



Longitudinal Reports

Row-Per-Record Reports in Longitudinal REDCap Projects

Luke Stevens
Data Management Coordinator
Clinical Epidemiology and Biostatistics Unit
Murdoch Childrens Research Institute
luke.stevens@mcri.edu.au

A Wide (“Classic”) REDCap Project

- Consider a trial with multiple visits

Data Collection Instruments:

Enrolment
Contact Details
Rand Visit Admin
Randomisation
M03 Questionnaire
M06 Questionnaire
M06 Visit Admin
M06 Visit
M09 Questionnaire
M12 Questionnaire
M12 Visit Admin
M12 Visit
Admin And Study End

Record ID	Enrolment	Contact Details	Rand Visit Admin	Randomisation	M03 Questionnaire	M06 Questionnaire	M06 Visit Admin	M06 Visit	M09 Questionnaire	M12 Questionnaire	M12 Visit Admin	M12 Visit	Admin And Study End
1001													
1002													
1003													
1004													
1005													
1006													
1007													
1008													
1009													
1010													
1011													
1012													
1013													
1014													
1015													

- Forms and variables created “wide”, e.g. for visit dates:
[rnd_visitdate], [m06_visitdate], [m12_visitdate]
- We want to contact participants due for 6-month visit to book appointment...

Data Exports/Reports in Wide Projects

- Create a report listing participant details
 - Not withdrawn
 - Not yet booked in
 - ≥ 166 days from randomisation
- Select fields by name

record_id "Record ID"

-- select a field --

Enrolment

- record_id "Record ID"
- mfname "Mother's first name"
- mlname "Mother's last name"
- cfname "Child's first name"
- clname "Child's last name"
- dob "Child's date of birth"
- gender "Child's gender"
- enroldate "Date of enrolment"
- consent "Consent"
- consentform "Consent form"
- enrolment_complete "Complete?"

Contact Details

- c1phone "Phone"
- c1email "Email"
- c1addr1 "Postal address line 1"
- c1addrsuburb "Suburb/Town"
- c1addrpostcode "Postcode"
- c2fname "Secondary contact first name"

Name of Report:

STEP 1

User Access: Choose who sees this report on their left-hand project menu ?

☒ All users — OR — ☐ Custom user access (Choose specific users, roles, or data access groups who will have access)

STEP 2

Fields to include in report Add all fields from selected instrument:

Field	Field Name	Instrument	Action
Field 1	record_id "Record ID"	Instrument: Enrolment	<input checked="" type="checkbox"/>
Field 2	mfname "Mother's first name"	Instrument: Enrolment	<input checked="" type="checkbox"/>
Field 3	mlname "Mother's last name"	Instrument: Enrolment	<input checked="" type="checkbox"/>
Field 4	cfname "Child's first name"	Instrument: Enrolment	<input checked="" type="checkbox"/>
Field 5	c1email "Email"	Instrument: Contact Details	<input checked="" type="checkbox"/>
Field 6	c1phone "Phone"	Instrument: Contact Details	<input checked="" type="checkbox"/>
Field 7	c1addr1 "Postal address line 1"	Instrument: Contact Details	<input checked="" type="checkbox"/>
Field 8	c1addrsuburb "Suburb/Town"	Instrument: Contact Details	<input checked="" type="checkbox"/>
Field 9	c1addrpostcode "Postcode"	Instrument: Contact Details	<input checked="" type="checkbox"/>
Field 10	randdate "Date and time of randomisation"	Instrument: Randomisation	<input checked="" type="checkbox"/>
Field 11	m06_apptstatus "Booking status"	Instrument: M06 Visit Admin	<input checked="" type="checkbox"/>
Field 12	m06_appttime "Date/time appointment box"	Instrument: M06 Visit Admin	<input checked="" type="checkbox"/>
Field 13	m06_apptbookattempts "Contact attempts"	Instrument: M06 Visit Admin	<input checked="" type="checkbox"/>
Field 14	m06_apptcontactlog "Contact log"	Instrument: M06 Visit Admin	<input checked="" type="checkbox"/>
Field 15	m06_visitdate "Visit date"	Instrument: M06 Visit	<input checked="" type="checkbox"/>
Field 16	Type variable name or field label		<input type="button" value="RE"/>

STEP 3

Filters (optional)

Advanced filter logic: (e.g., [age] > 30 and [gender] = "1") [How do I use special functions?](#)

[randdate] != " and [finished] = " and [m06_appttime] = " and datediff([randdate], "today", "d", true) >= 166

[randdate] != " and [finished] = " and [m06_appttime] = " and datediff([randdate], "today", "d", true) >= 166

Data Exports/Reports in Wide Projects

- Run and view the report

Data Exports, Reports, and Stats

[VIDEO: How to use Data Exports, Reports, and Stats](#)

[+ Create New Report](#)
[My Reports & Exports](#)
[PDF & Other Export Options](#)
[View Report: Contact to Book 6-Month Visit Appointment](#)

Number of results returned: 16
 Total number of records queried: 200

[Stats & Charts](#)
[Export Report](#)
[Print Page](#)
[Edit Report](#)

Contact to Book 6-Month Visit Appointment

Record ID (record_id)	Mother's first name (mfname)	Mother's last name (mlname)	Child's first name (cfname)	Email (c1email)	Phone (c1phone)	Postal address line 1 (c1addr1)	Suburb/Town (c1addrsuburb)	Postcode (c1addrpostcode)	Date and time of randomisation (randdate)	Booking status (m06_apptstat)
1057	Rhonda	Holloway	Belle	RHolloway@example.com	04 1057 1057	787-6676 Eget St.	Abingdon	7323	16-02-2015 12:16:09	
2038	Angelica	Adkins	Wyoming	AAdkins@example.com	04 2038 2038	P.O. Box 845, 4539 Pharetra Rd.	Pointe-au-Pic	7789	17-02-2015 21:24:20	
2039	Vera	Langley	Winter	VLangley@example.com	04 2039 2039	Ap #421-4246 Aliquam	Morpeth	4919	18-02-2015 06:54:21	

- Export for mail merge, phone list, upload to SMS provider

	A	B	C	D	E	F	G	H	I	J	K
1	record_id	mfname	mlname	cfname	c1email	c1phone	c1addr1	c1addrsuburb	c1addrpostcode	randdate	m06_apptstat
2	1057	Rhonda	Holloway	Belle	RHolloway@example.com	04 1057 1057	787-6676 Eget St.	Abingdon	7323	16/02/2015 12:16	
3	2038	Angelica	Adkins	Wyoming	AAdkins@example.com	04 2038 2038	P.O. Box 845, 4539 Pharetra Rd.	Pointe-au-Pic	7789	17/02/2015 21:24	
4	2039	Vera	Langley	Winter	VLangley@example.com	04 2039 2039	Ap #421-4246 Aliquam Road	Morpeth	4919	18/02/2015 06:54	
5	2037	Selma	Bright	Galena	SBright@example.com	04 2037 2037	754 Euismod Street	Viranayehir	4497	18/02/2015 08:30	
6	2040	Alice	Spence	Kennedy	ASpence@example.com	04 2040 2040	210-3382 Proin Rd.	Pero	8135	18/02/2015 21:29	
7	1059	Rhona	Shaffer	Daniel	RShaffer@example.com	04 1059 1059	6482 Dis Av.	Obertshausen	4838	19/02/2015 21:08	
8	1058	Aileen	Mcfadden	Karyn	AMcfadden@example.com	04 1058 1058	870-3650 Ac Avenue	Fahler	2965	21/02/2015 01:19	
9	1061	Courtney	Dotson	Tobias	CDotson@example.com	04 1061 1061	P.O. Box 448, 5338 Nec Avenue	Frankfurt am Main	4892	21/02/2015 23:27	
10	1060	Hayley	Castillo	Isaac	HCastillo@example.com	04 1060 1060	3284 Eu Street	Sint-Martens-Lennik	5948	22/02/2015 10:12	
11	2041	Ciara	Payne	Clementine	CPayne@example.com	04 2041 2041	568-7112 Donec St.	Nobressart	7532	22/02/2015 14:37	

A Longitudinal REDCap Project

Use longitudinal data collection with repeating forms?

- Longitudinal model enables Repeating data entry forms (and so repeating variables e.g. [visitdate])















Schedule of events

Data Collection Instrument	Enrolment (1)	Randomisation (2)	3-month Questionnaire (3)	6-month Visit (4)	9-month Questionnaire (5)	12-month Visit (6)	End of Study (7)
Enrolment	✓						
Contact Details	✓						
Randomisation		✓					
Questionnaire (survey)			✓	✓	✓	✓	
Visit Admin		✓		✓		✓	
Visit		✓		✓		✓	
Admin And Study End							✓

	Event #	Days Offset	Offset Range Min / Max	Event Name	Unique event name (auto-generated)
 	1	-14	-0/+0	Enrolment	enrolment_arm_1
 	2	0	-0/+0	Randomisation	randomisation_arm_1
 	3	90	-0/+0	3-month Questionnaire	3month_questionnai_arm_1
 	4	180	-0/+0	6-month Visit	6month_visit_arm_1
 	5	270	-0/+0	9-month Questionnaire	9month_questionnai_arm_1
 	6	360	-0/+0	12-month Visit	12month_visit_arm_1
 	7	9999	-0/+0	End of Study	end_of_study_arm_1

Participant grid view

Record ID 1057

Data Collection Instrument	Enrolment (1)	Randomisation (2)	3-month Questionnaire (3)	6-month Visit (4)	9-month Questionnaire (5)	12-month Visit (6)	End of Study (7)
Enrolment							
Contact Details							
Randomisation							
Questionnaire (survey)							
Visit Admin							
Visit							
Admin And Study End							

Calendar view

July 2015

Print Calendar
Scheduling Report

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
			1 2047 (3-month Quest)	2 2014 (9-month Quest)	3	4 1043 (6-month Visit) 1106 (Randomisation) 1199 (Enrolment) [54]
5 1083 (3-month Quest)	6	7 1044 (6-month Visit)	8 2018 (Randomisation) 2058 (Randomisation) 2029 (6-month Visit) 1107 (Randomisation) 1108 (Randomisation)	9 2015 (9-month Quest) 2059 (Enrolment) [54] 2030 (6-month Visit)	10	11 1045 (6-month Visit) 1046 (6-month Visit) 2050 (3-month Quest) 2060 (Enrolment) [54] 2031 (6-month Visit)
12 2048 (3-month Quest)	13 2049 (3-month Quest)	14 1047 (6-month Visit) 1084 (3-month Quest) 2016 (9-month Quest)	15 1049 (6-month Visit)	16 2032 (6-month Visit) 2013 (6-month Visit)	17 1050 (6-month Visit)	18 1085 (3-month Quest) 1048 (6-month Visit) 1109 (Randomisation)
19 2017 (9-month Quest) 1020 (9-month Quest)	20 1110 (Enrolment) [54] 1018 (9-month Quest)	21 1051 (6-month Visit)	22	23 2059 (Randomisation)	24 1021 (9-month Quest)	25 1086 (3-month Quest) 2060 (Randomisation)
26 1052 (6-month Visit) 2020 (9-month Quest)	27 3015 (3-month Quest)	28	29 3016 (3-month Quest) 1053 (6-month Visit)	30 2051 (3-month Quest)	31 1087 (3-month Quest)	

- So far so good...

Data Exports/Reports in Longitudinal Projects

- Create the same report as before
 - Not withdrawn
 - Not yet booked in
 - ≥ 166 days from randomisation
- Field names unique only within event, not project
 - Event prefixes in filter expression

Name of Report:

STEP 1

User Access: Choose who sees this report on their left-hand project menu ?

☒ All users — OR — ☐ Custom user access (Choose specific users, roles, or data access groups who will have access)

STEP 2

Fields to include in report [Quick Add](#) Add all fields from selected instrument:

Field	Field Name	Instrument	Remove
Field 1	record_id "Record ID"	Instrument: Enrolment	✕
Field 2	mfname "Mother's first name"	Instrument: Enrolment	✕
Field 3	mlname "Mother's last name"	Instrument: Enrolment	✕
Field 4	cfname "Child's first name"	Instrument: Enrolment	✕
Field 5	c1email "Email"	Instrument: Contact Details	✕
Field 6	c1phone "Phone"	Instrument: Contact Details	✕
Field 7	c1addr1 "Postal address line 1"	Instrument: Contact Details	✕
Field 8	c1addrsuburb "Suburb/Town"	Instrument: Contact Details	✕
Field 9	c1addrpostcode "Postcode"	Instrument: Contact Details	✕
Field 10	randdate "Date and time of randomisation"	Instrument: Randomisation	✕
Field 11	apptstatus "Booking status"	Instrument: Visit Admin	✕
Field 12	appttime "Date/time appointment booked"	Instrument: Visit Admin	✕
Field 13	apptbookattempts "Contact attempts"	Instrument: Visit Admin	✕
Field 14	apptcontactlog "Contact log"	Instrument: Visit Admin	✕
Field 15	visitdate "Visit date"	Instrument: Visit	✕
Field 16	<input type="text" value="Type variable name or field label"/>		

STEP 3

☒ Show data for all events for each record returned ?

Filters (optional)

Advanced filter logic: (e.g., [age] > 30 and [gender] = "1") [How do I use special functions?](#)

[randomisation_arm_1][randdate] != " and [end_of_study_arm_1][finished] = " and [6month_visit_arm_1][appttime] = " and datediff([randomisation_arm_1][randdate], "today", "d", true) >= 166

[randomisation_arm_1][randdate] != " and [end_of_study_arm_1][finished] = " and [6month_visit_arm_1][appttime] = " and datediff([randomisation_arm_1][randdate], "today", "d", true) >= 166

The Problem

- Same fields, but format is not so useful
 - Row-per-participant-per-event
 - Row for each event for which the record has data – even if you're not interested in it (e.g. [apptstatus] for randomisation)

Contact to Book 6-Month Visit Appointment

Record ID (redcap_ id)	Event Name (redcap_ event_name)	Mother's first name (mfname)	Mother's last name (mlname)	Child's first name (cfname)	Email (c1email)	Phone (c1phone)	Postal address line 1 (c1addr1)	Suburb/Town (c1addrsuburb)	Postcode (c1addrpostcode)	Date and time of randomisation (randdate)	Booking status (apptstatus)	Date/time appointment booked (appttime)	Contact attempts (apptbookattempts)
1057	Enrolment	Rhonda	Holloway	Belle	RHolloway@example.com	04 1057 1057	787-6676 Eget St.	Abingdon	7323				
1057	Randomisation									16-02-2015 12:16:09	Succeeded - appointment made (1)	16-02-2015 10:00	2 (2)
1057	3-month Questionnaire												
1057	6-month Visit										In progress (0)		1 (1)
1057	End of Study												
1058	Enrolment	Aileen	Mcfadden	Karyn	AMcfadden@example.com	04 1058 1058	870-3650 Ac Avenue	Fahler	2965				

- Requires further manipulation to use
 - Mail-merge
 - Upload to SMS provider

Why is it like this?

- Entity-Attribute-Value (EAV) model
 - Frowned upon by relational database purists but similarities with key-value store NoSQL database systems
 - Common model for CMS, health (e.g. EMR), research systems
 - Enables flexibility in data definition
 - Easy to get data in, but harder to get data out than with traditional relational database schema

Entity (project/event/record)

Attribute (field_name)

Value

```
SELECT * FROM redcap_data WHERE project_id = 2011 and record = '1001' limit 0,500
```

project_id	event_id	record	field_name	value
2011	5335	1001	apptstatus	1
2011	5337	1001	apptstatus	1
2011	5339	1001	apptstatus	1
2011	5335	1001	appttime	2014-08-18 06:00
2011	5337	1001	appttime	2015-02-01 09:00
2011	5339	1001	appttime	2015-08-04 09:00
2011	5333	1001	c1addr1	2625 Ornare, Rd.
2011	5333	1001	c1addrpostcode	6145
2011	5333	1001	c1addrsuburb	Westerlo
2011	5333	1001	c1email	RMckee@example.com
2011	5333	1001	c1phone	04 1001 1001
2011	5333	1001	c2email	TCline@example.com
2011	5333	1001	c2fname	Tanek
2011	5333	1001	c2lname	Cline
2011	5333	1001	c2phone	04 6145 1001
2011	5340	1001	cardsent	2015-07-01
2011	5333	1001	cfname	Hope
2011	5333	1001	clname	Mckee
2011	5340	1001	completedate	2015-07-27

A Solution: “Longitudinal Reports” Plugin

- “Reshape” the EAV data from “long” to “wide”
 - Rows (entities): participant/event => participant
 - Columns (attributes): fields => event/field
 - Not replacing “official” export functionality – leave out plots/charts and stats package syntax
- Option 1: extend existing plugin for running SQL query
 - Relatively quick and easy to produce something simple
 - Difficult to reproduce more advanced features
- Option 2: adapt official Data Export & Reports module
 - Much bigger job: 20 files, around 7000 lines of code
 - Interface familiar to users
 - Important functionality (e.g. DAGs, view/export permissions, de-identification) already present

Plugin Development: Front End

- Familiar layout and functionality
 - User access options (e.g. restrict by DAG, role or user)
 - Event/field selection as columns (including Quick Add)
 - Simple or advanced filter logic (including by DAG)
 - Record sorting options
 - De-identification on export
- All columns [event_ref][field_name]
- Additional functionality
 - Include dates from event schedule
 - Include survey urls

Name of Report:
Contact to Book 6-Month Visit Appointment

STEP 1

User Access

☒ All users
 OR
 ☐ Custom user access
 (Choose specific users, roles, or data access groups who will have access)

STEP 2

Event / field combinations to include in report
Quick Add

Column 1	record_id "Record ID"	Instrument: Enrolment	
Column 2	[enrolment_arm_1][fname] "Mother's first n"	Instrument: Enrolment	
Column 3	[enrolment_arm_1][lname] "Mother's last n"	Instrument: Enrolment	
Column 4	[enrolment_arm_1][dob] "Child's date of birth"	Instrument: Enrolment	
Column 5	[enrolment_arm_1][email] "Email"	Instrument: Contact Details	
Column 6	[enrolment_arm_1][phone] "Phone"	Instrument: Contact Details	
Column 7	[enrolment_arm_1][addr1] "Postal address"	Instrument: Contact Details	
Column 8	[enrolment_arm_1][addrsuburb] "Suburb/T"	Instrument: Contact Details	
Column 9	[enrolment_arm_1][addrpostcode] "Postco"	Instrument: Contact Details	
Column 10	[randomisation_arm_1][randdate] "Date and ti"	Instrument: Randomisation	
Column 11	[6month_visit_arm_1][apptstatus] "Booking st"	Instrument: Visit Admin	
Column 12	[6month_visit_arm_1][apptime] "Datetime ac"	Instrument: Visit Admin	
Column 13	[6month_visit_arm_1][apptbookattempts] "Co"	Instrument: Visit Admin	
Column 14	[6month_visit_arm_1][apptcontactlog] "Conta"	Instrument: Visit Admin	
Column 15	[6month_visit_arm_1][visdate] "Visit date"	Instrument: Visit	
Column 16	Type variable name or field label		

Additional fields to include in report (optional)

☐ Include the Data Access Group name for each record (if record is in a group)?

Schedule Dates:

Enrolment
Randomisation
3-month Questionnaire
6-month Visit
9-month Questionnaire
12-month Visit

Include the date of the selected event(s) from the calendar for each record

Survey URLs:

Questionnaire (3-month Questionnaire)
Questionnaire (6-month Visit)
Questionnaire (9-month Questionnaire)
Questionnaire (12-month Visit)

Include URL to the selected survey(s) for each record

STEP 3

Filters (optional)

Advanced filter logic:
(e.g. [age] > 30 and [gender] = "1")
[How do I use special functions?](#)

[randomisation_arm_1][randdate] != " " and [end_of_study_arm_1][finished] = " " and [6month_visit_arm_1][apptime] = " " and datediff([randomisation_arm_1][randdate], "today", "d", true) >= 166

Switch format:
Use simple logic (choose fields from list)

Additional Filters (optional)

(Records belonging only to ALL selections below will appear in the report)

Filter by DAG(s):

Site A
Site B
Site C

STEP 4

Order the Results (optional)

First by	[randomisation_arm_1][randdate] "Date and ti"	Ascending order
Then by	Type variable name or field label	Ascending order
Then by	Type variable name or field label	Ascending order

Save Report
Cancel

Plugin Development: Back End

- Configuration of reports stored in a dedicated REDCap project
 - Options stored as text (e.g. sort field/order)
 - Lists (e.g. of events/fields to include stored as serialised arrays)
 - Audit trail – store update by, update at
- Records updated using REDCap API
 - Insert new record on report creation
 - Update record on report edit (re-order list requires multiple updates)
 - Delete – can't delete using API, so update project_id to this configuration project's id (easy to restore!)

Longitudinal Reports Plugin

Save Record

Save and Continue

Actions:

Download PDF of instrument(s)

Share instrument

Report

Editing existing report_id 39 project_id=2011, title="Contact to Book 6-Month Visit Appointment"

report_id

39

(To rename this record, modify the value immediately below)

report_id

39

project_id

2011 (LONG Study)

title

Contact to Book 6-Month Visit Appointment

report_order

1

user_access

ALL

ALL or SELECTED

fields

["record_id","enrolment_arm_1][mfname]","
 [enrolment_arm_1][mfname]","[enrolment_arm_1][dob]","
 [enrolment_arm_1][c1email]","[enrolment_arm_1]
 [c1phone]","[enrolment_arm_1][c1addr1]","
 [enrolment_arm_1][c1addrsuburb]","[enrolment_arm_1]
 [c1addrpostcode]","[randomisation_arm_1][randdate]","
 [6month_visit_arm_1][apptstatus]","[6month_visit_arm_1]
 [apptime]","[6month_visit_arm_1][apptbookattempts]","
 [6month_visit_arm_1][apptcontactlog]","
 [6month_visit_arm_1][visitdate]"]

output_dags

on" or blank

output_survey_fields

on" or blank

advanced_logic

[randomisation_arm_1][randdate] != " and
 (end_of_study_arm_1)[finished] = " and
 ([6month_visit_arm_1][apptime] = " and
 datediff([randomisation_arm_1][randdate],"today","d",
 true) >= 166

filter_dags

null

orderby_field1

[randomisation_arm_1][randdate]

orderby_sort1

ASC

ASC or DESC

orderby_field2

orderby_sort2

ASC or DESC

orderby_field3

orderby_sort3

ASC or DESC

update_by

luke.stevens

update_at

25-08-2015 09:47:45

Now

D-M-Y H:M:S

Form Status

Complete?

Complete

Plugin Development: Results

- It works!
- Row-per-participant reports of your longitudinal data:

Longitudinal Reports

New

My Longitudinal Reports

View Report: Contact to Book 6-Month Visit Appointment

Number of results returned: 16

Number of records in project: 200

Export Report

Print Page

Edit Report

Contact to Book 6-Month Visit Appointment

Record ID record_id	Mother's first name Enrolment [enrolment_arm_1] [mfname]	Mother's last name Enrolment [enrolment_arm_1] [mlname]	Child's date of birth Enrolment [enrolment_arm_1] [dob]	Email Enrolment [enrolment_arm_1] [c1email]	Phone Enrolment [enrolment_arm_1] [c1phone]	Postal address line 1 Enrolment [enrolment_arm_1] [c1addr1]	Suburb/Town Enrolment [enrolment_arm_1] [c1addrsuburb]	Postcode Enrolment [enrolment_arm_1] [c1addrpostcode]	Date and time of randomisation Randomisation [randomisation_arm_1] [randdate]	Booking status 6-month Visit [6month_visit_arm_1] [apptstatus]	Date/time appointment booked 6-month Visit [6month_visit_arm_1] [apptime]	Contact after 6-month Visit [6month_visit_1] [apptbookatte
1057	Rhonda	Holloway	13/04/2014	RHolloway@example.com	04 1057 1057	787-6676 Eget St.	Abingdon	7323	16-02-2015 12:16:09	In progress (0)		1 (1)
2038	Angelica	Adkins	12/05/2012	AAdkins@example.com	04 2038 2038	P.O. Box 845, 4539 Pharetra Rd.	Pointe-au-Pic	7789	17-02-2015 21:24:20			

	A	B	C	D	E	F	G	H	I	J	K	L
	record_id	[mfname]	[mlname]	[dob]	[c1email]	[c1phone]	[c1addr1]	[c1addrsuburb]	[c1addrpost]	[randdate]	[apptstatus]	[apptime]
2	1057	Rhonda	Holloway	13/04/2014	RHolloway@example.com	04 1057 1057	787-6676 Eget St.	Abingdon	7323	16/02/2015 12:16	0	
3	2038	Angelica	Adkins	12/05/2012	AAdkins@example.com	04 2038 2038	P.O. Box 845, 4539 Pl	Pointe-au-Pic	7789	17/02/2015 21:24		
4	2039	Vera	Langley	13/06/2014	VLangley@example.com	04 2039 2039	Ap #421-4246 Aliquar	Morpeth	4919	18/02/2015 06:54		

Acknowledgements

- Feedback
 - “A very exciting development”
 - “Worked just fine. So much better”
 - “loving it!!!”
- Thanks to
 - The REDCap team at Vanderbilt (naturally!)
 - Kaya Gardiner and Veronica Abruzzo (MIS BAIR Project, MCRI), for beta testing and constructive comments
 - Naveen Karduri (Child & Family Research Institute/BC Children's Hospital), for testing, constructive comments and code contributions
- Interest in seeing this in the REDCap wiki Plugin Library?