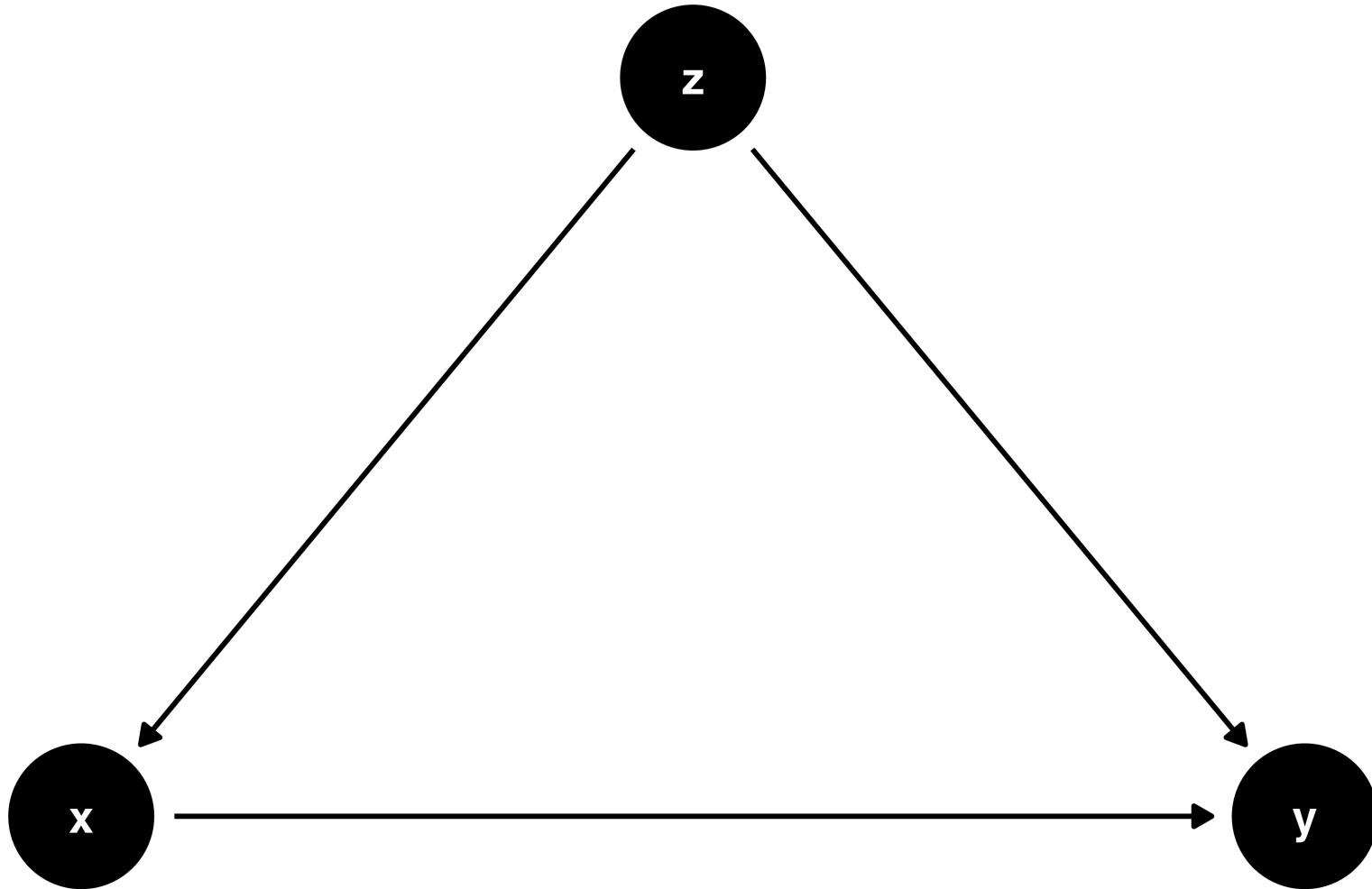


# Bonus: Colliders, selection bias, and loss to follow-up

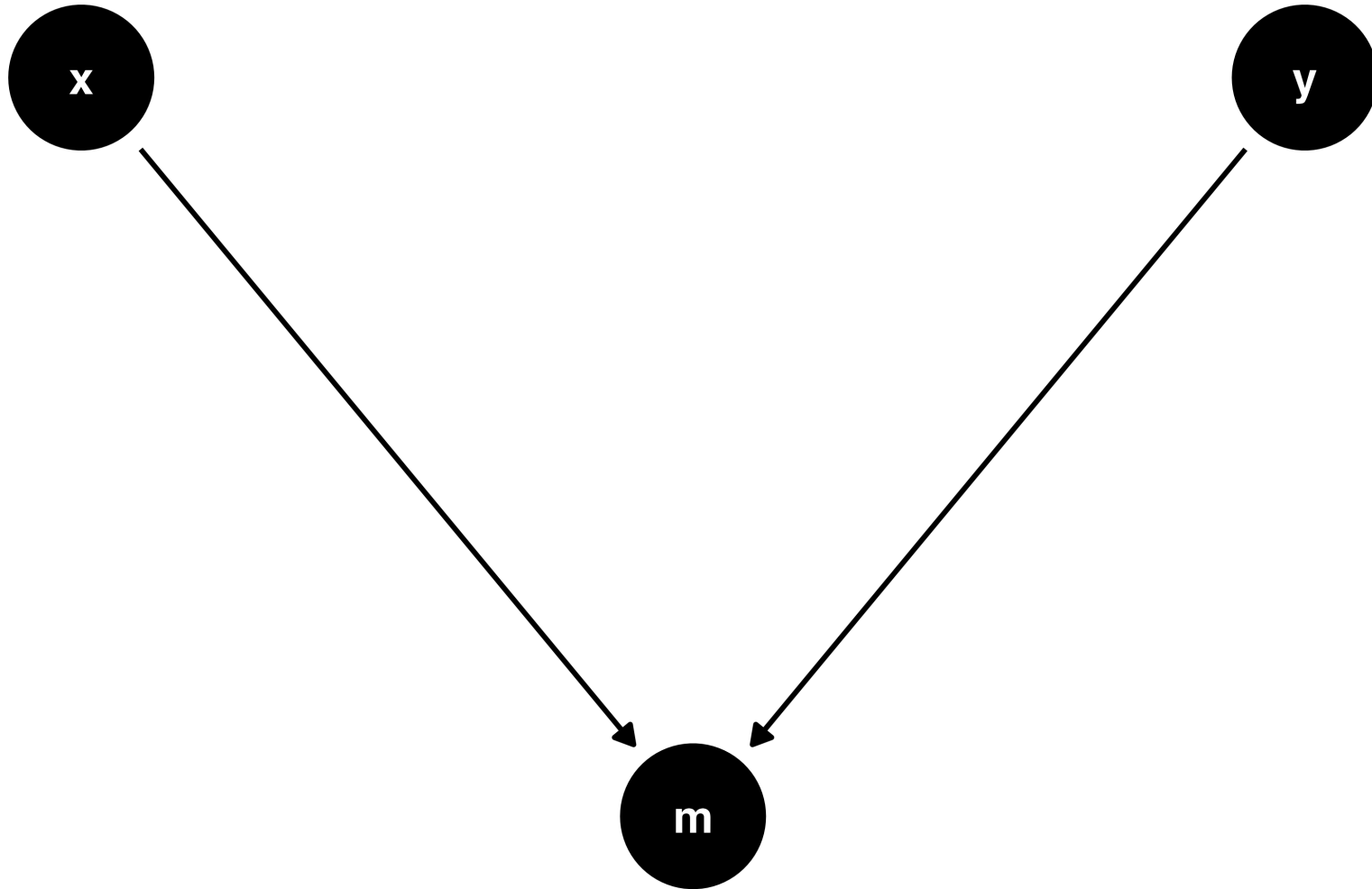
Malcolm Barrett

2021-09-01

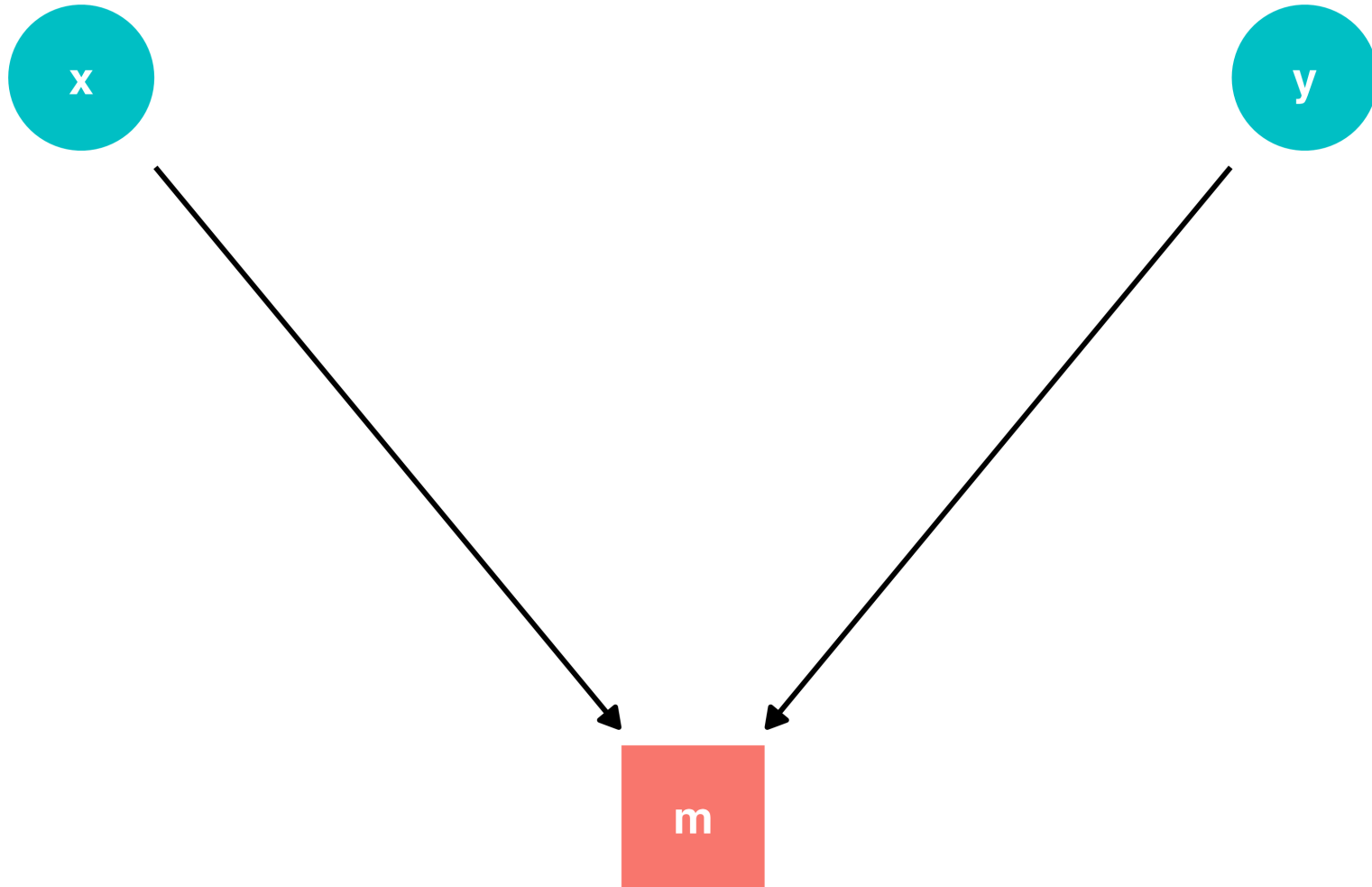
# Confounders and chains



# Colliders



# Colliders



# Let's prove it!

```
1 set.seed(1234)
2 collider_data <- collider_triangle() |>
3   simulate_data(-.6)
```

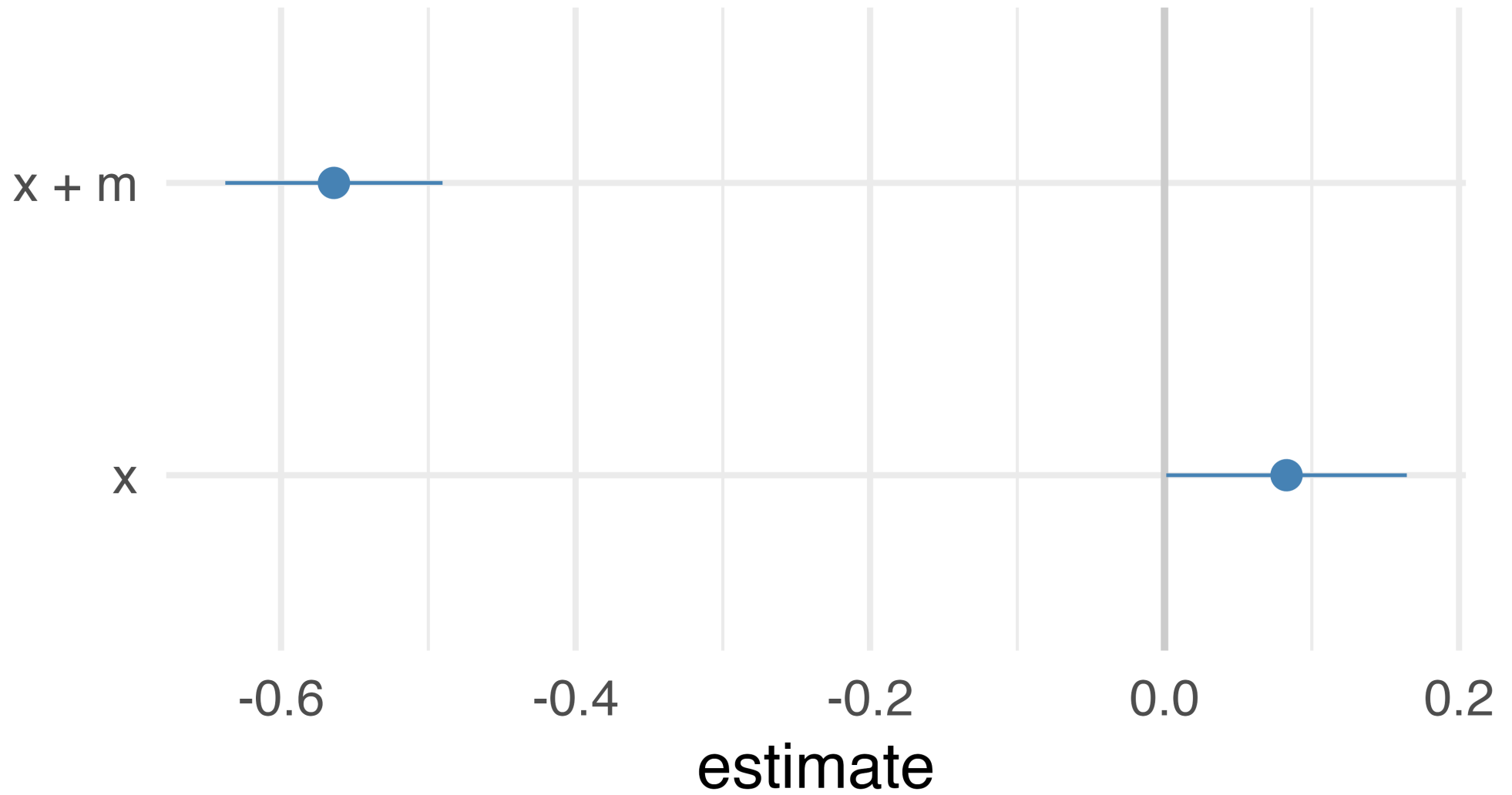
# Let's prove it!

```
1 collider_data
```

```
# A tibble: 500 × 3
```

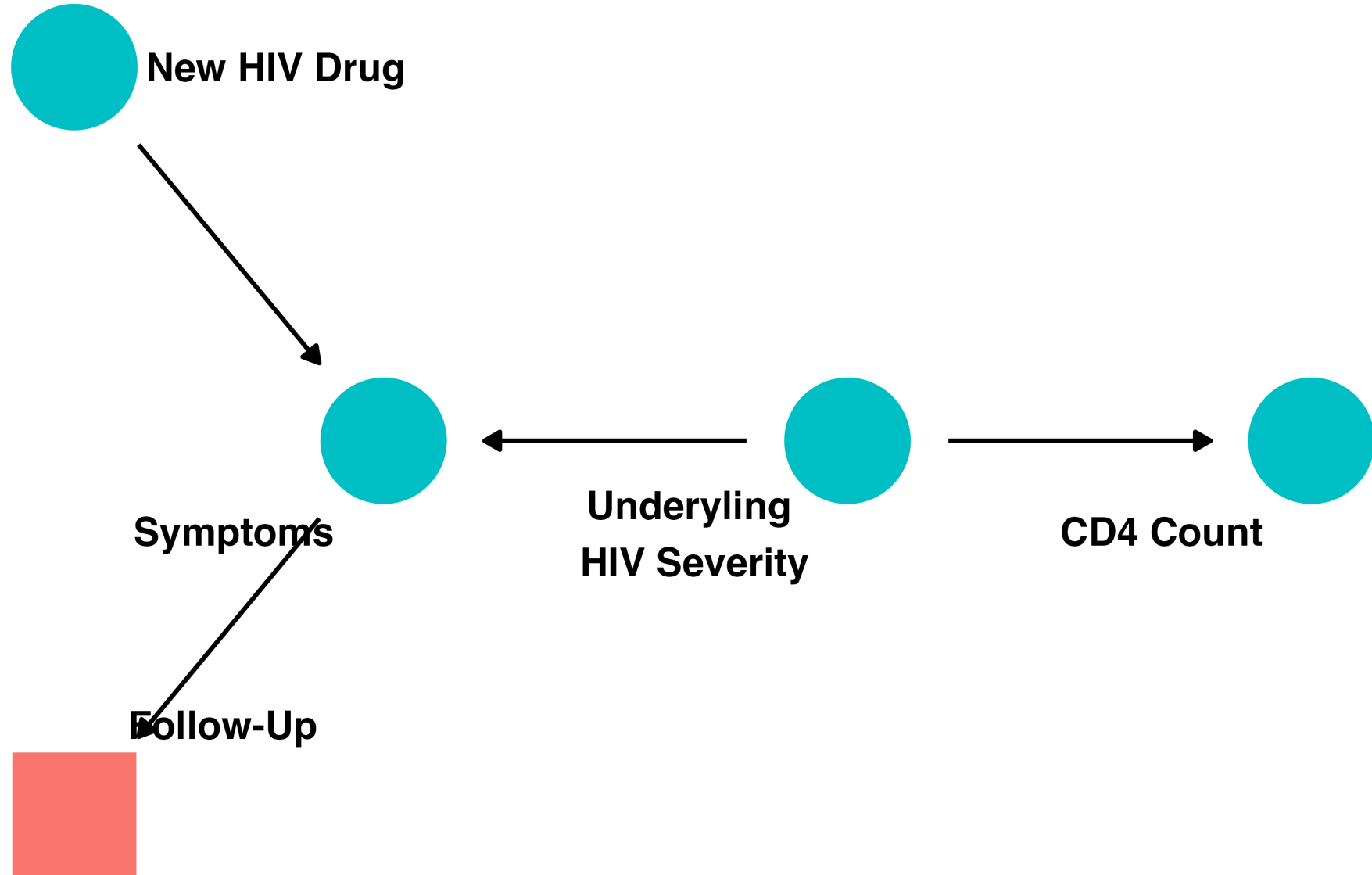
|             | m      | x      | y      |
|-------------|--------|--------|--------|
|             | <dbl>  | <dbl>  | <dbl>  |
| 1           | -0.829 | 0.359  | 1.75   |
| 2           | 0.184  | 0.619  | -1.11  |
| 3           | 1.47   | -0.940 | 0.0642 |
| 4           | -2.43  | 1.55   | 1.39   |
| 5           | 0.219  | -1.69  | 0.832  |
| 6           | 1.01   | 0.199  | -0.145 |
| 7           | -0.811 | 1.29   | -0.872 |
| 8           | -0.464 | 0.0675 | 0.763  |
| 9           | -0.357 | 0.264  | 0.766  |
| 10          | -0.978 | 0.531  | 0.506  |
| " . . . . . |        |        |        |

# Let's prove it!



correct effect size: 0

# Loss to follow-up





# Adjusting for selection bias

- 1 Fit a probability of censoring model,  
e.g. *glm(censoring ~ predictors, family  
= binomial())*
- 2 Create weights using inverse  
probability strategy
- 3 Use weights in your causal model

**We won't do it here, but you can include many types of weights in a given model. Just take their product, e.g. *multiply inverse propensity of treatment weights by inverse propensity of censoring weights.***

## ***Your Turn***

**Work through Your Turns 1-3 in `13-bonus-selection-bias.qmd`**

