Research IT Information & Exchange Series

Tools to Facilitate Data Collection and Organization

March 17, 2017

Research IT Information & Exchange Series

- **Goal:** To educate pediatric researchers on the Research IT and Informatics resources and expertise available to facilitate their research and to identify areas where we can enhance IT methods to better support research.
- **Format:** One hour sessions led by subject matter experts to present information on the current services and expertise available.
- **Intended audience:** Researchers with an interest in capitalizing on Research IT tools to make their research better. Also, researchers who are interested in using Big Data and Healthcare Analytic approaches in their research.

Research IT Information & Exchange Series:
Resources to be highlighted today

- Excel
- Access
- REDCap (Emory & Children's)
- LabKey

Research IT Information & Exchange Series

Our presenters today

- **Courtney McCracken, PhD**, Director, Pediatric Biostatistics Core, Department of Pediatrics, Emory University courtney.mccracken@emory.edu
- **Shirin Jabbarzadeh MD. MSPH**, Senior Research Specialist Dept of Biostatistics and Bioinformatics, Rollins School of Public Health, Emory University Shirin.Jabbar@emory.edu
- **Nick Heigerick,** IT Product Manager, Library & Information Technology Services nick.heigerick@emory.edu
- **Carol Dickens,** Senior BI Application Analyst, Research Technology Team, IS&T, Children's Healthcare of Atlanta Carol.Dickens@choa.org
- **Wayne Harris, MSPH**, Research Informatics Analyst, Emory Integrated Computational Core waharri@emory.edu

Excel for Data Collection and Management

Easy to use

eXisting custom templates

Costs nothing

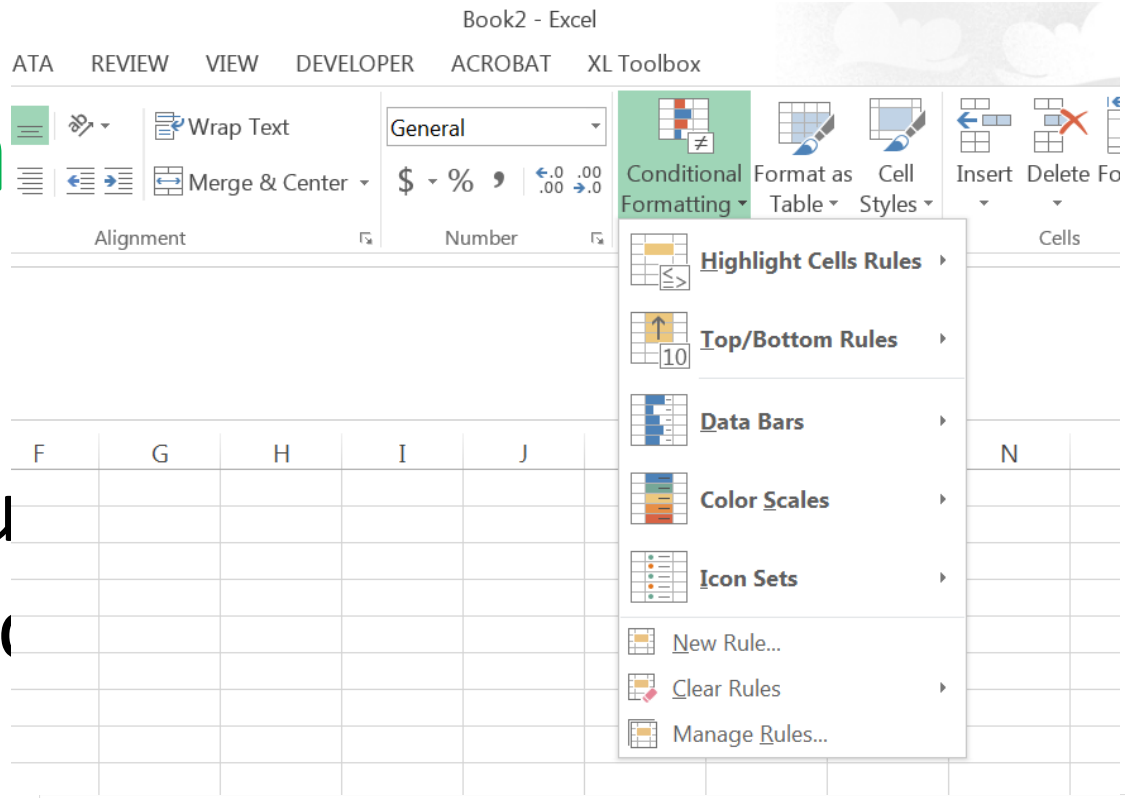
Exports to favorite stat package

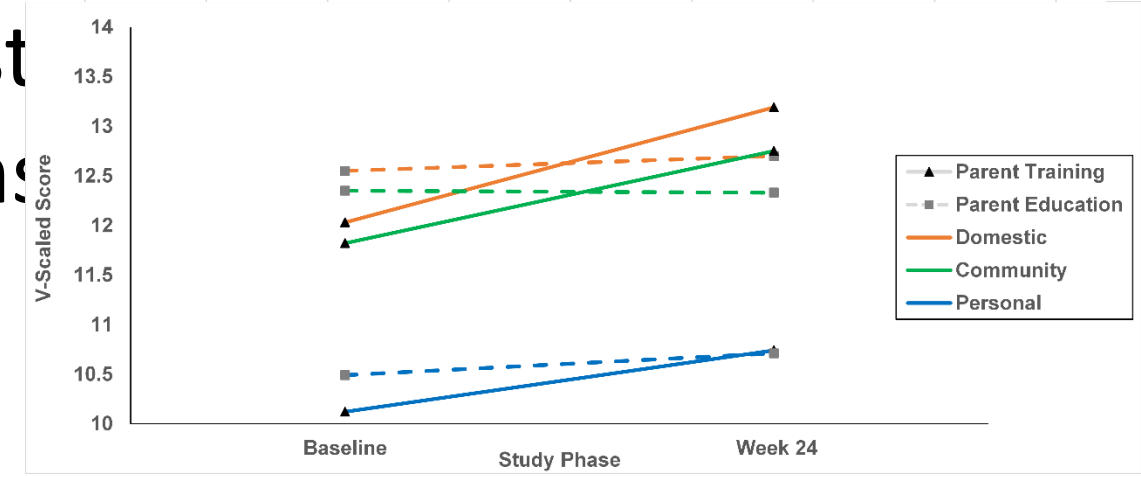
formuLa and calculation features

Excel for Data Collection a

Additional Features

- Online- allow for multiple u
- Add-in packages help with
  resolution images for pubs
- Pivot tables and basic statist
- Create basic field validations
  menus and validation rules





Excel for Data Collection and Management

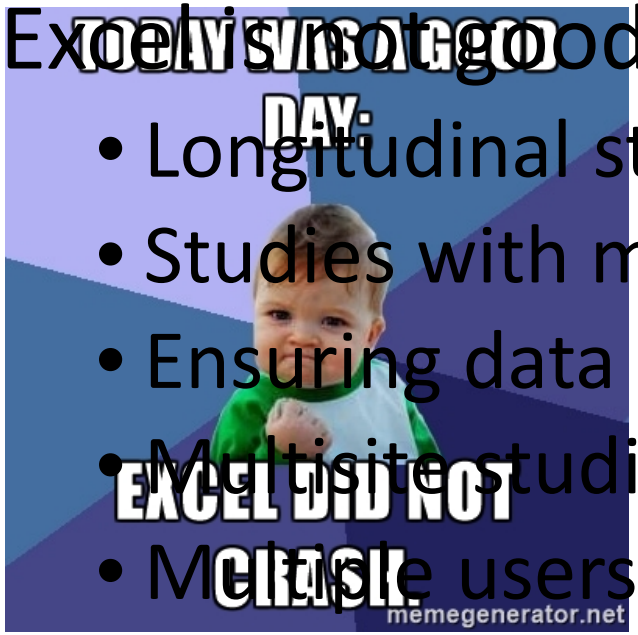
Excel is good for

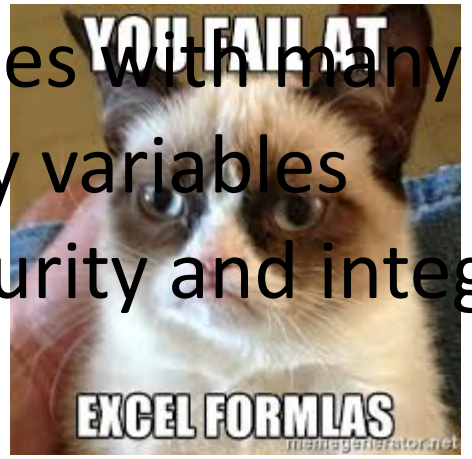
- Cross-sectional studies (one time point)
- Small number of observations (< 200)
- Few variables (<50)
- Single Users
- Basic retrospective chart review
- Data visualization

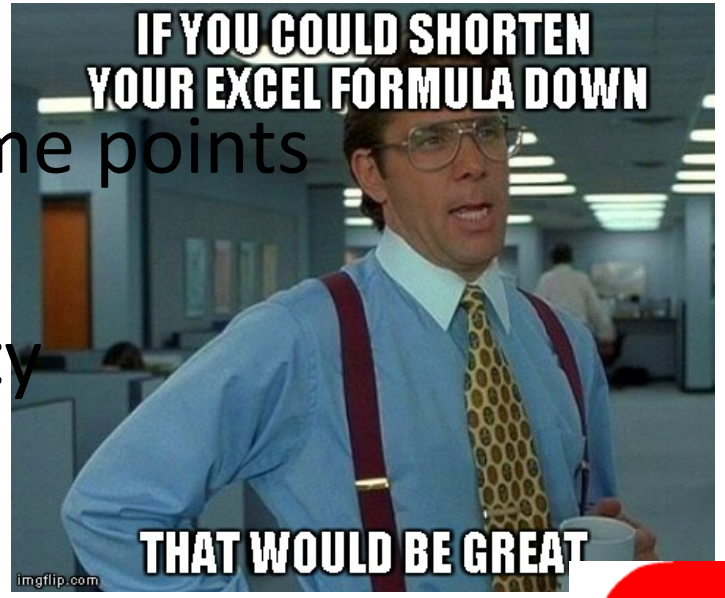
Excel for Data Collection and Management

Excel is not good for

- Longitudinal studies with many time points
- Studies with many variables
- Ensuring data security and integrity
- Multisite studies
- Multiple users
- Data manipulation
- Relational data
- Clinical Trials
- Most statistical analyses







RESEARCH IT – NEW INFORMATION & EXCHANGE SERIES

MS ACCESS

SHIRIN JABBARZADEH

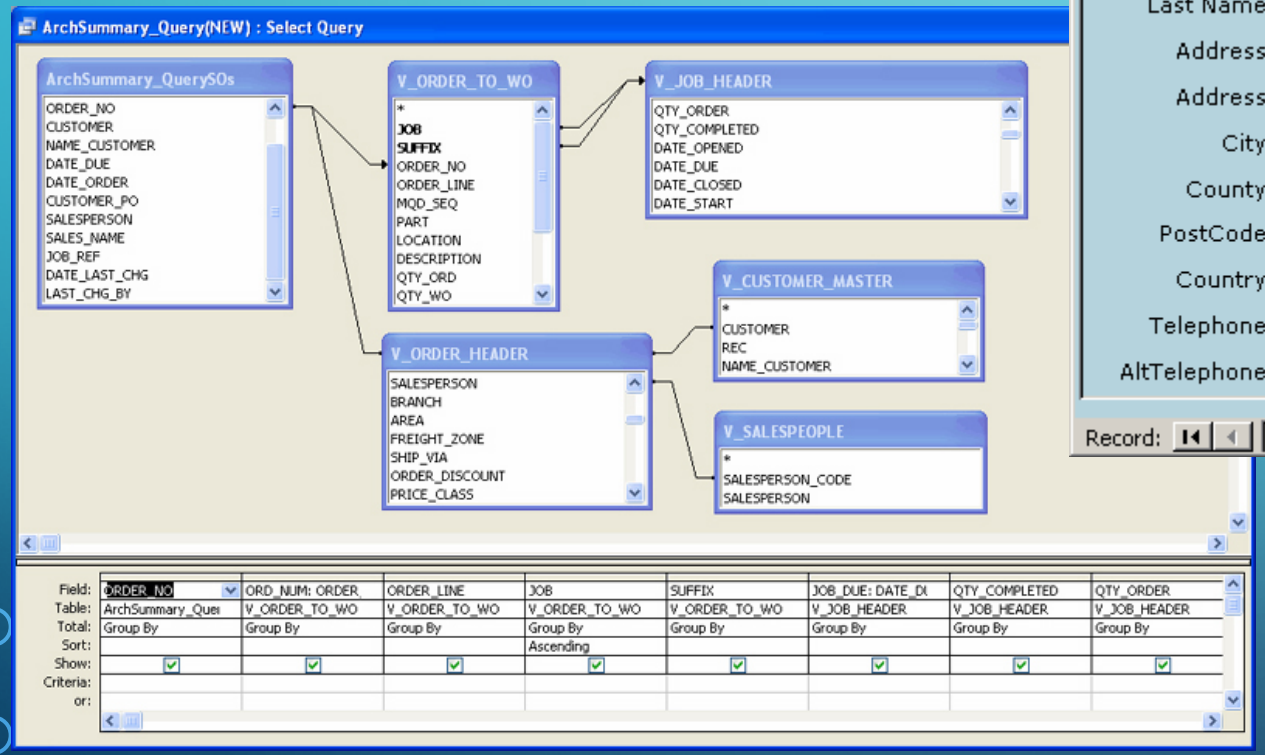
MARCH 16, 2017

MS ACCESS

- Microsoft Access is a database management system that serves as an electronic filing system.
- An Access database is a relational database contained in a single file that you can upload.
- Relational Database is a database structured to recognize relations among stored items of information.

MS ACCESS DATABASE CONTAINS

- Tables
- Saved queries (stored procedures) - organizing and/or manipulating data
- Forms – Interface for interaction with data
- Reports – customized results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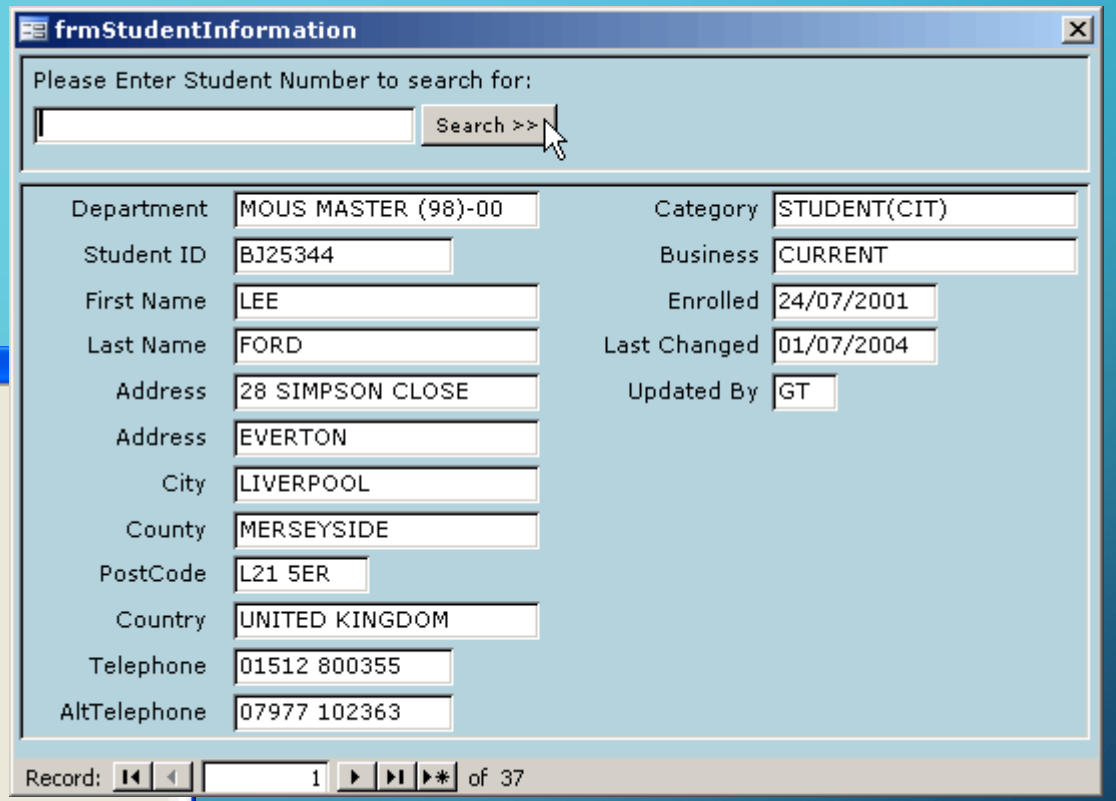
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City LIVERPOOL
County MERSEYSIDE
PostCode L21 5ER
Country UNITED KINGDOM
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AltTelephone 07977 102363
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FUNCTIONALITIES

- Edit data directly in the query
- Update values according to a criteria
- Create a link to a table in another Access
- Links to the data from different database format
- Import data from another database
- Analyze and/or graph your data
- Directly export to statistical software (SAS, SPSS…)
- Replicate

ALSO YOU CAN

- Allow multiple users to access the database simultaneously
- Share the research data within the team
- Set up a change tracking log
- Make a password protected system
- Encrypt for data privacy/security
- Use macros and VB programs for extending functionality

PROS

- Easy to install and it comes with MS office
- Available all over campus
- No financial burden
- Handles small to medium size database
- You don’t need professional programmer
- One system to enter, manage, track, store, analyze, and report data

CONS

- Large longitudinal database
- Solid understanding of relational database and data format
- Some programing skills
- Time consuming (compare to point and click systems)
- Field data collection (data collection via mobile device)
- Doesn’t look good in your grant proposal

REDCap

Research Electronic Data Capture

Children's
Healthcare of Atlanta
Dedicated to All Better

What is REDCap?

- REDCap is a secure, web-based application for building and managing online surveys and databases.

- The **REDCap Consortium** is composed of **2,265 active institutional partners** from CTSA, GCRC, RCMI and other institutions in **108 countries**. The consortium supports a secure web application (REDCap) designed exclusively to support data capture for research studies.

Global REDCap

The REDCap application allows users to build and manage online surveys and databases quickly and securely, and is currently in production use or development build-status for more than **392,000 projects** with over **501,000 users** spanning numerous research focus areas across the consortium.

Some Advantages Using REDCap

- **Build online surveys and databases quickly and securely** - Create and design your project rapidly using secure web authentication from your browser. No extra software is required.
- **Fast and flexible** - Conception to production-level survey/database in less than one day.
- **Export data to common data analysis packages** - Export your data to Microsoft Excel, PDF, SAS, Stata, R, or SPSS for analysis.
- **Ad Hoc Reporting** - Create custom queries for generating reports to view or download.
- **Scheduling** - Utilize a built-in project calendar and scheduling module for organizing your events and appointments.
- **Easily manage a contact list of survey respondents or create a simple survey link** - Build a list of email contacts, create custom email invitations, and track who responds, or you may also create a single survey link to email out or post on a website.
- **Send files to others securely** - Using 'Send-It', upload and send files to multiple recipients, including existing project documents, that are too large for email attachments or that contain sensitive data.
- **Save your data collection instruments as a PDF to print** - Generate a PDF version of your forms and surveys for printing to collect data offline.
- **Advanced features** - Auto-validation, calculated fields, file uploading, branching/skip logic, and survey stop actions.
- **REDCap API** - Have external applications connect to REDCap remotely in a programmatic or automated fashion.
- **Data Queries** - Document the process of resolving data issues using the Data Resolution Workflow module.
- **Piping** - Inject previously collected data values into question labels, survey invitation emails, etc. to provide a more customized experience.

Children's REDCap Deployments

Number of projects	1100
Production	516
Development	503
Operational projects	603
Research Projects	*197*
Active Daily Users	300
Support Tickets	~150 weekly

Number of Instruments	384
Number of Records	709,000
Number of fields	237,000
Survey responses Overall	285,857
Invitations sent	130,000

Children's REDCap Services

- Build and design services
- Workflow Consulting
- Reporting Consulting
- Training Services

Children's REDCap projects and services are available to Children's employees or for use with Children's sponsored projects.

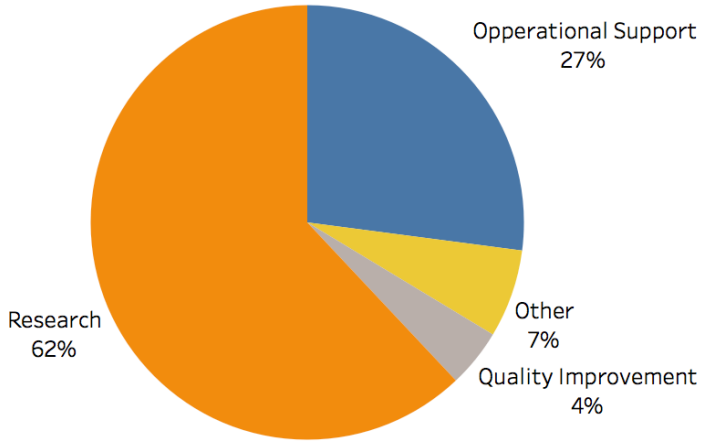
- Currently these services are 'no fee', however a minimal, cost recovery based fee structure for extramural grant funded projects is under discussion

Children's Intake Process

- Intake Form & Ticket opened (5-6767 or via Careforce)
  - *'One IS&T' form entry forthcoming*
- Sign Appropriate Use Agreement
- Sign Data Use Agreement
- Intake Approval Process
- REDCap team member assigned (as applicable)
- Production Move approval

Emory REDCap

Amount of projects	590
Production	352
Development	238
Operational projects	472
Research Projects	*206*
Active Daily Users	272
Support Tickets	40 weekly



Amount of Instruments	8,148
Amount of Records	773,594
Amount of fields	422,146
Survey responses Overall	130,649
Invitations sent	67,783

Emory REDCAP SERVICES

- Projects Cost $25 per month - Include 2 hrs of consultation or training
- Complete project builds are billed at $75 per hr.
- No fee workflow Consulting
- No fee Reporting Consulting

- Emory Redcap Service must be initiated or sponsored by an Emory employee
- Anyone anywhere can acquire an Emory sponsored account and participate on projects

Emory Intake Process

- Intake Form
- Sign Appropriate Use Agreement
- Project created by Product Team
- REDCap team member assigned (if applicable, complete builds only)
- Production Move approval

Contact Information

Children's Contact Information

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or

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Emory's Contact Information

Nick Heigerick

Or

Patrick Maloney

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Emory University Labkey Server Introduction

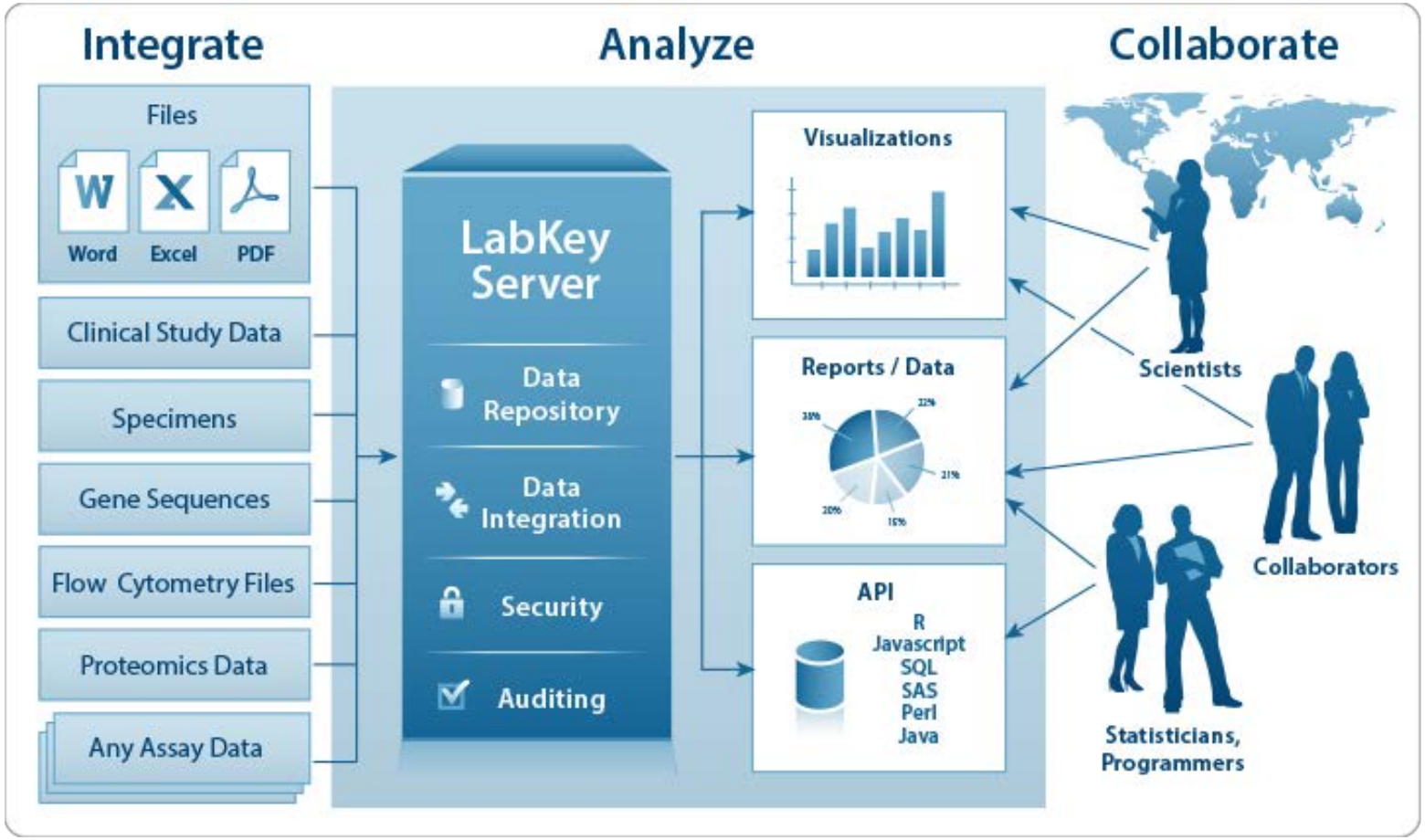
By: Wayne Harris, MSPH

Emory Integrated Computing Core

Description

- Labkey server is offered as SAAS to the Emory University research community
- Supported by partnership between the Emory Integrated Computational Core (EICC) and Library and Informational Technology Services (LITS)
- EICC provides client engagement and programming/computational support for their research needs
- LITS provides application infrastructure and database support and maintenance, and additional services like storage services.

Labkey Server Description



Description

- **LabKey Server** is platform available for scientists to integrate, analyze, and share biomedical research data.
- The platform provides a secure data repository that allows web-based querying, reporting, and collaborating across a range of data sources.
- Specific scientific applications and workflows can be added on top of the basic platform and leverage a data processing pipeline.
- It is also highly extensible with modules, scripts and libraries..