



Public Health
England

Protecting and improving the nation's health

The Economic Case for Investing in Prevention at National and Local Level: the Experience of Public Health England

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Agenda

- Health Economics in PHE
- Making the Economic Case for Prevention
- Identifying what works: ROI tools and other resources to inform decision makers

Public Health England (PHE)

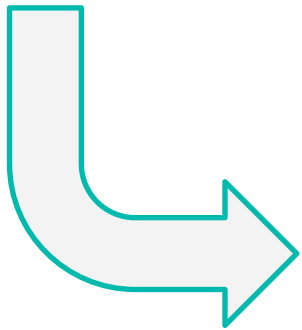
PHE is there to protect and improve the nation's health and wellbeing, and reduce health inequalities.

PHE's **Remit Letter** says PHE is tasked with:

- providing evidence-based advice on which the **Government** will provide the national policy response
- supporting **local government** in identifying its priorities for improving the health and well-being of local populations
- acting as NHS England's public health advisor helping to ensure that the **NHS** secures the maximum health gain from its resources.

Health Economics in PHE – Objectives:

- Making the case for investing in prevention and early intervention at a national and local level
- Build capacity within PHE and local systems by providing tailored training and support



To achieve these objectives, we work closely with colleagues across PHE and the wider health system (e.g. NICE) to develop, identify and disseminate health economics evidence and support the appropriate use of tools and products (e.g. ROI tools)



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Making the case: why invest in prevention?

Leading Risk Factors for Health - England

Behavioural risk factors

Dietary risks

Tobacco smoke

Low physical activity

Alcohol & drug use

Metabolic risk factors

High systolic blood pressure

High body mass index

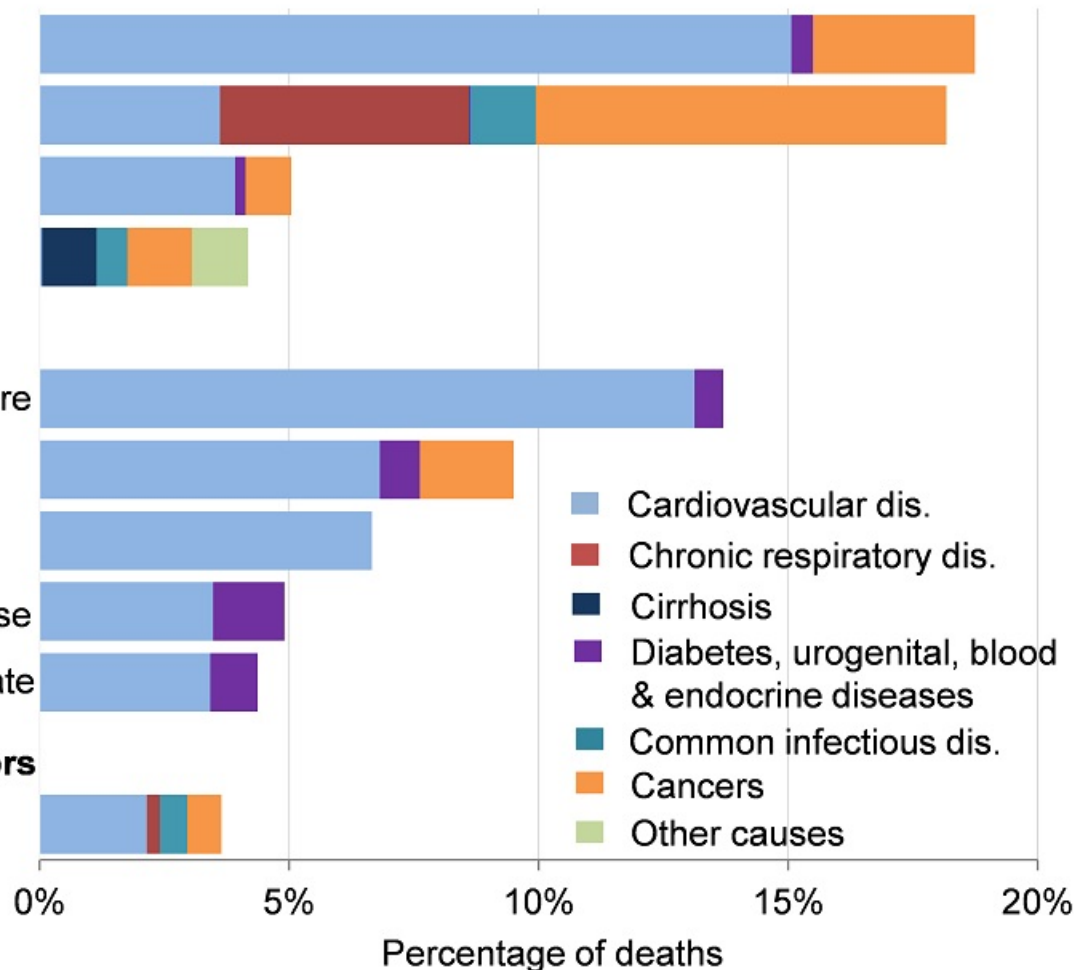
High total cholesterol

High fasting plasma glucose

Low glomerular filtration rate

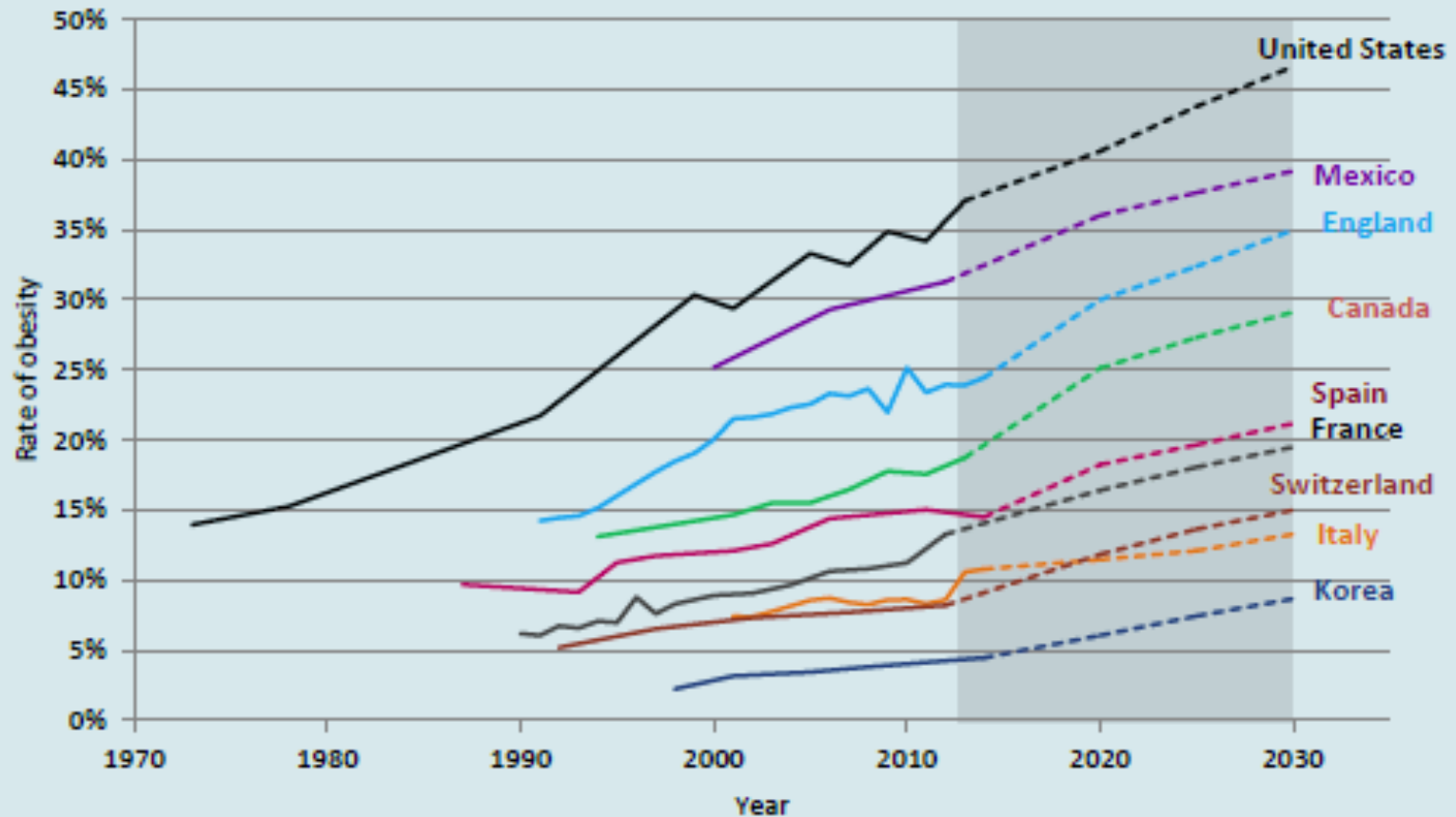
Environmental risk factors

Air pollution



Source: GBD 2013

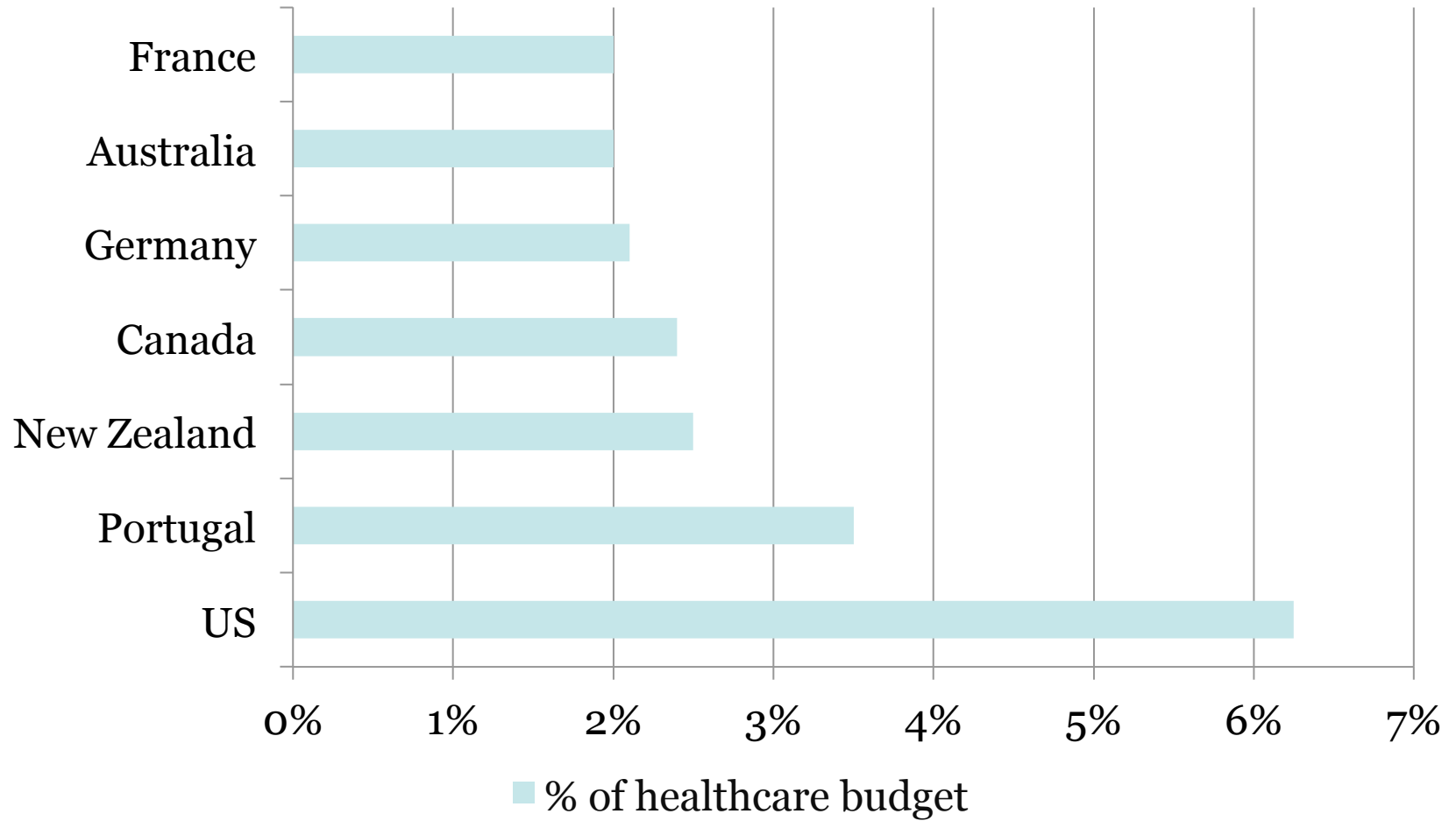
The Obesity Epidemic



Note: Obesity defined as Body Mass Index (BMI) $\geq 30\text{kg/m}^2$. OECD projections assume that BMI will continue to rise as a linear function of time.

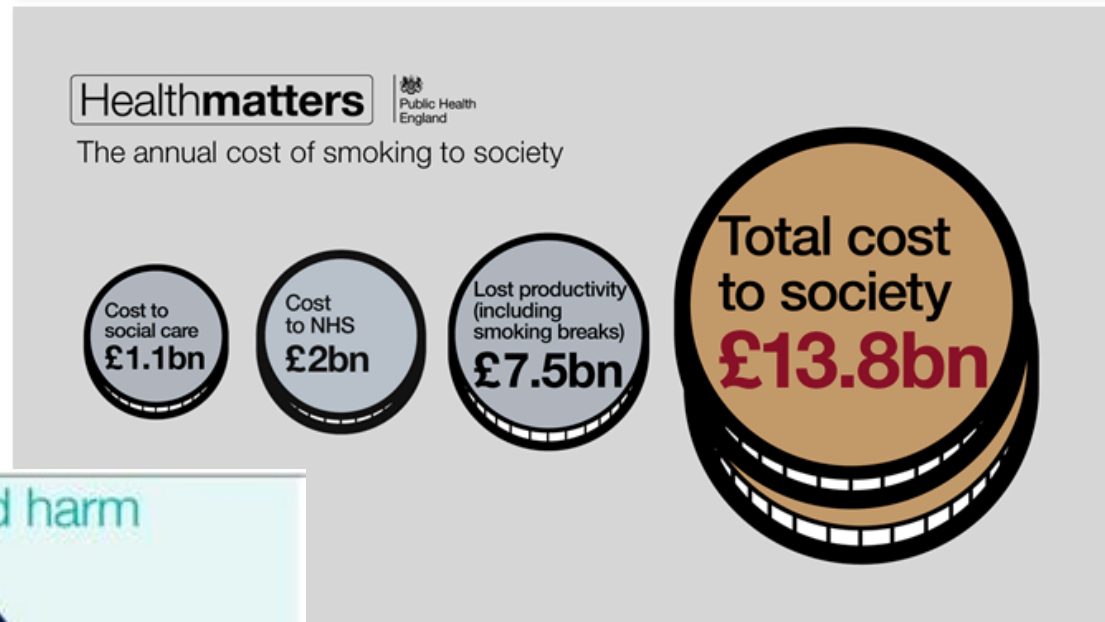
Source: OECD – Obesity update 2017

The Health Care Cost of Obesity



Sources: Roux & Donaldson, 2004; Konnopka *et al.*, 2011

Cost of Unhealthy Behaviours to Society

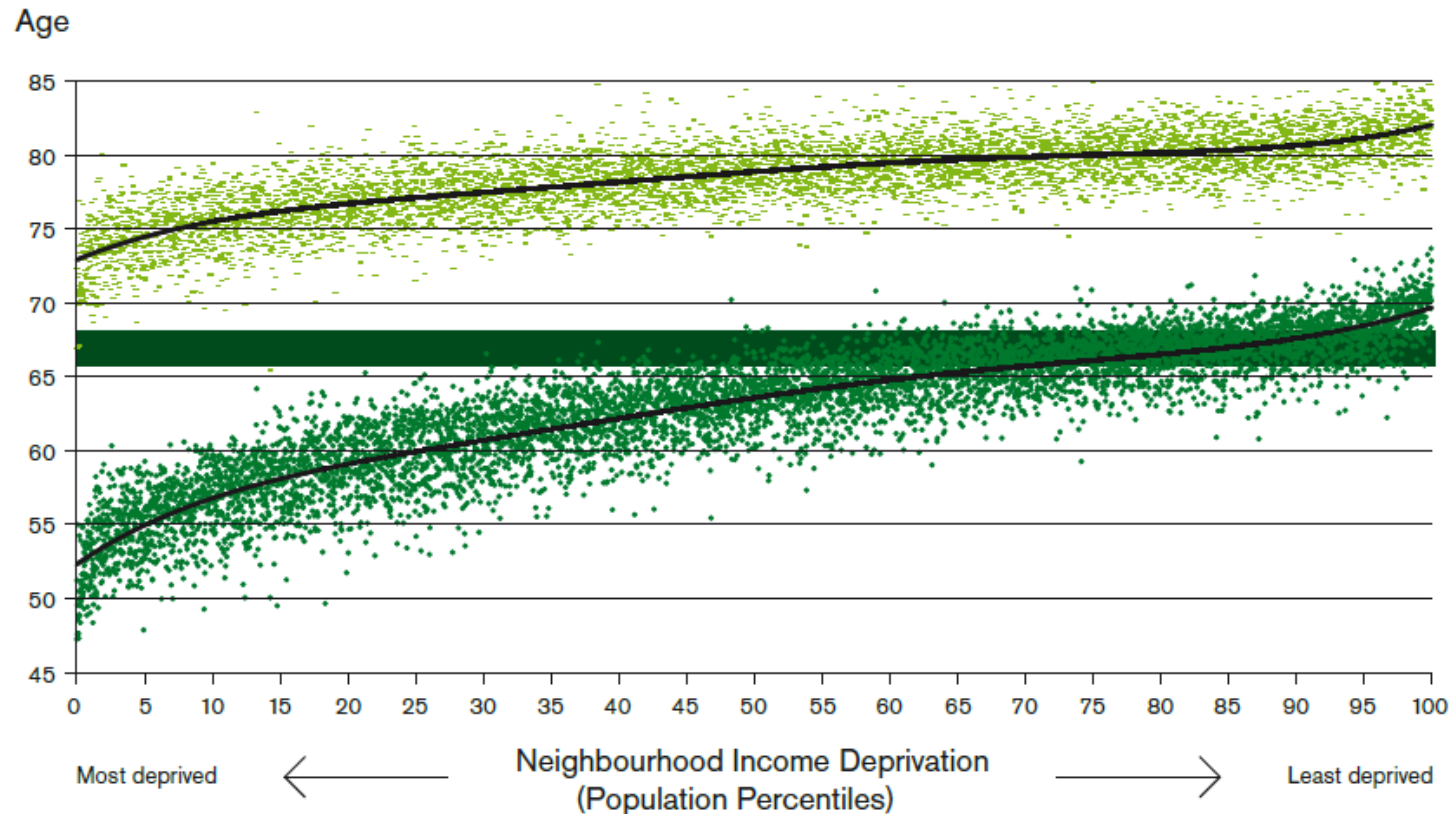


The annual cost of alcohol-related harm



Note: PHE is currently updating these figures

Better Health and Economic Growth



- Life expectancy
- DFLE
- Pension age increase 2026–2046

Source: Office for National Statistics⁵



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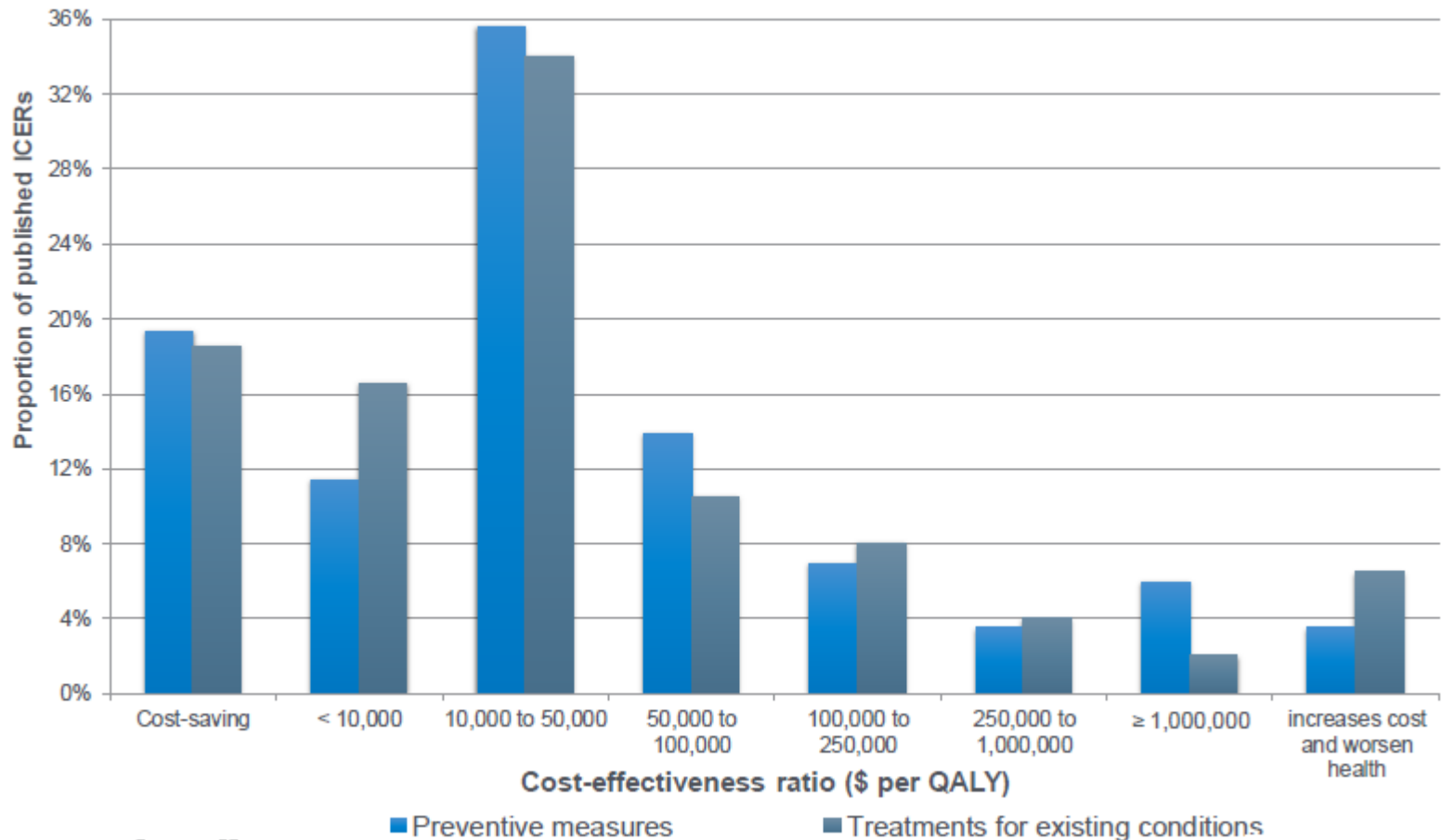
Identifying what works: What preventative measures are cost-effective? What is the potential return on investment?

NICE public health guidance 2006-2010:

200 cost effectiveness estimates modelled for various public health interventions



The Cost-Effectiveness of Preventative Measures and Treatments



Adapted from Cohen JT, et al. NEJM 2008;358(7):661-3

Cost effectiveness in Public Health - Challenges

- Measuring and valuing outcomes: what benefits should be captured and how to quantify them?
- Identifying intersectoral effects and consequences (investing in one sector with the benefits / savings realised elsewhere)
- Timescales within which can expect to see benefits
- Budget planning done on shorter time periods
- Incorporating equity considerations

Perspective

Whose point of view is important to inform the decision

Different viewpoints:

NHS

- Only direct costs and savings to NHS considered
- E.g. reduced hospital beds from alcohol attributable harms

Local Authority

- Costs and savings impacting on LA budgets considered
- E.g. reduced number of social workers due to drop in children harmed by parents drinking at harmful levels

Social Perspective

- Seeks to include a measure of the indirect costs
- Includes impacts directly felt by the patient
- e.g. productivity losses from sick leave induced by alcohol

The Health Economics Evidence Resource

Purpose of this project

- To develop a published tool where economic evidence is stored and adapted for use across PHE and by other health partners.
- To provide 'one truth' about economic evidence by ensuring economic advice is consistent and robust.

Audience

- Those working in the public health field, primarily targeting internal PHE staff and those working in Public Health in Local Authorities.

Format

- An excel-based tool which provides economic evidence, including evidence of return on investment (ROI), cost-effectiveness and cost-saving.
- Allows user to compare key differences in interventions, eg. understand the differences between two interventions with the same cost-benefit ratio (ROI metric often used) e.g. timeframe, where benefits accrue

Introduction

User
Guide

Evidence

Further
Information

Glossary

Sources

Email us

Feedback Survey

Introduction

Pages in this tool

- Introduction >> Overview of the tool
- User Guide >> Instructions and guidance on how to use the tool
- Evidence >> Contains economic evidence
- Further Information >> Further information about the tool
- Glossary >> Glossary of economic terms
- Sources >> List of secondary sources used to select evidence

Health Economics Evidence Resource

- The Health Economics Evidence Resource (HEER) provides an initial snapshot collection of economic evidence underpinning public health interventions.
- It builds on PHE's Menu of Interventions, including evidence not limited by savings over a specific timeframe or by who benefits from the intervention. [Menu of Interventions](#)
- It is not a systematic review of the evidence; this is a summary of evidence from other reviews and has been created internally within PHE. It is an 'agile' resource which will be updated and expanded over time.

Target audience

- Internal PHE staff and those working in public health in local authorities and the NHS, who want to quickly and easily understand the economic evidence in a particular area.
- Analysts, registrars, consultants, commissioners, directors of public health.

Coverage

- The HEER provides evidence for interventions across 9 activities in the ringfenced public health grant:
- Sexual Health Services; NHS Health Check Programme; Health Protection; Obesity & Physical Activity; Alcohol Misuse; Drug Misuse; Smoking & Tobacco; The Healthy Child Programme (HCP) 0-5; The Healthy Child Programme (HCP) 5-19.

Types of economic evidence included

- It includes interventions that are cost-effective (defined by the HEER as below the NICE cost per QALY threshold of £20,000-£30,000), not cost-effective and those that are cost-saving or give a return on investment. For more information on the types of economic analysis, see the following link (section 6.3). [NICE types of economic analysis](#)
- As a tool that focuses on local delivery, it contains localised cost-effectiveness evidence (with the exception of vaccination evidence which, by nature, requires extensive coverage at a national level in order to be cost-effective) and excludes interventions implementable at a national level.
- Evidence published prior to 1995 has been excluded.

Evidence Page

	A	B	C	D	E	K	L	M	N	O	P	Q	R	S	T	U	V	W	X
	Back to User Guide	Go to Glossary																	
	ID	Theme	Activity	Intervention	Select for report	Type of evidence	Study population	Comparison	Assumptions / Caveats	Time frame	Who pays?	Key outcome measure of evidence	Country	Discount rate	Currency	Publication year	Reference to original source	Link to original source	Further information
1																			
8	A7	Sexual Health, Reproductive Health and HIV	Sexual health advice, promotion and prevention activities	Accelerated partner therapy	No	Published academic journal	Intervention: Patient referral		<p>The incremental analysis demonstrated that brief interventions involving information giving or developing motivation and behavioural skills (particularly among women) produce the greatest benefits for the least cost. More intensive behavioural skills counselling and enhanced counselling appear to be least cost effective. These analyses apply to the general population, including vulnerable young women.</p> <p>In the absence of data, no costs were attributed to 'usual treatment'. As a result, when interventions are compared against usual treatment the cost difference may be overestimated and the incremental cost-effectiveness ratios may be artificially high.</p> <p>The loss of quality of life (QALYs lost) is particularly important in the analysis. The cost per QALY may be high (if low values are assigned to the change in quality of life) but brief STI counselling falls below a £30,000 per QALY threshold (based on 0.1 of a QALY change).</p>	Lifetime	LA	QALY gains for service users	England	3.5%	£ GBP	2006	NERA Economic Consulting, Economic Modelling of Interventions to Reduce the Transmission of Chlamydia and other Sexually Transmitted Infections and to Reduce the Rate of Under Eighteen Conceptions. A Final Report for the National Institute for Health and Clinical Excellence 2006.	Link to source	Based on evidence from evaluation conducted by NICE (PH3)
9	A8	Sexual Health, Reproductive Health and HIV	Sexual health advice, promotion and prevention activities	Accelerated partner therapy	No	Published academic journal	Intervention: Patient referral		<p>(1) Cost per 1,000 people receiving intervention = £38,850, cost / QALY = £12,350</p> <p>(2) Cost per 1,000 people receiving intervention = £51,800, cost / QALY = £25,300</p>	Lifetime	LA	QALY gains for service users	England	3.5%	£ GBP	2006	NERA Economic Consulting, Economic Modelling of Interventions to Reduce the Transmission of Chlamydia and other Sexually Transmitted Infections and to Reduce the Rate of Under Eighteen Conceptions. A Final Report for the National Institute for Health and Clinical Excellence 2006.	Link to source	Based on evidence from evaluation conducted by NICE (PH3)
10	A9	Sexual Health, Reproductive Health and HIV	Sexual health advice, promotion and prevention activities	Counselling	No	Published academic journal	Intervention: Usual care - didactic messages (instructional method of teaching)		<p>Per 1,000 people receiving the intervention: Cost: £16,000</p> <p>Outcomes: 50 STI infection averted, 5 QALYs gained</p>	Lifetime	LA	QALY gains for service users	England	3.5%	£ GBP	2006	NERA Economic Consulting, Economic Modelling of Interventions to Reduce the Transmission of Chlamydia and other Sexually Transmitted Infections and to Reduce the Rate of Under Eighteen Conceptions. A Final Report for the National Institute for Health and Clinical Excellence 2006.	Link to source	Based on evidence from evaluation conducted by NICE (PH3)
		Sexual	Sexual health				Intervention: Didactic												Based on evidence from

PHE's Approach to Return on Investment (ROI)

- Tools are designed to allow local commissioners to compare cost-effectiveness and/or ROI of different options
- Interventions to be included in the models chosen based on availability of robust evidence
- Local users can input local demographic information and health data to simulate cost and benefits of implementing new interventions
- Report health and non health outcomes and costs in a disaggregated format
- Tools are developed in an agile way with engagement with tool user groups and stakeholders (NICE, DHSC, OGDs etc.)

An Example – the Mental Health ROI tool



Why invest in mental health interventions



1 IN 4

people will experience
a **mental health** problem
each year



The government
spends around

£19 bn

every year on services
for people with mental
health needs

PHE's ROI tool shows that

...the 'Workplace wellbeing
programme' results in an
estimated saving to society of

£2.37 



...the 'School based
resilience programme'
results in an estimated
saving to society of

£5.08 

...the 'Tackling loneliness in older
adults programme' results in
an estimated saving to society of

£1.26 

An Example – the Mental Health ROI tool

ROI of Social and Emotional Learning for North Central London

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Total Cost / Saving
Cost of Resilience Programme Training	£156,755	£0	£0	£0	£0	£0	£0	£156,755
A&E, inpatient and outpatient hospital contacts	-£41,585	-£2,928	-£206	-£15	-£1	£0	£0	-£44,735
GP services	-£9,385	-£661	-£47	-£3	£0	£0	£0	-£10,096
School Nurse or Counsellor	-£1,037	-£73	-£5	£0	£0	£0	£0	-£1,116
CAMHS and child psychologists	-£193	-£14	-£1	£0	£0	£0	£0	-£208
Social workers	-£128	-£9	-£1	£0	£0	£0	£0	-£138
Other professionals	-£1,464	-£103	-£7	-£1	£0	£0	£0	-£1,575
Absenteeism cost to families	-£737,851	£0	£0	£0	£0	£0	£0	-£737,851



Return on investment of oral health improvement programmes for 0-5 year olds*

Reviews of clinical effectiveness by NICE (PH55) and PHE (Commissioning Better Oral Health for Children and Young People, 2014) have found that the following programmes effectively reduced tooth decay in 5 year olds:



*All targeted programmes modelled on population decayed, missing or filled teeth (dmft) index of 2, and universal programme on dmft for England of 0.8. The modelling has used the PHE Return on Investment Tool for oral health interventions (PHE, 2016). The best available evidence has been used in this tool and where assumptions are made these have been clearly stated
PHE Publications gateway number: 2016321

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Challenges around ROI Tools

- NICE produced the first ROI tools – newer tools are more ‘user friendly’
- Only as good as the evidence base
- Lacks confidence intervals or sensitivity analysis: unsure of robustness
- Only one part of the puzzle – need to take into account the distributional impact of interventions
- Time horizon and perspective are important

Some Conclusions

- There is a strong economic rationale for public health interventions
- As well as being generally very cost-effective, PH interventions are also generally low cost and sometimes cost savings
- ROI tools support investment decisions by commissioners and policy makers in local authorities and the NHS:
 - Evaluate a suite of interventions in a geographical area
 - Outputs economic returns that can be expected in different timescales
- Whilst a focus on short-term cashable savings is justifiable and important, we need to keep our eye on the long-term prize

Thank You

Please email us at: healthconomics@phe.gov.uk
Annalisa.belloni@phe.gov.uk

The PHE Health Economics webpage:
<https://www.gov.uk/guidance/health-economics-a-guide-for-public-health-teams>