COLLABORATIVEINFORMATICS

NEUROIMAGINGSUITE

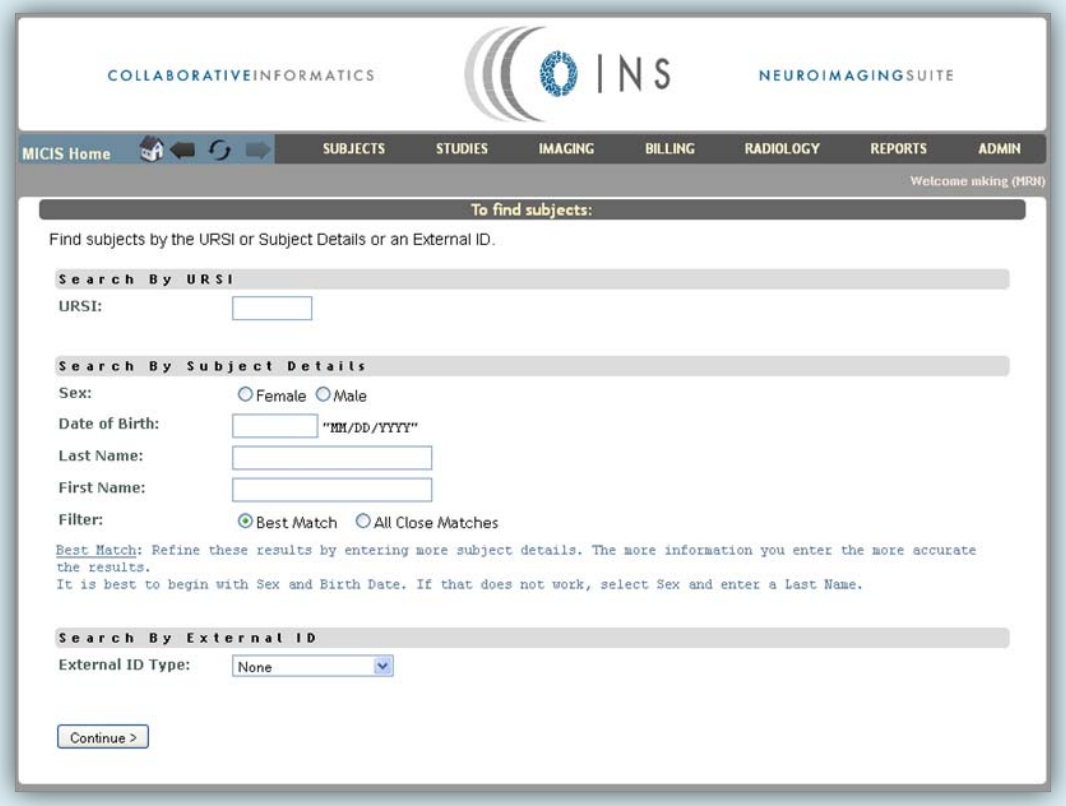
As neuroimaging research continues to grow, dynamic neuroinformatics systems are necessary to store, retrieve, mine and share the mass amounts of data. COINS has been created to facilitate communication and cultivate a data community by improving the ability to share data as well as research tools. This tool suite enables rapid sharing of data among PIs, querying of data types and assessments, and real-time reporting, among other functionalities. It manages studies at the Mind Research Network, the Nathan Kline Institute, University of Colorado - Boulder and the Olin Neuropsychiatry Research Center. COINS is dynamic and develops as the neuroimaging field grows.

COINS Tools

MICIS
DICOM Receiver
Assessment Manager
Self Assessment
Tablet
Query Builder
Portals
Data Exchange
CAS
My Security

MICIS

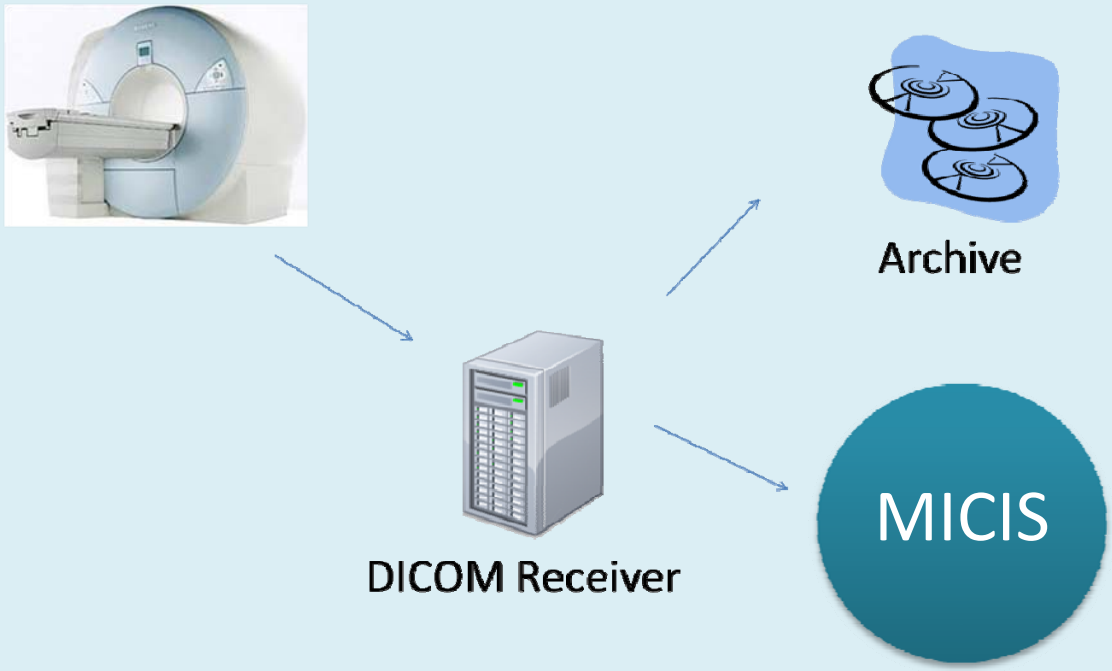
MICIS (Medical Imaging Computer Information System) is a centralized PostgreSQL-based web application that implements best practices for participant enrollment and management, MRI imaging data import, scan annotation and behavioral data management, radiology review event reports, and scan time billing.



DICOM Receiver

An automated DICOM receiver collects, archives, and imports imaging data in the database, requiring no user intervention.

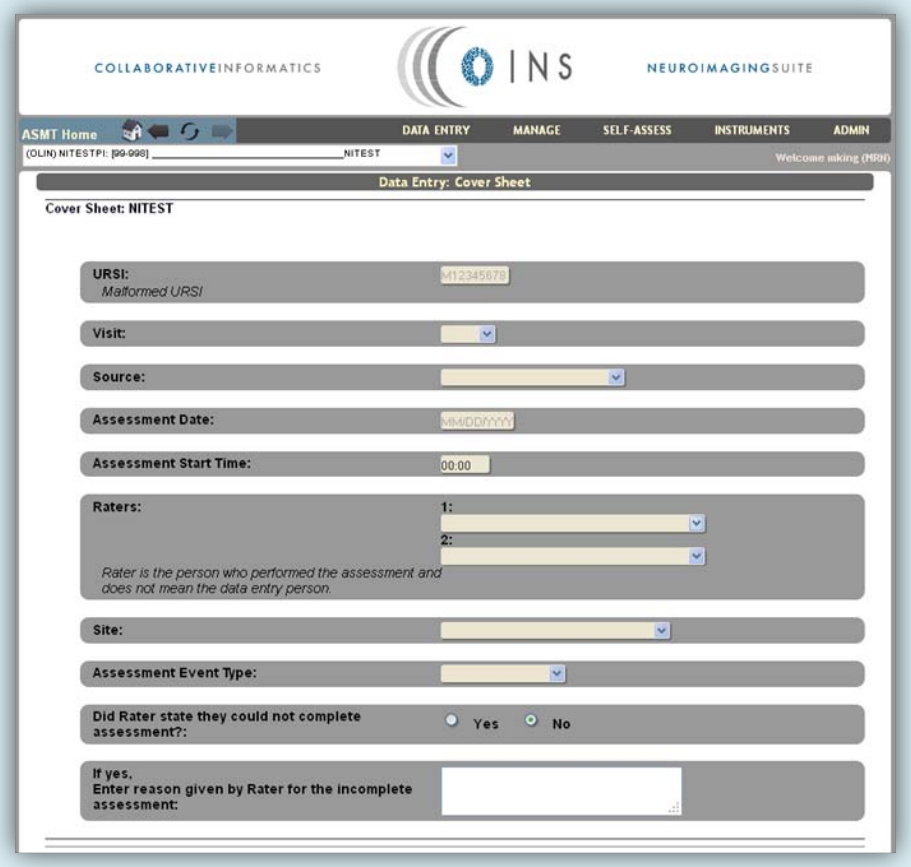
- Ensures subjects are enrolled in study
- Moves invalid scans to lost-and-found
- Automates image archiving to file system and storage of meta-data to MICIS from Scanner
- Multi-platform, small footprint
- JAVA-based



Assessment Manager

Clinical data gathered from interviews, questionnaires, and neuropsychological tests are entered into the database through the web application called Assessment Manager (ASMT). ASMT's intuitive design allows most users to start data collection with little or no training. Clinical data collection via web forms use a double-entry, conflict-resolution process, reducing data collection errors.

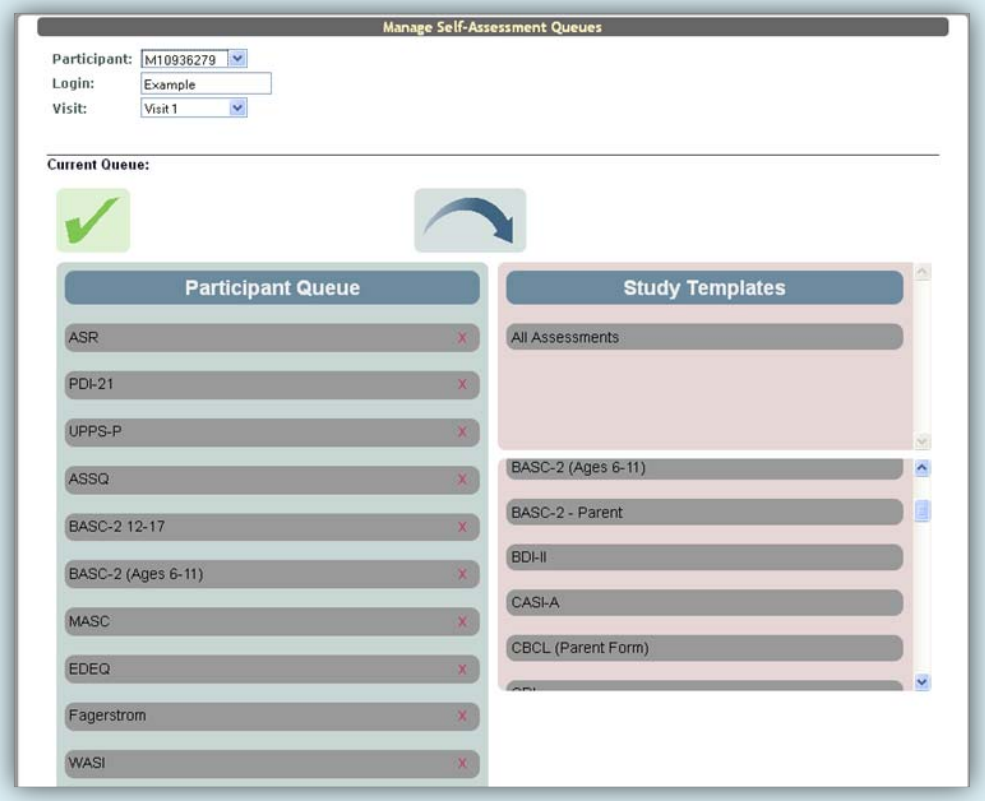
- Dual-entry and conflict resolution
- User-definable instruments
- User-definable sharing protocols between studies
- Reusable instruments across studies



Self Assessment

With this tool participants can fill out questionnaires on the web from home or in a testing room. There is no need for data entry - after review the assessments go straight to the database as a complete record.

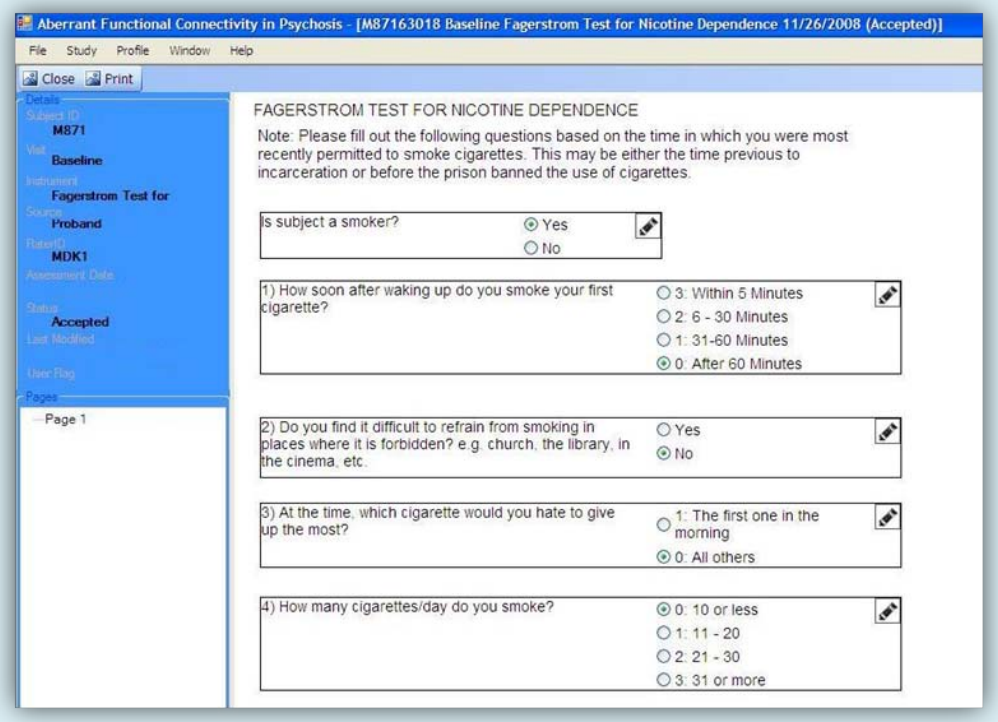
- Queue Management
- Study Templates
- Subject Interface
- Submission review
- Deny submissions
- Complete submissions
- Self Assessment Question Features
  - Self Assessment Label
  - Required Question
  - Hidden from Self Assessment
  - Conditional Skipping



Tablet

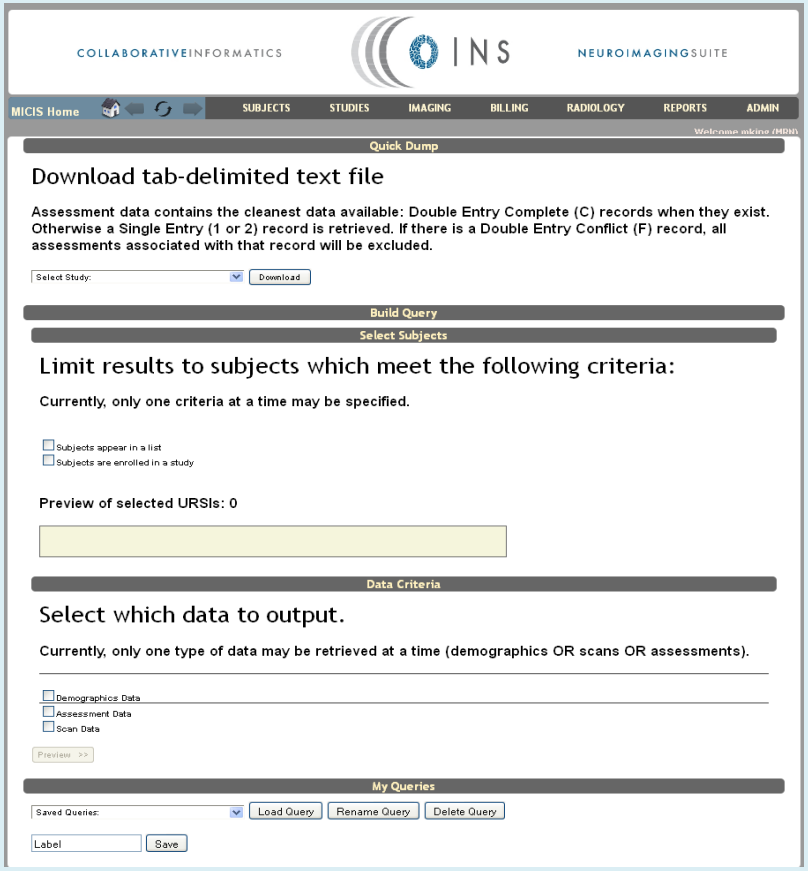
Data can also be entered into ASMT through a tablet-based electronic data capture service that provides an asynchronous, remote clinical assessment capability.

- Paperless-based assessments
- Eliminates need for dual entry
- Asynchronously uploads to Assessment Manager via Web Service



Query Builder

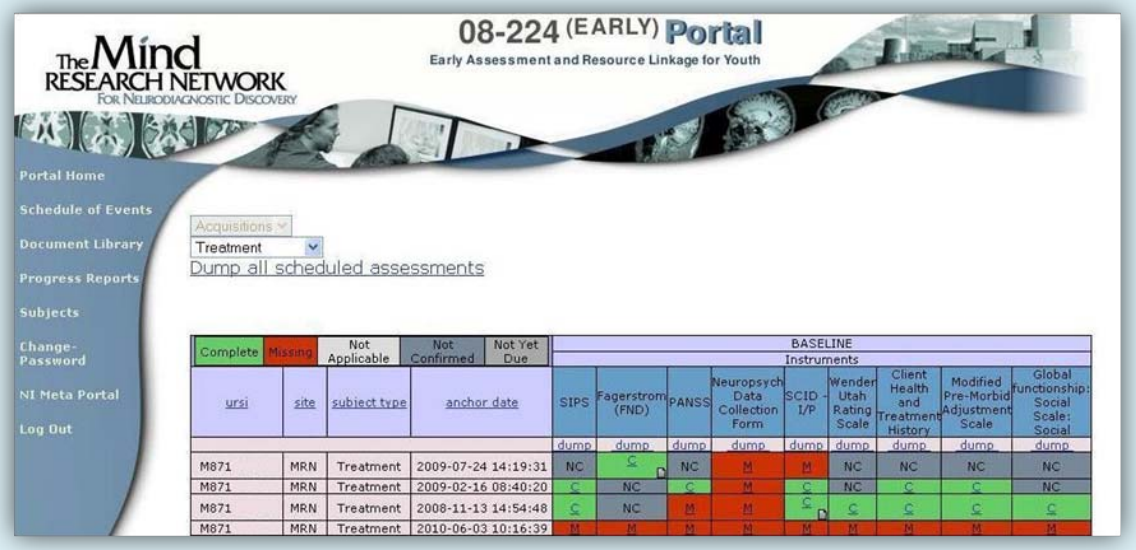
All the types of data stored in MICIS and ASMT are easy to retrieve and export for use in other analyses. The Query Builder is the most versatile data export tool currently offered in the COINS tool suite. This tool supports secure, ad-hoc querying of single and cross-site studies for assessments, scans and demographics. It also offers the ability to search assessment data and scan data in the same query.



Portals

The COINS study portals serve as a central collaboratory for monitoring enrollment progress, quality assurance, document exchange, etc. Progress reports within the study-specific portals provide a complete workflow overview of a study to identify missing data at one glance. Internal and external collaborators can use the portals to access all data sources associated with their studies.

- Each study has an external portal
- Progress reports for subject tracking
- Shareable documents – study measures, meeting notes, etc.
- Contact and Subject Lists



Data Sharing

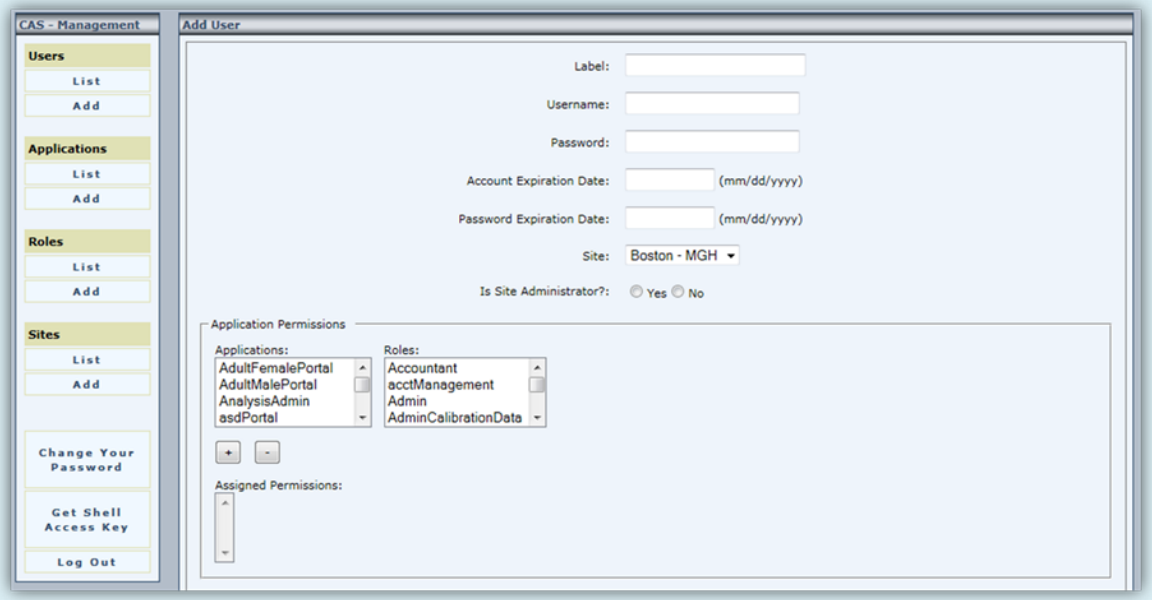
COINS is trying to foster a data community by increasing data sharing capabilities among Principle Investigators. The goal is to keep investigators in touch with each other and aware of data that is collected. Improving the ability to share data and study tools reduces duplicate efforts and increases communication.

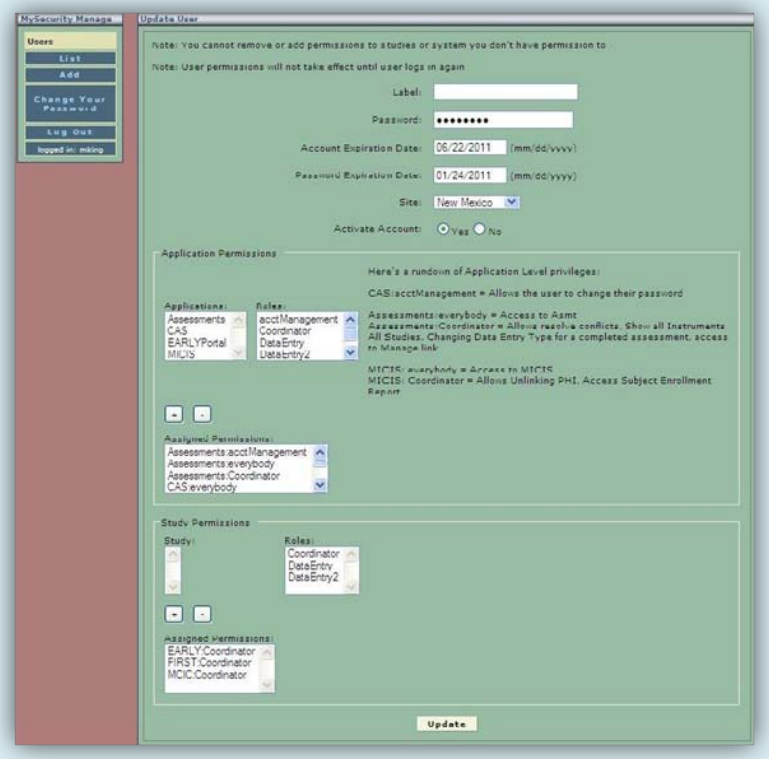
The Data Exchange is a tool that is used to track the data that is shared and accessed. It also works as a request system.

- Track data requests
- Track data that has already been shared
- Browse all data that has been collected

CAS

Protection is very important to investigators conducting human subject research. As such, this database has been developed following guidelines set by the Institutional Review Board (IRB) to facilitate a safer and more protected environment in which to collect and store sensitive data. The Central Authentication System (CAS) is a feature that controls account creation for the MICIS, ASMT, and study Portals.



My Security

Principle Investigators and Program Managers can manage study permissions through a similar tool to CAS called My Security. This gives them the authority to allow or restrict access to their study data.