BEAD

Biostatistics, Epidemiology And Data Management

Mission

To provide research support services that promote, strengthen and expand the research of the JHU faculty so that we remain one of the top interdisciplinary research institutions, focused on improving the health and well-being of individuals, families and their communities.

BEADCore@jhmi.edu
Beadcore.jhu.edu

Research Support Services

- Epidemiologic study design and approach
- Quantitative and qualitative analyses
- Grant submissions, scientific manuscripts, reports
- Data collection instruments
- Sample, power and effect size calculations
- Research training and education workshops

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The BEAD Core Team

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BEAD Core Team

LEAD TEAM – 13 Faculty/Scientists

Cyd Eaton, PhD – Lead Faculty, Pediatrics

Ethan Gough, PhD – Lead Faculty, Biostatistics/SPH

Suzanne Grieb, PhD – Lead Faculty, Pediatrics

Jacky Jennings, PhD, MPH – Director, Pediatrics/Epidemiology

Miranda Jones, PhD, MHS – Lead Faculty, Epidemiology/SPH

Laura Prichett, PhD – Assoc Director, Lead Faculty, Pediatrics

Kevin Psoter, PhD, MPA – Assoc Director, Lead faculty, Pediatrics

Sean Tackett, PhD – Lead Faculty, GIM

Megan Tschudy, MD, MPH – Lead Faculty, Pediatrics

Lisa Yanek, PhD – Lead Faculty, GIM

Jay Vaidya, MPH, PhD, MBBS – Assoc Director, Lead Faculty, GIM

Andrea Young, PhD – Lead Faculty, Psych & Behav Hlth

Bahareh Modanloo, MS – Research Scientist, Leader

ADMINISTRATIVE/FINANCE TEAM TBD FT Staff / 1 Faculty

Annie Na – Interim Project Coordinator/ Programmer Analyst

Jacky Jennings, PhD, MPH – Director, Pediatrics/Epidemiology

ANALYST TEAM – 11.5 FT Staff

Kameryn Atkinson, BS – Research Program Assistant

Prasad Babar, MSPH – Programmer Analyst

Taylor Craig, MPH – Sr. Programmer analyst. Leader

Amanda Grace Finney, MHS – Sr. Programmer Analyst

Saldana Hossein, MSPH– Programmer Analyst

Alexandra Mueller, MSPH – Sr. Research Data Manager

Claudia Paszek, MSPH – Programmer Analyst

Sruthi Ramesh – Business Informatics Analyst

Yunzhi Wang, MSPH – Programmer Analyst

Siwei Xie, MSPH – Programmer Analyst

Angie Yang, MSPH – Programmer Analyst

Nazanin Yousefzadeh, MS – Programmer Analyst (50%)

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BEAD Core Locations & Subscribers Over Time – Celebrating 15 Years!

Locations: East Baltimore and JHBMC

Subscribing Departments/Units – over 1,320 faculty plus their trainees

2010 **JHBMC**: Dr. David Hellmann (ended FY21 with transition to Departmental support)

2013 **Pediatrics**: Dr. Brenda Banwell, Dr. Tammy Brady, Dr. Sanjay Jain

2017 **Medicine**: Dr. Nadia Hansel, Dr. Sunil Solomon, Dr. Alan Gelber, Dr. Michael Melia

2019 **Gynecology/Obstetrics**: Dr. Andy Satin, Dr. Vicki Handa, Dr. James Segar

2020 **SKCCC/ICTR**: **Patient reported outcomes (PROs)**: Dr. William Nelson, Dr. Dan Ford

2020 **PMCOEs & COVID-19 Rapid Response Consult (CRRC) service**

2021 **Anesthesiology & Critical Care Medicine**: Dr. Muehlschlegel, Dr. Sapna Kudchadka

2023 **Dermatology:** Dr. Sewon Kang, Dr. Luis Garza

2024 **Orthopedic Surgery:** Col. James Ficke, Dr. Richard Skolasky

2025 (Jan 1) **Surgery:** Dr. Andrew Cameron, Dr. Caitlin Hicks

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Core Values - RISE

1 **RESPECT** for intellectual curiosity and all forms of knowledge and inquiry

2 **INTEGRITY** in our work ethic and science; dedication to innovative solutions, practices and services

3 **SERVICE** with professionalism, flexibility, and consistent and clear communication

4 **EQUITY** ensuring accessibility; team science approach which celebrates multiple disciplines and training backgrounds

April 2024 BEAD Core Satisfaction Survey (n=138)

94% of clients strongly agreed or agreed that they are likely to recommend the research support services of the BEAD Core to a colleague

94% of clients strongly agreed or agreed that they are likely to use the BEAD Core services in the future

Level of satisfaction with aspects of the BEAD Core

- **91%** Overall value of BEAD research support
- **92%** BEAD Core Lead faculty members
- **91%** BEAD Core programmer analysts
- **88%** Quality of scientific support/expertise

Policies

9 Subscribing departments/Offices: ACCM, DERM, DOM, GYN/OB, PEDS, ORTHO SURG, SKCCC, JH Office of Care Transformation, JH Office of Population Health

Grant effort: BEAD Core members may be written into grants for effort. The Director is available to provide Letters of Support for grants/applications and assist with budgeting of research support effort.

Post-doctoral trainees: must be accompanied by their primary faculty mentor to the first consult and must stay engaged in the work to completion. If at any time, the primary faculty mentor disengages, the BEAD Core reserves the right to discontinue the services.

Turnaround: Investigators are encouraged to seek research support **early** in the research process to ensure maximal support. **No request will be taken with a deadline of less than 15-business days.**

Co-authorship: If a BEAD Core members' contribution (typically lead) rises to the level of a scientific contribution on a manuscript or other scholarly product, it is expected the member will be included as a co-author.

All faculty and trainees: eligible for direct-fee-for-service

Service Lines

NIH Data Management and Sharing Plan Requirement

- NIH requirement as of Jan 2025 to (1) advance rigorous & reproducible research, (2) promote public trust, maximize data sharing with caveats, (3) ensure quality data to validate and replicate research findings

Precision Medicine Analytic Platforms/Precision Medicine Centers of Excellence

- Support for the data science and hypothesis testing with expertise in SQL/Python and clinical data management and analyses

Qualitative Methods

- Powerful tool to achieve a deep understanding of complex issues and enable bringing patient and participant narratives to the fore; Common methods: in-depth interviews, focus group discussions.

Patient Reported Outcomes – Funding: Sidney Kimmel Comprehensive Cancer Center (SKCCC)

- Standardized, validated questionnaires completed by patients to measure their perception of their functional well-being and health status (National Health Service, 2009).
- Helps inform patients, clinicians, and policy-makers about morbidity and 'patient suffering', especially in chronic diseases.

REDCap – primary hub for REDCap builds and management projects from ICTR for SOM

What do Subscribing Departmental Faculty and Trainees receive?

- 40 hours per investigator annually
  (with 20 hours earmarked for grant submissions)
- 20 hours per trainee with a primary faculty mentor
- 20 hours for cancer-related patient reported outcomes (PROs)
- Multiple investigators on a project can pool hours
- Projects can extend over multiple years
- If additional hours are required, transition to direct-fee-for-service
- Rates in line with other institutional support services

How does the BEAD Core model work?

Goals: to produce scholarly products and advance careers

1. Write BEADCore@jhmi.edu to get started
2. Fill out an initial intake form
3. Initial one hour consultation, i.e., needs assessment
4. Scope of work and quote for services
5. Scientific teamwork commences work including faculty client and BEAD Core lead faculty/staff
6. Work completed; scholarly products submitted
7. Final invoice

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Recommendations to make the most of your Consult

Seek research support early and often

Consider your BEAD Core lead faculty as a co-scientist

Set-up a series of meetings at the inception of your project to keep the teamwork alive and well – we all know schedules fill-up quickly

If your mentee is seeking research support, ensure that you as the mentor are actively involved throughout the process of working with the BEAD Core

For grant submissions, have a BEAD Core expert review your statistical plan, request a letter of support (LOS) and include as co-investigators/analysts

For scientific manuscripts, involve the BEAD Core lead as a co-author on the paper, gives everyone skin in the game

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Kevin Psoter, Associate Professor, BEAD Core Lead Faculty

We are here to support you, your development and your research!

A key to succeeding in academic research is to take advantage of the resources you have.

The BEAD core can assist with the full spectrum of research support through the life course of a project, with grant writing and as you advance in your career.

Scholarly productivity (grants, manuscripts) is essential to thriving in academic research; this means training yourself to work at the top of your license.

How can BEAD Core assist you with Grants?

NIH Grant continuum:

National Research Service Award (NRSA) → Career Development Award (K01, K23, other) → Research Grants (RO1)

For each award you will need a research team

- A biostatistician/epidemiologist is a strength for teams, whether it is part of the formal mentoring team or not.
- The Aims, Study Design, Statistical Analytic plan and power/sample size calculations are essential components of any grant and receving guidance from an expert biostatistician/ epidemiologist will increase the likelihood of a fundable score.
- Demonstrating established collaborations amongst research team members is a strength.
- Institutional support is a strength for trainees and junior faculty

  → Obtain a BEAD Core Letters of Support (LOS)

How can BEAD Core assist you with Manuscripts?

In general, the BEAD Core can assist with writing the methods and statistical analysis sections, reviewing the inferences

For primary data collection

- Aims, study design, data capture systems, data management/cleaning, data analysis and writing

For secondary data analysis

- Aims, study design, data management/cleaning, data analysis and writing

How can BEAD Core assist you with other aspects of Research?

- Vetting your research aims, study conceptualization, methods (study design or analyses or science) is critical.
- Providing support with data collection, data management, data analysis, and writing
- Providing a different perspective, which is always helpful.
- Getting to know someone early in your career will benefit you.
- The BEAD core has lots of experience in.

Think science or scientifically…

- Science is a progression of knowledge
  - Put yourself in that place and thoughts will become clear.
- Ask yourself the following questions
  - What do we know and how can I advance the field or the knowledge in the field.
  - How do I design a study to answer the question of interest
  - What data is available or what data will I collect to answer the question of interest
  - How do I analyze the data
  - How do I report what I have found
  - How do I contextualize my results

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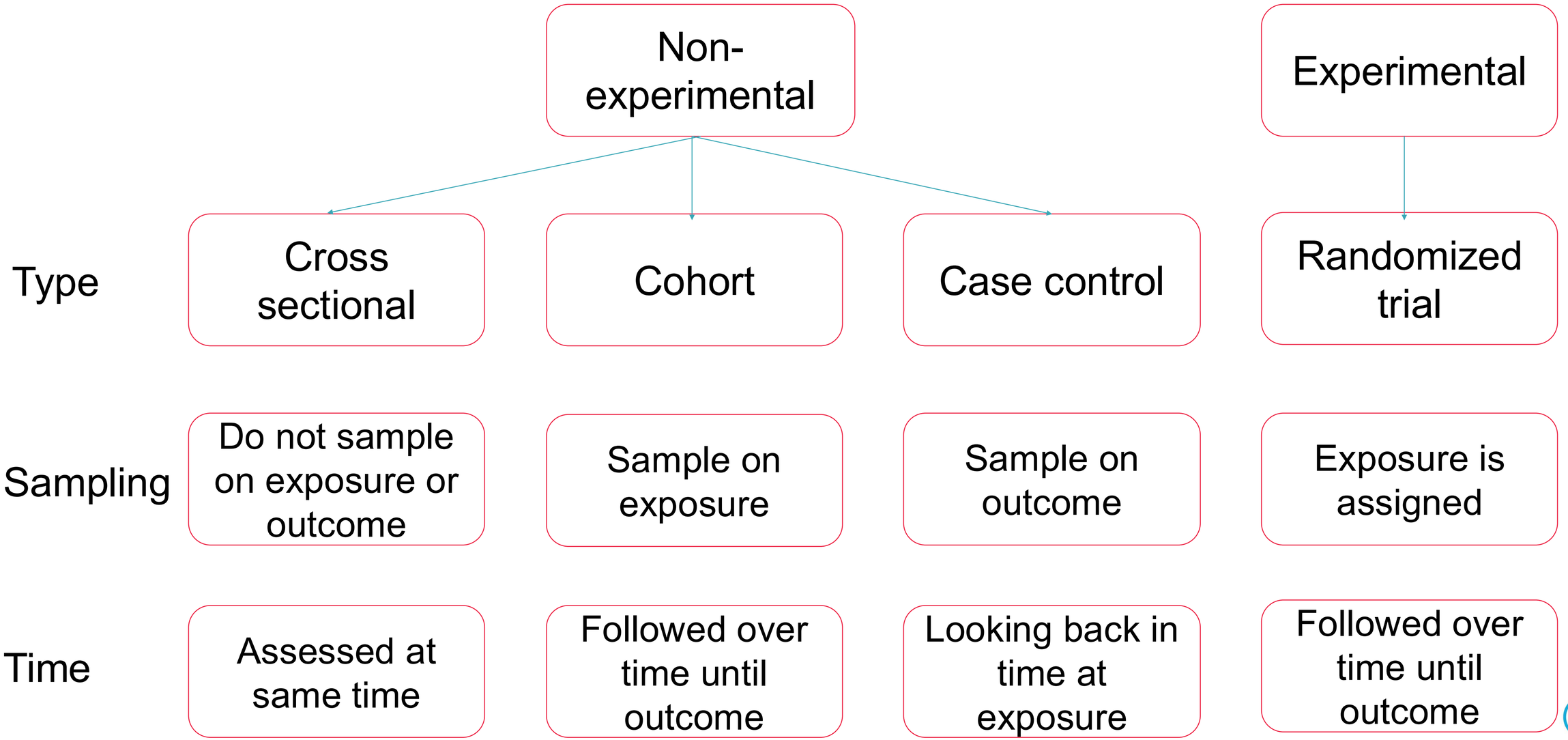
Study design types (not exhaustive)



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Taxonomy of goals of statistical analyses

Type	Descriptive	Association	Prediction	Causal Inference
Goal	Counting	Is X associated with Y?	Given a set of X, what is the probability of Y?	Does X cause Y?
Example	What is the prevalence of asthma in children within a region?	Are higher levels of air pollution associated with lower FEV_1pp?	What is the probability patient A will have an outcome Y in the next year given some exposure X?	Do patients taking treatment X have lower rates of outcome Y compared to those not taking treatment X?

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Regression based methods (determined by outcome type)

Outcome type	Continuous	Dichotomous	Categorical	Count	Time to event
Model	Linear	Logistic	Multinomial	Poisson or Negative binomial	Cox proportional hazards
Example	FEV_1pp	Mortality	Lung cancer stage	Number of acute cardiac events	Time to lung transplant
Measure	Beta	OR	RRR	IRR	HR

Take Home Recommendations

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CONTACT BEADCore@jhmi.edu

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