

Research Services & Support

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Learning Objectives

- Recognize the distinct roles and support areas of Carilion Clinic's Health Analytics Research Team (HART) and Virginia Tech's Center for Biostatistics and Health Data Science (CBHDS).
- Follow the steps required to request assistance from CBHDS and HART and the types of projects each group supports.
- Relate real-world examples of how CBHDS and HART may work together with researchers to enhance project outcomes.



Health Analytics Research Team (HART)



- 19 team members providing **end-to-end** support
- Grant funded and institution supported
- 250+ combined years in healthcare/research
- 165+ combined years at Carilion Clinic
- 83% diversity (non-white (33%), female (72%), veteran (5%))
- Full support for Research Informatics, Biostatistics, Data Science, Epidemiology, Research Design, data extraction and research navigation services
- Carilion component of NIH CTSA iTHRIV iBERDI group
- Innovation Department support (app development)

Health Analytics Research Team (HART)



Health Analytics Research Team (HART)

End-to-End Research Support

Design

- Study design support
- Biostatistical consultation
 - Data discussion
 - Extract, Chart Review and/or Survey Data
 - Power Analysis
 - Feasibility – TriNetX
- Survey consultation
- Epic Research Access & Clinical Trial Support

Data

- Data extracts
 - Epic, TriNetX, Registries
- Data exploration, organization, and manipulation
- Data Management and Surveys (REDCap)
 - Survey Creation, Distribution & Support
- Secure Cloud-Based Data Storage (SPARC)

Analysis

- Data analysis support
 - Statistical Presentations
 - Expert qualitative or quantitative analysis
 - Data Analysis in R-Studio, SAS Studio, Python, NVIVO, ArcGIS, Geneious
 - Data Science Methodologies
- Presentation of Findings
 - Posters and Manuscripts



HART Resources Requested in IRB Protocol

- **Biostatistics support**: Provided by HART as requested for the protocol.
- **Data extraction**: From Epic or other sources. HART completes and/or works with other data source owners (registries) as needed.
- **Epic research access**: May be Read Only for manual chart review or Coordinator Access for those prospectively enrolling and documenting in Epic on clinical trials. Epic Research access is granted for the term of the protocol and is extended if the protocol is extended through the continuing review process.
- **Epic research build**: Billing grids, orders, screening reports, etc. necessary for clinical trials. Built by HART and TSG.
- **MyProjectPath**: Centralized source of information regarding research and QA/QI at Carilion. <https://redcap.link/MyProjectPath>
- **REDCap**: HIPAA compliant. For chart review projects, registries, prospective data collection and surveys. HART typically builds and provides to client, typically post-IRB approval, but may be pre-IRB approval in extenuating circumstances and time crunches.
- **Shared drive**: For document storage specific to the project. TSG completes at HART's request.
- **Sparc**: Storage and Programs Accelerating Research Collaborations. Secure research environment. HART transfers datasets per protocol to secure folder for the specific project, which is set up "just in time" to minimize unnecessary costs. Advanced analytics packages are available for client use and/or HART support of biostatistics and data science.
- **TriNetX**: Access for feasibility may occur at any time even before R&D application or IRB protocol. Reidentification or downloaded datasets are performed post-IRB approval, as defined by the protocol. Agreements for downloaded datasets are generated post IRB approval, per our agreement with TriNetX.



Health Analytics Research Team

Welcome to the Health Analytics Research Team (HART) at Carilion Clinic! We are a dynamic, dedicated group of professionals committed to advancing healthcare through innovative research, data management and analytics. Discover the range of services and expertise that make HART an indispensable partner in shaping the future of patient care.

To access a step-by-step guided Carilion research process:

1. Click on the *MyProjectPath* link: <https://redcap.link/MyProjectPath>
2. Select *Full Version* and click *Continue to Topics*
3. Click on the *Topics* icon in the upper right corner to access multiple research resources.



<https://redcap.link/MyProjectPath>

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MyProjectPath is your Virtual Assistant to navigate Research and QA/QI Processes and Resources at Carilion Clinic.

Instructions: On the Next Page, you may use the Topics Menu in the upper right to proceed sequentially, or go directly to the areas of interest.

Presented by HART
(Health Analytics Research Team)

This tool provides several options to display information, depending on your familiarity of the process and needs. You can choose:

- ☐ Interactive PDF: Provides overall process with links to some resources, with no tracking.
- ☐ Full Version: A comprehensive version presenting you with all resources to explore. Great for new investigators and experienced investigators interested in learning about new offerings.

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Continue to Topics



Biostatistics Support through HART

☰ Topics

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(When you are done, you may close this window or use the Topics menu to open another window on another topic)

- **Career biostatisticians** (Masters, Ph.D, MD)
- **Ready to assist with all your statistical needs**, including design, data collection and management, analysis, interpretation, visualization, manuscripts and presentations.
- **Full Access to data**, including fully identified data, to support the project without any further agreements.
- **Certified by Epic** to extract electronic medical record data.
- **Carilion employees**, so they can clean fully identified information without protocol amendments.
- Work closely with Research and Development, the Health Research Protections Office (Carilion Clinic IRB) and the Office of Integrity and Compliance.
- Follow all contracting, agreements, data protection plans and protocols to safeguard you from protocol breaches and unnecessary risk of privacy or data loss.
- Services may be Free or Low Cost
- Support all size projects
- Our Services Have Led to Over 1000+ Publications
- Our Services Have Helped Secure NIH, RAP, Pharma, iTHRIV, VDH, State and Numerous Other Grants

GET EXPERT CONSULTATION, contact HART@carilionclinic.org



<https://redcap.link/MyProjectPath>

My Project Path List of Topics

 Topics	
	
You may navigate to the areas of your interest using the Topics link on the upper right.	
View Status	Topic Title
 Reviewed	
View Topic	Project Types (Research, QA/QI)
View Topic	Access Requirements for Research
View Topic	Approvals
View Topic	Biostatistics Support through HART
View Topic	Case Studies
View Topic	Clinical Trial Support
View Topic	Cost Estimates / Funding
View Topic	Data Sources / EPIC Extracts
View Topic	Disclosures of PHI from Research Records
View Topic	Epic Access for Research and QA/QI
View Topic	eRA Commons Accounts
View Topic	Working with External Collaborators
View Topic	External PI
View Topic	HIPAA and Protected Health Information
View Topic	HRPO / IRB FAQs
View Topic	IRB Reliance Agreements
View Topic	Who is HRPO?

<https://redcap.link/MyProjectPath>

HART Consultation Resources

Consultation Objectives

- Project Design
 - Feasibility
- Data-Related Questions
 - Statistical Support

❖ Drop-In: Virtual Office Hours: Tuesday 10 am – Noon ([Copy Link from Here](#))

❖ To set up a consultation outside of office hours, email:
hart@carilionclinic.org



CENTER FOR BIOSTATISTICS
AND HEALTH DATA SCIENCE

Center for Biostatistics and Health Data Science (CBHDS)

- Formally established June 2019, soft launch in October 2019
- Provide quantitative resources for faculty, staff, clinicians, and students engaged in research
- Mission: to achieve excellence in VT's portfolio through interdisciplinary collaborations, and by providing expertise in biostatistics, data science, analytics, statistical programming, and data management
- We are located in the newest building on the Health Science and Technology Campus, Riverside 4





Alex Hanlon, PhD
Director



Alicia Lozano, MS
Assistant Director



Amanda Boone, MHA
Asst Business Manager



Crystal Founds, BS
Operations Coordinator



Wenyan Ji, MS
Research Associate



Jenny Lin, MA
Research Associate



Rachel Silverman, PhD
Research Scientist



Chris Grubb, PhD
Research Scientist



Missi Zhang, PhD
Research Scientist



Emmanuel Nartey, PhD
Research Scientist



Benjamin Brewer, PhD
Research Scientist



Jyotishka Datta, PhD
Affiliate Faculty



Tanner Barbour, BS
Data Scientist

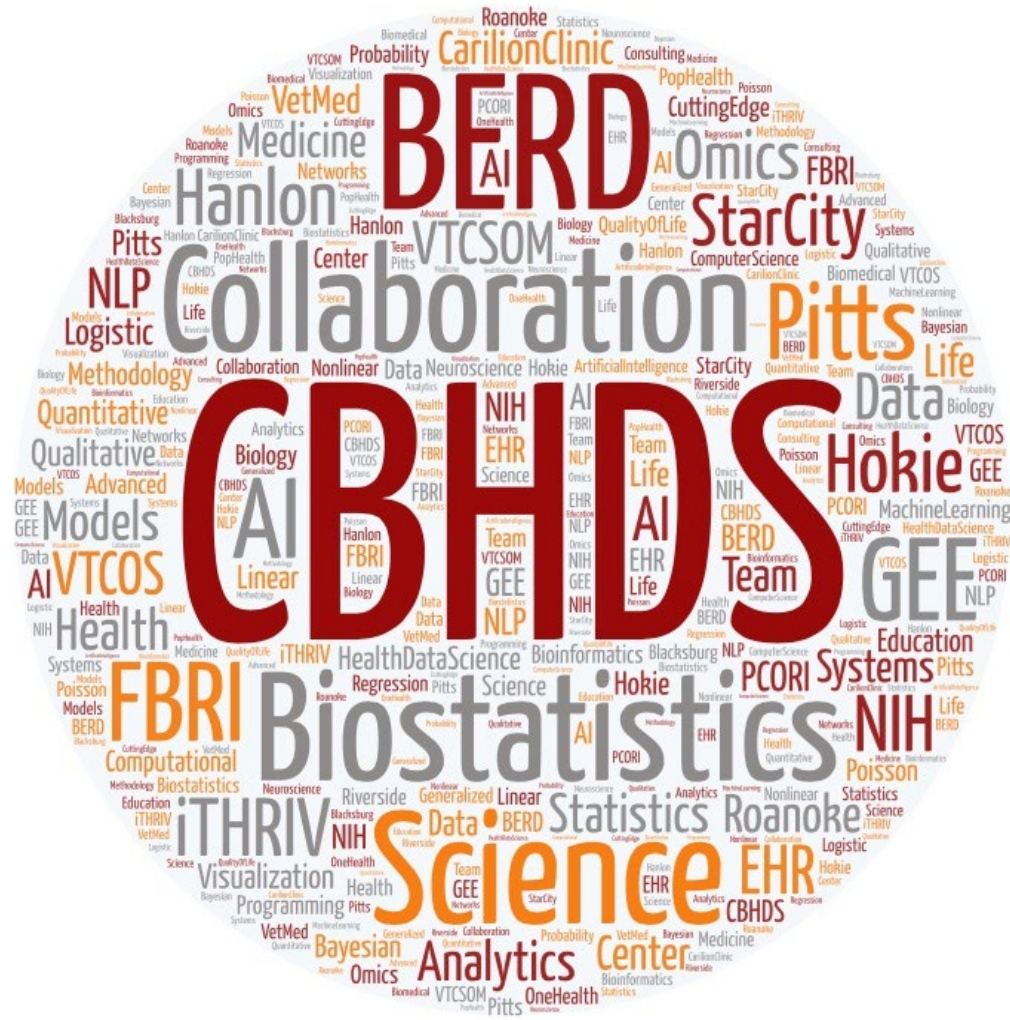


Sakshar Desai, MS
Data Analyst



Stuart Waymack
CMDA Undergrad RA

CBHDS Resources



- Study Planning
- Research Support
- Publications and Presentations
- Community Building and Education

Methods and Tools

Longitudinal data analysis
Survival analysis
Cross-sectional analysis
Complex survey analysis
Regression model building
Mixed effects modeling
Epidemiologic study design and analysis
Tailored survey/questionnaire design
Generalized additive modeling
Natural language processing
Machine learning/AI
Bayesian modeling
Structural equation modeling
Latent class analysis
Factor analysis
Geospatial modeling
Psychometrics
Signal Processing
Visual Analytics
Bioinformatics

SAS
R
Stata
SPSS
C++/Rcpp
Java
Python
JMP
Mathematica
MATLAB
Mplus

SQL
Excel
Qualtrics
REDCap
GitHub/GitLab
Tensorflow
Unix Shell Scripts
ARC
AMOS
PASS
OpenMX



Consulting & Collaboration

- Short-term consultants or long-term collaborators
- Short-term consulting: Zoom drop-in hours four days per week, funded by FLSI, VTCSOM, and our iTHRIV CTSA award
 - **Public hours:** Mondays 10am to 2pm, Wednesdays 3 to 7pm
 - **VTCSOM hours:** Tuesdays & Thursdays 2 to 4pm
- Longer-term collaborations: study design, through data acquisition, data analysis, interpretation, and dissemination of results

ADVANCING ONE HEALTH RESEARCH THROUGH DATA SCIENCE

Work with us through the life cycle of your project, from study aims and design to interpretation of results and dissemination.

ZOOM DROP-IN HOURS

CHECK OUT OUR VIDEO

Learn more about the Center and how we can work with you

WATCH HERE →

MEET OUR TEAM

Take a look at our team's set of diverse experience and skills

CLICK HERE →



Please review the following documents and resources in preparation for your collaboration with the Center for Biostatistics and Health Data Science:

DOCUMENTS

[OVERVIEW](#)[GRANT PROPOSAL](#)[BIOINFORMATICS DATA TRANSFER](#)[DATA PREPARATION](#)[MANUSCRIPT PREPARATION](#)

RESOURCES

[SERVICES](#)[BIOINFORMATICS](#)[ITHRIV](#)[CUBE](#)

Zoom Drop-in Consulting

Zoom Drop-in Hours

[Virginia Tech's Center for Biostatistics and Health Data Science](#) offers Zoom Drop-in Hours twice a week:

Mondays, 10am - 2pm EST

Wednesdays, 3pm - 7pm EST

([Please read our FAQ](#) for more details about the services we offer in our Zoom hours)

To check our availability and reserve a timeslot, please use our Bookings page to select the time and team member you would like to meet with. If you do not have a team member preference, please select "anyone" and someone will be assigned to meet with you. You can reserve a **30-minute** time slot with a CBHDS team member (see table below for details).

[Click here to go to our Bookings page](#)

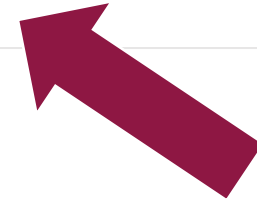
VTCSOM medical students: for additional availability (Tues/Thurs from 2pm-4pm), [click here](#).

Collaboration Request Form



We welcome the opportunity to work with you. Submit your request for support using the link below.

REQUEST COLLABORATION



CBHDS Collaborative Service Request Form

Please complete the survey below to request statistical support for **long-term collaborative projects and partnerships**.

Note that all requests for **brief, general advice on statistical topics (i.e., short-term consulting)** can be answered via our weekly Zoom walk-in hours on Mondays and Wednesdays. Please visit our Center's website for more information:

<https://biostat.centers.vt.edu/zoomconsulting.html>

Thank you!

Primary Contact Information:

Please let us know how we can help you:

* must provide value

- ☐ I would like to submit a request for collaboration
☐ I am a CBHDS team member hosting a walk-in session
[reset](#)

First Name

* must provide value

Last Name

* must provide value

Today's Date

* must provide value

  Today M-D-Y

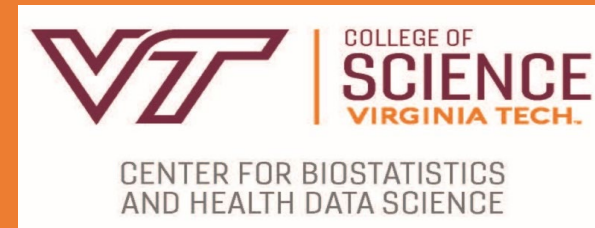
E-mail Address

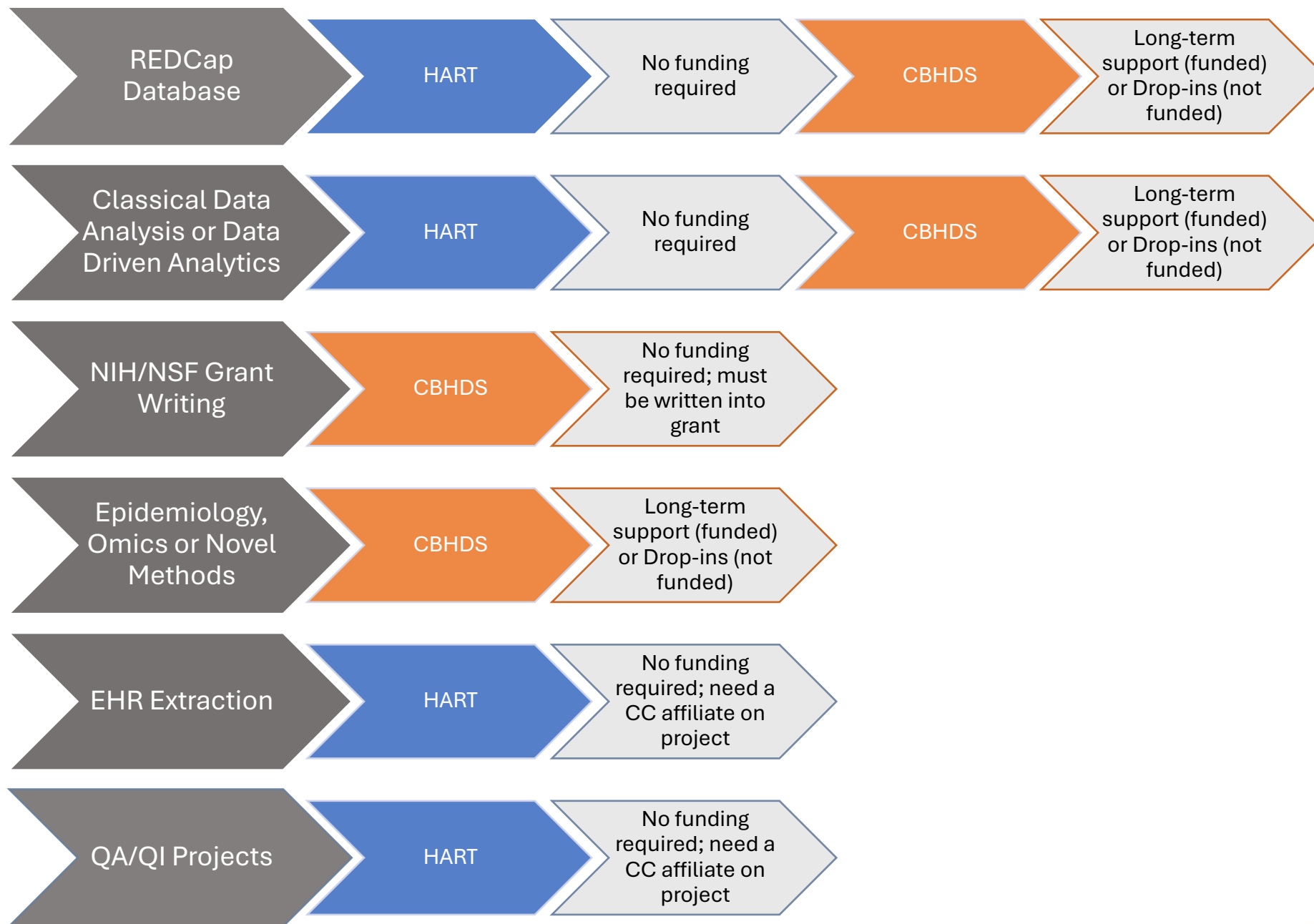
* must provide value

Hybrid Business Model

- Dedicated faculty line
- Institute funding (FLSI, ISCE)
- External funding (**NIH**, NSF, **VDH**, Salem VA, etc)
- Internal funding for collaborative work (SOM, labs, individuals, etc)
- We are NOT a fee-for-service model

Selecting the Resource to Best Support Your Research Needs





HART



- **Director:** Mattie Tenzer
 - **Manager:** Mariana Salamoun
- Employed by Carilion Clinic
- **Email:** hart@carilionclinic.org
- **Website:** carilionclinic.org/health-analytics-research-team
- **My Project Path:** <https://redcap.link/MyProjectPath>

CBHDS



- **Director:** Alexandra Hanlon
 - **Assistant Director:** Alicia Lozano
- Located in Riverside 4 on Virginia Tech's Health and Sciences Technology campus
- **Email:** biostats@vt.edu
- **Website:** biostat.centers.vt.edu

Q & A

Thank you!

hart@carilionclinic.org



biostats@vt.edu

