

Causal Inference in R: Introduction

```
> who_are_we(c("lucy", "malcolm",  
"travis"))
```



<https://www.lucymcgowan.com/>



<https://www.malco.io/>



<https://travisgerke.com/>

The three practices of analysis

- 1 Describe
- 2 Predict
- 3 Explain

Normal regression estimates associations. But we want *counterfactual, causal* estimates:

What would happen if *everyone* in the study were exposed to x vs if *no one* was exposed.

**For causal inference, we need to make
sometimes unverifiable assumptions.**

**Today, we'll focus on the assumption of *no
confounding*.**

Tools for causal inference

- Causal diagrams
- Propensity score weighting
- Propensity score matching
- G-methods & friends

Other tools for causal inference

- Randomized trials
- Instrumental variables & friends
- TMLE and other ML for causal inference

Resources

Causal Inference in R: Our book! Free online.

Causal Inference: Comprehensive text on causal inference. Free online.

The Book of Why: Detailed, friendly intro to DAGs and causal inference.

Mastering 'Metrics: Friendly introduction to IV-based methods