

# Epidemiology and Observational Studies

Kristen Patton, MD  
University of Washington

Epidemiology addresses the determinants of population patterns in disease incidence and disease prognosis, as well as maintenance surveillance of disease patterns over time. The goal is to use population patterns to better understand what causes disease and how to prevent it.

# My route

- ⊗ Medicine
  - ⊗ Loved arrhythmias
  - ⊗ Loved procedures
  - ⊗ Wanted to do EP and genetics of conduction system
    - ⊗ Went to Genetics (Seidman) Lab for 2 years as part of cardiology fellowship
    - ⊗ Missed clinical care
- ⊗ Finished cardiology, then EP (Ruskin)
- ⊗ Started doing more observational work (Ellinor), informed by what I was seeing on wards/clinic
- ⊗ Now, clinician educator, EP program director, mostly work with large databases (Health and Retirement Survey (Glymour), Cardiovascular Health Study (Kronmal), MESA, ARIC, CHARGE (Benjamin)...), or participate in clinical trials.

# What I would have done differently

- ⊗ Gotten formal training in epidemiology and biostatistics

# What's been critical

- ⊗ Working with thoughtful, well-trained people who want to engage with similar mysteries
- ⊗ Not just finding a mentor – finding mentors and collaborators you enjoy working with and who enjoy working with you

# There are many phases of one academic career

- ⊗ Small database observational
- ⊗ Large database observational/epidemiology
- ⊗ Genetic epi
- ⊗ Social epi
- ⊗ Clinical trials
  - ⊗ Running them, or participating (core lab analysis for ecgs, sudden death adjudication....)
- ⊗ Research on medical (EP) education
- ⊗ QI research

# Why bother when there are non-MD epi/obs researchers doing this work without clinical demands?

- ⊗ We see the problems caused by lack of data about various disease processes in our clinics
- ⊗ We understand phenotypes
- ⊗ We understand pathophysiology and confounding disease mechanisms (ie. we can identify important mediators of disease)
- ⊗ We care on an immediate level about preventing and treating disease

# What you can do

- ⊗ Read read read
  - ⊗ Circ, JACC, HR, PACE, JCE, NEJM, EHJ... delivered to your inbox for scanning
  - ⊗ Volunteer with AHA, ACC, HRS on scientific documents work
- ⊗ Read OUTSIDE medicine
- ⊗ Write write write
  - ⊗ Case reports, reviews, ask mentor to review papers with them, book chapters, research...
  - ⊗ Robert Boice, Susan R. Johnson – daily writing, small bursts



# More that you can do

- ⊗ Have multiple projects going on at overlapping timelines for productivity (work in parallel)
- ⊗ Develop a strong organizational structure
- ⊗ Remember that other fields are disciplines with long history of research on methods that should inform how you ask your questions (ie. Epi and education)
- ⊗ Go out of your way to make and nurture connections in your academic life
- ⊗ Find your “core” – what fundamental issue/concept unites your disparate projects
  - ⊗ Or you can just focus!