

# Summary and Take-aways

Erin E Gabriel



# Outline

## ① Summary

First ask what the predictions are to be used for!

## Causal prediction

I want to use the predictions to drive medical decision making/informing patients of their risk

- ① remember that it requires causal reasoning and causal assumptions
- ② remember that IPW is the easiest method that works in most cases
- ③ remember if you want to use ML, DR methods work well and can be used in any case, but you must 'train with brain' not just data
- ④ remember that evaluation of predictive accuracy also requires assumptions
- ⑤ also evaluate the use of the predictions before using them in clinical setting – clinical utility

## Risk predictions

I want to know to drive future research who is at higher risk

- ① standard risk predictions are probably fine
- ② just remember to not start attempting to use them to make treatment/screening decisions - unless you at least evaluate that decision process via clinical utility

## Not doing Causal prediction

I want to use the predictions to drive medical decision making/informing patients of their risk, but after taking this course I am more confused than empowered to use the suggested methods

**Math and causal understanding are NOT required to NOT do things incorrectly**

- ① simply not doing the wrong thing is enough
- ② do not go alone, ask a causal inference statistician
- ③ maybe you will realize that what you want is a causal estimate, not a causal prediction - still maybe ask a causal inference statistician

**Being able to recognize when risk prediction is not enough and being able to explain to your colleagues why you/they should not fall into the trap of using risk prediction as causal prediction is the most important take away from the course.**

# Thanks!



**SMART**biomed

Pioneer Centre