

Women and Children' Health

Introduction

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Three topics:

1. Basic concepts

Health and Public Health

The Principles of Public Health

2. Why we focus on Women and Children' Health?

3. DOHaD: Developmental Origins of Health and Disease



What is Health?

Health is a state of physical, mental and social well-being in which disease and infirmity are absent.

(World Health Organization, 2006. From wiki)

“the evolved mechanisms of health are distinct from disease pathogenesis mechanisms”

-----The Biology of Physiological Health



What is Public Health?

Public health has been defined as "the science and art of preventing disease", prolonging life and improving quality of life through organized efforts and informed choices of society, organizations, public and private, communities and individuals.

[Winslow, Charles-Edward Amory \(1920\)](#)

Video: what is Public Health



EVOLUTION OF PUBLIC HEALTH DATA AND INFORMATICS NEEDS IN THE PUBLIC 1.0, 2.0, AND 3.0 ERAS

Public Health 1.0	Public Health 2.0	Public Health 3.0
Characteristics of Essential Data and Informatics Infrastructure		
<ul style="list-style-type: none"> • Counts and trends 	<ul style="list-style-type: none"> • Exposure-outcome cohort studies and causal inferences 	<ul style="list-style-type: none"> • Geospatial inferences and trend inferences
<ul style="list-style-type: none"> • Vital statistics and registration 	<ul style="list-style-type: none"> • Relative risks and attributable risk estimates 	<ul style="list-style-type: none"> • Layering of data and multilevel-systems thinking
<ul style="list-style-type: none"> • Registry systems of tracking mortality and diseases 	<ul style="list-style-type: none"> • Methods to control for confounding and sampling bias 	<ul style="list-style-type: none"> • Nontraditional data sources
<ul style="list-style-type: none"> • Identify pathogens and mode of transmission 	<ul style="list-style-type: none"> • Continuous outcomes and exposure 	<ul style="list-style-type: none"> • Digital bridges that interface with other sources
<ul style="list-style-type: none"> • Binary exposure and binary outcomes 	<ul style="list-style-type: none"> • Longer time frame 	<ul style="list-style-type: none"> • Community-level indicators
<ul style="list-style-type: none"> • Population statistics based on sum of individuals 	<ul style="list-style-type: none"> • Measures of disparities, quality of life, and well-being 	<ul style="list-style-type: none"> • Capacity to leverage big data
	<ul style="list-style-type: none"> • Health services research 	
Public Health Actions Driven by Data Insight		
<ul style="list-style-type: none"> • Developing diagnostic and therapeutic means to identify and remove pathogens 	<ul style="list-style-type: none"> • Managing chronic disease risks through screening and behavioural change 	<ul style="list-style-type: none"> • Coordinated multisectoral monitoring and action plan
<ul style="list-style-type: none"> • Coordinating actions to disrupt disease transmission such as quarantine, vaccination, and treatment 	<ul style="list-style-type: none"> • Consistent surveillance and survey infrastructure 	<ul style="list-style-type: none"> • Prediction modeling based on complex set of risk drivers
	<ul style="list-style-type: none"> • Professionalized functions and performance standards of governmental public health agencies 	<ul style="list-style-type: none"> • Data and evidence as communication and policy tools rather than as the endpoint
		<ul style="list-style-type: none"> • Wellness promotion through changing the environmental, social, and economical contexts

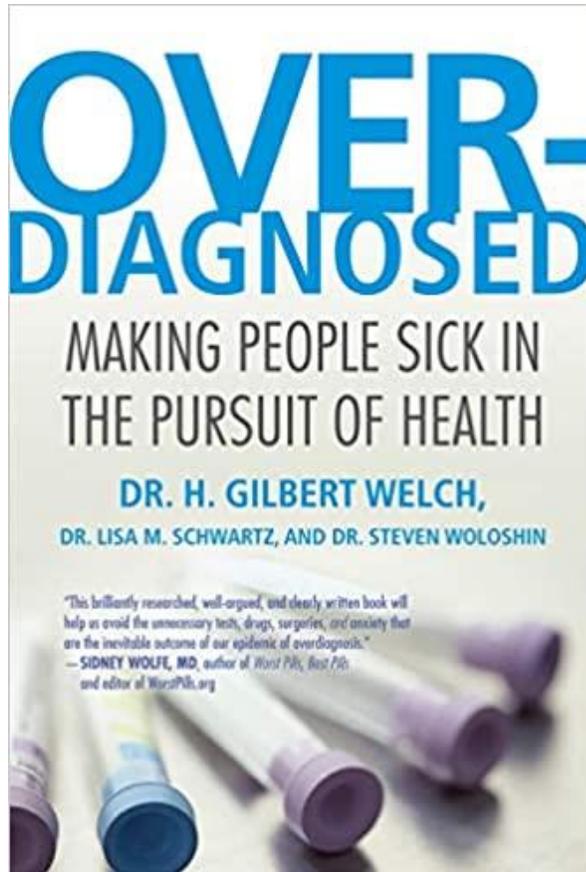


健康并不是人类的唯一追求

Nothing is more fatal to health than an over care of it.

过分关注健康是健康的最大杀手。

——Benjamin Franklin



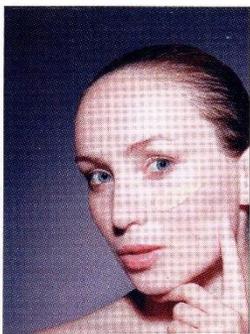
“A toxic combination of vested interest and good intentions”

Iona Heath
BMJ 2013



全球学术期刊概览

 领研网 www.linkresearcher.com



DOI: 10.1016/
j.jaad.2013.12.007

《美国皮肤病学会杂志》

相比健康，我们可能更看重美貌

哪种说法更能鼓励年轻人使用防晒霜：防晒霜有助于预防皮肤癌，还是防晒霜能让你保持青春美貌？为了找到结果，研究人员募集了50名高中生观看视频，这些学生每周使用

防晒霜的平均次数不到一次。一半的高中生观看的视频强调的是不用防晒霜将带来的健康后果，即一生只要有一次严重晒伤，患黑色素瘤的几率就会变大。而另一半人观看的视频则强调了阳光对外貌的影响：皱纹、暗斑、肤色不均、皮肤下垂以及皮肤粗糙，都是皮肤损伤的表现。6周后，前一组高中生并没有改变自己的习惯，但是后一组学生开始每周三次涂抹大量的防晒霜。该研究确实有一个局限性：年轻人的倾向很难被改变，所以相比健康，他们可能总是更看重美貌。然而研究人员说，同时综合健康和美容信息的公益广告或许恰好能鼓励更年长的人改变生活习惯。



William Tuong and April W. Armstrong, Effect of appearance-based education compared with health-based education on sunscreen use and knowledge: A randomized controlled trial. *Journal of the American Academy of Dermatology*.

Sunscreen can help prevent skin cancer. Sunscreen can help you keep looking young. So, which claim will motivate young people to use sunscreen?

Did you know that having one bad sunburn in your life increases your chances of getting melanoma?

Skin damage can show up as wrinkles, dark spots, uneven skin tones, sagging skin and rough leathery skin





钟南山掷地有声地说：“**人的命是最重要的人权！我们保住了这么多人的命，这是我们最大人权的表现！**”



Safeguarding millions of lives in the COVID-19 epidemic is the biggest proof of human rights in China, the country's top epidemiologist Zhong Nanshan said on a Tuesday TV program for students around the country.

中国顶级流行病学专家钟南山在周二的一档电视节目中说道，在新冠疫情中保卫数百万人的生命是中国人权的最大证明。



"People's lives are the most important human right," Zhong, who was awarded the Medal of the Republic in August for his outstanding contributions to China's fight against COVID-19, said at the annual national TV program, "First Class for the New Term."

钟南山在《开学第一课》中说道：“人命是最大的人权。”他曾在今年八月因为抗疫做出卓越贡献而被授予共和国勋章。



全球走向重新开放，生活在“试错”中继续

Reopenings Mark a New Phase: Global ‘Trial-and-Error’ Played Out in Lives

Any reopening measure aims “to balance at least three different things”:

Keeping infections low, to prevent health services from getting overwhelmed;

keeping deaths low, which entails deterring higher-risk infections;

and controlling economic and social burdens

Ezekiel J. Emanuel

chairman of the Department of Medical Ethics and Health Policy at the University of Pennsylvania

How much should society be willing to sacrifice to save a life?

How many people should lose their jobs to save one life, knowing that extended unemployment is associated with reduced life expectancy?

How many people should be allowed to die if it lets a community keep the local factory running?



Economic Evaluation Overview



Program Cost Analysis: What is the cost of the program or intervention?



Cost of Illness: What is the economic burden of the condition?



Cost-Effectiveness Analysis: How do costs compare to outcomes?



Cost-Benefit Analysis: How do costs compare to benefits?



The Principles of Public Health

1. Determinants of health
2. Precautionary Principle (Pediatric Environmental Health, 4th)
3. Population-based interventions (The forest and the trees)
4. Public health inequality
5. Primary health care



1. Determinants of health

- Income and social status
- Social support networks
- Education and literacy
- Employment/working conditions
- Social environments
- **Physical environments**
- Personal health practices and coping skills
- Healthy child development
- Biology and genetics
- Health care services
- Gender
- Culture



2. Precautionary Principle (Pediatric Environmental Health, 4th)

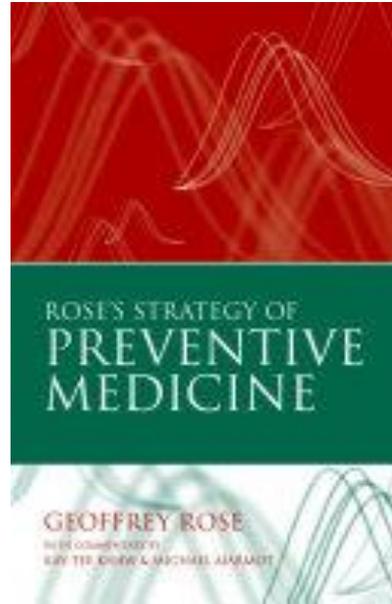
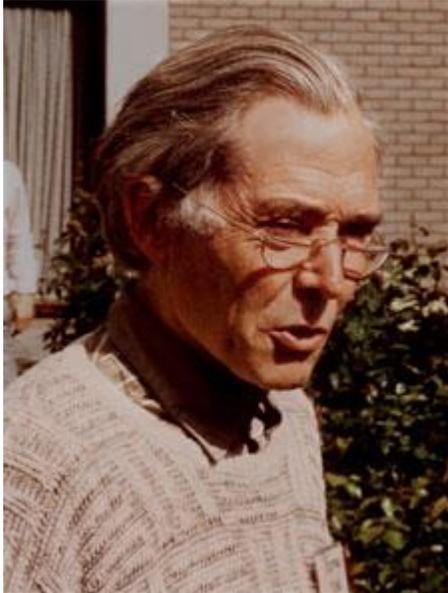
- The Precautionary Principle holds that where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.
- This principle provides justification for public policy actions in situations of scientific complexity, uncertainty, and incomplete information.
- Rather than asking how much exposure to a potentially toxic substance is tolerable, precaution asks how exposures can be prevented through application of alternative technologies.



3. Population-based Interventions and Public Health Inequality

The forest and the trees: Nate Seltenrich, EHP, 2017

Geoffrey Arthur Rose (19 April 1926 – 12 November 1993)



“sick populations and sick individuals”

"a large number of people at a small risk may give rise to more cases of disease than the small number who are at high risk"

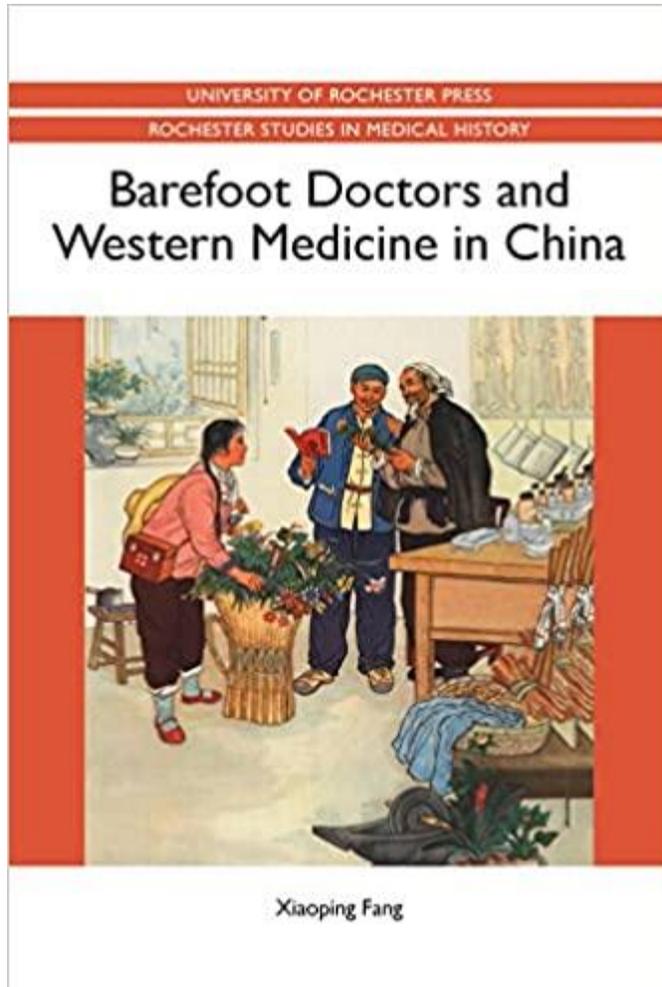
High-risk strategy & Population strategy

prevention paradoxes: a preventive measure that brings large benefits to the community may offer little to each participating person. Conversely, an intervention which brings much benefit to an individual may have a small impact in the population.



5. Public Health is Primary health care

China's "barefoot doctors" inspiration to Africa: WHO



Assignment:

Please describe one or more health determinant(s) that you are interested in.

To be continued...

Thank you!

