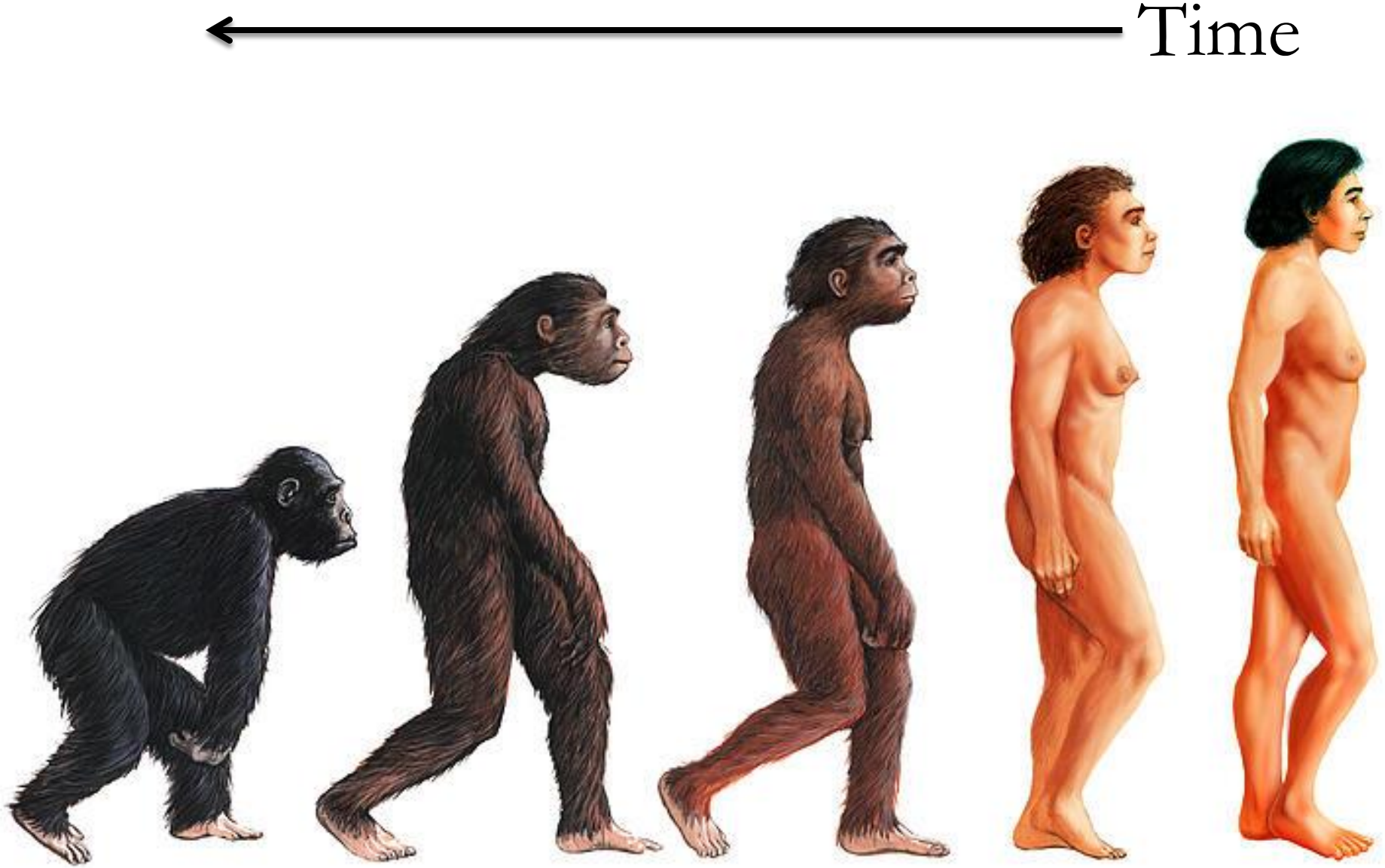
R01 AR083148

Nutritional and social predictors of puberty: A Bio-anthropological perspective

Carolyn Hodges-Simeon

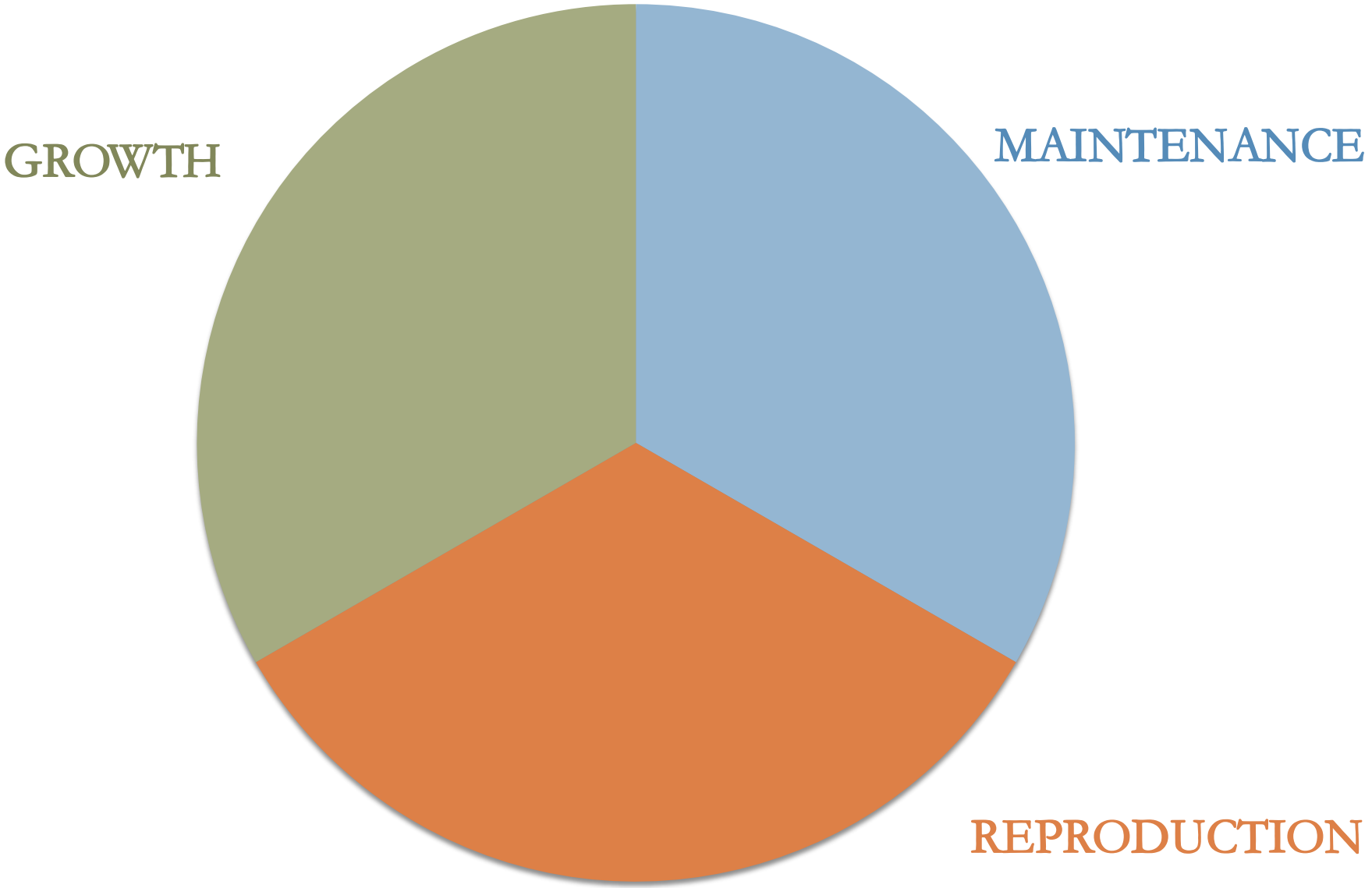
Associate Professor,
Anthropology, CAS


Time
You

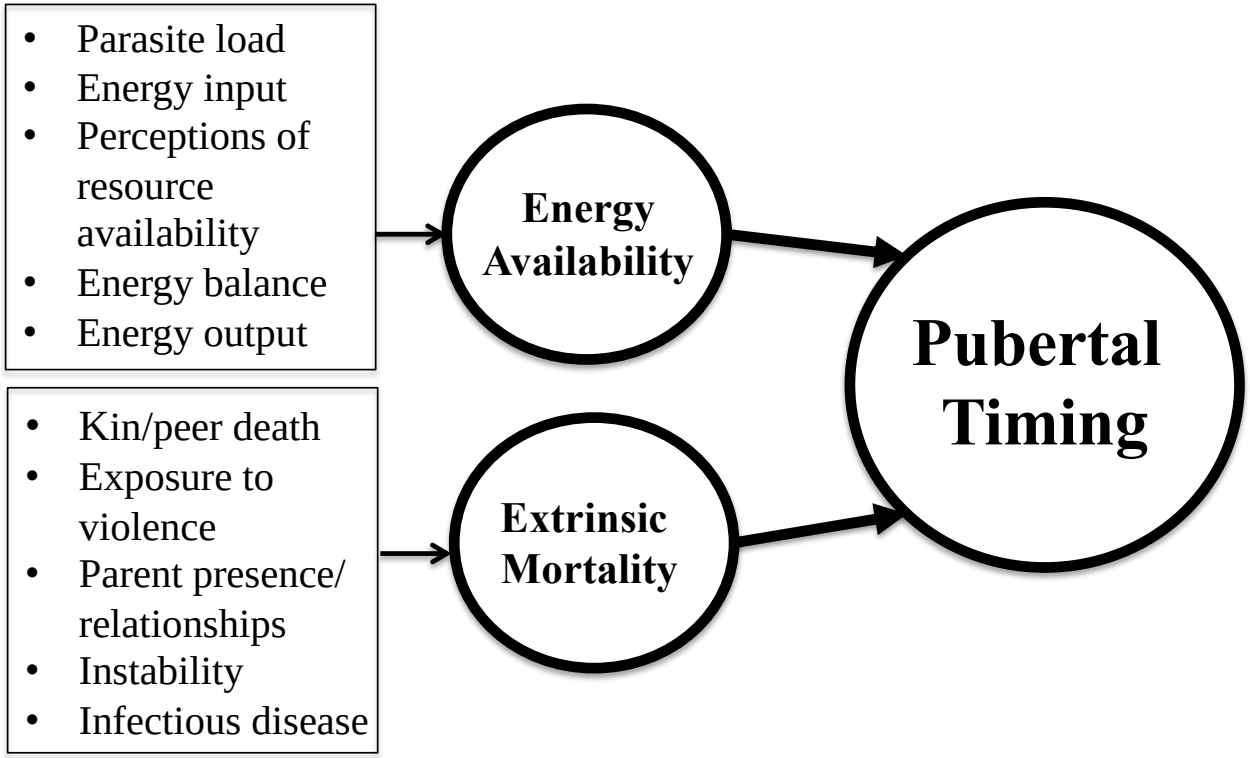


Biological Anthropology

Energy constraints = Trade-offs



Predictors of Pubertal Timing in Utila Honduras



UTILA CHILD HEALTH PROJECT

www.utilachildhealthproject.org +504 9546 2683

NSF

Wenner-Gren Foundation

From Mandated Reporting to Mandated Supporting: Building the Evidence Base for Best Practices in Assessment of Protective Concerns for Substance-exposed Newborns

Heather Hsu, MD MPH

Assistant Professor

Department of Pediatrics, Chobanian & Avedisian School of Medicine

Six years sober, she was still reported for child abuse for taking addiction medication. Is it time to change the rules?

By Matt Stout Globe Staff, Updated June 14, 2023, 5:54 a.m.

Kayla Ford hugged her 2-year-old son, Memphis, while playing in their front yard. Ford was in recovery and taking Suboxone when she was reported to DCF following the birth of each of her children. ERIN CLARK/GLOBE STAFF

"

The social worker. . . said to me, **'I don't even want to report you. But they make us. I have to.'**

I remember toward the end of my 3rd pregnancy being terrified that they were going to bring CPS back into my life.

I was thinking about that more than the delivery.

Mandated Child Protective Services (CPS) reporting laws are associated with…

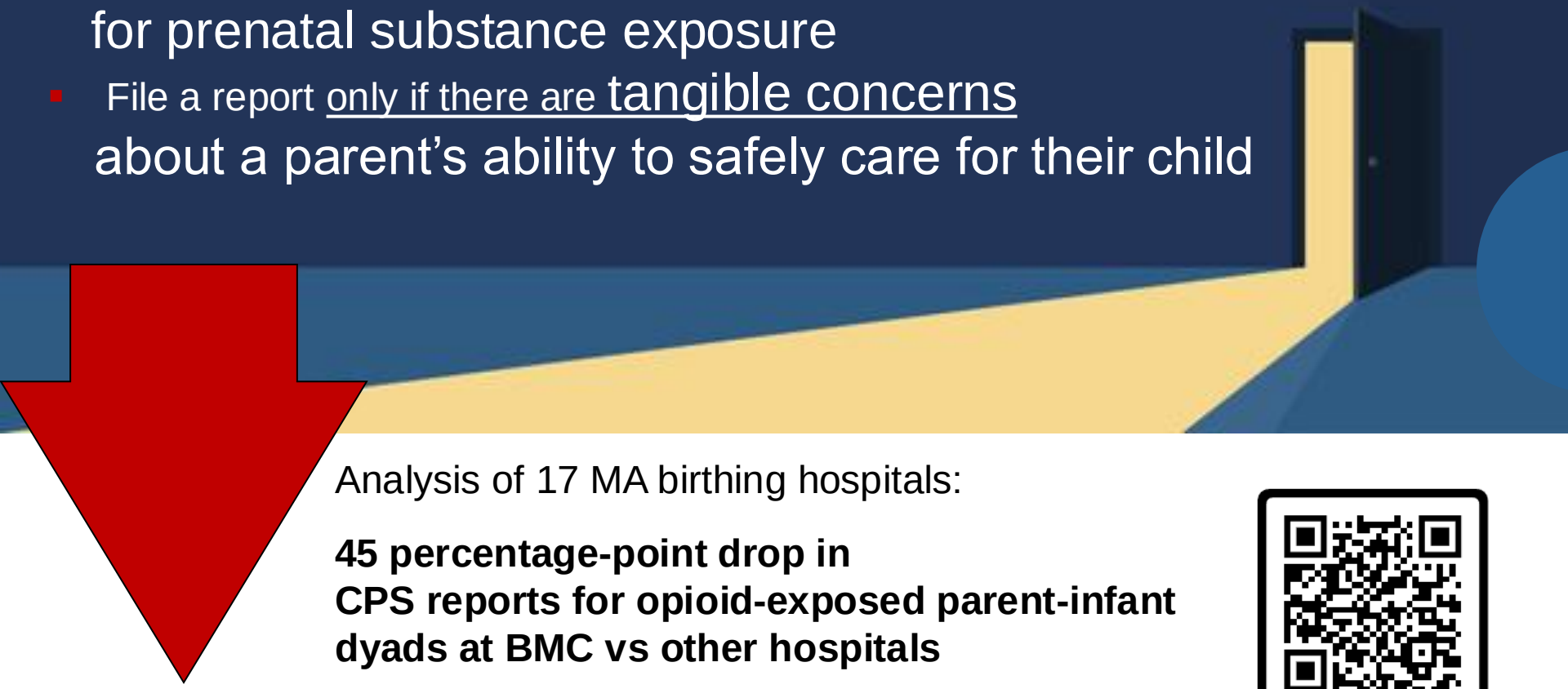
- Parental anxiety, fear & stigma; decreased engagement in care
- Increased risk of relapsed substance use & overdose
- No decrease in the risk of neonatal opioid withdrawal syndrome
- Disproportionate harmful consequences for families of color

Work, et al. *Matern Child Health J* 2023; Faherty, et al. *JAMA Network Open* 2023; Austin, et al. *JAMA Pediatrics* 2022; Atkins & Piette Durrance, *Health Affairs* 2020

Access to effective, evidence-based treatment for birthing parents with substance use disorders promotes parent, child, and family health and reduces risks of harm.

Boston Medical Center Guideline Change (May 2021)

- CPS reports should not be filed automatically for prenatal substance exposure
- File a report only if there are tangible concerns about a parent's ability to safely care for their child



Analysis of 17 MA birthing hospitals:

45 percentage-point drop in CPS reports for opioid-exposed parent-infant dyads at BMC vs other hospitals

Khazanchi, et al. *JAMA Pediatrics* 2024

SCAN ME

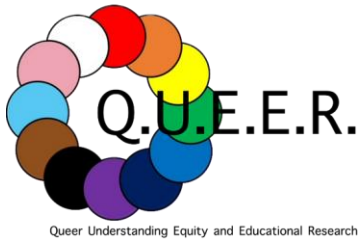
Proposed R01 to NIDA (June 2025)

Aim 1: Quasi-experimental analysis of the impact of hospital guideline change on 18-mo birthing parent & infant outcomes

Aim 2: Mixed methods study of facilitators & barriers to institutional guideline change

Aim 3: Toolkit development & implementation study

Institutional & Public Policy Change



BU Q.U.E.E.R. Lab

Jesse Moreira-Bouchard, PhD

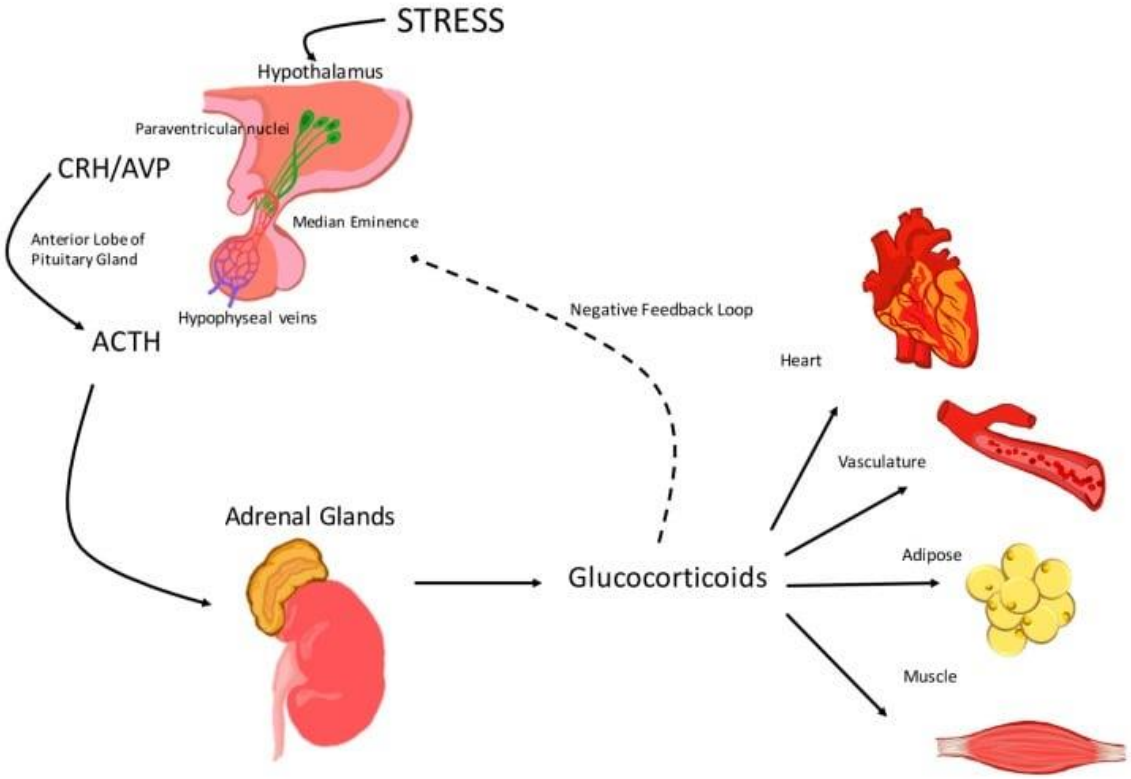
Clinical Assistant Professor
Department of Health Sciences and The Whitaker Cardiovascular Institute

A Public Health Issue

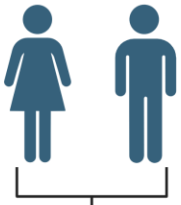
LGBTQIA+ individuals have worse CVD outcomes than cisgender, heterosexual peers

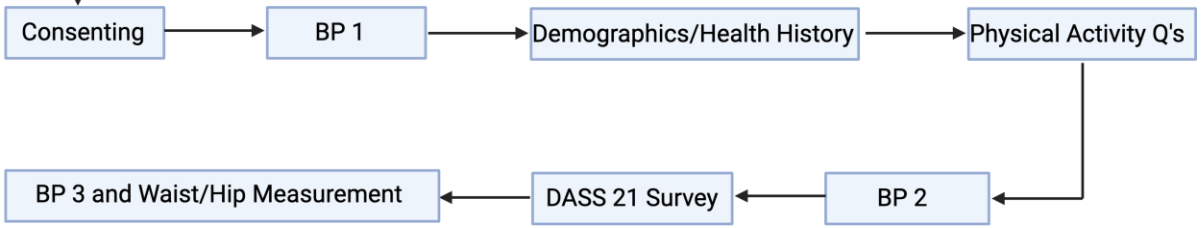
- Transgender men have 4X OR of MI compared to cisgender women
- Transgender women have 2X OR of MI compared to cisgender men
- Bisexual women and gay men have 1.2X OR of having hypertension vs heterosexual peers

HPA Axis and Stress



Straight, Lesbian, Gay, or Bisexual
Cisgender
Men and Women





Evan Nessen

Breast Cancer Disparities Research in the Black Women's Health Study

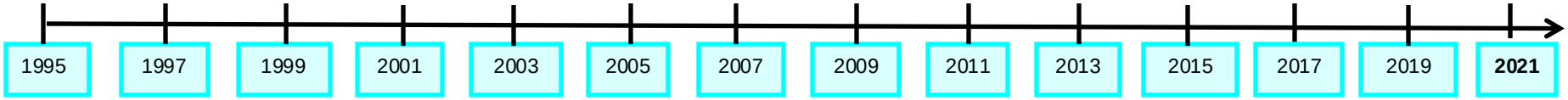
Julie R. Palmer, ScD, MPH

Karin Grunebaum Professor in Cancer Research
Department of Medicine
Boston University Chobanian & Avedisian School of Medicine
Director, Slone Epidemiology Center at Boston University

Black Women's Health Study

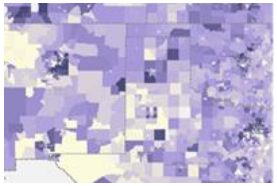
59,000 U.S. Black women ages 21-69, enrolled in 1995

Follow-up questionnaires every 2 years



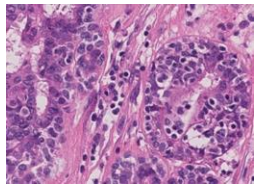
United States Census Bureau

Addresses geocoded and linked to national databases

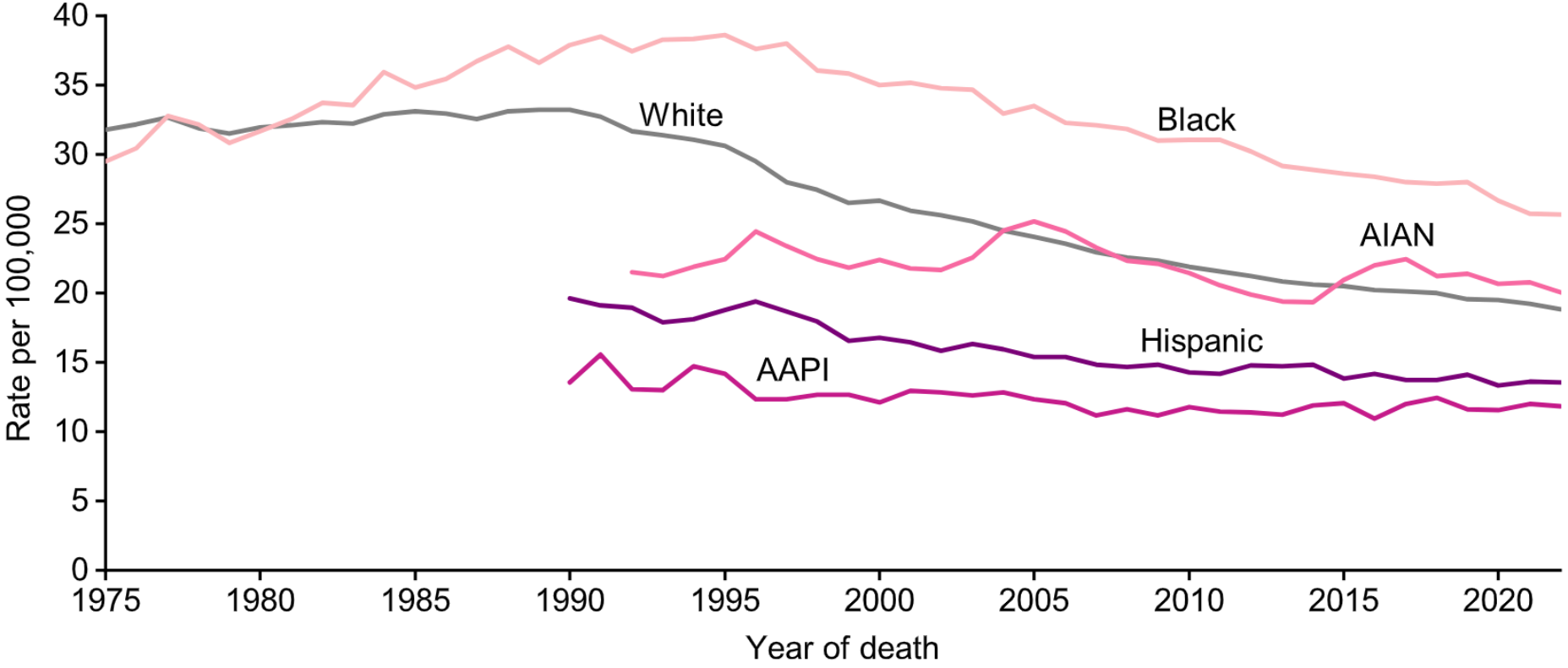


SOCIETY ⇄ **CELLS**

Blood, saliva, and tumor samples collected and stored



Breast cancer mortality in the U.S. by race/ethnicity



Giaquinto et al. 2024 CA Cancer J Clin

Neighborhood concentrated disadvantage in relation to breast cancer risk among 57,432 participants in the Black Women's Health Study

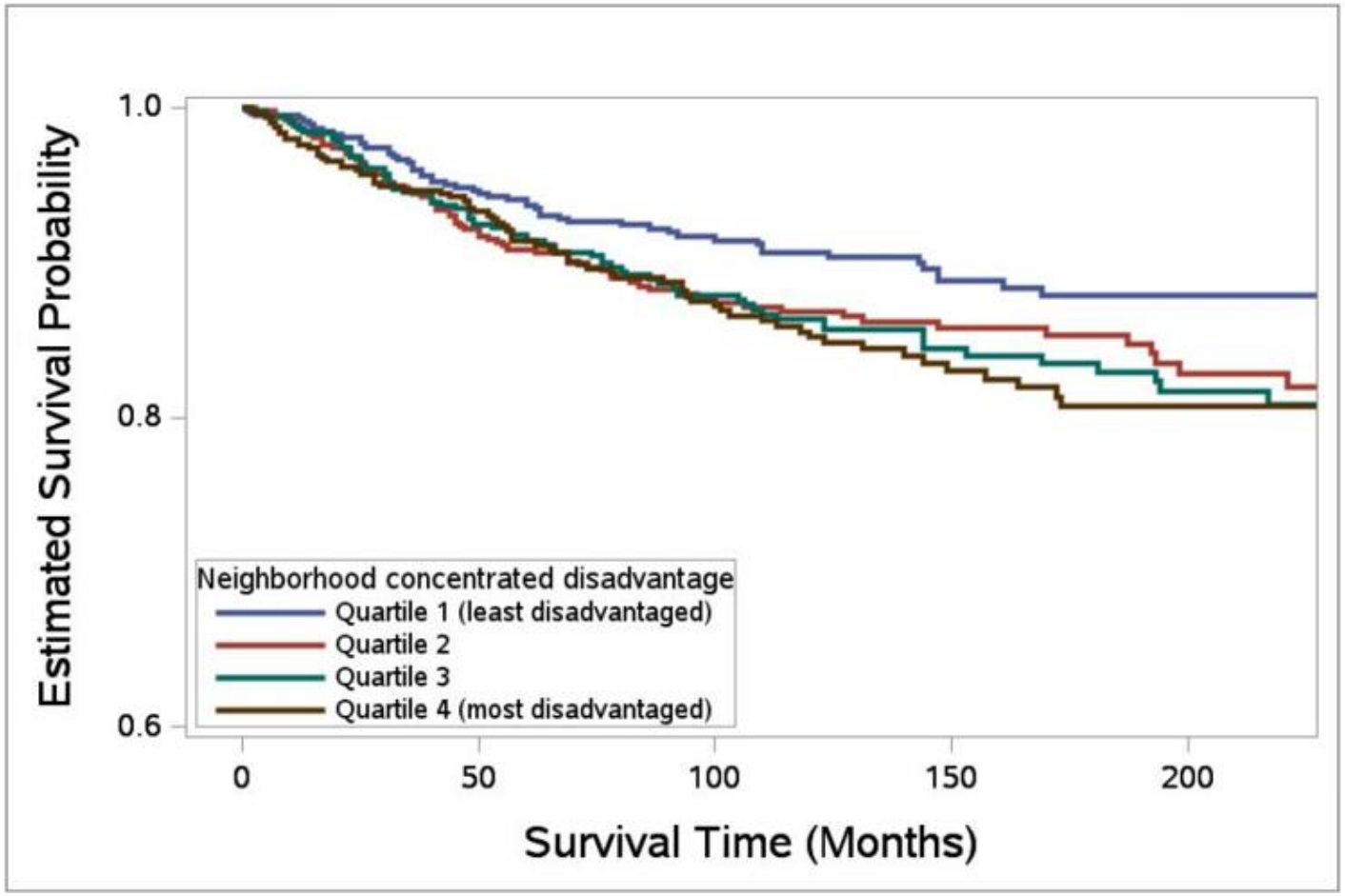
Census variables included in the composite score
% of individuals below poverty line
% of individuals on public assistance
% of households female-headed
% of adults unemployed
% of individuals under age 18
% of individuals who are Black

	Estrogen receptor positive breast cancer		Estrogen receptor negative breast cancer	
	Cases N	Hazard ratio (95% CI)	Cases N	Hazard ratio (95% CI)
Quartiles of Neighborhood Concentrated Disadvantage				
Q1 (least)	303	1.00 (ref)	142	1.00 (ref)
Q2	306	1.02 (0.87-1.19)	161	1.14 (0.91-1.43)
Q3	315	1.05 (0.89-1.23)	165	1.18 (0.94-1.48)
Q4 (most)	261	0.92 (0.77-1.09)	170	1.26 (1.00-1.58)
P-trend		0.47		0.06

Adjusted for age, age at menarche, body mass index, parity, age at first birth, breastfeeding, age at menopause, oral contraceptive use, family history of breast cancer, geographic region, and physical activity

Barber et al. 2021 Breast Cancer Res

Neighborhood concentrated disadvantage in relation to breast cancer mortality among 2,126 breast cancer cases, stages 1-3 at diagnosis



	Breast cancer deaths	Hazard ratio (95% confidence interval)
Neighborhood disadvantage		
Q1	58	1.00 (ref)
Q2	71	1.35 (0.96, 1.91)
Q3	78	1.44 (1.02, 2.02)
Q4	74	1.57 (1.11, 2.21)
P-trend		0.01

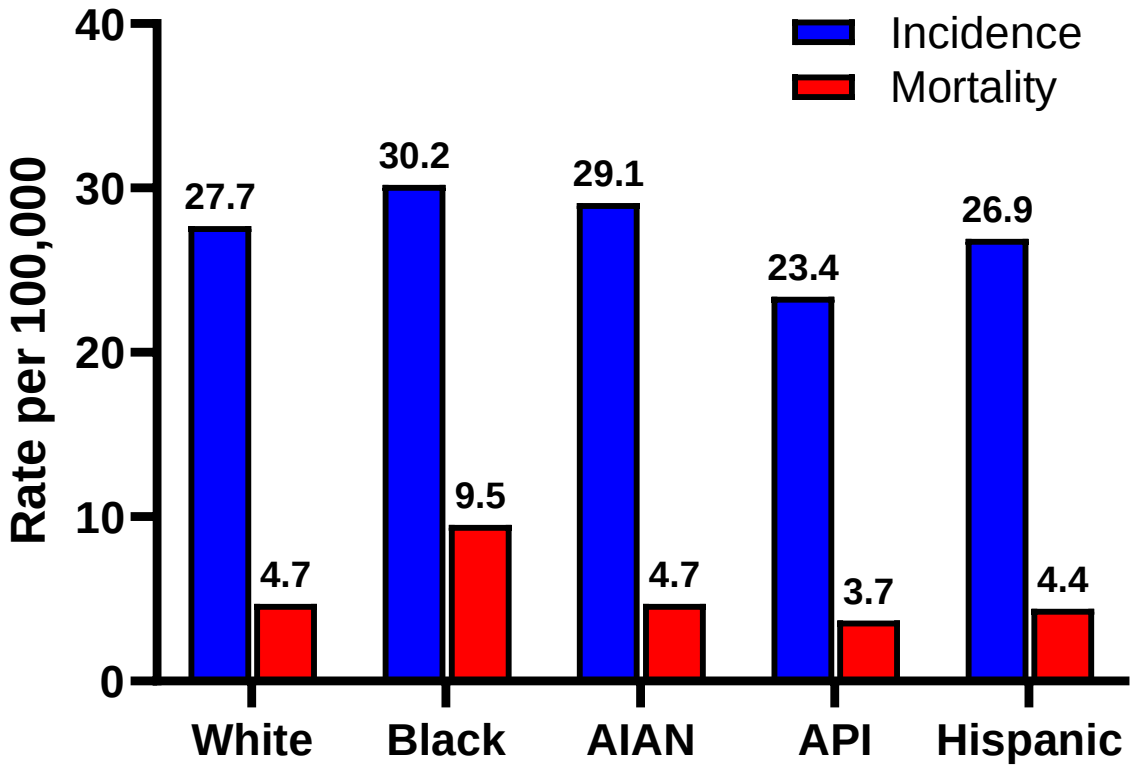
Holder et al. 2024, under review
DO NOT POST

Chemical hair relaxers and risk of uterine cancer: Results from the Black Women's Health Study

Kimberly Bertrand

Associate Professor of Medicine
Slone Epidemiology Center & Department of Medicine,
BU Chobanian & Avedisian School of Medicine

There are stark racial disparities in the burden of uterine cancer.



-SEER Incidence Data, November 2023 Submission (1975-2021), SEER 22 registries [https://seer.cancer.gov/registries/terms.html].

-U.S. Mortality Data (1969-2022), National Center for Health Statistics, CDC.

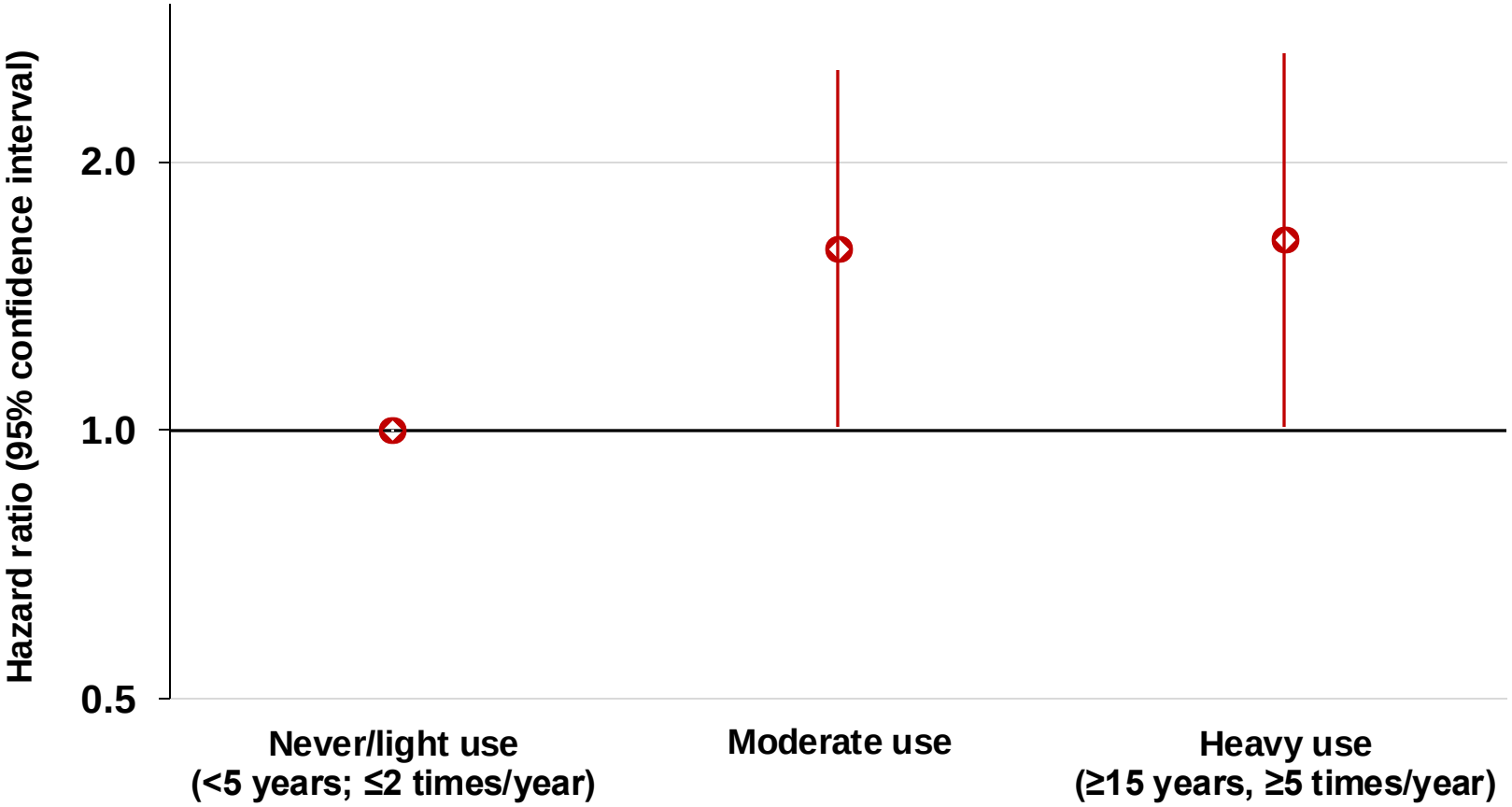
More than 80% of Black women in the U.S. have used chemical hair relaxers.

- These products are minimally regulated.
- They contain thousands of potentially toxic chemicals, including known endocrine disruptors, such as phthalates & parabens.
- EDCs have been linked to a number of reproductive health outcomes.

We evaluated chemical hair relaxer use in relation to uterine cancer in the Black Women's Health Study.

- The BWHS was established in 1995 among 59,000 self-identified Black women from across the U.S.
- Current and past use of hair relaxers was queried in 1997.
- Over 22 years of follow-up, 347 uterine cancer diagnoses occurred.

Use of chemical hair relaxers was associated with increased risk of uterine cancer among postmenopausal Black women.



Bertrand et al., Environ Res. 2023

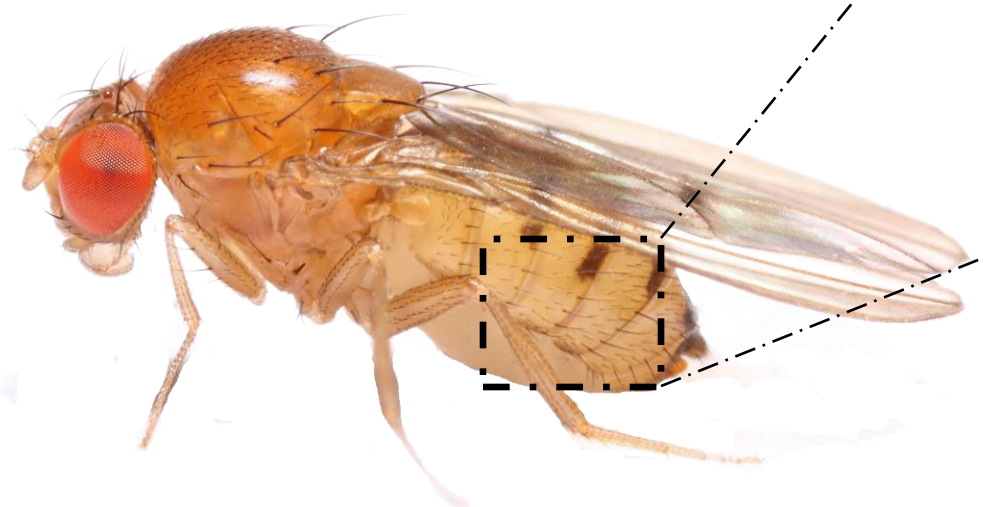
Coordination of Cell Death and Clearance in the *Drosophila* Ovary

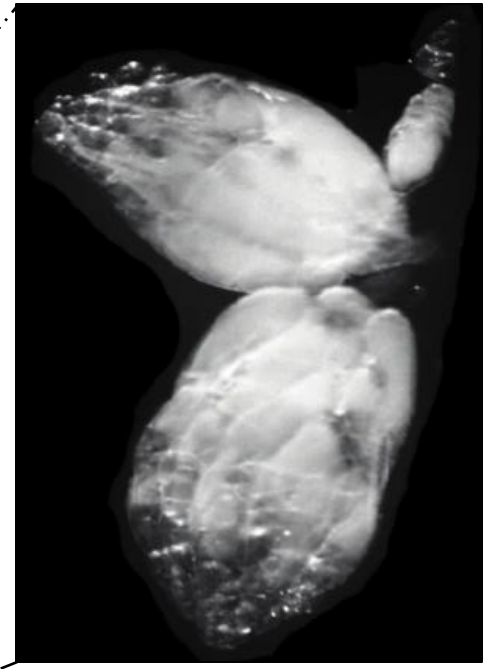
Kim McCall

Professor
Department of Biology, CAS

Drosophila as a Model System

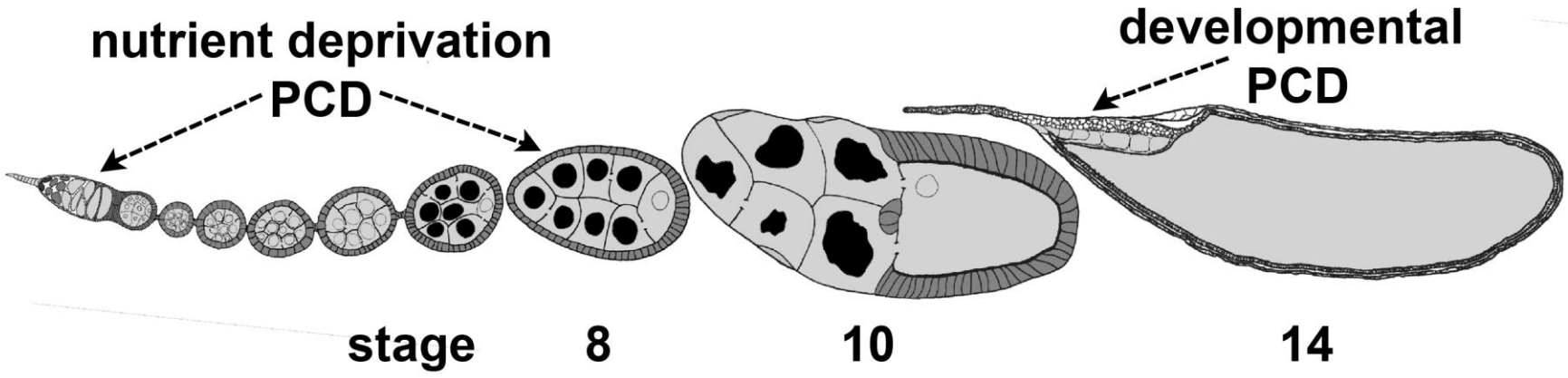
- Fast generation time
- Lots of genetic tools
- Evolutionary conservation of human disease genes
- Reproducible cell death events
- Ovary is highly structured with large cells great for microscopy





Jenkins et al. 2013
http://obbard.bio.ed.ac.uk/

Cell death occurs at multiple stages during *Drosophila* oogenesis



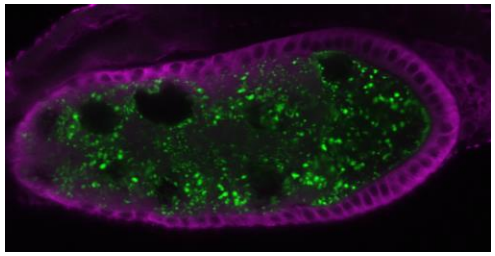
Mid-oogenesis
Starvation-induced cell death
Apoptotic
"Follicular atresia"

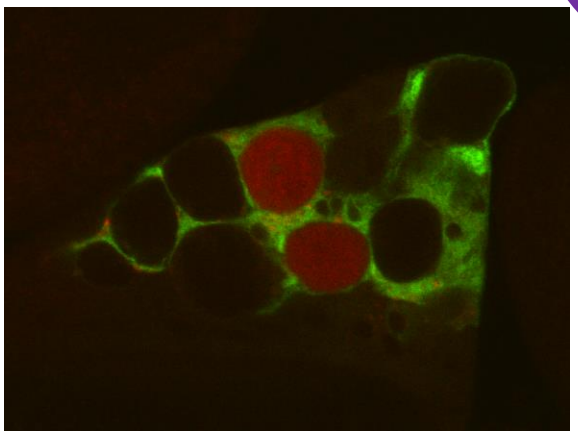
Late oogenesis
Developmental cell death
Non-apoptotic
Germline cyst death

Modified from Frydman and Spradling 2001

Similarities in germ cell death among species

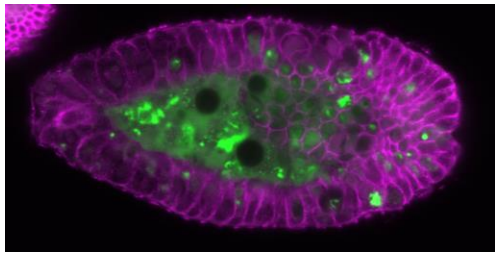
Death of germline cyst cells by acidification



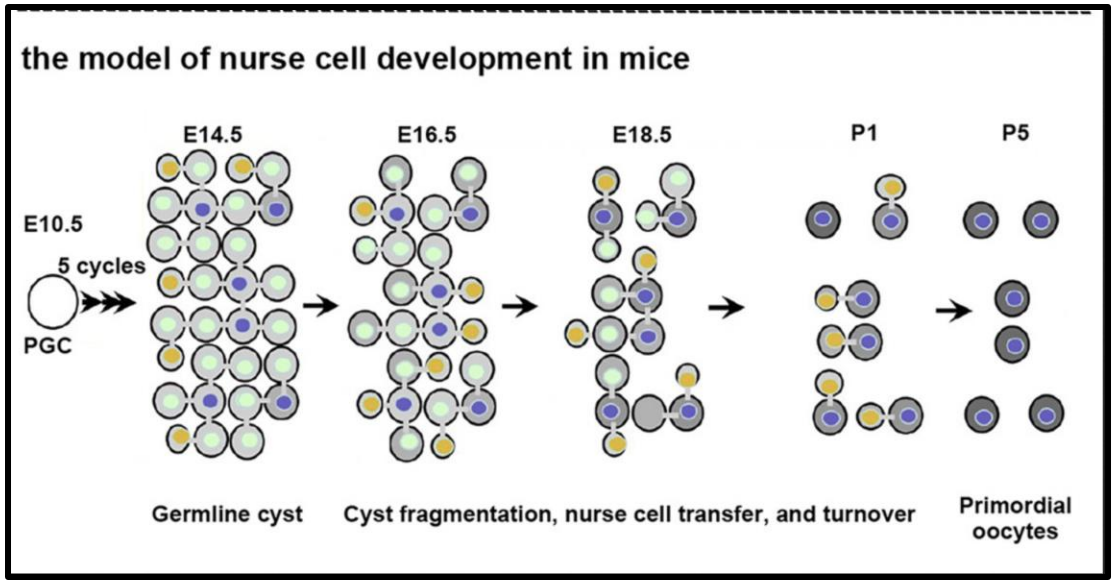


Drosophila

Mammals

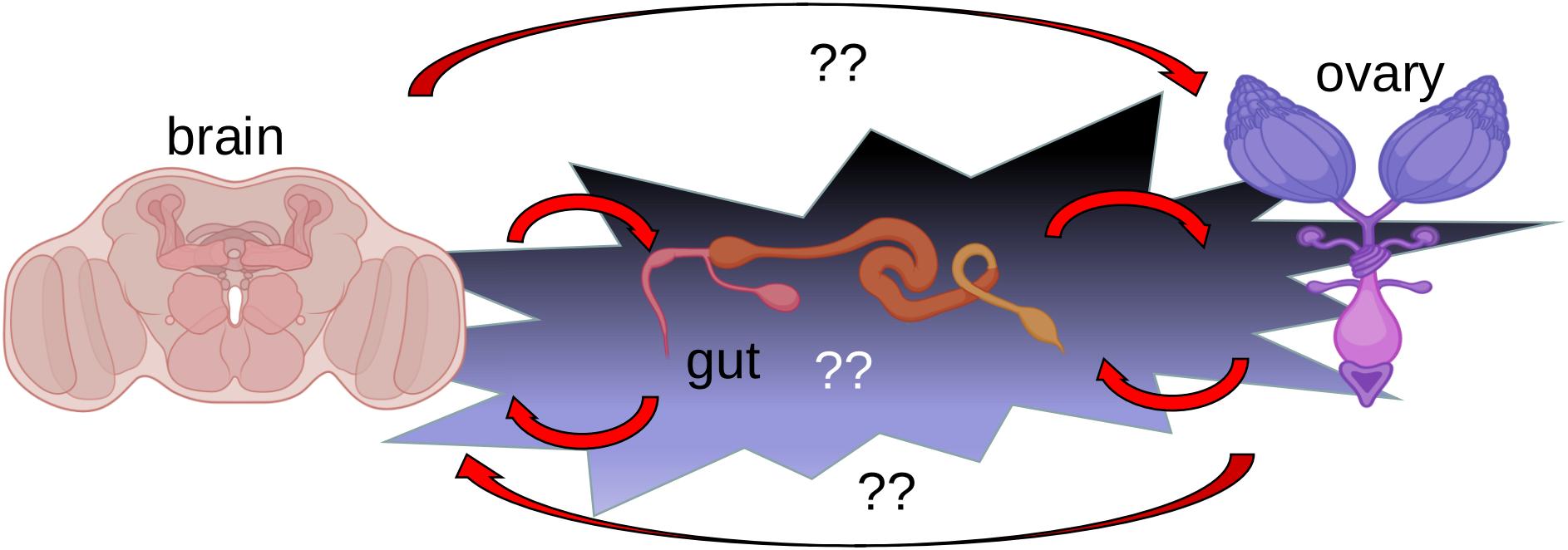


Engulfment of unhealthy oocytes by somatic cells

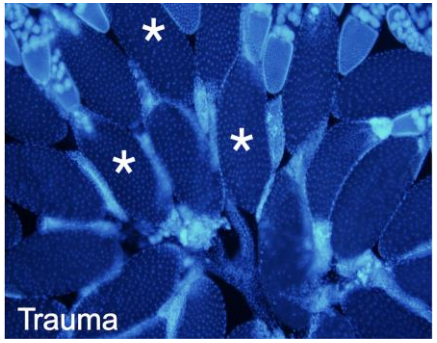


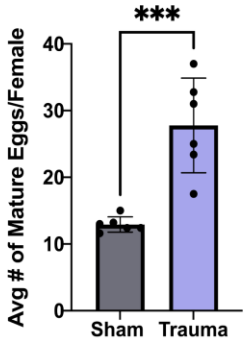
Niu and Spradling, 2022

Modeling female reproductive disturbances post-traumatic injury in *Drosophila*

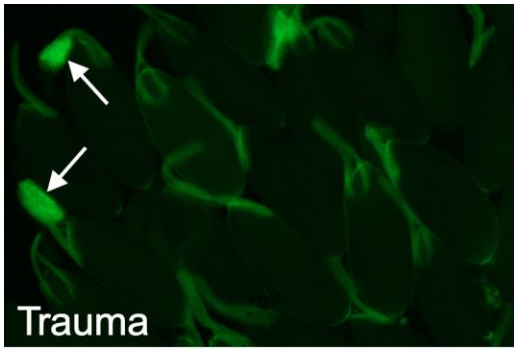


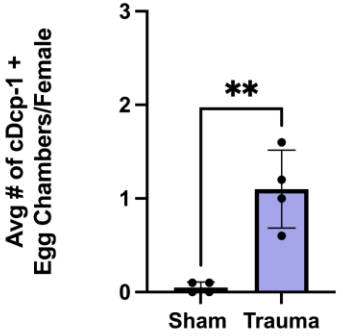
Decreased ovulation





Increased cell death





BOSTON UNIVERSITY

Per- and polyfluoroalkyl substances (PFAS) and fecundability: findings from Boston University web-based preconception cohort studies

Lauren A. Wise, Sc.D.

Professor, Department of Epidemiology
BU School of Public Health

Background: Infertility and PFAS

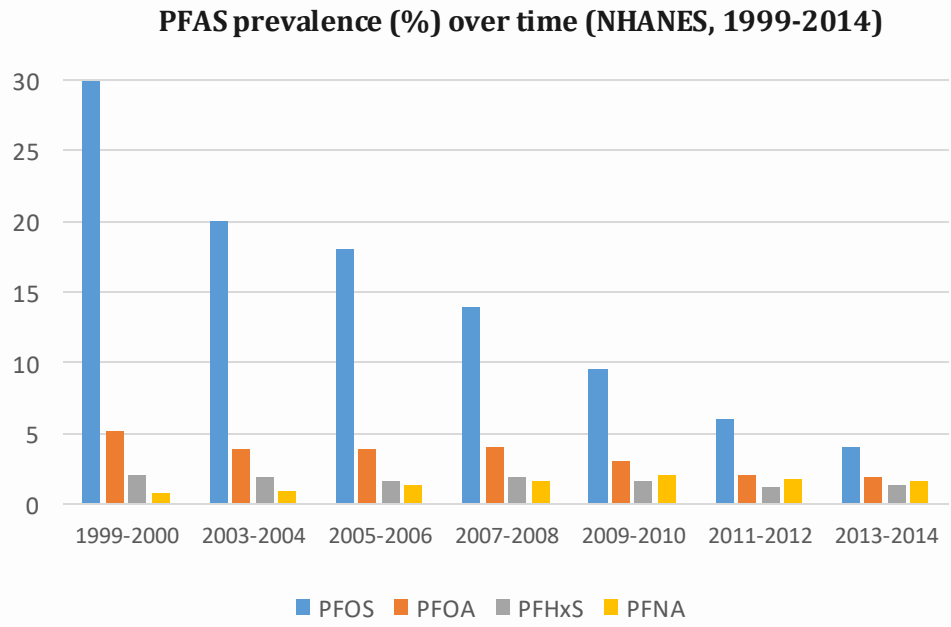
PRESTO

- Infertility affects 15-20% of couples
- Psychological & financial distress, high health care costs
- Treatment not covered in most states
- Racial/ethnic and SES disparities in:
  - Receipt of treatment
  - Treatment success rates

- PFAS are **endocrine-disrupting** chemicals
- Studies report ↓ fertility in association with:
  - Perfluorooctanoate (PFOA)
  - Perfluorooctane sulfonate (PFOS)
  - Perfluorohexane sulfonate (PFHxS)
  - Perfluorononanoate (PFNA)

  } Most common
- Results vary by **study design**

Per- and poly-fluoroalkyl substances (PFAS) are **persistent** synthetic chemicals found in non-stick cookware, clothing, carpets, food packaging, foods (e.g., fish), and fire-fighting foam



Background: PFAS

PRESTO

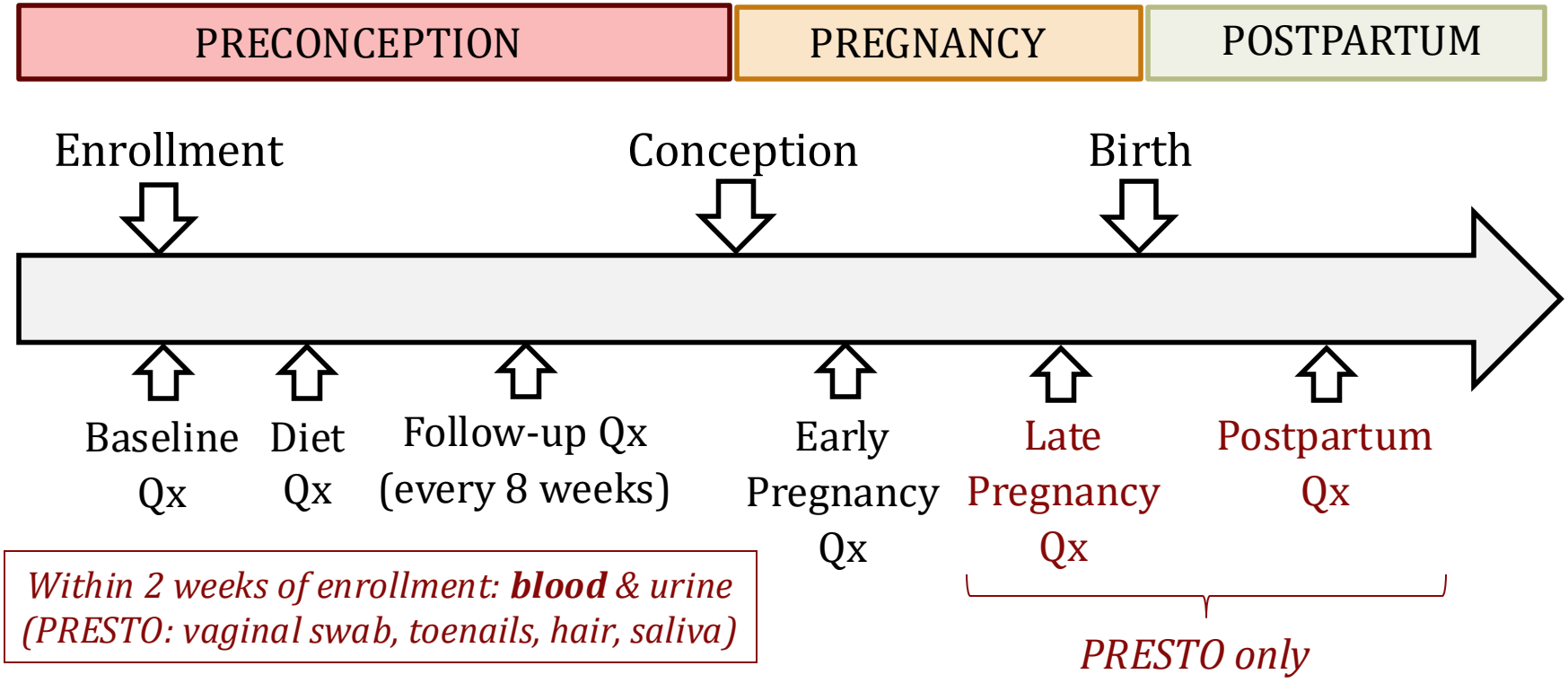
Retrospective studies	PFOA	PFOS	PFHxS	PFNA	PFDeA
Fei, 2009 (DNBC)	↓	↓			
Whitworth, 2012 (MoBA)	↓	↓			
Bach, 2015 (DNBC)	↓	null			
Bach, 2015 (Aarhus Birth Cohort)	null/↑	null/↑	null	null	null
Velez, 2015 (MIREC)	↓	null	↓		
Prospective studies					
Lum, 2017 (LIFE)	↓	null		↓	null/↑
Jørgensen, 2014 (INUENDO)	null	↓	null	↓	
Crawford, 2017 (Time to Conceive)	null	null	null	null	
Vestergaard, 2012 (First Preg Planners)	null	null	null	null	

↓ associated with reduced fertility; ↑ associated with higher fertility; null = no association.

Design: web-based preconception cohort study

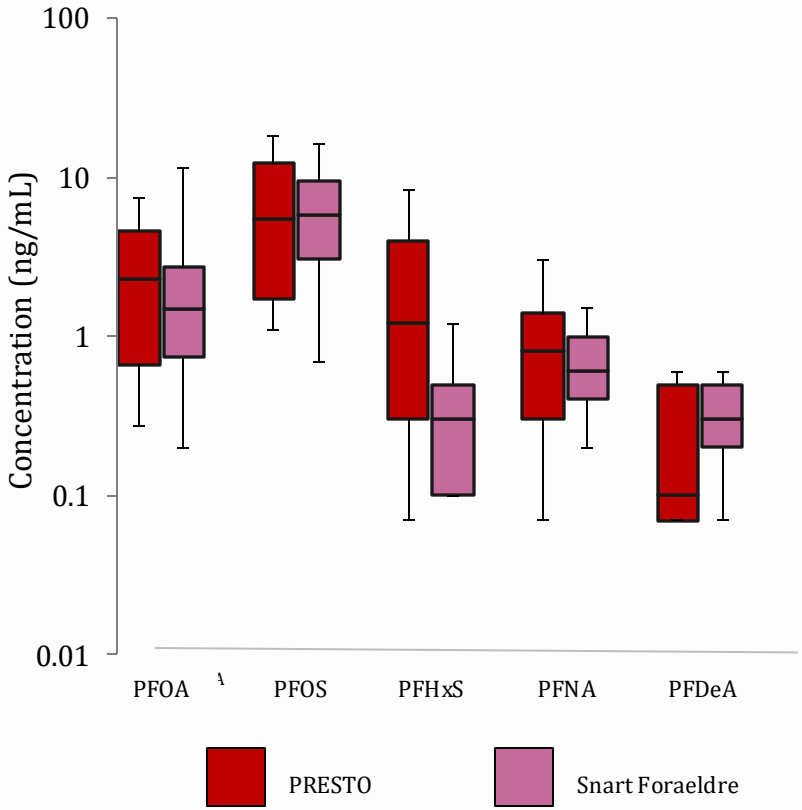
Eligibility criteria

- 18-45 years
- Denmark, U.S., or Canada
- Trying to conceive
- Not using fertility treatment
- In relationship with one partner
- Consent for registry linkage

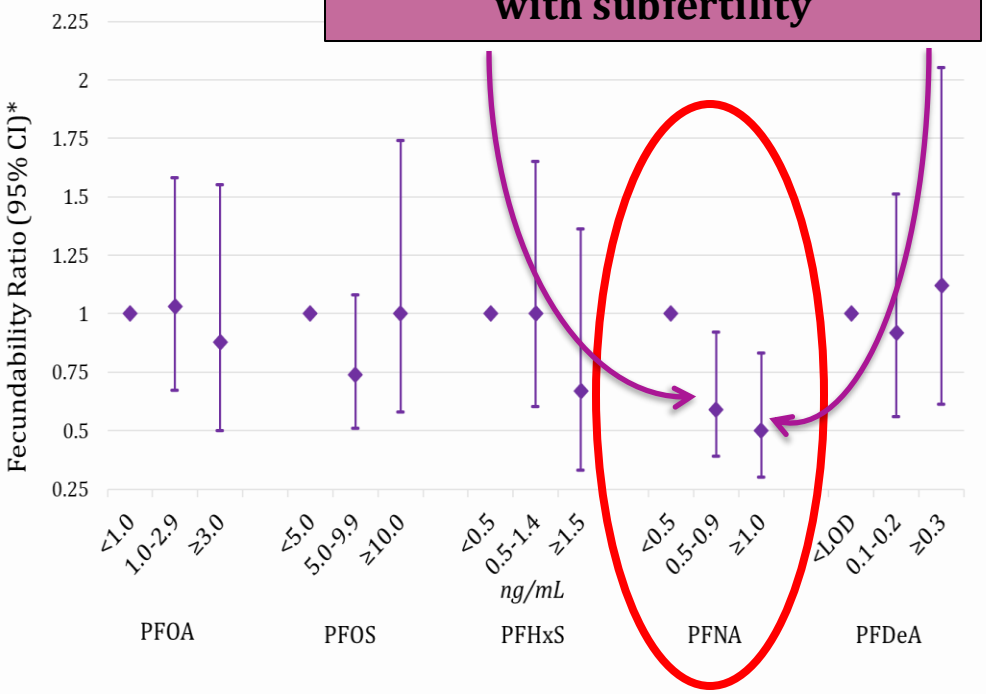


Results

PRESTO



PFNA most strongly associated with subfertility



*Adjusted for age, BMI, race/ethnicity, smoking, education, cohort

Acknowledgements

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Amelia Wesselink
Renee Boynton -Jarrett
Jasmine Abrams
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Mary Willis
Yael Nillni
Julia Bond
Martha Koenig
Andrea Kuriyama
Eliza Pentz
Ruth Geller
Sharonda Lovett
Molly Hoffman
Dmitrii Krivorotko
Krystal Kuan

PRESTO participants
PRESTO CAB members
Funding sources:

- NIH (R01HD086742, R01HD105683, R01HD115096, R01ES029951, R01ES028923, DP5OD033415) and NSF (1914792)

Questions? Feedback?
lwise@bu.edu

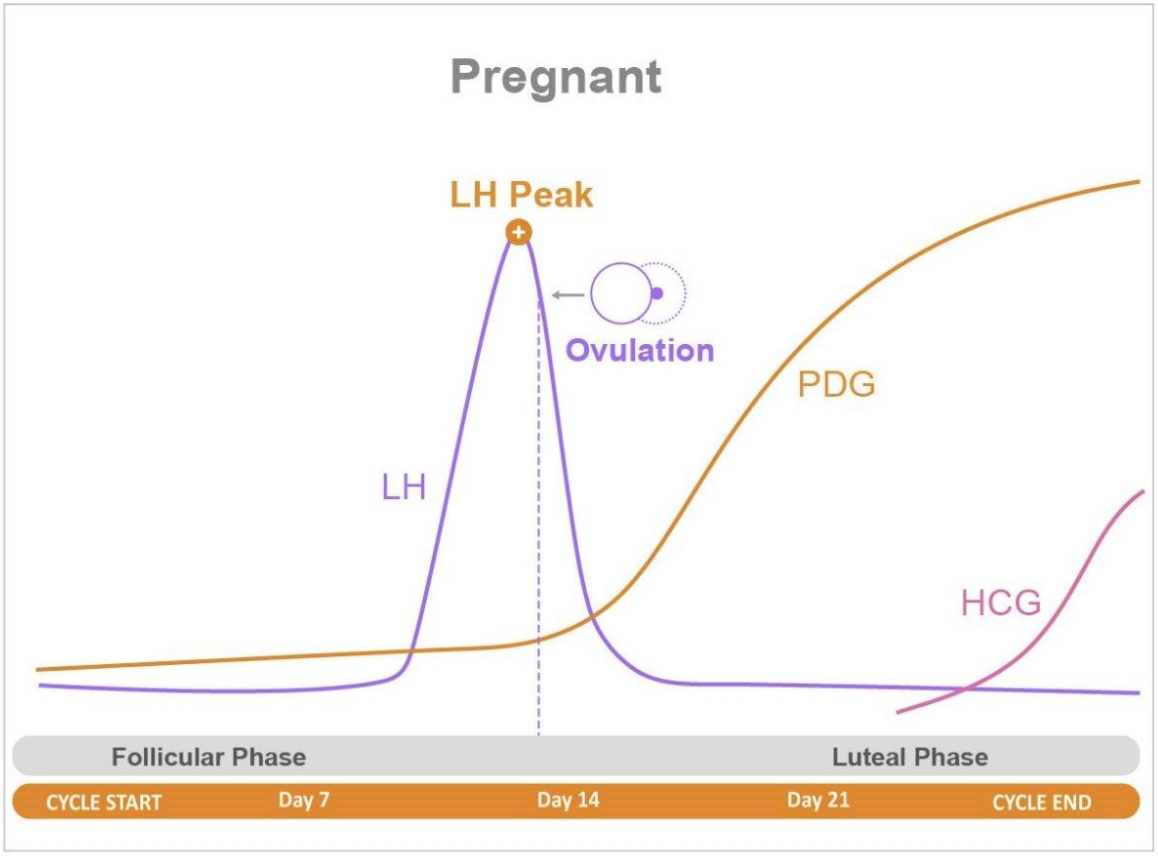
Microbial Devices for Fertility Hormone Monitoring in Whole Blood

Miguel Jimenez

Assistant Professor

Biomedical Engineering, College of Engineering

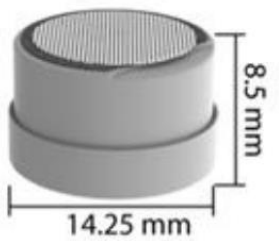
fertility hormone monitoring **burdens women** with **in-person blood draws**

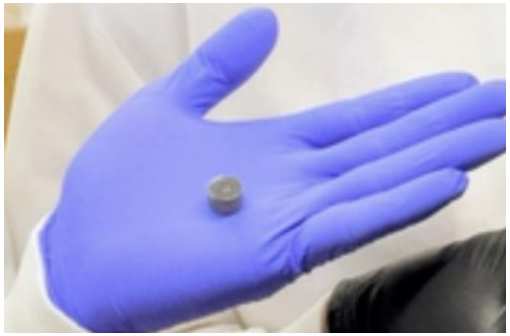


- https://premom.com/the-hormonal-relationship-between-lh-pdg-and-hcg/

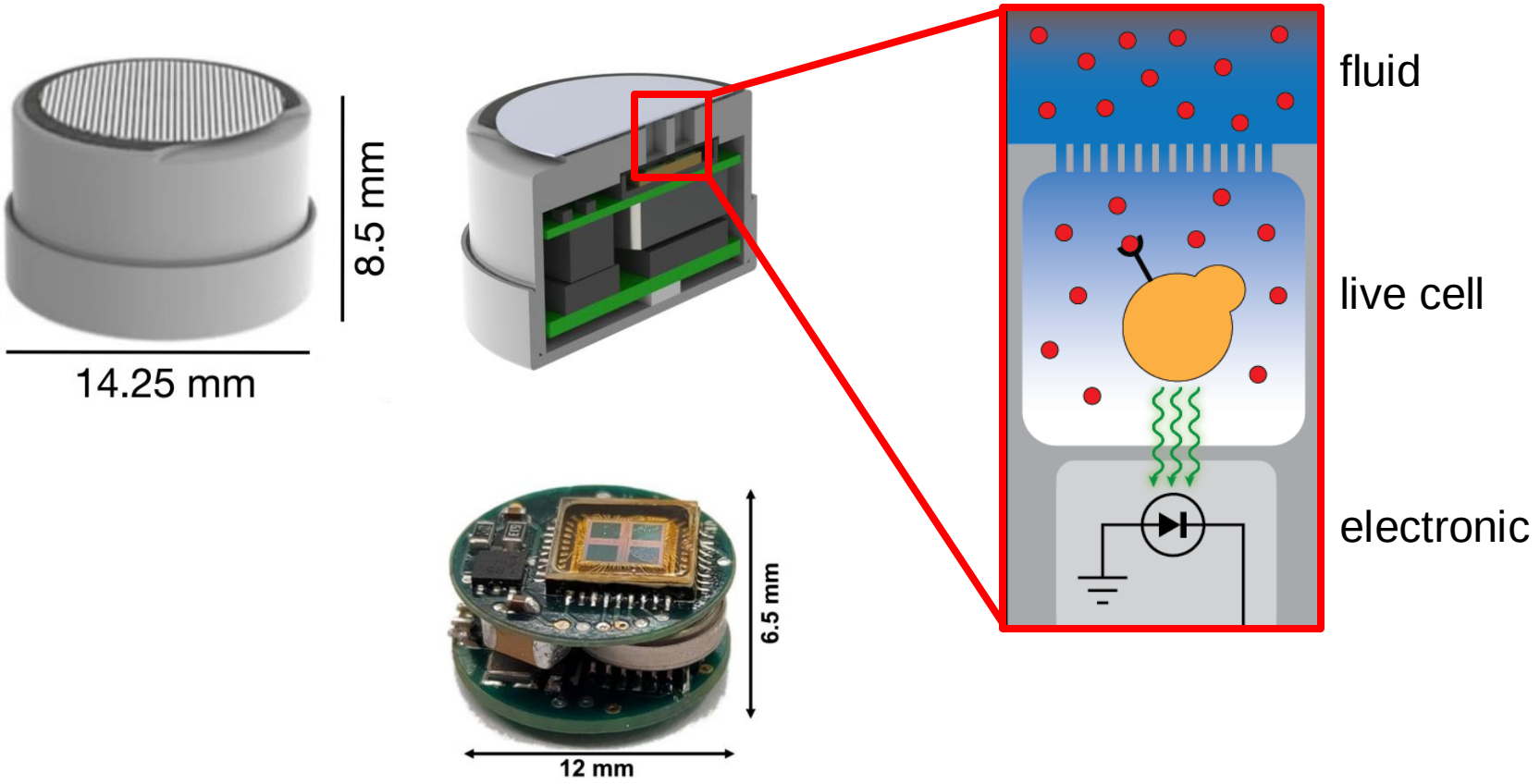
can **microbial devices** miniaturize **blood analysis?**

- **Roche Cobas 8000 immunoassay system**



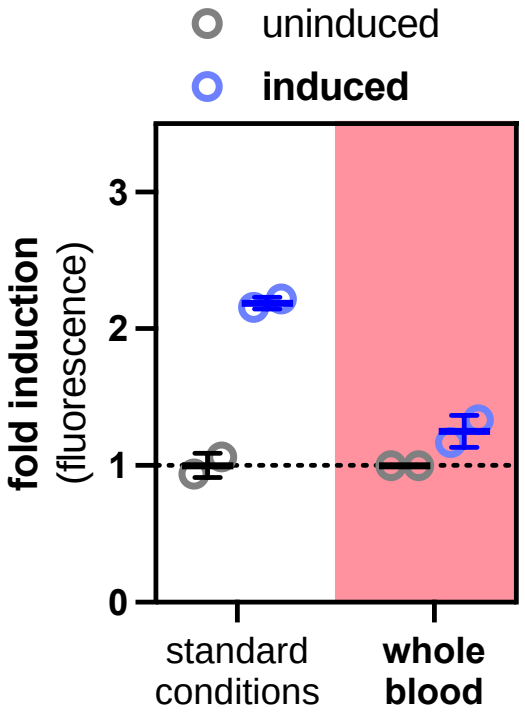


microbial devices are **electronics** + **living cell sensors**



- Inda-Webb, M. E.*, **Jimenez, M.*,** Liu, Q., et al. (Traverso*, **Yazicigil***, Lu*). *Nature* 620, 386–392 (2023).

microbial reporters can generate a signal in **whole blood**



- Kaavya Akula, Luca Pungan
- Dr. Wendy Kuohung

A Learning Health Systems Approach to Reducing Disparities in Pregnancy-Related Morbidity

Naima Joseph MD, MPH

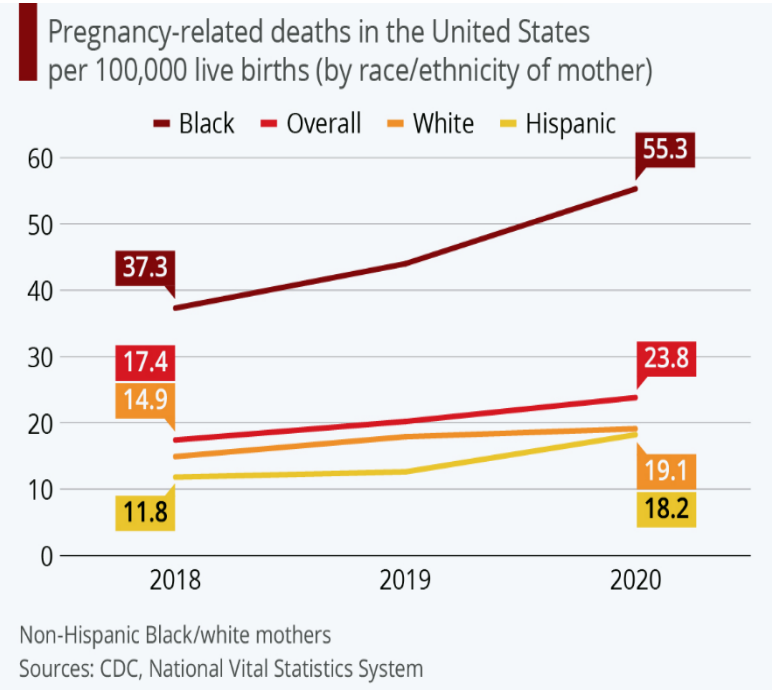
Assistant Professor

Division of Maternal-Fetal Medicine

Department of Obstetrics and Gynecology

Boston University Chobanian & Avedisian School of Medicine

The Uneven Burden of U.S. Maternal Mortality



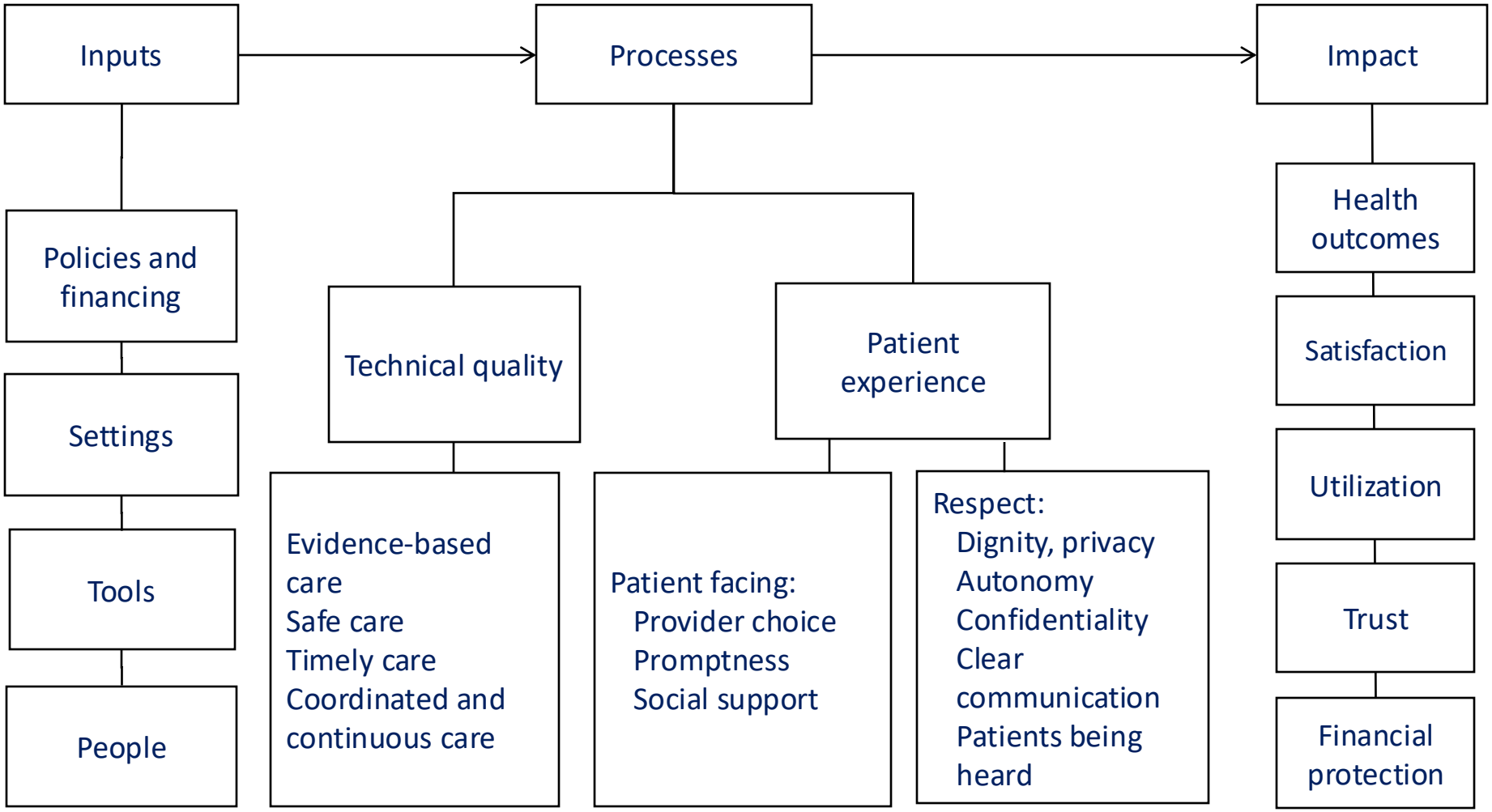
1.7x

Higher rate of Severe Maternal Morbidity compared to white birthing patients

59%

Driven by pre-eclampsia

What is a Learning Health System?



Adopted from Kruk M et al

Incorporates community-based, patient reported priorities and outcomes within the demographic, economic, political, legal, regulatory, sociologic and structural context to identify, implement, and interrogate interventions

BOSTON UNIVERSITY

A blood pressure intervention to reduce pre-eclampsia morbidity in pregnant persons and their infants

Cell-enabled technology bridges digital divide: no reliance on patient's data plan or access to wi-fi/broadband

Care based on home BP measurements build trust

Elements of preeclampsia education based on feedback from qualitative interviews with 20 Black mothers who had preeclampsia during their births at BMC.

Education tool is bilingual (English and Spanish)

Instructions to patients:

1. Put on this cuff the way we showed you
2. Press the (only) button

Everything else comes you:

1. We will text you if your values are high
2. We will call you to make sure there aren't other things that need a clinical visit
3. If its safe to do remotely, we will arrange a prescription for blood pressure medication and have it delivered to your home or shelter.
4. You will get information about pregnancy/postpartum including preeclampsia by text twice a week

Components

- DME: Cell-enabled remote blood pressure monitoring
- Personnel: Full time **nurse** who provides telemedicine and text-based support to pregnant and postpartum population (~450 patients)
- Technology: Iterated **digital portal** that alerts the nurse and patient with high values
- EMR: Remote data is integrated into a electronic medical record flow sheet; E-consultation is used for medication management
  - Weekly **MFM** engagement during pregnancy
  - Daily **pharmacist** engagement during postpartum
- Education: Text-based prenatal and preeclampsia education
- Barriers: Live navigator manages positive SDOH and barrier screens embedded in text education tool

Evaluating the Effectiveness of Remote B/P Monitoring in Reducing Perinatal Morbidity in Black patients

- AIM 1. To evaluate trends in perinatal morbidity since program implementation using historical controls using quasi-experimental (difference in difference) design
- AIM 2. To isolate the effectiveness of remote blood pressure monitoring in the mitigation of preeclampsia related perinatal morbidity using target emulation approach in a contemporary cohort
- AIM 3. To understand factors influencing patient engagement, acceptability, and unanticipated adverse events associated with this program using sequential mixed methods design and implementation science frameworks

Supported by Agency for Health Care Research and Quality and the Patient Centered Outcomes Research Institute on Learning Health Systems Training Grant P30 HS029752-01, The Department of Health and Human Services Hypertension Innovation Prize, and the BMCHS Health Equity Accelerator

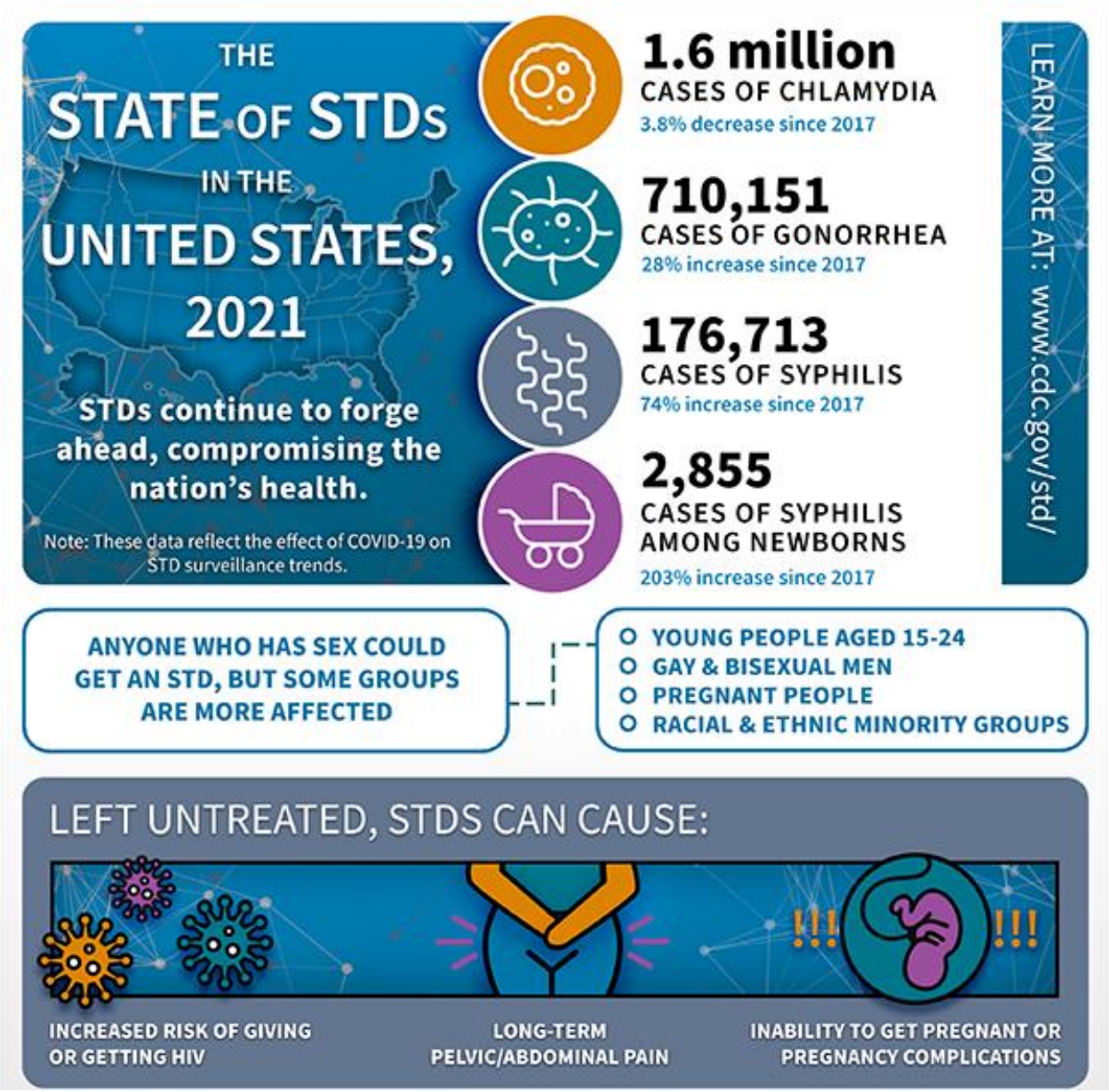
Gender, Immunity, and Sexually Transmitted Infections

Robin Ingalls, MD

Professor

Department of Medicine, Section of Infectious Diseases

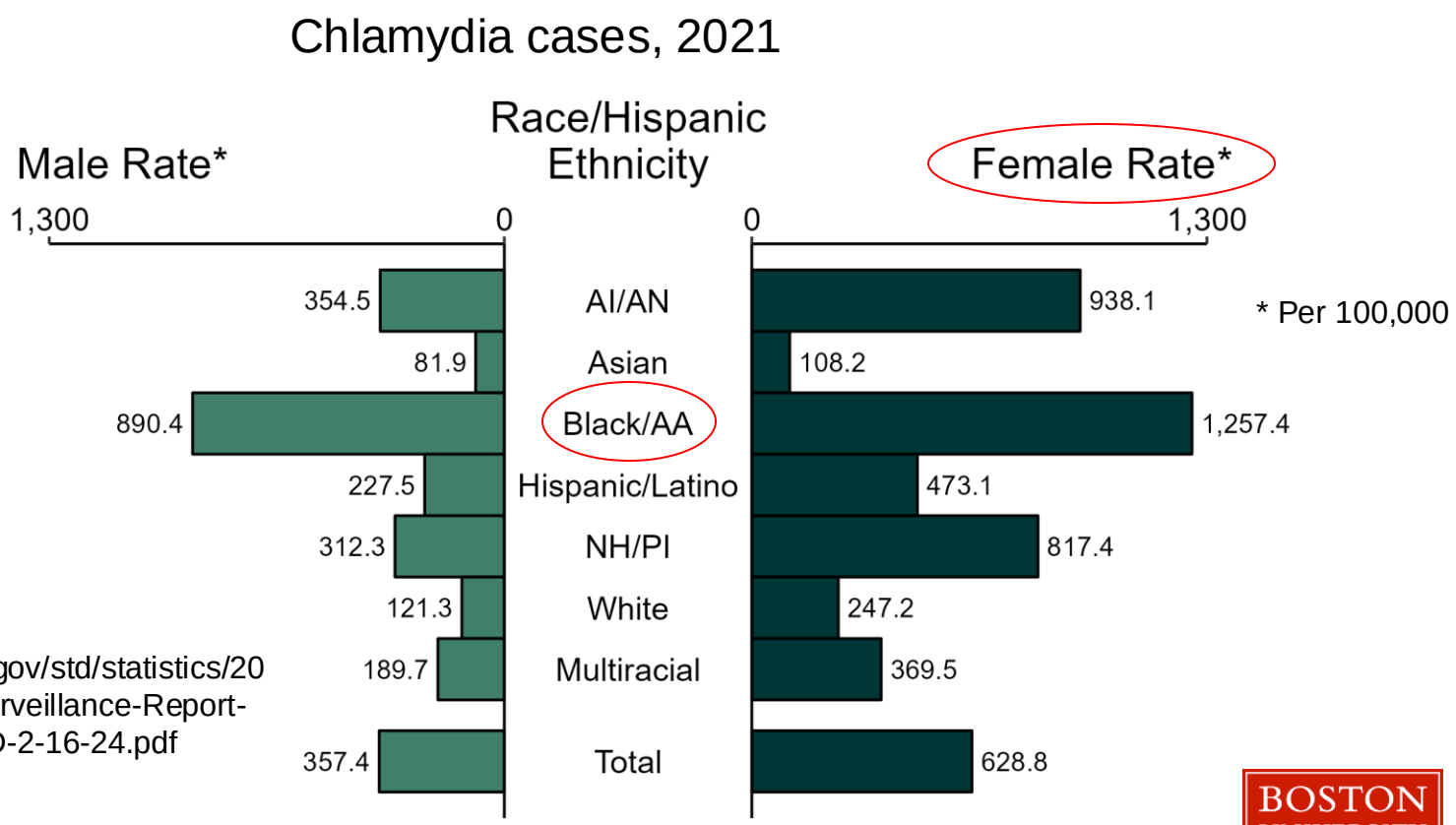
Boston University Chobanian & Avedisian School of Medicine



https://www.cdc.gov/std/statistics/infographic.htm

Women are disproportionately affected by STIs compared to men

- Less likely to have or recognize symptoms
- Greater risk for complications (PID, infertility, ectopic pregnancy)
- Increase the risk of adverse pregnancy outcomes



https://www.cdc.gov/std/statistics/2022/2021-STD-Surveillance-Report-PDF_ARCHIVED-2-16-24.pdf

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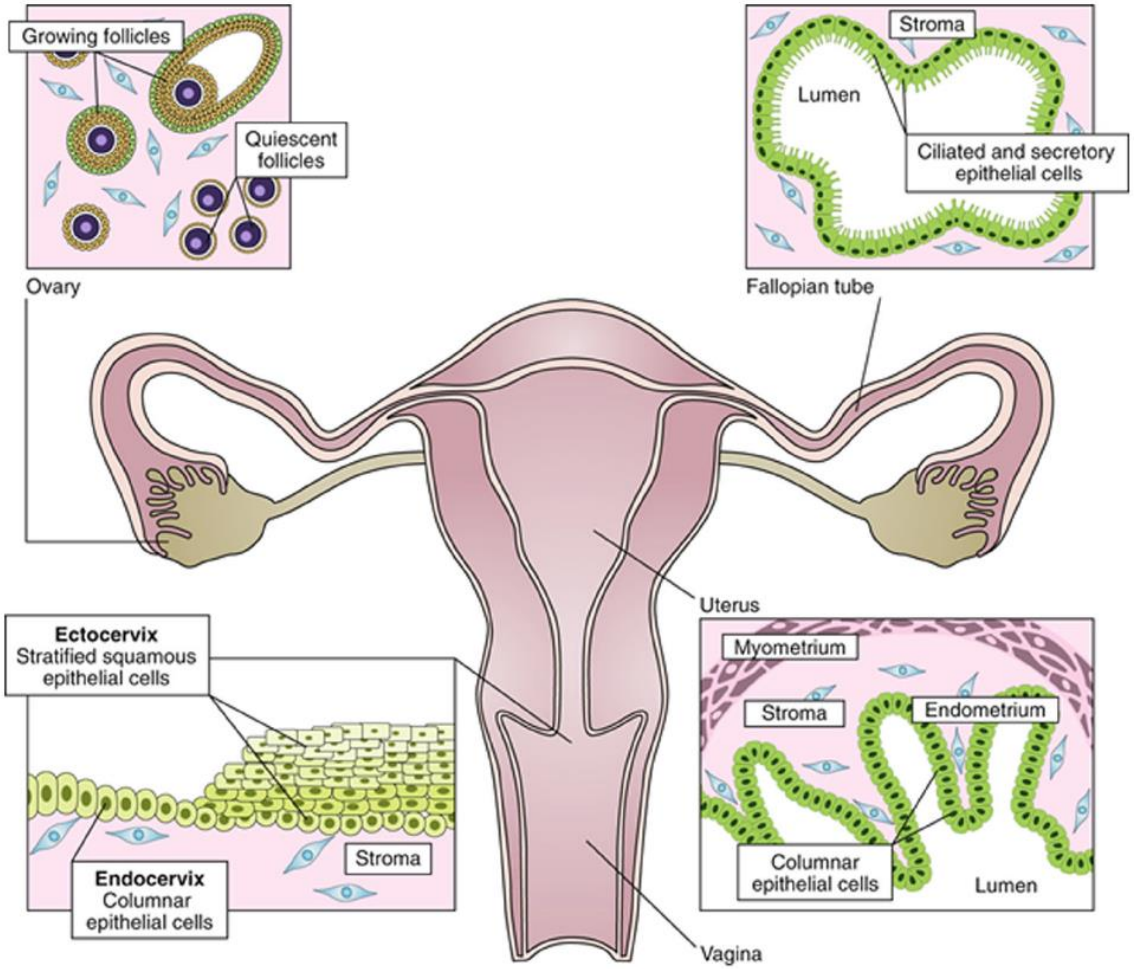
The Female Reproductive Tract (FRT)



Nat Biomed Eng. 2020 April ; 4(4): 381–39

Long-term goals for modeling STIs

- Improved understanding of how STIs lead to complications in the female reproductive tract
  - PID, tubal infertility, placental dysfunction
  - Can we do more than just give antibiotics?
- Model effects of endogenous hormones on FRT tissue responses to STIs
  - Effects of the ovulatory cycle
  - Reproductive age vs. menopause
- Model effects of gender-affirming hormone therapy in transgender men on the FRT
- Explore the effects of endocrine disrupting chemicals on reproductive health
  - Role in health care disparities?

APOL1 Variants and Preeclampsia Therapeutics

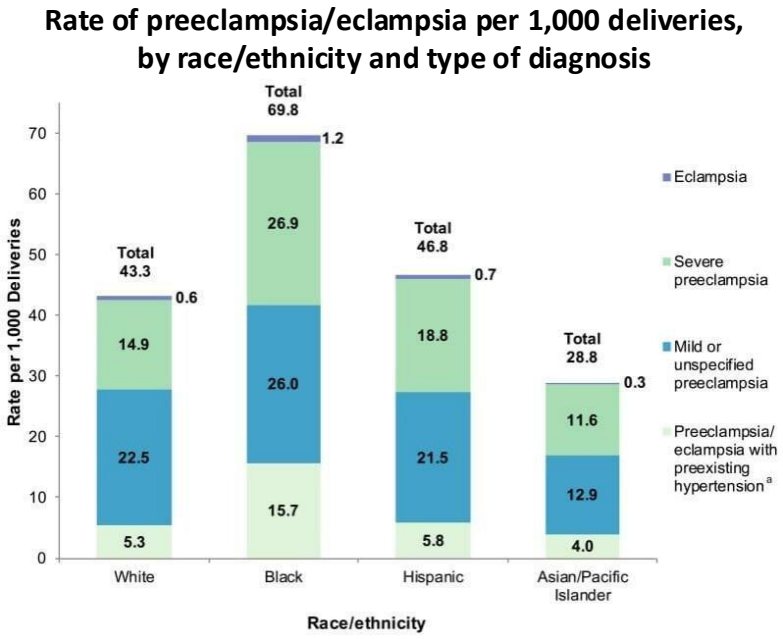
Wendy Kuohung, M.D.

Associate Professor of Obstetrics and Gynecology
Boston University Chobanian & Avedisian School of Medicine
Director, Division of Reproductive Endocrinology and Infertility
Boston Medical Center

Preeclampsia and Racial Disparities

- Preeclampsia – Pregnancy disorder of gestational hypertension, proteinuria, and edema, with iatrogenic delivery the only known cure
  - Common obstetrical complication with prevalence of about 2-8% of pregnancies and 2nd leading cause of maternal mortality worldwide
  - Poor placental invasion/perfusion leads to endothelial dysfunction and vascular inflammation that may result in multi-organ damage
  - Increases maternal cardiovascular risk in the long term

- Black pregnant people have a 1.7-fold higher risk of preeclampsia than Whites
- Case fatality rate for preeclampsia is 3 times higher in Blacks than Whites
- Identifying genetic markers of preeclampsia could improve screening for and possibly prevention of the disorder



https://www .ncbi.nlm.nih.gov/books/NBK442039/figure/sb222.f3/

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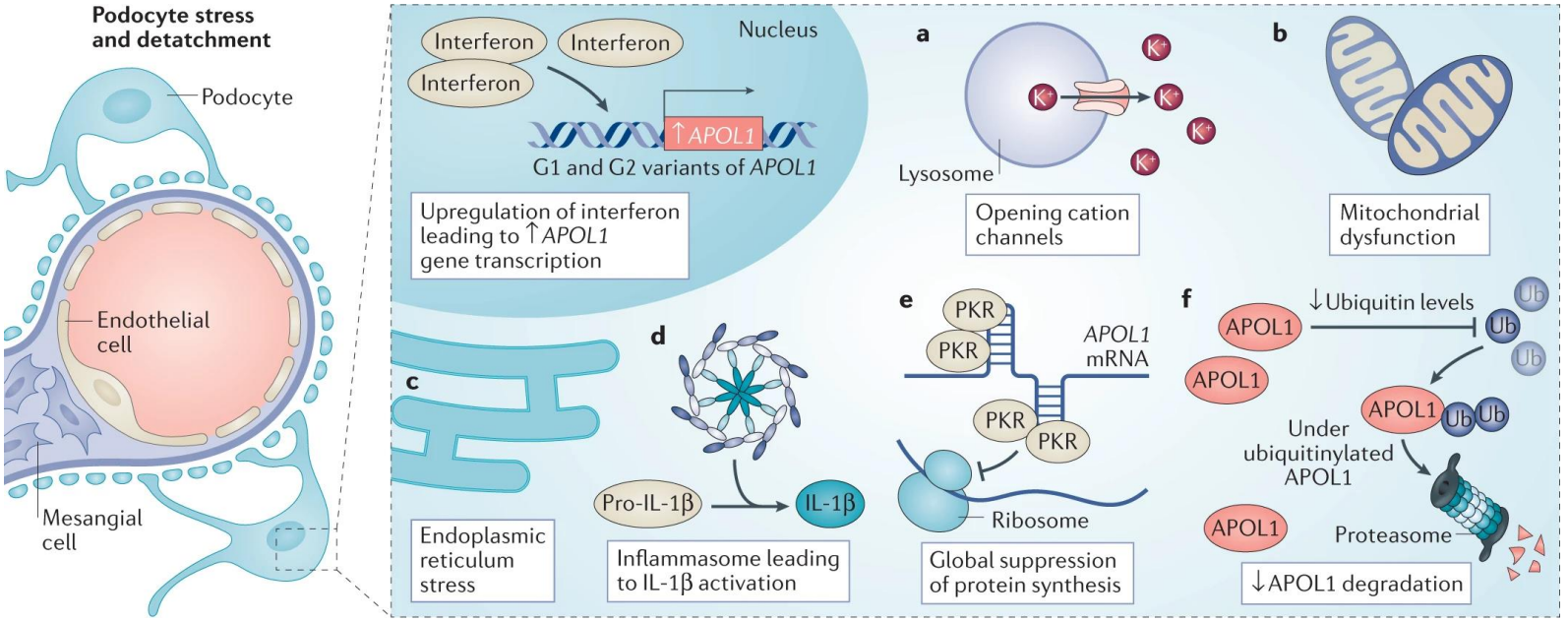
Preeclampsia and the Role of the *APOL1* Gene

- Apolipoprotein 1 Gene (*APOL1*)
  - Coding variants (G1 and G2) are strong risk factors for kidney disease in people of African ancestry (OR ~7-29 for severe kidney disease)
  - Transgenic mice with *APOL1* variants had preeclampsia and ↓litter sizes
  - In humans, fetal APOL1 genotype is associated with preeclampsia risk
    - Gene dosage affects preeclampsia severity, “second hit” required

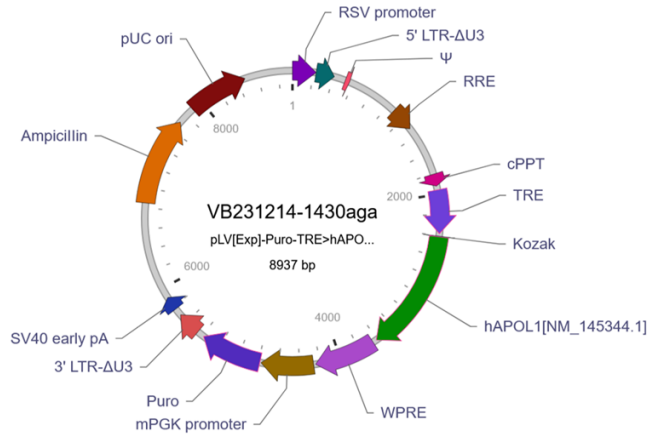
Potential Mechanisms of APOL1-associated Kidney Disease (Not Yet Investigated in Placenta)



Daneshpajouhnejad et al. *Nat Rev Nephrol* 2022

Placental Cell Model of APOL1 Risk Variants

- BeWo cells – immortalized choriocarcinoma cell line, model of trophoblast cell differentiation
  - Untransfected BeWo cells express *APOL1* wild type G0 haplotype, low levels of APOL1 protein
  - We generated stably transfected BeWo lines that conditionally express G0 and variants G1 and G2 under control of Tet-On promoter
- Model will be used to study potential mechanisms of APOL1-associated trophoblast injury that may contribute to the genesis of preeclampsia



Pooled Cell Sample	hAPOL1-G0	hGAPDH	ΔCt
BeWo_ hAPOL1-G0 [+]DOX	17.72±0.04	14.44±0.08	3.28
BeWo_ hAPOL1-G0 [-]DOX	22.95±0.01	14.95±0.02	8.00
BeWo_ hAPOL1-G1 [+]DOX	18.91±0.07	15.21±0.05	3.70
BeWo_ hAPOL1-G1 [-]DOX	23.62±0.03	15.92±0.01	7.70
BeWo_ hAPOL1-G2 [+]DOX	18.85±0.09	15.91±0.04	2.94
BeWo_ hAPOL1-G2 [-]DOX	23.72±0.09	16.76±0.05	6.97

- Will adapt cell lines for use in a high-throughput assay to screen compound libraries for novel preeclampsia therapeutics
  - Homogenous time-resolved fluorescence sandwich assay (Revvity)
  - Potential readouts – GRP78 (highly expressed in first trimester placenta, ↑ in renal podocytes overexpressing G1 and/or G2), eIF1

Lab Members and Collaborators

- Gabrielle Cherfane, B.S.
- Janice Nam, M.S.
- Ann Doherty, M.S.
- Eesha Sachdeva, B.A.
- Cassandra Lee, B.A.

Boston University
School of Medicine

- Matthew Layne, Ph.D., Biochemistry & Cell Biology
- Lauren Brown, Ph.D. and John Porco, Ph.D., Chemistry, Boston University Center for Molecular Discovery
- Nader Rahimi, Ph.D., Pathology & Laboratory Medicine

- John Sedor, M.D., Kidney Medicine, Lerner Research Institute, Cleveland Clinic

- Julie Palmer, Sc.D. and Shanshan Sheehy, M.D., M.Sc., Sc.D. - BWHS

BU Womens Health Pre-ARC

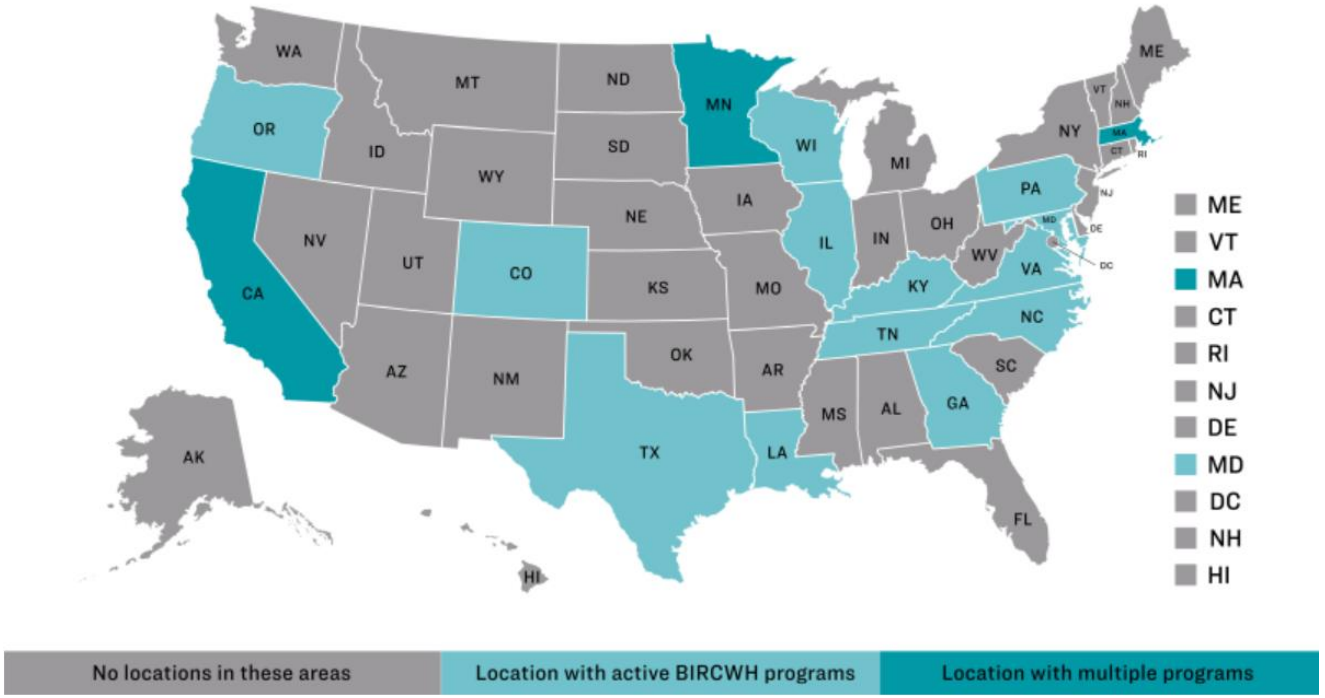
Emelia J. Benjamin, MD, ScM
CAMed Professor of Medicine, SPH Professor of Epidemiology

Elisha M. Wachman, MD, **CAMed**
Professor of Pediatrics

Joyce Y. Wong, PhD
Professor of Biomedical Engineering & Materials Science & Engineering

Building Interdisciplinary Research Careers in Women's Health BIRCWH

- 2002 to 2012, **BUMC** had successful BIRCWH program K12HD43444
- Submitted new application 2024



Why Womens Health

- **Health inequities**
  - Sex & gender health inequities remain critical issues US & Globally
- **Many diseases disproportionately or only affect women**
  - Chronic conditions (autoimmune diseases, dementia) women overrepresented
  - Cervical cancer, fibroids
- **Research**
  - Women historically underrepresented
  - Not reported & accounted for sex- & gender-based differences
  - Burden of chronic conditions disproportionately affect minoritized

Brief History of Women's Health Research Policies

National Institutes of Health
Division of Program Coordination, Planning, and Strategic Initiatives

1986

Inclusion of Women and Minorities in Clinical Research Policy

1990

ORWH established and first full-time Director Vivian Pinn, M.D., appointed in 1991

1993

NIH Revitalization Act of 1993; required inclusion of women & minorities in NIH-funded clinical research

2016

NIH Policy on Sex As a Biological Variable

2016

21st Century Cures Act; includes language on sex reporting requirements

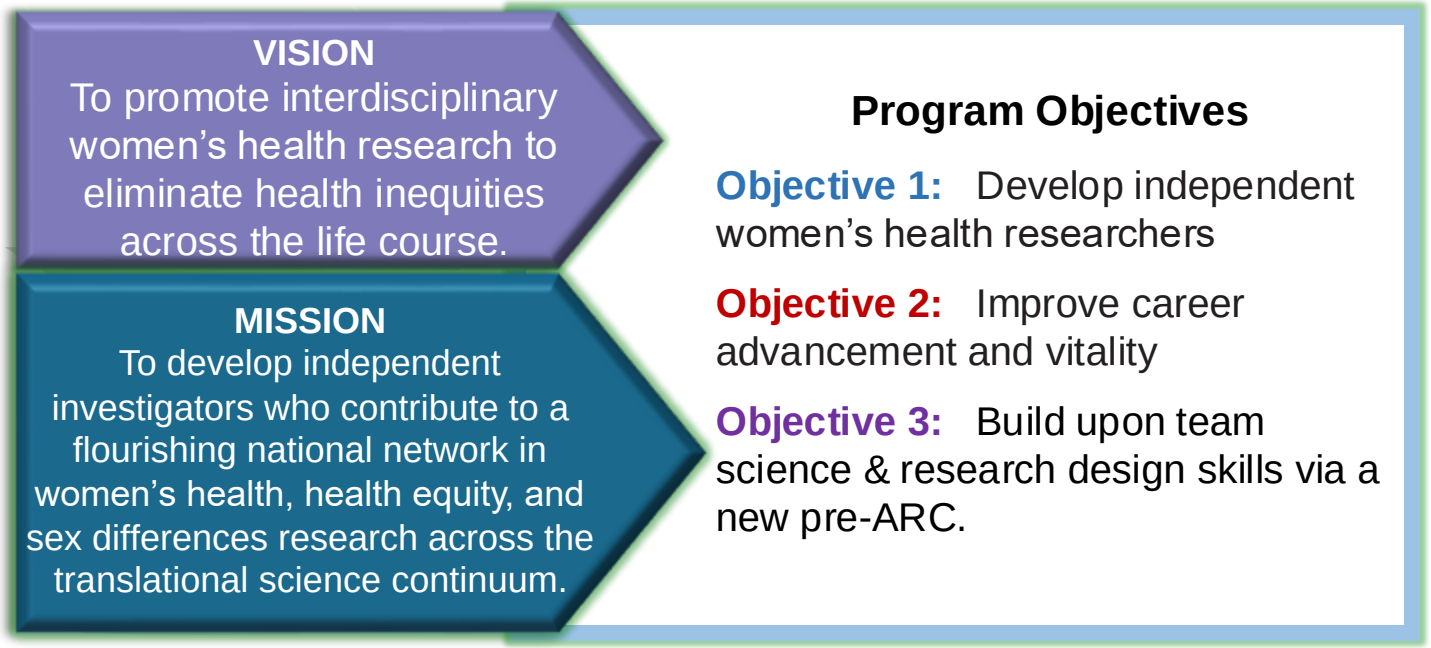
BU Womens Health Pre-ARC

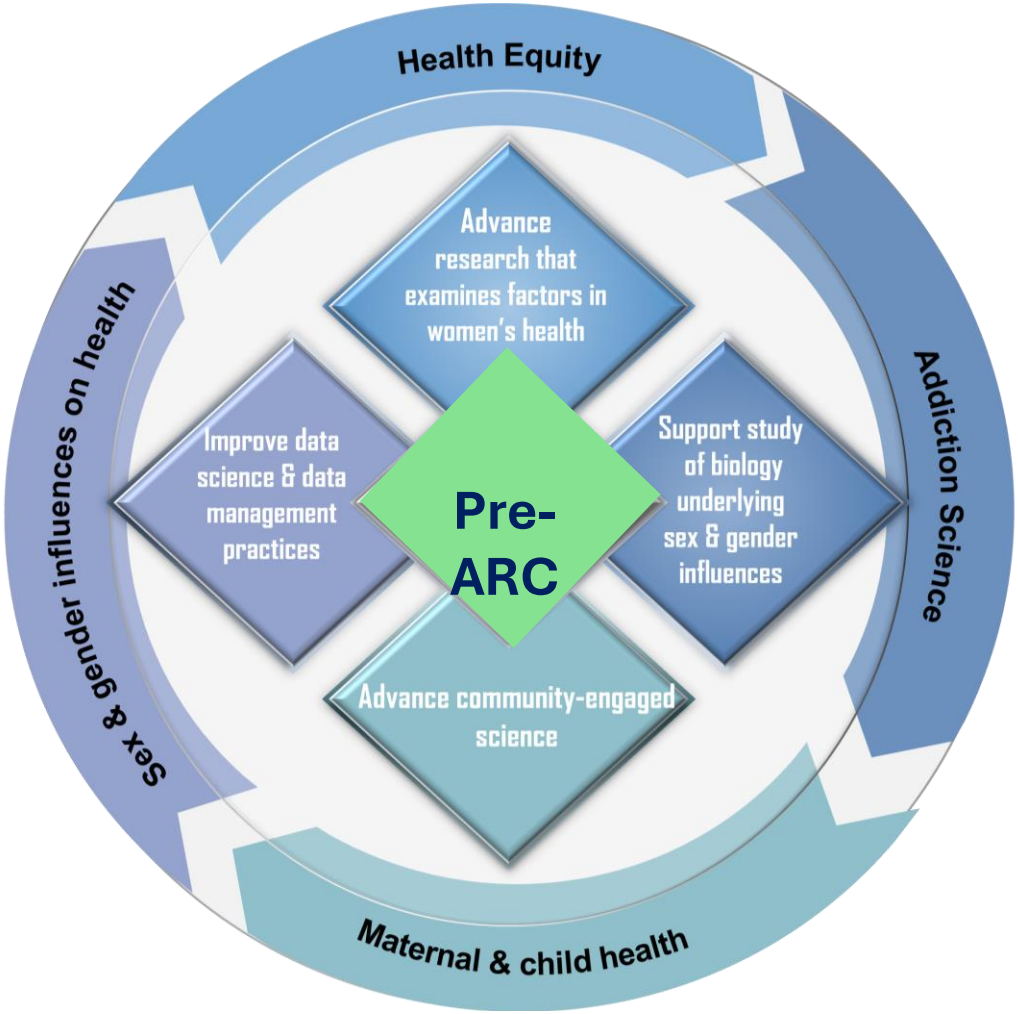
BU Womens Health Pre-ARC

VISION
To promote interdisciplinary women's health research to eliminate health inequities across the life course.

MISSION
To develop independent investigators who contribute to a flourishing national network in women's health, health equity, and sex differences research across the translational science continuum.

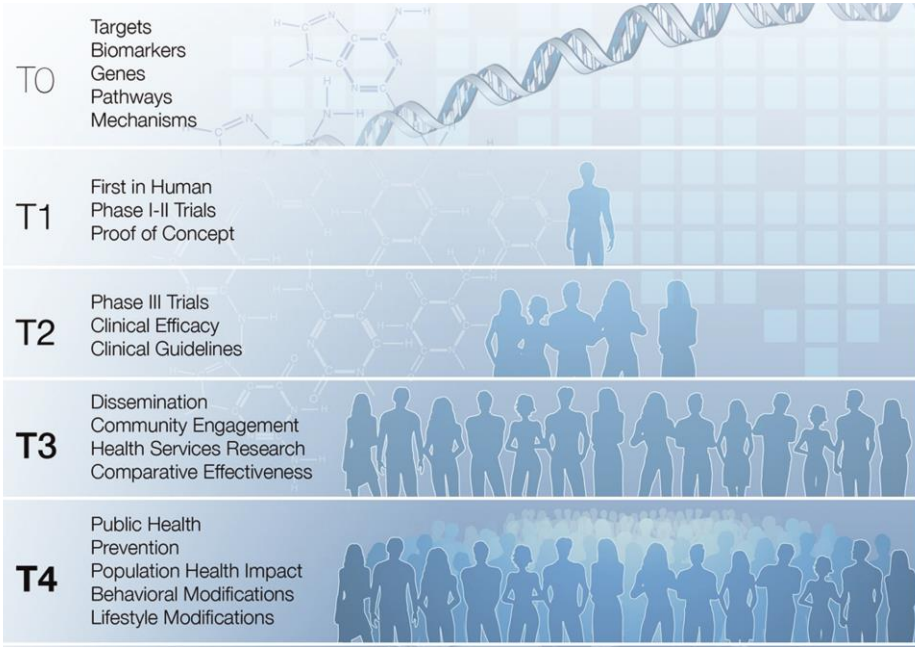
BU Womens Health Pre-ARC




Health Equity
Addiction Science
Maternal & child health
Sex & gender influences on health
Advance research that examines factors in women's health
Improve data science & data management practices
Support study of biology underlying sex & gender influences
Advance community-engaged science
Pre-ARC

Clinical & Translational Science

Mentor	School / Dept / Section	(T#) Stage
Deborah Anderson, PhD	**MED** / DOM / Infectious Diseases	T0-1
Hugo Aparicio, MD	**MED** / Neurology	T2
Abigail Batchelder, PhD	**MED** / Psychiatry	T3-4
Emelia Benjamin, MD, ScM	**MED** / DOM / Cardiology	T3-4
Kimberly Bertrand, ScD	**MED** / DOM / Epidemiology	T3-4
Cynthia Bradham, PhD	**CAS** / Biology	T0
Christopher Chen, MD PhD	**ENG** / Biomedical ENG	T0
Ji-Xin Cheng, PhD	**ENG** / Electrical & Computer ENG	T0-1
Lindsay Farrer, PhD	**MED** / DOM / Genetics	T0-1
Michael Fischer, MD, MS	**MED** / DOM / GIM	T3-4
M. Maria Glymour, SD	**SPH** / Epidemiology	T3-4
Jaimie Gradus, DMSc, DSc	**SPH** / Epidemiology	T3-4
Naomi Hamburg, MD, MSc	**MED** / DOM / Vascular Biology	T2-3
Michelle Henshaw, DDS	**Dental** / Health Policy	T4
Swathi Kiran, PhD	**Sargent** / Speech, Hearing	T1-2
Kimberly McCall, PhD	**CAS** / Biology	T0
Natalia Morone, MD, MS	**MED** / DOM / GIM	T3-4
Joanne Murabito, MD, ScM	**MED** / DOM / GIM	T2-4
Tuhina Neogi, MD, PhD	**MED** / DOM / Rheumatology	T2-3
Yael Nillni, PhD	**MED** / Psychiatry	T2-3
Rebecca Perkins, MD, MSc	**MED** / Obstetrics & Gynecology	T2-3
Cara Stepp, PhD	**Sargent** / Speech, Hearing	T1-3
Elisha Wachman, MD	**MED** / Pediatrics/ Neonatology	T1-3
Renda Wiener, MD, MPH	**MED** / DOM/ **Veterans Affairs**	T3-4
Lauren Wise, ScD	**SPH** / Epidemiology	T3-4
Joyce Wong, PhD	**ENG** / Biomedical ENG	T0-1
Huiping Zhang, PhD	**MED** / Psychiatry	T0-1
Katherine Zhang, PhD	**ENG** / Mechanical ENG	T0-1



Bench

Preclinical

Clinical Efficacy

Clinical Effectiveness

Communities

Waldman & Terzic *Clin Transl Sci*. 2010;3:254

archers' expertise across Lifecc

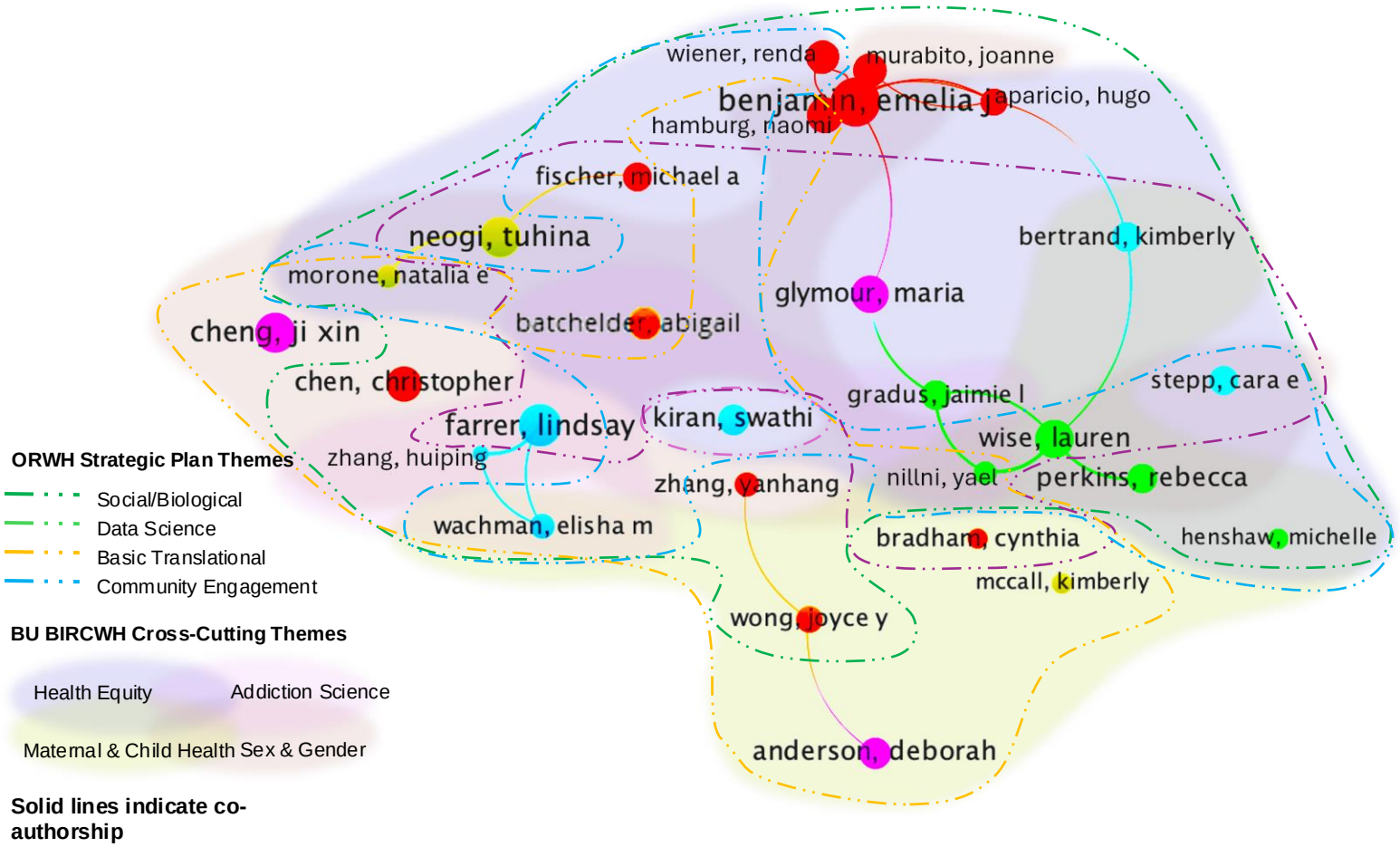
Mentor	○	◔	◔	◑	◕	◕	●
Deborah Anderson, PhD	○					◕	
Hugo Aparicio, MD						◕	●
Abigail Batchelder, PhD						◕	●
Emelia Benjamin, MD, ScM						◕	●
Kimberly Bertrand, ScD		◔	◔	◑	◕	◕	●
Cynthia Bradham, PhD		◔					
Christopher Chen, MD PhD						◕	●
Ji-Xin Cheng, PhD						◕	●
Lindsay Farrer, PhD						◕	●
Michael Fischer, MD, MS						◕	●
M. Maria Glymour, SD				◑	◕	◕	●
Jaimie Gradus, DMSc, DSc				◑	◕	◕	●
Naomi Hamburg, MD, MSc						◕	●
Michelle Henshaw, DDS			◔	◑		◕	●
Swathi Kiran, PhD							●
Kimberly McCall, PhD						◕	●
Natalia Morone, MD, MS						◕	●
Joanne Murabito, MD, ScM						◕	●
Tuhina Neogi, MD, PhD						◕	●
Yael Nillni, PhD	○	◔	◔			◕	
Rebecca Perkins, MD, MS	○			◑	◕	◕	●
Cara Stepp, PhD						◕	●
Elisha Wachman, MD		◔	◔	◑	◕	◕	
Renda Wiener, MD, MPH					◕	◕	
Lauren Wise, ScD	○	◔	◔	◑		◕	
Joyce Wong, PhD	○	◔	◔	◑		◕	
Huiping Zhang, PhD		◔					
Katherine Zhang, PhD						◕	●

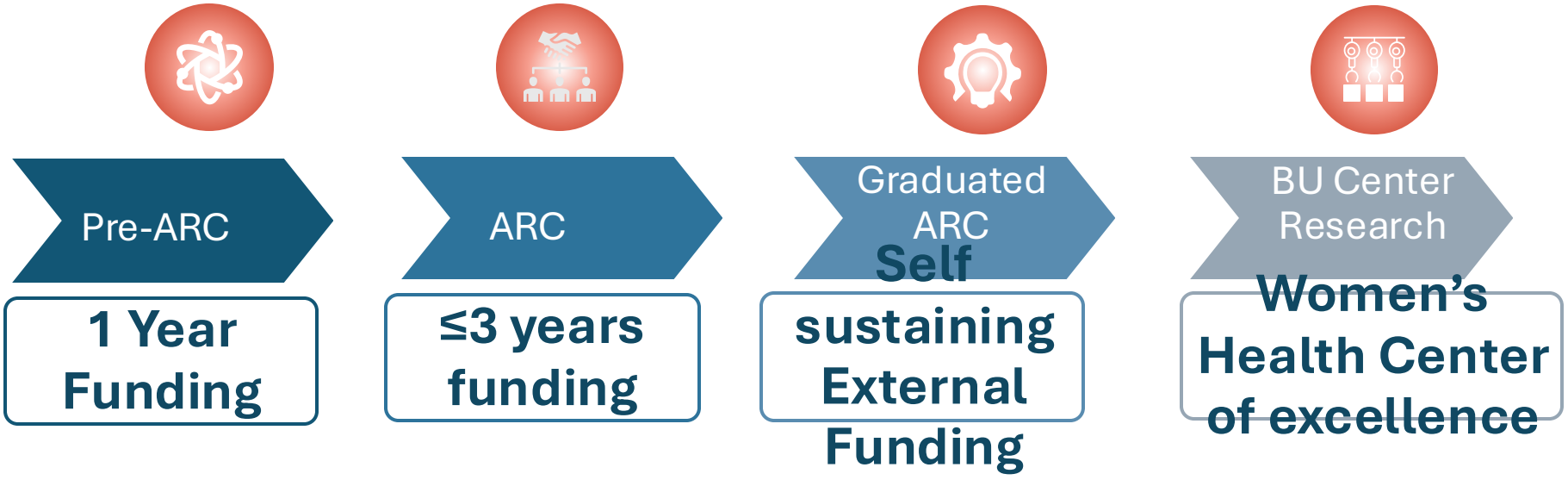
Lifecourse ○	Stage
◔	Preconception
◔	In utero
◑	Birth
◕	Childhood
◕	Adolescence
●	Adulthood including pregnancy
	Older age

Mentorship – Near Peer

Mentor	School / Dept / Section	(T#) Stage	Life Course
Sarah Bagley, MD, MSc	**Med** /DOM/Pediatrics	T3-4	
Brianne Connizzo, PhD	**ENG**/Biomedical	T0-1	
Jessica Fetterman, PhD	**Med**/DOM/Vascular Bio	T0-1	
Sarah Gordon, PhD	**SPH**/Health Law	T3-4	
Miriam Harris, MD, MSc	**Med**/DOM/GIM	T3-4	
Mara Murray Horwitz, MD	**Med**/DOM/GIM	T3-4	
Collette Ncube, DrPH,MPH,MS	**SPH**/Epidemiology	T2-3	
Amelia Stanton, PhD	**CAS**/Brain Science	T3-4	
Carl Streed, MD, MPH	**Med**/DOM/GIM	T3-4	
Alyssa Tilhou, MD, PhD	**Med**/Family Medicine	T3-4	

Collaborative network of senior faculty mentors.





Website & meetings will be distributed by email

To join list please email Robin E. MacDonald remac@bu.edu

ENGINEERING FOR WOMEN'S HEALTH 2025 SYMPOSIUM

January 31, 2025 | 9:00 AM - 5:00 PM

Rajen Kilachand Center for Integrated Life Sciences and Engineering
610 Commonwealth Ave, Boston, MA 02215
Boston University, Boston MA

Save the date

Discover the latest breakthroughs in women's health across engineering, biology, and medicine while engaging with researchers and professionals at the forefront of innovation.

Get Updates

Thank you!

OFFICE OF RESEARCH

Upcoming Events

Research on Tap

12/5 Climate Change and Clean Energy

Research How-to

11/14 From Ideas to Impact: Identifying and Effectively Conveying Your Core Messages

1/9 Meet the LUNGevity Foundation

bu.edu/research/events