



# **Public health approaches to prevention**

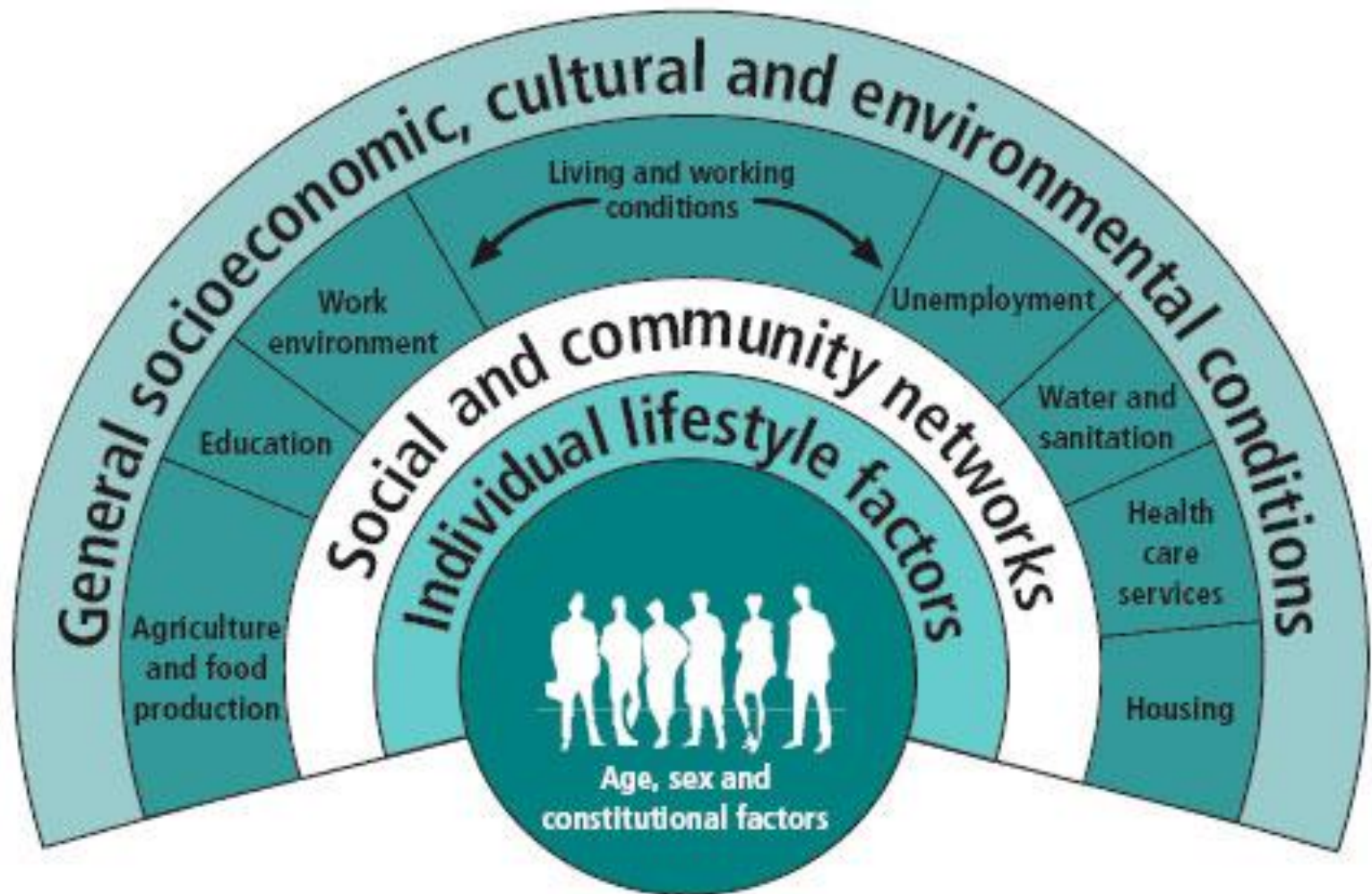
**Mehdi Naghibi**

Babol University of Medical sciences, Dental school  
Community oral health department



# **Determinants of Health**

# Whitehead & Dahlgren diagram



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Prevention

Effective  
treatment

Sustainable  
improvement  
in health

Reduction  
health  
inequalities

Effective  
support

# **What factors determine health?**

- Modern medicine
- Use of antibiotics
- High tech equipment
- Surgical advances

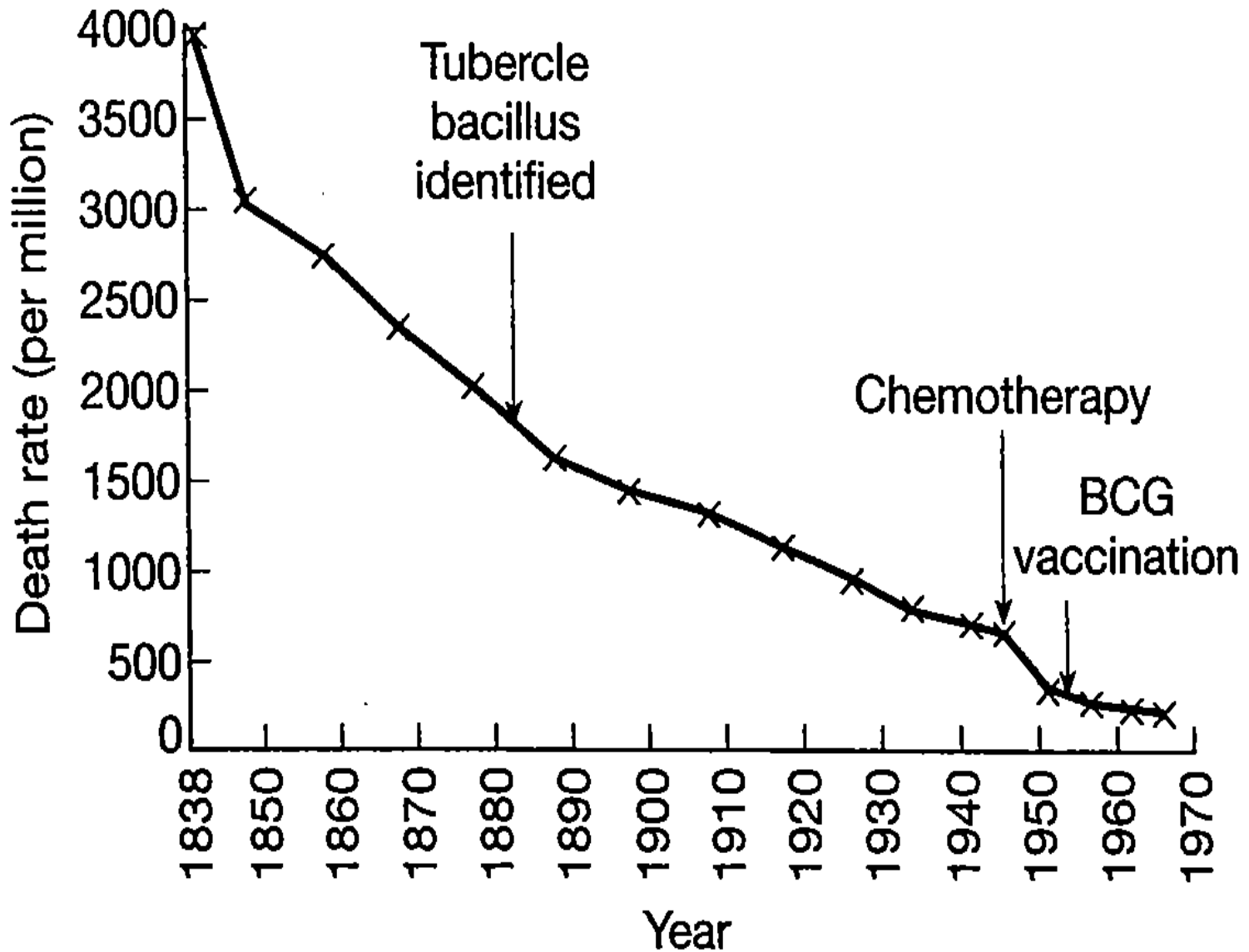
*Is this a true reflection of reality?*

# **Reduction in mortality rate in Westernized Countries during the last century (McKeown, 1979):**

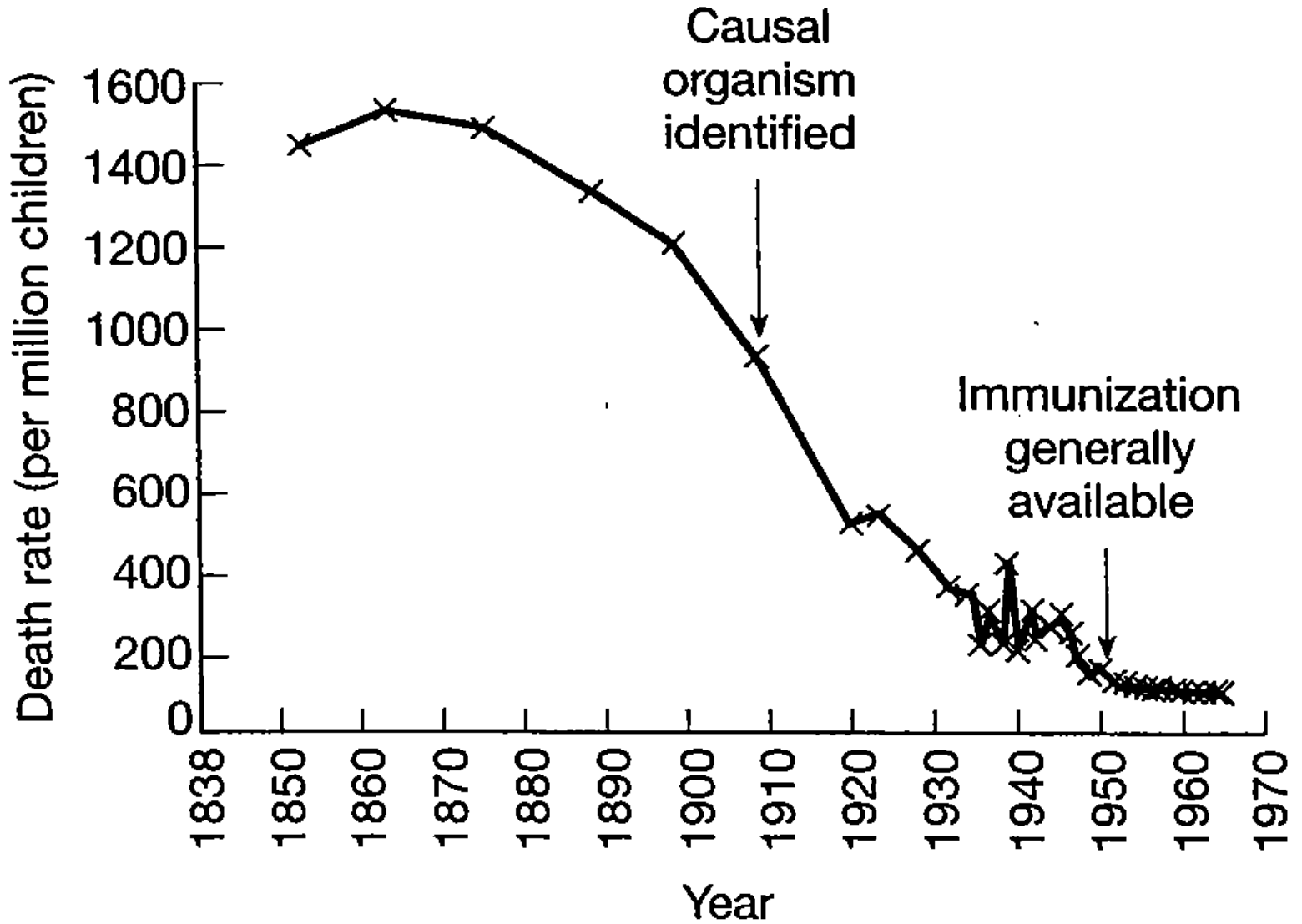
- Improvements in living condition and sanitation
- Access to clean water
- Better nutrition
- Family size reduction

*Social, economic, and environmental factors*

# Respiratory tuberculosis: England and Wales

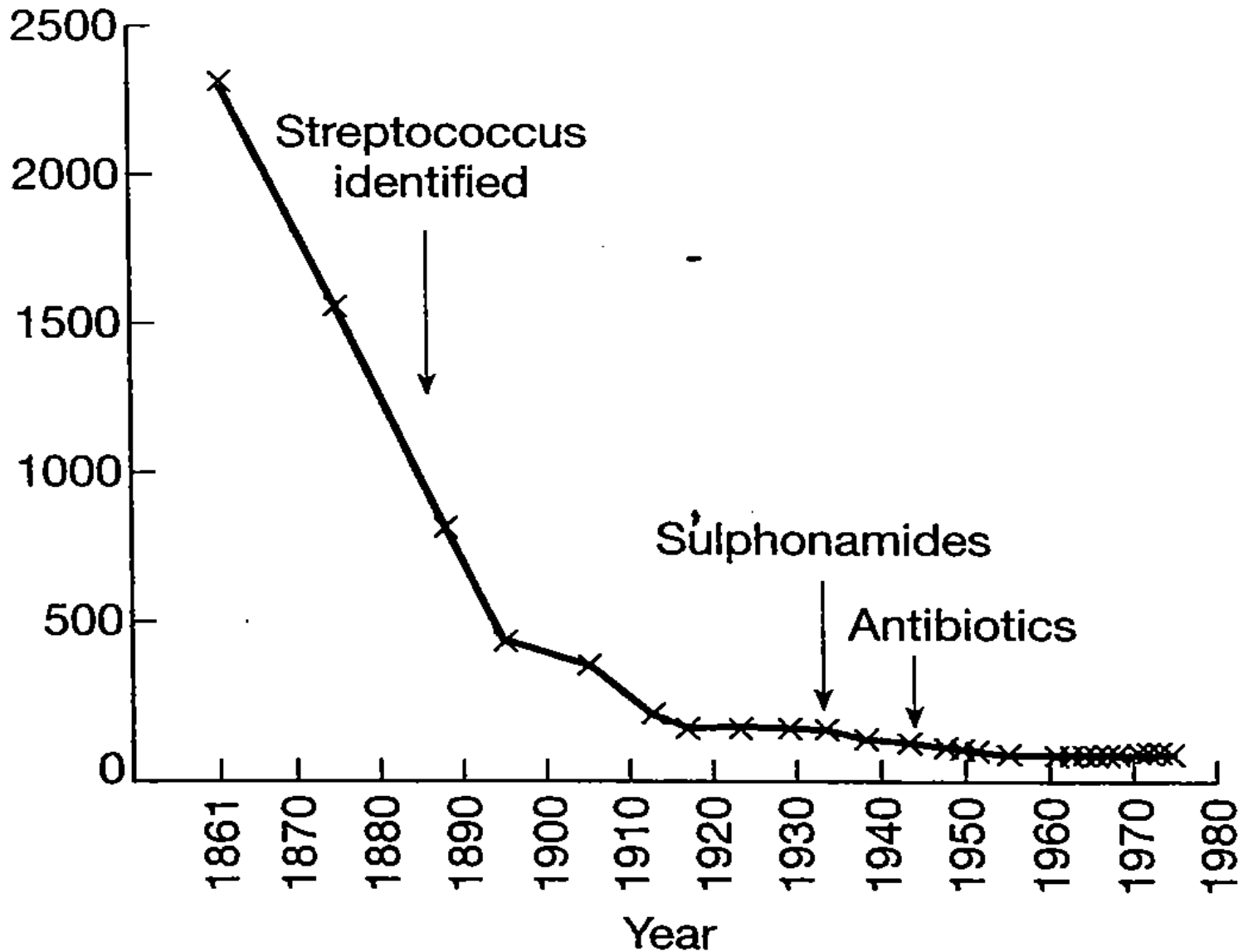


## Measles: <15y, England and Wales

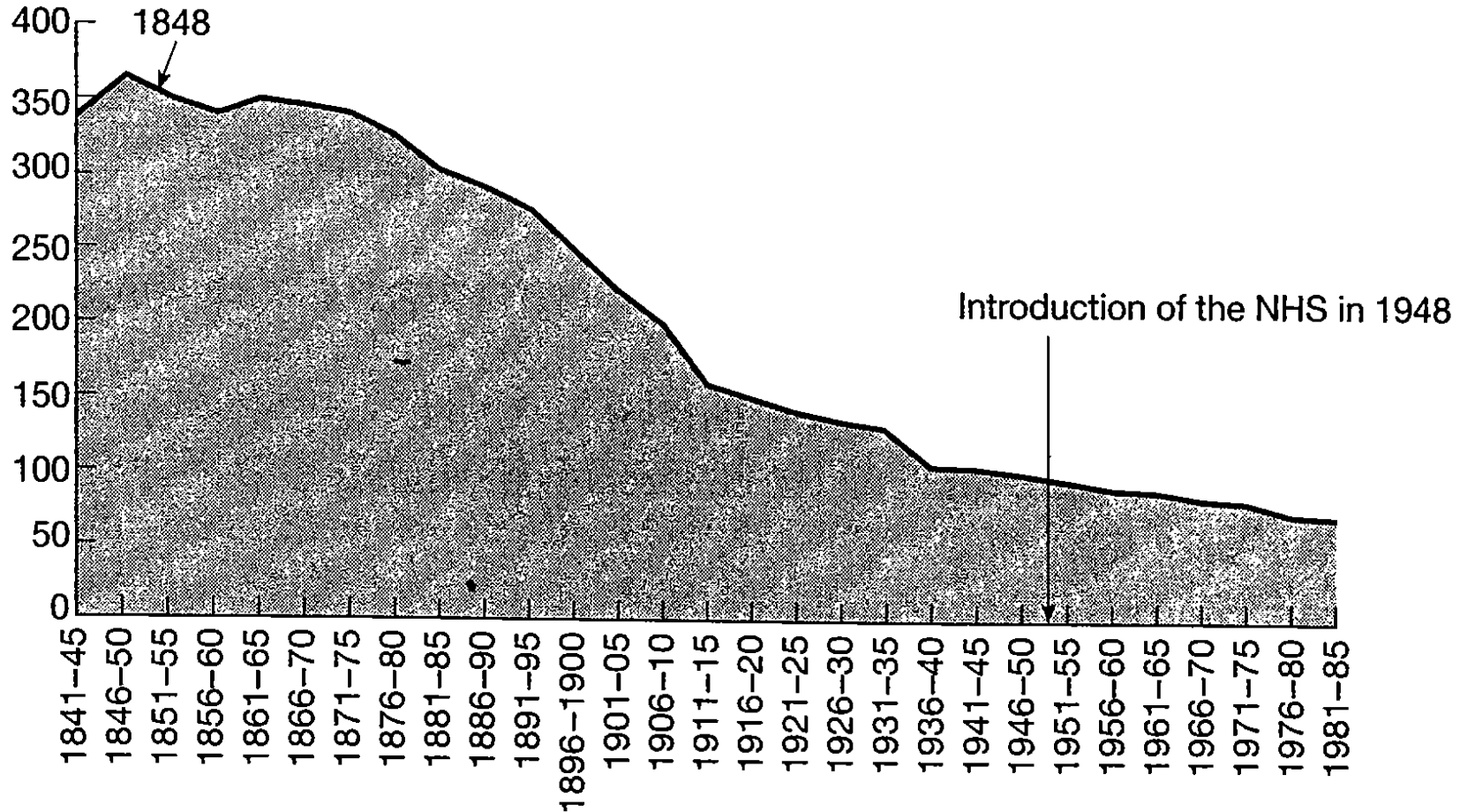




# Whooping cough: <15y, England and Wales



# Mortality trends, 1841-1985, England and Wales



# Social determinants of health

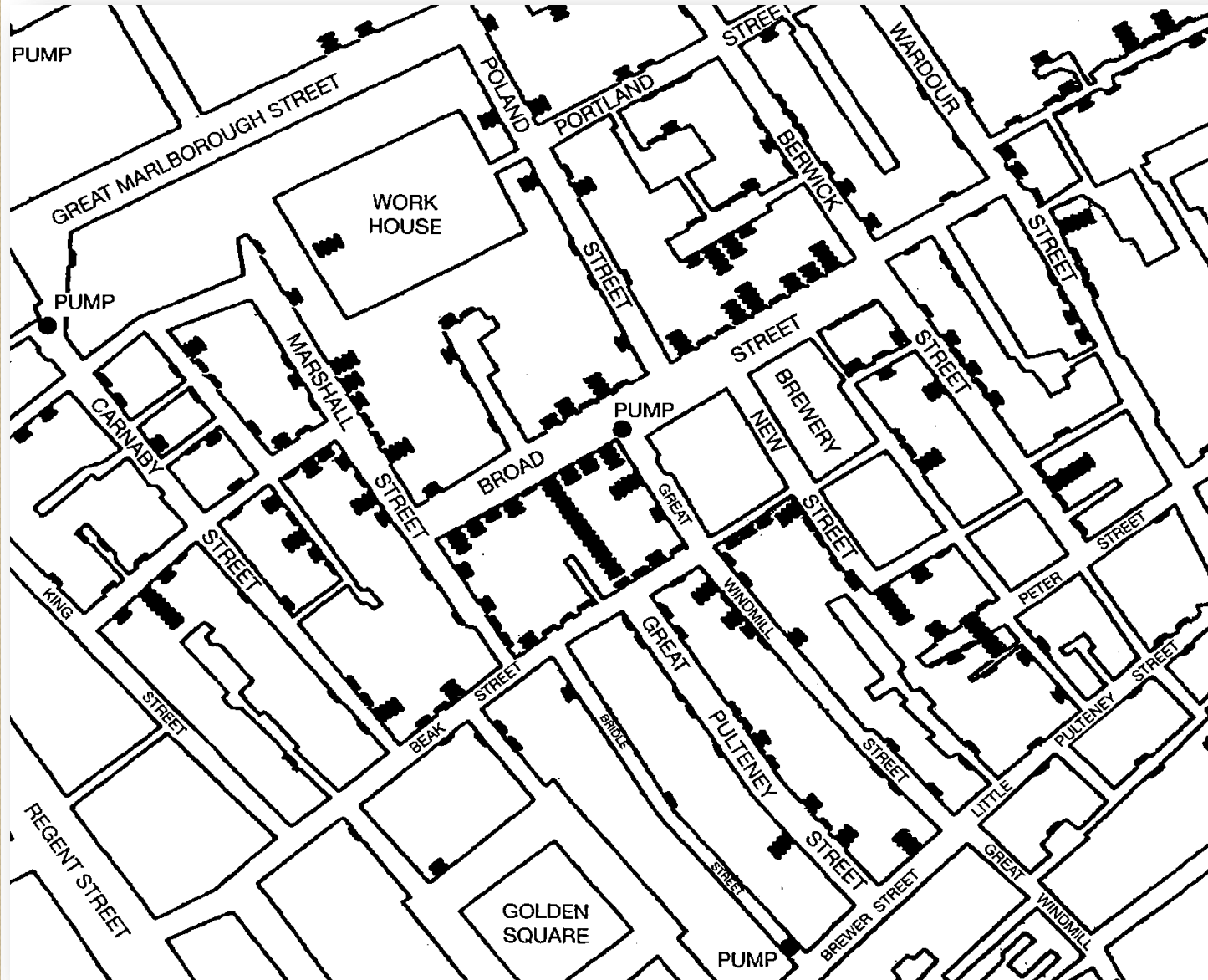
**Tarlov  
1996**

**Medical treatments contributed only 17% to the gain in life expectancy that occurred in twentieth century**

**Marmot &  
Wilkinson  
1999**

**The impact of poverty, poor housing, unemployment, and social isolation on health has been highlighted in last 20 years**

# An example of public health approach, Cholera outbreak in Soho, London 1875



# **Biomedical Model Of Health**

## Box 1.4 Features of the biomedical model

- Disease orientated, with a focus on pathological change.
- Explanations for ill health concentrate on biological factors, operating at an individual level.
- Knowledge and expertise controlled by the medical profession.
- Compartmentalized and mechanistic approach to diagnosis and treatment.
- Interventionist and high-technology approach to treatment – belief in ‘magic bullets’.
- Top-down approach – hierarchical structure.
- Centralized institutional centres of excellence – teaching hospitals.

# Limitation Of Modern Medicine

- By the 1970s, 1980s
- No clear goals for health services
- Poor evaluation
- Maldistribution of resources
- Inequality in the access and the quality of health care

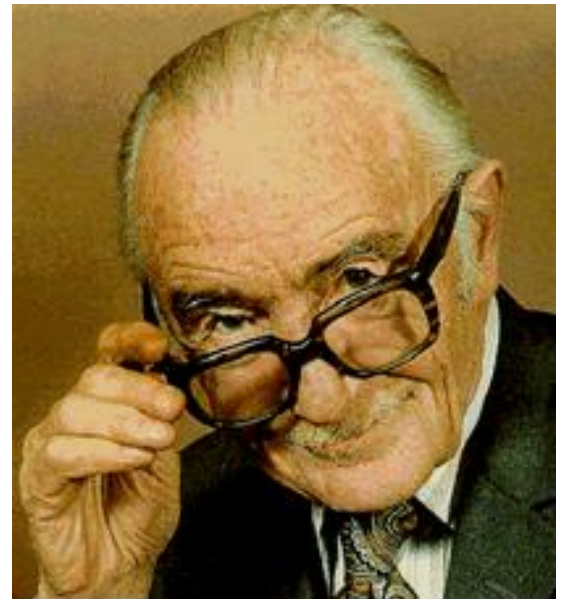


**Emergence Of New  
Public Health**

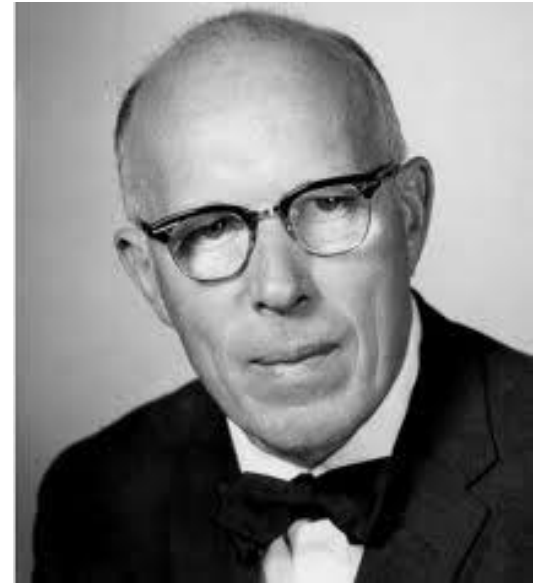
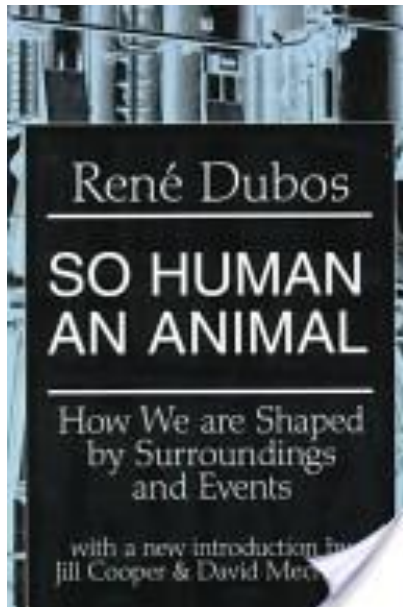


## **Archie Cochran (1972) , founder of EBM**

"I knew that there was no real evidence that anything we had to offer had any effect on tuberculosis, and I was afraid that I shortened the lives of some of my friends by unnecessary intervention."

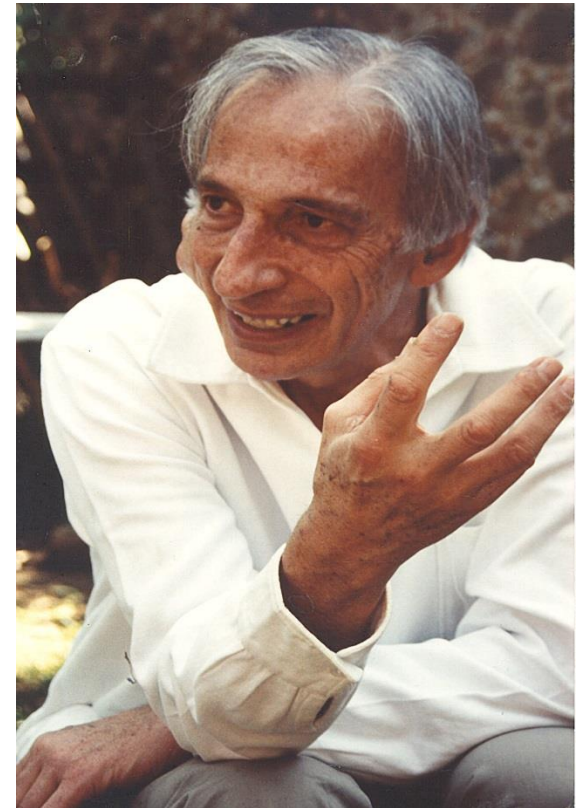
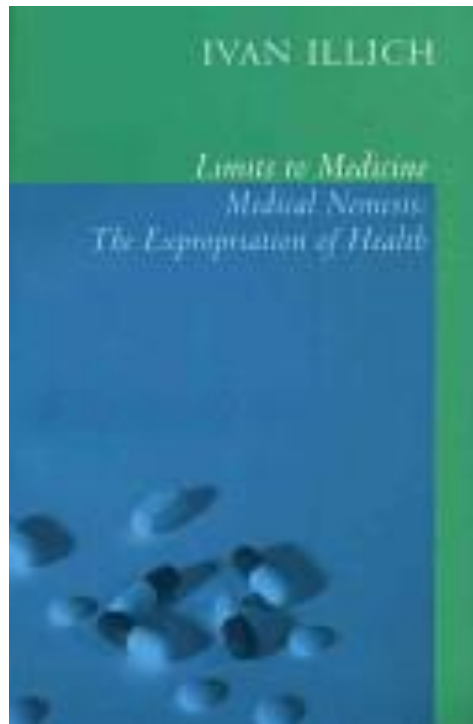


# Rene Dubos (1960), Proposed concept of holistic health



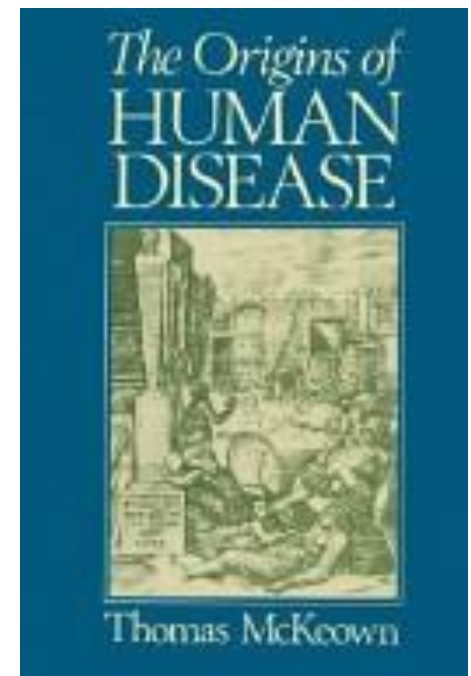
“Think Globally, Act Locally”

# Ivan Illich (1976), major critique for modern medicine



## Thomas Mackeown (1979)

argued that decline in mortality in the 19th century was due to economic conditions , improve in nutrition, sanitation, water supply, and reduction in family size rather than medical services.



# Nancy Milio (1986), Healthy public policy

GHETTO NURSE HAS PLAN

## A Champion of New Health Care

BY BETTY LATTY  
*Times Staff Writer*

Nancy Milio, RN, a community health nurse in Detroit, had much to say following the 1967 burning and rioting in that city, and did so in her book, 9226 KERCHEVAL: The Storefront That Did Not Burn, a people-to-people account of the life of a day-care center in the black ghetto, which was neither burned nor looted.

"Kercheval" has been off the press three months. Nancy now has a Ph.D. degree in sociology, another book ready for a publisher and more to say:

—"Health care service as we know it in this country is a monster and will have to undergo a vast change within five years. We have reached a



how, the joy moods, even the despairing ones, were really not complete unless I wrote it all down.

"But I won't write academically. Most of that stuff is unreadable."

Next stop is the University of Michigan, to help compile procedures for establishing day care centers, to be available to any group interested in starting one. Miss Milio's contribution will be a study of community involvement in center development.

**Group Involved**

"I stress the centers must be headed by people in the neighborhood. If it's a mainly black area, the leader should be a black. If it's another culture, then that group should be involved in direction."

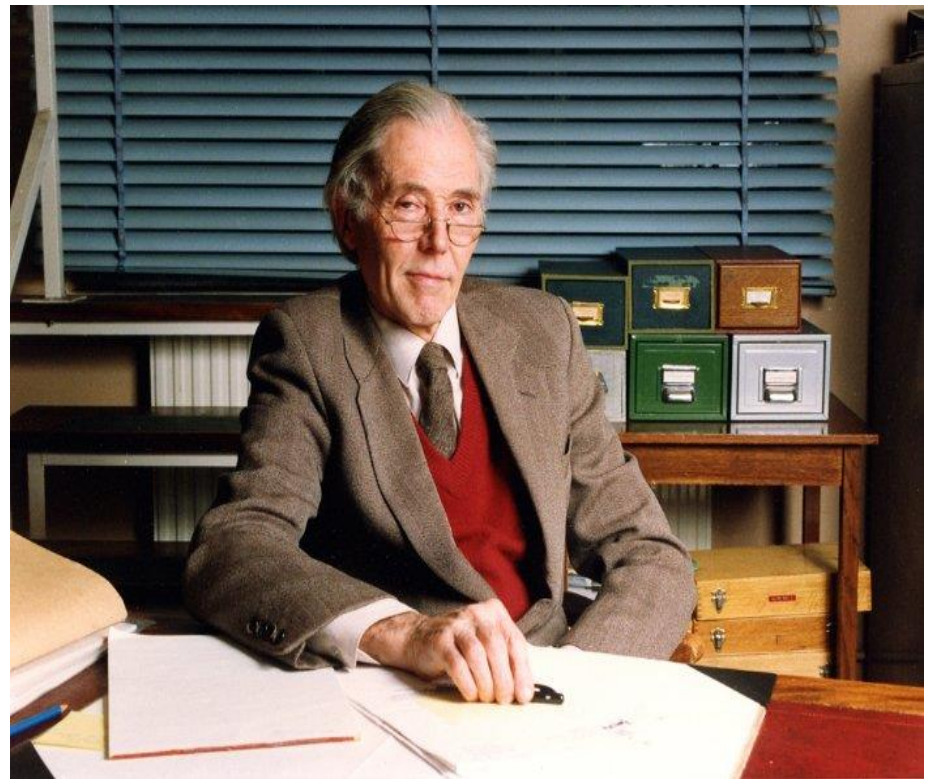
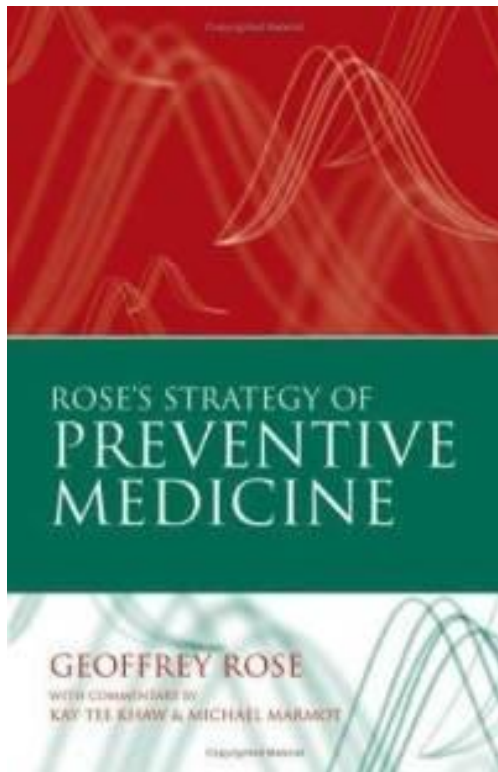
She plans later travel, a busman's holiday to see



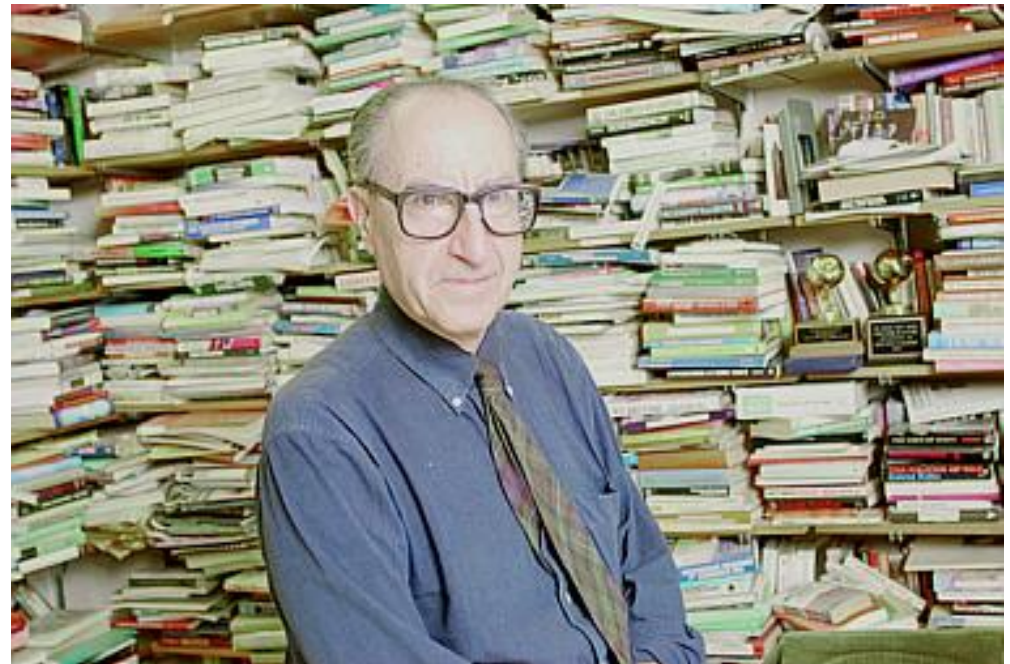
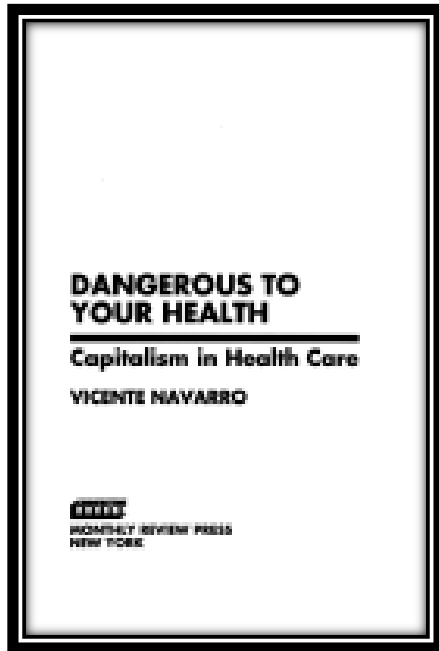
“Making the healthier choices the easier choices”

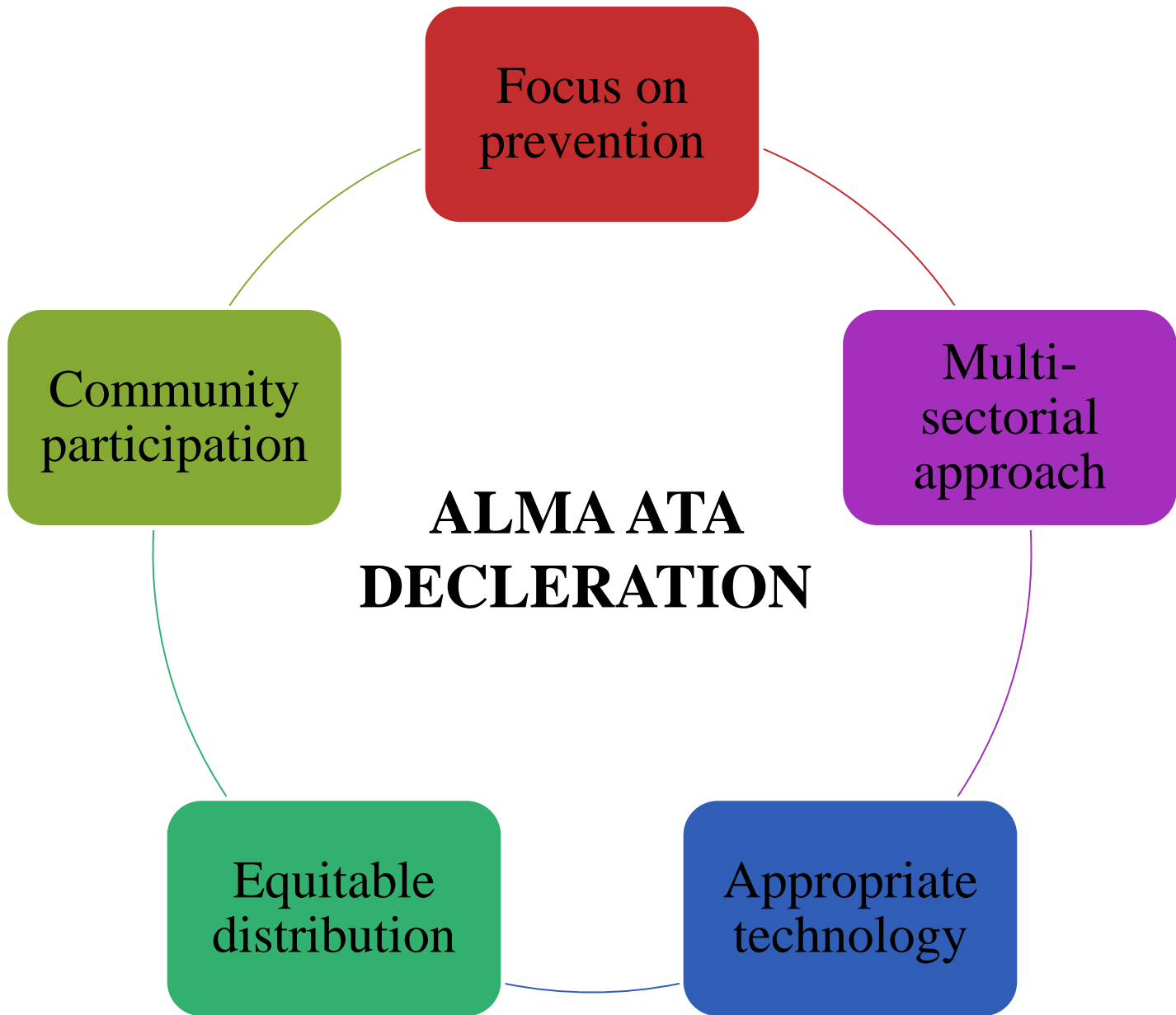


# Geoffrey Rose (1985), Whole population approach



# Vincente Navarro (1976), critical of the commercialization of health







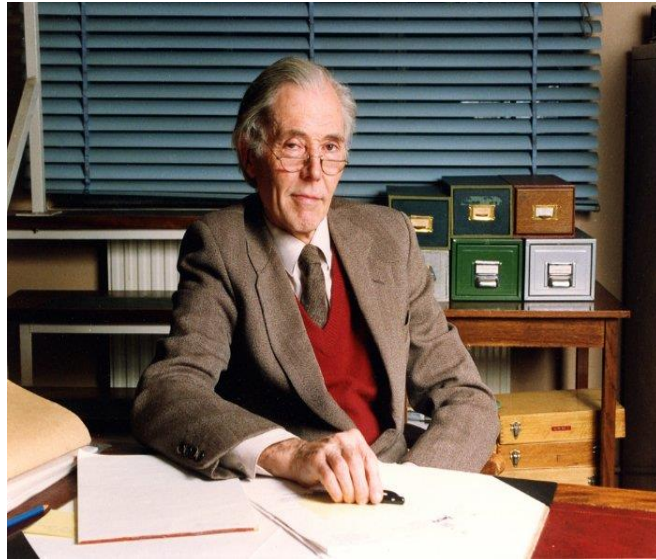
# Strategy approaches

- Whole population approach
- Risk approach

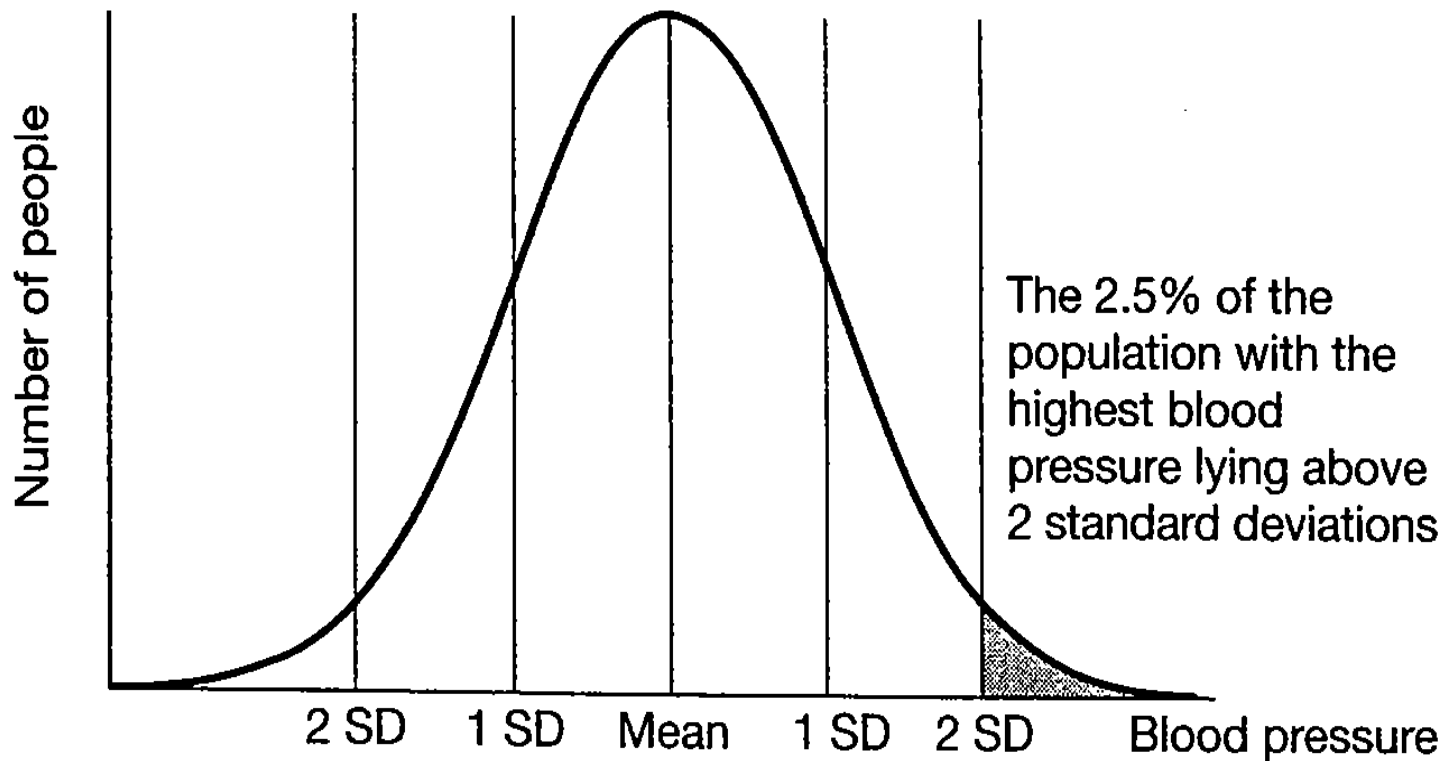
## Risk approach

- Targeted population approach
- High risk approach

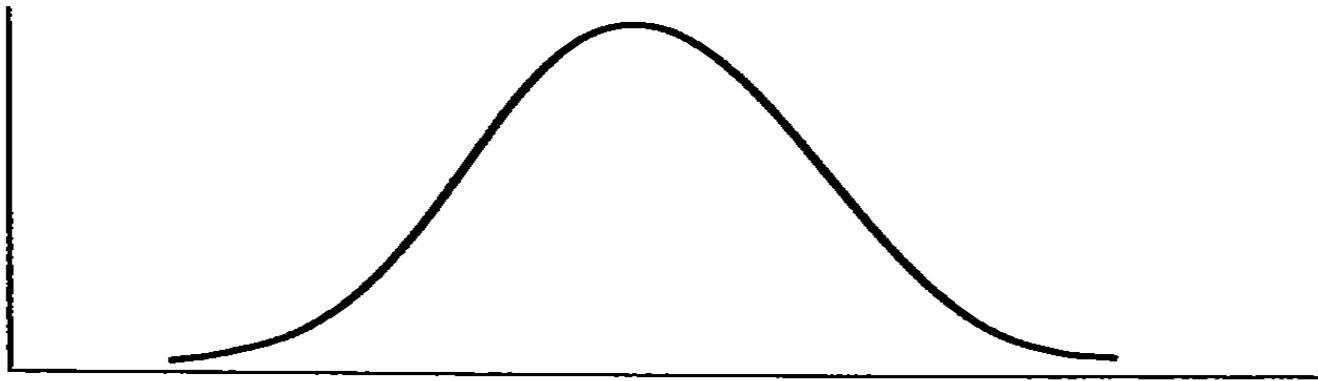
## Geoffery Rose (1985), Whole population approach



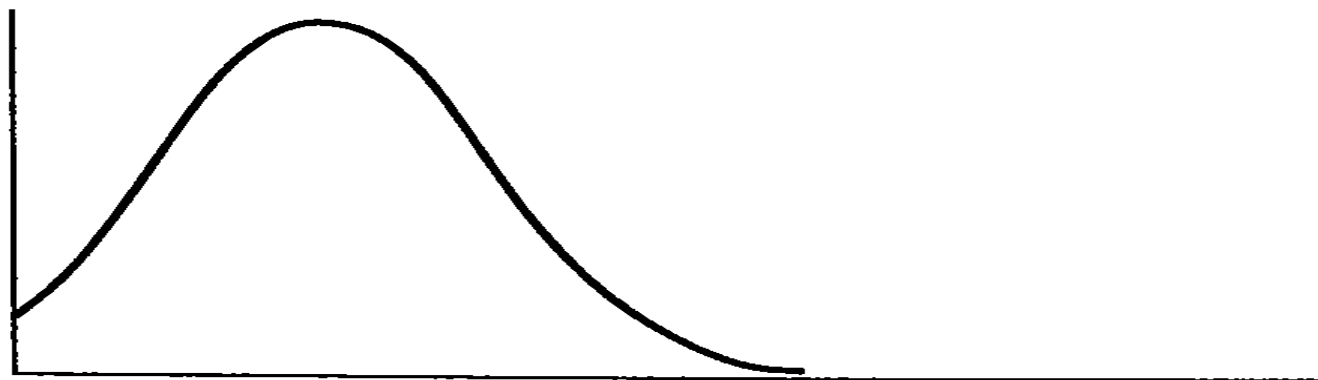
Does a small increase in risk in a large number of individuals generate more cases than a large increase in risk in a few individuals?



← The Public Health approach involves a shift in the entire distribution to the left



**Hypothetical normal distribution of disease in the population**



**Hypothetical distribution of disease after successful application of the whole-population approach**

# **Strengths and limitations**

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Radical

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Powerful

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Appropriate

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Acceptability

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Feasibility

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Cost paid now; benefits come later

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## Examples of whole population approach

Water  
fluoridation

Seat belt  
legislations

Smoke free  
environments

## Targeted-population approach

Groups of population who are in greater risk

Not all people in target group are at risk

Differs from high-risk approach

# Useful

- when resources are limited
- for disadvantage group
- reduce health inequalities



## Example of a targeted-population approach

- Small geographical area with higher level of dental caries (schools)
- Navab Plan (Upgrading the environment of Navab, Ave)

# The high-risk approach

- **Only those at greatest risk**
- **Screening program**
- **Effective prevention should be exist**

**‘High risk’** omits those  
who are at **‘low risk’** but  
‘low risk’ does not mean  
**‘no risk’**.

# Strengths

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Appropriate for individual

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Avoids to interfere who are not at special risk

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Fit to medical and dental care

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Offer cost-effective use of resources

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Selectively improve benefit-risk ratio

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# Weakness

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Prevention is medicalized

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Palliative and temporary success

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Strategy behaviorally inadequate

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Limited by poor prediction

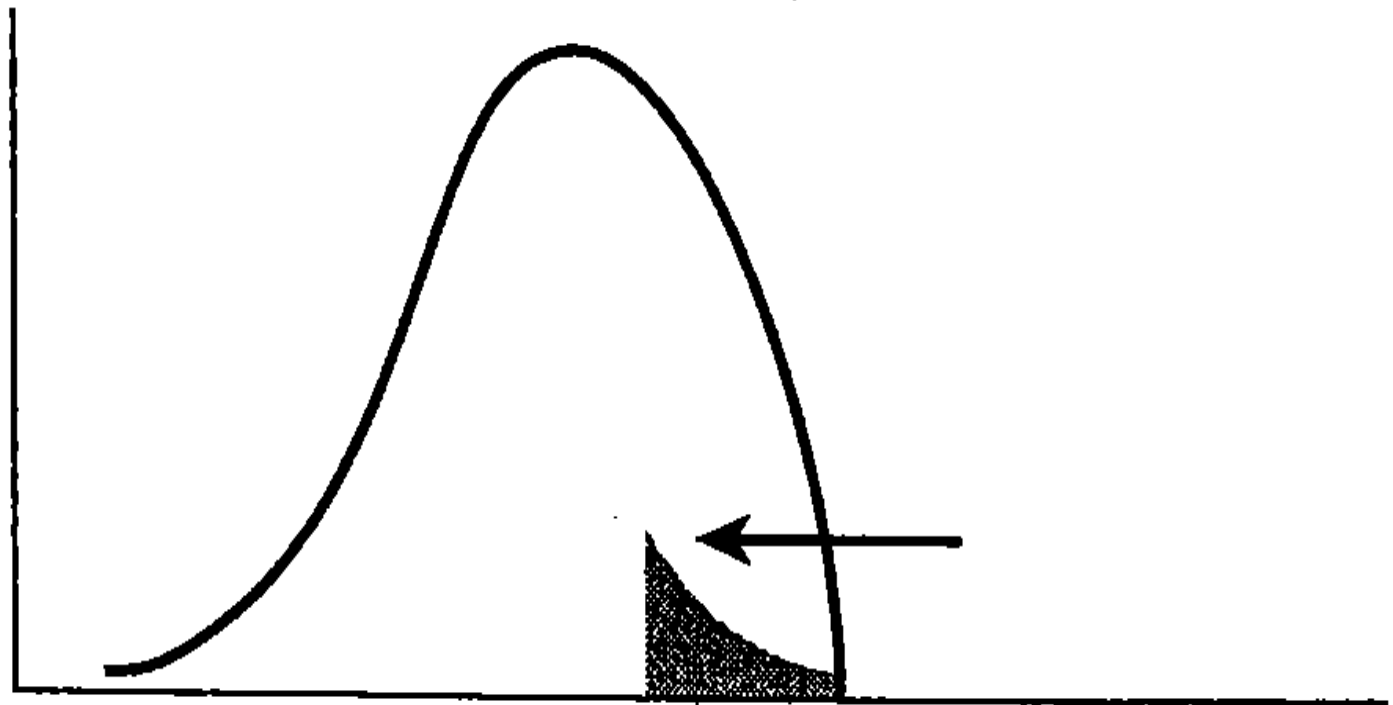
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Problem of feasibility and costs

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Very small contribution to overall control  
of disease

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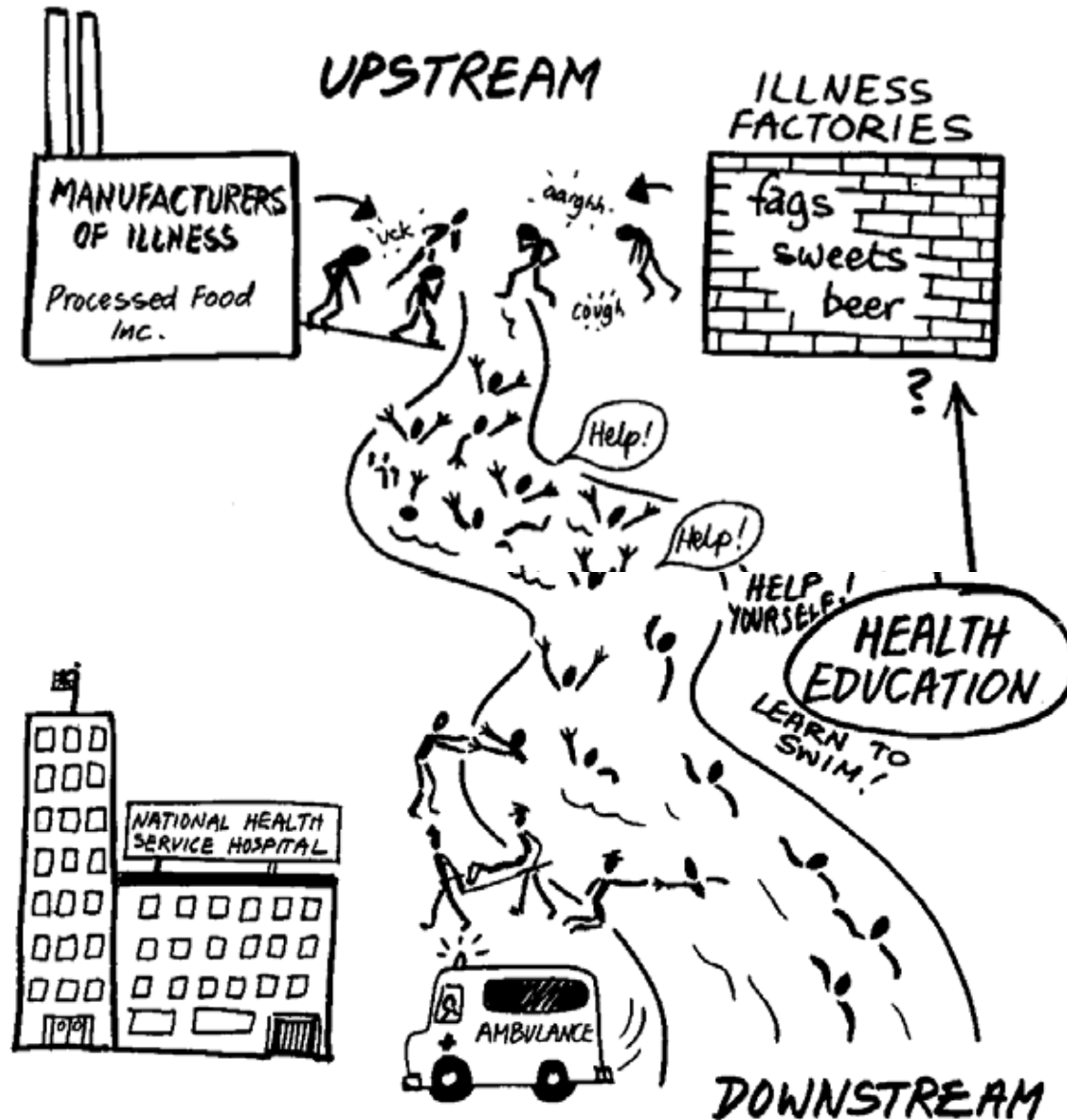


Hypothetical distribution of disease after successful application of the high-risk approach

## Examples of a high-risk approach

- Hepatitis immunization of dental students
- Under 50 years women who have a close relative with breast cancer
- Patient with irradiation salivary glands

# Refocusing upstream not downstream





# Upstream versus downstream dentistry



Preventive strategy based on:

Good need assessment

Evaluation of the available intervention

Appropriate method for delivering intervention

The whole-population strategy is best by using multiple approach (legislative, environmental, and individual interventions)