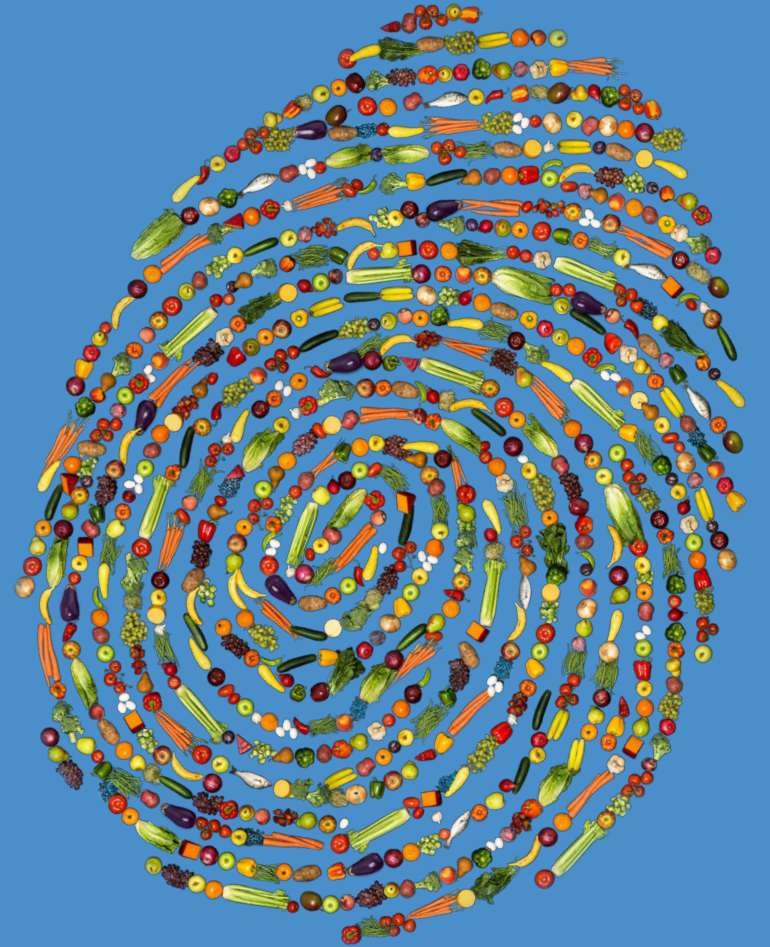


Epidemiology:

The story of disease



NUTRITION RESEARCH
INSTITUTE

The 5 Ws:

What?

Who?

Why?

When? Where?

What is Epidemiology?

Where/When?

What?

“the study of the **occurrence** and **distribution** of **health-related states** or events

Who?

Why?

in specified **populations**, **including the determinants influencing** such states,

How?

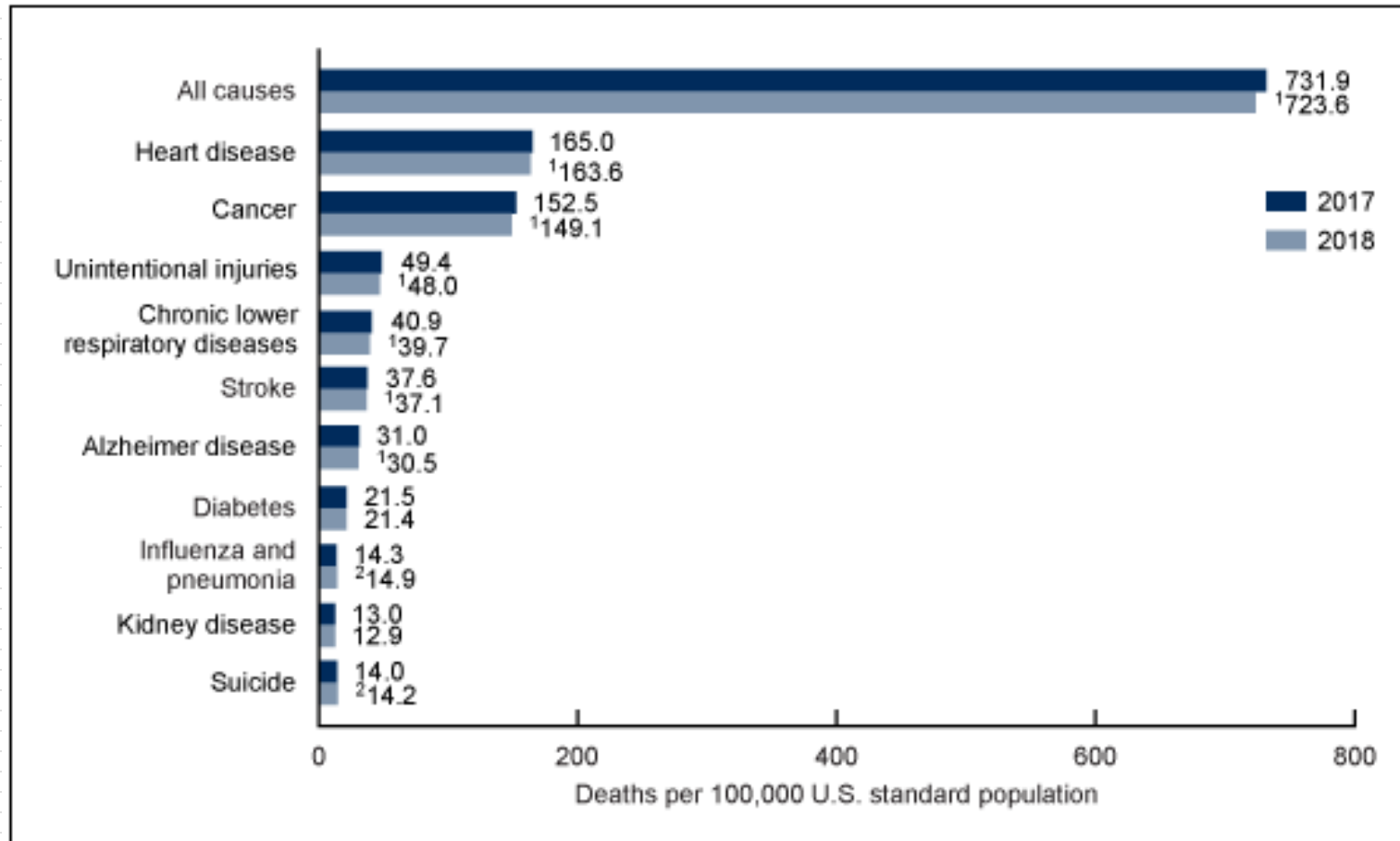
and the **application of this knowledge** to control the health problem”

It is the story of a disease in order to improve health and wellbeing in a population

Medicine vs Epidemiology



What: Leading Cause of Death



Non-communicable
(lifestyle)

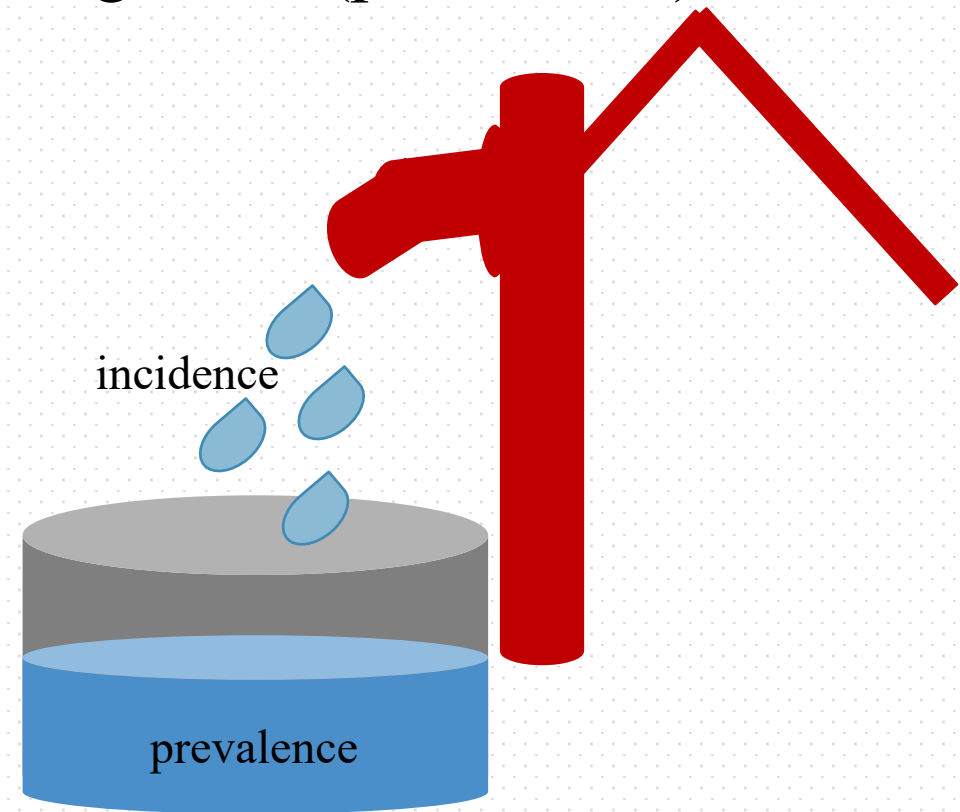
VS

Communicable
(spreadable)

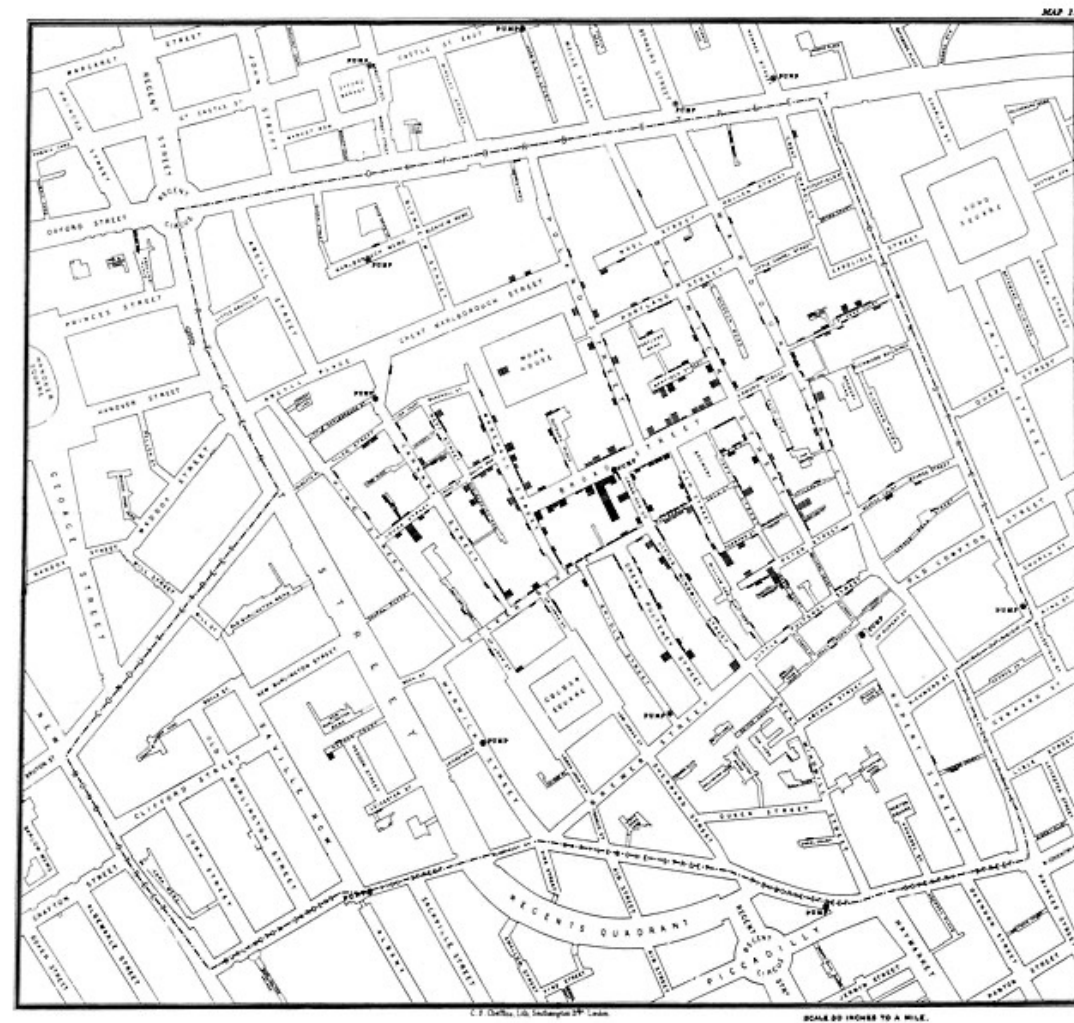
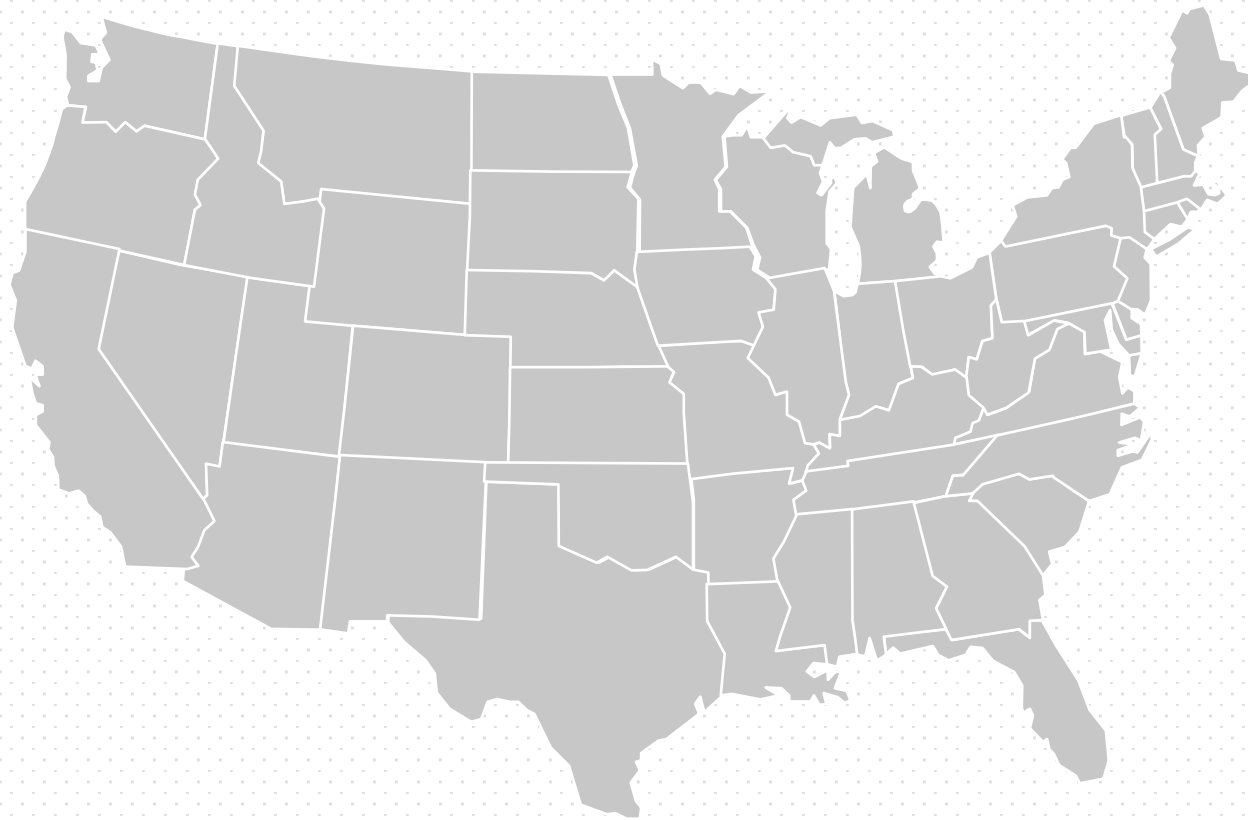
Who:



- New cases (incidence)
- Existing cases (prevalence)



Where/When:

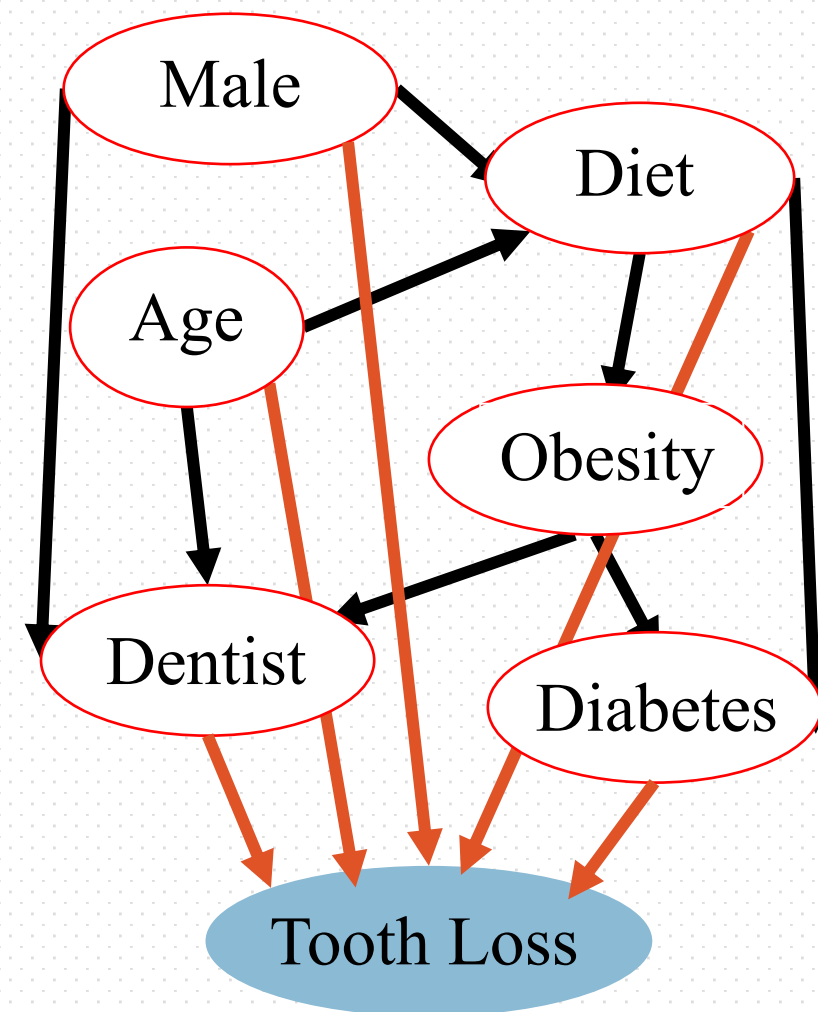


Why:

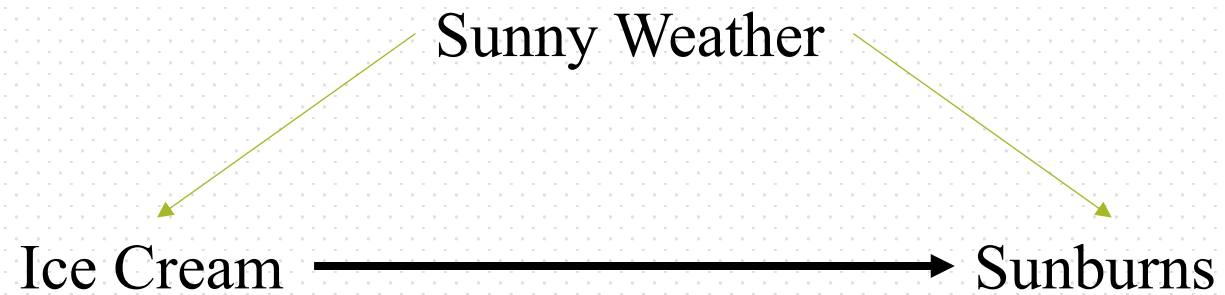
Cause A \longrightarrow Outcome Z

Cause A \longrightarrow Outcome Z
 \uparrow
 Factor G

Cause A $\cdots\longrightarrow$ Outcome Z



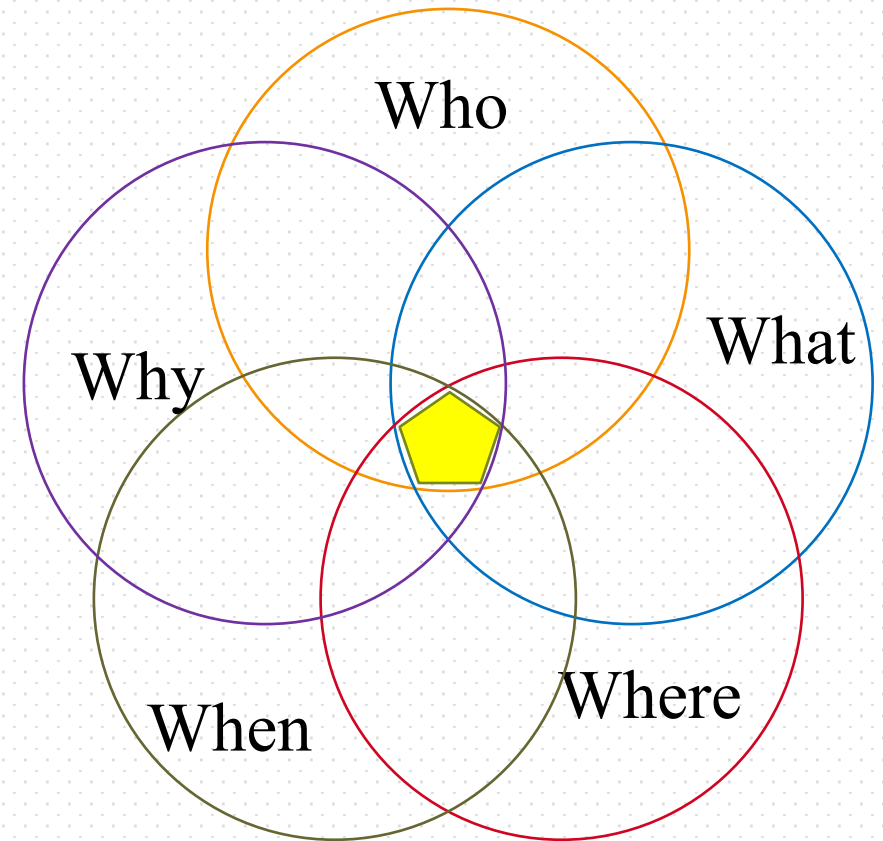
Confounding



Why:

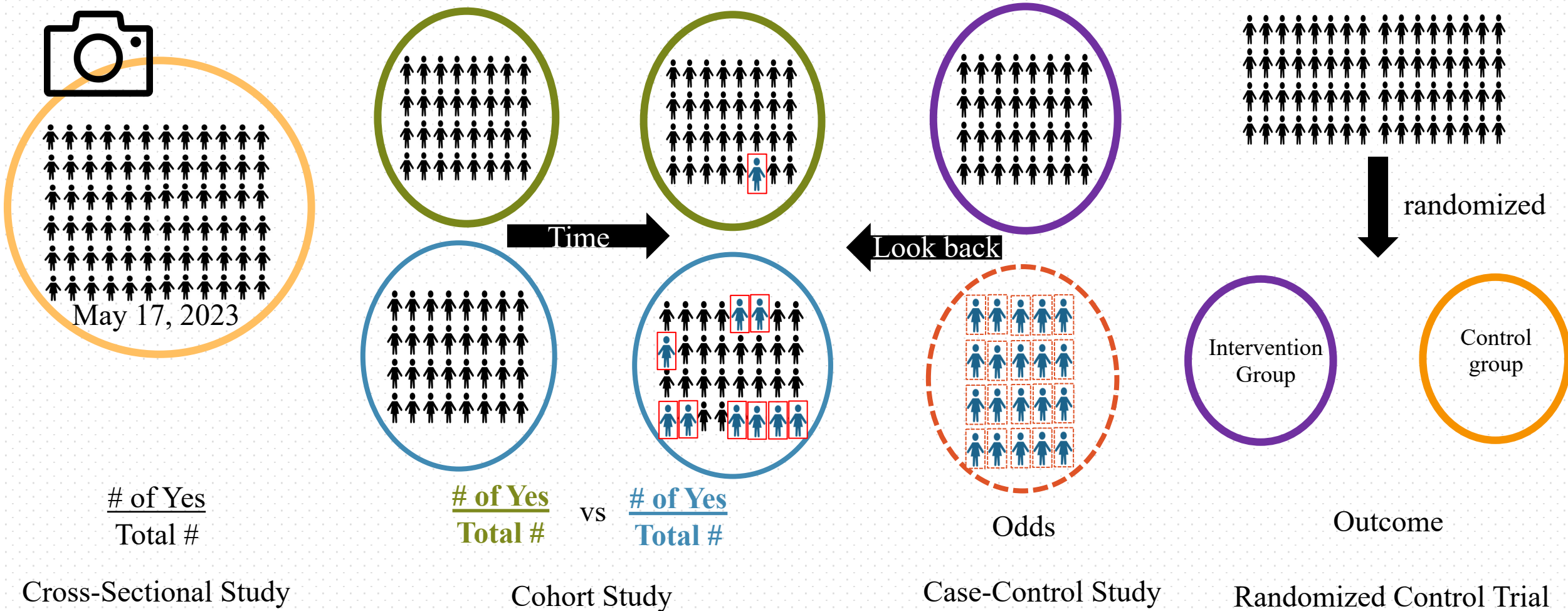


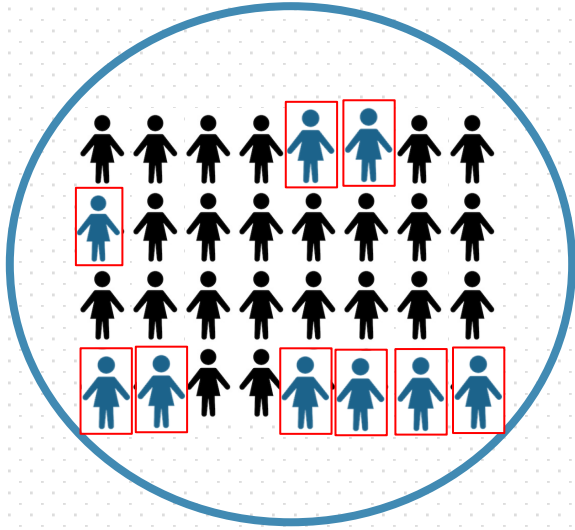
Dahlgren and Whitehead, 1991



Epidemiology is a Team Sport

How do we get the data?





Who: _____
What: _____
Where: _____
When: _____
Why: _____

Cases were more likely to:

- Be within the blue circle
- Weight above normal range
- Under the age of 50
- 30 minutes of exercise per week
- Dislike all vegetables
- Never went to the doctor
- Male

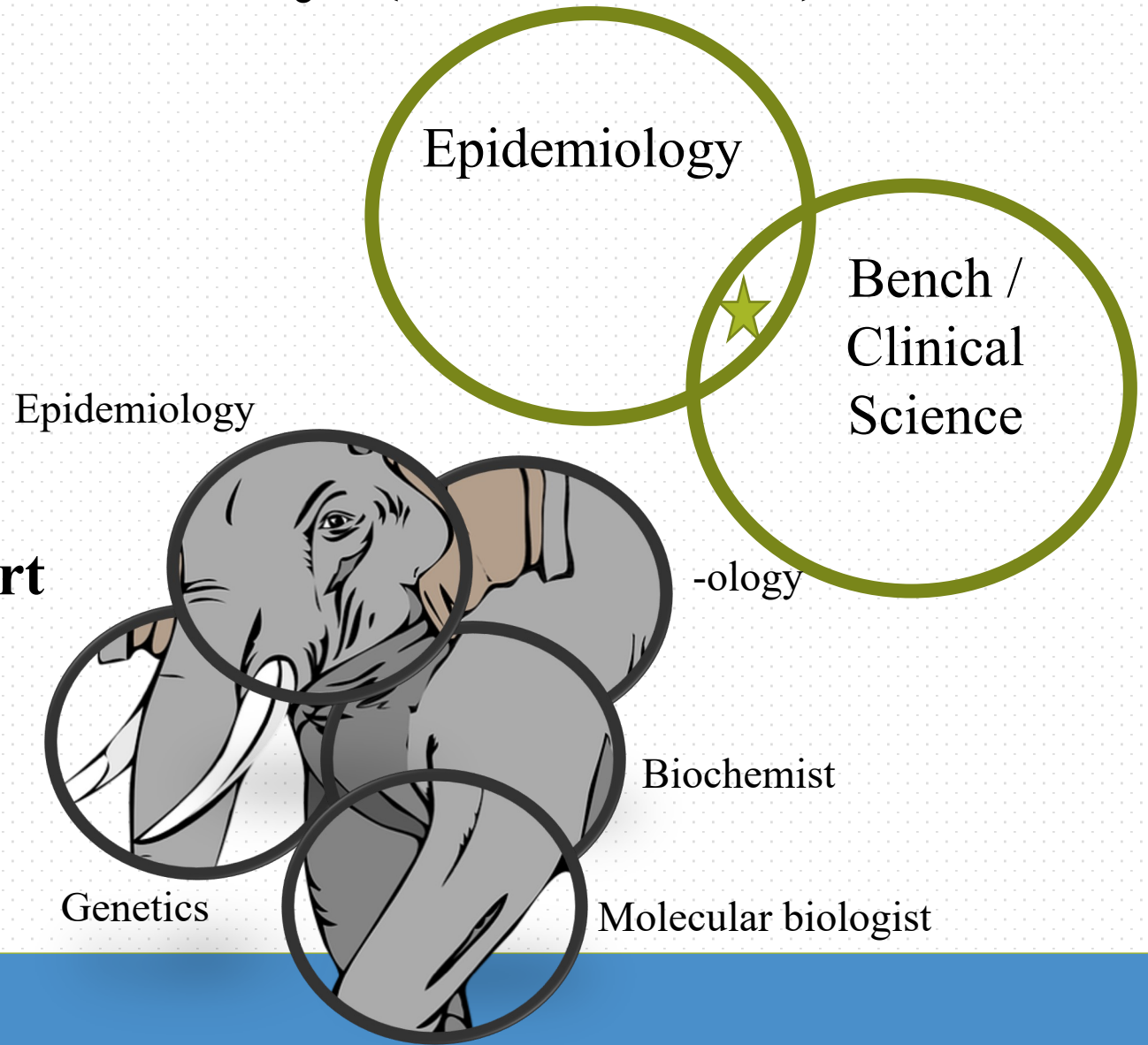
(Associations)

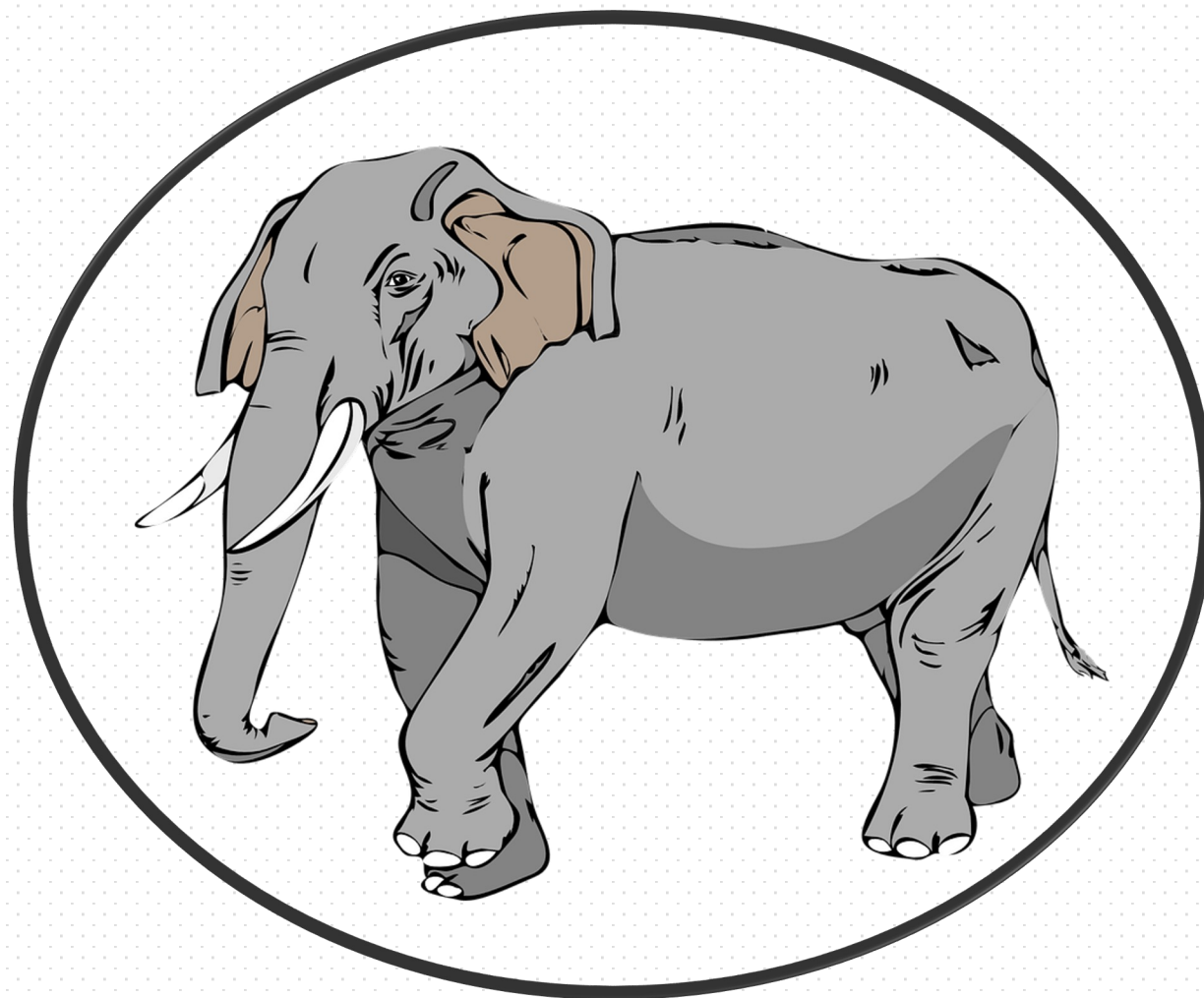
Association does not equal causation

How do we really get the why (causation)?

- Exposure came before outcome
- The relationship cannot be explained by any other factor

Epidemiology is Really a Team Sport





How to we fix it?

“foolish, drunken, and harebrained women
most often bringforth children like unto
themselves, morose, and languid”

– Aristotle

“Spirituos Liqueurs... (are) too often the cause of weak,
feeble and distempered children who must be, instead of an
advantage and strength, a charge to their country”

- College of Physicians, London, 1725

“fetal alcohol syndrome”

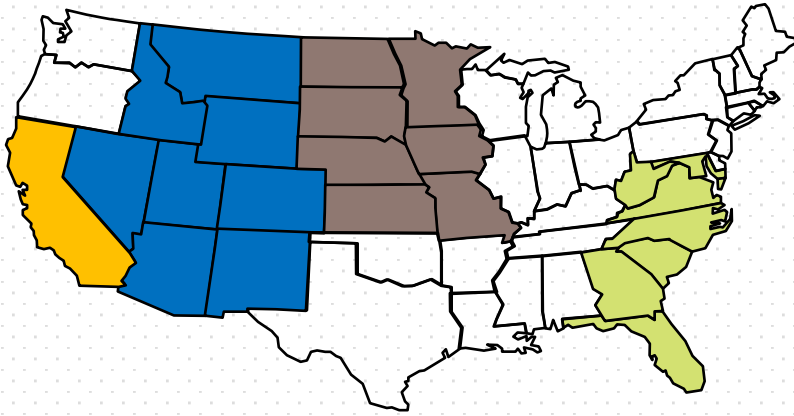
- Smith & Jones, 1973

What?

Fetal Alcohol Spectrum Disorders:

- Fetal alcohol syndrome (FAS)
- Partial fetal alcohol syndrome (PFAS)
- Alcohol-related neurobehavioral disorders (ARND)
- Alcohol-related birth defects (ARBD)

Who & where?



- Partnered with school districts
 - 1st grade children

Tier I: Growth Assessment

- Height, weight, head circumference

Tier II: Dysmorphology Exam

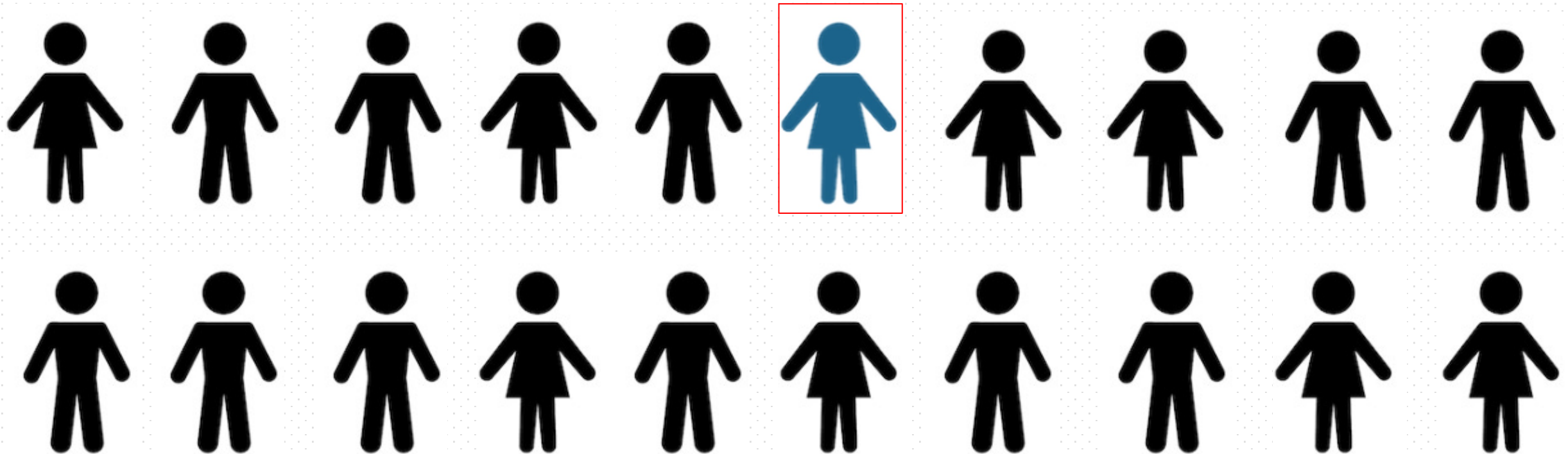
- Facial features
- Minor anomalies

Tier III: Further Assessment

- Neurodevelopmental
- Maternal Interviews

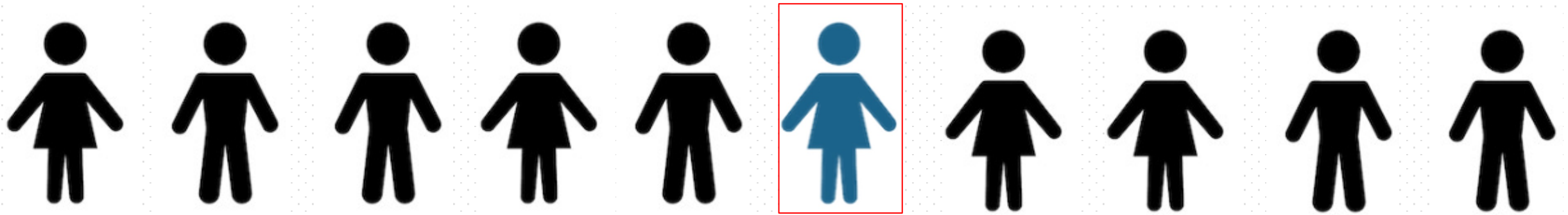
Case Conference: Diagnosis

FASD **conservatively** affects 1% to 5% of school children



(or 1 in 20)

FASD may affect 3.1% to 9.8% of school children



(or 1 in 10)

Implications for North Carolina Schools

- Number of K-12 North Carolina Students: 1.48 Million
 - Lowest possible estimate:
 - 1% of 1,480,000 = **14,800** children with FASD in NC schools.
 - Conservative estimate:
 - 5% of 1,480,000 = **74,000** children with FASD in NC schools.

When & Why?

Fetal Alcohol Spectrum Disorders



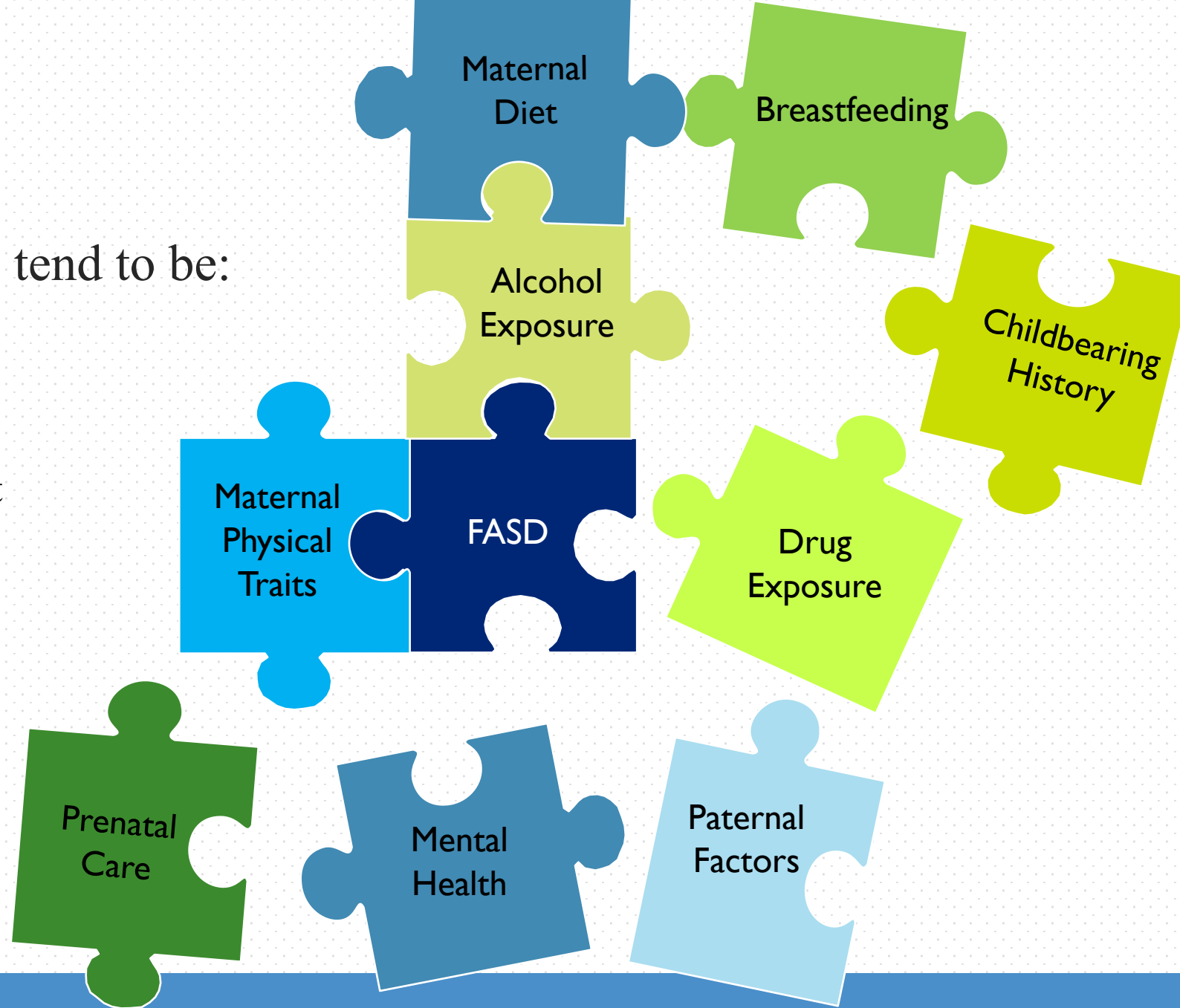
NO
ALCOHOL

Why?

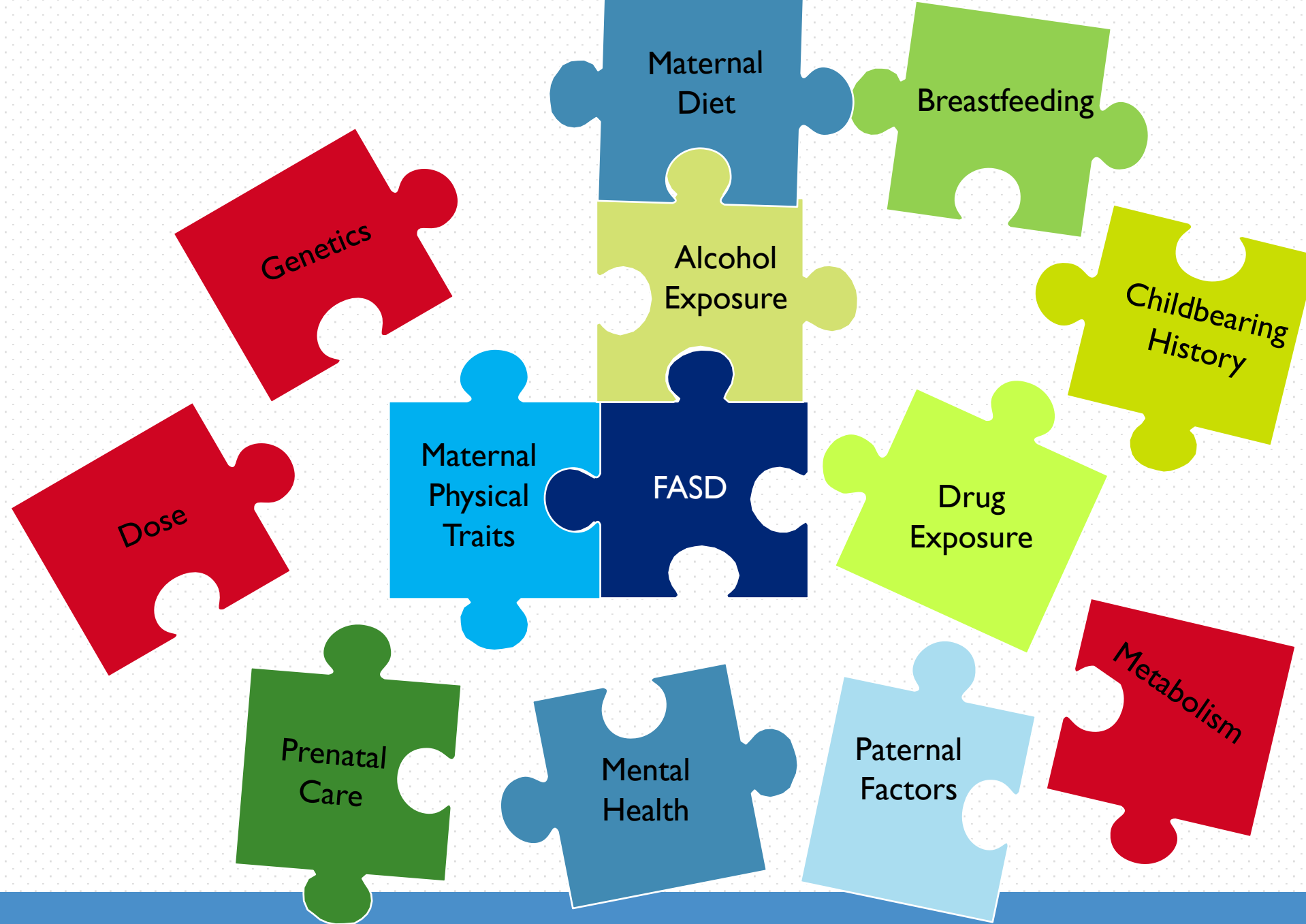
Mothers of children with FASD tend to be:

- Lower in weight / body mass index
- Poorer dietary intake
- More likely to be nutrient insufficient
- Less likely to take a prenatal vitamin

(Associations)



Why?



Why do they drink?

1. Pregnancy was unplanned
2. Drinking because of stress or to cope with abuse or trauma
3. Reliance on drinking venue and fellow drinkers for support
4. Socialization
5. Feelings of invincibility



Attitudes toward alcohol use during pregnancy among women recruited from alcohol-serving venues in Cape Town, South Africa: A mixed-methods study



Olivia V. Fletcher^a, Philip A. May^b, Soraya Seedat^c, Kathleen J. Sikkema^{a,d}, Melissa H. Watt^{a,*}

^a Duke University, Duke Global Health Institute, Durham, NC, USA

^b University of North Carolina, Nutrition Research Institute, Kannapolis, NC, USA

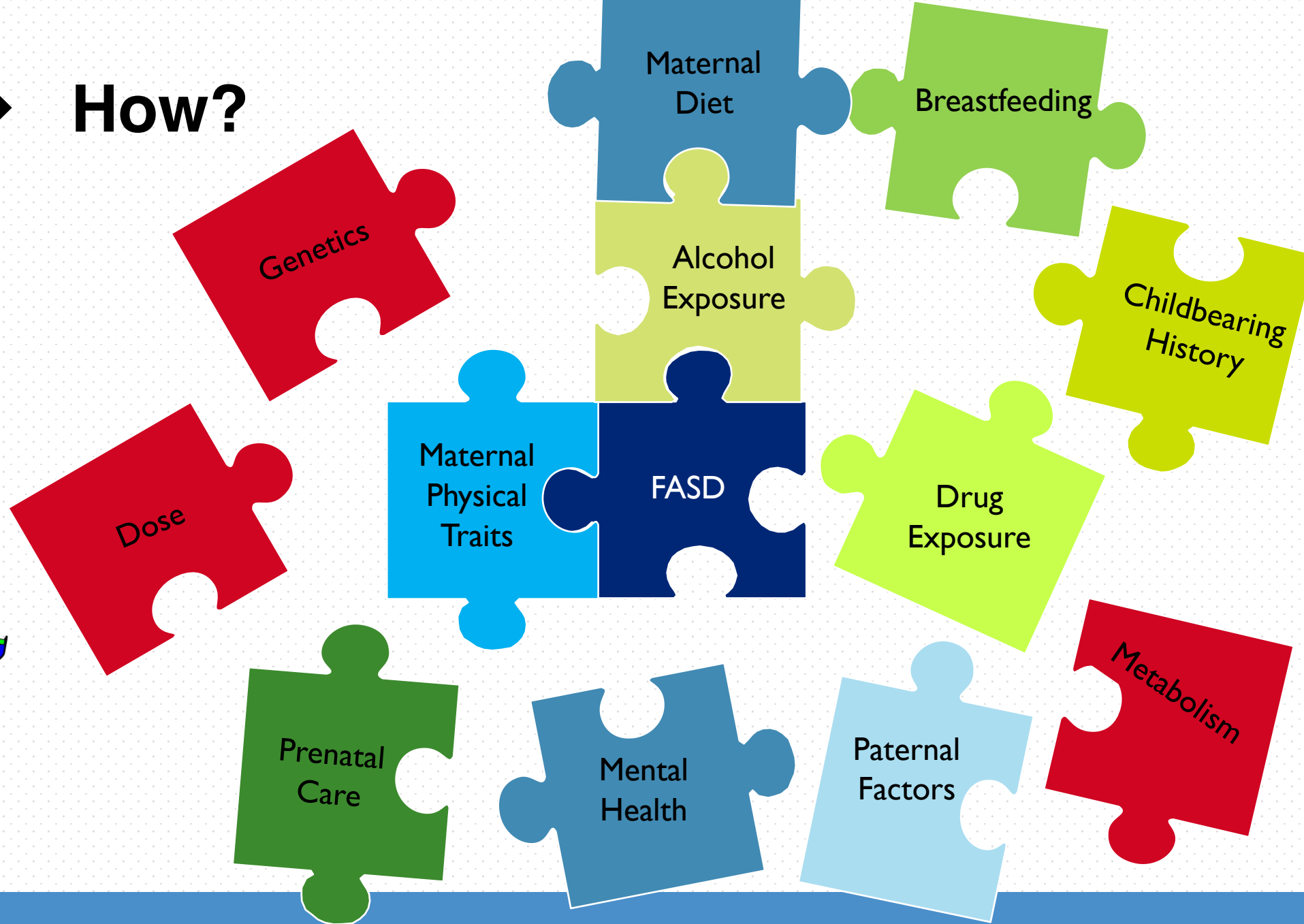
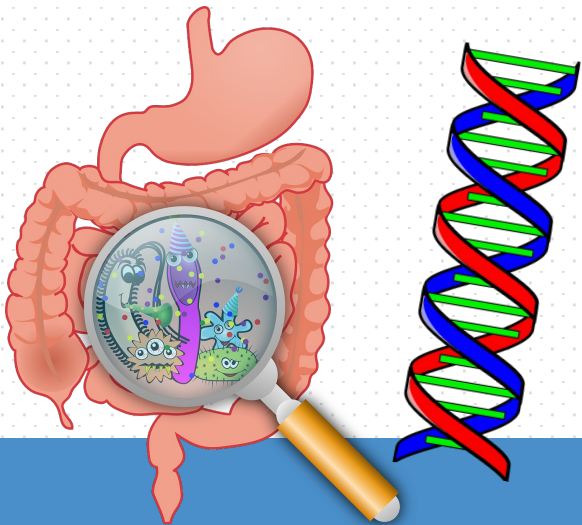
^c Stellenbosch University, Department of Psychiatry, Cape Town, South Africa

^d Duke University, Department of Psychology and Neuroscience, Durham, NC, USA

Why?



How?







UNC NRI Participant Pool



<https://uncnri.org/participant-pool/>