

Collaborating with a Statistician Series

SESSION 1:

**Biostats, Epidemiology, &
Research Design (BERD)
Consulting Services**

Tristan Hayes, MSc

Biostatistics Consulting Manager

BERD Services

<https://berd.uthsc.edu/>

- Two main services we provide:
 - Advice
 - Consulting
 - Charged per hour

*Free/Minimal Cost
For Faculty & Residents*

BERD Unit Resources

<https://berd.uthsc.edu/>

- Over 16 timeslots available/week
- Three locations on campus and 'Virtual BERD'

Statistical Analysis

Formulating a Statistical Analysis Plan
Appropriate Selection of Statistical Tests
Interpretation of Statistical Results
Advice on Display of Data & Results

Study Design

Choice of Study Population
Sample Size & Power Calculations
Randomization Planning

Bioinformatics Planning

Setting up your Dataset for Analysis
Data Management using REDCap/Unity
Data Safety & HIPAA
Project Management

Specialized Advice

Molecular Bioinformatics

Get a Sample Size
Estimate/Power Analysis
Before it's too late

Sign up for the BERD Clinic

<https://berd.uthsc.edu/>

**Signup at least
1-day in advance**

Research Project Workflow



1. Initial meeting - Fine tuning the Research Question
2. Study Design
3. Data Collection
4. Analysis
5. Manuscript/Publication Support

Minimum 1-month
Turnaround

Fine Tuning Your Research Idea



- Initial Question - Investigator/Resident & Mentor, Collaborator
- Feedback on your Research Question
 - Is the Hypothesis Testable?
 - Feasibility
 - Cost
 - Time/Scope
- Can your dataset answer this question?



Study Design



- Prospective/Retrospective
- Target Population vs Study Population
- Sampling Methods
 - Probabilistic vs Non-Probabilistic
 - Recruitment
- Existing Data?

Data Collection



- What data to collect
 - Inclusion/Exclusion Criteria
- How to collect these data
 - Questionnaire Design
 - Database Design - RedCap
 - Chart Review
- Quality Control

Analysis



- Two types of interactions
 - PI Driven Analyses
 - BERD Faculty Driven
- Iterative Process
 - Preliminary Analysis
 - Model Building
 - Sensitivity Analysis

Typical Consulting Costs

- First, we generate a Scope of Work, with estimated costs
- Staff are Billed at \$77/hour and faculty \$129/hour
 - (Among the lowest CTSI rates)
- Typical Project cost for 15 hours (10 staff + 5 Faculty) = \$1,415

Resident/Fellow
Grant

Manuscript/Publication Support



- Draft Graphics & Tables
- Assistance with statistical methods section
- Results presentation & interpretation
- Assistance with response to Reviewers/Comments

Authorship Guidelines

- International Committee of Medical Journal Editor Guidelines
 - Intellectual Contribution
 - Not related to Compensation
 - Final Approval
 - Accountability
- Acknowledgement

We thank [faculty name] and [staff name] of the BERD Unit of the Department of Preventive Medicine for providing statistical analysis and support.

<https://www.icmje.org/recommendations/browse/roles-and-responsibilities/defining-the-role-of-authors-and-contributors.html>

Regulatory Concerns

- HIPAA
- IACUC / LACU
- IRB
- Institutional Biosafety Committee

Ethical Concerns

- Prescribed analysis - p-hacking
 - Explicitly state post-hoc analysis
- Data Manipulation
 - Exclusion criteria

Formatting Data for Sharing

- REDCap
- Data Dictionary
- Decide on a Wide vs Long dataset
- Common Mistakes
 - Comments in the same field as data
 - Non-standardized columns
 - Misspellings, Mal = Male?
 - Bolding/Highlighting
 - Do not include summary rows!

Sending Datasets

- Preferred Vault.utk.edu
 - HIPAA compliant
 - Expires
- Why not email?
 - Forwarding!
 - The data is permanently shared/stored!
 - HIPAA Violation!?!?!

DO NOT USE EMAIL!
PLEASE

Sending Datasets Continued

- Only include the minimum information necessary
 - Limit the columns to those for this analysis
 - Limited dataset
 - De-identified dataset
- Common Mistakes
 - Patient Names!
 - Patient DOB
 - Visit Date
 - MRN

DO NOT USE EMAIL!

Questions/Help Signing Up

- We are always available at berd@uthsc.edu
- BERD Consulting Manager - Tristan Hayes
thayes@uthsc.edu

1 CME/AMA credit will be provided



COLLEGE OF MEDICINE
CONTINUING MEDICAL
EDUCATION

AMA Credit Designation: The University of Tennessee College of Medicine (UTCOCM) designates this live activity for a maximum of 1 *AMA PRA Category 1 Credits™*. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

Continuing Education for Non-Physicians: The UTCOCM will issue Certificates of Participation to non-physicians for participating in this activity and designates it for CEUs using the national standard that 1 hour of educational instruction is awarded .1 CEU.

Accreditation: The UTCOCM is accredited by the Accreditation Council for Continuing Medical Education to provide continuing medical education for physicians.