Biostatistics, Epidemiology And Data Management

BEADCore@jhmi.edu
BEAD Core Team

LEAD TEAM
Amie Bettencourt, PhD – Lead Faculty, Psych & Behav Hlth
Amelia Brandt, PhD – Lead Sr. Staff & Lecturer, Consultant
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Ethan Gough, PhD – Lead Faculty & Lecturer, Biostatistics/SPH
Suzanne Grieb, PhD – Lead Faculty & Lecturer, Pediatrics
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Jamie Perin, PhD – Lead Faculty, Biostatistics/SPH
Sean Tackett, PhD – Lead Faculty & Lecturer, GIM
Megan Tschudy, MD, MPH – Lead Faculty, Pediatrics
Kristin Voegtline, PhD – Lead Faculty & Lecturer, Pediatrics
Lisa Yanek, PhD – Lead Faculty, GIM

ANALYST TEAM
Taylor Craig, MPH – Programmer Analyst
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Bahareh Modanloo, MS – Sr. Business Informatics Analyst
Alexandra Mueller, MSPH – Sr. Research Data Manager
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Nicole Thornton, MSPH – Programmer Analyst
Yisi Liu, MSPH – Sr. Research Data Manager
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Nazanin Yousefzadeh, MS – Programmer Analyst
Yong Zeng, MSPH – Programmer Analyst

STUDENT RA TEAM
Theresa Boyer, MS, MSPH, PhD Candidate
Amanda Grace Finney, MHS Candidate
Carla Tilchin, MSPH, PhD Candidate
Chunyi Xia, MHS Candidate
Alisa Zayas, RN, Bioinformatics Candidate
Junyi Zhou, MHS Candidate
## 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

<table>
<thead>
<tr>
<th>Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epidemiologic study design and approach</td>
</tr>
<tr>
<td>Quantitative and qualitative analyses</td>
</tr>
<tr>
<td>Grant submissions, scientific manuscripts, reports</td>
</tr>
<tr>
<td>Data collection instruments</td>
</tr>
<tr>
<td>Sample, power and effect size calculations</td>
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<tr>
<td>Research training and education workshops</td>
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</tbody>
</table>
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
What do Subscribing Departmental Faculty receive?

• Subscribing departments/service lines: ACCM, DOM, GYN/OB, PEDS, PROs, pilot PMR

• 20 hours per investigator annually for faculty and their trainees
  • Additional 20 hours per trainee with primary faculty mentor
  • Additional 20 hours for grants

• 20 hours for any patient reported outcomes (PROs) for any investigator at Hopkins

• Multiple investigators on a project can pool hours

• Projects can extend over multiple years; hours do not carry forward

• 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. Initial one hour consultation, i.e., needs assessment
3. Scope of work and quote for services
4. Scientific teamwork commences work including faculty client and BEAD Core lead faculty/staff
5. Work completed; scholarly products submitted
6. Final invoice
FY22 BEAD Core DOM Annual Deliverables
Most successful year-to-date!

191 Faculty and their trainees were provided research support services
• Similar/slight decrease (203) compared to FY21
• Majority (74%) of clients served were ≤ Assistant Professors

246 Projects for a total of 2,883 hours
• 4% increase (236) in projects and 27% increase (2,267) in hours compared to FY21

55 manuscripts and 26 grants supported
• 31% increase (42) in manuscripts and similar (27) grants compared to FY21

4 Research training and education workshop/seminars
• Topics included microbiome research, PMAP, and qualitative methods and data analysis
DOM BEAD Core Research Support Over Time

DOM Faculty Served (FY18-FY22)

DOM Initial Consultancies (FY18-FY22)
DOM Divisions (n=15) and Number of Projects (n=246)
Provided Research Support Services by the BEAD Core in FY22

<table>
<thead>
<tr>
<th>Division</th>
<th>Projects (n)</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Internal Medicine</td>
<td>57</td>
<td>23</td>
</tr>
<tr>
<td>Pulmonary and Critical Care Medicine</td>
<td>44</td>
<td>18</td>
</tr>
<tr>
<td>Cardiology</td>
<td>32</td>
<td>13</td>
</tr>
<tr>
<td>Gastroenterology</td>
<td>25</td>
<td>10</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>23</td>
<td>9</td>
</tr>
<tr>
<td>Hospital Medicine</td>
<td>22</td>
<td>9</td>
</tr>
<tr>
<td>Geriatric Medicine</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>11</td>
<td>4</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>7</td>
<td>3</td>
</tr>
<tr>
<td>Hematology</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Nephrology</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Allergy and Clinical Immunology</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Clinical Pharmacology</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Palliative Medicine</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Addiction Medicine</td>
<td>1</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>246</strong></td>
<td><strong>100%</strong></td>
</tr>
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NIH Data Management and Sharing Plan Requirement – effective JAN 25 2023!

Policy goals: (1) advance rigorous and reproducible research, (2) promote public trust

Requirement: expectation (1) to maximize data sharing with caveats, (2) that data are of sufficient quality to validate and replicate research findings

Elements of a DMSP
1. Brief description of scientific data to be managed, preserved and shared (data modality, level of aggregation, degree of data processing/curation)
2. Indication of the tools/software needed or utilized to access or manipulate the shared scientific data to support replication or reuse
3. Specification of the standards to apply to the scientific data and associated metadata
4. Name of data repository, how data will be findable and identifiable, timeline
5. Citation guidance, whether modification of research product is possible, use of research product for commercial purposes
6. Indicate how compliance with the plan will be monitored and managed, frequency of oversight and by whom (typically PIs)

Allowable costs: (1) curating data and developing supporting documentation, (2) local data management consideration, (3) preserving and sharing data through established repositories, (4) de-identifying data
BEAD Core Research Training & Education in FY22

Objective: To facilitate application of core research skills while broadening understanding of important issues in clinical research such as power and sample size calculations.

Investigations into the Human Microbiome: A Primer, Ethan Gough, PhD – November 2021 12pm-1pm; 50 attendees. This seminar covered sequencing options, costs, and analytic considerations for human microbiome research projects.

Qualitative Methods: How to get Started, Amelia Brandt, DrPH – January 2022 12pm-1pm; 70 attendees. This seminar covered the nuts and bolts of timing, cost and development of research questions for qualitative research projects.

PMAP in Practice: Research from the COVID KIDS Group, Oluwakemi Badaki-Makun, MD, CM, Amyna Husain, MD, Daniel Hindman, MD, Ann Kane, MD – February 2022 12pm-1pm; 30 attendees. What is the Precision Medicine Analytics Platform (PMAP) and how is it used for research? The Pediatric Emergency Department presented highlights from recent research, including evaluation of pediatric COVID testing protocols in the ED setting and fever protocols in the age of COVID-19.

BEAD Core Seminar: An Introduction to Qualitative Data Analysis with NVivo, Sakinah Suttiratana, PhD, MPH, MBA – June 2022 12pm-1pm; 45 attendees. External speaker from the Yale School of Public Health; hands-on course on using NVivo software for qualitative data analysis; Co-hosted by the Behavioral and Implementation Research to Change Healthcare (BIRCH) Center.
Patient Reported Outcomes (PROs) Service Line: Incorporating the Patient Voice – available to all JHMI faculty

Patient-reported outcome measures (PROs)

• Defined as standardized, validated questionnaires completed by patients to measure their perception of their functional well-being and health status (National Health Service, 2009)

• Examples include symptoms, health-related quality of life (HRQOL), or patient perceived health status, reported directly by the patient

• PROs can be powerful tools to inform patients, clinicians, and policy-makers about morbidity and 'patient suffering', especially in chronic diseases.

Funding: Sidney Kimmel Comprehensive Cancer Center (SKCCC) and ICTR
Qualitative Methods Service Line

Qualitative research methods are a powerful tool to achieve a deep understanding of complex issues and enable bringing patient and participant narratives to the fore.

- Common methods include in-depth interviews, focus group discussions, observation, and case studies.
- The BEAD Core can support qualitative research throughout the research process.

**Services** include:
- Guidance on qualitative approach
- Review of data collection tools (e.g., interview or focus group discussion guides)
- Data analysis support (e.g., developing codebook)
- Manuscript support
Example of BEAD Core Qualitative Research Support

• **OMEGA-CF**: Defining the Relationship Between Omega-3 and -6 Intake and Respiratory Health in Adults with Cystic Fibrosis

• **Investigator**: Dr. Emily Brigham, Department of Medicine (DOM)

• **Aim**: Understand exposure to omega-3 and omega-6 fatty acids and their association to respiratory morbidity and pain among adults with cystic fibrosis

• **Study Design**: Mixed methods study including semi-structured interviews with subset of participants to explore feasibility of future dietary interventions

BEAD Core support provided:

• Analytic approach
• Codebook development
• Post-coding analysis
• Presentation of results
BEAD Core Research Support for PMCOE/PMAP Groups

New support for the data science and hypothesis testing needs of Precision Medicine Centers of Excellence (PMCOE) utilizing the Precision Medicine Analytics Platform (PMAP).

Specific expertise in SQL/Python and clinical data management and analyses.

The BEAD Core is supporting multiple PMCOE/PMAP research groups, with more groups on the horizon including

• Adult Primary Care
• Precision Medical Education
• COPD
• Others
Department of Medicine Investigator Testimonials

“BEAD Core group has been outstanding to work with. I have used BEAD for several research projects and have found their services extremely helpful. The process of contacting and establishing with a BEAD representative was straightforward and quite prompt.” - DOM Faculty Investigator

“My impression is that the BEAD Core perfectly fits the needs of many faculty and trainees within our department and fits particularly well for QI projects... I see access to the BEAD Core as an essential part of ensuring our department can carry out a robust, academically-aligned quality and safety agenda.” - DOM Faculty Investigator

“BEAD has been instrumental in getting my research projects to the finish line since I joined Hopkins in 2019 as a junior faculty. I am very thankful to BEAD and to our BEAD Core lead for providing these excellent services to the SOM faculty.”

- DOM Faculty Investigator