

Critical Appraisal

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Conflict of interest

- Ahmad Samir Alfaar
- The CEO of Moriat for e-Solutions,
An academic support company (eLearning, e-publishing and research)



How

- Many reads? Why?
- Many do you read?
- Do you read?



Why critical appraisal

- Read paper to apply clinically
- Integrate into research
- Review paper to recruit supporting evidence



Is it all the same

Journals

Peer-reviewed
Impact Factor
Indexed



Plan

- Does this study address a clearly focused question?
- Did the study use valid methods to address this question?
- Are the valid results of this study important?
- Are these valid, important results applicable to my patient or population?



Time

- Target : 15 min



Steps



Why

- The aim of the study
- At the end of the introduction
- Relevant?



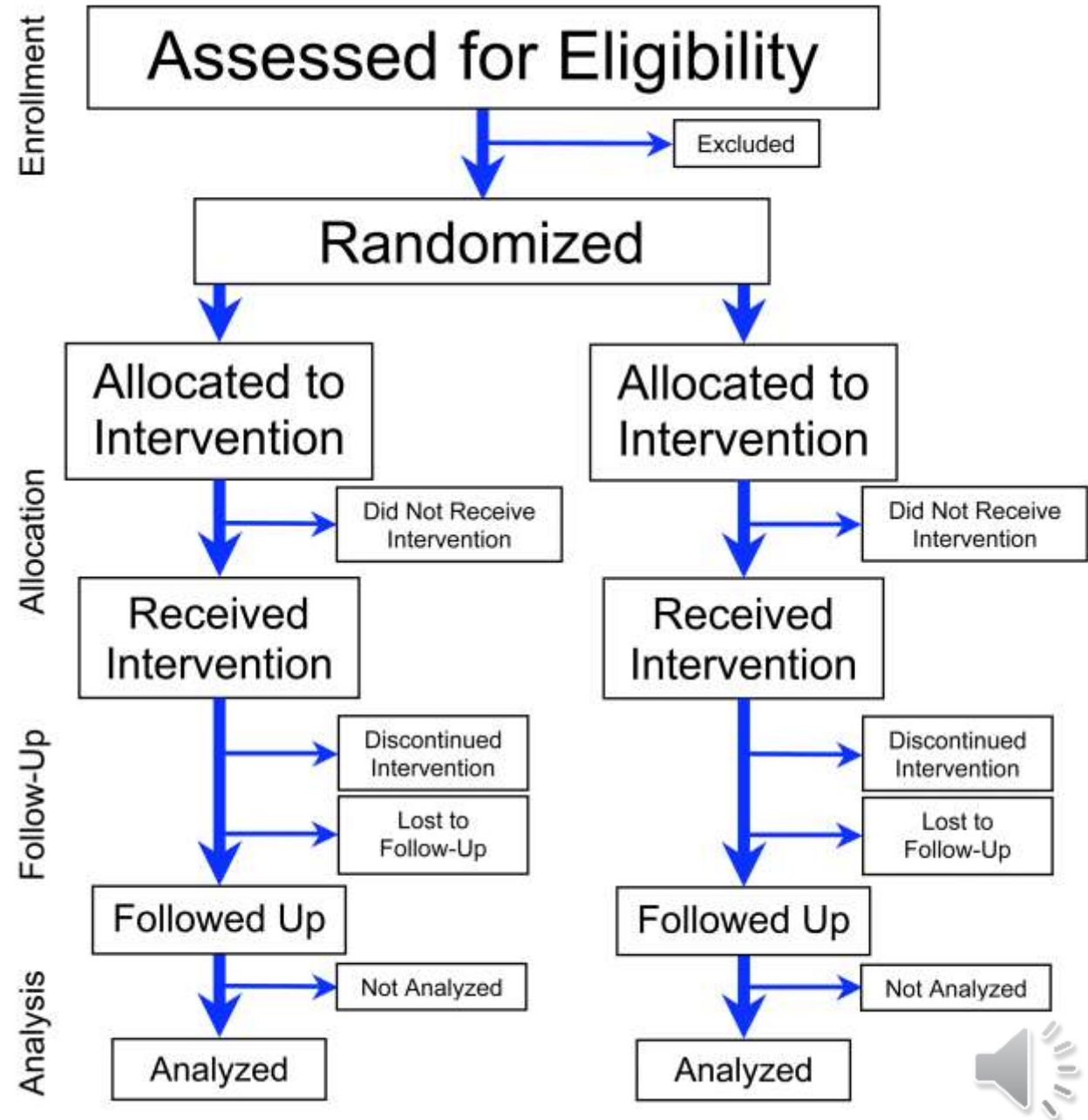
How

- Methods;
 - Detailed
 - Study type
 - Variables; Independent, Dependent, Confounders, variable types
 - Patients, sample size? Sampling? Selection bias/Randomization?
 - Measurement? Blinding
 - Study period
 - Follow-up period and % of lost followup



CONSORT

- Consolidated Standards of Reporting Trials
- Flowchart + Checklist
- Source: wikimedia

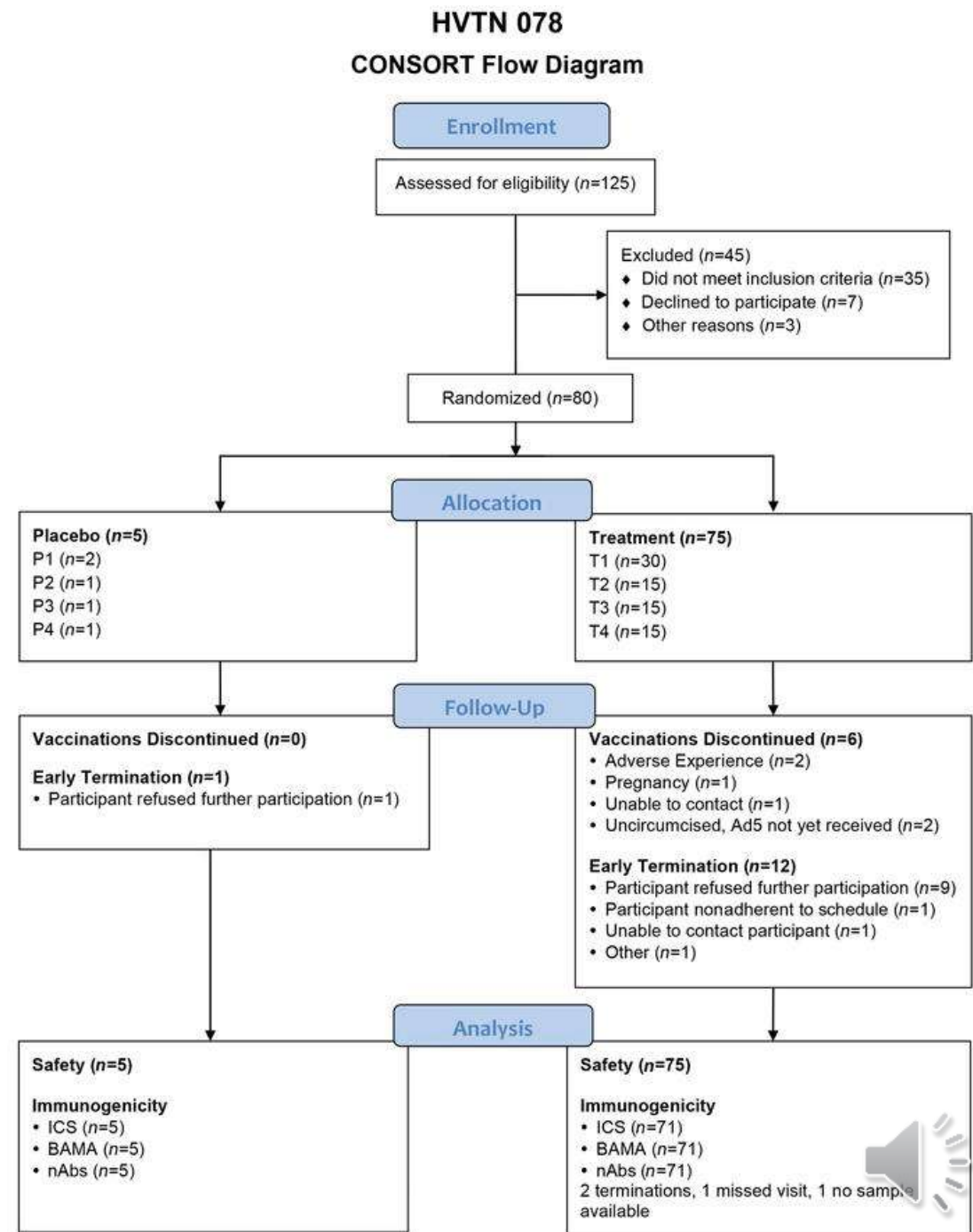


CONSORT

- Consolidated Standards of Reporting Trials

Source:

J Clin Invest. 2014;[124\(11\)](https://doi.org/10.1172/JCI75894):4843-4856.
doi:[10.1172/JCI75894](https://doi.org/10.1172/JCI75894).

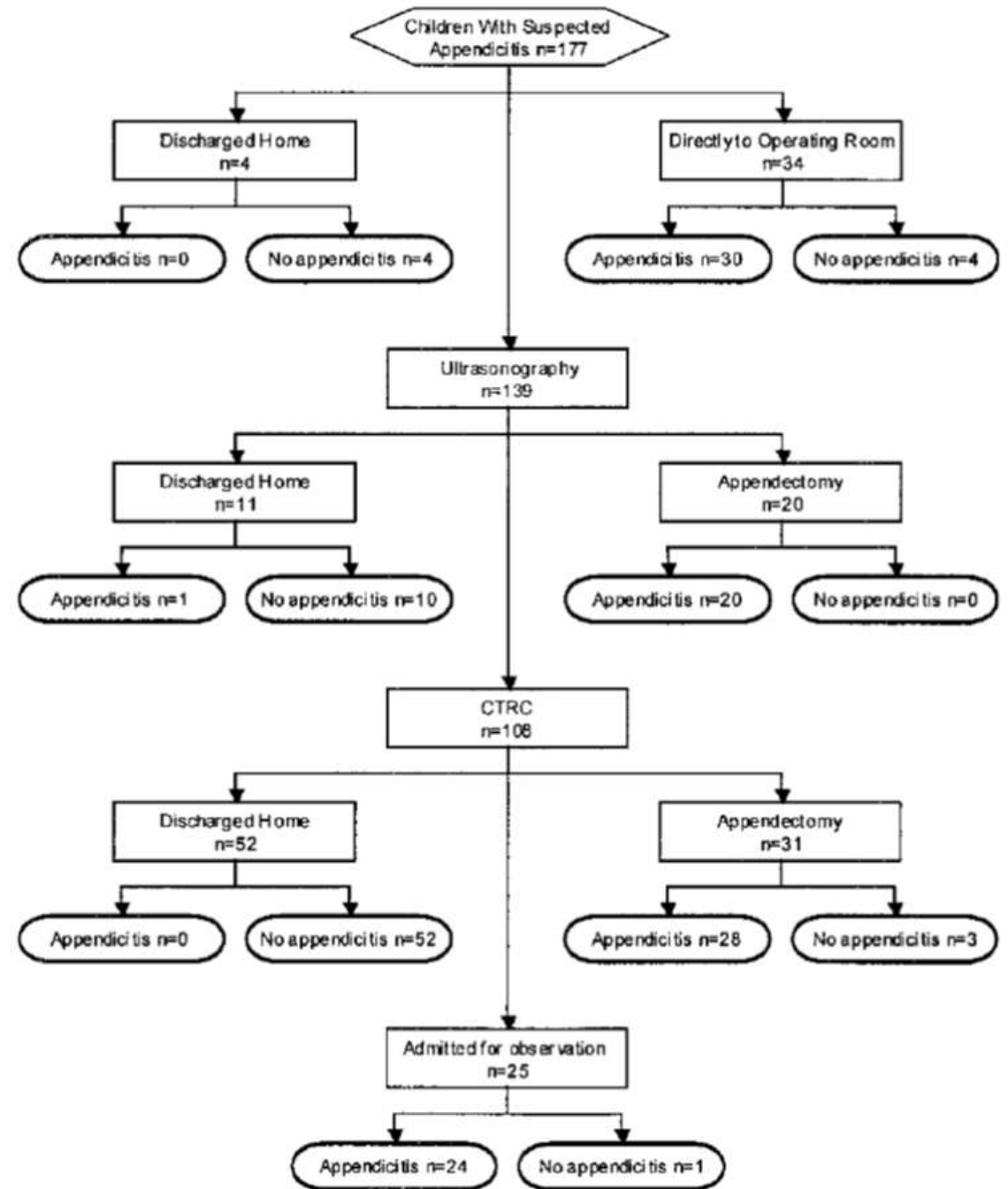


STARD

- Statement for Reporting Studies of Diagnostic Accuracy

Source:

Clinical Chemistry January 2003 vol. 49 no. 1 7-18



Bias

- *Noun* - inclination or prejudice for or against one person or group, especially in a way considered to be unfair.
- "there was evidence of **bias against** black applicants"

noun

■	انحياز	bias, alignment, prejudice
■	أثار	chafe, bias
■	خط درز	bias
■	على نحو منحرف	bias
■	محاباة	favor, favoritism, bias, partiality, favouritism, patronage

verb

■	نزعة	bias, bereave
■	وجه في إتجاه معين	bias

adjective

■	مائل	diagonal, slant, oblique, sloping, inclined, bias
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- Google definition



Data and bias

- Collection
- Analysis
- Interpretation
- Publication
- Review

- Some types:
 - Design bias
 - Ascertainment bias
 - Selection bias
 - Observer bias
 - Reviewer bias

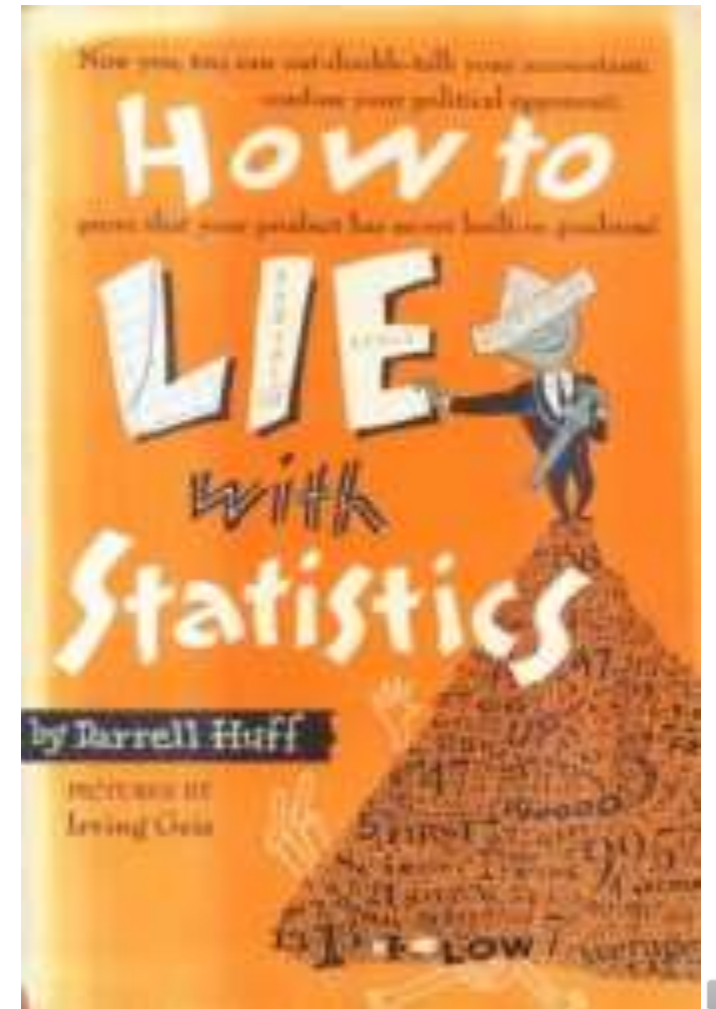
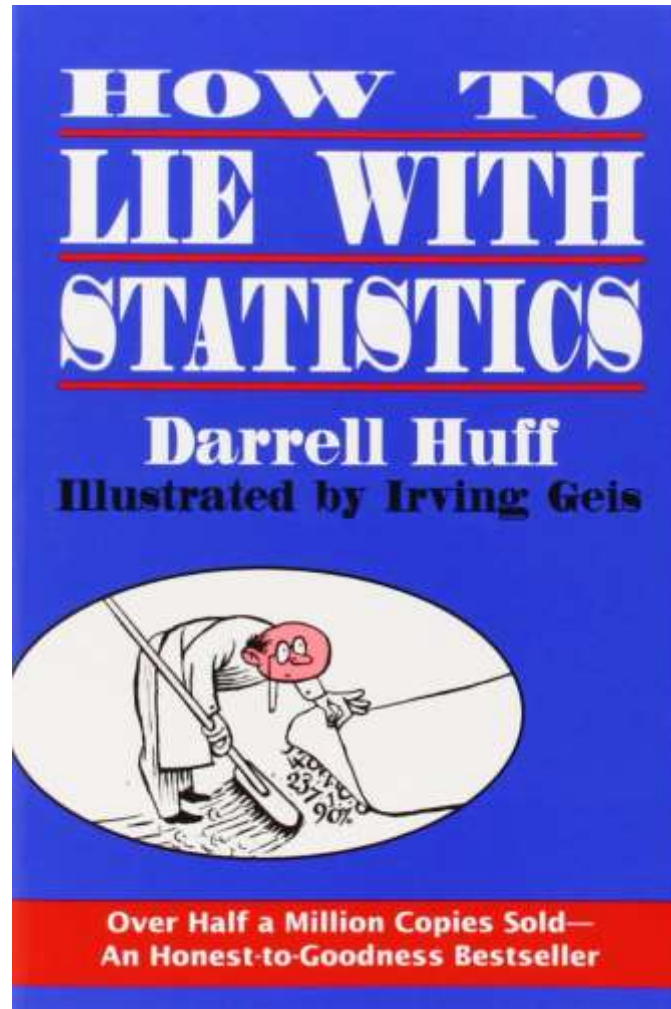
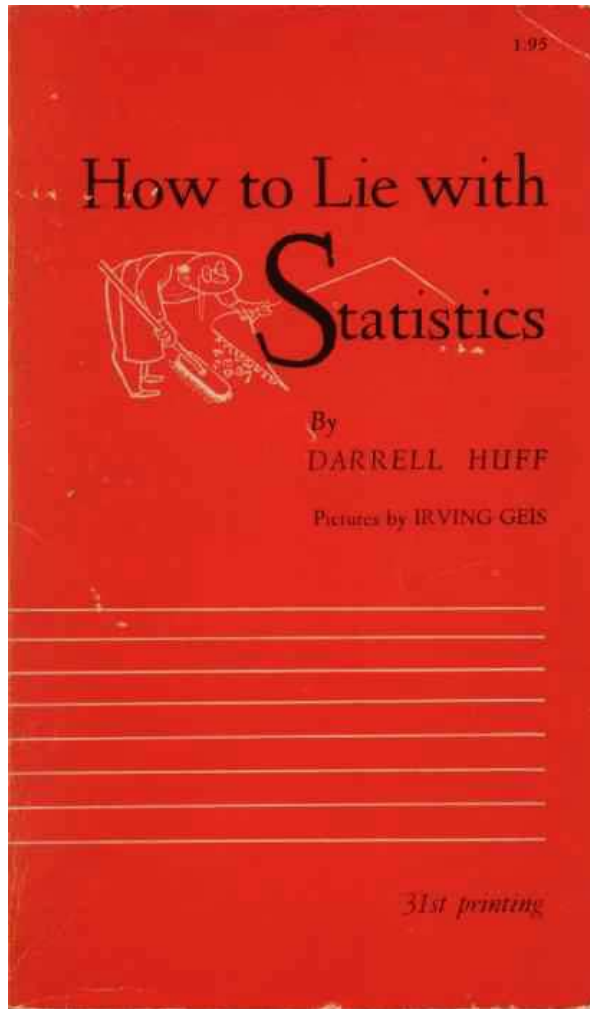


What

- Results;
 - Statistics assumptions
 - Statistics + Data
 - Reproducible
 - Connect aim to results
 - Error types and significance



Check stats



So What

- Discussion
- ? Relevant
- ? New
- ? Statistical significance & Clinical significance
- Generalization



Where/what else

- References
- Example: [Harbour 2012](#)



Shall I believe this study

- Internal validity
 - Study design
 - Outcome measurement
 - Statistical analysis, correct tests
 - Check Hypothesis, H_0 , H_1



Can I apply it to my patients

- External Validity:
 - Sampling, description of the sample

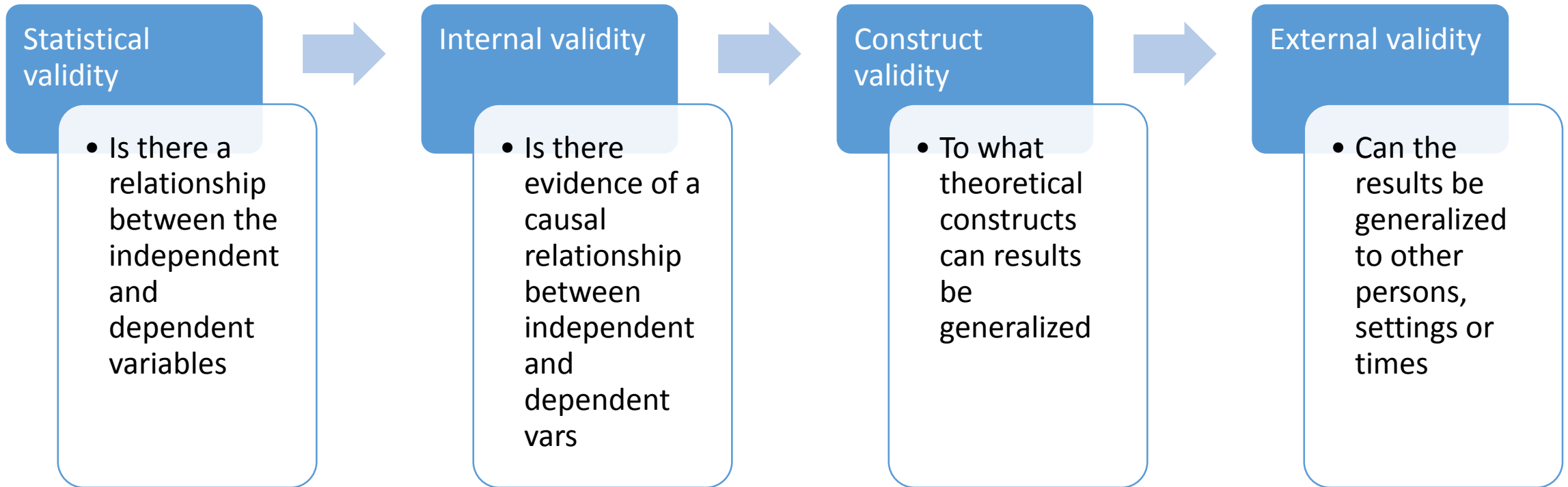


Ethical?

- Conflict of interest
- IRB



Types of Validity



Online available CA sheets

- Systematic Review Critical Appraisal Sheet
- Diagnosis Critical Appraisal Sheet
- Prognosis Critical Appraisal Sheet
- Therapy / RCT Critical Appraisal Sheet



Reference

- Foundations of Clinical Research, Applications to practice, Third Edition, Portney L, Watkins, M. 2009



Thank you

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