

REDCap Tutorial: Date Difference Calculation (*datediff*)

Using *datediff* function in a REDCap calculated field, the interval between two entered dates can be calculated. It is useful to calculate the participant's age from the entered date of birth, or to validate the entered date values. The *datediff* function can also be used in branching logics.

Question: Is there a way to ensure dates that are entered are valid, e.g., not a future date and not before the study was started?

Answer: Date validation can be done using 'datediff' function in REDCap either by adding branching logics and show the warning message in data entry forms, or in the Data Quality Rule module. The warning message in a data entry form must be created using 'Descriptive Text' field. For example, the enrollment date field with the variable name 'date_enrolled' must be no later than 'today', and following initial intervention visit 'date_1stvisit' must be after the enrollment date. To validate this, the two methods are suggested.

1. Date validation using branching logic or calculated field in a data entry form

- Create a descriptive text warning the entered date is not in valid range.
- Add a branching logic to the descriptive text field created as above.
 - Using two date fields: `datediff ([date_enrolled], [date_1stvisit], "d","mdy", true)<0`
 - Using a date field and "today": `datediff ([date_enrolled], "today", "d","mdy", true)<0`

Note: It is not recommended to use "today" or "now" in calculated fields or branching logics. This is because every time you access and save the data entry form, the calculation result will be renewed by changed 'today' or 'now' value. So if you calculate the age as of today, then a year later you access the form to review or make updates, the elapsed time as of "today" will also be updated (+1 yr). Instead, it is mostly better to calculate time from another field (e.g. screening date, enrollment date) which is a fixed date.

- Longitudinal data with unique event name: If the date field is in a repeated longitudinal instrument, the unique event name assigned automatically by REDCap must be added in front of the variable name: `datediff ([event_1_arm_1][date_enrolled], [event_1_arm_1][date_1stvisit], "d","mdy", true)<0`

2. Using Data Quality rule

- Same 'datediff' function is used for the rule logic. By executing the rule the list of records having invalid date entries will show so that they can be viewed, modified or excluded.

For example, the rule logic `datediff([date_enrolled],[date_1stvisit],"d","mdy",tru)<0` will show the data entry cases when the enrollment date (date_enrolled) is later than the first visit date(date_1stvisit). See the following screenshot.

⚠ WARNING: Data Quality rules were violated! ✕

The Data Quality rules listed below were found to have discrepancies for this record. Review the table below to see which rules were violated so that the data values for the fields involved can be corrected, if necessary. You may exclude a result in the table by clicking the 'exclude' link on the right side, after which that rule will no longer be displayed for this record whenever the record is saved.

	Rule(s) violated	Fields involved	Exclude ⬇
ⓘ	Rule #1: Validating enrolled date and 1st visit date <code>datediff ([date_enrolled], [date_1stvisit], "d","mdy", true)<0</code>	date_enrolled: 01-11-2000 date_1stvisit: 01-13-1999	exclude

Question: Can I see the calculated date in the data entry form? I want to know when is the next visit date after an entered enroll date.

Currently, REDCap doesn't have the function to show the calculated date in data entry form without using external module or plugin. Instead, you may utilized Scheduling/Calendar for longitudinal databases.

For more details about datediff function and examples, go to [REDCap Help & FAQ](#).