T.W.I.S.T.
IDEAL Radiological Imaging Services

Presented by Adrienne Coya & Sandra Marcelin

Evan O’Donovan
Education Program Manager, Quality Assurance Unit

July 20, 2016
JCTO.WEILL.CORNELL.EDU
Objectives

- Quick review of some of the clinical post processing done by IDEAL.
- Gain a better understanding of the STARS workflow.
- Learn how to register a study, subjects, and time points.
- Discover the various modalities and scanning options.
- Introduction to the Research Biopsy workflow.
IDEAL

What services does IDEAL provide?
IDEAL

- Image Data Evaluation and Analytics Lab
- Use of workstations/application to provide useful anatomical representations and information
- Assistance with clinical trials involving radiological imaging
- Management of research database and the de-identification of radiological exams
- 3D Printing
IDEAL: Clinical 3D Post-Processing

Clinical Support

- Orthopedic Surgery
- Transplant Surgery
- Vascular Surgery/PFA Reconstruction
- Neurosurgery
- Liver Embolization and Tumor Calculations
Clinical Procedure Total

![Graph showing the increase in clinical procedure total from 2011 to 2015. The y-axis represents the total number of procedures, ranging from 0 to 6000. The x-axis represents the years from 2011 to 2015. There is a significant upward trend in the number of procedures over the years.]
Orthopedic Surgery
Kidney Transplant Surgery (Renal Donor)
Liver Segmentation
Lung/Airway Reconstruction
IDEAL STARS Overview
Study/Subject Tracking and Registration System

Adrienne Coya & Sandra Marcelin
RADTEACHING.MED.CORNELL.EDU/IDEAL
Research Support
Research Support

- **Response Assessment**
  - RECIST, irRECIST, CHESON (+SUV), RANO, specialized criteria

- **Data Management**
  - De-identification, storage on research server, and transmission

- **Image Processing and Analysis**

- **QA/QC**

http://radteaching.med.cornell.edu/ideal/
Research Services
Creating User Accounts

- [http://radteaching.med.cornell.edu/ideal](http://radteaching.med.cornell.edu/ideal)
- Click on “Create an account (first time visitors)” and fill in required information
- Contact IDEAL staff with your CWID, email, and phone# to finalize your account activation
- Follow link in auto-generated email
Please Login to the IDEAL Study Management System

Username/Email: ___________________________ Password: ___________________________

Reset your password via your email address

Create an account (first time visitors)

Please Complete User Registration to Create and View IDEAL Studies

E-mail: ___________________________

Password: ___________________________

Password confirmation: ___________________________ Enter the same password as above, for verification.

Submit

Note: this is for creating a new account. For your account to have the permissions of a Study Coordinator/Principal Investigator/Technologist/Radiologist, you need to contact IDEAL first with your email address / user category, and then you can set a password for yourself.

If you have previously registered, but lost your password you can always reset your password (with your email address).
Modify User Settings

- Can edit:
  - Email
  - First/last name
  - Phone number
  - Email settings for studies
User Settings

Email: abc2011@med.cornell.edu
Full Email Address (incl @med.cornell.edu) not just CWID

First Name: Adrienne
Last Name: Coya
Phone: 18262

Submit

Email Settings

You will receive email notifications for studies that are checked below.

<table>
<thead>
<tr>
<th>Your Studies</th>
<th>Receive Email Notifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>LiverBiopsy</td>
<td></td>
</tr>
<tr>
<td>MK-8931-019-00 (MR)</td>
<td></td>
</tr>
<tr>
<td>StrokeRegistry</td>
<td></td>
</tr>
<tr>
<td>EnlightN III</td>
<td>✔</td>
</tr>
<tr>
<td>Biogen CSF (Kinetics of Drugs Administered by LP)</td>
<td></td>
</tr>
<tr>
<td>A4 Study</td>
<td>MRI</td>
</tr>
<tr>
<td>TAVR Project</td>
<td></td>
</tr>
<tr>
<td>Babyfat</td>
<td></td>
</tr>
<tr>
<td>3D Printing</td>
<td></td>
</tr>
<tr>
<td>IDEAS</td>
<td></td>
</tr>
</tbody>
</table>

Submit
Study Registration
<table>
<thead>
<tr>
<th><strong>Study Long Name:</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Study Short Name:</strong></td>
<td>(one word)</td>
</tr>
<tr>
<td><strong>Approximate number of subjects:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Approximate number of imaging timepoints per subject:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Approximate number of radiological exams per timepoint:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Protocol Issuing Organization:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Protocol #:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>IRB Organization:</strong></td>
<td>WCMC</td>
</tr>
<tr>
<td><strong>IRB #:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Eagle Plan Code:</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>This Code is used when ordering non-standard-of-care services from the Hospital that are billable to the study.</td>
</tr>
<tr>
<td><strong>Grant #/Billing Account #:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Site ID#:</strong></td>
<td></td>
</tr>
</tbody>
</table>
### Data Management Services:
- No data management
- Image De-Identify and Store (Do not transmit to CRO)
- Image De-Identify, Store and Transmit to CRO

### Requested Read Services:
- No requested reads
- Site Research Read
- Clinical Over-Read/Non-SOC
- Site Research and Clinical Over Read

### Research Read Criteria:
- RECIST 1.0 Standard
- RECIST 1.1 Standard
- CHESON Standard
- CHESON + SUV
- RANO
- Custom Read Criteria

### Image Processing Requested:
- Yes
- No

If yes, please contact IDEAL@med.cornell.edu with the type of processing.

### Study Type:
- Industry-initiated and industry-sponsored
- Investigator-initiated and industry-sponsored
- Cooperative Group
- Other Federal or Foundation Sponsored
<table>
<thead>
<tr>
<th>Form Description</th>
<th>Choose File</th>
<th>File Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study Protocol Form:</td>
<td></td>
<td>No file chosen</td>
</tr>
<tr>
<td>Imaging Protocol Form:</td>
<td></td>
<td>No file chosen</td>
</tr>
<tr>
<td>Human Research Billing Analysis Form:</td>
<td></td>
<td>No file chosen</td>
</tr>
<tr>
<td>IRB Approval Form:</td>
<td></td>
<td>No file chosen</td>
</tr>
<tr>
<td>IDEAL Researcher Agreement Form:</td>
<td></td>
<td>No file chosen</td>
</tr>
</tbody>
</table>
Select Co-Investigators
Please select all co-investigators associated with this study. Feel free to leave blank.

Select Study Coordinators
Please select all study coordinators associated with this study. Contact ideal@med.cornell.edu to add additional study coordinators, including their full name, email address, and phone number. At least one study coordinator is required.
Opening Study Process

**RC**
- Submit to IRB.
- Register trial in STARS and submit all available information and documents.

**IDEAL**
- Vet protocol: define imaging and special instructions. Generate COF.
- Complete site survey and submit phantom/test images
- Establish transferal of images with CRO.
- Select billing group. Enter set-up fee. Generate budget.

**IDEAL/RC**
- RC gets budget approved and signed by PI.
- RC submit missing information.
- IDEAL confirms all information: grant #, eagle plan code, IRB Approval, HRBAF, signed IDEAL Budget, signed De-Identification Agreement Form
- Open study on STARS. Alert research team.
## Major Billing Groups

<table>
<thead>
<tr>
<th>Study Type</th>
<th>IDEAL Set Up Fee</th>
<th>IDEAL DM</th>
<th>Research Read Charge</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Group A: CALGB / NCI / NIH</strong></td>
<td>With DM: $250, W/o DM: $0</td>
<td>$0</td>
<td>$75 / timepoint</td>
</tr>
<tr>
<td><strong>Group B: Industry Sponsored with Limited Budget</strong></td>
<td>$0</td>
<td>$100</td>
<td>$100 / timepoint</td>
</tr>
<tr>
<td><strong>Group C: Industry Sponsored after 2010</strong></td>
<td>$500</td>
<td>$100</td>
<td>$100 / timepoint</td>
</tr>
<tr>
<td><strong>Group D: Industry Sponsored after June 2013</strong></td>
<td>$750</td>
<td>$150</td>
<td>*$200 / timepoint</td>
</tr>
</tbody>
</table>
# Group D Billing Breakdown for Response Assessment

<table>
<thead>
<tr>
<th>Section</th>
<th>Added Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neuro</td>
<td>$100</td>
</tr>
<tr>
<td>Body</td>
<td>$200</td>
</tr>
<tr>
<td>Mammo</td>
<td>$200</td>
</tr>
<tr>
<td>MSK</td>
<td>$200</td>
</tr>
<tr>
<td>PET/CT</td>
<td>$300</td>
</tr>
<tr>
<td>Nuclear</td>
<td>$100</td>
</tr>
</tbody>
</table>
Study Tracking Workflow

- Register subject
- Request service/time point

- Review acquired images
- Complete research reads

- QC on response assessment

- Verify imaging is complete
- Perform QC on imaging
- Complete DM and/or specialized imaging processing

- Register subject
- Request service/time point

- Review acquired images
- Complete research reads
Registering Subjects

- Click “View Your Studies” > select study
- Click on Register New Study Subjects

- Fill out following information & submit
Entering Tickets/Time Points

- Select Modality – Body Part for time point
- Select Data of Procedure
- Outside Study
- Date of scan
- Take notice of Custom Indications
Register New Imaging For Services to be Performed

You request that all the services requested above will be performed on the imaging procedures performed on the inputted dates.

**Time Point:**

(Create a new time point below)

**Create A New Time Point:**

This new time point will be available for all subjects in this study. E.g., 'Baseline', 'Two Month'

<table>
<thead>
<tr>
<th>Modality - Body Part</th>
<th>Billing</th>
<th>Custom Indication</th>
<th>Date of Procedure (Scheduling Preferences for IR)</th>
<th>Outside Procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>CT - With Contrast</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck only</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - With Contrast</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chest, Abdomen,</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pelvis</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI - Without</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI - With Contrast</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Neck only</td>
<td></td>
<td></td>
<td></td>
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<td>Bill to</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Abdomen, Pelvis</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>CT - Without</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast - Chest</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>only</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PET/CT - Whole</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Body</td>
<td>Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Call IDEAL before selecting this option. For unscheduled visits only.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - Without</td>
<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Contrast - Chest</td>
<td>Insurance</td>
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<td>Bill to</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abdomen, Pelvis</td>
<td>Insurance</td>
<td>Contact IDEAL before placing. To be used only with IDEAL permission.</td>
<td></td>
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</thead>
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<td>MRI - With Contrast - Neck only</td>
<td>Bill to Insurance</td>
<td>If the sponsor requires a diagnostic PET/CT, tickets for a CT cap and CT neck MUST be entered as well.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PET/CT - Skull Base to Mid-Thigh</td>
<td>Bill to Grant</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - With Contrast - Chest, Abdomen, Pelvis</td>
<td>Bill to Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - With Contrast - Neck only</td>
<td>Bill to Insurance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - Without Contrast - Chest only</td>
<td>Bill to Insurance</td>
<td>To be ordered if subject has contraindication to CT IV contrast. Order along with MRI abd+pel without and with IV contrast.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>MRI - Without and With Contrast - Abdomen, Pelvis</td>
<td>Bill to Insurance</td>
<td>To be ordered if subject has contraindication to CT IV contrast. Order along with CT Chest without IV contrast.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CT - With Contrast - Chest, Abdomen, Pelvis</td>
<td>Bill to Grant</td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>
Modality Overview

- **X-ray**
- **Plain Radiograph**

- **Tc99m-MDP**
- **Bone Scan**

- **IV = Omnipaque**
- **Oral**

- **CT**

- **IV = Magnevist**
- **MRI**

- **PET/CT**
  - Performed with F-18-FDG; typically not performed with CT IV contrast.
Study Tracking Workflow

- Register subject
- Request service/time point

- Verify imaging is complete
- Perform QC on imaging
- Complete DM and/or specialized imaging processing

- QC on response assessment

- Review acquired images
- Complete research reads
IDEAL Custom Order Form

- Created by IDEAL staff
- Associated with each imaging modality-body option
- Contains important information regarding the research scan
- Made available to scanning technologists
- Used as QA and QC
IDEAL COF (sample)

IDEAL Custom Order Form

Study Approved By Office of Imaging Protocol Development and Review, Department of Radiology

provided by
Imaging Data Evaluation and Analytics Lab (IDEAL)
Department of Radiology, Weill Cornell Medical College
407 E. 61st St, Rm RR-106 | New York, NY 10065
ideal@med.cornell.edu | 212-962-8266
http://ideal-cornell.com

to support

Study Name: A Multicenter, Observational, Open-Label, Single-Arm Study of Tysabri in Early Relapsing-Remitting Multiple Sclerosis in Anti-JCV Antibody Negative Patients.

Short Study Name: STRIVE

IRB#: 1201012155 (WCMC) | Protocol#: 101MS407 (Biogen)
Principal Investigator: Jai Perumal (jsp9007@med.cornell.edu)
Research Coordinator(s): Blagovest Nikolov (bln2001@med.cornell.edu), Christopher Blackwell (chb3002@med.cornell.edu), Elizabeth Monohan (elm3002@med.cornell.edu), Eric Morris (erm2021@med.cornell.edu), Stephanie Chung (stc3006@med.cornell.edu), Alexandra Kocsik (alk3006@med.cornell.edu)

Billing: Bill to Grant | Billing account #: 55000072
ATTENTION! This order must be followed precisely. For any questions, contact IDEAL.

PATIENT NAME:
MRN:
CUSTOM INDICATION:
REQUESTED IMAGING: MRI - Without and With Contrast: Head only
SPECIAL INSTRUCTIONS (MUST BE FOLLOWED PRECISELY):

FOLLOW STRIVE STUDY PROTOCOL IN MAGNET | Perform on 1.5T in the 8HR Brain coil | contrast = gadovist (1.0mmol)
- 3 Plane Scout
- True mid-line sagittal scan
- Fast Axial scan for Re-positioning
- PDW scan | 60 slices | 3mm no gap | Pre-contrast | TR 2200-2900 | TE 12 | ETL 3
- TZW scan | 60 slices | 3mm no gap | Pre-contrast | TR 5120 | TE 77-84 | ETL 8
- T1W scan | 60 slices | 3mm no gap | Pre-contrast | TR 30 | TE 7
- FLAIR scan, use Sat. immediately after gadolinium injection, during 10-minute wait period
60 slices | 3mm no gap | post-contrast | TR 9000-9004 | TE 80-92 | 10
- T1-weighted scan, use Sat. post-gadolinium injection, after 10-minute wait period
60 slices | 3mm no gap | Pre-contrast | TR 30 | TE 7

Technologist must complete a MRI Information Form and send to ideal@med.cornell.edu
The form is at ideal-cornell.com
Log in with username: tech
password: bravo 1
Click Research Support > Study documentation > WCMC Study Documents > STRIVE (Biogen Idec #101MS407)

DATE OF IMAGING:
SITE PREFERENCE(S): 55th Street

NOTE TO RADIOLOGIST: Clinical statement must include "Research patient. Sponsored Exam."
Study Tracking Workflow

- Register subject
- Request service/time point
- QC on response assessment
- Review acquired images
- Complete research reads
- Verify imaging is complete
- Perform QC on imaging
- Complete DM and/or specialized imaging processing
- Complete DM and/or specialized imaging processing
Expedited Reads

- 48 hr read turn over once radiologist has received verified image notice
- IDEAL sends weekly reminders to radiologists

- Can request expedited read
  - Used to confirm progression or when subject is coming in for immediate treatment
  - Need date read is required by

- If assigned radiologist is not available, IDEAL will re-assign read to the next available radiologist.
Study Tracking Workflow

- Register subject
- Request service/time point
- Review acquired images
- Complete research reads
- QC on response assessment
- Verify imaging is complete
- Perform QC on imaging
- Complete DM and/or specialized imaging processing
- Request service/time point
- Radiologist
- IDEAL
- IDEAL
- RC
- IDEAL
- IDEAL
- RC
Research Biopsy Workflow

- Added as an imaging option
- RC’s can request biopsies through IDEAL beginning 7/25/2016

- New workflow streamlines the communication between RC’s and IR’s scheduling team
Research Biopsy Workflow

IDEAL

• Reviews protocol and enters bx information as an imaging option

RC

• Requests bx by entering ticket in STARS
• Protocol and bx reviewed by IR Rads
• Bx scheduled

IR

• Request enters IR STARS queue

➢ Automated emails are generated and delivered to the RC who requested the biopsy to alert them of the scheduled biopsy date. Additional emails will also be sent should a biopsy be rescheduled or cancelled.
Subject has CT scheduled for 8/1. Can biopsy be scheduled for same day?
Key Points

- Renaming or editing tickets
- Importance of subject ID/screening ID
- Difference between PET/CT and diagnostic PET/CT
- Expedited read requests
Questions?

Please direct your questions to JCTOQAU@med.cornell.edu