# Reporting guidelines: essential tools for manuscript writing in medical research

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## PRACTICAL SCENARIO

Researchers conducted a prospective cohort study and evaluated mechanical ventilator waveforms to calculate the incidence of patient-ventilator asynchrony[1] among 103 patients admitted to the ICU of a university hospital in São Paulo, Brazil. They reported that a high incidence of asynchrony was associated with increased weaning failure, but not with mortality. The publication of the study results was written following the **ST**rengthening the **R**eporting of **OB**servational studies in **E**pidemiology (STROBE) reporting guidelines.[2]

## WHAT ARE REPORTING GUIDELINES?

Reporting guidelines are tools that guide authors who are writing a scientific paper on specific study items to be reported to increase the research rigor, reproducibility, transparency, and acceptance of the study results and conclusions by the scientific community. Reporting guidelines typically describe the development process and provide researchers with a checklist of recommended items to be reported according to each study design. The checklist is very helpful because it provides authors with a framework that is easy to follow and useful when designing the whole research project: from study protocol development to study implementation, data analysis, and manuscript writing.

Reporting guidelines are specific to each study design (Table 1). The most commonly used reporting guidelines are those developed by the **E**nhancing the **QUA**lity and **T**ransparency **O**f health **R**esearch (EQUATOR) Network, a global initiative that seeks to improve the reporting quality of published health research globally.[2] The most widely known EQUATOR guidelines are **CON**solidated **S**tandards **O**f **R**eporting **T**rials (CONSORT) for randomized clinical trials (RCTs) and STROBE for observational studies. Several guidelines share particular items, including the study design in the manuscript title and the participant flow diagram, which informs how many individuals were screened for eligibility, how many were excluded, and why. Other recommended items are specific to each type of study design (e.g., the type of randomization procedure used in RCTs within the CONSORT guideline).

## WHY ARE REPORTING GUIDELINES IMPORTANT?

Using reporting guidelines ensures that authors report all critical components of a research study, which helps the reader clearly understand all relevant aspects of the study. This is essential because when a manuscript conveys accurate and complete study information, procedures can be replicated by other researchers, and results can be included in systematic reviews or used by clinicians to inform clinical decision making. For example, when a manuscript reports the findings of an RCT and fails to report how many potential participants were excluded from the trial, the generalizability and the internal validity of the results could be compromised. Similarly, if the manuscript in our practical scenario[1] failed to report how many participants had been lost during follow-up, readers would be unable to evaluate the risk of bias in that cohort study. Therefore, the results would not be useful for clinical decision making.

The international research community increasingly recognizes that using reporting guidelines improves the quality of research and helps minimize the waste of resources in poorly reported research studies. As a result, most medical journals that have a high impact require that RCTs be written according to CONSORT guidelines, and most observational studies include STROBE flow diagrams.

**Table 1.** Reporting guidelines for most study designs.

| Study design | Reporting guideline |
|---|---|
| Randomized trials | CONSORT[a] |
| Observational studies | STROBE[a] |
| Systematic reviews | PRISMA[a] |
| Study protocols | SPIRIT, PRISMA-P |
| Diagnostic/prognostic studies | STARD |
| Prognostic studies | TRIPOD |
| Case reports | CARE[a] |
| Clinical practice guidelines | AGREE, RIGHT |
| Qualitative research | SRQR, COREQ |
| Animal preclinical studies | ARRIVE |
| Quality improvement studies | SQUIRE |
| Economic evaluations | CHEERS |

Adapted from Equator Network.[2] [a]These reporting guidelines have extensions (additional versions) that focus on variations of the study design or are specific for abstracts.

## REFERENCES

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