Informatics Collaboration and Resources for Early Career Faculty

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Biomedicine Has Fundamentally Changed!

ICU patient may have 1,000 to 2,000 data points per second.

- *omics data is no small feat either.
How Does It Impact Research?
Many Researchers Today Are Challenged by Data Volume

Core Labs in an average Academic Medical Center produce > 100 TB per year
If we printed it out ... More paper than a freighter can carry.
Requires significant infrastructure to manage this volume of data.
Keeping Data Secure is the PI’s Responsibility
The Biggest Challenge is NOT Storing and Moving Data ....
Data Reuse and Sharing

I read your documentation, it looks like these data will meet my needs. Thank you so much!

Everything you need to use the data is right here.

Wait! There may be data in there that I need!

I've been trying to catch you for months!

It's probably there. You figure it out. 15 minutes then I'm outta here!!

VS

V

Every time
The laws of physics are not with you at a time when Federal expectations of order (reproducibility and replication) are increasing.
All Research Needs Some Computational Support

Research needing little computational support

Research with computational aims
All Research in Biomedicine is Part of a Larger Process of Discovery, Knowledge Generation, and Improvement

Discoveries → Early Phase Clinical Trials → Development → Translation into practice → Patient Care → Clinical Practice → Improving Human Health → Basic Biomedical Sciences → Ideas from Patient Care

Clinical & Translational Research

New therapeutic
Clinical guideline
Information Intervention
These guys won’t get funded

Don’t spend your career walking around by yourself in the desert looking for a nugget!

These guys will.

Our answer is infrastructure.
The Clinical and Translational Science Awards

TRI is UAMS’s CTSA Award and a Large part of building and supporting Clinical and Translational Research at UAMS.
CTSA .... WIFM?

Research Career Development
- KL2
- T’s
- Clinical Scholars (UAMS)

Professional development

Infrastructure

Collaborators
Some UAMS Infrastructure Today

• All research: TRACS pre + post award; OSPAN and OSRP
• All Human Subjects Research: CLARA
• Site-based research: CRIS suite for site-based research; supported by Research IT
• Multi-center clinical research: QMS (Clinical Operations, Statistics, Data Management processes and systems)
• Secondary use of Health System data: AR-CDR
• Secure Computing:
  – Box (storage and File share)
  – Private cloud space + storage
  – High Performance Computing
TRI Investigator Support for Research

• Initial consult, i.e., 1-3 meetings to frame up the following, is paid for by TRI
  – Clarification of research question
  – Research design (Statistics)
  – Regulatory determination (which if any regulations apply)
  – Operational plan:
    • site selection and start-up
    • data collection and Management
    • Required reporting
    • statistical analysis
    • Data sharing and archival
  – Grant text
  – Budget
This is your study. 

This is your study *with* a Statistician. 

This is your study *without* a Statistician. 

This is the difference between publishing in a top journal in your field and a conference publication or poster. 

Don’t start without a Statistician.
Statistician: Master of variance in the data.

Data Manager: Prevents variance from increasing.
The Translational Research Institute (TRI) helps all UAMS investigators access research services and resources at its main campus, UAMS Northwest Campus, Arkansas Children’s Hospital and its Research Institute, and the Central Arkansas Veterans Healthcare System. Just use the “Go to Services Form” button below. You will be directed to ServiceNow and may be asked to enter your UAMS login to access the form.

Services

- Assess researchers’ needs
- Guide and connect researchers to available resources
- Facilitate progress of translational research from conception to implementation
- Break down barriers to facilitate research

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GO TO SERVICES FORM
Sometimes Collaboration Rather Than Support is Necessary, i.e., Grants with Informatics Aims

- PhD\(^2\), MD-PhD, MD-MS (Fellowship)
- PhD-MS, MD-MS
- PhD-Grad. Cert., MD-Grad. Cert.
- MD or PhD + acculturation

Biomedical Science  Computational Science

Research and Professional Skills
Resources

- TRI consult
- Self study – The Data Book
- Fundamentals of Managing Research Data course BMIG 6110
Questions & Discussion
Have a great day!

October 23, 2017