



CAHS Research Education Program

Research Skills Seminar

Using REDCap for Data Capture and Management

7th May, 2021

Presented by

Telethon Kids Institute, Biometrics Team

**CAHS Research Education Program
Research Skills Seminar Series**

☎ (08) 6456 4585 ✉ ResearchEducationProgram@health.wa.gov.au

🌐 <https://cahs.health.wa.gov.au/ResearchEducationProgram>



Healthy kids, healthy communities

Compassion

Excellence

Collaboration

Accountability

Equity

Respect

Neonatology | Community Health | Mental Health | Perth Children's Hospital



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Department of Health, Government of Western Australia

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Using REDCap for data capture and management

PRESENTATION

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Research Education Program | Research Skills Seminar Series

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CAHS Research Education Program

Research Skills Seminar Series

- Over 20 topics across the research process
 - 1h overview
 - Handouts are provided
- Recorded and uploaded
- Feedback
 - Back of handout
 - Emailed link
- Please hold questions to the end
 - Use provided microphone

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Acknowledgement of country

I would like to acknowledge the
traditional custodians of the land,
the Noongar Whadjuk people,
and pay my respects to their elders,
past, present and future.

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Using REDCap for Data Capture and Management

Biometrics

Research Skills Seminar
May 2021



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Talk Outline

Brief overview

- Is not intended to be a 'how to' or tutorial
- Is intended to be a broad overview of functionality, features, and use cases
- Is intended to raise awareness of how you can leverage REDCap's strengths



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Brief overview

What is REDCap?

REDCap (Research Electronic Data Capture) is a secure web-based application for building and managing on-line forms (instruments) and databases.

What REDCap is not?

It is not a replacement for a clinical registry, it is not a comprehensive study reporting/analysis platform, it is not designed for long term storage/archival of data.



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Brief overview

Why Use REDCap?

- **Free solution** for teams wishing to build and manage their own database(s)
- **Secure**
 - Secure Login and User Rights management
 - Telethon Kids Institute hosts it's own instance of REDCap meaning that data is securely stored within it's IT Infrastructure at Perth Children's Hospital
 - Audit trails provide accountability
- **Rapid development and deployment**
 - Intuitive user interface means that small projects can be built quickly
- **Ease of Use**
 - No prior database knowledge required
 - Built-in training resources



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Brief overview

This talk:

- 9 topics
 - Know/plan your study
 - Access and navigation
 - Configuring your project
 - Forms and variables
 - Surveys
 - Entering data
 - Exporting and reporting
 - Project management
 - Other functionality



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REDCap

Know/plan your study



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- Who/how many users will interact with REDCap? (roles, access)
 - Logins? Edit access? Limited access? Public access for anonymous participants?



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- Who/how many users will interact with REDCap? (roles, access)
 - Logins? Edit access? Limited access? Public access for anonymous participants?
- What are your pockets of data? (think pieces of paper, do they interact?)
 - Medical history? QoL questionnaire? Lab results? Repeats of the same form?



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- Who/how many users will interact with REDCap? (roles, access)
 - Logins? Edit access? Limited access? Public access for anonymous participants?
- What are your pockets of data? (think piece of paper, do they interact?)
 - Medical history? QoL questionnaire? Lab results? Repeats of the same form?
- Are there study flow considerations? (order of events, data capture, pre reqs)
 - Form 1, then Form 2, then (3 weeks later) Form 3?



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- What is the minimum dataset needed to address your research question?
 - Optimise data collection forms, fit for purpose



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Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- What is the minimum dataset needed to address your research question?
 - Optimise data collection forms, fit for purpose
- What are your timelines? (testing, training, peer review, testing)
 - The first person to complete your form can NOT be participant number 1!



Know/plan your study

There are many key considerations to **think through**, in full, and **document before** you start setting up your project in REDCap.

- Comprehensively answering all these questions will ensure your project is configured correctly from the outset

REDCap

Access and navigation



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Access and navigation

Instances

- *whichever organisation is the sponsor of the study, or whichever organisation the lead CI is most affiliated with, is the organisation whose REDCap instance should be used – often it's not that simple*
- Telethon Kids Instance
 - <https://redcap.telethonkids.org.au/> | redcap@telethonkids.org.au
- CAHS Department of Health Instance
 - <https://datalibrary-rc.health.wa.gov.au/> | DataLibrary@health.wa.gov.au



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Access and navigation

Instances

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- Telethon Kids Instance
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- CAHS Department of Health Instance
 - <https://datalibrary-rc.health.wa.gov.au/> | DataLibrary@health.wa.gov.au
- *Others*
 - *Username, password, contact the correct support staff*
- Be clear where your data is residing, it is your responsibility to know where you are storing patient data, and to make sure this is documented in your study approvals



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REDCap

Configuring your project



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Configuring your project

- **Types of projects**
 - Data entered by study teams – Data Entry Forms
 - Data entered by participants – Surveys
 - Mixture of both
- **Collection formats**
 - Classic, One record per participant
 - Longitudinal, One record per participant per event with option of defining multiple arms



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REDCap

Forms and variables



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Forms and variables

- **Forms** = on-line data collection pages to logically group your data points or may represent a single survey
- **Variables** = data value to be collected
 - Variables are defined by their attributes which allow you to customize the data you collect and how it is displayed on the form
 - Multiple variable types to permit the collection of almost any type of data
- **On-line designer** allows you to create / modify / delete data collection instruments (forms) and variables (questions) easily using a web browser. Changes are made in real time and available
- **Individual records** use a compulsory unique 'Record identifier' present on the first form of the project as the key variable to link all forms/events for a particular subject.



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REDCap

Surveys



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Surveys

- Any data collection form in REDCap can be enabled as a survey, allowing participants to enter data for themselves, without having access to log into REDCap.
- **Survey distribution**
 - Public = anonymous (so long as no identifying information is collected in the survey). A participant can complete survey multiple times, single survey link for everyone, no tracking of who has completed the survey
 - Participant list = known participants, customised email and tracked responses
- **Survey customisation**
 - Welcome/instructions / closing message, survey design, survey access
 - E-consent
 - Invitations – set-up conditions for sending and scheduling of invites, automated reminders



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REDCap

Entering data



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Entering Data

- Data can be entered into REDCap in **4 ways**:
 - Via Web browser
 - CSV import
 - REDCap mobile app
 - Paper PDF copy of forms
- **User privileges** required to be set-up for users to access database and enter data
- Users privileges can be specified to the form / event level and can also be grouped by project role



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REDCap

Exporting and Reporting your Data



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Exporting and Reporting your Data

Exporting Data

- Dataset including any or all data fields are easy to construct
- Data export to spreadsheets (Microsoft Excel) and statistical packages SAS, SPSS, R etc.
- Export project as XML file
- Automatic-deidentification of data



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Exporting and Reporting your Data

Reporting Data

- Review data in simple table format
- Custom reports with filters on instruments, events and fields
- Graphical viewing of data with description
- Save Report for later use



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REDCap

Project Management



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Project Management

Project Development Lifecycle



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Project Management

Development Status	Production Status	Analysis/Cleanup Status
Schema is fluid & easy to change	Not the time to make major architectural changes	Restricts users from making architectural changes.
The perfect time to make major architectural changes & try out different scenarios	Schema changes require Admin approval	All data collection features are disabled
Schema changes do not require Admin approval	You make changes using Draft mode	You can correct and clean up data
You can create your own data dictionary snapshots	Data dictionary snapshot taken every time Draft mode is employed	You can use data export features to create analysis reports.



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Project Management

Other Project Management Tasks

- Mark Project as “Completed”- Taking the project offline and not accessible to users.
- Delete Project/Erase Data- Permanently remove project and/or it’s data.



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REDCap

Other Functionality



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Other Functionality

- **Project Copy**
 - 'Copy project' permits users to make a duplicate copy of projects which can assist in creating new projects which requires similar set up.
- **Randomisation**
 - Stratified Randomisation
 - Randomisation by Group/Site



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Other Functionality

- **API**
 - Allows import/export data from/to other application
 - Users require API token which is provided by admins to make a API request
- **Advanced Survey Options**
 - Automated/Scheduled Surveys
 - Survey Queue
 - SMS invites (with Twilio)



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Other Functionality

- **Alerts and Notifications**
 - Define alerts and Triggers
 - Send/Receive customised emails (or SMS or Voice Calls) on the trigger
- **Logging**
 - Automatic audit trail of user activity on individual project
- **Data Quality Rules**
 - Rules to check discrepancies in data after data collection
 - Use one from predefined list or create custom rules



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Further Information

- REDCap Training Videos
- REDCap HELP & FAQ section
- Recordings REDCap Basic and Intermediate workshops on CAHS intranet



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Questions?

Thank you



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Upcoming Research Skills Seminars

14 May **Survey Design & Techniques** with A/Prof Sue Skull
 28 May **Research Supervision** with Prof Jonathan Carapetis
 18 Jun **Introductory Biostatistics** with Dr Julie Marsh

Register → <https://researcheducationprogram.eventbrite.com.au>

We love feedback

Complete the form in the back of your handout or take our online survey using the link below, which will also be emailed at the end of this presentation.

<https://tinyurl.com/usingredcap>

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CAHS Research Education Program

Research Skills Seminars Series 2021

SURVEY DESIGN & TECHNIQUES

14th May 2021 | 12:30pm – 1:30pm | Perth Children's Hospital

Surveys, including clinical audits, are one of the most commonly conducted clinical research projects. There is a lot more to doing these well than meets the eye. This seminar provides practical help for planning and conducting surveys. It includes good survey design, approval pathways, sampling and administration methods, writing high quality questionnaires & data collection instruments, maximising response rates and reducing data errors.

About the Presenter

Associate Professor Sue Skull

Sue is based at Perth Children's Hospital where she is Head of the Research Education Program. She holds positions as a Consultant Paediatrician at CAHS and Clinical Associate Professor for the Division of Paediatrics and Child Health at UWA. She remains actively involved in teaching research methods and enjoys helping others improve and enjoy their research experience.



Perth Children's Hospital
Level 5, 15 Hospital Ave Nedlands
Accessible via **pink** or **yellow** lifts

- OR -

Access online via SCOPIA

- OR -

**Watch live from a hosted
video-conferencing site at**

- Fiona Stanley Hospital
- Lions Eye Institute
- Royal Perth Hospital

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or visit

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Email researcheducationprogram@health.wa.gov.au

Intranet cahs-healthpoint.hdwa.health.wa.gov.au



CAHS Research Education Program

Research Skills Seminars Series 2021

RESEARCH SUPERVISION

Getting the most out of research supervision.

28th May 2021 | 12:30pm – 1:30pm | Perth Children's Hospital

This seminar covers the importance of understanding the rights and responsibilities of both supervisors and supervisees doing research, whether for a formal degree or a small project, and how to get the best out of both roles. It also provides practical tips related to the selection of suitable research projects, supervision frequency and time allocation, different supervision styles, remote supervision and working with multiple supervisors.

About the Presenter

Prof. Jonathan Carapetis

Professor Jonathan Carapetis is Director of the Telethon Kids Institute and a Professor at UWA. His research interests include rheumatic fever and rheumatic heart disease, other group A streptococcal diseases, vaccine preventable disease, Indigenous child health, youth health and education, and skin sores and scabies. He has supervised 23 PhD, Masters, Honours, Clinical Trainees and others in research.



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CAHS Research Education Program

Research Skills Seminar Series 2021

A free, open-access resource designed to upskill busy clinical staff and students and improve research quality and impact.

2021 Seminar Schedule

Date	Topic	Presenter
Feb 5	<u>Research Fundamentals</u>	A/Prof Sue Skull
Feb 19	<u>Scientific Writing</u>	A/Prof Sue Skull
Mar 12*	<u>Introduction to Good Clinical Practice</u> <small>Rescheduled from 5th March 2021 due to unforeseen circumstances.</small>	Natalie Barber
Mar 19	<u>Research Governance</u>	A/Prof Sunalene Devadason
Apr 30	<u>Using Social Media in Research</u>	Dr Kenneth Lee
May 7	<u>Using REDCap for Data Capture and Management</u>	Telethon Kids Biometrics Team
May 14	<u>Survey Design and Techniques</u>	A/Prof Sue Skull
May 28	<u>Getting the most out of Research Supervision</u>	Prof Jonathan Carapetis AM
Jun 18	<u>Introductory Biostatistics</u>	Dr Julie Marsh
Jun 25	<u>Sample Size Calculations</u>	Dr Julie Marsh
Jul 23	<u>Knowledge Translation</u>	Dr Fenella Gill
Jul 30	<u>Consumer and Community Involvement</u>	Anne McKenzie AM
Aug 6	<u>Data Collection and Management</u>	A/Prof Sue Skull
Aug 13	<u>Media and Communications in Research</u>	Elizabeth Chester
Aug 27	<u>Oral Presentation of Research Results</u>	A/Prof Sue Skull
Sep 10	<u>Conducting Systematic Reviews</u>	Prof Sonya Girdler
Sep 17	<u>Involving the Aboriginal Community in Research</u>	Glenn Pearson & A/Prof Sue Skull
Oct 22	<u>Rapid Critical Appraisal of Scientific Literature</u>	A/Prof Sue Skull
Oct 29	<u>Statistical Tips for Interpreting Scientific Claims</u>	Dr Julie Marsh
Nov 5	<u>Grant Applications and Finding Funding</u>	Tegan McNab
Nov 12	<u>Research Impact</u>	Tara McLaren
Nov 19	<u>Ethics Processes for Clinical Research in WA</u>	A/Prof Sue Skull
Nov 26	<u>Qualitative Research Methods</u>	Dr Shirley McGough

REGISTER ➔ Follow our [Eventbrite page](#) to register throughout the year

ACCESS ➔ View recordings from [previous seminars](#)

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All seminars are held from 12:30-1:30pm in the Auditorium on Level 5 at Perth Children's Hospital and topics may be subject to change – email notice will be provided. All corresponding handouts are regularly revised and updated with attendance certificates available upon request.

CAHS Research Education Program

Research Skills Seminar Series

A free, open-access resource designed to upskill busy clinical staff and students and improve research quality and impact.

Using REDCap for Data Capture and Management

Thank you for your interest in this seminar

Please complete this 1-minute evaluation.

Your feedback will help guide future presentations and educational activities.

How did you attend the seminar?

- ☐ Live seminar at Perth Children's Hospital
- ☐ Hosted video-conference on-site (e.g. FSH, Lions Eye, RPH etc.)
- ☐ Online via Scopio
- ☐ Viewed online recording

Please rate your agreement with the following statements:

	N/A	Strongly Disagree	Disagree	Neither	Agree	Strongly Agree
The aims and objectives were clear	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The session was well structured	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Presentation style retained my interest	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The speaker communicated clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The material extended my knowledge	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
The additional resources were helpful	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

What were the best aspects of the seminar?

What changes or improvements would you suggest?

How did you hear about the seminar?

(you can select multiple answer)

- ☐ Email invitation from Research Education Program
- ☐ CAHS Newsletters e.g. The Headlines, The View, CAHS Research Newsletter
- ☐ "Health Happenings" E-News
- ☐ Healthpoint Intranet Upcoming Events
- ☐ Collegiate lounge screen or other posted promotional material
- ☐ Telethon Kids Institute screen or other posted promotional material
- ☐ Telethon Kids Institute Newsletter
- ☐ Other

Thank you!

