Definitions and functions of Public Health
Learning Objectives

- Understand the definition of public health
- Distinguish between basic, clinic and public health activities and research
- Delimit the essential functions of public health
Definition of Public Health

• ‘Public health is the science and art of preventing disease, prolonging life and promoting physical health and efficiency through organised community efforts for the sanitation of the environment, the control of community infections, the education of the individual in principles of personal hygiene, the organisation of medical and nursing service for the early diagnosis and preventive treatment of disease, and the development of social machinery which will ensure to every individual in the community a standard of living adequate for the maintenance of health’. (Winslow, 1920)

Charles-Edward Amory Winslow (1877 – 1957)
Source: Yale School of Public Health
Definition of Public Health

- Sir Donald Acheson in 1988 defined it as: ‘the science and art of preventing disease, prolonging life and promoting, protecting and improving health through the organised efforts of society’

- The field pays special attention to the social context of disease and health, and focuses on improving health through society-wide measures like vaccinations, the fluoridation of drinking water, or through policies such as seatbelt and non-smoking laws.

- Donald Acheson Report, 1988, UK
The Acheson report shows the link between health and mortality.
What is public health?

- Public health is considered to be about the health of people or communities, as opposed to individual health - it is everyone's responsibility.

- The concept of public health is not unique and has changed over the years due to changes in the health status of the population and the determining situations of health. This definition of public health is directly linked to the wider definition of health, found in the preamble of the constitution of the World Health Organisation (1948), where health is referred to as "a state of complete physical, mental and social well-being and not merely the absence of disease."

This means that public health aims to create the right conditions in order to provide this state of health for the benefit of society.

Figure 1
The health map

GLOBAL ECOSYSTEM

NATURAL ENVIRONMENT

BUILT ENVIRONMENT

ACTIVITIES

LOCAL ECONOMY

COMMUNITY

LIFESTYLE

PEOPLE

Age, sex & hereditary factors

The determinants of health and well-being in our neighbourhoods

Climate change
Natural habitats
Buildings, places
Working, shopping, moving
Wealth creation
Social capital
Distal physical activity
Work-life balance
Networks
Markets
Streets, routes
Air, water, land

Macro-economy, politics
global forces
Other neighbourhoods
other regions
**Leading differences** between basic, clinical and public health activities and research

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Basic</th>
<th>Clinical</th>
<th>Public Health</th>
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<tbody>
<tr>
<td>Who/What is studied</td>
<td>Cells, tissues, animals, laboratory</td>
<td>Patient seeking for health services attendance</td>
<td>Populations or communities</td>
</tr>
<tr>
<td>Activity or research goal</td>
<td>Understand the mechanisms of disease and the effects of toxic substances</td>
<td>Improve the diagnosis and treatment of disease</td>
<td>Prevention of disease and health promotion</td>
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<td>Examples</td>
<td>Toxicology, immunology</td>
<td>Pediatric and clinical nursing</td>
<td>Epidemiology, Environment Sciences</td>
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Public Health Functions (I)

- Surveillance, analysis and evaluation of population’s health status
  
- Monitor health status to identify population or community health problems
  
- Diagnose and investigate health problems and health hazards in the community
  
- Monitor environmental and health status to identify and solve community environmental health problems
  
- Diagnose and investigate environmental health problems and health hazards in the community
  
- Act as quickly as possible with efficacy in solving and improving these problems

*Example:*

*The Spanish National Health Survey detects tobacco/smoking as a public health problem*
Public Health Functions (II)

- Develop policies and plans that support individual and community health efforts

Once the health problem is identified, public health seeks the best interventions and strategies to solve the public health problem and identify health and/or social actors or agents that can be carried out in the best way possible

*Example:*

*Identify effective policies that reduce the number of smokers in the society*
Public Health Functions (III)

- **Health Promotion**

This is a public health function that tries to promote the health of the population, educating in health from the different health, education and mass media facilites

*Example:*

*Implementation of preventive measures to advantage smoking-free areas*

*Awareness-raising campaign in all the society sectors*
Public Health Functions (IV)

• **Disease Prevention**
  There are two strategies to address diseases prevention, the high risk approach and the population approach.

• **High risk approach**
  The high risk approach is aimed at individuals particularly predisposed to an illness and an individual prevention manner is offered to them.

• **Population approach**
  The population approach attempt to control the factors of the population as a whole without focusing on a specific collective matter.
Public Health Functions (IV)

• Disease Prevention (2)

• There are three levels of prevention

• Primary Prevention: to intervene before a disease appears

• Secondary Prevention: to intervene in pre-symptomatic phases

• Tertiary Prevention: to intervene when the individual is already ill. Try to mitigate the effects of disease
Public Health Functions (V)

- To develop effective programs and health facilities to protect health

The development and implementation of programmes that promote health improvement of the population as a whole, with the condition that they are based on efficacy scientific evidence based and that they help to increase the population’s quality of life

Example:

To develop health programmes aimed to help smokers to give up smoking and health facilities with this specific function
Public Health Functions (VI)

• **Evaluation of public health policies, strategies and facilities**

  Having just implemented, whatever process included in society to solve or improve the health problems must be evaluated, to check its right performance and functioning and analyse if it is associated with an improvement of the health problems for which were developed

  *Example:*

  *To evaluate the effect caused by the implementation of these politics and programmes on the number of smokers*
• http://www.mspes.es/ciudadanos/proteccionSalud/tabaco/observatorio.htm
Seven goals for public health training in the 21st century
European Journal of Public Health, 1–2, October 2012

1.- First, we want to stimulate curiosity
2.- Second, we want to produce people who are willing to take the initiative
3.- Third, we want to help people to make connections
4.- Fourth, we want to convey the big picture
5.- Fifth, we want people to know what they are up against
6.- Sixth, we must support people to engage with key decision makers on all levels
7.- Seventh, we must ensure that our students’ approaches to public health are firmly grounded in human rights

• Martin McKee
Professor of European Public Health, European Centre on Health of Societies in Transition, London School of Hygiene and Tropical Medicine, London, UK
1.- First, we want to stimulate curiosity

- We need people who want to understand the world around them and not those whose horizons are limited by what is needed to pass an examination.

- We want people who are continually asking why, and who will not be satisfied with the answer ‘because I say so’.

- We particularly want people who will look at the widely accepted view and ask: does this apply here, in these circumstances, in this population?

- This is more important now than ever, as we are faced with a neo-liberal agenda that is being clung to by much of the media and politicians in many countries despite overwhelming evidence that it is devastating our economies and, in countries such as Greece, Spain and Portugal, damaging the health of our fellow Europeans.
2.- Second, we want to produce people who are willing to take the initiative

- We need many more social entrepreneurs, people who will spot an opportunity and go for it.

- We need people who are prepared to take risks. But we will then need to be willing to accept failure.

- We still adhere to a culture where the message is often that it is better to do nothing than to risk failing. Our junior staff must know that if they do something and it goes wrong, we take the blame.
3.- Third, we want to help people to make connections

- Over the past half century, epidemiology has achieved an enormous amount in identifying individual risk factors.

- But we need to be able to look upstream, to identify the causes of the causes, and downstream, to understand the biological mechanisms.

- In our work in Russia, we have shown that alcohol is the main cause of the catastrophically low life expectancy.

- But we must look upstream to ask why Russians drink the way they do, as well as look downstream to ask why so many heavy drinkers die suddenly, with clean coronary arteries, because in this way we can also gain insights into the nature of cardiovascular disease in other heavy drinking populations that may be more difficult to study.
4.- Fourth, we want to convey the big picture

- This is not at all easy to do with the tools at our disposal, especially when we constrain ourselves with narrow frameworks for assessing cause and effect, such as Koch’s postulates or Bradford Hill’s criteria of causality.

- These frameworks have a very important role, but only in certain circumstances.

- To take another example from our own work, we know that levels of tuberculosis vary widely in different parts of Africa. But why? There are many reasons, and one is the extent of mining. We have shown how mines act as amplifiers for these diseases, in the same way that prisons do in Eastern Europe.

- We can never do an randomised controlled trial to prove it, but with some imaginative use of data, supported by mathematical models, we can provide strong evidence of a link.
5.- Fifth, we want people to know what they are up against

• The most obvious example is the tobacco industry, which has spent years undermining efforts to tackle the leading cause of premature death in Europe.

• But there is growing evidence of the damage to health caused by large corporations in other areas, such as the food and pharmaceutical industries.

• More than ever, the public health professional needs to read the Economist, the Financial Times and the Wall Street Journal.
6.- Sixth, we must support people to engage with key decision makers at all levels

• We in public health need a great deal more self-confidence. Too often colleagues say that they cannot comment on something because they do not know anything about it. Yet we continually hear eminent politicians and social commentators speaking on issues they clearly know nothing about, yet they have the self-confidence, or perhaps arrogance, to go on national radio or television to expose their ignorance.

• Given a few hours and a fast internet connection, most students could do a much better job of understanding the topics they addressed.

• We need to be careful that we do not stand up and talk nonsense, but at the same time, we must realize that many self-appointed experts have only the most superficial understanding of complex issues, and we should not be reluctant to challenge them when their stupidity acts against the interest of public health
7.- Seventh, we must ensure that our students’ approaches to public health are firmly grounded in human rights

• It is too easy to be complacent, to think that, here in Europe in the 21st century, we have learnt the lessons of the 1930s, and such things could never happen again.

• Yet there is a real danger that the terrifying absence of political leadership in Europe today could too easily create the conditions that, in the past, led to the rise of totalitarianism.

• The warning signs are already there, with dark forces in several European countries using populist messages to exploit fear and anxiety about minorities.

• A democratic society based on social justice and equal rights for all are core requirements for a healthy society.
The Community Action Programme for Public Health 2008-2013

• Improve citizens' health security. In particular, to protect citizens against health threats and improve their safety.

• Promote health, which involves reducing inequalities in this area. In particular via actions on key health factors, measures on preventing major diseases and focusing on community added-value action, increasing healthy life years and promoting healthy ageing, promoting and improving physical and mental health, and addressing the health effects of social and environmental determinants.

• Generate and disseminate knowledge and information on the subject. In particular to exchange knowledge and best practices on health issues, and to collect, analyse and disseminate health information.

• Guide: The EU and Health 2013.

The European Public Health Alliance
Case Studies: Reading List

• The promise and challenges of population strategies of prevention
  Karin B Michels
  [http://ije.oxfordjournals.org/content/37/5/914.full](http://ije.oxfordjournals.org/content/37/5/914.full)

• Rose's population strategy of prevention need not increase social inequalities in health
  Lindsay McLaren*, Lynn McIntyre and, Sharon Kirkpatrick
  [http://ije.oxfordjournals.org/content/39/2/372.long](http://ije.oxfordjournals.org/content/39/2/372.long)

• Population-based prevention strategies for childhood obesity
  World Health Organization 2010
  [http://www.who.int/dietphysicalactivity/childhood/child-obesity-eng.pdf](http://www.who.int/dietphysicalactivity/childhood/child-obesity-eng.pdf)