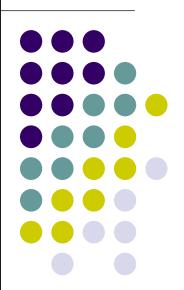
Introduction to C³D

Harris IT Services

Rev June/2012



Introduction

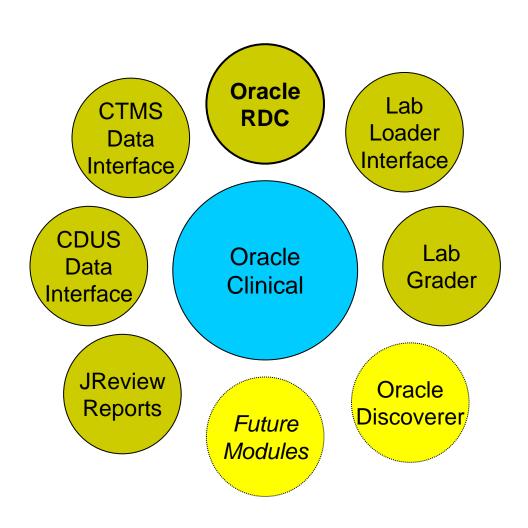
- C³D Cancer Central Clinical Database
- Support
- eCRFs Instructions Manual
- Data Entry
- Audit-Trail
- Discrepancy Management
- Verification
- Approval

What is C³D

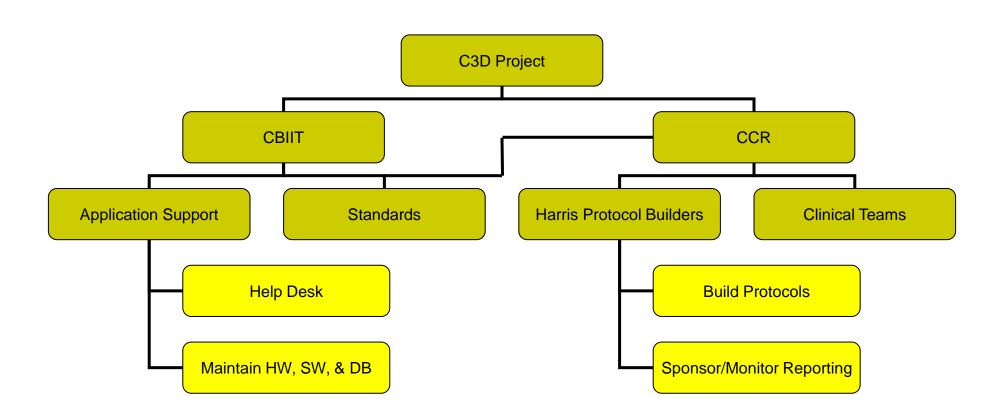


- Web-based Clinical Trials Data Management System
- RDC (Remote Data Capture) On-site
 - Web Based Data Entry
- C³D supports data standardization, reuse, sharing, and interoperability through electronic Case Report Forms (eCRFs) based on Common Data Elements (CDEs)
- Based on Industry Standard Technologies

Cancer Central Clinical Database C³D

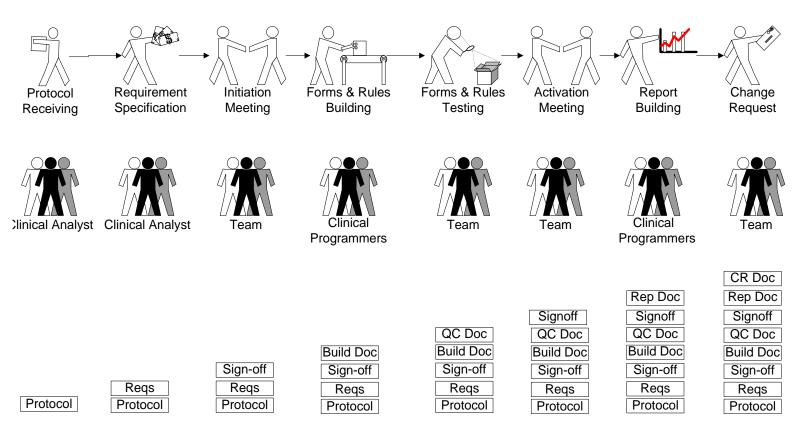


C³D Organization



Designing Protocols in C³D





CCR Standard Case Report Forms

- Library of Standard Forms & Rules is available as a starting point to build protocol specific forms & rules
- Detailed Instructions are available for each Standard Form https://ccrod.cancer.gov/confluence/x/9QiJAw
- Each Instructions includes
 - eCRF Screen Shot
 - General Description
 - Field Specific Description (Mandatory, Derived, etc.)
 - Validation/Derivation Rules

eCRF Instructions Manual

Contents

- Purpose
- · Procedures eCRF
- Validations
- Derivations

Purpose

Record the results of the procedures that are performed as part of the protocol. All laboratory results are to be recorded on the appropriate lab CRF. All procedures that are done as a result of an adverse event are to be recorded on the concomitant measures CRF

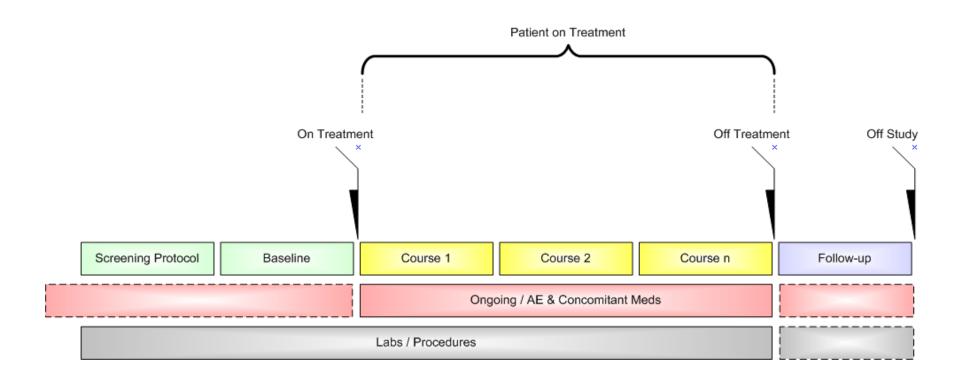
Procedures eCRF



Field Name	Description / Instructions	Format
Visit Date	The Visit Date is optional on this case report form. Hit the "Tab" key to leave it empty and move to the Date field.	DD-MMM-YYYY
Course # ^(d)	Indicates the course number the procedure is related to based on their date and time.	5 digits

C³D Protocol Phases

C3D Study Phases



Role Based Access

Access =>	Browse	Enter Data	Manage Discrepancy	Verify eCRF	Approve eCRF		
Role							
PI	Yes	No	No	No	No		
Research Nurse	Yes	Yes	Yes	Yes	No		
Data Manager	Yes	Yes	Yes	No	No		
Monitor	Yes	No	Yes	No	Yes		
QA	Yes	No	No	No	No		
Protocol Builders	Yes	Yes	Yes	No	No		

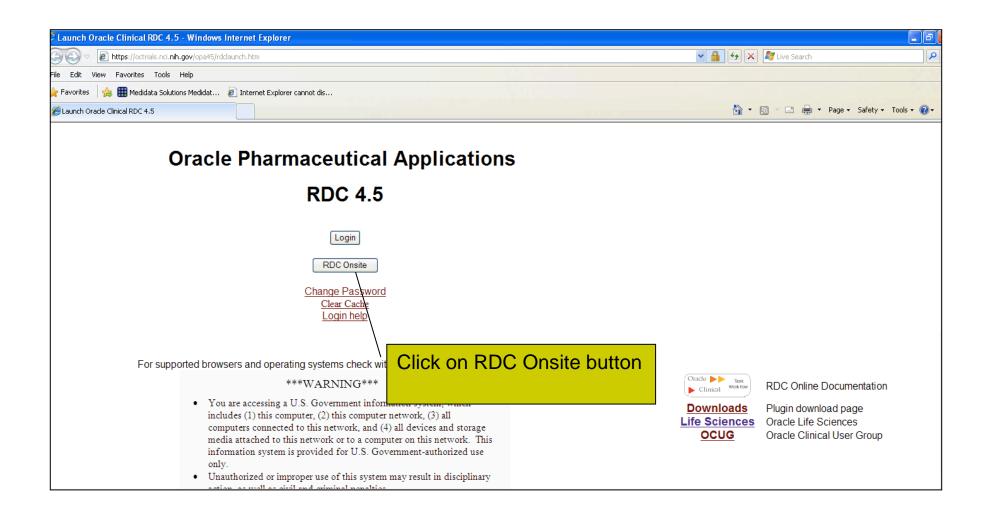
C³D Login Web Pages

C³D is Accessible Worldwide

• C³D Production Login page: https://octrials.nci.nih.gov/opa45/rdclaunch.htm

- C³D provides a separate Data Entry environment to test protocol design
 - Test Login page: https://octrials.nci.nih.gov/opa45/rdclauncht.htm

RDC Onsite



Login



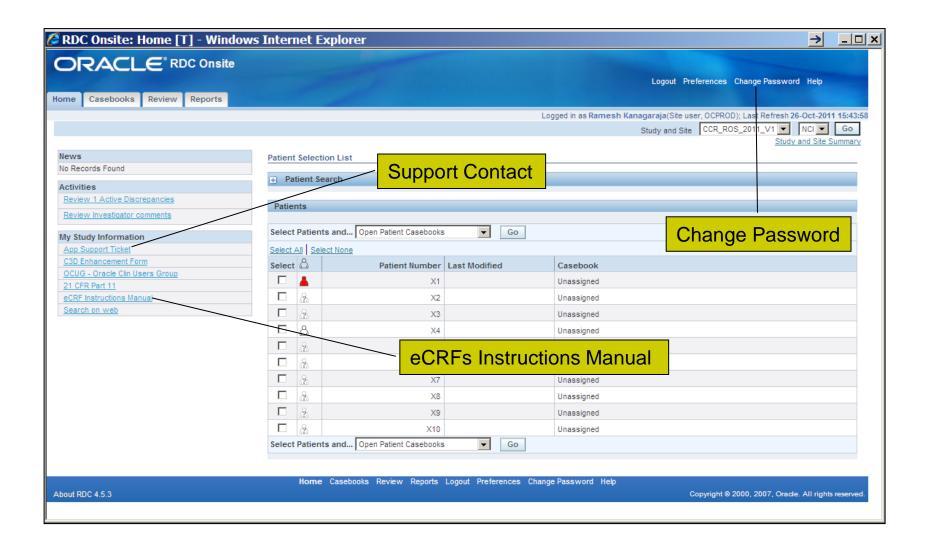
Username & Password

- Username is of the format ops\$smiths
- Password has to be 8 characters starting with a letter and containing at least one number and one special characters (e.g. ! #)
- About C³D Password
 - Do not share the password with others!
 - Password needs to be changed the first time you login
 - Password expires every 3 months and needs to be changed
 - Account gets locked upon three unsuccessful attempts

C³D Support

- CBIIT provides the first line of support for C³D related issues
- Contact
 - Email: <u>ncicbiit@mail.nih.gov</u>
 - Phone: 240-276-5541
- Protocol specific issues are escalated to the Protocol Builder by CBIIT
- Changes to Standards are escalated to Controls & Configuration Management Group (CCMG)

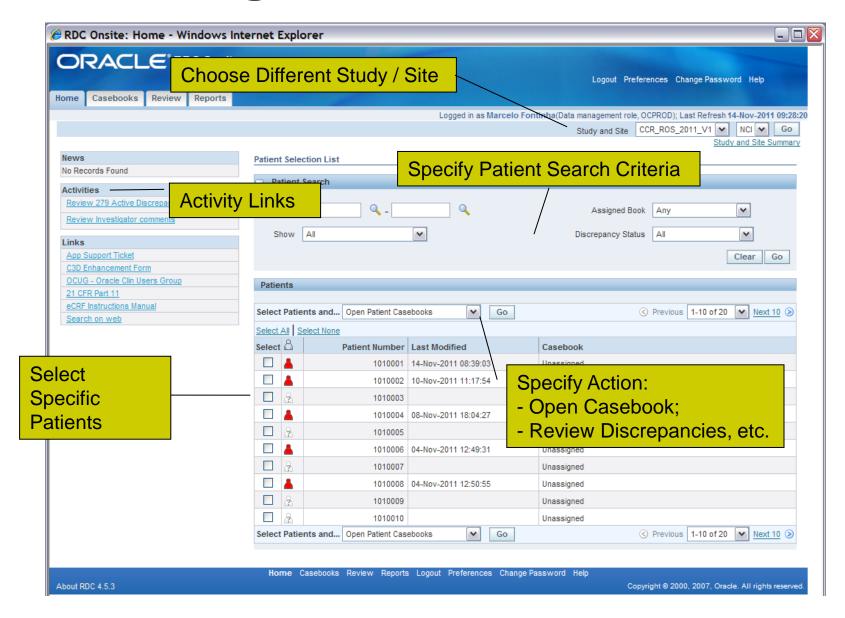
C³D Support



Home Page Activities

- Choose a Different Study / Site
 - Access to studies is controlled by user role
 - C3D remembers that last study used in prior login
 - Select Study and Site from dropdown and click Go
- Activity Links
 - Review ##,### Active Discrepancies
 - Review Investigator Comments
- Specify Patient Search Criteria
 - Enter a range of patient positions and/or
 - Enter a patient reference (ex: %123% to search for patients with 123 in their MRN) and/or
 - Casebook and/or
 - Discrepancy Status and/or
 - Patients with data entered or without data entered
- Select Patient(s) and Action
 - Review Casebook
 - Review Discrepancies
 - Review Investigator Comments
 - Generate Patient Data Report
 - Generate Blank Casebook Report

Home Page Activities



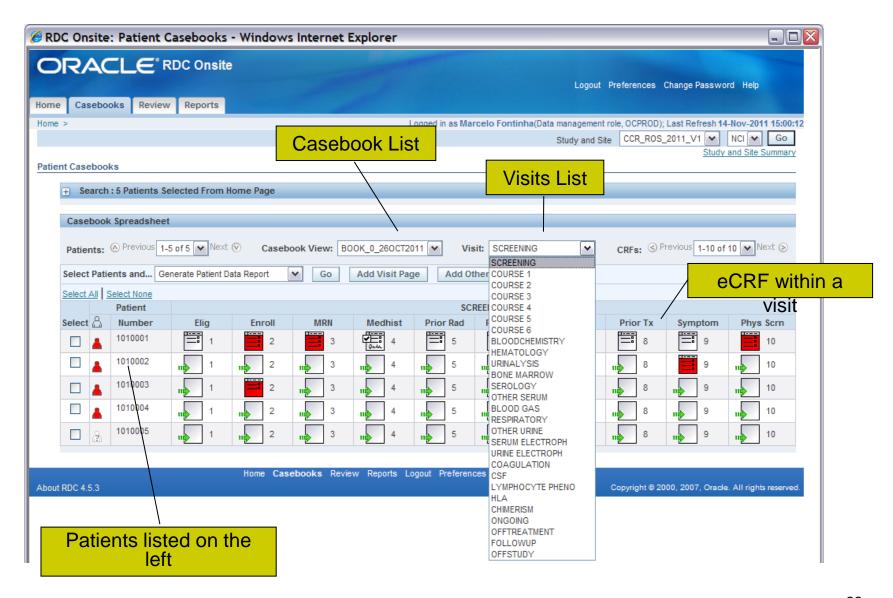
Patient Search Criteria and Selection

- Specify Patient Search Criteria
 - Patient Position range
 - Patient Reference (MRN)
 - Assigned Book (common for Donor / recipient Studies)
 - Discrepancy Status (All, Active, Other, Open, Clean)
 - Patients with data entered or patient with no data entered
- Click on Go button to search and list Patients matching criteria
- Select Patients by placing checkmark next to person icon/patient position
- Select one of the dropdown options:
 - Open Patient Casebooks
 - Review Discrepancies
 - Review Entered CRFs
 - Review Investigator Comments
 - Generate Patient Data Report
 - Generate Blank Casebook Report
- Click on the Go button next to the dropdown
- Entering data for a new patient:
 - Place a checkmark next to the appropriate patient position (the icon indicates that the patient position has no data.
 - Click on the Go button next to the dropdown
- Quick Tip:
 - Protocol Amendments may require different DCI Book. Use Search option to pick the appropriate book.

Navigating Casebook

- Casebook List
 - Lists available Casebooks
 - Click on dropdown list to select a different Casebook
- Visit List
 - Lists Casebooks Visits
 - Click on dropdown list to select a different Visit
- Casebook Visit Layout
 - Patients along Rows with identifier on the left
 - Visit's eCRFS along Columns; pull down for additional visits
- Use the CRFs dropdown to view the additional Visit CRFs
- Click on a Casebook eCRF icon to open it

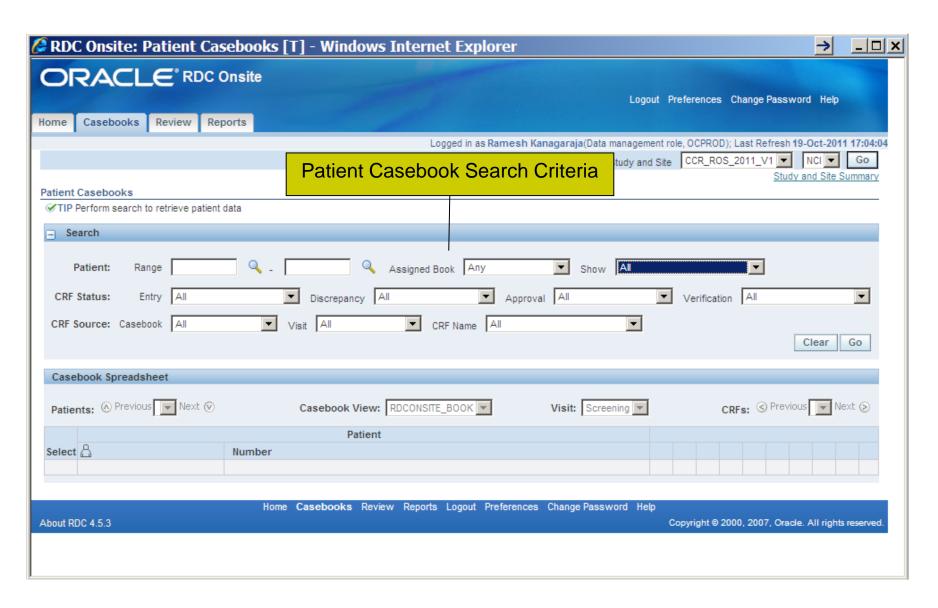
RDC Casebook



Patient Casebook Search Criteria

- Allows for additional Casebook Search Criteria not found in the Home Page Patient Search
 - CRF Status
 - Data Entry
 - Discrepancy
 - Verification
 - Approval
 - CRF
 - Casebook
 - Visit
 - CRF Name
- Specify the Criteria and Click on Go button

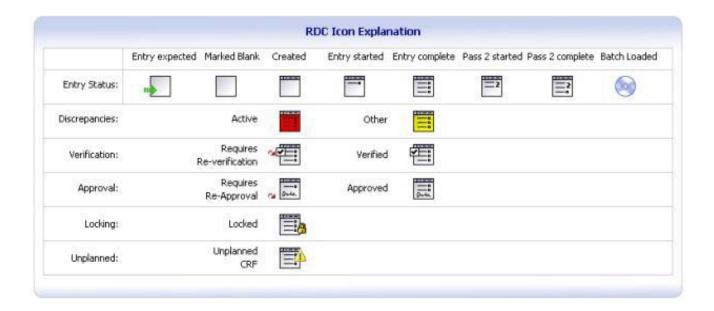
Patient Casebook Search Criteria



Important eCRF Icons

- Square icon represents manual entry
- Round icon represents automated entry (batch loaded lab data or data migrated from legacy system)
- An eCRF just created, but without data has no lines within the icon (Created Status)
- Partially entered eCRF has lines across half of the icon (Entry Started Status)
- Completed eCRF have lines across the whole icon (Entry Complete Status)
- Blank Square icon indicates eCRF has been marked blank
- Red icon indicates one or more open discrepancies

eCRF Icons



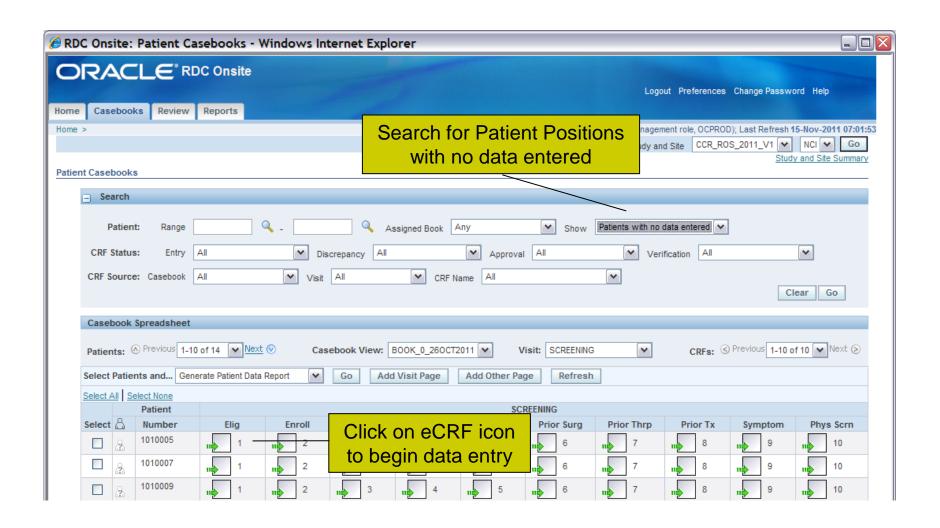
Entering New Patient Data

- A. From the C³D Home Page, place a checkmark next to a patient position with this icon and click on the **Go** button to go to the Casebook or;
- From the Casebook Page, expand the Search section, click on the **Clear** button, select **Patients with no Data Entered** from the **Show** dropdown list and click on the **Go** button.
- On the row for the desired patient position, click on an empty eCRF icon with a green arrow to begin data entry in a new eCRF.

Quick Tips:

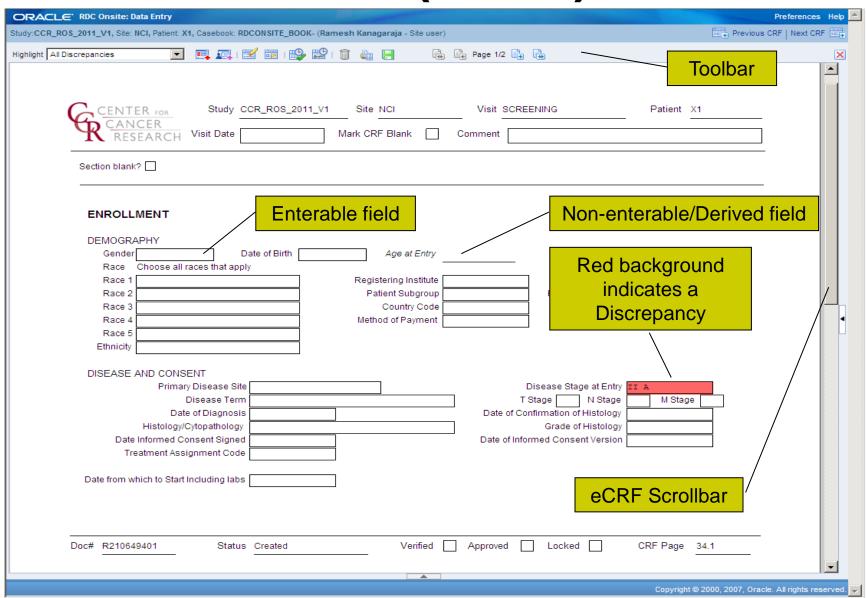
- The total number of Patients available for entry are governed by protocol accrual ceiling. Request additional patient numbers if protocol is amended and accrual ceiling increased.
- It is a good practice to use the patient numbers in sync with those assigned by Central Registration Office (CRO).

Entering New Patient Data



Entering New Patient Data

- Visit Date is mandatory for most forms:
 - Interpret as Evaluation Date, Administration Date, Initiation Date, Lab Date, etc. Refer to the eCRFs Instructions Manual.
 - Partial dates are not acceptable when a visit date is mandatory
 - In Lab CRFs, Visit Date is the Lab Sample Collection Date.



- eCRF may contain multiple pages or sections. Use scrollbars or toolbar page navigation icons.
- eCRF Header and Footer display eCRF identification information
- Visit Date is mandatory for most forms:
 - Interpret as Evaluation Date, Administration Date, Initiation Date,
 Lab Date, etc. Refer to the eCRFs Instructions Manual.
 - Partial dates are not acceptable when a visit date is mandatory.

Quick Tip:

 Up to 3 eCRFs can be open for simultaneous data entry. Additional eCRFs are open in read-only mode.

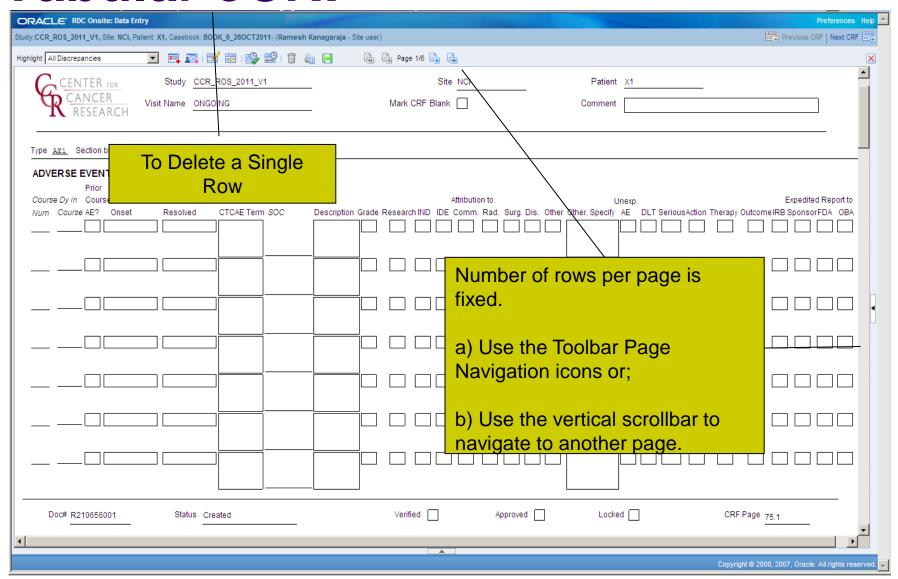
- Toolbar features:
 - Highlight None
 Use Highlight dropdown list to highlight fields that are discrepant (red background), investigator comments (Purple), or changed since last verification or approval or have audit-trail (Blue)
 - Eq. Add Manual Discrepancy to selected field
 - Add Investigator Comments to selected field
 - Mathematical Properties
 Delete Selected Row
 - Blank Flag Tool (Blank / un-blank eCRF's section(s) or entire eCRF)
 - Werify, Un-verify and Review Verification History
 - Base Approve, Un-approve and Review Approval History
 - iii Delete eCRF
 - Print eCRF
 - B Save eCRF
 - Rage 1/2 Rage 1/2
 Navigate eCRF's Pages (First, Previous, Next, Last)
 - Ise Close box to close eCRF
- Navigate to another eCRF by clicking on the Next or Previous CRF icons on the top right corner.

- Navigate within eCRF by:
 - Use Tab, Shift-Tab, Left Mouse click or scrollbars to navigate within eCRF.
 - Toolbar page navigation icons.
- Fields with magnifying glass Gende FEMALE have a pick list of acceptable values. Use the Pick List!
 - With the pick list shown, press CTRL + F to search the pick list.
 - An entered value that is not on the pick list will create a discrepancy. If a
 value needs to be added to the pick list, contact your DM Supervisor.
- Enter Dates as:
 - MMDDYYYY for Current Information
 - MMYYYY for Prior Information is acceptable when complete date cannot be obtained
 - Click on the calendar icon to display a popup calendar and click on a date.

Tabular eCRF

- Fields shown in a grid layout.
- Normally have multiple pages. Use the Window vertical scrollbar to navigate to another page or use the Toolbar page navigation icons.

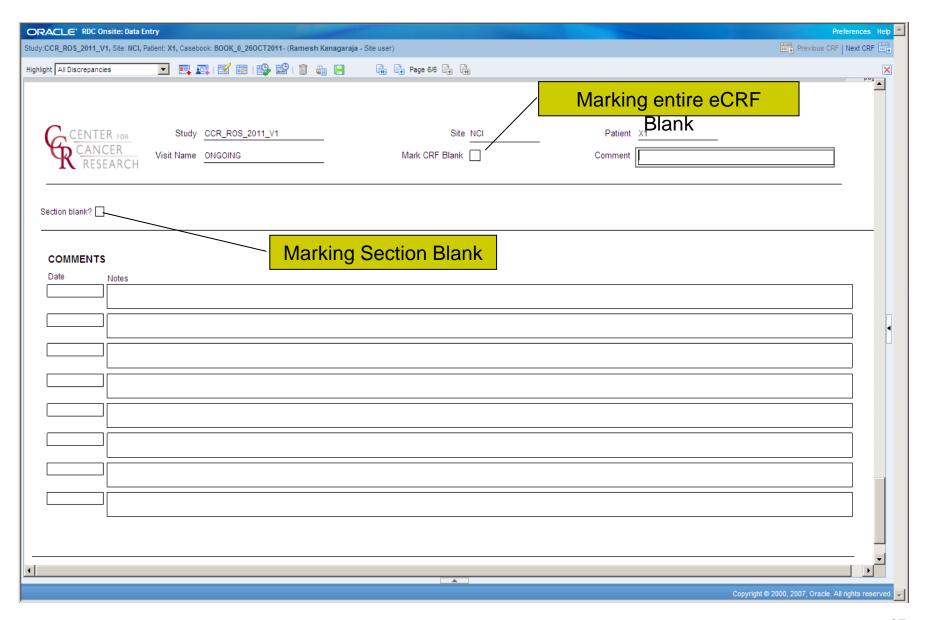
Tabular eCRF



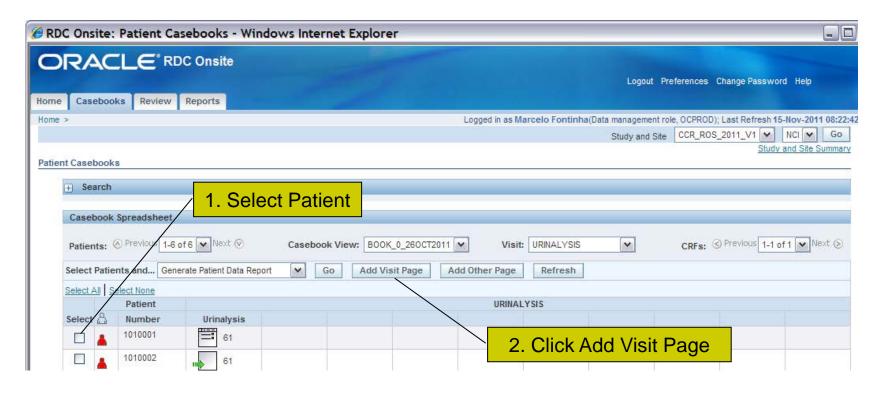
CRF and Section Blank Checkboxes

- Entire eCRF can be marked Blank.
- Individual sections of eCRF can be marked Blank.
- Checking Blank Flag will erase any entered information from the eCRF/Section when saving the eCRFs.
- Blank Flag can be unchecked to enter information.

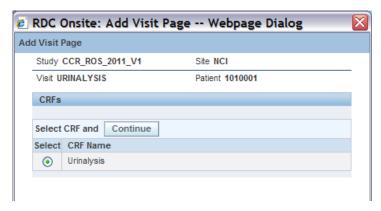
CRF and Section Blank Checkboxes



- Laboratory Data eCRFs are designed with dedicated Visits (Hematology, Urinalysis, etc.) and only one eCRF is planned initially per Visit.
- Additional eCRFs can be added by selecting a Patient and clicking on Add Visit Page.



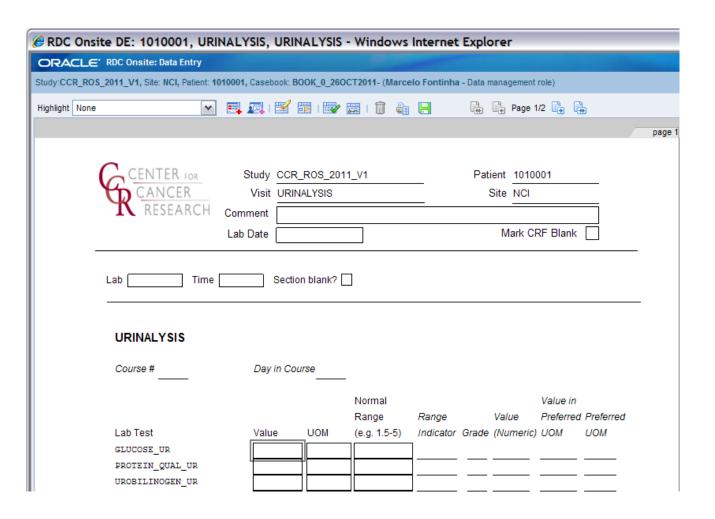
Click on Continue to confirm the eCRF Page to add.



Select the Sub-visit from the dropdown and click on Apply.



- Enter the Lab Date (Sample Collection Date).
- Optionally, choose a Lab Source from the Lab dropdown list.
 - Outside option is normally to indicate panel was done in a location other than the site.
 - If Units of Measurement and Normal Ranges have been predefined for your site, select it from the list and C³D will automatically populate the UOM and Normal Range.
- Enter the lab Sample Collection Time using military time.

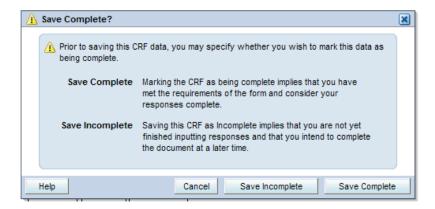


Saving eCRF

- Click on the green floppy disk icon to save the eCRF data.
 - Save Often!! Especially while entering Ongoing Information such as Adverse Events and Concomitant Medications.
- Choose how to save the eCRF:
 - Save Incomplete
 - Discrepancies are not created for mandatory fields that have not been touched (cursor no place in field).
 - Batch Validation Discrepancies are not created as well as derived values
 - Verification and Approval cannot be done.

Save Complete

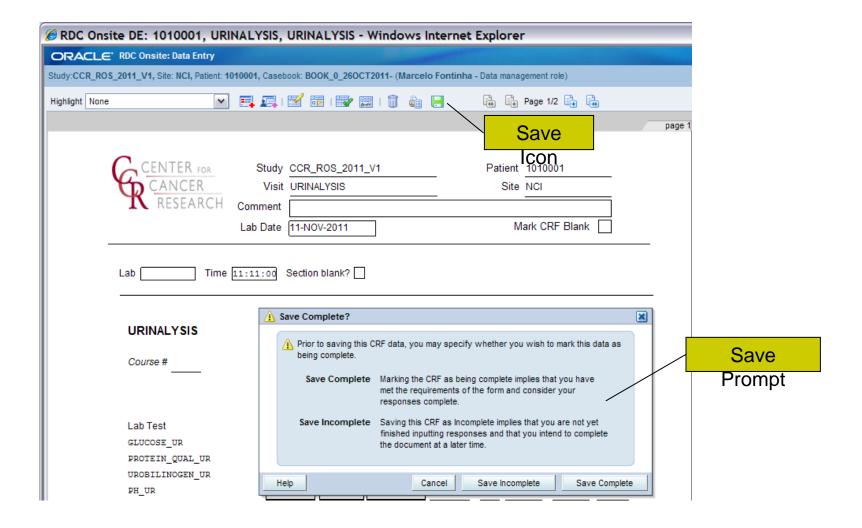
- eCRF Status changes to Entry Complete and all Discrepancies and derived values are created.
- Verification and Approval can be done.
- Audit-trail is always enabled!



Quick Tip:

 For Ongoing Tabular eCRFs, save as Complete once the first row is entered. This will guarantee that batch validation will execute and generate discrepancies related to other eCRFs.

Saving eCRF



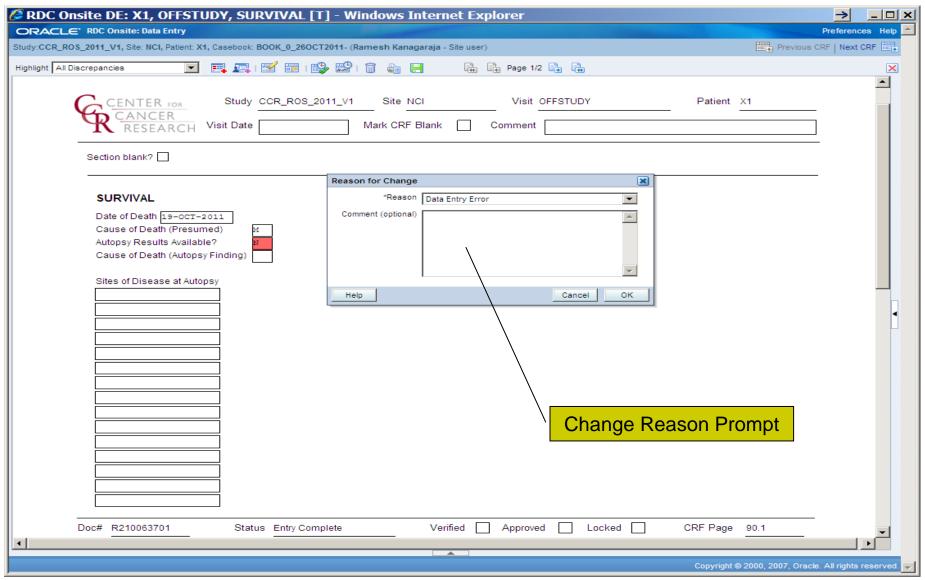
Data Entry Change Reason

- Change Reason needs to be specified while changing data on completed eCRF
- Change Reason becomes part of the Audit-Trail along with date of change and user name
- Comments can be provided in the change reason to further explain

Quick Tip:

 Do not use personnel/patient names or indentifiers the comments.

Data Entry Change Reason



What is a Discrepancy?

- A discrepancy is the failure of entered data to pass a validation check as applied by C³D
- C³D validation checks are defined based on the definition of the fields, logical rules, protocol specifications, and sponsor requirements.

Why Discrepancies?

- Discrepancies are tools to assist teams in programmatically identifying potential data inconsistencies
- Discrepancies facilitate real-time QA of clinical data

Quick Tips:

- Discrepancies do not cover 100% of possible data inconsistencies.
- Clinical judgment may supersede discrepancy logic.

C3D Discrepancy Types

Univariate

 Generated during data entry/load when data is in some way different from the Question definition (e.g. length, type, range, pick list, etc.)

Multivariate

- Based on a condition on one or more fields as defined in a validation rule
- Generated on-line or when validation rules are run (eCRF must be saved as Complete.)

Manual

Generated by data entry operator seeking clarification on data values

Some Typical Discrepancies

<u>Types</u>	Example:	Resolution
Data Type	Text entered in numeric or date field.	Review Source Document.
Length Problems	Too many characters entered.	Use NIH accepted Abbreviations.
Missing Pick list Values	Generic Agent not present in Concomitant Agent picklist.	Search for alternates, e.g. Generic. Consult Team Lead.
Mandatory Value	Field requires a value, but was left empty.	Refer to Source Document. Design modification.
Partial/Invalid Dates	00-10-2010 entered, but field requires a full data such as 01-01-2010	Refer to Source Documents; Check Day Month Year order; Check that date is not in the future.

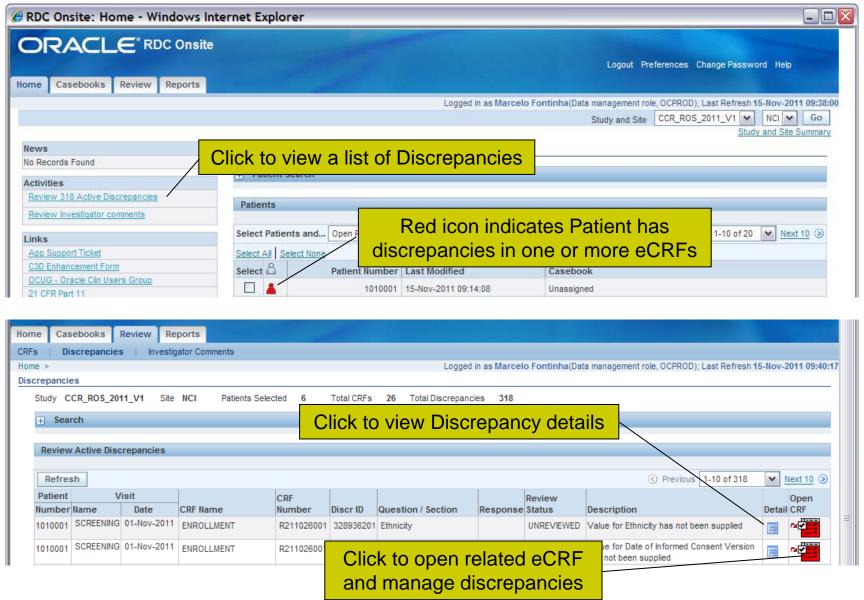
Outstanding Discrepancies in a Study

- Total number of Discrepancies in a study are shown in the Home Page Activities section
- Clicking on the Review ### Active
 Discrepancies will present a lists of all discrepancies under the Review Page.

Quick Tip:

 Data Managers should manage their discrepancies every morning to help ongoing QA of clinical data.

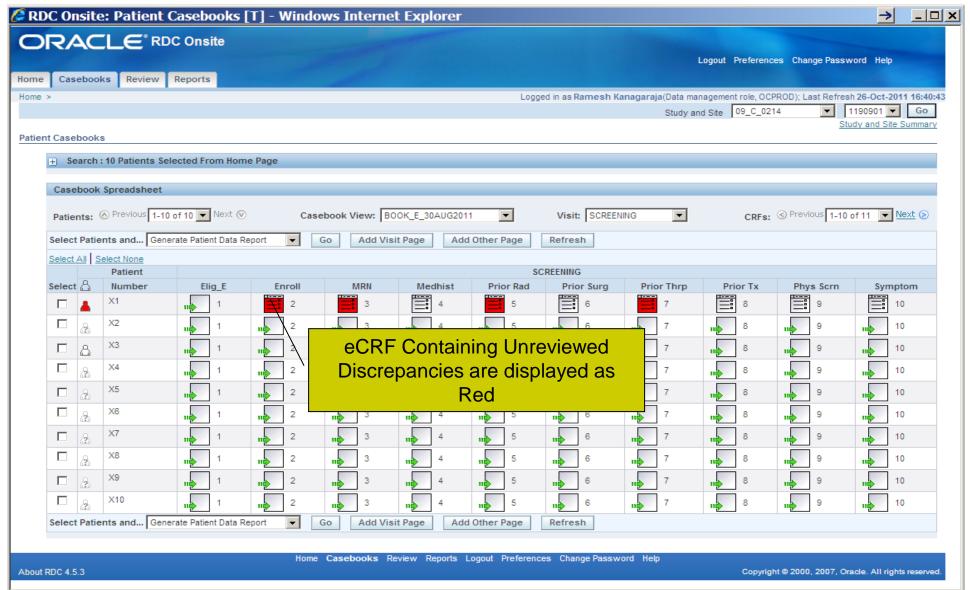
Outstanding Discrepancies in a Study



eCRF Containing Discrepancies

- eCRF containing discrepancies are shown in Red icon
- It is a good practice to address discrepant eCRF on an ongoing basis

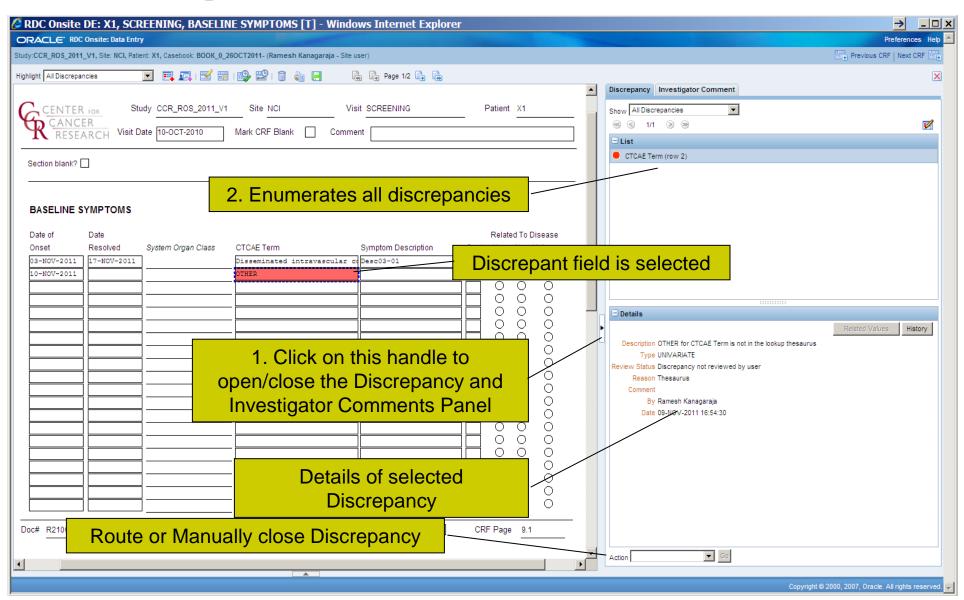
eCRFs Containing Discrepancies



Discrepancies Tab

- While viewing an eCRF, click on the vertical handle on the right side of the eCRF to open the Discrepancies panel.
- Click on the Show dropdown list and select which discrepancies to show.
- Click on one of the discrepancies to view details and highlight / select the related field.
- Click on the discrepancy details Related Values button to view the data points involved.
- Click on the **History** button to view the discrepancy history.
- Click on the Action dropdown list to route discrepancy to another user/role or to manually close a discrepancy.
 - Manually closing discrepancies is highly undesirable.

Discrepancies Tab



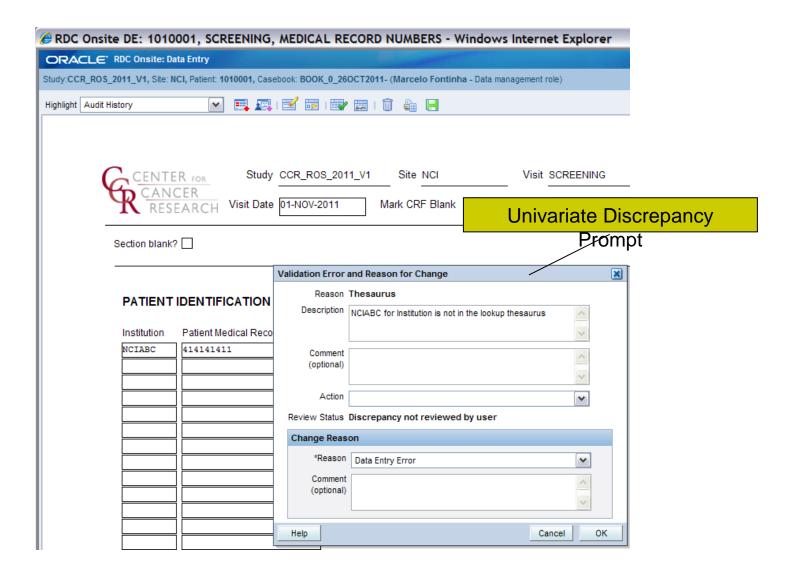
How are Univariate Disc. Created?

- Univariate Discrepancies pop-up is presented during data entry when the entered value does not match the field definition.
- Data Entry operator can:
 - Cancel the pop-up and fix the value
 - Or accept the discrepancy

Quick Tip:

 Univariate Discrepancies are reassessed during Batch Validation for Design Changes.

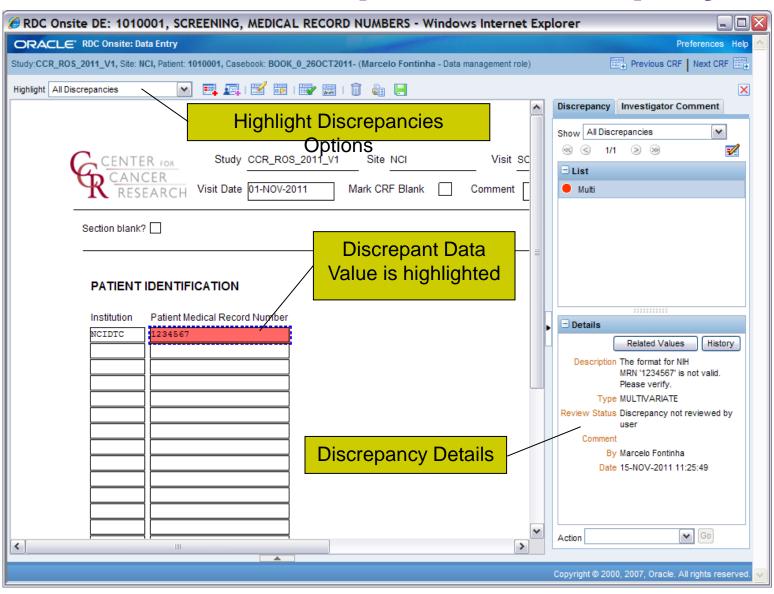
How are Univariate Disc. Created?



How is are Discrepancies Displayed?

- Discrepant data background is highlighted in red when one of the following eCRF's Highlight dropdown options is selected:
 - All Discrepancies
 - Closed Discrepancies
 - Active Discrepancies
 - Active and Other Discrepancies
- Click on the vertical handle on the right side of the eCRF to open the Discrepancies panel and view the Discrepancy details.

How is are Discrepancies Displayed?



How are Multivariate Disc. Created?

- Multivariate Discrepancies are created based on validation rules programmed in a study
 - Example 1: Create Discrepancy if the entered BSA is not within 10% of the calculated BSA
 - Example 2: Create Discrepancy if Date of Histological Confirmation is before Date of Diagnosis

Quick Tip:

- Rules available as a standard on each eCRF are summarized in the eCRFs Instructions Manual.
- Though several standard rules are implemented for each eCRF as specified on the eCRFs Instructions Manual, clinical teams can request them to be turned off or modified to comply with the Protocol.

Evaluation of Multivariate Rules

- Validation Rules are evaluated
 - on-line upon completion of a form, or;
 - during an overnight batch validation session (only data in eCRF saved as Complete are evaluated.)
- Multivariate Discrepancies are displayed in the same manner as Univariate Discrepancies. The Discrepancy Details panel indicates the type of Discrepancy.

Quick Tip:

Complex rules run overnight

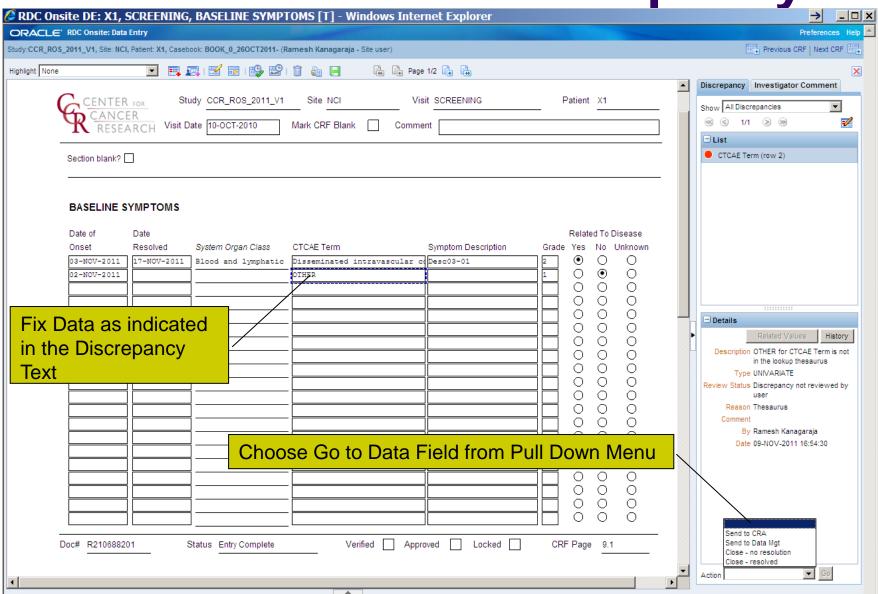
How to Address a Discrepancy

- Review Discrepancy Text
- Resolve the discrepancy by:
 - Modifying incorrect data and specifying change reason
 - Requesting eCRF Design or Validation Rule Change

Quick Tip:

- System obsoletes univariate discrepancy automatically when data is corrected.
- Multivariate Discrepancies are only re-evaluated during Batch Validation.

How to Address a Discrepancy



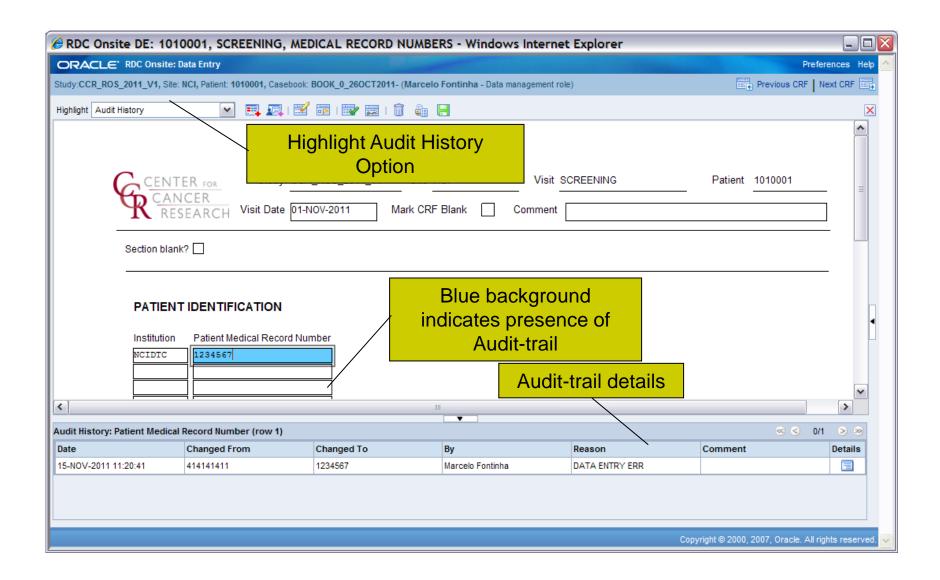
Audit Trail

- Use the eCRF Highlight dropdown Audit History option to hightlight, with blue background, the fields that have audit-trail.
- Then right-click on one of the highlighted fields and select the **Show Audit History** option from the pop-up menu.
- Review the Audit-trail details at the Audit
 History Panel opened at the bottom of the
 eCRF window.

Quick Tips:

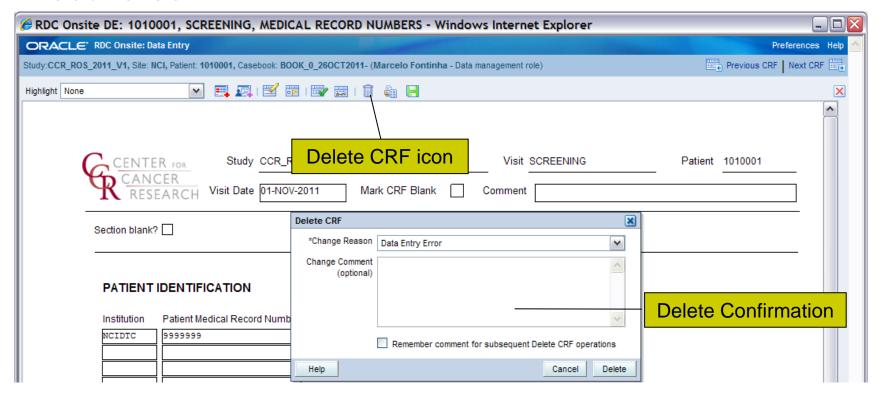
- Auditing begins as soon as the eCRF is saved.
- Do not share user IDs and passwords!

Audit Trail



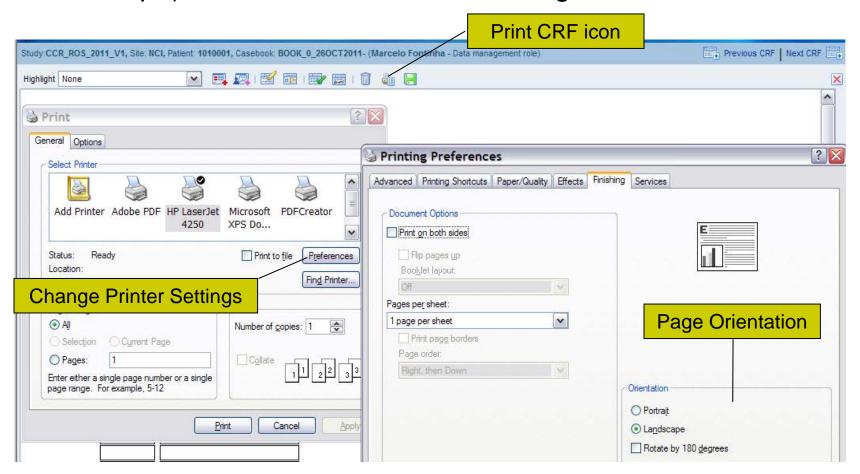
Delete eCRF

- Click on the **Delete CRF** Toolbar icon to delete the entire eCRF and its data.
- Once deletion is confirmed, eCRF and data cannot be recovered.



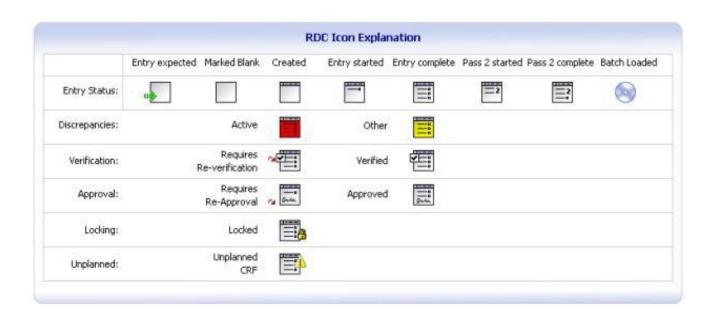
Print eCRF

- Click on the Print CRF Toolbar icon to print the eCRF and its data.
- Make sure to select the Printer Page Orientation (Portrait or Landscape) that matches the eCRF design.



Verification & Approval

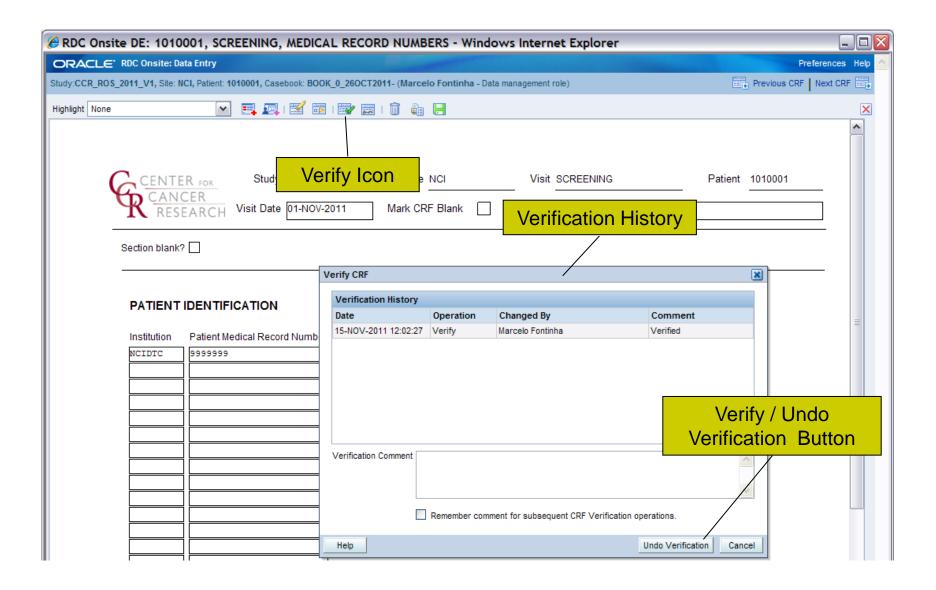
- C³D Verification & Approval functionality offer capabilities to track QA and Monitoring of eCRFs.
- Verification is Associated with the Research Nurse User Role.
- Approval is Associated with the Monitor User Role.



Verification

- Each eCRF can be verified by clicking on the Toolbar Verify button
- Verified eCRF Icon has a Checkmark
- Editing a verified eCRF changes its icon to a Re-Verify status
- Edited eCRF can be re-verified
- eCRF Verification Change History is maintained in the Verification pop-up Window

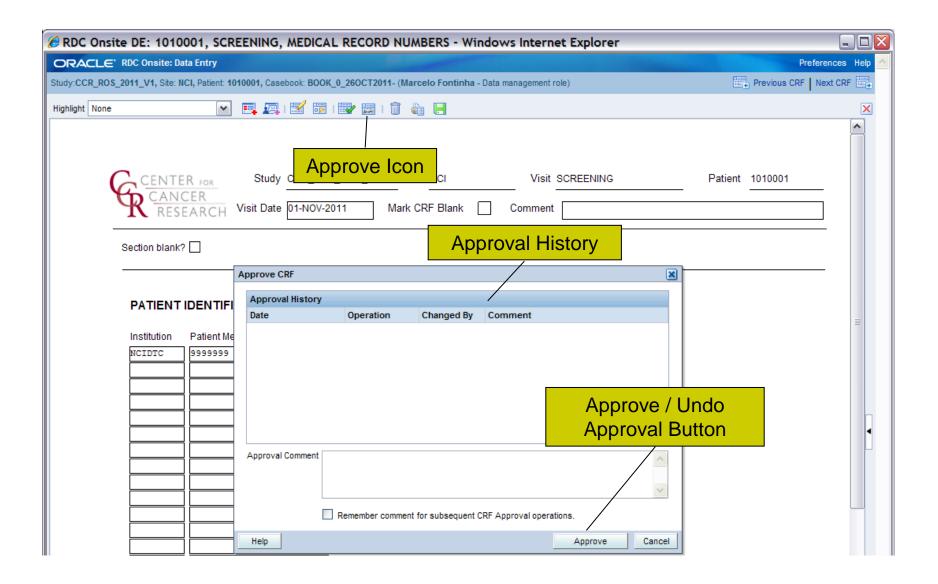
Verification



Approval

- Each eCRF can be approved clicking on the Toolbar Approve button and providing your C3D user name and password.
- Approved eCRF Icon has a Signature
- Editing an approved eCRF changes its icon to a Re-Approve status
- Edited eCRF can be re-approved
- eCRF Approval Change History is maintained in the Approval pop-up Window

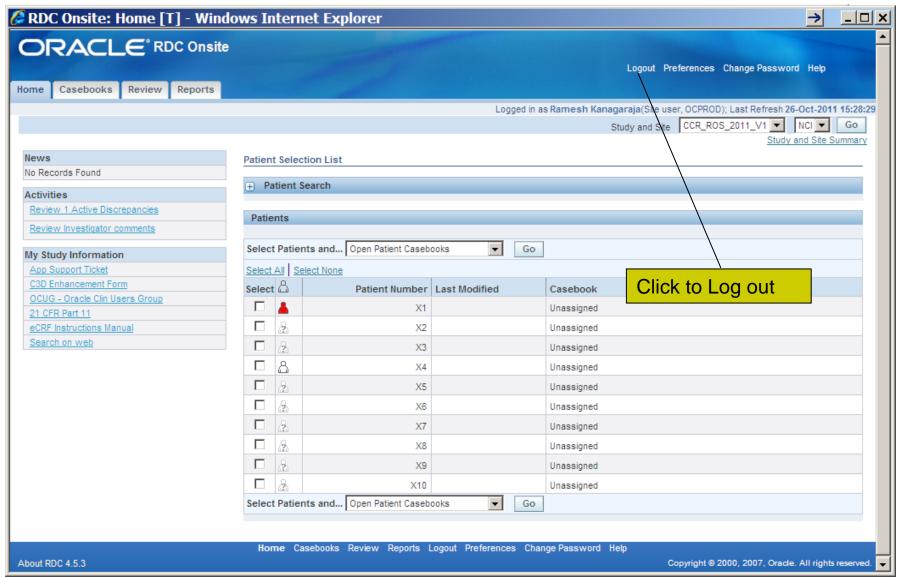
Approval



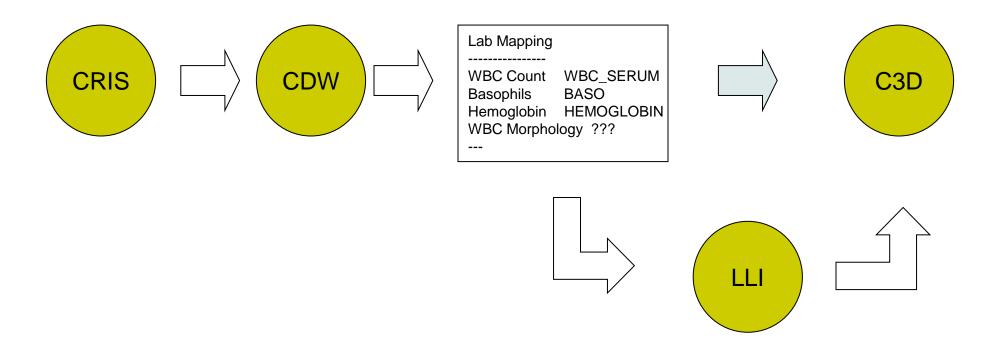
Log Out

- Exit C3D before closing the Browser
- Inactivity for more than 30 minutes logs your out automatically

Log Out



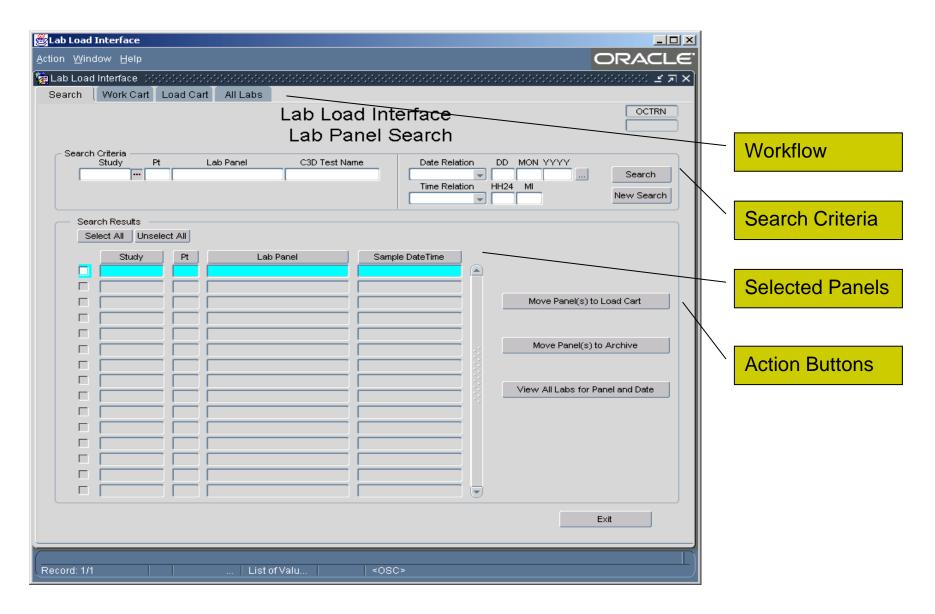
CRIS to C3D Lab Data Flow



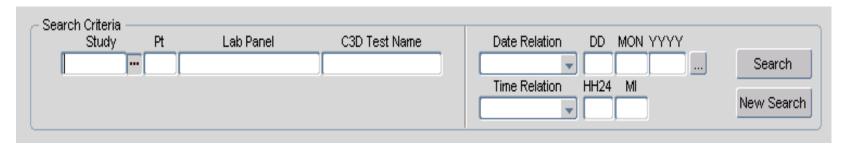
What is LLI?

- LLI is a utility to review and identify specific Lab Test Results to be downloaded from the CRIS/CDW into C3D
- URL: http://octrials.nci.nih.gov/opa45/labloadinter.htm
- Username & Password are same as C3D

LLI Search Screen



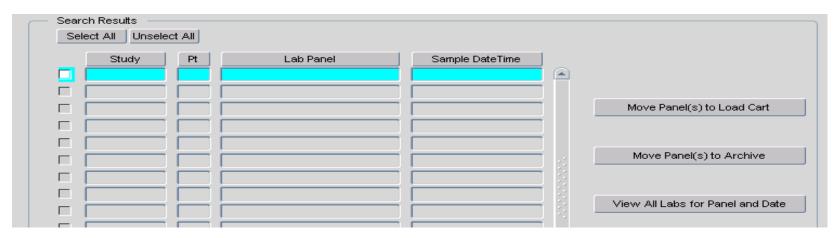
LLI Search Criteria



Searching

- Can search by Study, Patient Number, Lab Panel, OC Lab Question, Date and/or Time
 - Each search field contains Pick List.
 - Date and Time allows the '%' wild card
 - Date and Time provide the additional option of:
 - "On or Before", "On or After" and "LIKE" comparisons
 - Partial dates can be entered as %NOV%

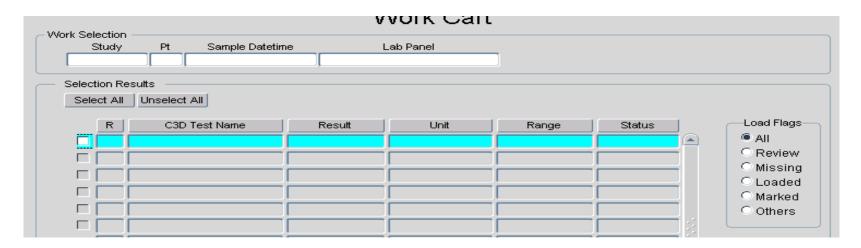
LLI Search Screen Results



Search Results

- The result set lists Lab Panels that have at least one lab test available for loading that meet the criteria entered into the search fields.
- The sort order can be changed using the column headings.
- Results can be selected/deselected for processing by using the individual select check box or Select Buttons.
- Entire panels of lab tests can then be moved to the Load Cart or Marked for Archive.
- Clicking "View All..." button or by double clicking the record presents the Work Cart with specific Lab Test Results for that panel.

LLI Work Cart



Work Cart

- Shows Entire Panel, including previously loaded and missing Lab Tests
- The list can be filtered using the "Load Flag" radio buttons.
- Sort by Lab Test Panel Order (R), Test Name, Results, etc.
- Results can be selected/deselected for processing by using the individual select check box or Select Buttons.
- Once selected, the lab tests can be moved to the Load Cart or Archived

Question & Answer

