

Australian National Diabetes Audit (ANDA)  
Research Electronic Data Capture (REDCap)  
Data Entry Manual

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## Revision History

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15/4/2019	Trieu-Anh Truong	1.0	Initial document

## Abbreviations

<b>ANDA</b>	Australian National Diabetes Audit
<b>AQCA</b>	Australian Quality Clinical Audit
<b>AQSMA</b>	Australian Quality Self Management Audit
<b>CRF</b>	Case Report Form
<b>eCRF</b>	electronic Case Report Form
<b>ID</b>	Identification
<b>MHTP</b>	Monash Health Translation Precinct
<b>REDCap</b>	Research Electronic Data Capture
<b>URL</b>	Uniform Resource Locator

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# 1. REDCap: Research Electronic Data Capture

## 1.1 About REDCap

REDCap is a secure web application for building and managing online surveys and databases electronically. REDCap was created in 2004 at Vanderbilt University<sup>1</sup>. Use of the REDCap system is governed by an End User Licence Agreement between Monash University and Vanderbilt University. The REDCap application (database and web server) are hosted at Monash University. All communication between client (user's browser) and server (registry system) occurs on secure channel, commonly referred to as Secure Sockets Layer (SSL). SSL ensures that all data is encrypted by a private key on the server before it is sent on a wire to the client where it is decrypted by a public key. This ensures the data are not compromised in transit. The ANDA database has been developed to assist participating sites with real-time electronic data capture.

## 2. Accessing the ANDA Database

### 2.1 Login URL

Type the URL below in your internet browser (Firefox, Chrome, Safari or Internet Explorer) to access the ANDA database.

<https://redcap.mhnp.org.au/>



**Log In**

---



Please log in with your user name and password. If you are having trouble logging in, please contact [REDCap Administrator](#).

Username:	<input type="text"/>
Password:	<input type="password"/>
<input type="button" value="Log In"/>	<a href="#">Forgot your password?</a>

### 2.2 User Accounts

To obtain access to the ANDA database, site coordinators are required to provide the ANDA secretariat with the following details of staff members completing the forms:

- First name
- Surname
- E-mail address
- Site name
- Site ID

Each staff member at your site will be provided with an individual user account and will only be able to see patients from your site.

## 2.3 Passwords

When your account has been created, you will receive an e-mail from redcap@monash.edu (also check your spam folder) containing your login details:

- Your username
- URL link to the ANDA database

When you click on the link from the e-mail for the first time, you will be required to set your own password.

REDCap password requirements include:

- Length between 10 and 15 characters
- Comprised of only letters, numbers and underscores (i.e. no special characters)
- Contains at least one upper case letter, one lower case letter and one number

You will also be asked to set a challenge question and answer that can be used to help you if you forget your password.

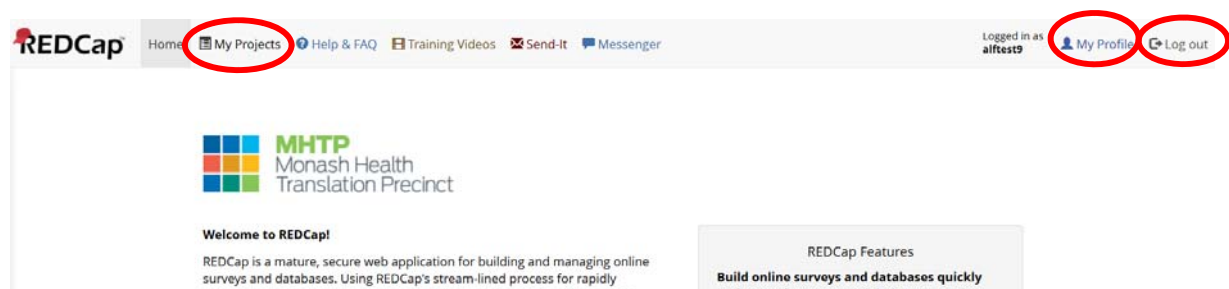
\*\*\* YOUR LOGIN DETAILS SHOULD BE KEPT PRIVATE AND NOT BE SHARED \*\*\*

N.B. If REDCap detects inactivity after 30 minutes, you will automatically be logged out. You will also be required to change your password every 90 days.

## 3. Home Screen

### 3.1 Home

The Home screen is where you will be able to access: My Projects, My Profile and Log out icon.



#### 3.1.1 My Projects

This page lists all the REDCap MHTP projects that you have access to.

- Click the project title to access the database (which could be ANDA-AQSMA/ANDA-AQCA)

Listed below are the REDCap projects to which you currently have access. Click the project title to open the project. [Read more](#)

Project Title	Records	Fields	Instrument	Type	Status
<a href="#">ANDA</a>	2	73	1 form		

### 3.1.2 My Profile

- (Optional) To update your profile, password or preferences, click on 'My Profile', located on the right-hand side of the Home screen

**REDCap** Home My Projects Help & FAQ Training Videos Send-It

#### Edit Your User Profile

If you wish, you may edit your User Profile information below. This information will not be given out to anyone but will be used to help us better keep track of who is using REDCap and also in case you need to be contacted regarding your access to REDCap.

**Basic Information**

First name:

Last name:

Primary email:

**Login-related options:**

**Additional Options**

While your primary email address is used for receiving emails and notifications from REDCap, your secondary and tertiary email addresses can only be used when sending out emails from REDCap (e.g., sending survey invitations), in which they appear as the 'From' address in the email.

Secondary email:

Tertiary email:

**User Preferences**

Set your preferences for how dates, timestamps, and numbers appear to you in REDCap.

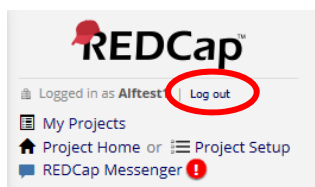
Date and time format:    
(e.g., 12/31/2004 22:57 or 31/12/2004 10:57pm)

Number format - decimal character:    
(e.g., 3.14 or 3.14)

Number format - thousands separator:    
(e.g., 1.000.000 or 1.000.000 or 1 000 000)

### 3.1.3 Log out

It is recommended that you always log out using the 'Log out' link after data entry completion.

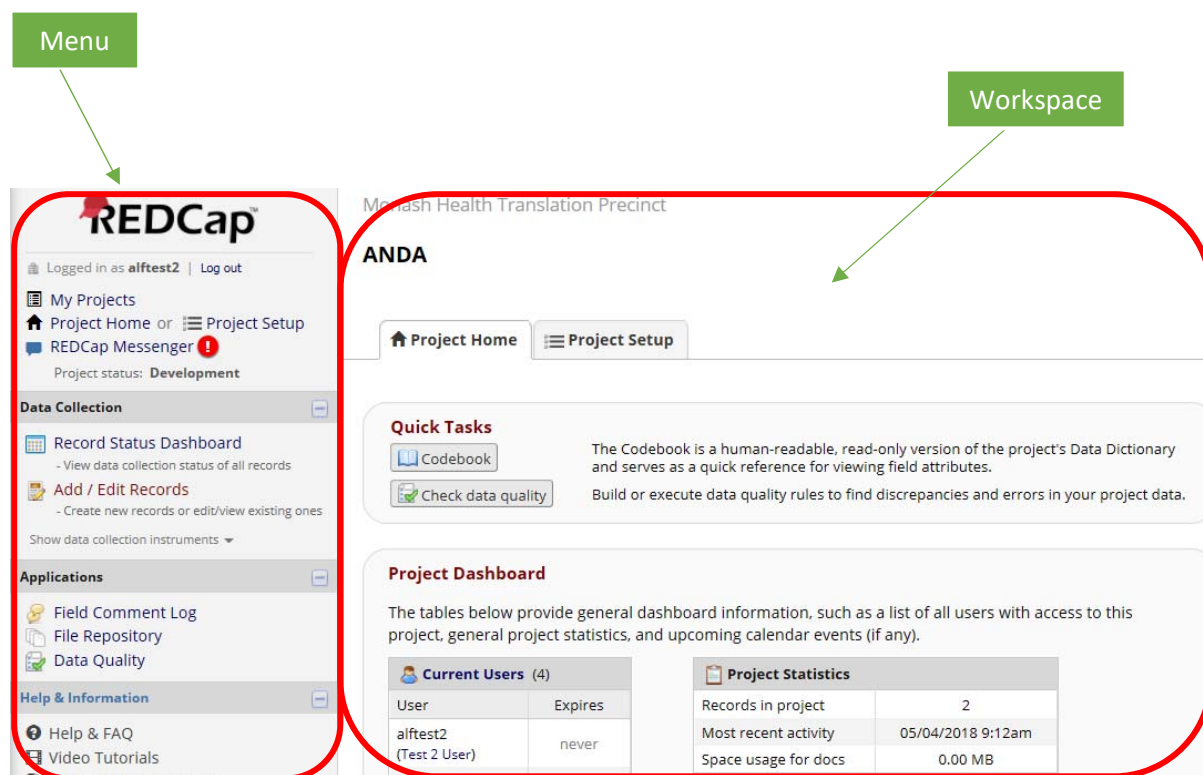


Your session will time out after 30 minutes of inactivity, requiring you to log in again to continue.

## 4. Menu and Workspace

The main menu is located on the left-hand side of the screen.

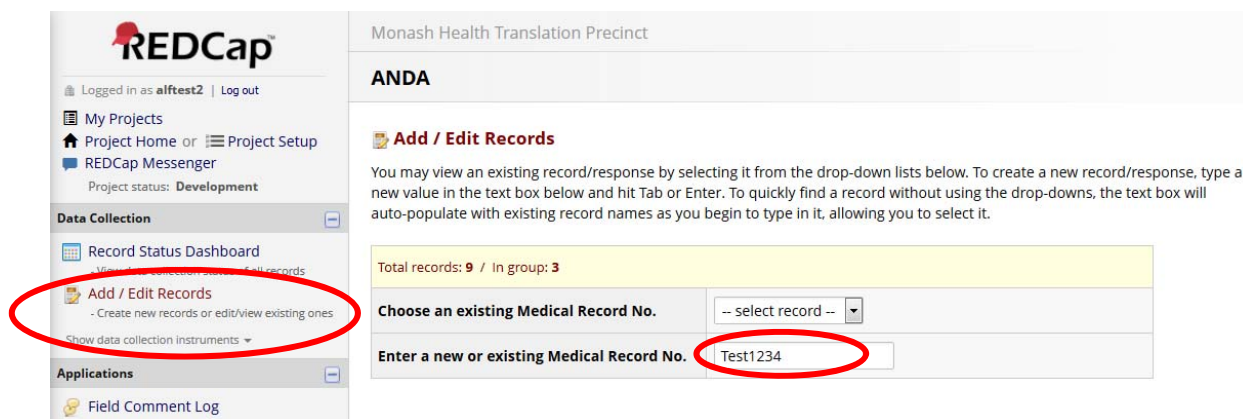
The workspace is located on the right-hand side of the screen.



## 5. Data Entry

### 5.1 Add/Edit Records

- From the menu, under the 'Data Collection' heading, click 'Add/Edit Records' to create a new participant ID
- From the workspace, enter the 'Medical Record No.' or select a record from the existing drop down list to edit a record previously entered
- Using the mouse, click away from the text box or press 'enter' on the keyboard. You will automatically be taken to the data collection form (also known as electronic Case Report Form (eCRF))



### 5.1.2 Entering Data

- Enter data in all required fields (\*)
- Under the 'Form Status' section, change the 'Form Status' from 'Incomplete' (default) to 'Complete' if all data has been entered. (Note: Ignore 'Unverified' status as it is not applicable to ANDA)
- Click 'Save & Exit Form'

Adding new Medical Record No. **Test1234**

**Medical Record No.** Test1234

**Section 1. Patient Demographics**

**Site ID**  \* must provide value

**Staff initials**  (optional)

**1.1 Date of birth**   D-M-Y  
\* must provide value dd/mm/yyyy

**1.2 Sex**  Male  Female  
\* must provide value

**Form Status**

**Complete?**  Incomplete Unverified Complete

NOTE: To delete the entire record (all forms/events), see the record action drop-down at top of the [Record Home Page](#).

### 5.1.3 Preventing a Data Query – known missing/invalid data

A field can be prevented from appearing in the Data Query list at the time of data entry if the data field is missing or invalid.

E.g. For example, if data was not collected for a certain field and cannot be obtained, flag the field to prevent it from appearing in the data queries

- In the eCRF, click the yellow 'bubble' to enter a comment



**Section 3. Height, Weight & Smoking Status**

**3.1 Weight**  
\* must provide value  
Format: NNN.N

**3.2 Height**  
\* must provide value  
Format: N.NN

**3.3 Smoking status**  
\* must provide value  
 Current  
 Past  
 Never  
reset

**If current smoker,**  
**3.3.1 Number of years spent smoking**  
 \* must provide value  
 < 5 years  
 5-10 years  
 11-20 years  
 >20 years  
  
reset

A 'Data Resolution Workflow' pop-up will appear

- Select 'Verified data value' and enter a comment (e.g. Not available)
- Click 'Verified data value' to save and close

**Data Resolution Workflow** ✕

[VIDEO: Data Resolution Workflow](#)

This pop-up displays the Data Resolution Workflow for the specified record for a given field and/or Data Quality rule. Users with appropriate user privileges may open data queries to begin a documented process of resolving an issue with the data. Opened data queries may thus be responded to by users with appropriate privileges, and then they may be closed once the issue has been resolved. All data queries can also be viewed on the Resolve Issues page in this project.

Medical Record No.: [Test 123](#)

Field: **smokeyrs** ("If current smoker, 3.3.1 Number of years spent smoking")

Status: **Not Opened**

Date/Time	User	Comments and Details
15/03/2019 12:57pm	t.truong	<input checked="" type="radio"/> <b>Verified data value</b> — OR — <input type="radio"/> <b>Open query</b> Assign query to a user (optional): <input type="text" value="-- select user --"/> Comment (optional): <input type="text" value="Unknown"/>

## 5.2 Record Status Dashboard

- From the menu, under the 'Data Collection' heading, click 'Record Status Dashboard' to access an overview of all patients' data entry progress
- From the workspace, click on the patient ID to go to their 'Record Home Page' or
- Click on the coloured circle to return to the patient's eCRF
- Ensure all patient's icons are complete (green)

Monash Health Translation Precinct

**ANDA**

**Record Status Dashboard (all records)**

Displayed below is a table listing all existing records/responses and their status for every data collection instrument (and if longitudinal, for every event). You may click any of the colored buttons in the table to open a new tab/window in your browser to view that record on that particular data collection instrument. Please note that if your form-level user privileges are restricted for certain data collection instruments, you will only be able to view those instruments, and if you belong to a Data Access Group, you will only be able to view records that belong to your group.

**Legend for status icons:**  
 ● Incomplete ● Incomplete (no data saved) ?  
 ● Unverified  
 ● Complete

Dashboard displayed: [Default dashboard]

Displaying record Page 1 of 1: "1111" through "Test1234" of 4 records ALL (4) records per page

Displaying: Instrument status only | Lock status only | All status types

Medical Record No.	ANDA AQ5MA 2018
1111	●
12345	●
Test99	●
Test1234	●

All entered patients

### 5.2.1 Legend for status icons

**Legend for status icons:**  
 ● Incomplete ● Incomplete (no data saved) ?  
 ● Unverified  
 ● Complete

Not applicable to ANDA

## 6. Data Quality (Data Queries)

Data Quality rules are generated to check for discrepancies in the dataset. A “data quality rule” is a calculation expression that evaluates to True or False. When a rule is executed, any records that **DO NOT** fulfil the expression, can be viewed and corrected.

Staff will only be able to view discrepancies for patients from their site.

All staff will have user privileges to open data queries in order to begin a documented process of resolving an issue with the data. Opened data queries may thus be responded to by staff with appropriate privileges, and then they may be closed once the issue has been resolved. There are 2 ways to view data queries: Data Quality and Resolve Issues page

### 6.1 Generate Data Queries

1. In the project menu, under the ‘Applications’ heading, click ‘Data Quality’
2. In the workspace, click ‘Execute rules: All’ to view all the data entry discrepancies
3. The total number of discrepancies will populate for each data quality rule from A to H

Menu

- My Projects
- Project Home or Project Setup
- REDCap Messenger
- Project status: **Development**
- Data Collection**
- Record Status Dashboard
- Add / Edit Records
- Applications
- Data Exports, Reports, and Stats
- Field Comment Log
- Data Quality**
- External Modules
- Help & Information
- Help & FAQ
- Video Tutorials
- Suggest a New Feature
- Contact REDCap administrator

Workspace

### Data Quality

This module will allow you to execute data quality rules upon your project data to check for discrepancies in your data. Listed below are some pre-defined data rules that you may utilize and run. You may also create your own rules or edit, delete, or reorder the rules you have already created. To find discrepancies for a given rule, simply click the Execute button next to it, or click the Execute All Rules button to fire all the rules at once. It will provide you with a total number of discrepancies found for each rule and will allow you to view the details of those discrepancies by clicking the View link next to each. [Read more detailed instructions.](#)

NOTE: Since you have been assigned to a Data Access Group, you are only able to view discrepancies for records assigned to your group.

Data Quality Rules					
Execute rules: <span style="border: 1px solid red; border-radius: 50%; padding: 2px;">All</span>   All except A&B   Clear					
Apply to: -- All records --					
Rule #	Rule Name	Rule Logic (Show discrepancy only if...)	Real-time execution ?	Total Discrepancies	
A	Missing values*	-			Execute
B	Missing values* (required fields only)	-			Execute
C	Field validation errors (incorrect data type)	-			Execute
D	Field validation errors (out of range)	-			Execute
E	Outliers for numerical fields (numbers, integers, sliders, calc fields)**	-			Execute
F	Hidden fields that contain values***	-			Execute
G	Multiple choice fields with invalid values	-			Execute
H	Incorrect values for calculated fields	-			Execute

\* The Missing Values rules above automatically exclude fields hidden by branching logic when searching for missing values. If a field is hidden by branching logic on a data entry form or survey, then it is expected that such a field would not have a value. Thus for these cases, the values for those hidden fields will not be classified as missing. Additionally, checkbox fields are also excluded since an unchecked checkbox is itself often considered to be a real value.  
\*\* The term 'outlier' refers to a value that is more than two standard deviations from the mean.  
\*\*\* The term 'hidden fields' refers to any fields on a survey or data entry form that are not being displayed because branching logic is hiding them, which assumes that the field's value should be blank/null.

4. Click 'view' for any rules containing discrepancies


Data Quality Rules					
Processing Complete! Execute rules: All   All except A&B   Clear					
Apply to: -- All records --					
Rule #	Rule Name	Rule Logic (Show discrepancy only if...)	Real-time execution ?	Total Discrepancies	
A	Missing values*	-		5	<a href="#">view</a>
B	Missing values* (required fields only)	-		4	<a href="#">view</a>
C	Field validation errors (incorrect data type)	-		0	<a href="#">view</a>
D	Field validation errors (out of range)	-		0	<a href="#">view</a>
E	Outliers for numerical fields (numbers, integers, sliders, calc fields)**	-		16	<a href="#">view</a>
F	Hidden fields that contain values***	-		0	<a href="#">view</a>
G	Multiple choice fields with invalid values	-		0	<a href="#">view</a>
H	Incorrect values for calculated fields	-		0	<a href="#">view</a>

\* If you have access to multiple sites, your view may differ slightly.

5. A pop-up dialog will appear, listing the discrepancy for each field of each individual record/patient, which could be missing data or an invalid value.

*Example 1: Rule A - Missing values*

**Rule: Missing values\***  
Discrepancies found: 7


Record	Discrepant fields with their values	Status	Exclude 
Test2 (excluded)	"Staff initials" gp_id = [no data]	Missing value	<a href="#">remove exclusion</a>
Test3 (excluded)	"Staff initials" gp_id = [no data]	Missing value	<a href="#">remove exclusion</a>
Test99 (excluded)	"Staff initials" gp_id = [no data]	Missing value	<a href="#">remove exclusion</a>
Test99	"2.8.1 Most recent HbA1c result (%)" hba1cpercent = [no data]	Missing value	<a href="#">exclude</a>
Test99	"2.8.1 Most recent HbA1c result (%)" hba1cpercentna = [no data]	Missing value	<a href="#">exclude</a>
Test99	"2.8.2 Most recent HbA1c result (mmol/mol)" hba1cmmol = [no data]	Missing value	<a href="#">exclude</a>
Test99	"2.8.2 Most recent HbA1c result (mmol/mol)" hba1cmmolna = [no data]	Missing value	<a href="#">exclude</a>

[Close](#)

Note: All 'Staff initial' fields may have been excluded by the data management team as this field is optional on the eCRF.

*Example 2: Rule D – Field validation errors (out of range)*

**Rule: Field validation errors (out of range)**  
Discrepancies found: 2

Record	Discrepant fields with their values	Status	Exclude 
Test2	"2.8.2 Most recent HbA1c result (mmol/mol)" hba1cmmol = <u>999</u> (min: 20, max: 200)	Out of range	<a href="#">exclude</a>
Test2	"7.2 Screening Scale Q1(1-5)" dds_screen_q1 = <u>8</u> (min: 1, max: 6)	Out of range	<a href="#">exclude</a>

[Close](#)

6. There are 3 possible actions to take. Check data discrepancy against original document (e.g. pathology report or medical records) before actioning one of the 3 options listed below.
  - 6.1 Fix the incorrect value or enter missing data in the data collection form
    - Click the underlined discrepancy (which could be [no data] or an incorrect value [999])
    - You will be taken directly to that field on the data collection form for that particular record/patient in a new tab of your internet browser
    - Enter the correct value
    - Click 'Save and exit form'
    - Return to the previous tab on your internet browser to continue with the remaining data discrepancies
  - 6.2 Exclude the data discrepancy if the field was intentionally left blank (i.e. data was not collected at time of visit and there is no 'unknown or not available' option)
    - Click 'exclude'. The font colour will change to red
    - The status will change to allow you to 'remove exclusion' thereafter
  - 6.3 Remove exclusion
    - If a field has already been excluded (staff initials) or if you accidentally excluded a discrepant field, click 'remove exclusion'. The status will change back to allow you to 'exclude' the discrepancy thereafter. The font colour will change to green.

Rule: **Missing values\***  
 Discrepancies found: **5**  
 (1 exclusion not displayed - [view](#))

Record	Discrepant fields with their values	Status	Exclude
035290	"Staff initials" gp id = [no data]	Missing value	<a href="#">remove exclusion</a>
035290	"2.8.1 Most recent HbA1c result (%)" hba1cpercent = [no data]	Missing value	<a href="#">exclude</a>
035290	"2.8.1 Most recent HbA1c result (%)" hba1cpercentna = [no data]	Missing value	<a href="#">exclude</a>
035290	"2.8.2 Most recent HbA1c result (mmol/mol)" hba1cmmol = [no data]	Missing value	<a href="#">exclude</a>
035290	"2.8.2 Most recent HbA1c result (mmol/mol)" hba1cmmolna = [no data]	Missing value	<a href="#">exclude</a>

Click here

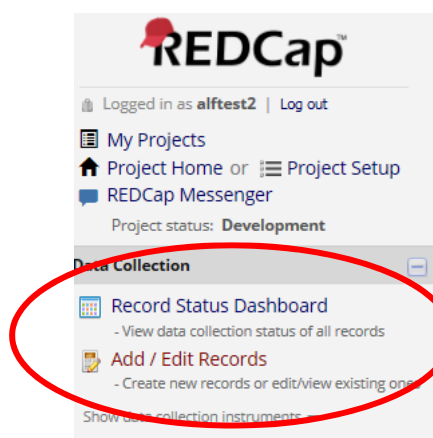
7. Repeat from step 4 until all rules contain 0 discrepancies, **except for rule E: Outliers for numerical fields (not applicable for ANDA)**
8. Once you have viewed and resolved all discrepancies for rules A to H, notify the ANDA Secretariat (anda@nadc.net.au)

## 7. Export Data To Print

- There are 2 ways to export patients' entered data:
  - As an individual patient record in a pdf file
  - All patient records in a single pdf file at the end of data collection
- The file will contain the actual page format as you would see it on the data entry page

### 7.1 Individual Patient Record

- From the menu, under the 'Data Collection' heading, go to the patient's 'Record Home Page' either by selecting the patient from the 'Record Status Dashboard' page or the 'Add/Edit Records' page

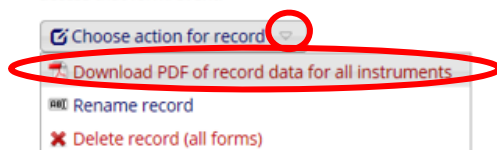


#### 7.1.1 Record Home Page

- To print a hard copy of data entered, click on the 'Choose action for record' drop down arrow
- Click 'Download PDF of record data for all instruments'

##### Record Home Page

The grid below displays the form-by-form progress of data entered for the currently selected record. You may click on the colored status icons to access that form/event.



##### Legend for status icons:

- Incomplete
- Incomplete (no data saved) ?
- Unverified
- Complete

- Open and print the downloaded pdf file
- File the hard copy at your local site in a secure location

Confidential

ANDA-AQCA  
Patient ID Test2  
Page 1 of 5

### ANDA-AQCA 2019

Patient ID

Test2

#### Section 1. Patient Demographics

### 7.1.2 All Patients' Records

- To print a hard copy of data entered for all patients, from the menu, under the 'Application' heading, click 'Data Exports, Reports, and Stats'
- In the workspace, click on the 'Other Export Options' tab
- Click on the pdf icon to download a file with all patients' entered data



- Open and print the downloaded pdf file
- File the hard copy at your local site

## 8. Data Completion & Troubleshooting

- Contact the ANDA Secretariat (anda@nadc.net.au)
  - At the completion of your data collection, ensure all patients icons are complete (green), and zero discrepancies appear in the Data Quality page.
  - In the event of troubleshooting, send any queries and a print screen of any pop-up errors

## 9. References

1. Paul A. Harris, Robert Taylor, Robert Thielke, Jonathon Payne, Nathaniel Gonzalez, Jose G. Conde, Research electronic data capture (REDCap) - A metadata-driven methodology and workflow process for providing translational research informatics support, J Biomed Inform. 2009 Apr;42(2):377-81.