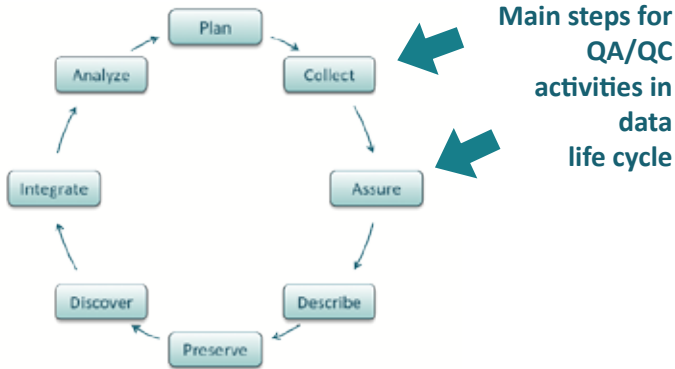


Quality assurance & quality control

Activities that prevent errors from entering or remaining in a data set. These activities ensure data quality before it is collected, entered, or analyzed, and monitor and maintain the quality of the data throughout the study's data life cycle.



QA/QC Best Practices: During data collection

- Consider double entry, where data is keyed in by two different people, agreement checked by computer, and mistakes corrected
- Transcribe the data by listening to a recording of yourself reading the data or by using a text-speech program
- Design data storage well:
 - *minimize how many times a piece of data must be entered*
 - *use consistent terminology*
 - *atomize data: enter one piece of data per cell*
- Document changes to data to avoid duplicate error checking and to allow revision if necessary

Types of errors

Errors of commission:

- Incorrect/inaccurate data is entered
- Examples: malfunctioning instrument or mistyped data

Errors of omission:

- Data or metadata is not recorded
- Examples: inadequate documentation, GPS unit runs out of power, forgotten measurements

QA/QC Best Practices: After data collection

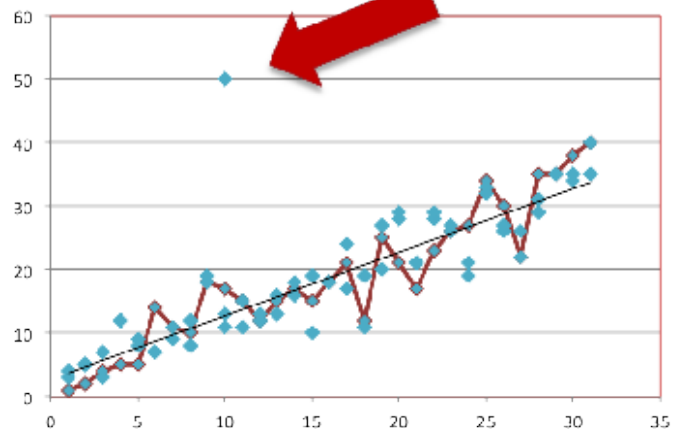
- Make sure data line up in proper columns
- Make sure there are no missing, impossible, or anomalous values
- Perform statistical summaries, like means and standard errors
- Look for outliers, or extreme values, to identify possible data contamination.
 - *This can be done with graphs, maps, or statistical methods.*

Data contamination

Process or phenomenon, other than the one of interest that affects a value and results in erroneous values.



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QA/QC Best Practices: Before data collection

Define standards to be used during the project, including:

- data formats
- code
- measurement units
- metadata to be captured

Assign responsibility for data quality

Local contact information