

## Bayes Practice

### Part 1: COVID-19 Rapid Antigen Test

You're using a COVID-19 rapid antigen test during a period when the local infection rate is 8% (meaning 8 out of every 100 people in your community currently have COVID-19). Based on real clinical studies, this type of rapid antigen test has an average sensitivity of 69.3% and specificity of 99.3%.

You take the test and it comes back **positive**. What is the probability that you actually have COVID-19?

#### Given information:

- Prior probability (prevalence):  $P(\text{COVID+}) = 0.08$
- Sensitivity:  $P(\text{Test+} \mid \text{COVID+}) = 0.693$
- Specificity:  $P(\text{Test-} \mid \text{COVID-}) = 0.993$

### Part 2

Why is “What is the probability that you actually have COVID-19?” a stupid, bad and wrong question and yet this is how experts talk.