

How Does the World Check That a Study Is Trustworthy?

Once a study is finished, how does the rest of the world check whether it is actually trustworthy?

CARRY FORWARD
Child research requires favorable risk and benefit, IRB review, parental permission, and affirmative assent when the child is capable.

10-YEAR TAKEAWAY
Transparent reporting lets others appraise and reproduce methods, but it cannot repair a weak design.

Cells differentiate	Development sculpts	Cells move	Development can go wrong
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1. Observe the analogy before naming the biology



Illustration: A lab notebook must let an outside team repeat the route

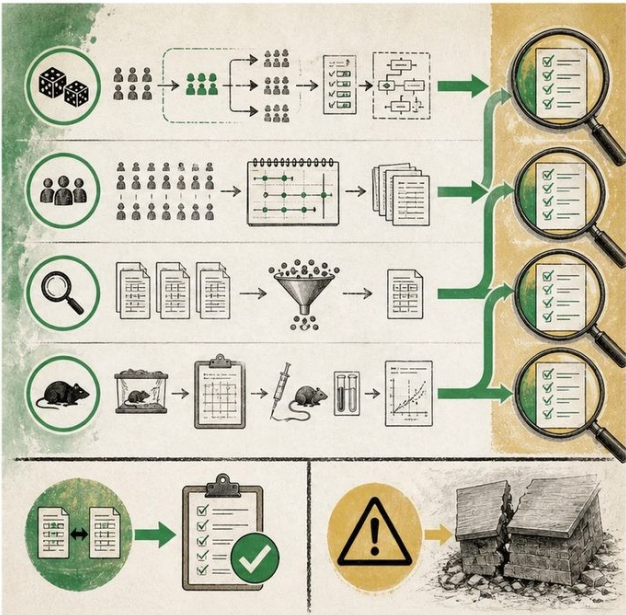
1. Which detail lets the next team repeat the method?
2. Where are missing participants shown?
3. What if the original design was unfair but perfectly reported?

2. Turn observations into rules

- 1. Rule 1: Report planned and actual methods, participants, outcomes, and analyses. Explain it in your own words.
- 2. Rule 2: Use the guideline matched to the study type. Explain it in your own words.
- 3. Rule 3: Separate reporting from design quality, replication, and peer review. Explain it in your own words.

Where the analogy stops: Exact reproduction may be impossible across people and settings, even when methods are transparent.

3. Map the rules onto the biomedical example



Biomedical teaching illustration: Match CONSORT, STROBE, PRISMA, and ARRIVE to four studies

Analogy step	Biology step	How the relationship stays the same
Participant route map	CONSORT for randomized trials	_____
Observation record	STROBE for observational studies	_____
Search and model notebooks	PRISMA and ARRIVE	_____

4. Use the case evidence

ID	Finding supplied in the case	Why it matters
EXP19-E1	The trial report includes eligibility, allocation, participant flow, outcomes, harms, and analysis.	Readers can check what happened from enrollment to result.
EXP19-E2	The study type determines the matched guideline: CONSORT, STROBE, PRISMA, or ARRIVE.	One checklist does not fit every design.
EXP19-E3	A fully reported study still has unconcealed allocation and severe missing data.	Transparency exposes the weakness but does not remove it.

5. Make the clinical decision

You are the journal reproducibility editor. An author says completing a reporting checklist proves the study is trustworthy.

- A. Use the matched guideline, then judge design, conduct, analysis, and replication separately.
- B. Accept the checklist as proof of validity.
- C. Reject reporting guidelines because they cannot fix a study.

Decision. Choose the editorial decision and match each supplied study to its guideline.

Claim ceiling: You may judge reporting completeness and exposed strengths or weaknesses. You may not call a study reproducible or valid from a checklist alone.

Claim. State the choice you can defend.

Evidence. Use these labeled IDs: EXP19-E1 + EXP19-E2.

Reasoning. Explain why the evidence supports the claim and stays inside the claim ceiling.

6. Reduce the lesson to one lasting idea

Take-home. Transparent reporting lets others appraise and reproduce methods, but it cannot repair a weak design.

1. Which guideline fits a systematic review?
2. Why does reporting not repair weak design?

Glossary

Term	Plain-English definition
reproducibility	The ability to get the same results when an experiment is repeated using the same methods, which builds trust in findings.
reporting standard	An agreed set of items a study must describe so readers can judge and reproduce the work, like the PRISMA checklist for reviews.
peer review	The process where independent experts evaluate a research study for quality and accuracy before it is published.
CONSORT	A standard checklist and flow diagram that researchers use to report every key detail of a randomized controlled trial clearly and honestly.
STROBE	A standard checklist that guides researchers on how to clearly and fully report observational studies in medicine.

Next lesson unlock

We answered today's question: reporting standards, reproducibility, and peer review let the world check a study instead of trusting it on faith. Across this whole domain you have learned to ask a researchable question, build a hypothesis, pick a design, control bias, run the stats, clear ethics, and report it all. So here is the last test: what new question about Mateo's cleft would YOU investigate, and how would you design a study to answer it? We chase that next time, and this time the study is yours.

The journal links on the lesson page are optional. Everything required for this guided-notes set is already supplied here and in the case file.