

Public Health and Health Promotion

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Grateful thanks to: Dr. Paul Nelson, Imperial College

Learning outcomes

- Familiarity with - core concepts of public health and health promotion
 - Definitions
 - Wider determinants of health
 - Levels of Prevention
 - High Risk vs. Population approach
 - Conceptual framework for designing Public Health and Health Promotion interventions
 - Examples of health promotion programmes
 - Public Health policies & programmes in the UK

What is health ?

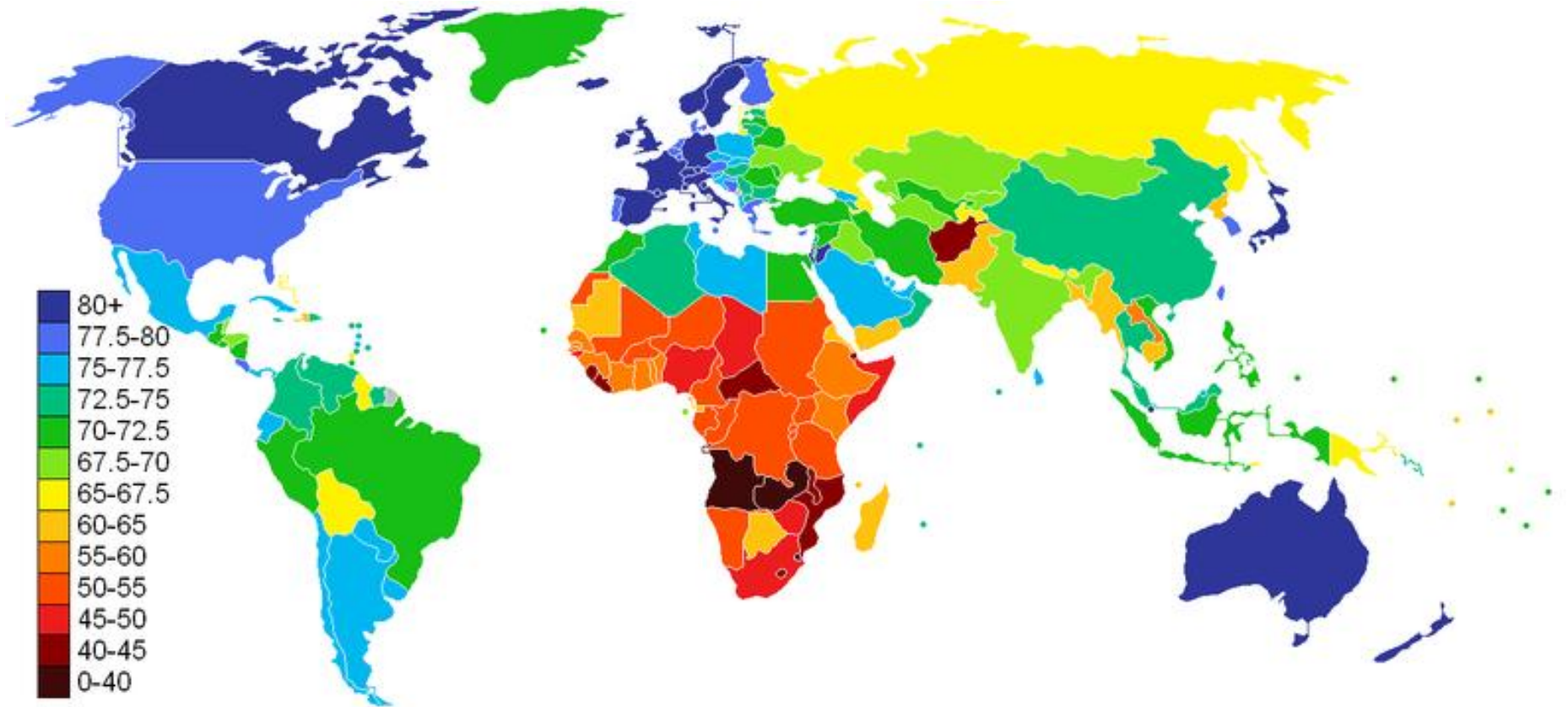
- “A resource for everyday life, not the objective of living. Health is a positive concept emphasising social and personal resources, as well as physical capacities”.

What is Public Health?

- The science and art of preventing disease, prolonging life and promoting health through organised efforts of society
- Public Health has 3 domains:
 - Health Improvement
 - Health Protection
 - Health Services

Some indicators of health

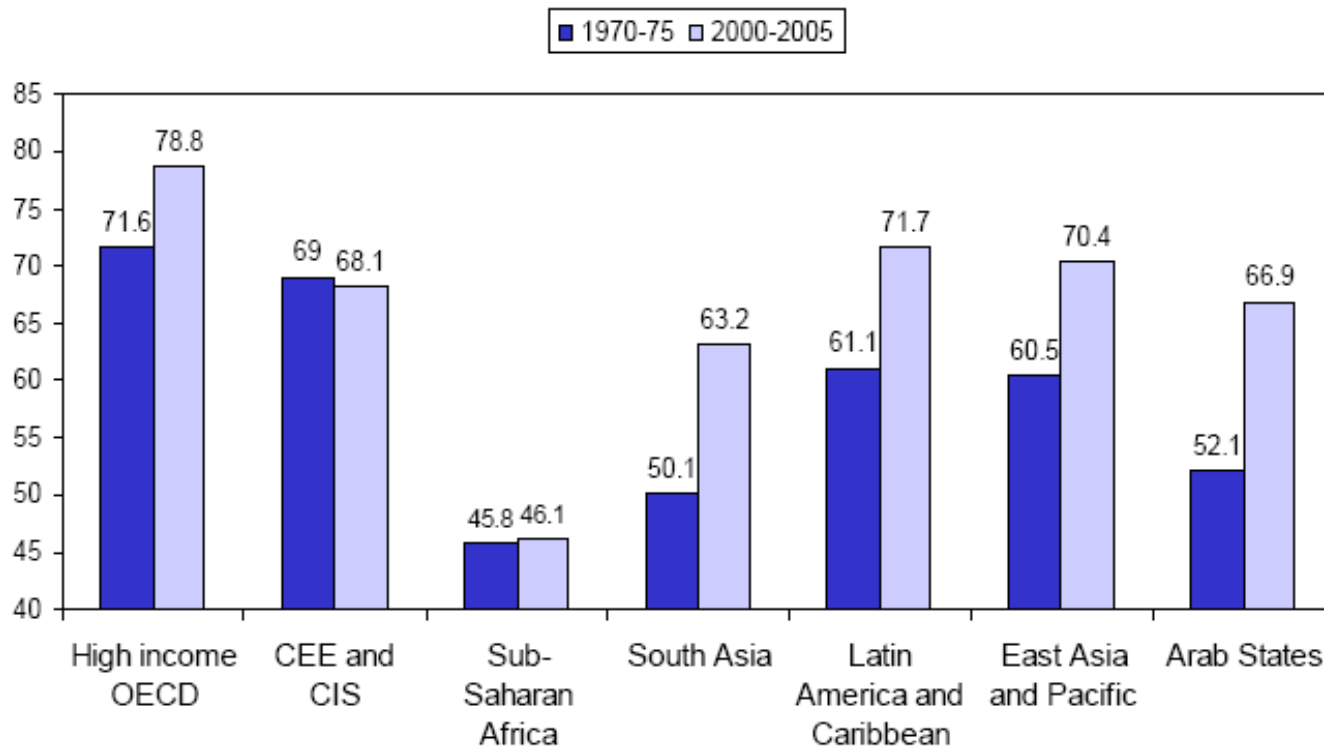
Life Expectancy at birth



Source: Life expectancy 2011 estimates by CIA World Factbook

Life Expectancy at birth by world region

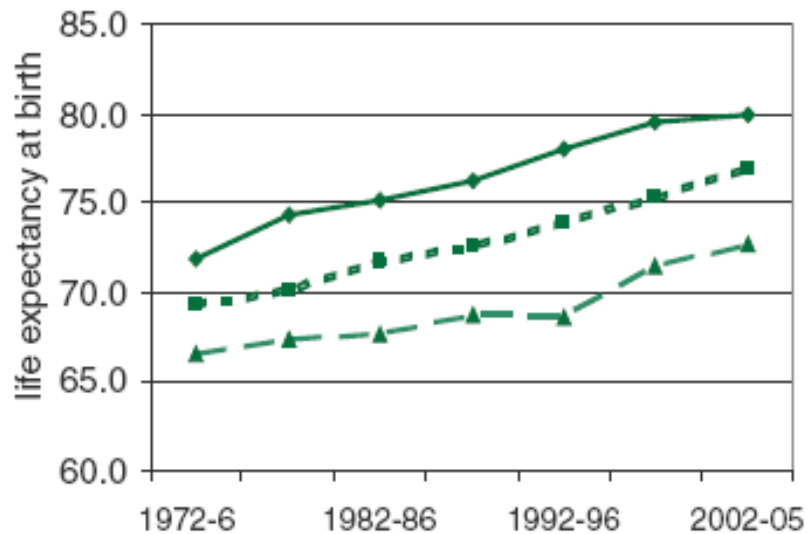
Figure 1: Life expectancy at birth by region, 1970–1975 and 2000–2005



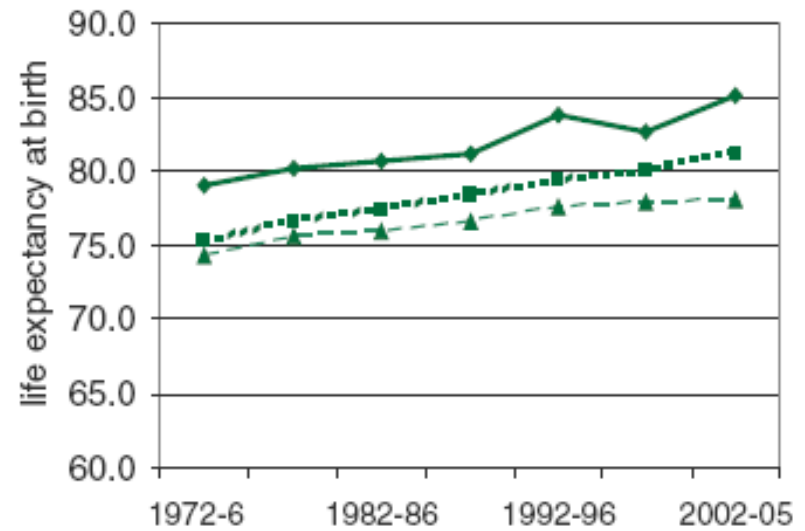
Source: UNDP, 2005.

Life expectancy at birth in England & Wales

Men



Women

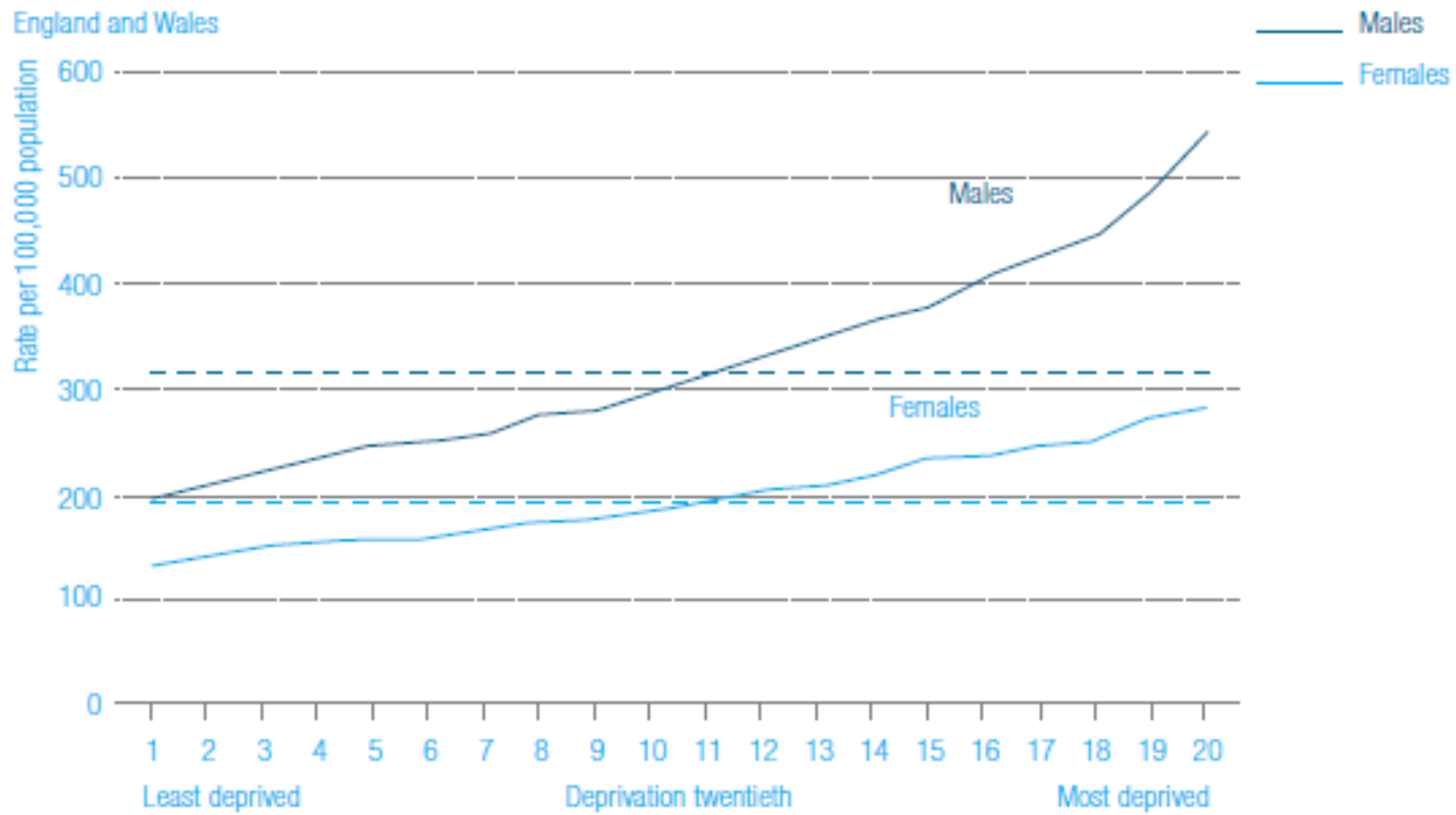


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Life expectancy at birth for men & women in social class I (professional), social class V (unskilled manual) and all, 1972-2005, England & Wales

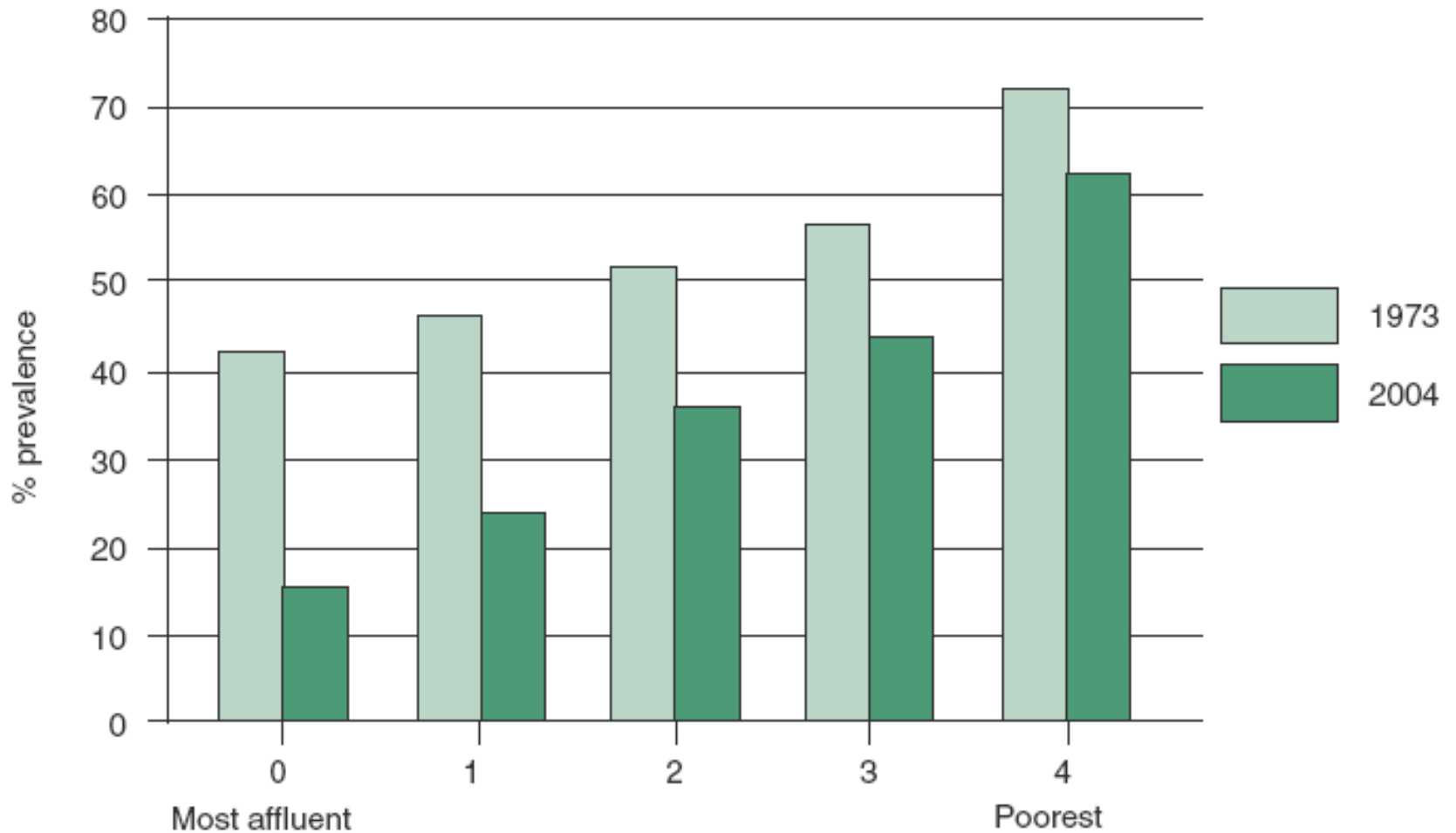
Deprivation and death rates

Figure 2.3: Death rates, age standardized, for all causes of death by deprivation twentieth, ages 15–64 years, 1999-2003, United Kingdom (England and Wales).



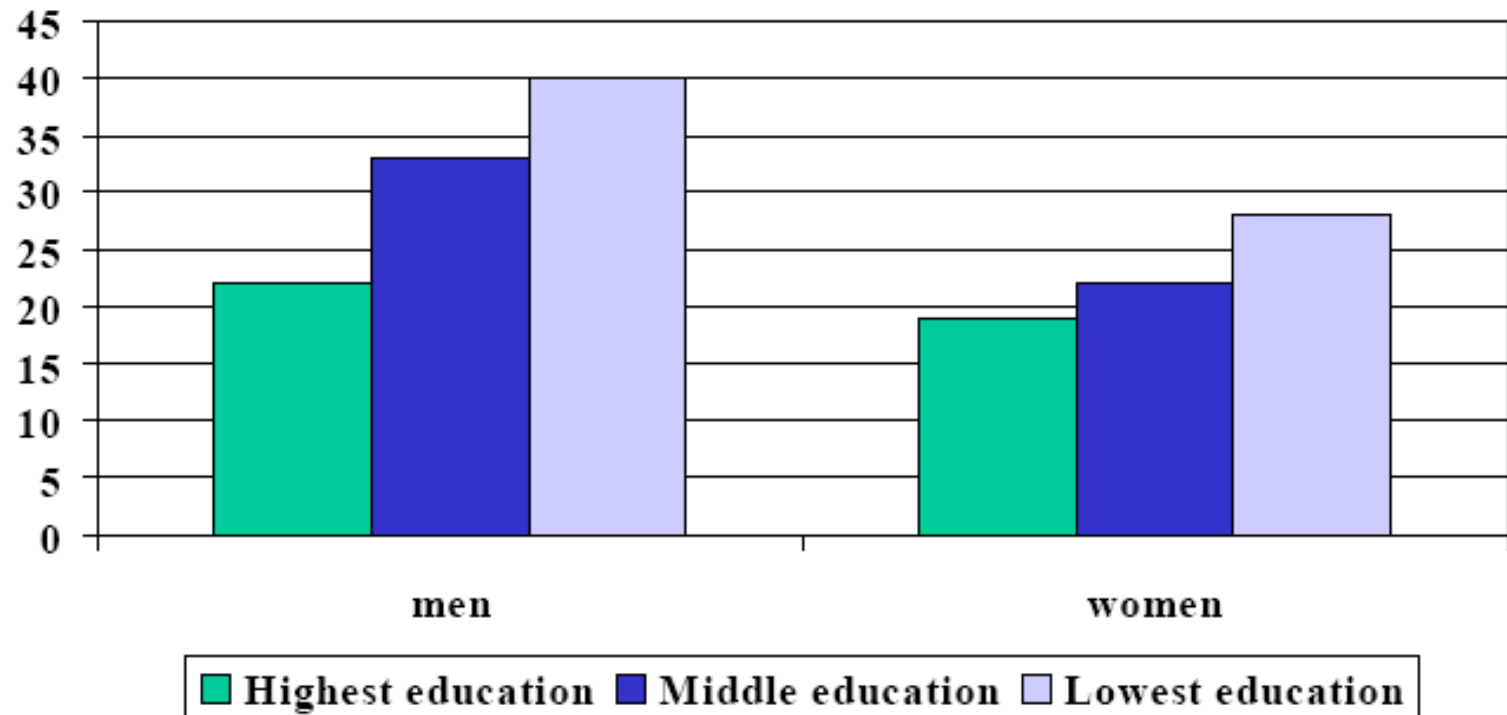
Dashed lines are average mortality rates for men and women in some areas of the United Kingdom (England and Wales).

Deprivation score and smoking behaviour



Education and behaviour

Figure 8: Smoking prevalence (%) and inequalities in smoking by education level, Europe



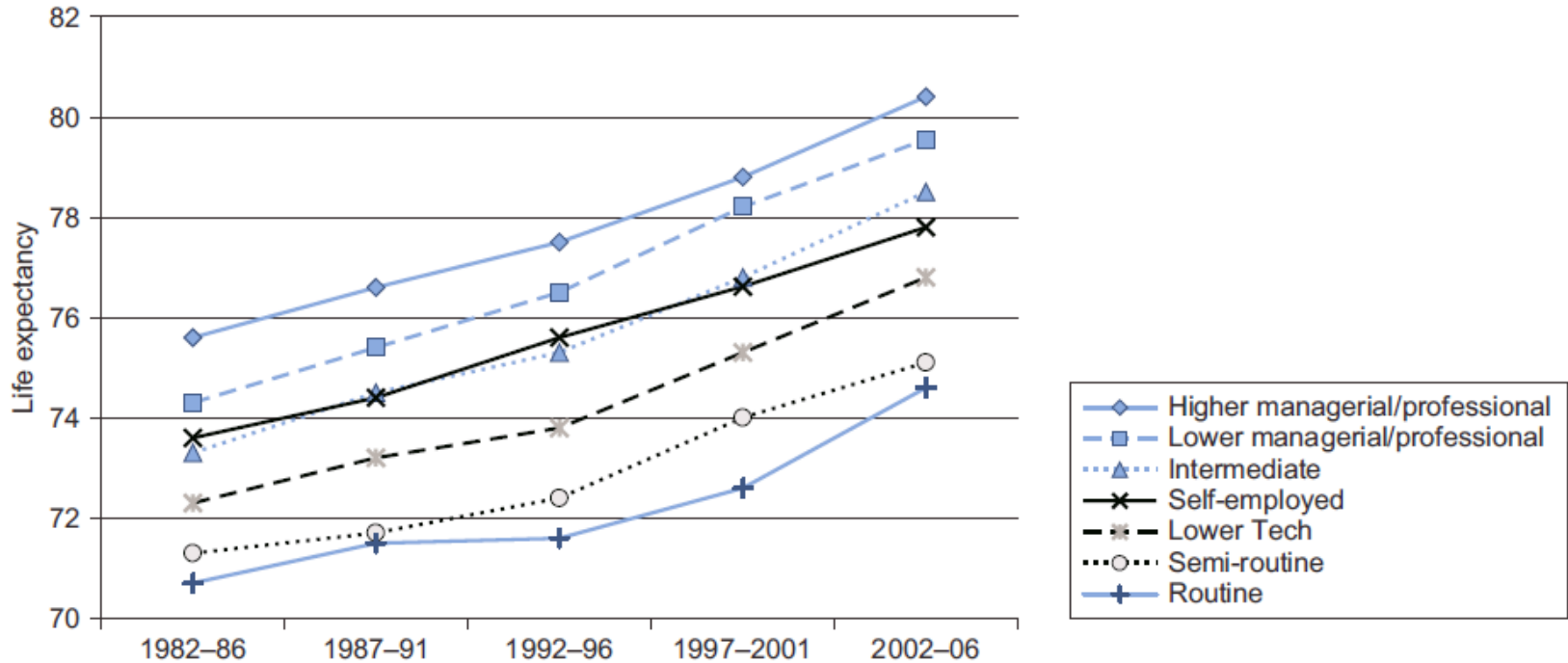
Source: Huisman, Kunst & Mackenbach, 2005.

Effect of employment

Life expectancy by NS-SEC class, males at birth

England and Wales

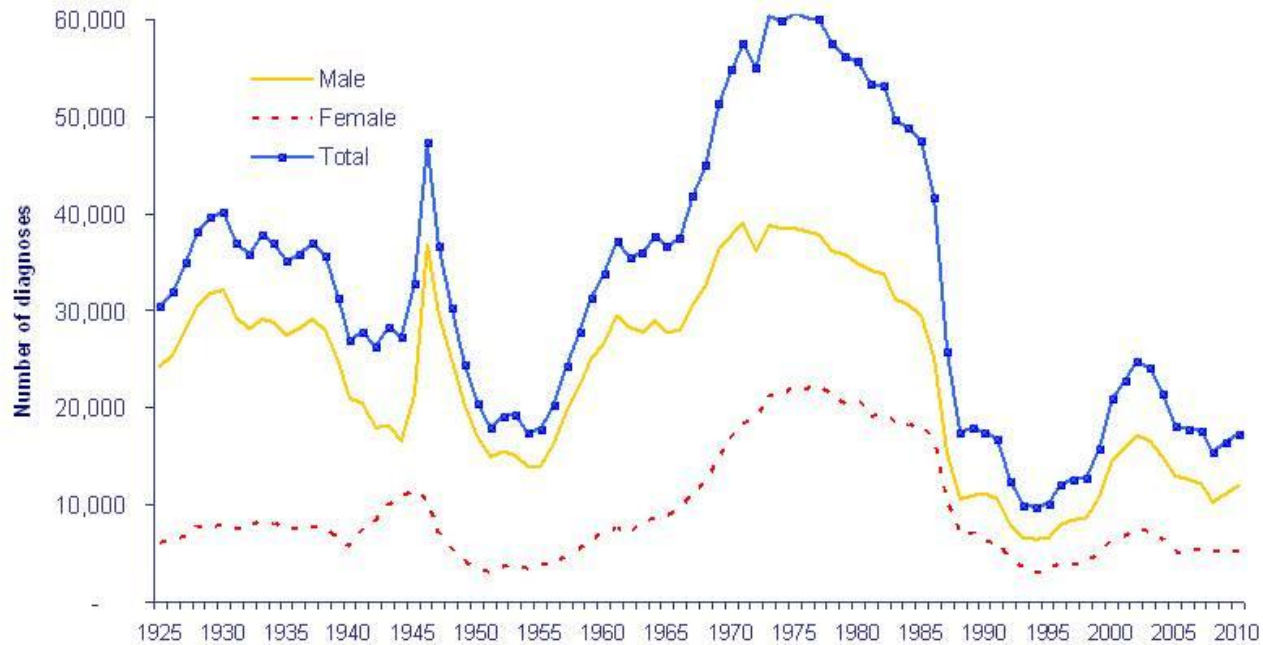
Years



Source: ONS Longitudinal Study

Gender and Behaviour

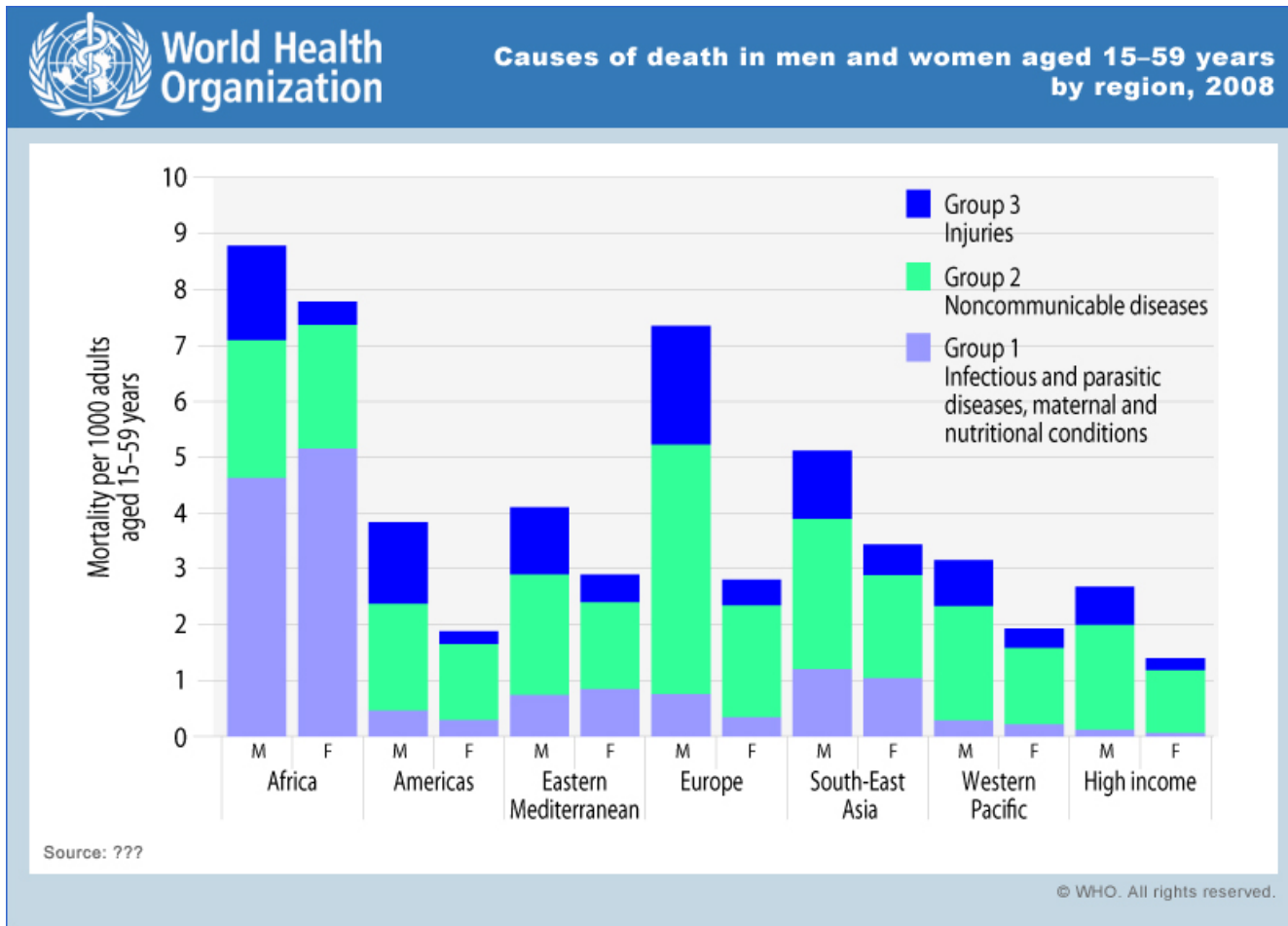
Number of diagnoses of gonorrhoea by sex, GUM clinics, England and Wales*: 1925 – 2010



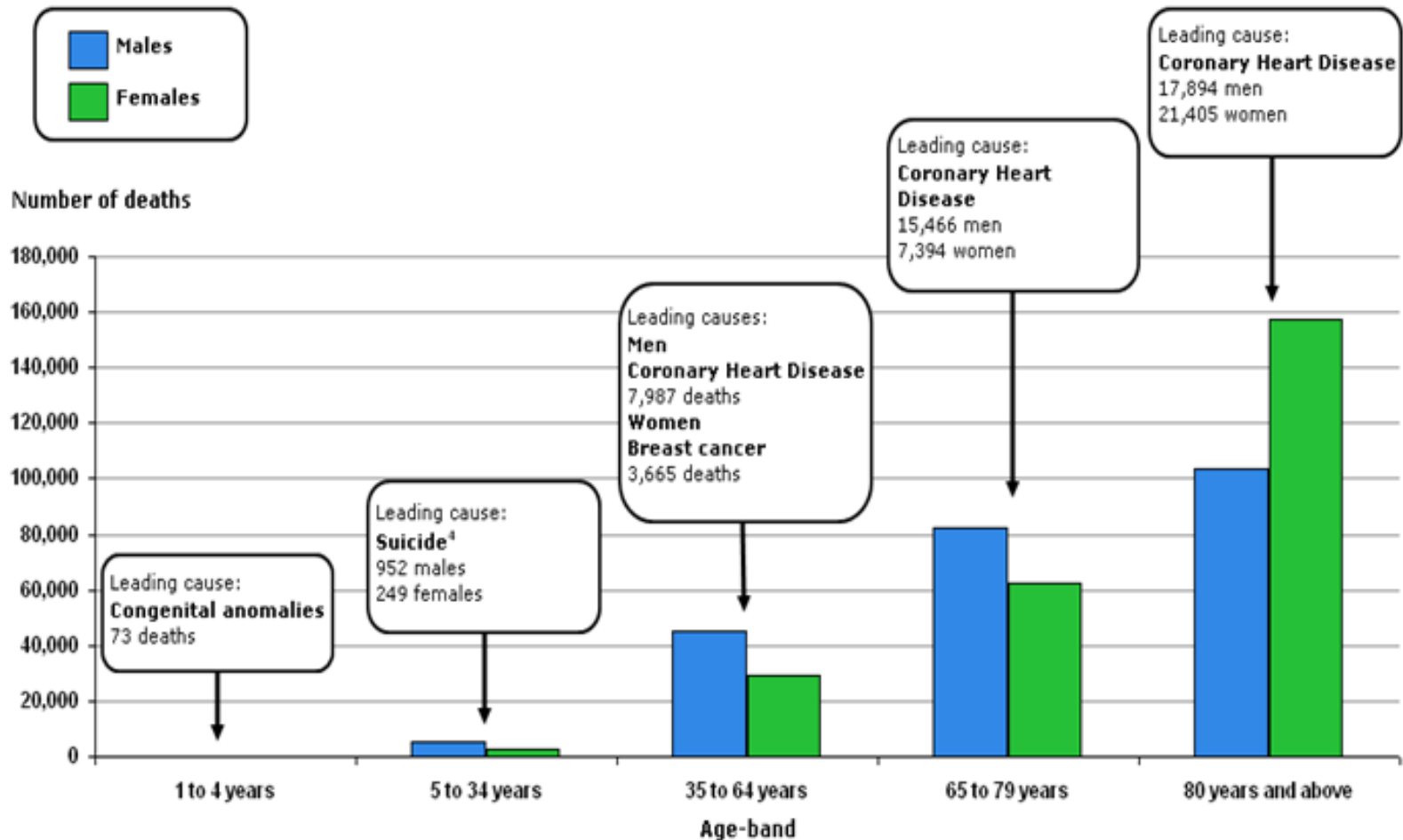
* Scotland & Northern Ireland data are excluded as they are incomplete from 1925 - 2003

Routine GUM clinic returns

Leading causes of death by WHO region



Leading Causes of Death in England and Wales, 2009



Leading causes of attributable global mortality and burden of disease, 2004

Attributable Mortality

	%
1. High blood pressure	12.8
2. Tobacco use	8.7
3. High blood glucose	5.8
4. Physical inactivity	5.5
5. Overweight and obesity	4.8
6. High cholesterol	4.5
7. Unsafe sex	4.0
8. Alcohol use	3.8
9. Childhood underweight	3.8
10. Indoor smoke from solid fuels	3.3

59 million total global deaths in 2004

Attributable DALYs

	%
1. Childhood underweight	5.9
2. Unsafe sex	4.6
3. Alcohol use	4.5
4. Unsafe water, sanitation, hygiene	4.2
5. High blood pressure	3.7
6. Tobacco use	3.7
7. Suboptimal breastfeeding	2.9
8. High blood glucose	2.7
9. Indoor smoke from solid fuels	2.7
10. Overweight and obesity	2.3

1.5 billion total global DALYs in 2004

The question is

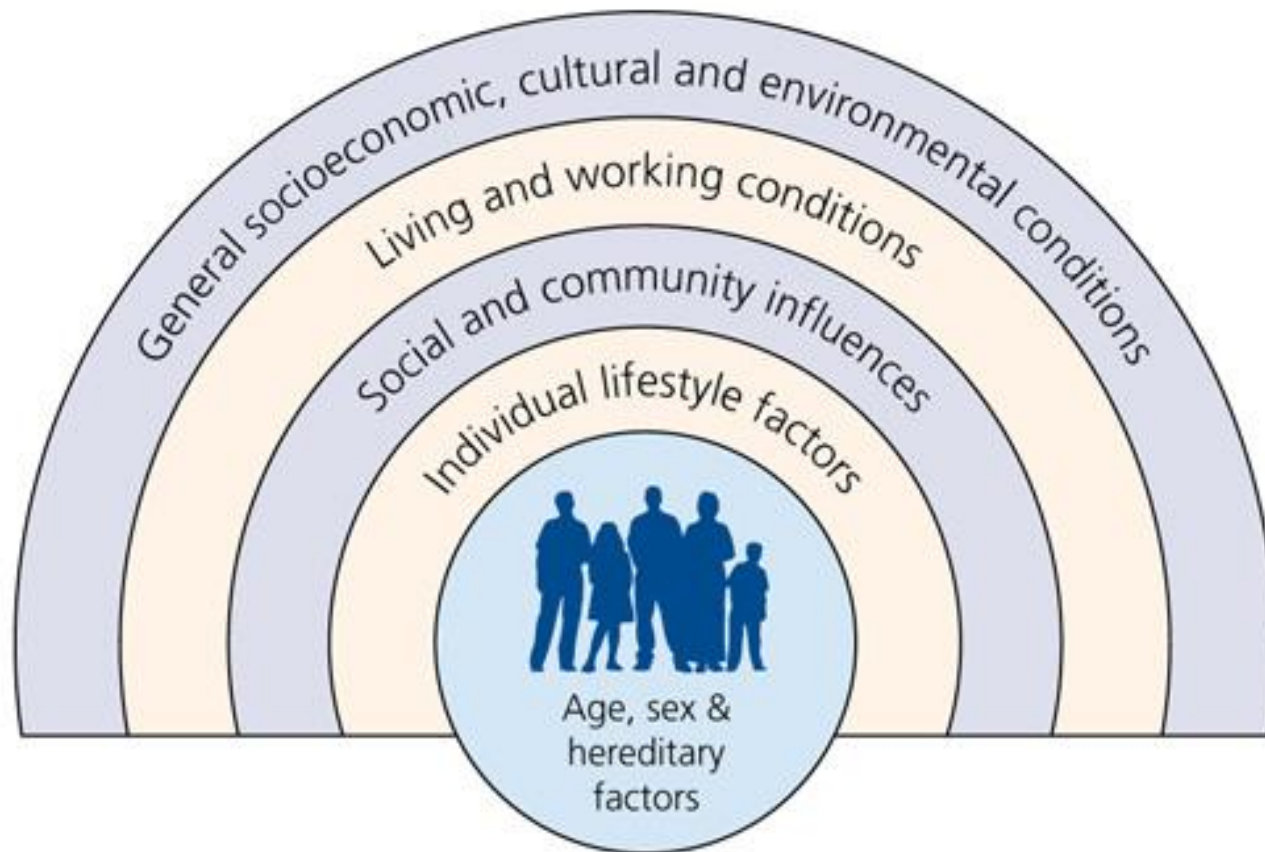
- How these causes / risk factors and
- their inequitable distribution, come about?
- What are the causes of the causes?

UPSTREAM DETERMINANTS
(LIFE CIRCUMSTANCES)



DOWNSTREAM DETERMINANTS
(RISK FACTORS)

The wider determinants of health



see Benzeval, Judge and Whitehead 1995

<http://www.londonhealth.gov.uk/dhealth.htm>

The causes of health inequalities

Figure 1

The causes of health inequalities



Source: National Audit Office literature review

Source: Tackling inequalities in life expectancy in areas with the worst health and deprivation, National Audit Office, July 2010

What is Health Promotion?

- Health Promotion is the process of enabling people to increase control over, and to improve their health

(Ottawa Charter for Health Promotion, 1986)

- Action toward social, economic and environmental conditions
- Strengthening skills and capabilities of individuals

What is Health Promotion?

- An approach to (action for) health that takes account of :
 - A broad definition of health
 - The scope of prevention
 - Limitations of health services
 - Role of individuals, groups and governments
- Focus is on health rather than disease
- Policy documents: Ottawa Charter 1986, Jakarta Declaration 1997, Bangkok charter 2005

What does Health Promotion involve?

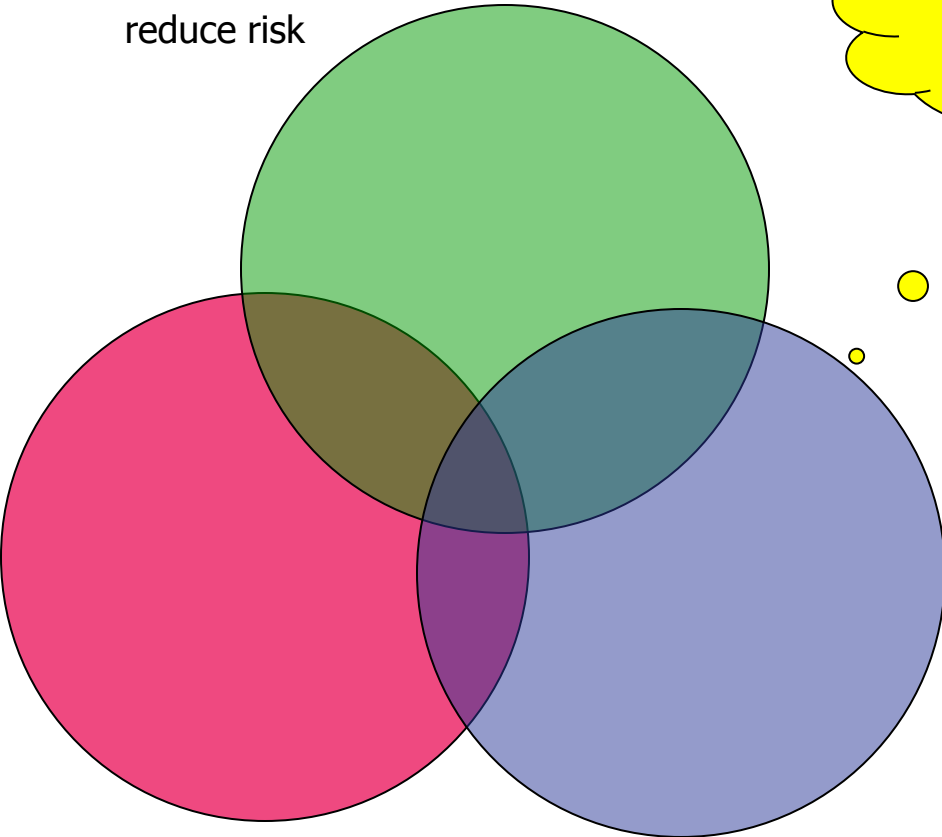
- **Clinical interventions**
 - Biomedical
 - Prevention – screening / immunisation
- **Knowledge transfer and health literacy**
 - Traditional type of health promotion (– e.g. smoking cessation, healthy eating, exercise promotion)
- **Healthy public policy**
 - Legal, fiscal and social measures to make healthy choices easier
 - Sustainable policies, actions and infrastructure to address the wider determinants of health
 - Enabling equal opportunities for health & well-being
- **Community development**
 - Radical - through groups setting their own agenda
 - Partnerships with public, private, non-governmental and international organizations and civil society to create sustainable actions

One Model of Health Promotion

Prevention

Medical interventions to reduce risk

**IMPORTANTLY
THESE
OVERLAP!**



Protection

Legislative, fiscal, social measures

Education

Influencing knowledge and attitudes

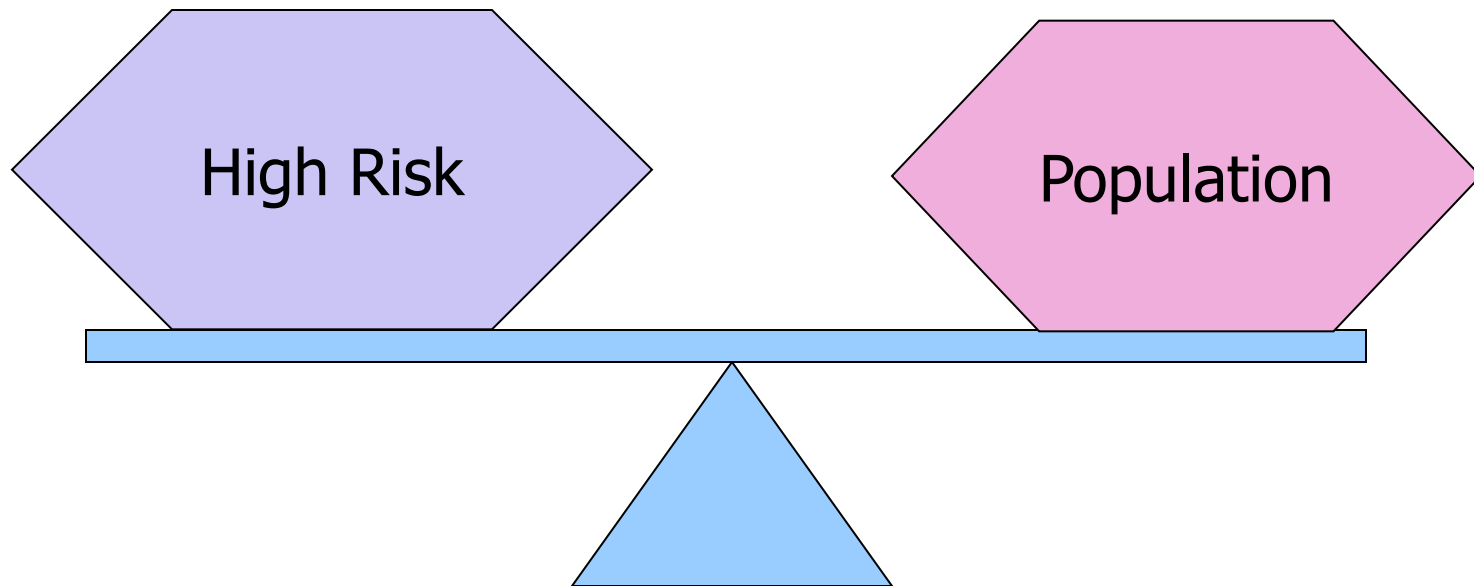
(USEFUL AIDE-MEMOIRE)

Prevention

LEVELS OF PREVENTION

- Primordial
- Primary
- Secondary
- Tertiary

Approaches to Disease Prevention



Approaches to Prevention

- High Risk Approach
 - Identifying those in special need “targeted rescue operation” (Rose), then controlling exposure (e.g. reducing house dust mite in the home of asthmatic child), providing protection against effect of exposure (occupational and post-exposure vaccination), screening among minority groups for specific disorders (sickle cell disease, thalassemia).
- Population Approach
 - Begins with recognition that the occurrence of common diseases and exposures reflects the behaviour and circumstances of society as a whole.

High Risk Approach

- Strengths

- Effective (high motivation of individual and physician)
- Efficient (cost-effective use of limited resources)
- Benefit : risk ratio is favourable
- Appropriate to individual
- Easy to evaluate

- Weaknesses

- Palliative and temporary (misses a large amount of disease)
- Risk prediction – not accurate★
- Difficulty and costs of screening
- Hard to change individual behaviours

Prevention Paradox

- Many people exposed to a small risk may generate more cases of disease than the small number who are at a high risk

so

- When many people receive a small benefit the total benefit may be large

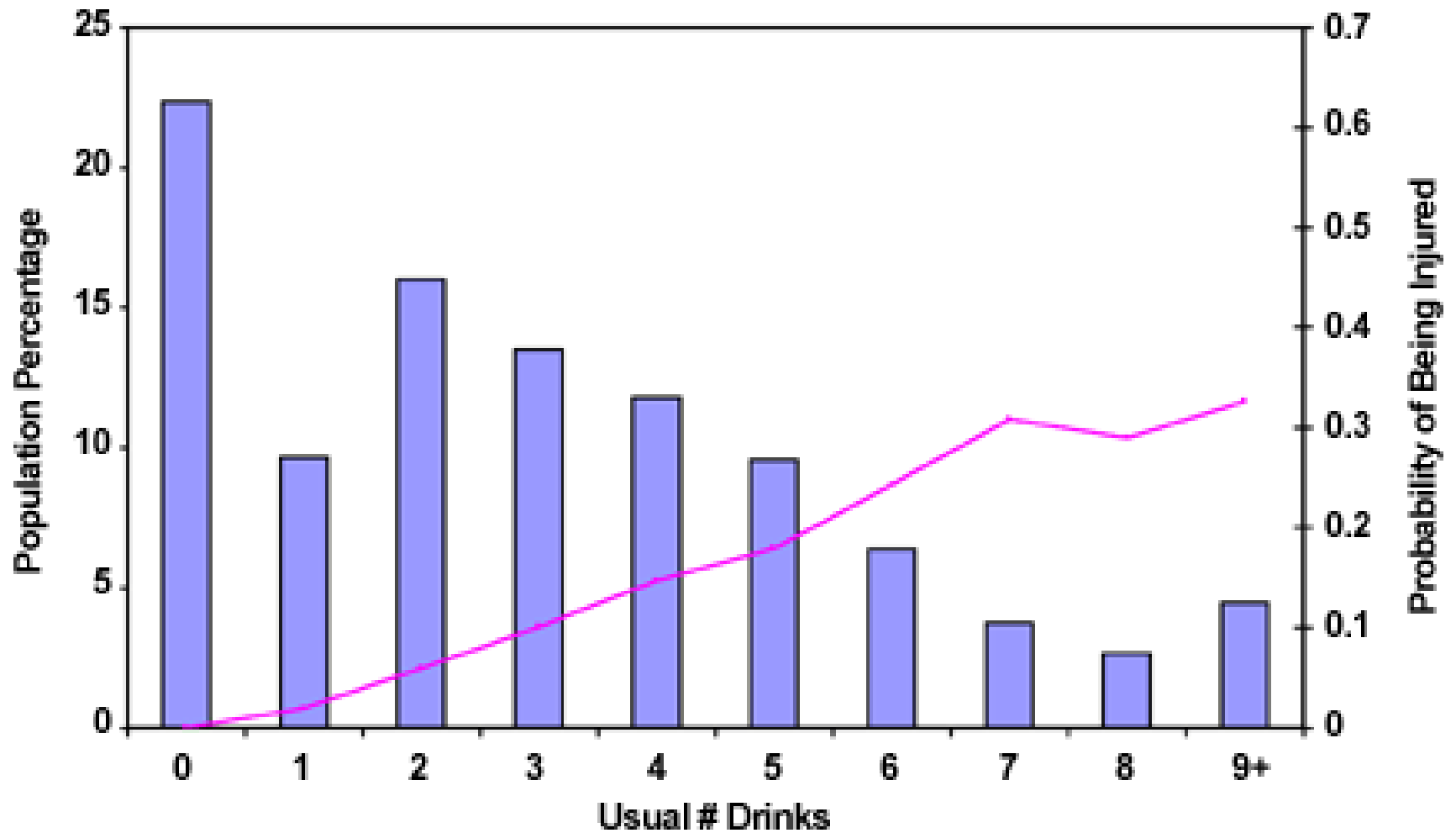
However

- Individual inconvenience may be high to the many when benefit may only be to a few

Incidence of Down Syndrome, according to maternal age (Alberman and Berry, 1979)

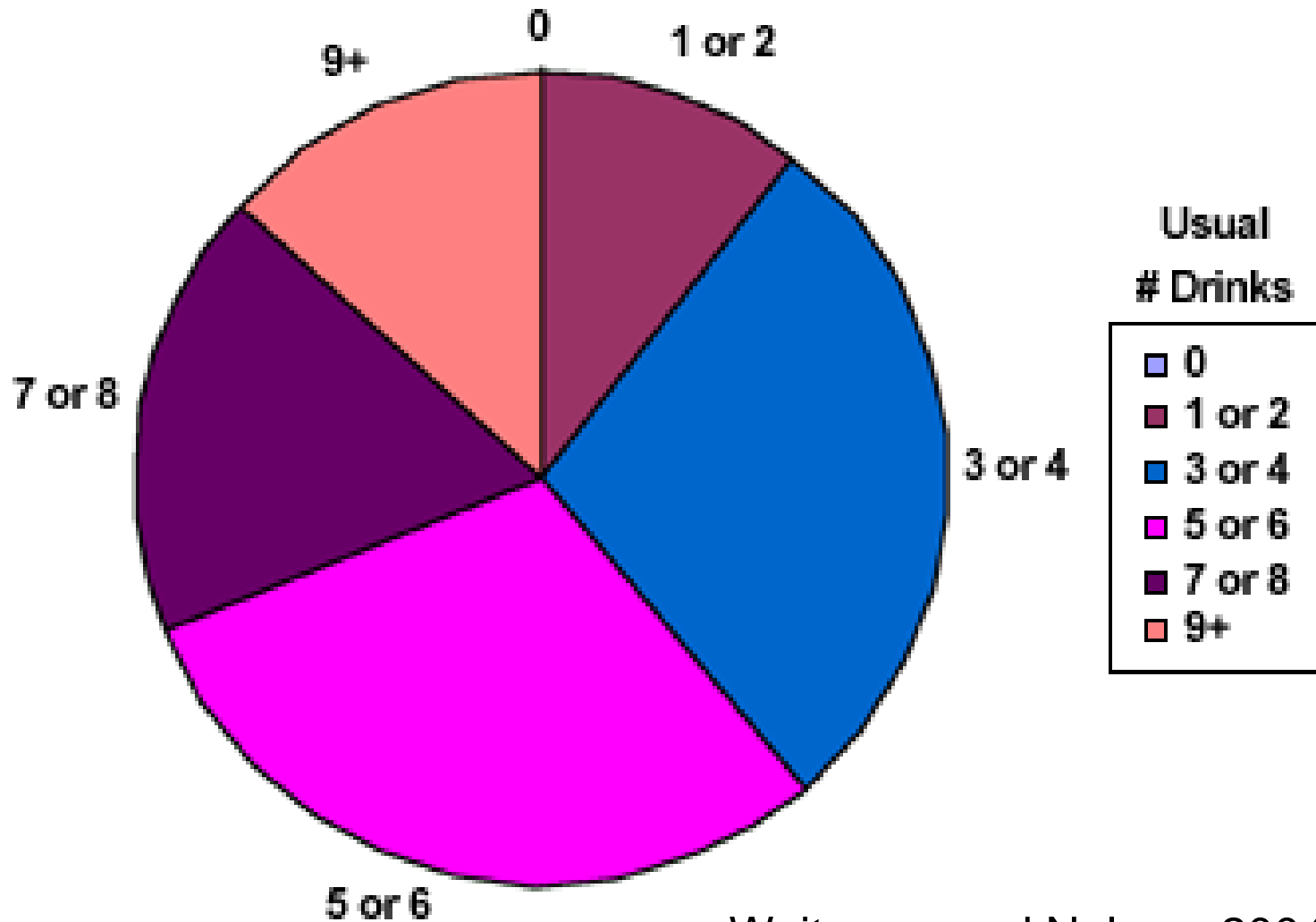
Maternal Age	Risk of Down Syndrome/ 1000 births	Total births in age group (as a % of all ages)	% of total Down Syndrome occurring in the age group
<30	0.7	78	51
30-34	1.3	16	20
35-39	3.7	5	16
40-44	13.1	0.95	11
>45	34.6	0.05	2
All ages	1.5	100	100

The Prevention Paradox in College Student Alcohol Use



Weitzman and Nelson, 2004

Actual Number Hurt or Injured by Usual Number of Drinks



Population approach

- **Strengths**

- Equitable (Attributable risk may be high where risk is low if a lot of people are exposed to that low risk)
- Radical
- Large potential for population
- Behaviourally appropriate

- **Weaknesses**

- Small advantage to individual
- Poor motivation of subject
- Poor motivation of physician
- Benefit : risk ratio can be questioned

Population approach

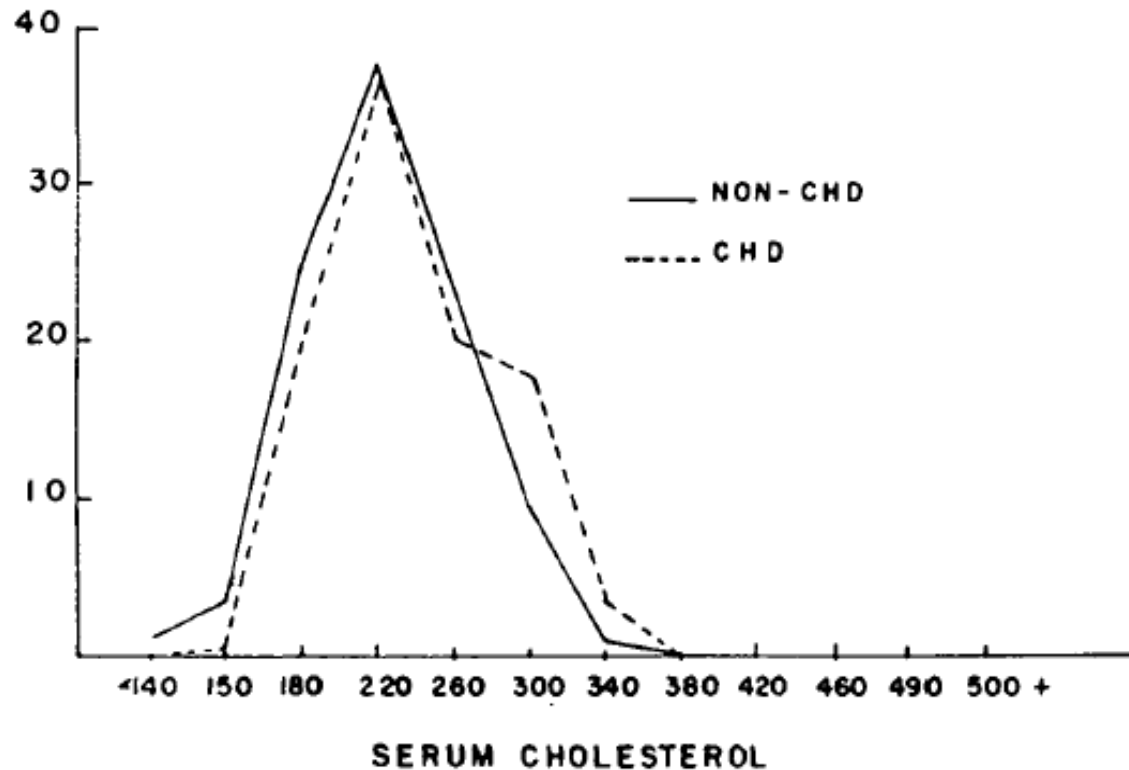
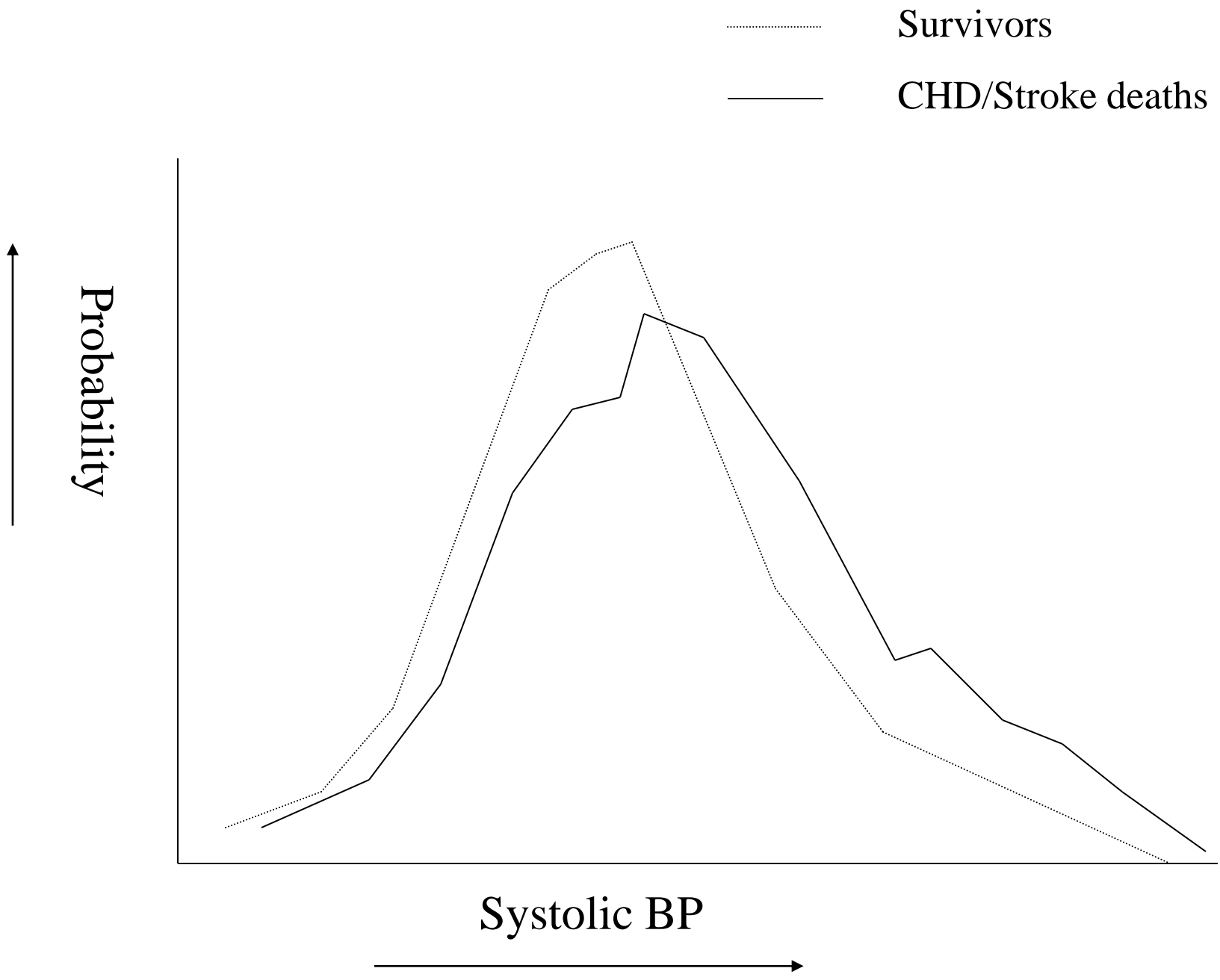


FIGURE 3 Percentage distribution of serum cholesterol levels (mg/dl) in men aged 50–62 who did or did not subsequently develop coronary heart disease (Framingham Study⁵).



Designing health promotion interventions

Where can health promotion operate?

- Internationally (EU, WHO)
- Nationally (govt., advertising, media)
- Locally (GP, hospitals, PCT, LA, Police, Schools etc.)
- Individually (support groups, neighbours, communities)

It may impact at the level of:

- The population
- The community
- The individual

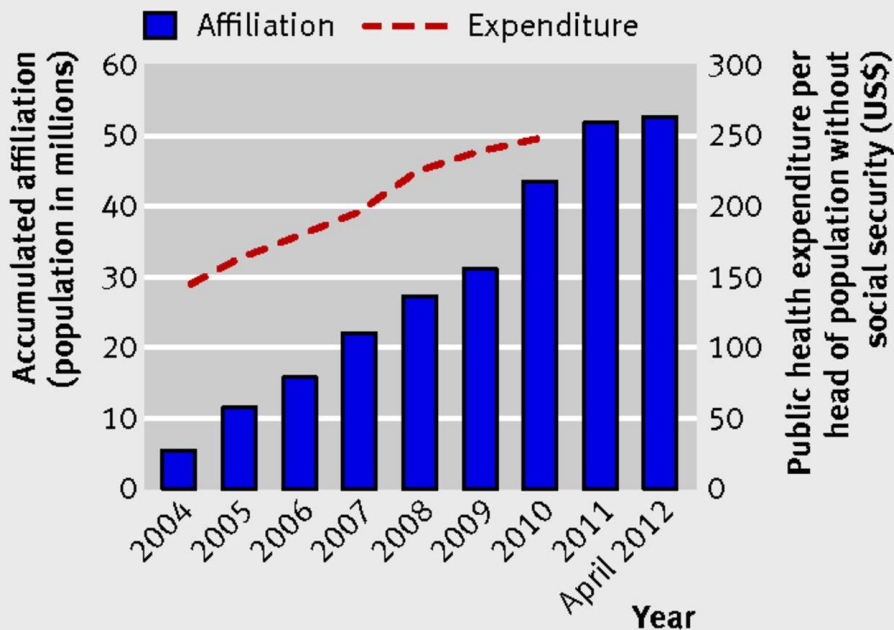
Does it work?

Some health promotion projects

- Seguro Popular – Universal Health Coverage in Mexico
- Healthy City Marikina, Philippines
- The Sonagachi HIV/ AIDS International Project (SHIP)

Seguro Popular – Universal Health coverage in Mexico

Enrolment into Seguro Popular public health insurance



Adapted from *Lancet* 2012; doi:10.1016/S0140-6736(12)61068-X

Lancet 2012; doi:[10.1016/S0140-6736\(12\)61068-X](https://doi.org/10.1016/S0140-6736(12)61068-X)

- In the past decade, Mexico has provided state covered health insurance for about 52.6 million previously uninsured residents - reaching the goal of universal health coverage for its population of ~ 112 million
- In 1983 healthcare became a citizen's right protected by the state
- tackling health risks, ensuring quality of care, and protecting people against adverse economic effects of disease and injury are the 3 broad goals of this programme
- In 2010, 6.3% of gross domestic product was allocated for health expenditure, compared with 5.1% in 2000 and 4.4% in 1990
- In 2000, 3.3% of households were pushed below the poverty line because of healthcare costs. By 2010, this has dropped to 0.8%.

Healthy city Marikina



One of the pilot healthy cities set up in the Philippines in 1998.

Following initiatives adopted in response to endemic Dengue:

- Riverside clean up by government workers and community volunteers
- Squatter resettlement through a community mortgage programme
- Enforcement of zoning regulations and clean up of public market
- Waste management programme, with materials recovery facility, garbage collection, and anti-littering laws
- Healthy lifestyle education in schools
- Incentives to encourage full payment of taxes
- Volunteer programme for urban infrastructure projects run also as a model for human resources development for the urban poor

As a result of multiple, synergistic interventions, dengue rates among residents dropped significantly. Additionally, there is now universal water and sanitation

The Sonagachi HIV/ AIDS International Project (SHIP)

- Background: The Sonagachi Project is a W. H. O. model STD/HIV prevention program for sex workers based in Kolkata, India
- Multi-pronged intervention evolved in partnership with the sex-worker community since 1992
- Components of the program include:
 - peer education
 - condom social marketing
 - reproductive health care
 - community organizing
 - worker's/human rights activism
 - micro-credit
 - education and training programs
 - self-regulatory anti-trafficking initiatives
- HIV prevalence remains below 10% and condom use rates rose to 90% among sex-workers in Kolkata since 1992; the opposite trend occurred in other major Indian cities.



Key Policy Documents

The Wanless Report

- Wanless 1 and 2
- The Disease Burden
- “Fully Engaged Scenario”
- Focus on prevention and the wider determinants of health
- Cost-effectiveness of actions to improve health and reduce inequalities

Securing Good Health for
the Whole Population

Final Report

Derek Wanless

February 2004

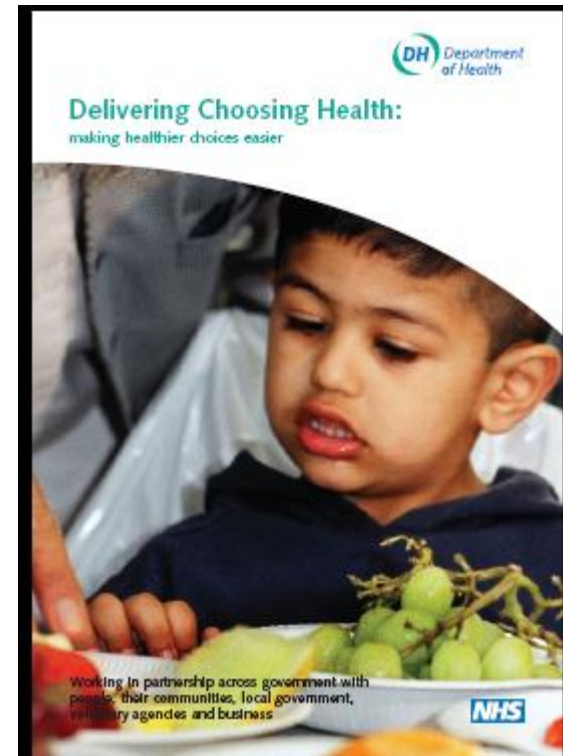
Choosing Health priorities

- Choosing Health priorities:

- Smoking
- Alcohol
- Obesity
- Sexual Health
- Teenage Pregnancy
- Mental Health

- Delivering choosing health

- Choosing a Better Diet: a food and health action plan
- Choosing activity: a physical activity action plan



Commission on Social Determinants of Health

Commission on Social Determinants of Health FINAL REPORT



Closing the gap in a generation

Health equity through action on
the social determinants of health



Improve the conditions of daily life – the circumstances in which people are born, grow, live, work, and age

Tackle the inequitable distribution of power, money, and resources – the structural drivers of those conditions of daily life – globally, nationally, and locally

Measure the problem, evaluate action, expand the knowledge base, develop a workforce that is trained in the social determinants of health, and raise public awareness about the social determinants of health

The Marmot Review



The Marmot Review – 6 policy objectives

- **Give every child the best start in life**
- **Enable all children, young people and adults to maximise their capabilities and have control over their lives**
- **Create fair employment and good work for all**
- **Ensure a healthy standard of living for all**
- **Create and develop healthy and sustainable places and communities**
- **Strengthen the role and impact of ill health prevention**

A strategy for Public Health in England

 HM Government



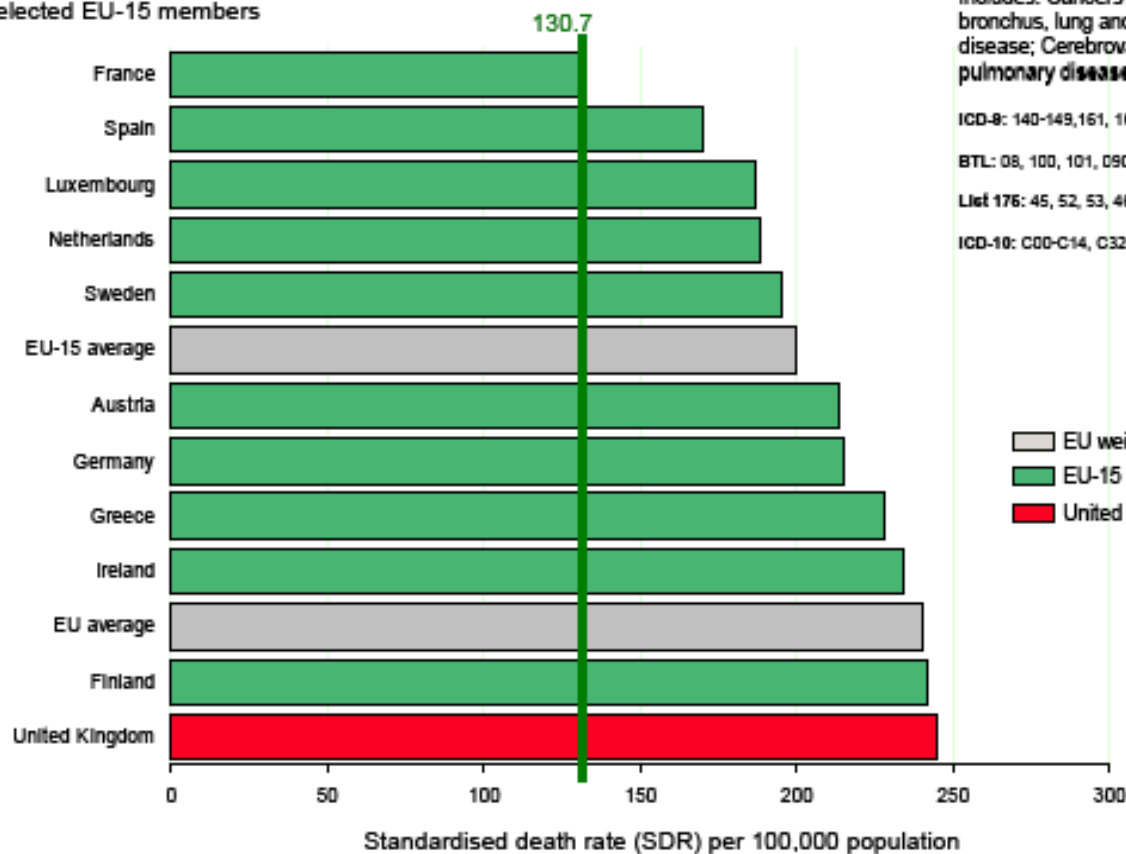
Some Current Public Health initiatives in the UK

Mortality from smoking

Chart 3.21: Mortality – Selected smoking related causes, for 2005

Standardised death rate (SDR) per 100,000 population

Selected EU-15 members



Includes: Cancers of mouth and pharynx, larynx, trachea, bronchus, lung and oesophagus; Ischaemic heart disease; Cerebrovascular diseases; Chronic obstructive pulmonary disease.

ICD-9: 140-149, 161, 162, 150, 410-414, 430-438, 490-496.

BTL: 08, 100, 101, 090, 27, 29, 323-325.

List 176: 45, 52, 53, 46, 90-95, 98-99 (or 196-205), 108-110.

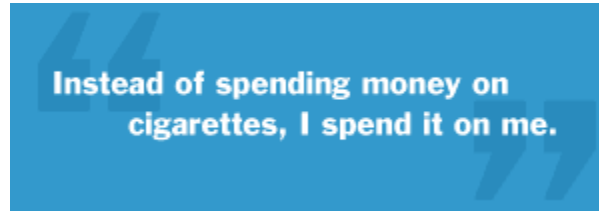
ICD-10: C00-C14, C32-C34, C15, I20-I25, I60-I69, J40-J47.

- EU weighted averages
- EU-15 (member countries before 2004)
- United Kingdom

Data for Belgium, Denmark, Italy & Portugal not available for 2005

Smoking Cessation

- Legislation
- Taxation
- Media campaigns
- School activities
- Healthy workplaces
- One-to-one support
- Smoking Cessation clinics
- NRT and Zyban
- Group sessions



One person dies from a smoking related disease every 4 minutes in Britain.



Harmful drinking patterns

In England in 2009 (in the week prior to interview)

- 37% of men drank > 4 units, 20% of men reported drinking > 8 units
- 29% of women drank > 3 units, 13% of women reported drinking > 6 units
on at least one day

In 2007, 33% of men and 16% of women (24% of adults) were classified as hazardous drinkers. This includes 6% of men and 2% of women estimated to be harmful drinkers

- In 2009, just over half of 11 to 15 year olds had ever had an alcoholic drink (51%). This continues the downward trend in recent years, from 61% in 2003.
- 18% of pupils reported drinking alcohol in the last week in 2009, compared with 26% in 2001.

The cost of harmful drinking patterns

- Estimated cost of alcohol related harm to the NHS in England is £2.7 billion in 2006/07 prices
- In 2009/10, there were 1,057,000 alcohol related admissions to hospital. This is an increase of 12% on the 2008/09 figure (945,500) and more than twice as many as in 2002/03 (510,800)

National Alcohol Strategy



The Government's Alcohol Strategy

Presented to Parliament
by the Secretary of State for the Home Department
by Command of Her Majesty

March 2012

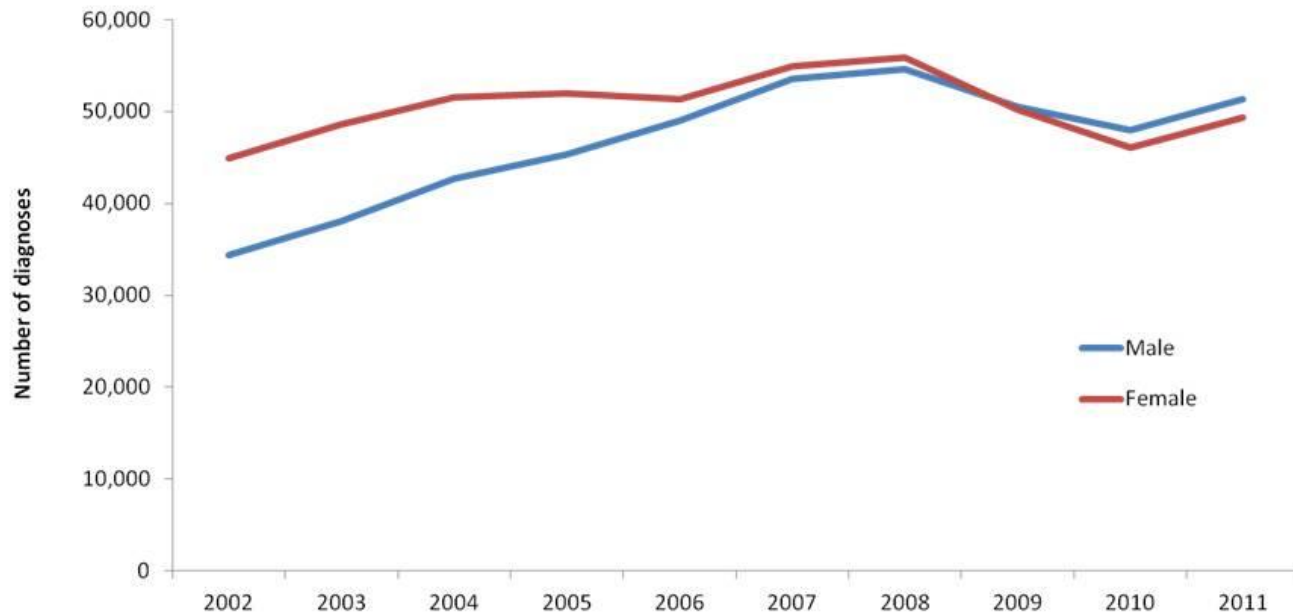
The strategy includes commitments to:

- introduce a minimum unit price for alcohol
- consult on a ban on the sale of multi-buy alcohol discounting
- introduce stronger powers for local areas to control the density of licensed premises including making the impact on health a consideration for this
- pilot innovative sobriety schemes to challenge alcohol-related offending

Launched on 15 March 2011, the **Public Health Responsibility Deal** has been established to tap into the potential for businesses and other organisations to improve public health and tackle health inequalities through their influence over food, alcohol, physical activity and health in the workplace.

Chlamydia Infections

Diagnoses of chlamydia, at GUM clinics, by gender, England: 2002-2011



Source: STI data from genitourinary medicine clinics
Health Protection Agency

Increased by 27% in the past decade.
In the past 2 years the number of
male diagnoses has overtaken that of
women in the GUM setting

National Chlamydia Screening Programme



National Chlamydia Screening Programme

NHS

choose chlamydia screening

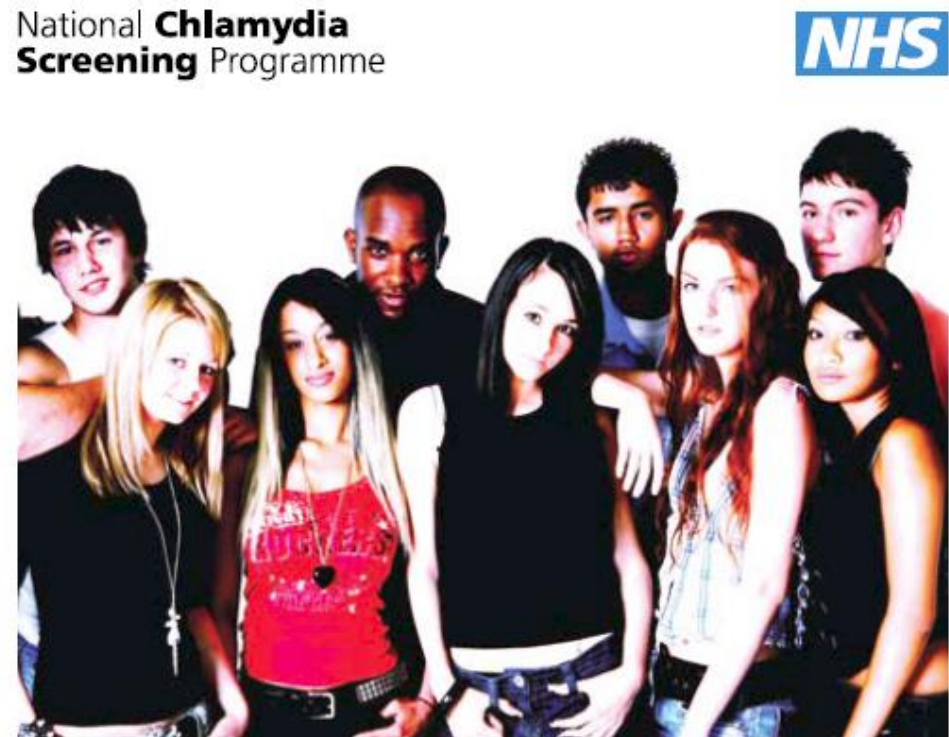
Are you aged under 25?
Choose chlamydia screening.

The test is free, painless and confidential. You don't even have to be examined.

For information log on to:
www.chlamydia-screening.nhs.uk

Contact your local chlamydia screening office:

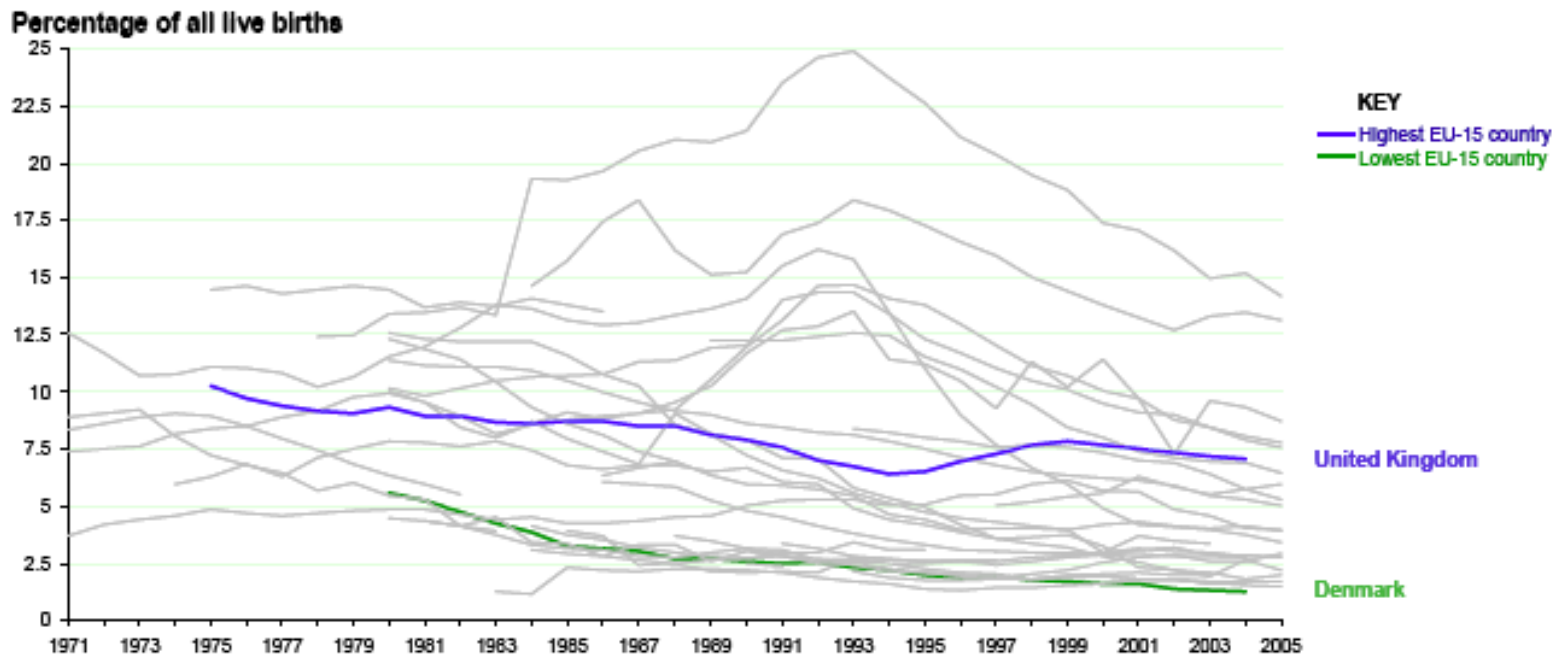
Health Protection Agency



The National Chlamydia Screening Programme (NCSP) in England was established in 2003 with the objective of controlling chlamydia through the early detection and treatment of asymptomatic infection, thus preventing the development of sequelae and reducing onward disease transmission.

Teenage / Under-age Pregnancy

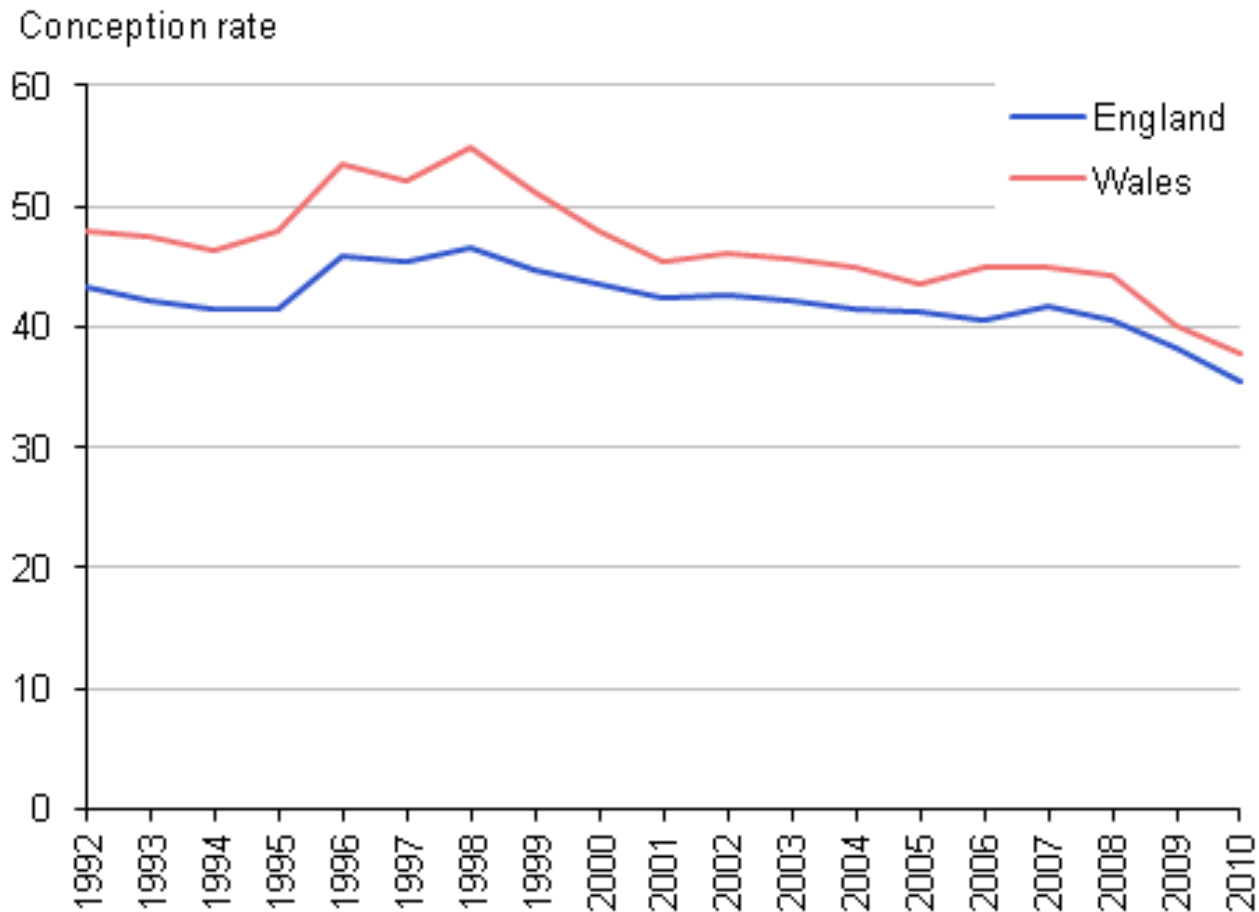
Chart 3.30: Percentage of all live births to mothers aged under 20 years
EU countries

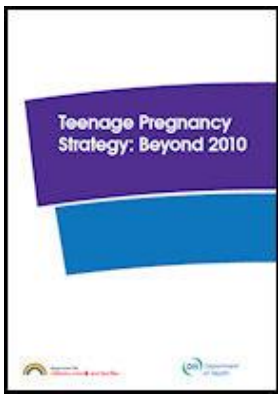


Note: EU averages not available

Source: WHO, Health For All Database-Jul 2008. Web link <http://www.euro.who.int/hisdb>

Under 18 conception rates 1992–2010





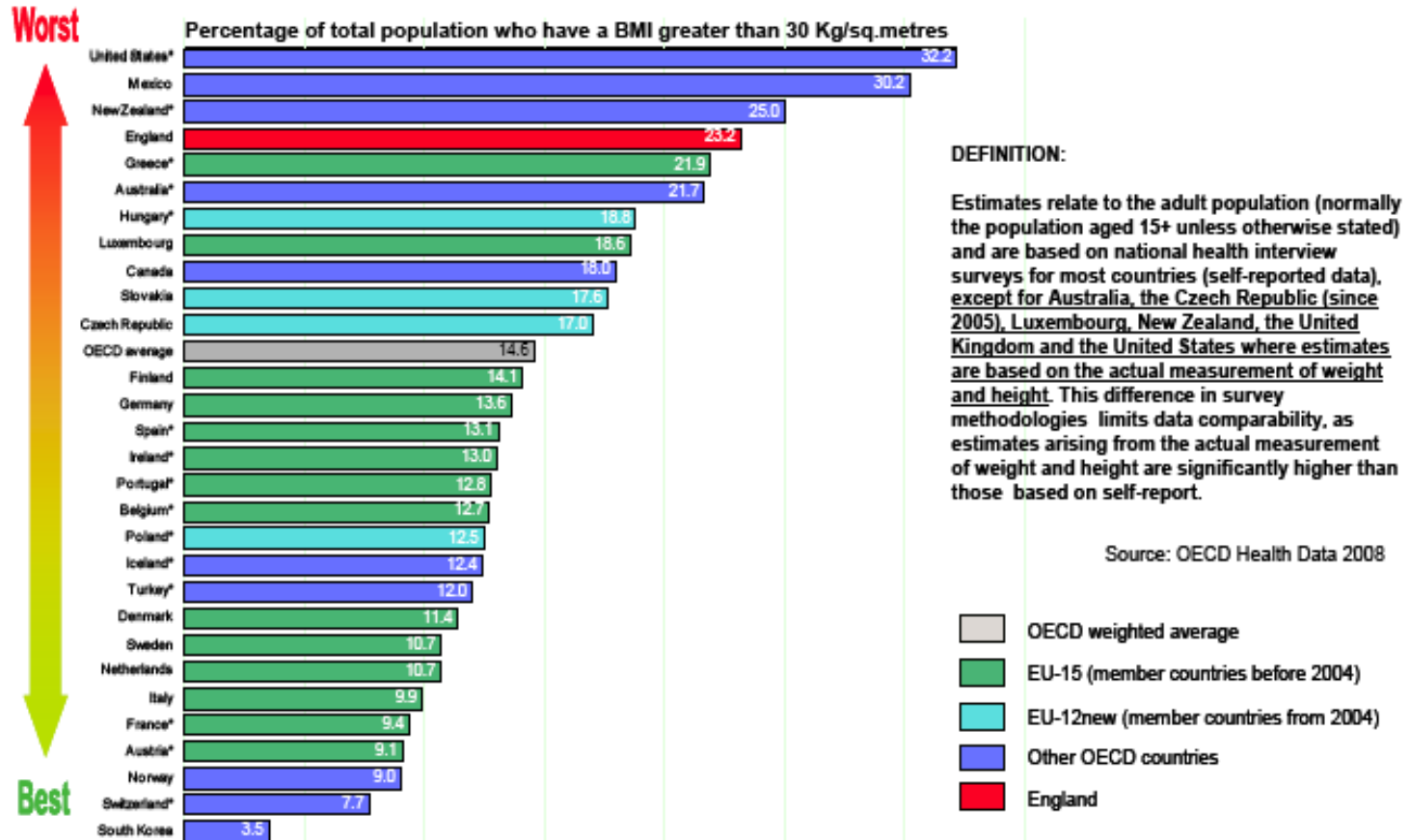
Preventing Teenage Pregnancy

- Comprehensive information advice and support – from parents, schools and other professionals
- Accessible, young people-friendly sexual and reproductive health (SRH) services
- Giving young people the knowledge and skills they need to experience positive relationships and good sexual health
 - Sex. Worth talking About campaign <http://www.nhs.uk/worhtalkingabout/Pages/sex-worth-talking-about.aspx>
 - Making SRE mandatory
 - Support for SRE (specialist materials, training standards, exemplar lessons)
- Improving young people's access to and use of effective contraception when they need it
- Intervening early with those most at risk - poverty, low educational attainment, poor attendance at school, non-participation in post-16 learning and low aspirations.
- Improving outcomes for teenage parents and their children (FNP etc.)

Obesity

Chart 3.34: Adult obesity

Aged 16 and over, England and selected OECD countries, latest data (2005*), ranked



* Australia, Austria, Portugal -1990, Iceland, Ireland, Switzerland -2002, Greece, Hungary, New Zealand, Spain, Turkey - 2005, Belgium, France, Poland, USA - 2004

Source: (1) England - Weighted average of male and female data for 2005 from 'Health Survey for England 2006 - updating of trend tables to include 2006 data'. The Information Centre <http://www.ic.nhs.uk/statistics-and-data-collections/health-and-lifestyles/obesity/statistics-on-obesity-physical-activity-and-diet-england-2006>

(2) All other countries - OECD Health Data 2008. Web link http://www.oecd.org/document/16/0,3343,en_2649_34631_2085200_1_1_1_1,00.html

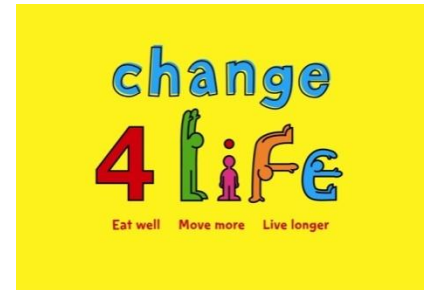
Raising healthy children

The National Child Measurement Programme (NCMP) is an annual programme to measure the height and weight of all children in Reception and Year 6

The information is used to help the NHS and LA plan & provide better health services for children

The Government has also worked with Ofcom & the Advertising Standards Authority (ASA) to ensure healthier foods are promoted to children on TV and in non-broadcast media

- 60 active minutes
- Me size meals
- Sugar swaps
- Cut back fat
- Meal time
- 5 a day
- Snack check
- Up and about



<http://www.nhs.uk/change4life>

Immunisation Programmes

<http://immunisation.dh.gov.uk/>

The screenshot shows the website <http://immunisation.dh.gov.uk/> in Microsoft Internet Explorer. The browser's address bar shows the URL. The website header includes the Department of Health logo and the text "Immunisation: The safest way to protect individuals and communities from infectious diseases". A navigation menu contains links for Home, About, Letters, and Publications. The main content area features a video player with a play button, titled "Vaccine Update 192 August 2012". Below the video, there is a text snippet: "Leading on the issue of some faith schools denying girls their HPV vaccinations, this month's Vaccine Update features the publication of the flu vaccination leaflet for this winter's flu season, together with a link to the updated influenza chapter in...". The right sidebar contains a search box, a "Subscribe" section with "All RSS" links, a "Connect with DH" section with social media icons for Twitter, YouTube, and Facebook, and a "Contact us" section with an email address: vaccine_supply@dh.gsi.gov.uk. A "Local sitemap" link is also present. The bottom of the browser shows the Windows taskbar with various open applications and the system clock at 12:31.

A final thought...

- The historic dream of public health that preventable death and disability ought to be minimised, is a dream of social justice.

D.E. Beauchamp, philosopher