

A Guide to

REDCap Survey and Invitation Design

What is REDCap?

REDCap (Research Electronic Data Capture) is a secure web application that supports data capture and management for research studies. ITHS is one of 1,901 institutional partners who utilize and support REDCap.

How do researchers use REDCap?

Researchers use REDCap for a variety of purposes, including:

- Administering simple recruitment surveys
- Collecting data for low-budget clinical trials
- Supporting operational activities such as class registration or evaluation
- Tracking adverse events
- Creating longitudinal studies with automatic follow-up surveys
- Administrating multi-site studies
- Eliminating double data entry

How can I learn more about REDCap?

Visit one of our free monthly beginner and advanced classes or read our monthly REDCap tips and guides to learn more.

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PART 1

The Foundational Principles of Writing and Designing REDCap Surveys

It seems simple. Write some questions. Paste them into REDCap. Hit send. Within minutes, your REDCap dashboard is full of useful, interesting data.

But anyone who has written a survey knows it is not that easy. Even the slightest variation in survey design or question format can seriously impact your results. Ask the wrong questions, or ask them in the wrong way, and you will end up with data that is unreliable or unneeded.

That is why it is so important to take the time to develop survey questions. Good questions are the key to good data. **This guide will help you write and design REDCap surveys that engage respondents and help you get the data you need.**

First, start with a goal.

Before you even begin writing and designing your survey, you need to identify your goals for the survey. What do you want to know? Who are you surveying? How will the results be used initially? This information will guide the direction of your survey.

For example, a survey goal may be:

“To assess the satisfaction of those who attended the 2016 National Clinical Researchers Conference.”

Choose your words carefully.

Now that you have identified the your goals and objectives, you can begin writing the questions. As you write, **examine how well each question addresses the goals and objectives you have outlined.** The following questions will help you create goal-oriented survey questions.

Is the question necessary and/or useful?

Examine each question to see if you need to ask it at all. Don't ask the question if the response cannot be tied back to your goal. Extra, unrelated questions can lead to respondents wondering, “Why are they asking this?”

Remember that you are also asking respondents for their most important commodity: time. Asking unnecessary questions can lead to

a lengthy survey, which can result in lower response and completion rates.

Does the respondent need more information?

Look at each question to see if the respondent has the right information to answer the question. For example, let's say we ask the question, "Please rate your level of satisfaction with chart abstraction services provided by the research coordinator."

If the respondent did not receive chart abstraction services, he or she will not be able to answer this question. In this instance, we should add a seed question (e.g. "Did you receive chart abstraction services from the research coordinator?"), before asking for opinions about the session.

Does the question need to be more specific?

Sometimes questions can be too general, which makes data difficult to interpret. For example, let's say we want to find out respondents' opinions about the conference's morning group session. We could ask them:

"Please rate your level of satisfaction with the morning group session using a scale of 'Extremely satisfied' to 'Extremely dissatisfied'."

But would that mean? What if they were satisfied with certain aspects of the session but found other aspects lacking? Instead, you might break it down into more specific sections.

“Please rate your level of agreement with each statement below about the morning session.”

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
The speaker clearly and effectively presented the materials.					
The content was relevant to my professional needs.					
I learned skills or knowledge that I can apply in my work.					
The learning objectives were well-covered.					
My knowledge/perspective on the topic was broadened.					
Overall, this session was worth my time.					
Please provide comments about any of the areas above, especially if you indicated you Disagreed or Strongly Disagreed with any of the statements:					

Draft your survey questions.

With these questions in mind, you are now ready to begin writing. As you write your survey, remember that your choice of words and phrases directly impacts the way respondents react to and interpret your questions. Even the smallest differences can change the way respondents answer.

The ideal survey question has three key characteristics:

- It has a clear purpose, measuring the underlying concept it is intended to tap.
- It does not measure other concepts.
- It is clear, concise, and means the same thing to all respondents.

Keep these points in mind while drafting survey questions:

Write questions that are simple, direct, and familiar.

In general, questions that are concise, clear, and use simple language are more easily understood by respondents.

Example:

Not so good: Do you use any medicines several times per week or per month?

Better: Do you regularly use medicines?

Avoid using abstract terms, acronyms, and jargon.

Write out acronyms or abbreviations the first time. Provide further description if needed. Use examples to help explain terms and concepts to survey respondents.

Not so good: The conference activities facilitated active learning.

Better: The conference activities (e.g., break-out sessions, networking opportunities, keynote speaker) helped keep me engaged during the conference.

Make sure that responses are in a logical order and match the question.

If you are using a rating scale, each response should be clearly higher or lower than the other for all people. Questions and responses

should also be logical matches. For example, if you are asking about satisfaction, the logical scale would be “highly satisfied” to “highly dissatisfied.”

Avoid these common question-writing mistakes:

Double-barreled questions. To eliminate confusion, avoid asking respondents to evaluate more than one thing, such as “Did you feel better after the procedure and taking the medication?” The procedure and the medication are two separate things, requiring two different questions. You can search for double-barreled questions in your survey by looking for “and” or “or” in your questions.

Biased questions. Make sure the wording in your questions does not lead respondents to a particular conclusion. For example, the question “Do you think that the 2016 conference offered a better variety of breakout session topics than last year?” drives respondents to the conclusion that the 2016 conference offered more. Instead, create a more neutral question and answers:

How do you feel about the 2016 conference breakout session options compared to last year’s options?

- The 2016 conference offered a better variety
- The 2015 conference offered a better variety
- The selections were similar
- No opinion

Loaded and leading questions. Avoid using loaded, emotional terms in questions. For example, consider the question: “Exercising on a regular basis can be challenging. Did the intervention help you stick to a regular workout routine?” To avoid bias and leading, write more neutral questions, such as:

The intervention helped me exercise on a regular basis.

- Strongly agree
- Agree
- Disagree
- Strongly disagree
- No opinion

Overlapping responses. Make sure multiple choice options are mutually exclusive. Response options are not mutually exclusive if a potential answer fits more than one of the response options. For example: “What is your current age? A.) 10 or less B.) 10 to 20 C.) 20 to 30 D.) 30 or greater”

Determiner. Avoid asking questions that use terms such as always, never, and only. In the question “Do you always take your medication on time?” a respondent who missed one dose would have to answer no.

Question Writing Takeaways

- Always link your questions to survey goals and objectives.
- Keep questions simple, concise, and free of acronyms and jargon.
- Ask about one thing at a time to avoid double-barreled questions.
- Avoid biased and leading questions.
- Make sure multiple choice options are mutually exclusive.
- Avoid using words like never, always, and only.
- If possible, use more close-ended questions than open. Close-ended questions are easier to answer and analyze.

Plan the order and flow of your survey.

Once the questions are developed, attention should be paid to how they are ordered. Like a conversation, survey questions should be grouped by topic and unfold in a logical order.

For example, in our survey for conference attendees, there is a lot we want to know about: morning and afternoon sessions, keynote speakers, networking, and so forth.

If you mix topics throughout the survey, you will end up confusing and frustrating your respondents. Instead, break your survey into obvious sections. At the beginning of each, offer a quick introduction, such as, “This section asks questions about the morning breakout sessions.”

Tips for Ordering Survey Questions Effectively

- Start with broad, general questions and move into more specific questions.
- Sensitive or difficult questions should be asked later in the survey, after previous questions have established rapport with the respondent.
- Save demographic questions for the end, unless you need to ask them first to screen respondents for the survey.
- Use chronological sequences when obtaining historical data or surveying about events.
- Make sure all questions about a topic have been addressed before moving on to the next topic. Use transitions to move between topics.

Take time to test your survey.

When you have finished creating your survey, test it thoroughly. Make sure the survey design, branch logic, and settings are working properly. Running a test before you send can prevent headaches down the road and ensure you get the data you need.

As you test it, think about the survey as if you are respondent. Are the directions clear? Are the questions concise? Were there any confusing questions or response options? How long did it take to complete the survey? Once you have successfully completed your test survey, you are ready to distribute.

PART 2

The 4 Principles of Creating Survey Invitations that Boost Response Rates

You always want the highest response rate possible when conducting a REDCap survey. But sometimes getting recipients to even open your email can be a challenge.

Think about it: the average person receives 85 emails every day. That is an avalanche of work emails, promotions, newsletters, and stuff from random companies we do not remember giving our email to.

Somehow your survey invitation needs to cut through the inbox clutter, grab your recipients' attention, and convince them to complete the survey. **This guide outlines four fundamentals that will help increase the likelihood of rising above the clutter and getting recipients to open and respond to your survey.**

Write a winning subject line.

Before study participants can complete your survey, they first need to open the email invitation. You have only a few precious seconds to catch their attention and stand out from the hundreds of other emails in their inbox. **The best email subject lines are usually short, descriptive, and provide a reason to open your email.**

Keep subject lines short. Most readers will quickly scan the subject line before deciding to open the email. Aim for 50 characters or less.

Be clear and concise. Subject lines that are too cute or clever are likely to be ignored. Instead, quickly summarize what is inside. For example, “Share Your Thoughts on Participate in Research – Win a Gift Card” summarizes what it is (a survey about Participate in Research) and what the recipient could receive for completing the survey (gift card). Note that you would need prior approval from your Institutional Review Board to reference the gift card..

Avoid spam words. To keep your email out of the junk bin, avoid using words like “free” and writing in Caps Lock.

Don't make it all about you. Avoid lines like, “Reminder to complete our survey” and “Help us improve our customer service.” Notice the use of our and us? These lines are all about the sender. Your subject line should speak directly to your readers' interests.

Give recipients a deadline. If your survey is time-sensitive, use words that give a sense of urgency. Inspire recipients to take action immediately.

Don't forget the From field. Recipients need to know at first glance that the sender is a trusted and known source. When deciding on the From field, you have three choices: an individual's name, organization name, or a combination of the two. Think about your audience and what they will best respond to. If you decide to use an individual's name, use a name your recipients will recognize.

Craft a compelling invitation.

Now that you have mastered your subject line, you need to craft a compelling invitation within your email. **It should be similar to your subject line: clear, concise, and relevant to the reader.**

Your message should include these components:

- Start with a personalized greeting, if possible. Several studies have found that personalization boosts survey response rates. [Learn how to add recipients' names to invitations in REDCap.](#)
- Let your contacts know why they have been asked to participate. If they previously agreed to or expressed interest in being part of research, gently remind them.
- Tell them how you will use the results (e.g., for a research study,

to make a decision). Mention how participating in the survey will benefit the recipient.

- Indicate how long the survey takes to complete. Try to use concrete numbers like 3 to 5 minutes, rather than subjective terms like “short” or “brief.”
- Create urgency with a deadline, if needed.
- Guide users to the next step (taking your survey) with a clear call-to-action. It should be more descriptive than “click here.” Instead, utilize action verbs (e.g., Take the Survey, Share your Feedback).

Let’s put these points together in an example:

Dear Jane,

Thank you for using ITHS’ Participate in Research tool. We appreciate you choosing our website for your study recruitment needs.

To help us improve, we would like to ask you a few questions about your experience. The survey takes 4-5 minutes to complete, and your answers will help ITHS make Participate in Research an even better tool for you and the research community.

Share Your Feedback Now [Link to survey URL]

Thank you,
ITHS

Send the email at the best time.

With your subject line and invitation written, you are now ready to send the invitation. But when should it go out? The best times and days to send emails is a heavily researched—and heavily debated—topic. Most studies come up with the same conclusion: it depends.

First, what day of the week should you send emails?

Studies from email marketing services MailChimp, Customer.io, and GetResponse found that most activity happens in the middle of the week. The data suggested that Tuesdays were the best day to send email and had the highest open and click rates. Thursday came in a close second. While no study found Wednesday to be the most popular, it came in second place in some of the studies.

What is the best time to send email?

The same studies found varying results for the best time to send email. Several studies concluded that between 9 and 11 a.m. is the best time to send email. A couple studies found there may also be a peak in opens during the afternoon as people finish work, clean out their email inbox, or start looking for distractions.

Let your recipients guide your send times.

These guidelines are a good place to start, but they will not help you if you do not know your audience. Are you trying to reach busy investigators who only check email over lunch? Or parents who are

busy during the day and read email late at night? Adjust your email timing to match your audiences' schedule.

Remind participants with strategic follow-ups.

Once you have sent your initial invitation, communication with recipients should not end.

Remember that your recipients have busy lives. If you have not received their survey within 10 days, send them a friendly reminder. REDCap offers the survey reminder feature, which is a great way to remind your respondents to complete a survey without having to manually re-send invitations. [Learn how to send survey invitation reminders.](#)

You may also want to thank your respondents or send any pertinent information about the survey they just completed. REDCap can do that automatically. [Learn how to create confirmation emails.](#)

How-To Personalize Your REDCap Surveys

Ready to boost your response rates by adding recipients' names to survey invitations? Here's how.

REDCap's piping feature allows you to display any entered variable, such as someone's name, in the invitation, throughout the survey itself, or in the thank you message at the end.

To use the Piping function in REDCap:

- Look up the Variable Name of the first name field in the survey (i.e., "first_name").
- Go to the location of the text in which you want to "pipe" the information. For example, "Survey settings for the Thank you message," or "Field label for other variables."
- Enter your text in the chosen location. For example, "Thank you, [first_name]!" or "[first_name]'s Date of Birth."
- Hit the save button.

That's it!

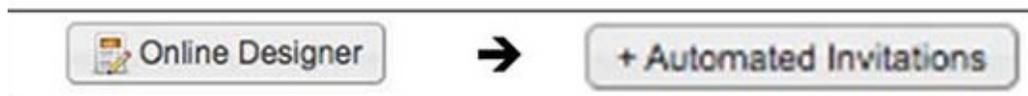
How-To Send Reminders to Respondents

The Survey Reminder function is a great way to automatically remind your respondents to complete a survey without having to manually re-send invitations.

To set a reminder, navigate to the Compose Survey Invitations popup on the Participant List page.



Alternatively, invitations can be set in the Automated Survey Invitations popup in the Online Designer.



A single reminder can be scheduled to be sent at an exact date and time. Users can also schedule up to five reminders to be sent according to a set time schedule, such as a recurring time lapse (e.g., every 12 hours after the original invitation) or on a specific day and time recurrence (e.g., every day at 10 a.m. after the original invitation, every Monday at 4 p.m.).

Once a survey is completed, any unsent reminders are erased and not sent.

How-To Send Automatic Confirmation Emails

Sending an automatic confirmation email after a respondent completes a survey is an easy, effective way to thank the respondent and send any follow-up information. Here's how to do it.

Note: You should create the confirmation emails **before** you send the survey to respondents.

First, navigate to the Survey Settings page in the Online Designer.



The email confirmation setting allows you the option of adding one attachment to the email. You can also use piping in the email's subject line and in the message itself to help personalize the email.

The screenshot shows a form titled "Send confirmation email (optional)? (Email the respondent when they complete the survey)". The "Yes" option is selected in a dropdown menu. Below the title, there is a dashed line and a note: "Provide email subject, email message, and (optionally) an attachment to be sent to respondent when they complete the survey. [How to use Piping here](#)". The "From:" field is set to "bdeveer@uw.edu". The "Subject:" field is empty. Below the subject field is a large text area for the email message. At the bottom, there is an "Attachment:" section with a "Choose File" button and the text "No file chosen".

About ITHS

The Institute of Translational Health Sciences is dedicated to speeding science to clinical practice for the benefit of patients and communities throughout Washington, Wyoming, Alaska, Montana, Idaho, and beyond.

ITHS promotes the translation of scientific discovery to practice by fostering innovative research, cultivating multi-disciplinary research partnerships, and ensuring a pipeline of next generation researchers through robust educational and career development programs.

ITHS reaches beyond the Seattle area, serving everyone involved in translational research in the five-state WWAMI (Washington, Wyoming, Alaska, Montana, and Idaho) region. Since forming in 2007, ITHS has worked with more than 6,500 investigators at nearly 200 organizations across the WWAMI region.



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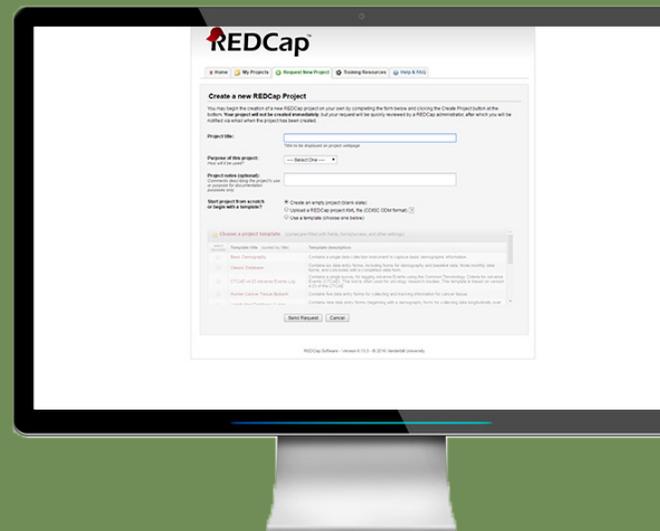


Start writing and sending surveys that get responses.

Now that you know how to write, design, and send well-crafted, relevant, and useful surveys, it's time to put your knowledge to work.

REDCap can help you:

- Build and administer online surveys and databases quickly and securely at no-cost.
- Input data from anywhere in the world over a secure web connection.
- Create projects and report forms without the need for a programmer.
- Get the responses and data you need.



START CREATING REDCAP SURVEYS