

BTRIS

**“BIOMEDICAL TRANSLATIONAL RESEARCH
INFORMATION SYSTEM”**

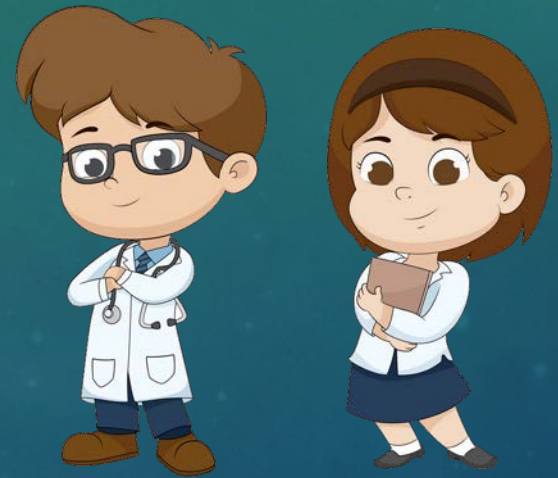
CLINICAL CENTER RESEARCH HOSPITAL BOARD

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APRIL 12, 2019

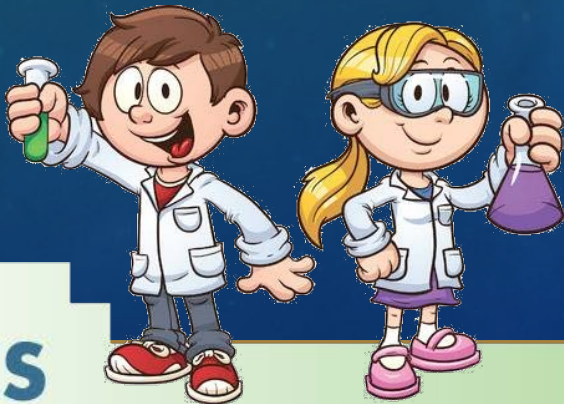


WHAT IS BTRIS?

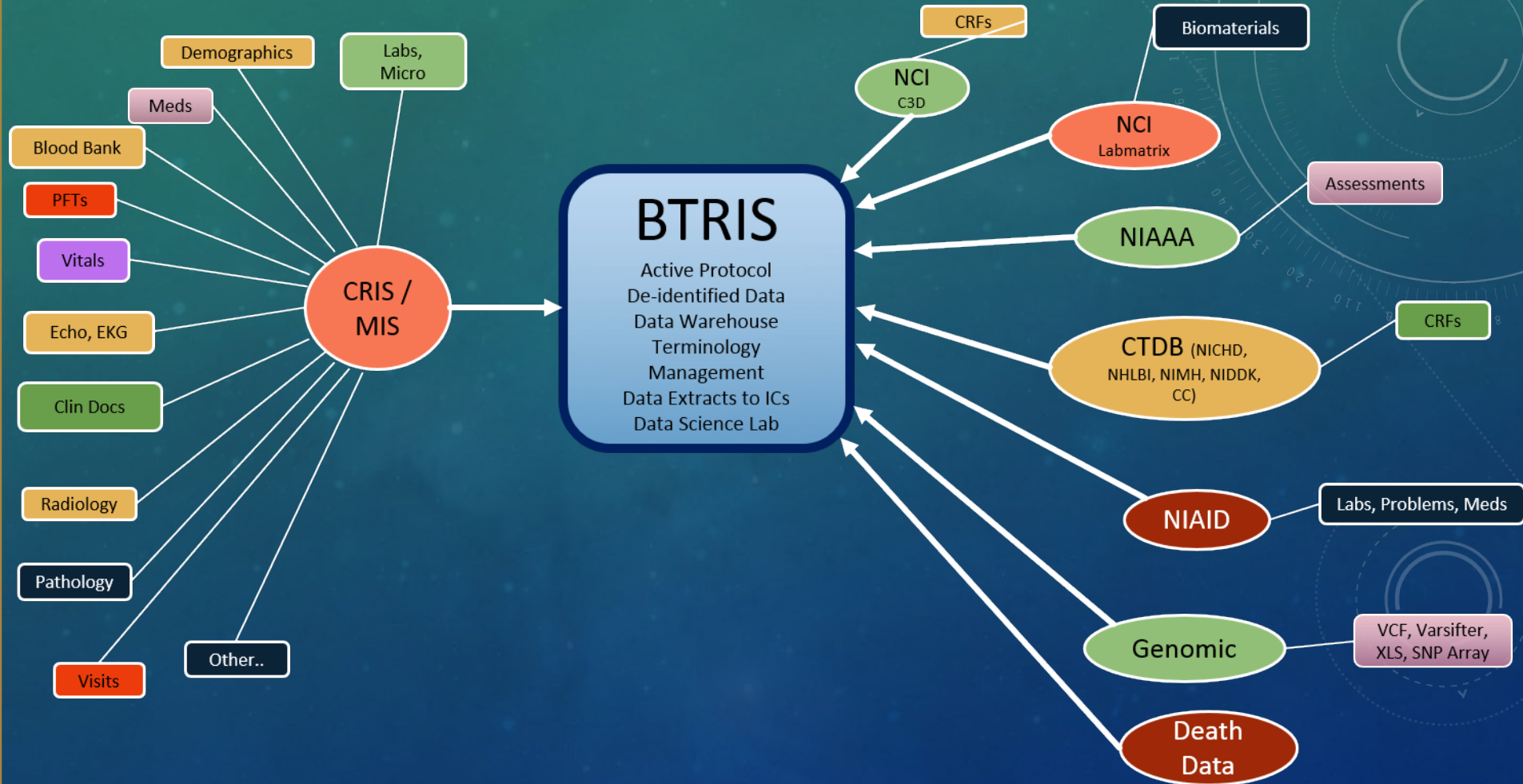


An enabling platform for research and patient care

- 39% of clinical protocols use BTRIS



DATA WITHIN BTRIS



https://btrisportal.cc.nih.gov/pdfs/userGuides/BTRIS_Data_Availability.pdf

DATA WITHIN BTRIS

- EMR
 - CRIS
 - Legacy – MIS
- IC
 - Select case report form data
 - NCI, NIAAA, NICHD, NIMH, NIDDK,
 - Select Genomics data
 - NIAID CRIMSON – Laboratory data, Problem lists, Medications
- Death Data - SSA

NOT ALL DATA ARE IN BTRIS

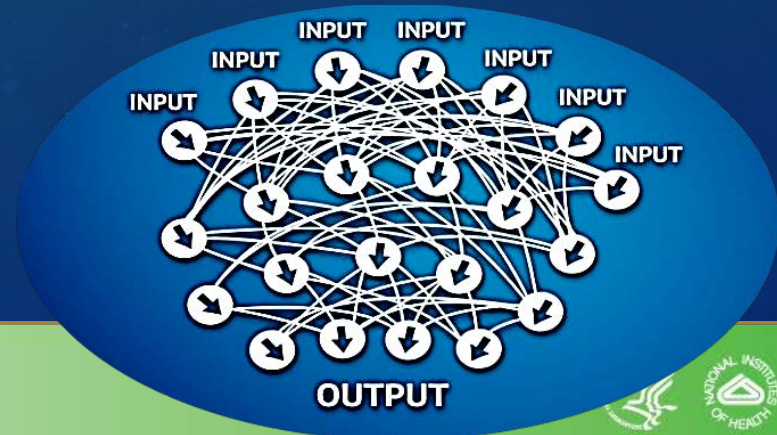
- Some data not in a format useful to research
 - IC systems send PDF reports to CRIS

SOLUTION: Working with ICs to obtain raw data
- No requirement to deposit all clinical research data to BTRIS
 - Some IC's have their own systems
 - All data sources must be individually negotiated
 - Lack of uniform Policy

SOLUTION: NIH policy for data submission to BTRIS

WHAT IS BTRIS (CONT.)?

- Intramural clinical research support
 - Primarily protocol based
 - Secondary research, data reuse
 - AI, Machine Learning
- Quality control / Quality assurance
 - Program / protocol
 - Hospital



BTRIS IS NOT

- A clinical care system
- A Clinical Trial Management System (CTMS)

DIFFERENT FROM CRIS (CLINICAL RESEARCH INFORMATION SYSTEM)

- **CRIS – EMR-supports patient care one patient at a time**
- **BTRIS – supports data across patients**
 - CRIS data downloaded daily
 - Identified or Deidentified data provided
 - Supports PI research data

BTRIS DATA SOURCES

1976 – Present

- 6 TB
 - CRIS + retired records (MIS)
 - 11,000 Protocols / 2,200 active & 8,900 terminated
 - 500,000 + Patients
 - 15 M Observations
 - Semi-structured documents
 - Pathology, Radiology, Operative, Inpatient ...
- Data held indefinitely

BTRIS SERVICES

Analysis, manipulation & correlation of phenotype elements across pts

- Identified data within a protocol
- Deidentified across entire BTRIS data set
(Intramural data sharing)

BTRIS SERVICES (CONT.)

- **Data**
 - **Analysis**
 - **Visualization**
 - **Organization / structure**
 - **Curation, organization, text mining**
 - **Exploration for hypothesis generation**
 - **Custom search for research and QA/QC**

BTRIS SERVICES (CONT.)

- **Regulatory submissions**
 - **ClinicalTrials.gov**
 - **Center for International Blood & Marrow Transplant Research (CIBMTR)**
- **Patient consent management**
- **Data to IC systems**

QA / QC ACTIVITIES

BTRIS QA/QC



- Perfect platform for data QA/QC
- Data mining does not impact patient care
- Fully explore all data from all patients
 - Ideal for research or hospital metrics

BTRIS QA/QC

- **Boutique services provided for each problem**
 - **Not turn-key**
 - **Presentation varies**
 - **Pulls data from multiple sources to single platform**

RECENT PATIENT CARE QA/QC PROJECTS

- **Glucometrics**
- **ICU Sepsis**
- Pediatrics
 - **Blood Draw Volumes**
 - Pre-admission order set analysis
 - Heights
- Bone Marrow Transplant
 - QA/QC
 - GVHD
- Antimicrobial days' metrics
- **Radiology**

RECENT PATIENT CARE QA/QC PROJECTS

- **Bone Marrow Transplant**
 - QA/QC
 - GVHD

STEM CELL TRANSPLANT QA/QC

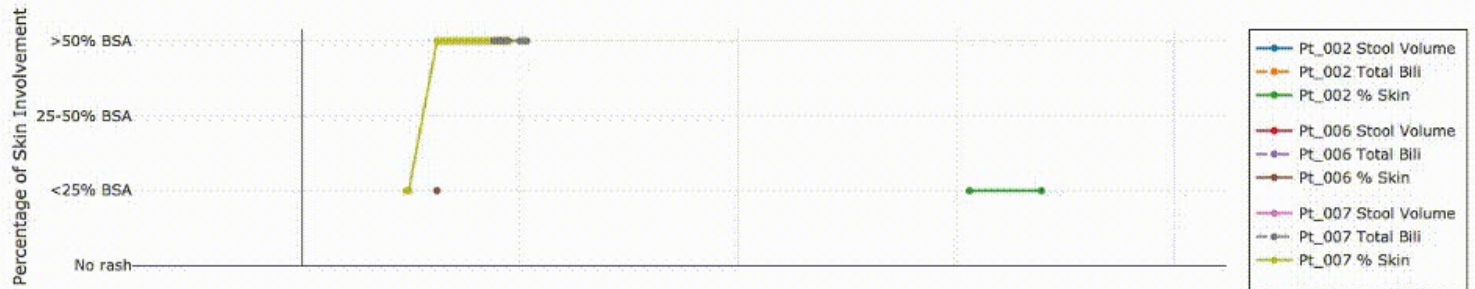
- Collated multiple protocols into a single view
- Robust data curation
- Simplified regulatory submission

GVHD

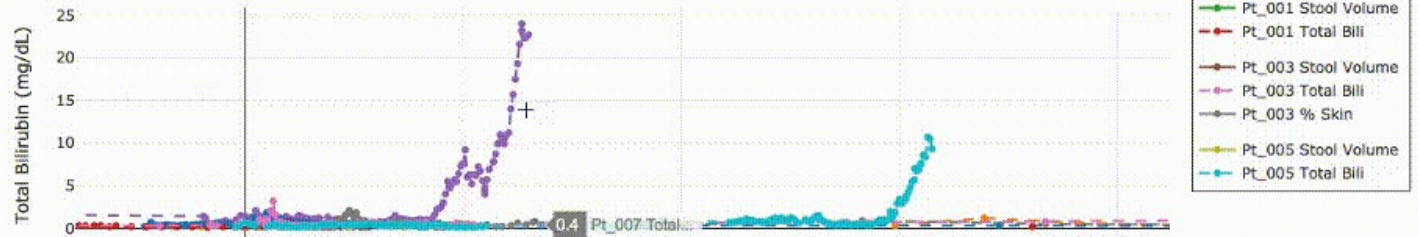
- Interactively visualized GVHD and engraftment markers across patients to quickly identify trends
 - Stool volume, % skin rash, bilirubin

GVHD INTERACTIVE MARKERS

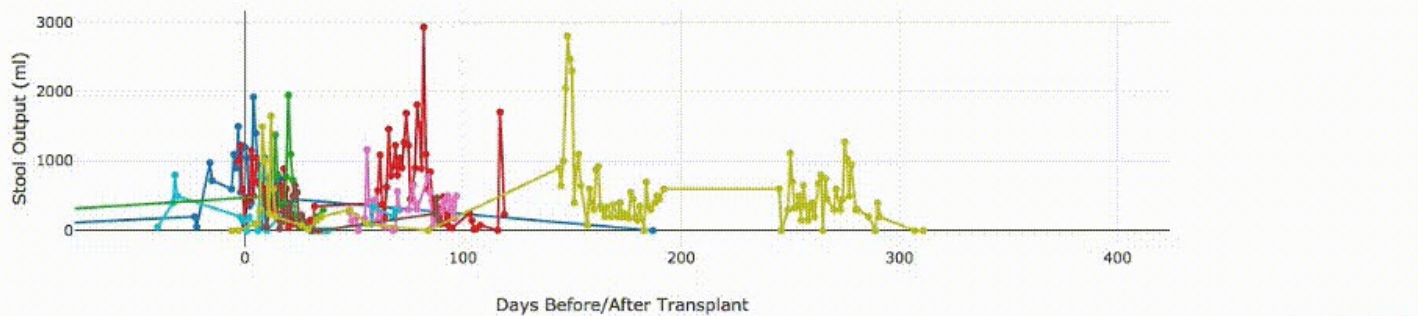
% Skin rash



Bilirubin



Stool Volume



Export to plot.ly

OUTCOME GVHD ANALYSIS

- Visualize trends
- Modify protocol in real time
- Assist overall GVHD patient grading

CHALLENGES

Not all clinical or research data included
or in a standard structure

- IC specific care summary not discrete data
- Protocol objectives not provided
(would facilitate data curation for
publication and [ClinicalTrials.gov](https://clinicaltrials.gov) filing)
- No comprehensive research data policy

QUESTIONS

