



**CENTER ON SOCIAL DISPARITIES IN HEALTH**  
University of California, San Francisco

# When do we know enough to act on the social determinants of health?

**PAHO/WHO Congress on Health Sciences Information (CRICS9)  
Symposium**

**October 23, 2012, Washington, DC**

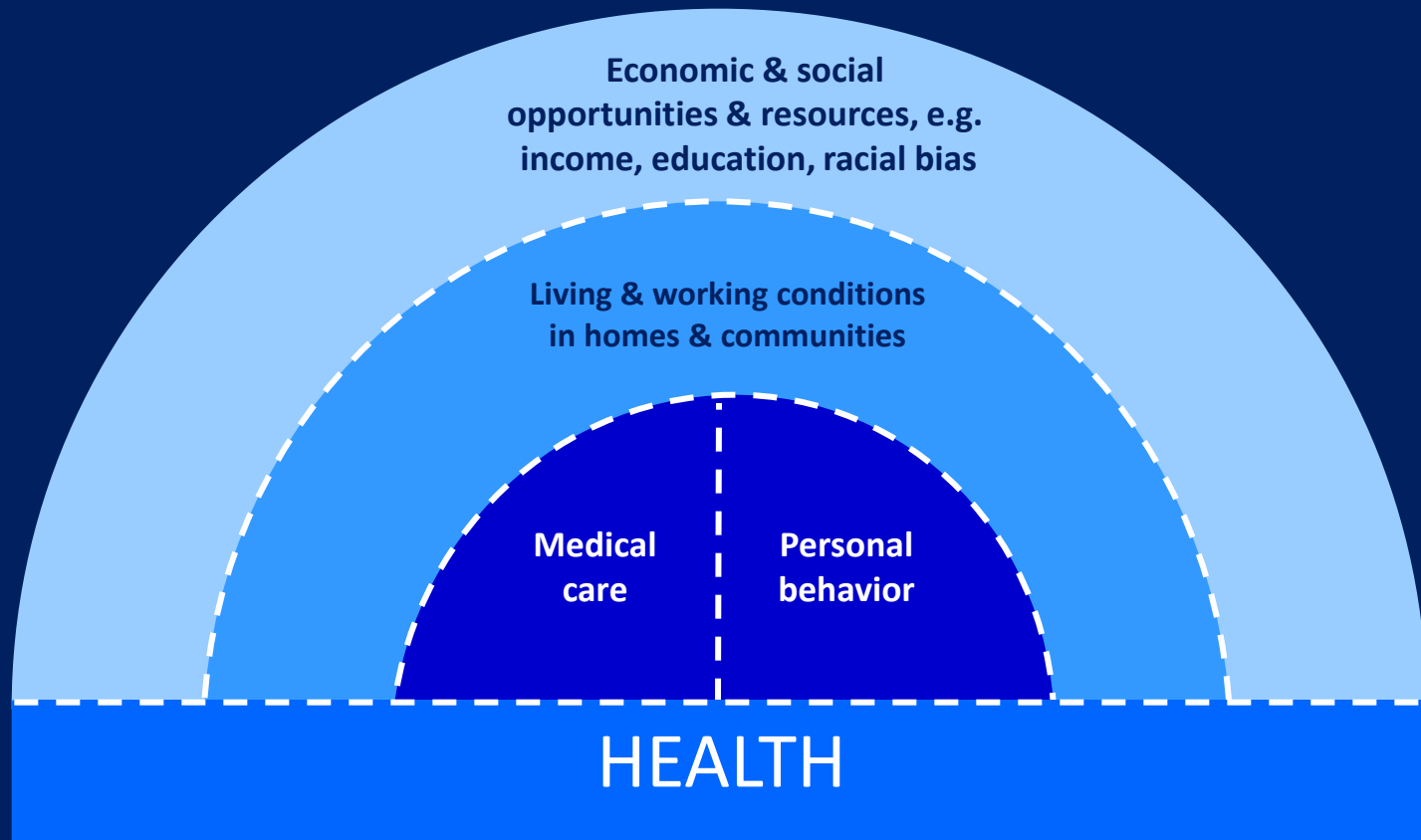
**Paula Braveman, MD, MPH**

**Professor of Family & Community Medicine**

**Director, Center on Social Disparities in Health**

**University of California, San Francisco**

# The social determinants of health (SDOH): considering the causes of the causes





## Evidence-based medicine

- Long overdue response to basing Rx on opinion
- Hierarchy of evidence to infer causation/effectiveness:
  - RCTs (the gold standard)
  - Prospective cohort studies
  - Case-control
  - Other designs (considered weak)



*UPSTREAM:*  
Source

*DOWNSTREAM:*  
Exposure and health effects

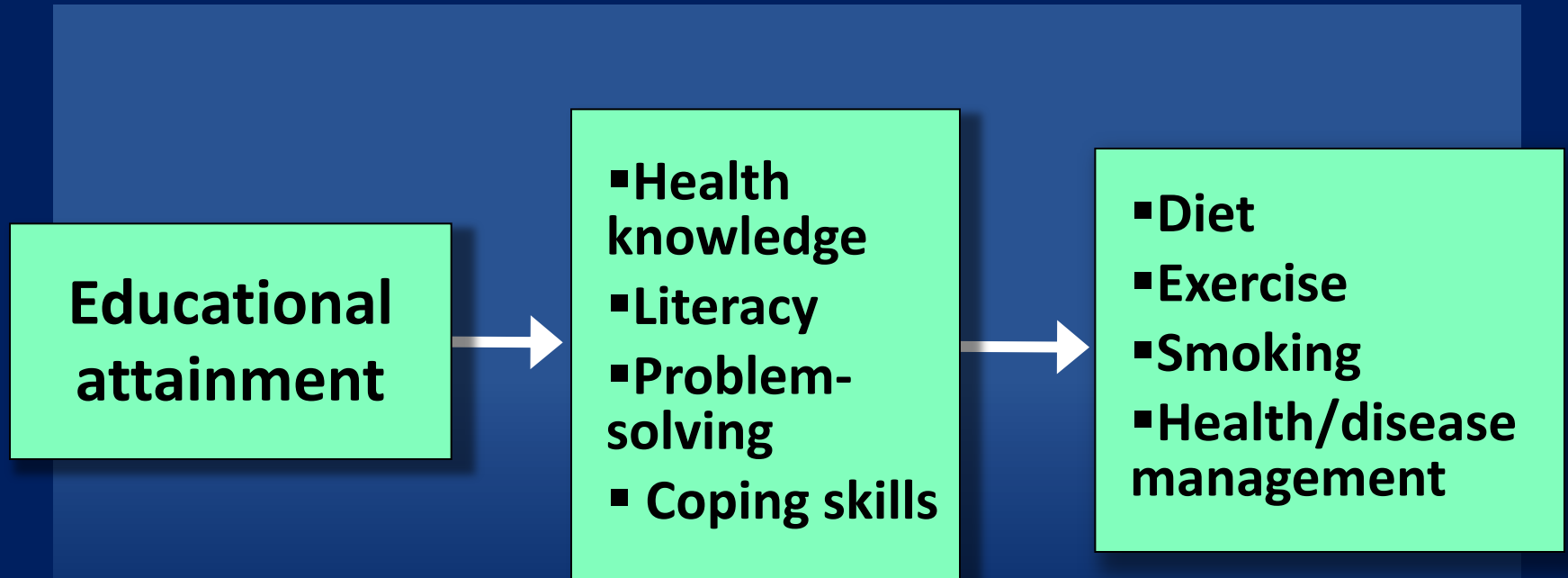




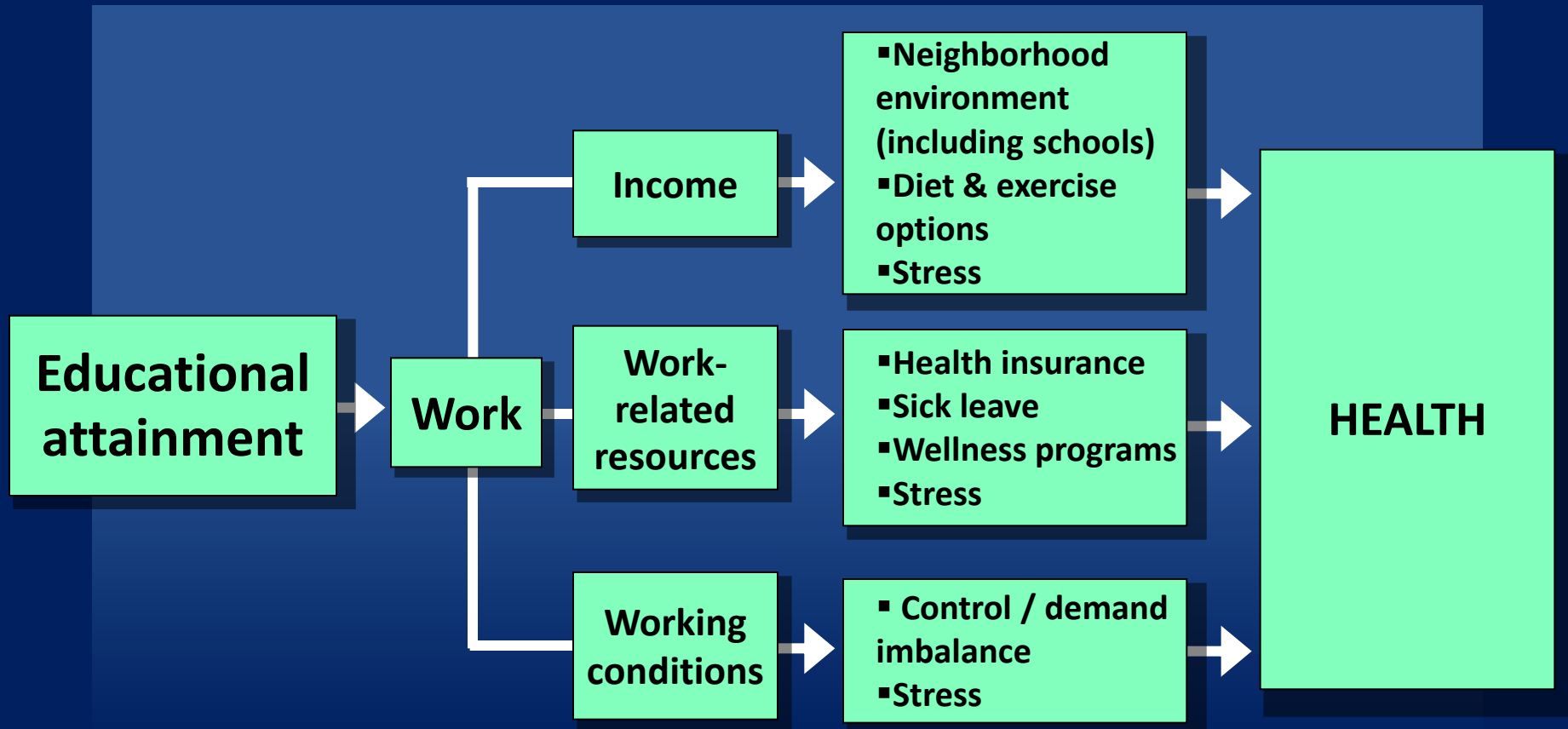
## **Limitations of evidence-based medicine (EBM) approach in general**

- **Randomization not always feasible or ethical**
- **Little information about context**
- **Lack of generalizability**
- **Quality of RCTs sometimes not considered**
  - A well-designed and conducted observational study may provide more information than a poorly designed/executed RCT

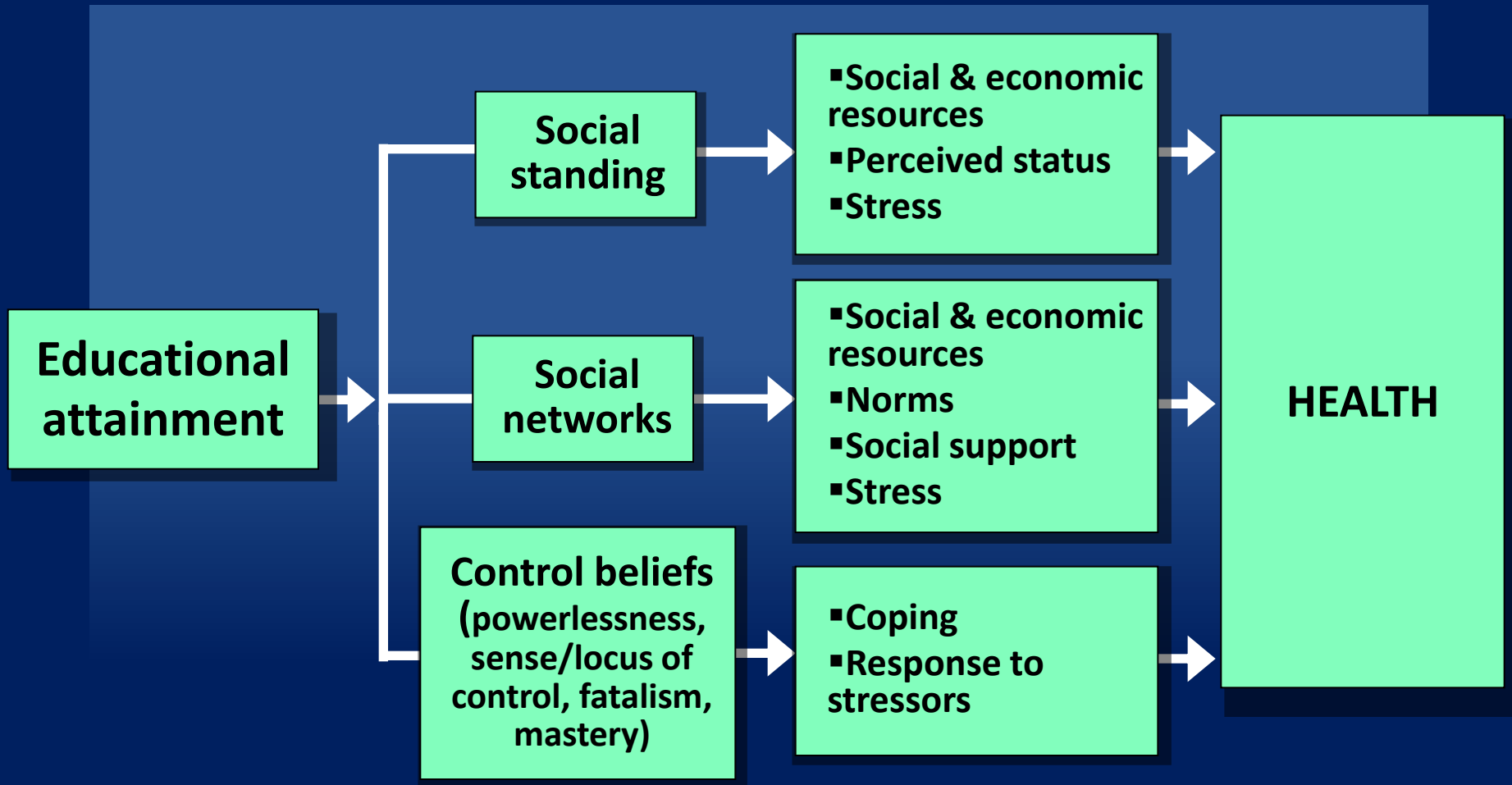
# Education can shape health behaviors by determining knowledge and skills



# Other plausible pathways from education to health, e.g., via work & income

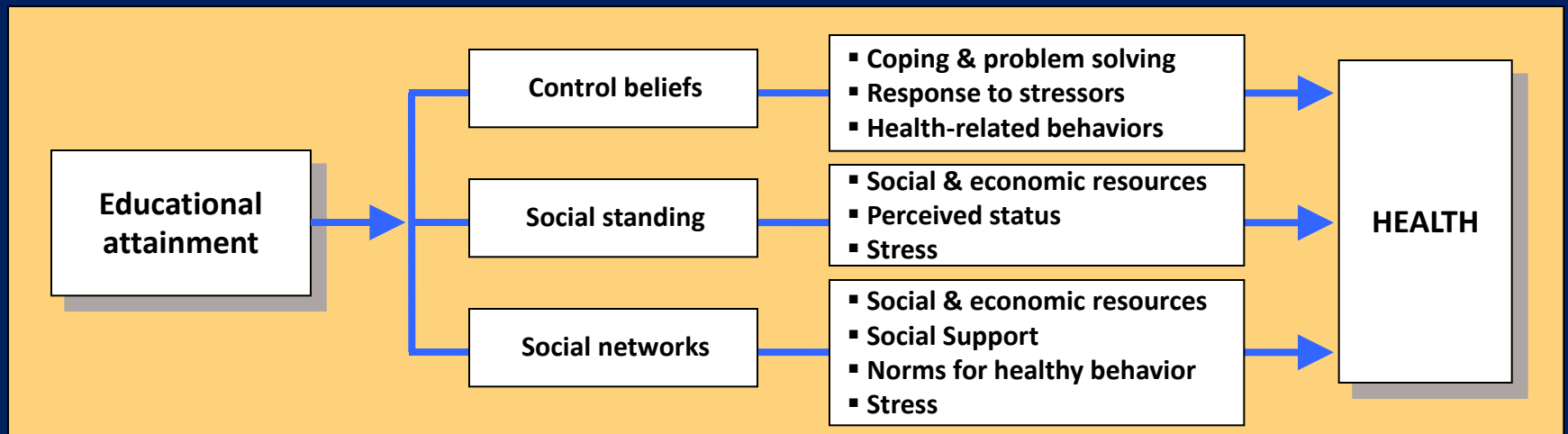
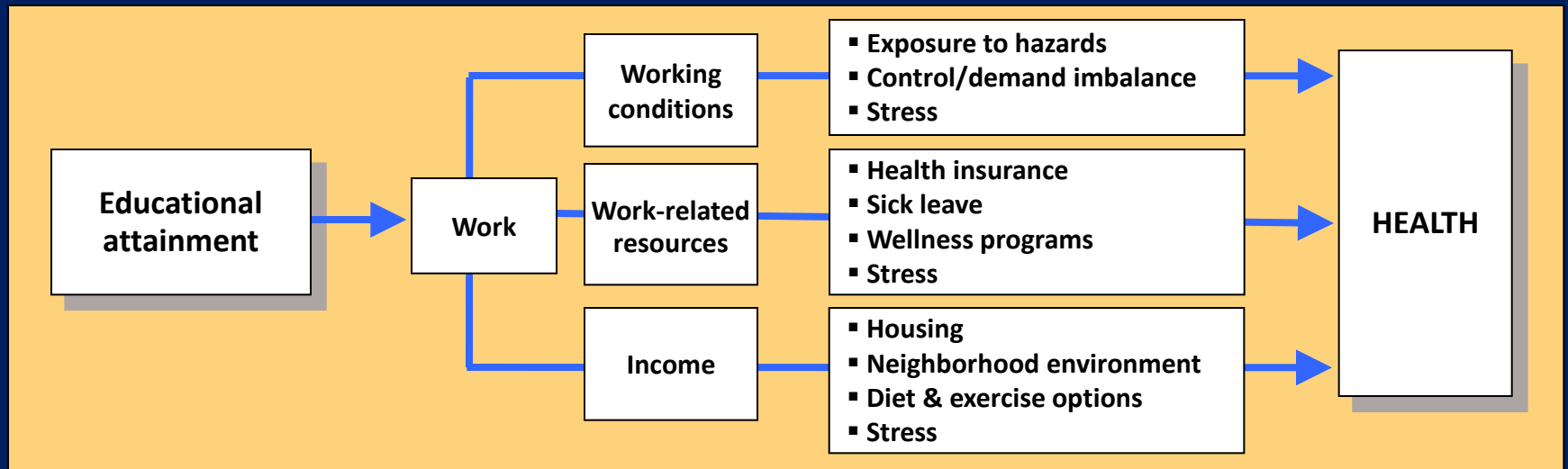
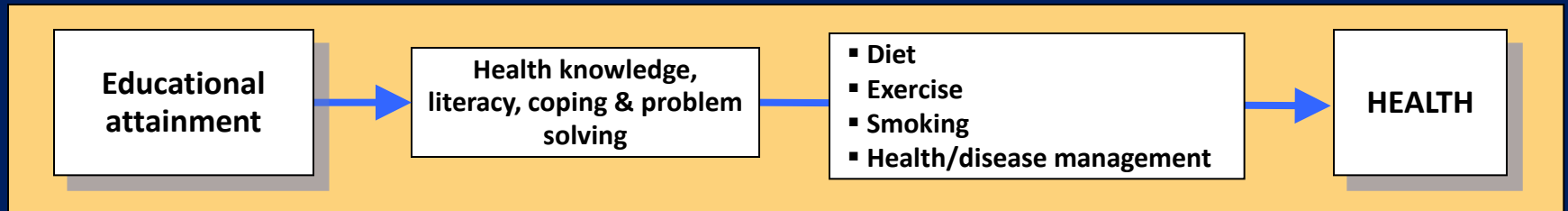


# Psychosocial pathways from education to health

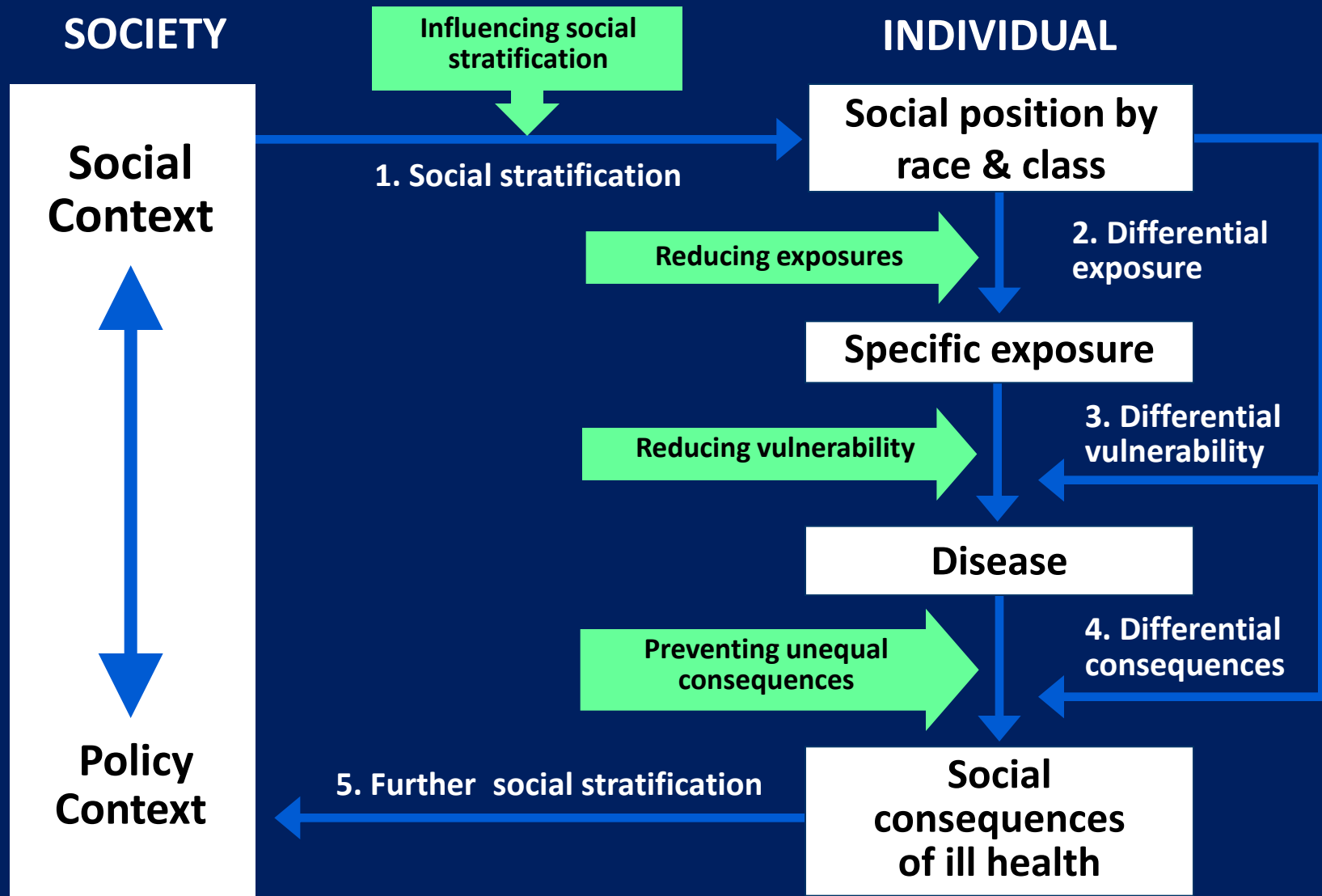




# Plausible pathways from education to health



# What produces and reproduces health inequities across the life course and across generations?





## **Long, multiple, complex pathways**

- **Pathways from social factors to health are often long and complex**
  - Effect modification by characteristics of people and settings, at each step in causal chain
- **Health effects of social factors may not manifest for decades or generations**
- **Randomization likely to be unfeasible or unethical**
- **Does this mean we will never have good evidence?**



## Should we give up?

- **Techniques to reduce likelihood of confounding and bias in observational research, e.g.:**
  - Stratification, multiple regression, instrumental variables, propensity score matching...
  - Critical thinking: rigorously looking for potential sources of bias, non-comparability due to unmeasured differences



## Connect the dots

- We may lack evidence directly linking social factor A (e.g., high-quality early child care) → health outcome C (e.g., adult CVD)
- But we may have evidence (from different disciplines) linking A → B (e.g., educational attainment) and B → C
- Build knowledge of SDOH through linking knowledge of pathway segments, acknowledging limitations



## **Evidence-based medicine's hierarchy of evidence is peculiar to medicine**

- **Civil law: preponderance of evidence**
- **Criminal law: beyond a reasonable doubt**
- **Similar approaches in commerce and economic policy**
- **Has the Air Force conducted RCTs to determine whether they should supply parachutes to paratroopers?**
- **Best available knowledge**



## Is lack of evidence always the problem?

- **Obstacles to translating the knowledge we have into interventions**
  - Often we have knowledge of pathways and mechanisms but don't know how to translate it into effective, efficient interventions
- **Political obstacles**
  - Often the obstacle is lack of political will



## When do we know enough to recommend action on the SDOH?

- **Need a broader conception of what counts as evidence**
  - Build on and broaden – don't discard – EBM principles
  - Require rigor in all designs and critical thinking
  - Consider range of sources of evidence, including qualitative
  - Connect the dots from  $A \rightarrow B$  and  $B \rightarrow C$
- **Policy should be informed by best available knowledge**
- **Need bold experiments testing the most promising directions, based on current knowledge**
- **Weigh costs/risks of acting vs. costs/risks of status quo**