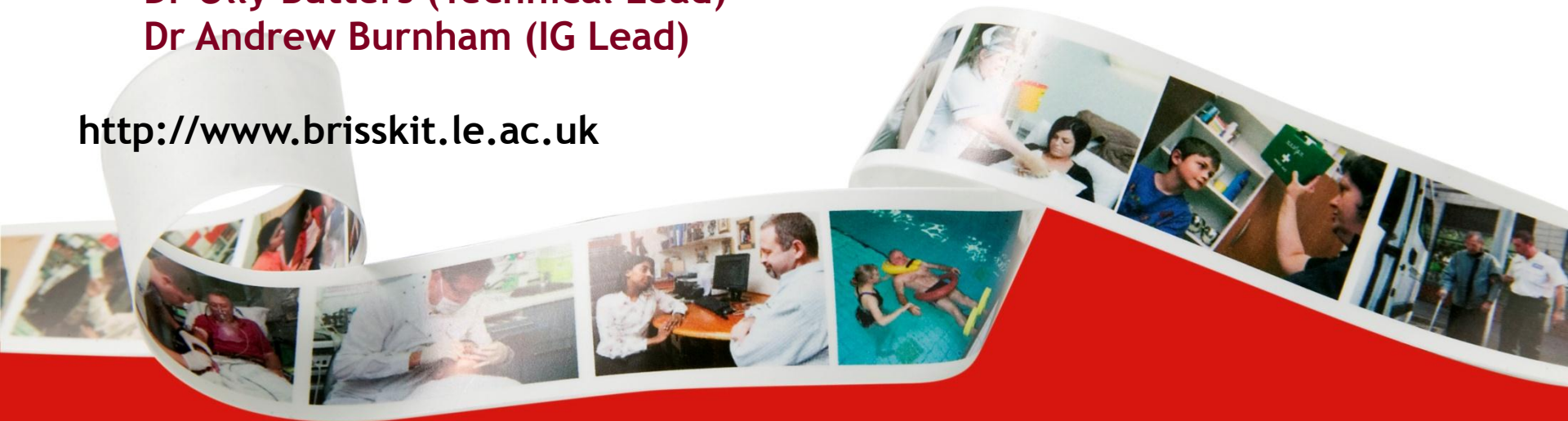# BRISSKit:

Biomedical Research Infrastructure Software Service Kit

A vision for cloud-based open source research applications
#BRISSKit

Dr Jonathan Tedds (Project Lead)
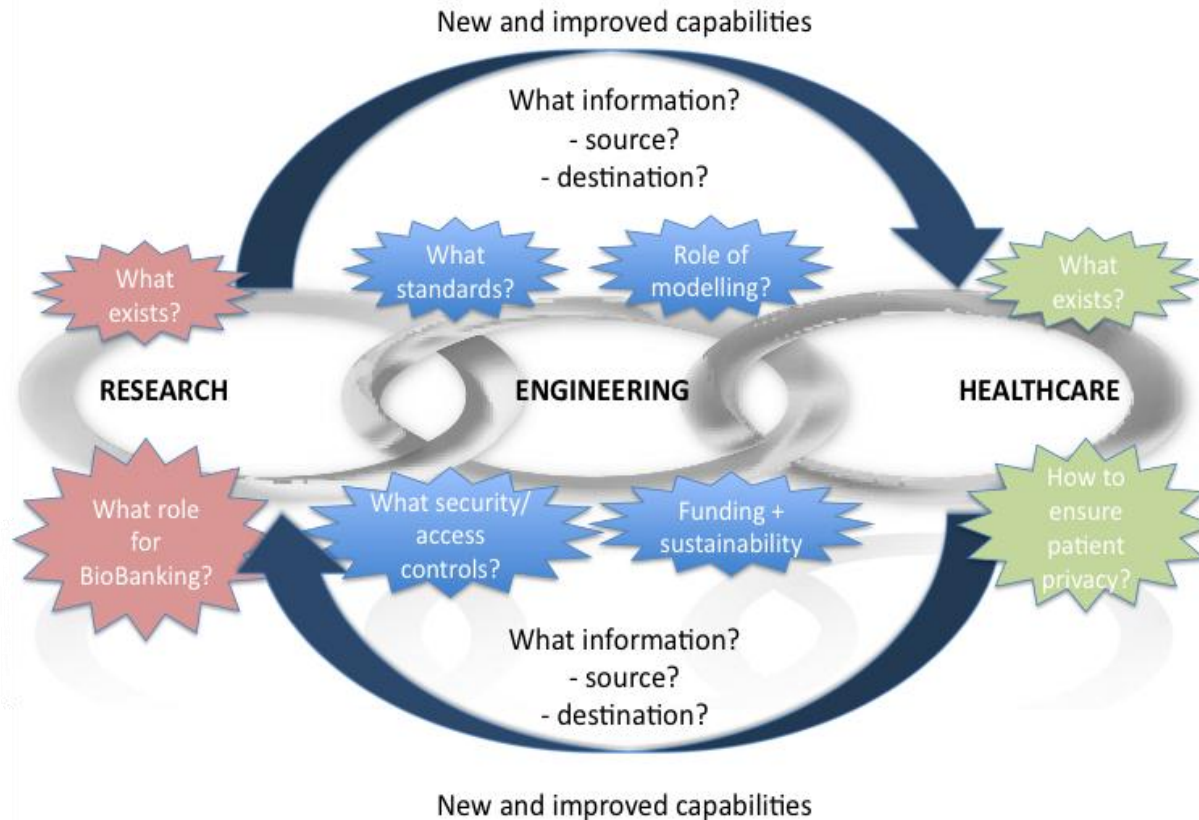**Dr Olly Butters (Technical Lead)**
Dr Andrew Burnham (IG Lead)

http://www.brisskit.le.ac.uk

BRISSKit context:

Data as a public good & research efficiencies

= strategic priority for government, NHS, funders (e.g. MRC, Wellcome, CRUK)

University of Leicester

JISC

University Hospitals of Leicester NHS NHS Trust

Overview of BRISSKit

- Developing "software as a service" data management infrastructure based on open-source applications
- More efficient & easier for researchers
- Offers significant savings in research database and IT support costs
- Development funded by HEFCE
- University of Leicester in partnership with the University Hospitals Leicester Trust and the Cardiovascular BRU
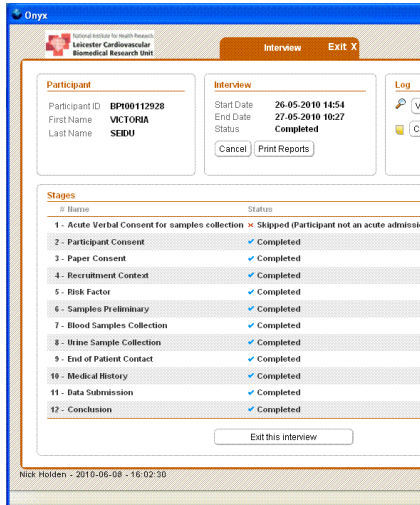
Example BRISSkit Implementation
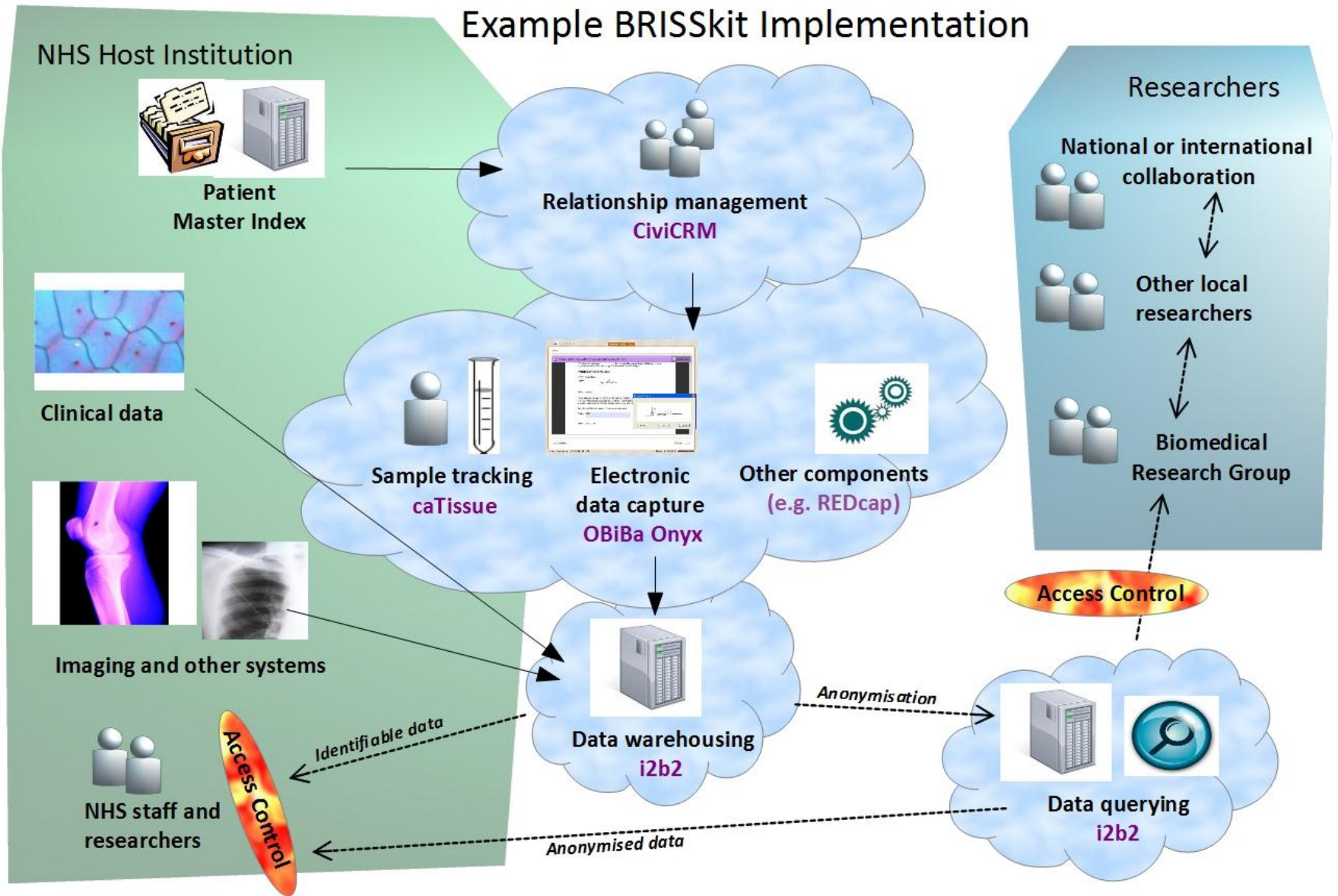
BRISSKit USPs

- Integrated support for core research processes

- Well-established mature open source applications as protoyped in Cardiovascular: fully UK customised

- A platform for seamless management and integration between applications

- An API allows integration with existing clinical systems

- Easy set up, use and administration through browser (including on mobile devices)

- Capability of being hosted in any compliant cloud provider including UHL (NHS information governance)

Research: the semantic bridge

OBiBa Ony...

Records participa...
consent, questio...
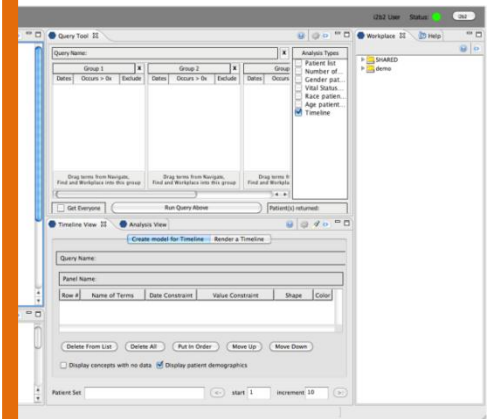data and primary...
specimen IDs

...ort selection and
...querying

Bio-ontology!

Who is BRISSKit for?

Modular approaches and scalable tools with open source licenses make good investments

- *Individual researchers and associates*
  - enterprise-level tools without the IT overheads
- *Research themes and departments*
  - stand-alone instances of required tools to accelerate research
- *Research units and centres*
  - integrated toolkit with clinical data loading services, or 'jigsaw pieces' to complement existing provision

BRISSKit Community & Hack Event, Oct 2012

http://www.brisskit.le.ac.uk/node/35

BRISSKit Community & Hack Event

- http://www.brisskit.le.ac.uk/node/35
- created ideas pre and post event via healthresearchhack google group
- 6 hack solutions in 2 days using BRISSKit stack, e.g.
  - i2b2 integration using demo data from HES and cancer research clinical trials data (UCL, Birmingham, Goettingen, Leicester)
  - smartphone app to scan v.tiny barcodes from the end of sample vials and import info into caTissue
  - integrate CiviCRM study management and REDCap questionnaire tool (UHL Respiratory BRU)
  - create a simple CiviCRM study creator as a Drupal plugin

BRISSKit Information Governance & Security Management Work Stream

1. **Information Governance Toolkit** - analysis of Department of Health (DoH/NHS) IGT requirements vs. BRISSKit organisation/project and services/tools
   a) Hosted Secondary Use Team/project (Hosted IGT)
   b) Acute Trust (Acute Trust IGT)

IGT – Hosted Secondary Use Team/Project

Hosted Secondary Use Teams/Project (HSUT/P)

- For individuals, teams and their projects that process NHS patient information for the purposes of non-direct care e.g. clinical research activities and other related patient data analysis (public health planning).

- These individuals / teams are effectively discrete sub-units or divisions of their host organisation whose overall business interests may span a range of clinical and non-clinical activities e.g. universities, Public Health Teams hosted/employed by Local Authorities, commercial organisations.

- This requirement set enables such individuals / teams to assess the adequacy of IG processes around their projects.

Req No	Description		
Information Governance Management			
10-120	Responsibility for Information Governance has been assigned to an appropriate member, or members, of staff		
10-121	There is an information governance policy that addresses the overall requirements of information governance		
10-122	All contracts (staff, contractor and third party) contain clauses that clearly identify information governance responsibilities.		
10-123	All staff members are provided with appropriate training on information governance requirements.		
Confidentiality and Data Protection Assurance			
10-220	Personal information is only used in ways that do not directly contribute to the delivery of care services where there is a lawful basis to do so and objections to the disclosure of confidential personal information are appropriately respected		
10-221	There are appropriate confidentiality audit procedures to monitor access to confidential personal information		
10-222	All person identifiable data processed outside of the UK complies with the Data Protection Act 1998 and Department of Health guidelines		
10-223	All transfers of personal and sensitive information are conducted in a secure and confidential manner		
Information Security Assurance			
10-330	Policy and procedures ensure that mobile computing and teleworking are secure		
10-331	There is an information asset register that includes all key information, software, hardware and services		
10-332	Unauthorised access to the premises, equipment, records and other assets is prevented		
10-333	There are documented incident management and reporting procedures		
10-334	The confidentiality of service user information is protected through use of pseudonymisation and anonymisation techniques where appropriate		
10-335	There are adequate safeguards in place to ensure that all patient/client information is collected and used within a secure data processing environment (safe haven) distinct from other areas of organisational activity.		

BRISSKit Information Governance & Security Management Work Stream

1. **Information Governance Toolkit** - analysis of Department of Health (DoH/NHS) IGT requirements vs. BRISSKit organisation/project and services/tools
   a) Hosted Secondary Use Team/project ([Hosted IGT](#))
   b) Acute Trust ([Acute Trust IGT](#))

2. **IG Training Tool** (NHS – University is registered)

3. **Pseudonymisation** requirements

4. **Data Management Plan**

5. **IT Security & standards** – Penetration Testing & Security Testing

6. Other **NHS Standards/Requirements**:
   - Care Records Guarantee
   - NHS Constitution
   - NHS Records Management
   - Patient Safety DSCN 14/2009, 18/2009

BRISSKit Information Governance & Security Management Work Stream

Security Management – ISO27001 / ISO27002

- Consideration of accreditation (see UCL)
- Implementation of an Information Security Management System (ISMS)
- Risk Identification, Assessment and Management
- Implementation of Information Security Policy/ISMS Policy
- Implementation of information Asset Ownership (Risk Assessment, Assurance Reporting, System Level Security Policy)
- Security controls to protect information assets
- Roles, responsibilities, training and competence
- ISO27002 – 138 controls
- Liaison with Pilot sites (UCL) re ISO27001 requirements and accreditation
- Review of ISO27001 for implications for services/tools offered
- Review of ISO27001 for implications for the organisation offering BRISSkit services

www.brisskit.le.ac.uk

Email: *brisskit@le.ac.uk*

BRISSKIT
Biomedical Research Infrastructure Software Service Kit

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BRISSkit - Biomedical Research Infrastructure Software Service kit

Overview

BRISSkit will design a national shared service brokered by JANET to host, implement and deploy biomedical research database applications that support the management and integration of tissue samples with clinical data and electronic patient records. We are uniquely positioned to tackle this through our experience in developing the pioneering open source IT infrastructure for the Biomedical Research Informatics Centre for

JONATHAN TEDDS

- My account
- ▶ Create content
- Log out

RECENT BLOG POSTS

- CiviCRM
- Advances in Medical Sciences

University *of* Leicester

JISC

University Hospitals of Leicester **NHS**
NHS Trust

DEMO

Example BRISSkit Implementation

NHS Host Institution

Patient Master Index

Clinical data

Imaging and other systems

NHS staff and researchers

Relationship management CiviCRM

Sample tracking **caTissue**

Electronic data capture **OBiBa Onyx**

Other components (e.g. REDcap)

Data warehousing **i2b2**

Access Control

Identifiable data

Data querying **i2b2**

Anonymisation

Anonymised data

Researchers

National or international collaboration

Other local researchers

Biomedical Research Group

Access Control

CiviCRM

Enables end-to-end contact management for volunteers and research participants, tracking approaches, contact, responses, recruitment, exclusions.

CiviCRM was designed for the 'civic sector' and has an object model that reflects community building and non-profit relationships.

University of Leicester

JISC

University Hospitals of Leicester NHS
NHS Trust

OBiBa Onyx

Records participant consent, questionnaire data and primary specimen IDs.

Web-based, secure data entry by research staff. E.g. used for all patient recruits in LCBRU – mobile computing on wards and outpatient clinic in TMF.

Await significant new release...

caTissue

Holds data on primary, derived and aliquot specimen, including linear and 2d barcodes.

Storage inventory, order tracking – currently over 30,000 LCBRU samples stored and recorded.
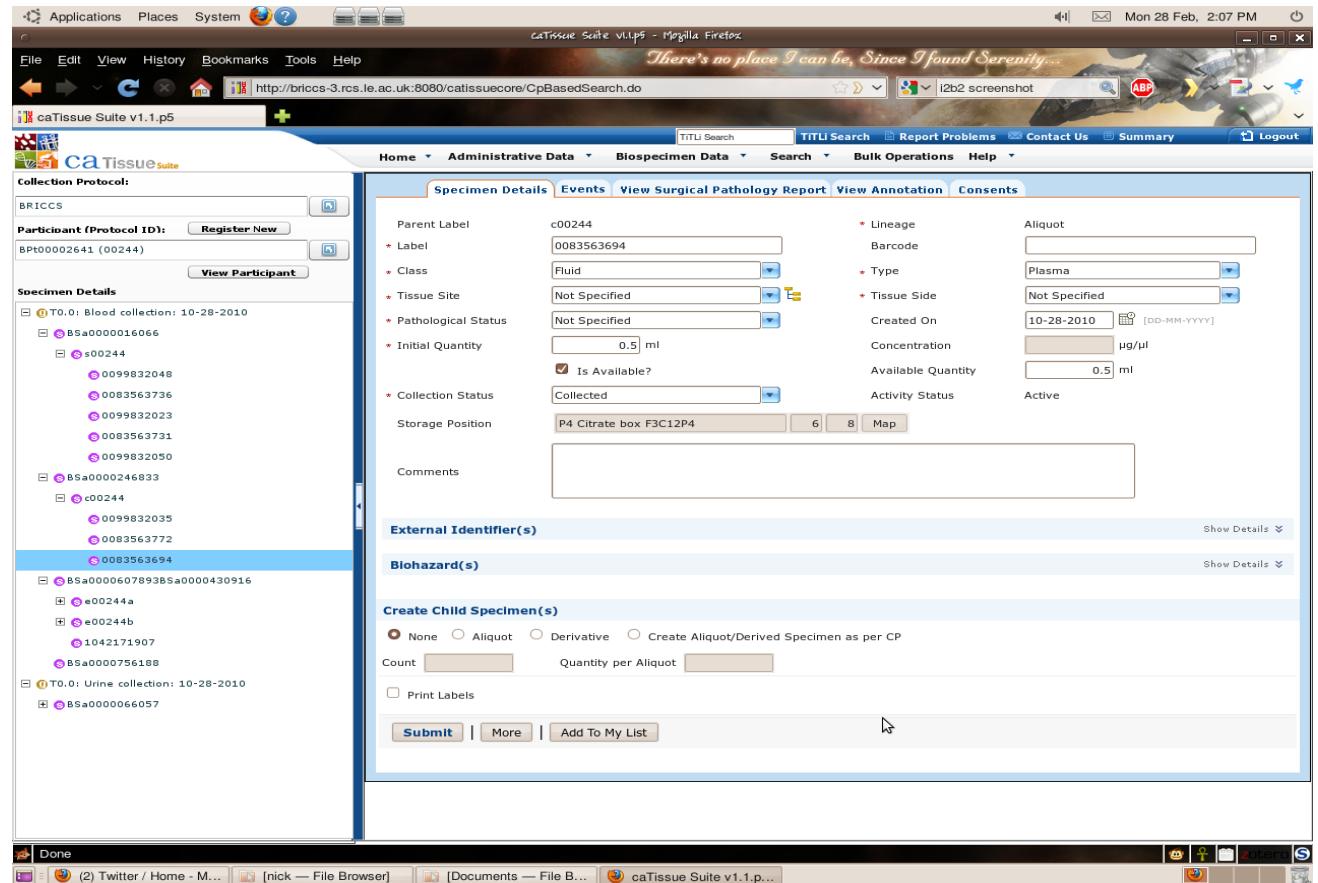
i2b2

Data from multiple data sources combined into multiple ontologies for flexible and sophisticated searching, cohort discovery and research.