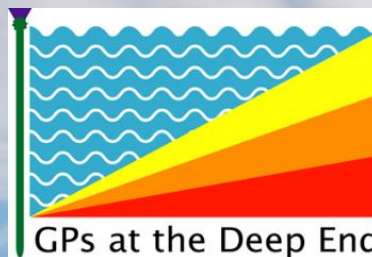




University
of Glasgow



The challenges of reducing risk and severity of cardiovascular disease in socio-economically deprived communities

Dr Hamish Foster

MRC Clinical Research GP fellow

Scottish Lipid Forum & SHARP Annual Scientific Meeting

Royal College of Surgeons of Edinburgh, Thursday 17th November 2022



Acknowledgements

Colleagues	Supervisors
Dr Carey Lunan (Deep End GP Chair)	Prof Kate O'Donnell
Dr David Blane	Prof Frances Mair
Dr Suzy Scarlett	Prof Jason Gill



N.B.

1. This presentation has a Primary Care and social focus
2. Challenges are numerous and great - optimism





University
of Glasgow

The challenges

WHAT DOES SOCIECONOMICALLY DEPRIVED MEAN?

What is socioeconomic deprivation?

simd
Scottish Index of Multiple Deprivation 2020

[Go to gov.scot SIMD website](#)

1. MAP CHOOSER

2012 2016 **2020**

All Deciles
Most Deprived 20%
Most Deprived 10%
Most Deprived 5%

2. AREA FINDER

Layers: Land Labels
Data zone circles

Council area: Jump to...
Data zone:
Go

Postcode:
Go

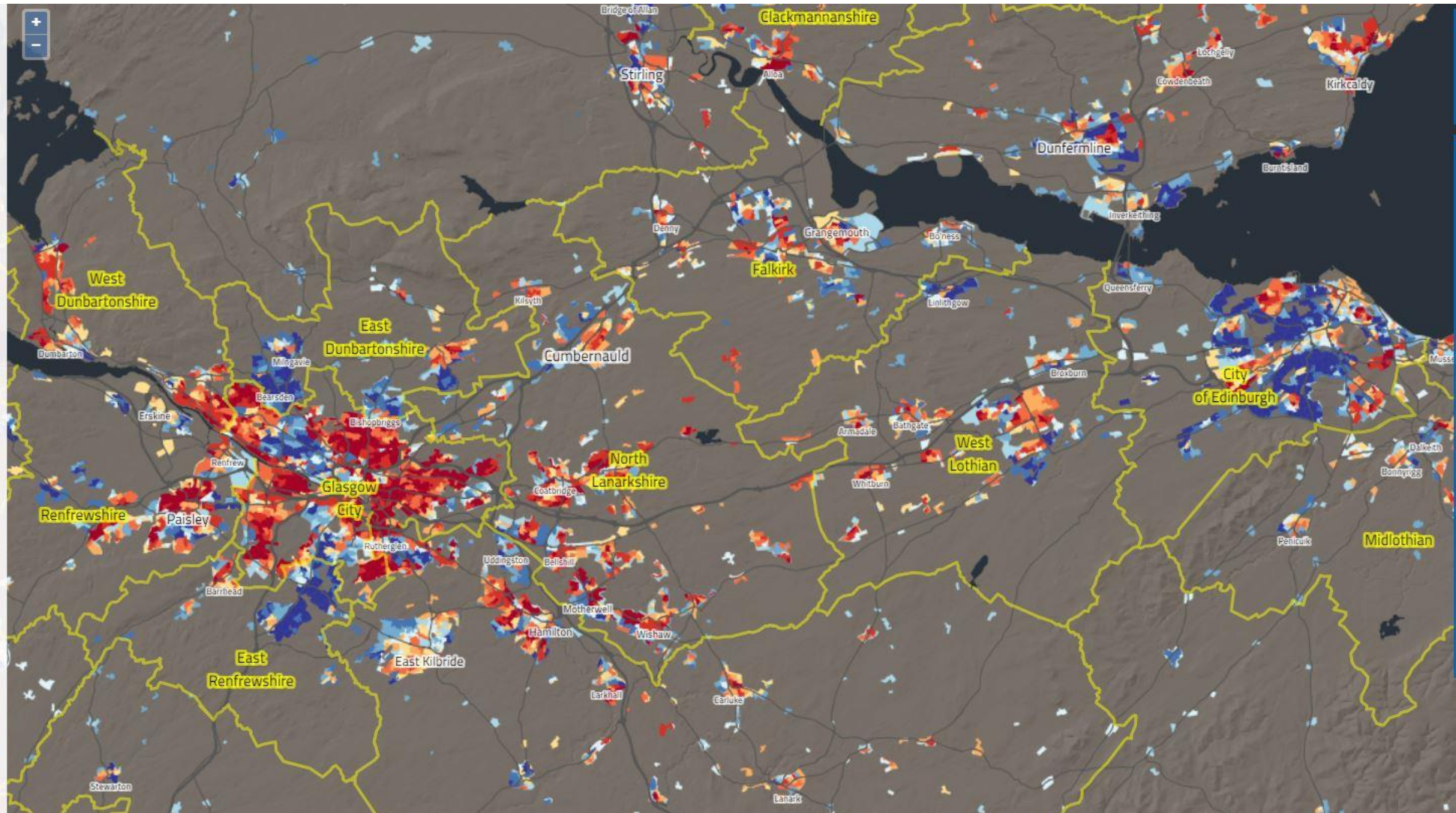
Clear selected data

3. DOWNLOAD

Selected data: Download
Map: Download Print
Download all data & geographies

SHORTCUTS

Aberdeen Ayr Dundee Dunfermline



KEY

All Deciles

Most deprived 10% 2nd 3rd 4th 5th
6th 7th 8th 9th Least deprived 10%

CURRENT DATA ZONE

S01013199
I213 (part)

Local Authority: West Dunbartonshire

Population				
Total	Working Age	Income Deprived	Employ Deprived	
965	597	130	52	

Decile 4, Quintile 2

Overall rank: 2777

- Income domain rank: 2569.5
- Employment domain rank: 3092
- Health domain rank: 1606
- Education/skills domain rank: 3990
- Housing domain rank: 4870
- Geographic access domain rank: 3289
- Crime rank: 2030

Seven domains of the SIMD^[7]

Deprivation is a complex social phenomenon

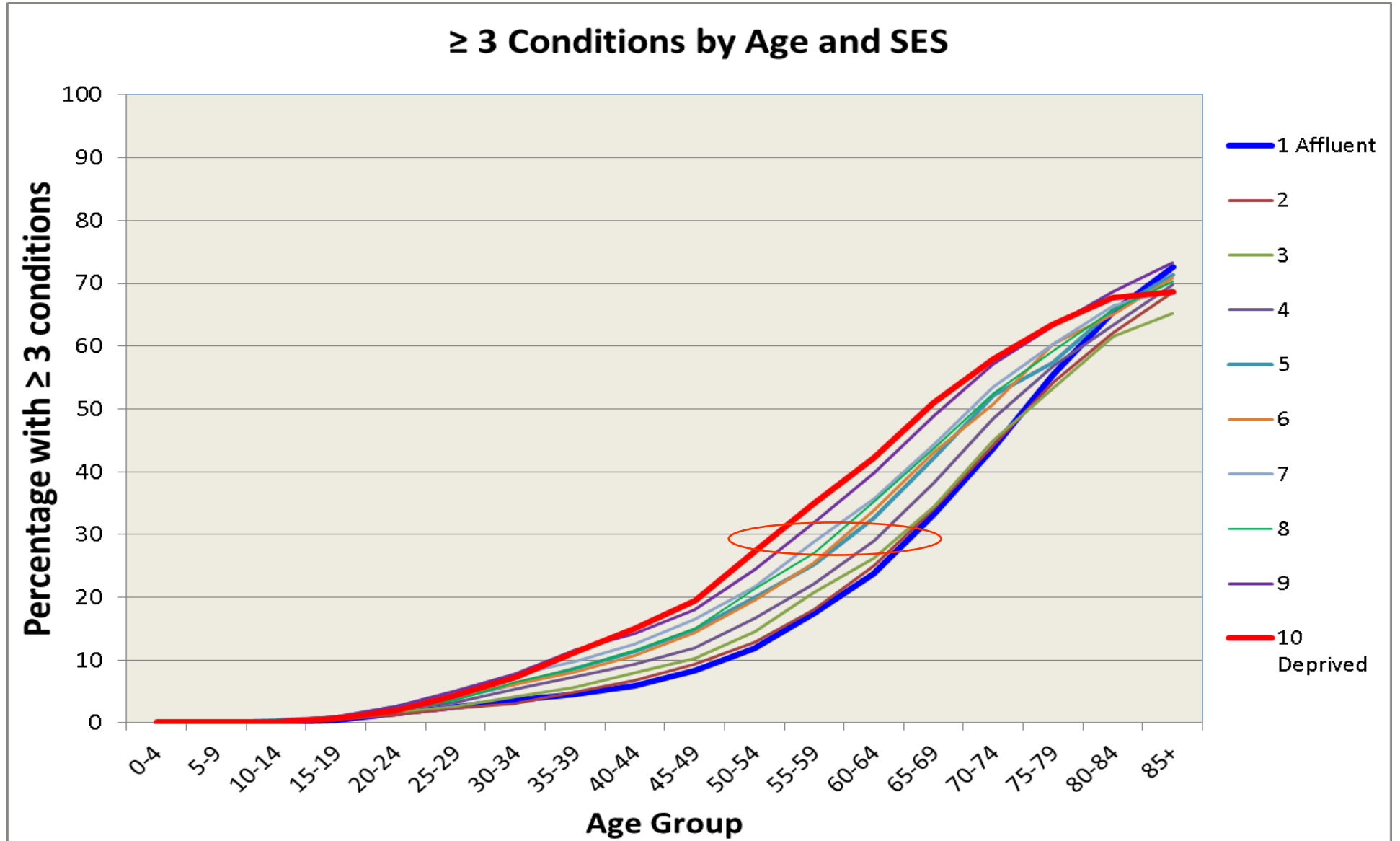
Domain	Explanation	Weight
Employment	<ul style="list-style-type: none"> Percentage of people who are income deprived and receive certain benefits or tax credits 	12 (28%)
Income	<ul style="list-style-type: none"> Percentage of working age people who are employment deprived and receive certain benefits 	12 (28%)
Health	<ul style="list-style-type: none"> Comparative Illness Factor: standardised ratio Hospital stays related to alcohol misuse: standardised ratio Hospital stays related to drug misuse: standardised ratio Standardised mortality ratio Emergency stays in hospital: standardised ratio Proportion of population being prescribed drugs for anxiety, depression or psychosis Proportion of live singleton births of low birth weight 	6 (14%)
Crime	<ul style="list-style-type: none"> Recorded crimes of violence, sexual offences, domestic housebreaking, vandalism, drugs offences, and common assault per 10,000 people 	2 (5%)
Housing	<ul style="list-style-type: none"> Percentage of people living in households that are overcrowded Percentage of people living in households with no central heating 	1 (2%)
Education	<ul style="list-style-type: none"> School pupil attendance Attainment of school leavers Working age people with no qualifications: standardised ratio Proportion of people aged 16–19 not in full-time education, employment or training Proportion of 17-21 year olds entering into full-time higher education 	6 (14%)
Access	<ul style="list-style-type: none"> Average drive time to a petrol station, a GP surgery, a post office, a primary school, a secondary school, a retail centre Public transport travel time to a GP surgery, a post office, a retail centre 	4 (9%)

WHAT DOES DEPRIVATION MEAN IN THE CONTEXT OF TRYING TO REDUCE CVD RISK?

Some challenges	More challenges
Health problems	Social complexity
Addictions	Migrant health
Reduced access to services	Expectation/Perception
Practitioner stress	Health literacy
Healthy 'choices'/behaviours prevalence and impact	BAME groups
Stress management 'I started smoking again after my mum died'	Traditional health behaviour approaches to prevention - alienating, shaming and excluding
Access to physical activity resources	External locus of control & perceived lack of agency. <i>'my dad died at 56 of a heart attack, I'm sure I will too'</i>
	Enablement

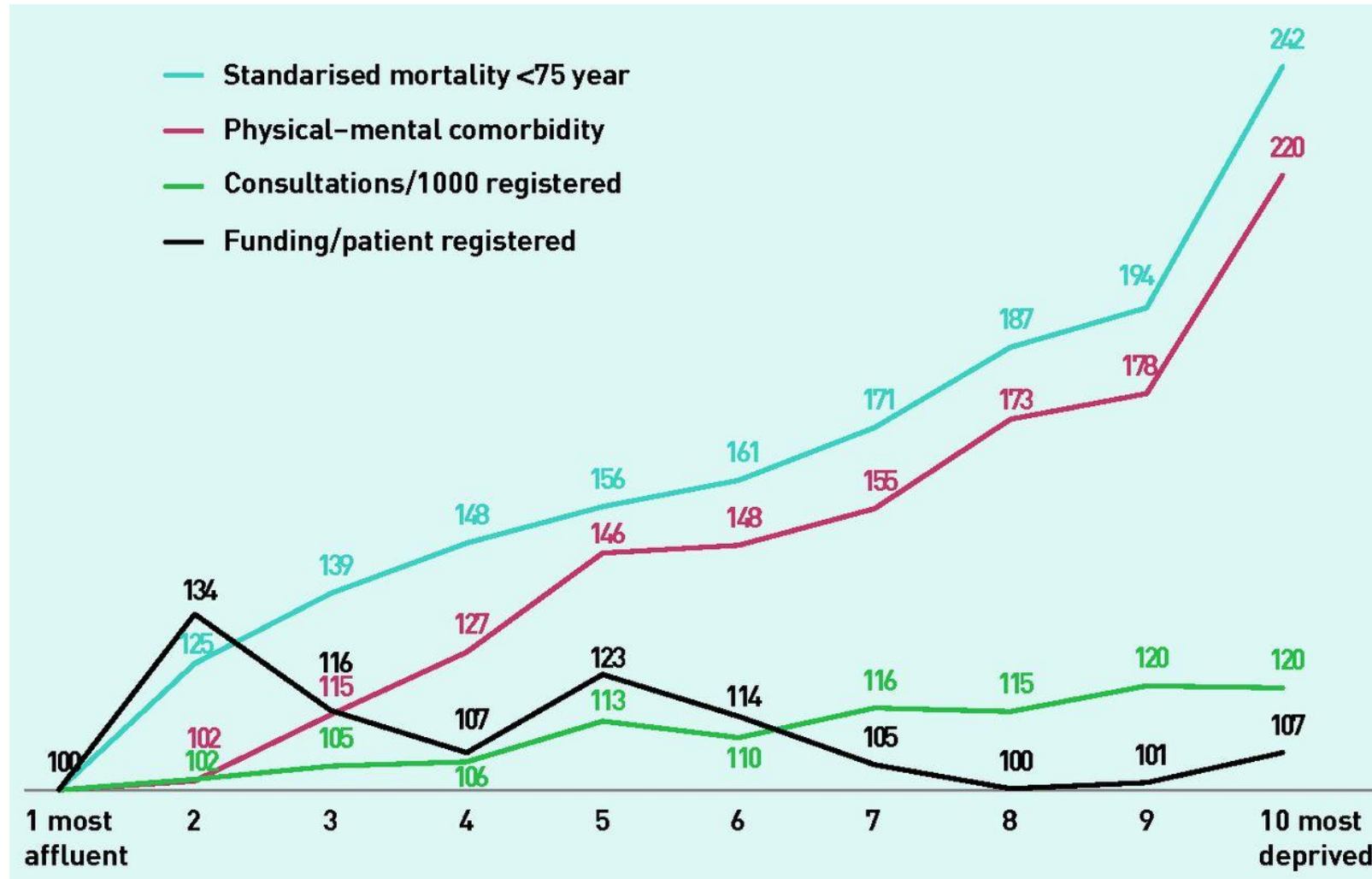


Health problems: Early multimorbidity





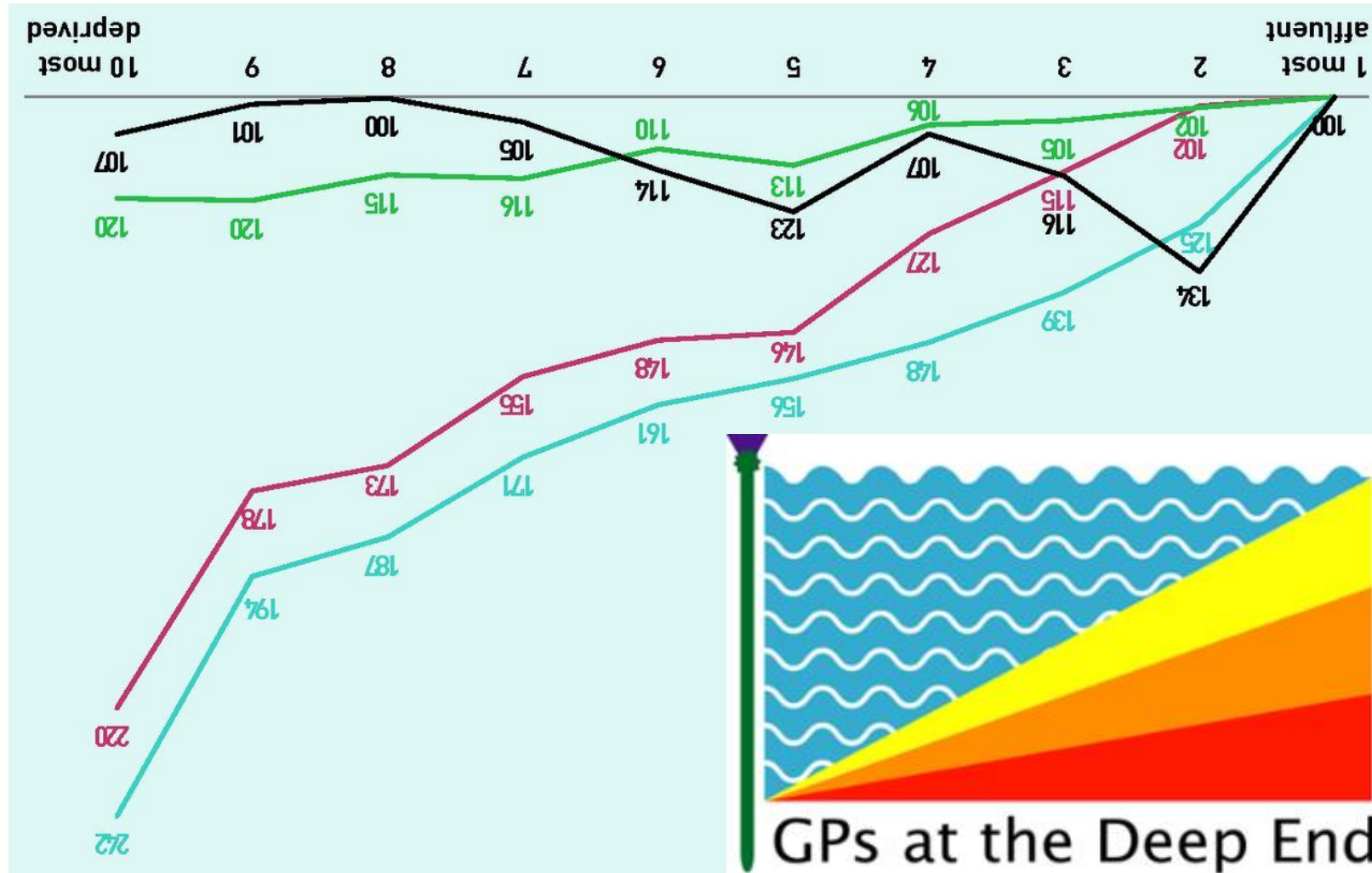
Health problems: complicated multimorbidity & Reduced access to health care



% Differences from least deprived decile for mortality, comorbidity, consultations, and funding.



GPs at the Deep End

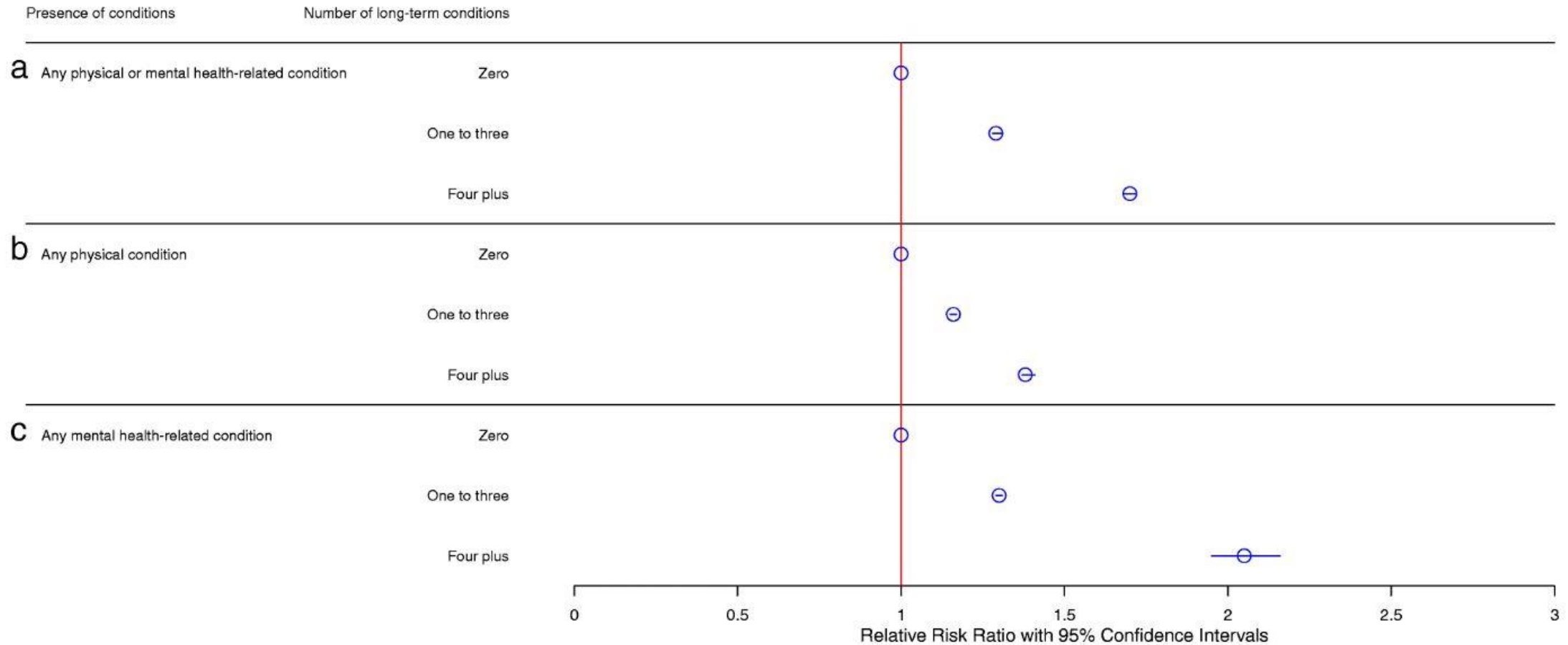


% Differences from least deprived decile for mortality, comorbidity, consultations, and funding.



Health problems: Reduced access to health care

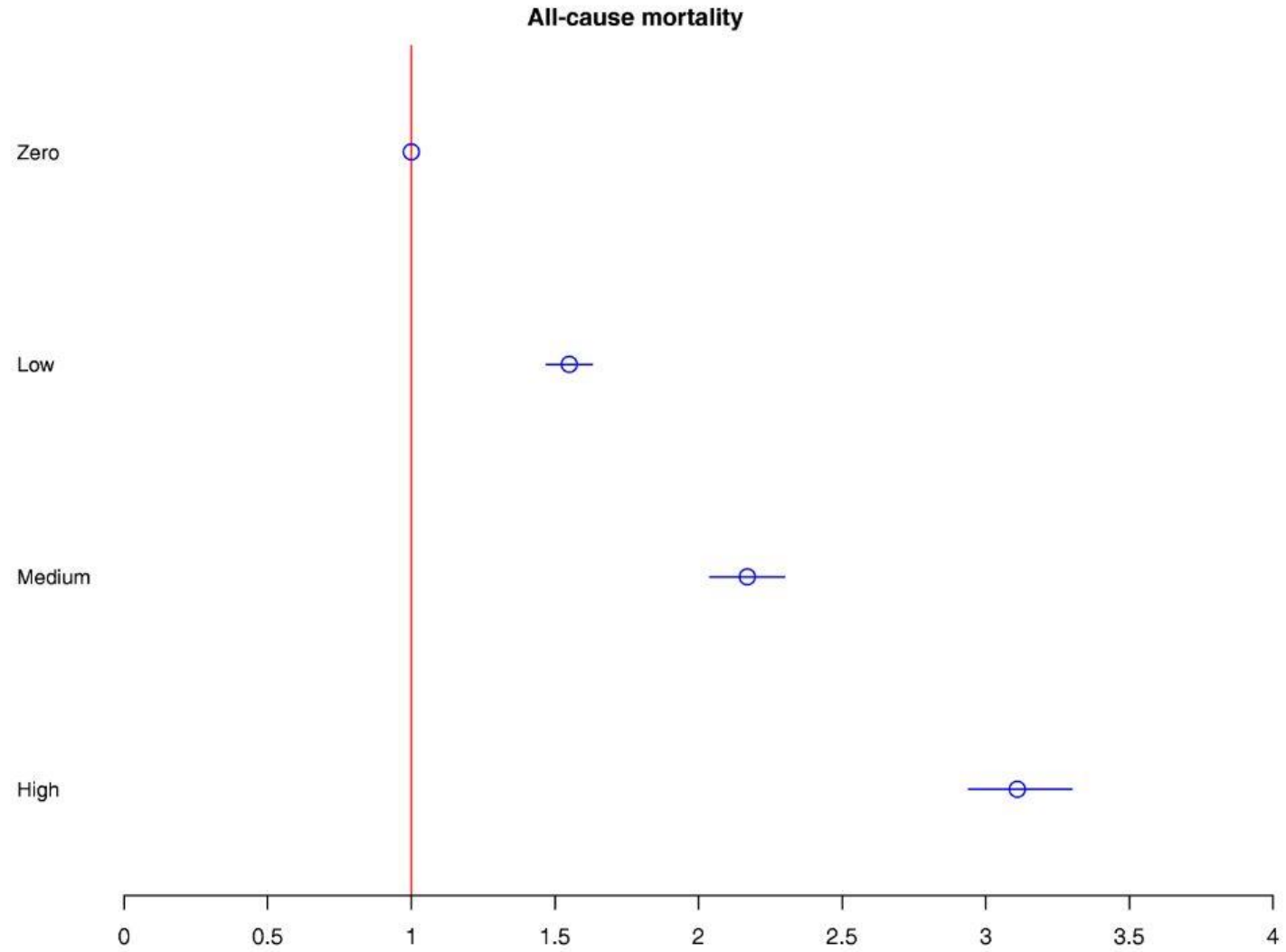
Long-term conditions and risk of missing appointment





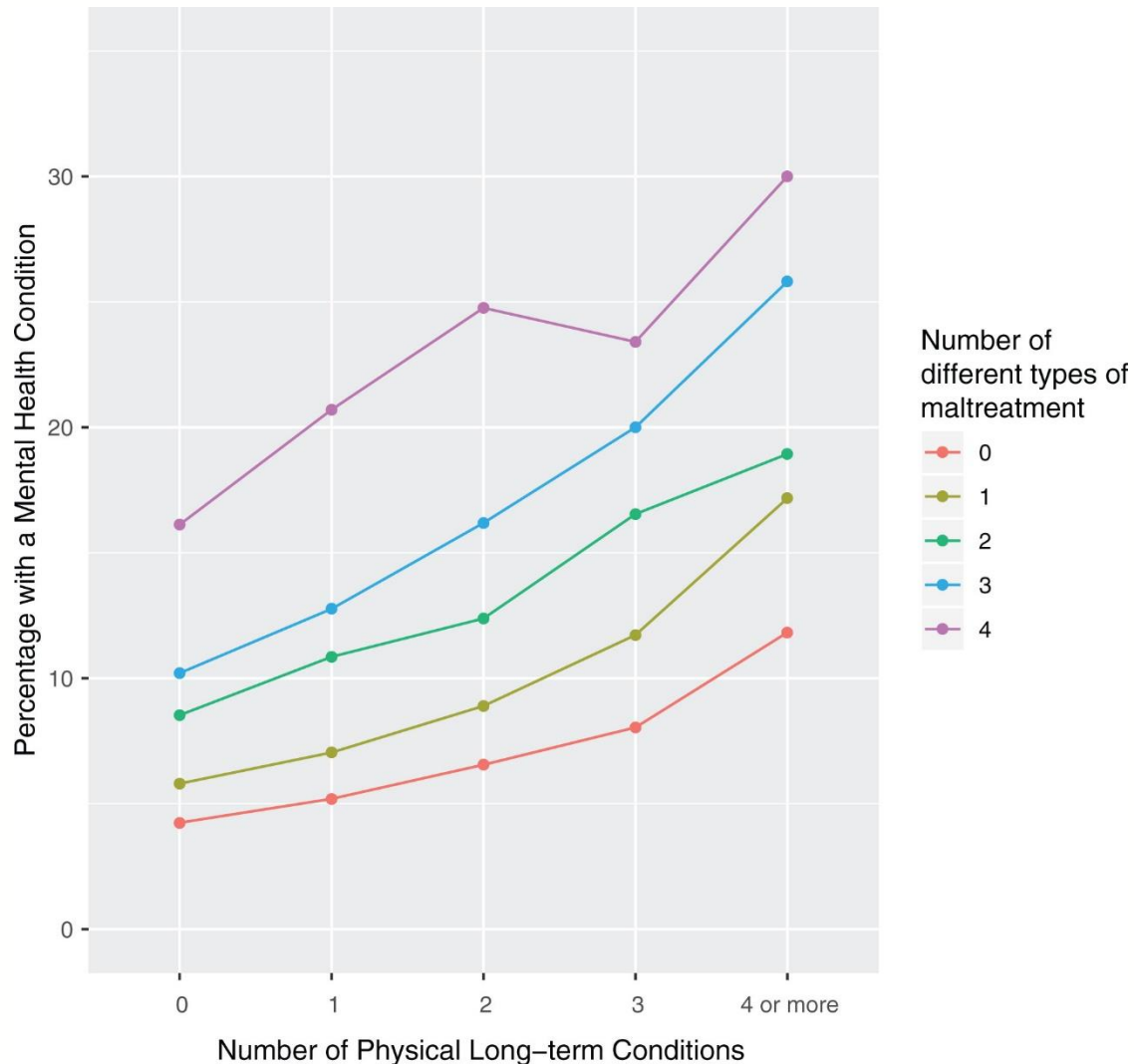
Health problems: mortality associated with reduced access to health care

Missed appointment category



Hazard Ratio with 95% Confidence Intervals


Psychological trauma



Hanlon P et al. Journal of Comorbidity. 2020;10.



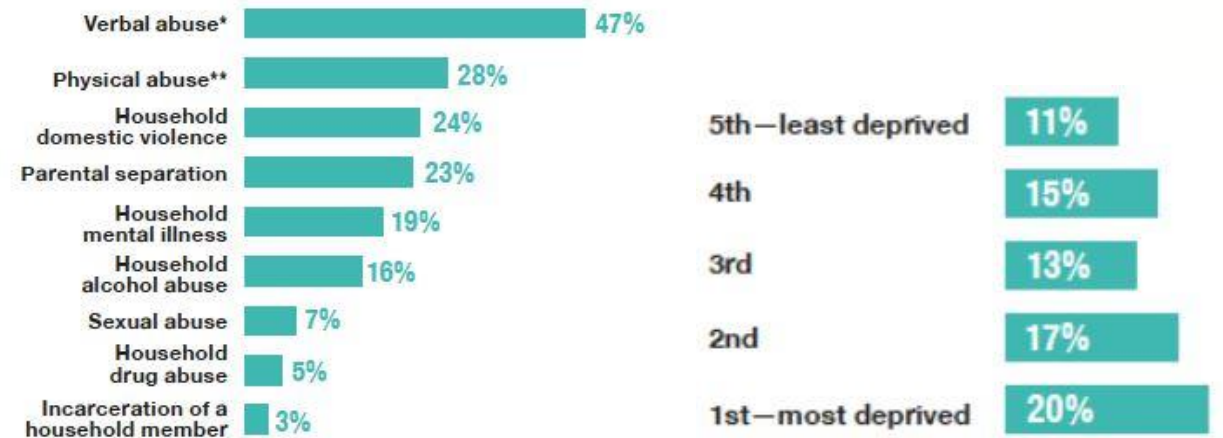
Relationship between childhood socioeconomic position and adverse childhood experiences (ACEs): a systematic review

David Walsh ¹, Gerry McCartney,² Michael Smith,³ Gillian Armour^{2,4}
J Epidemiol Community Health 2019;**73**:1087-1093.

In 2019, just over one in seven adults reported four or more ACEs.

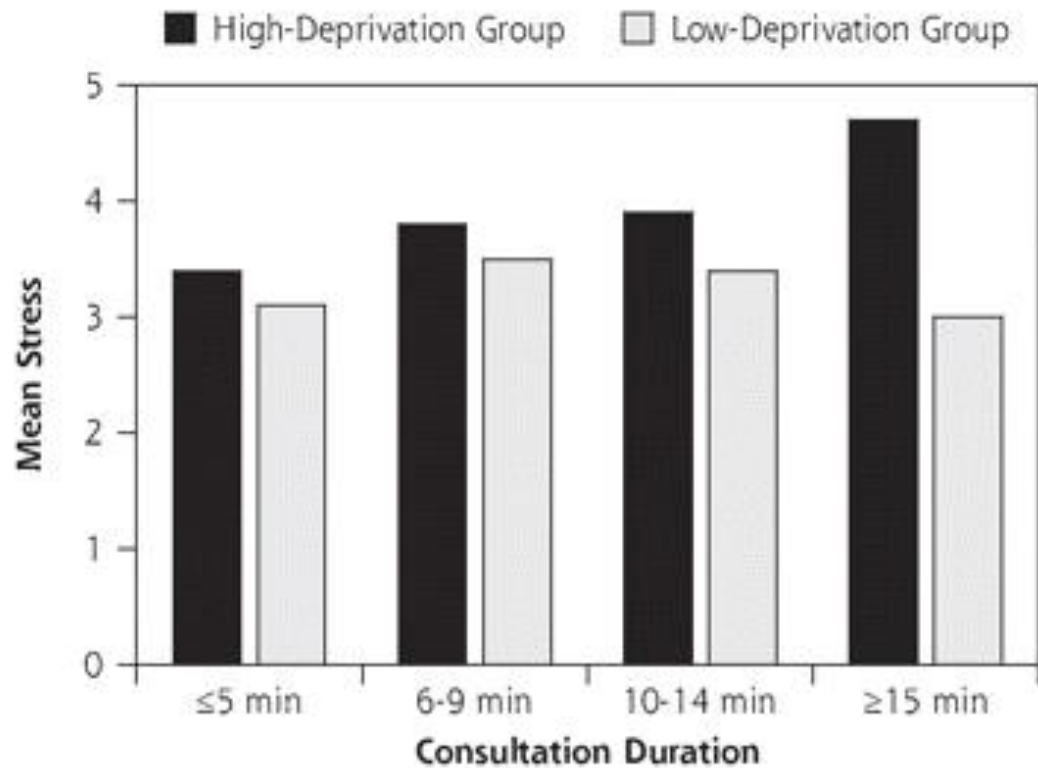
- 15% - 4 or more

Verbal abuse was the most common ACE reported, experienced by just under half of all adults.

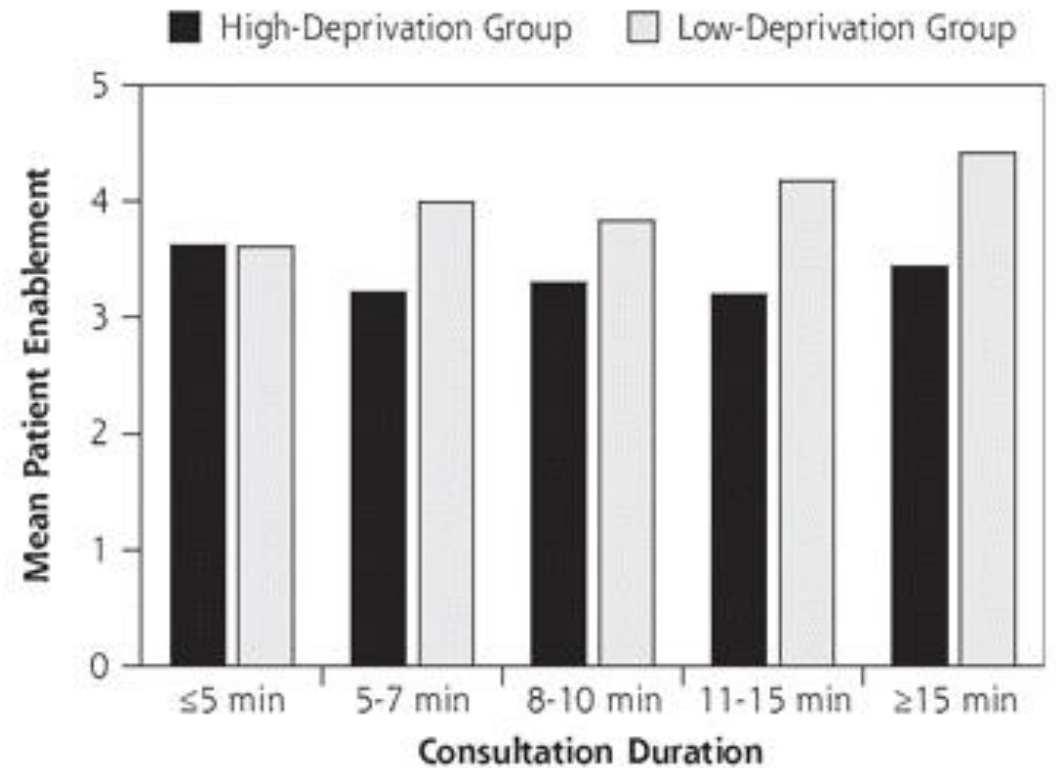


Many other complexities – benefit system, justice system, housing...

Practitioner stress = reduced enablement

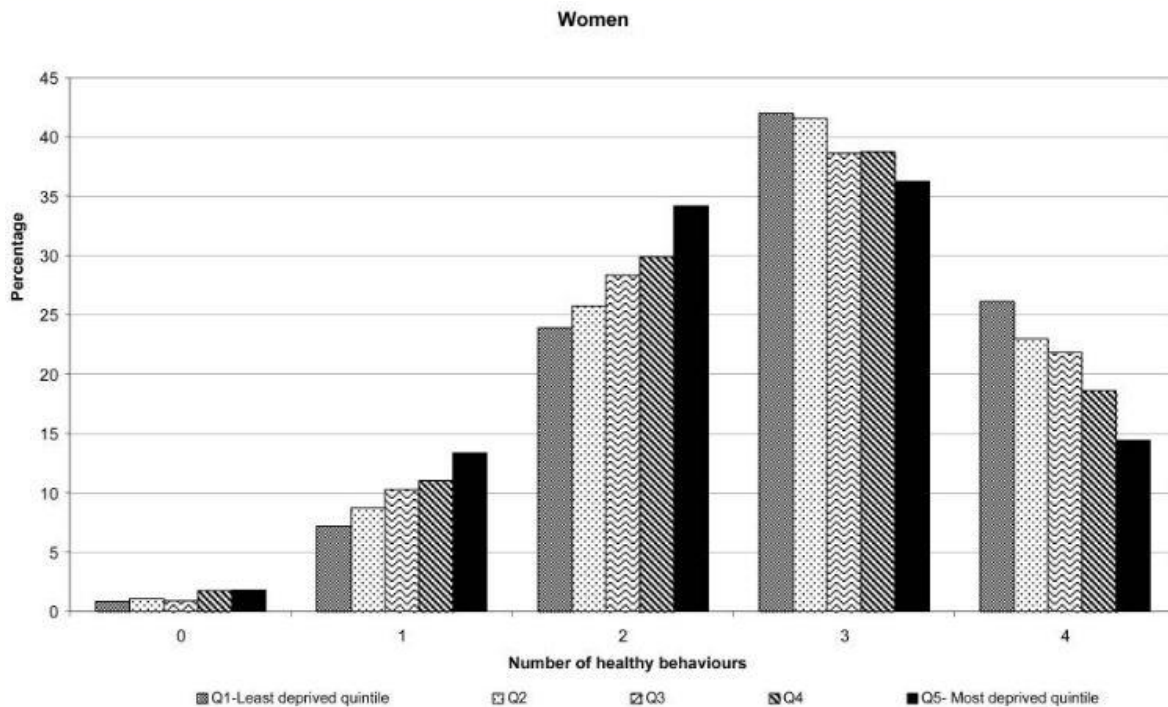


GP stress by clinical encounter duration in areas of high-and low-deprivation.



Patient enablement by clinical encounter duration in complex encounters in areas of high-and low-deprivation.

Healthy 'choices'/behaviour prevalence



Research article | [Open Access](#) | [Published: 29 July 2016](#)

A systematic review on the clustering and co-occurrence of multiple risk behaviours

[Nick Meader](#), [Kristelle King](#), [Thirimon Moe-Byrne](#), [Kath Wright](#), [Hilary Graham](#), [Mark Petticrew](#), [Chris Power](#), [Martin White](#) & [Amanda J. Sowden](#) 

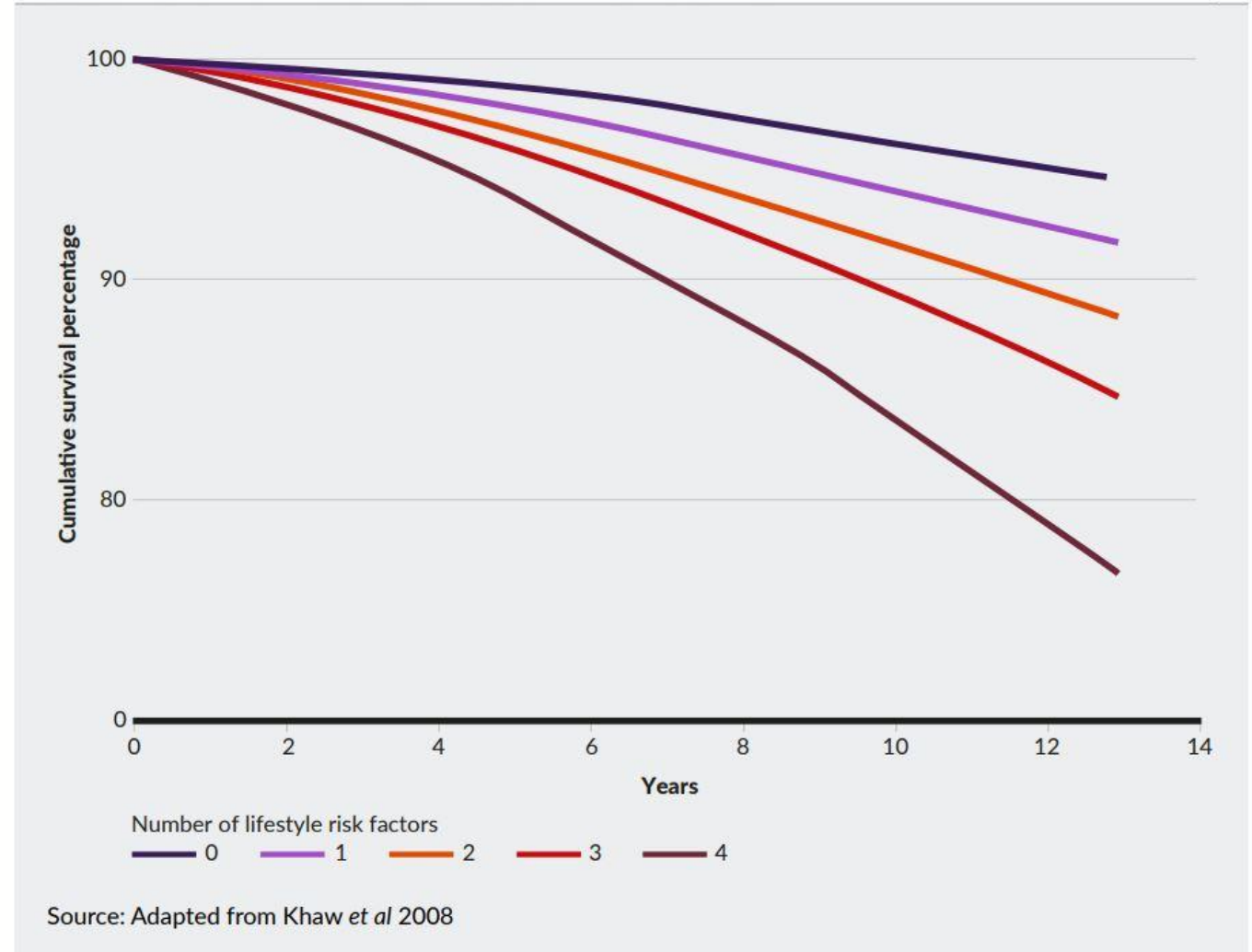
[BMC Public Health](#) **16**, Article number: 657 (2016) | [Cite this article](#)

8819 Accesses | **219** Citations | **84** Altmetric | [Metrics](#)

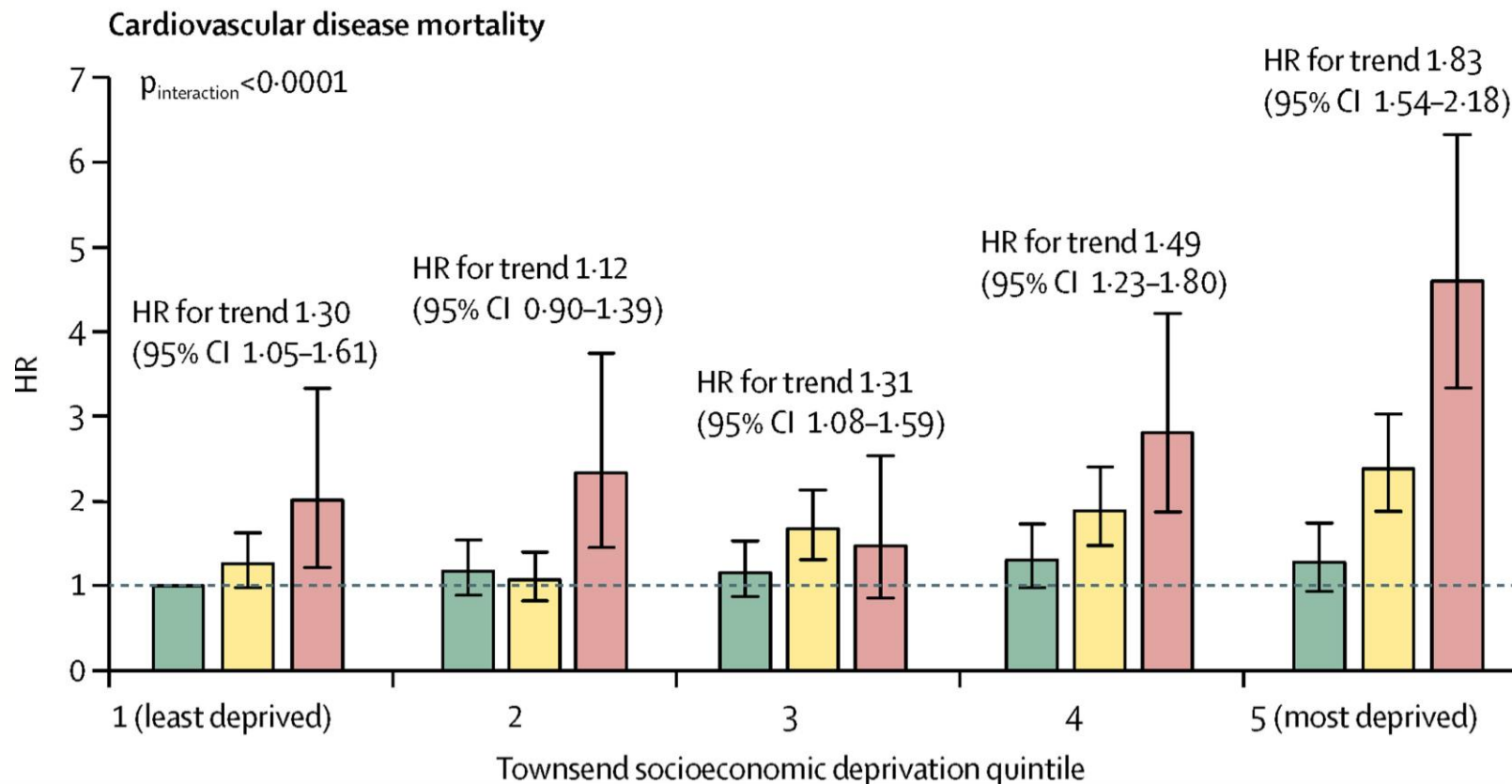


Survival by Number of Health Behaviours in Men and Women Aged 45–79 Years without Known Cardiovascular Disease or Cancer, Adjusted for Age, Sex, Body Mass Index and Social Class, EPIC-Norfolk 1993–2006

Figure 1 Clustering of lifestyles and its impact on mortality



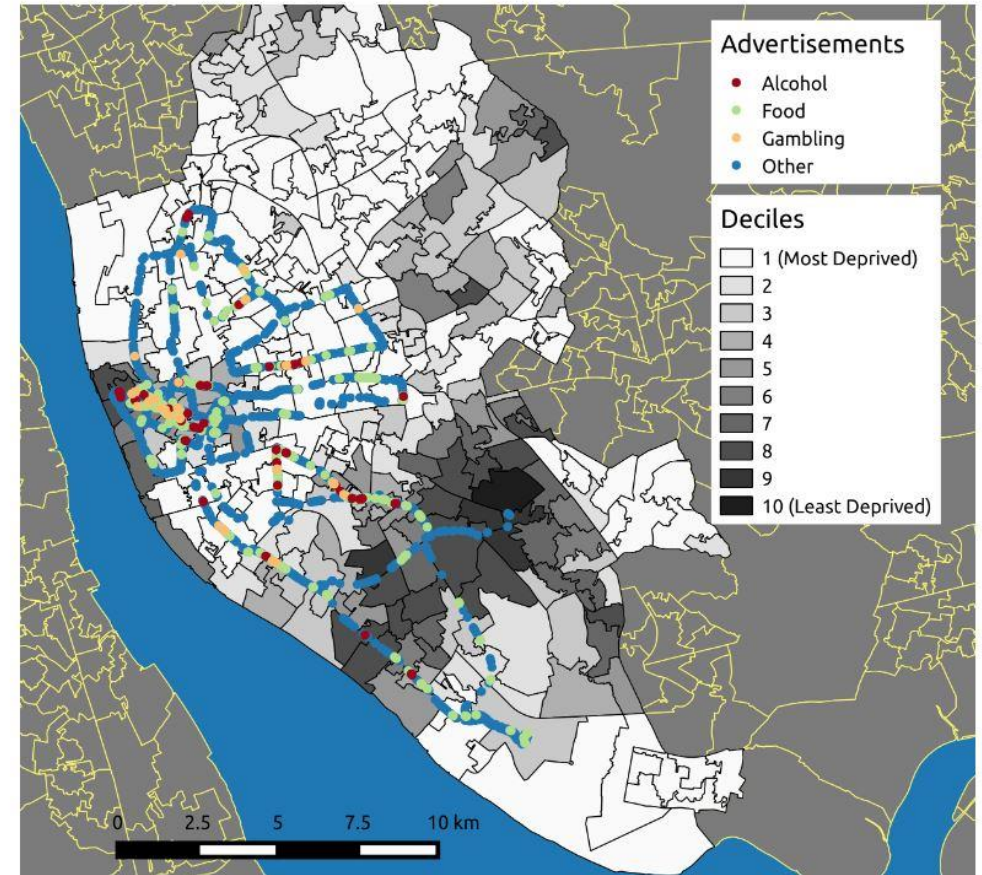
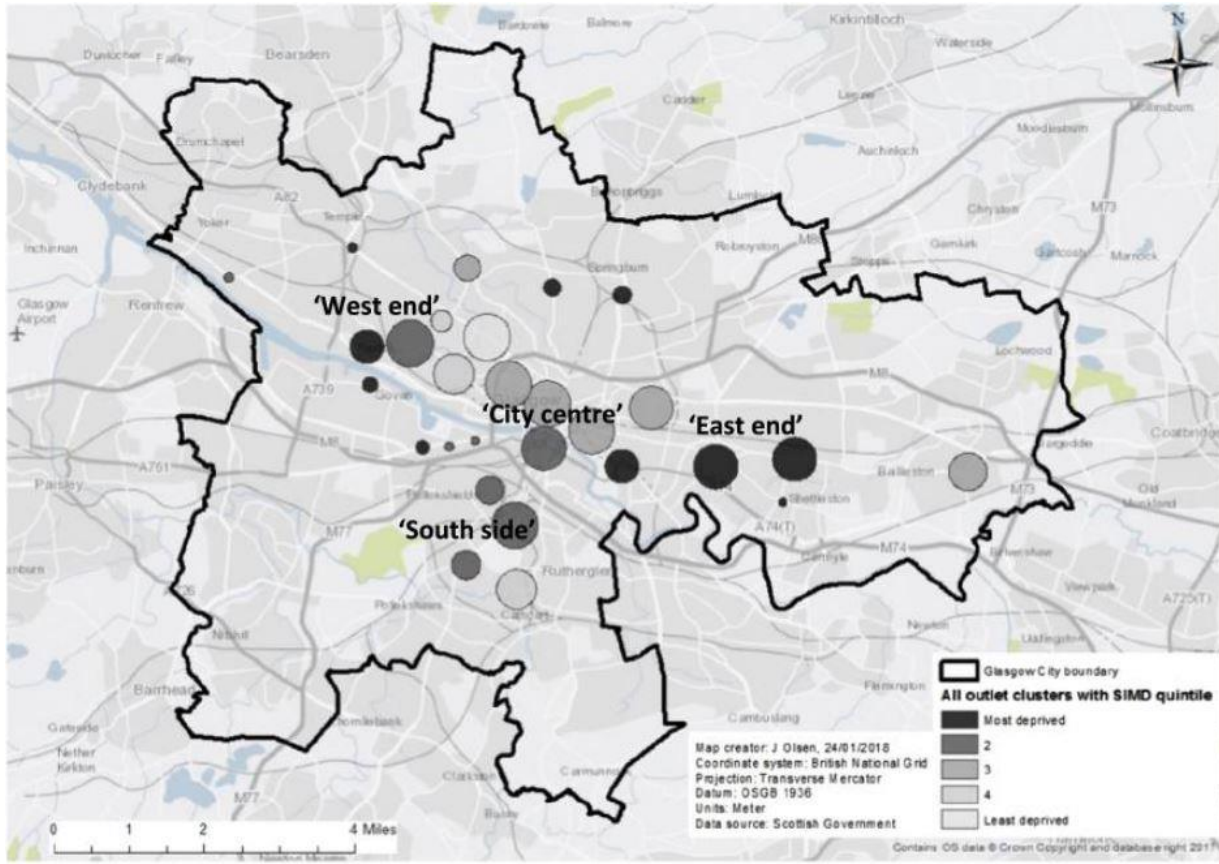
Health behaviour impact: Multiple lifestyle factors * deprivation



1. **Smoking current**
2. **Alcohol daily**
3. **Physical inactivity**
4. **TV ≥ 4 h/day**
5. **Sleep < 7 or > 9 h sleep/day**
6. **Fruit+veg < 400 g/day**
7. **Oily fish < 1 ptn/wk**
8. **Red meat > 3 ptns/wk**
9. **Processed meat > 1 ptn/wk**



Alcohol, fast food, tobaccos, gambling outlets and advertising



Macdonald L, Olsen JR, Shortt NK, Ellaway A. Health Place. 2018 May;51:224-231

Figure 3. Liverpool advertisement locations by Lower Super Output Areas (LSOAs). A color gradient indicates the level of deprivation, with white and black being the most and least deprived respectively. This map was created using QGIS 2.8.6-Wien³⁹.



University
of Glasgow

“It is not just Big Tobacco anymore. Public health must also contend with Big Food, Big Soda, and Big Alcohol. All of these industries fear regulation and protect themselves by using the same tactics.”

Clear Channel

WIN A DAY IN THEIR BOOTS

VIP MATCHDAY EXPERIENCE • MEET & GREET • LUXURY HOTEL • CHAUFFEUR DRIVEN CAR • SIGNED BOOTS

PLUS 1000s MORE PRIZES TO BE WON

Visit winaday.cadburyfc.com for your chance to win!

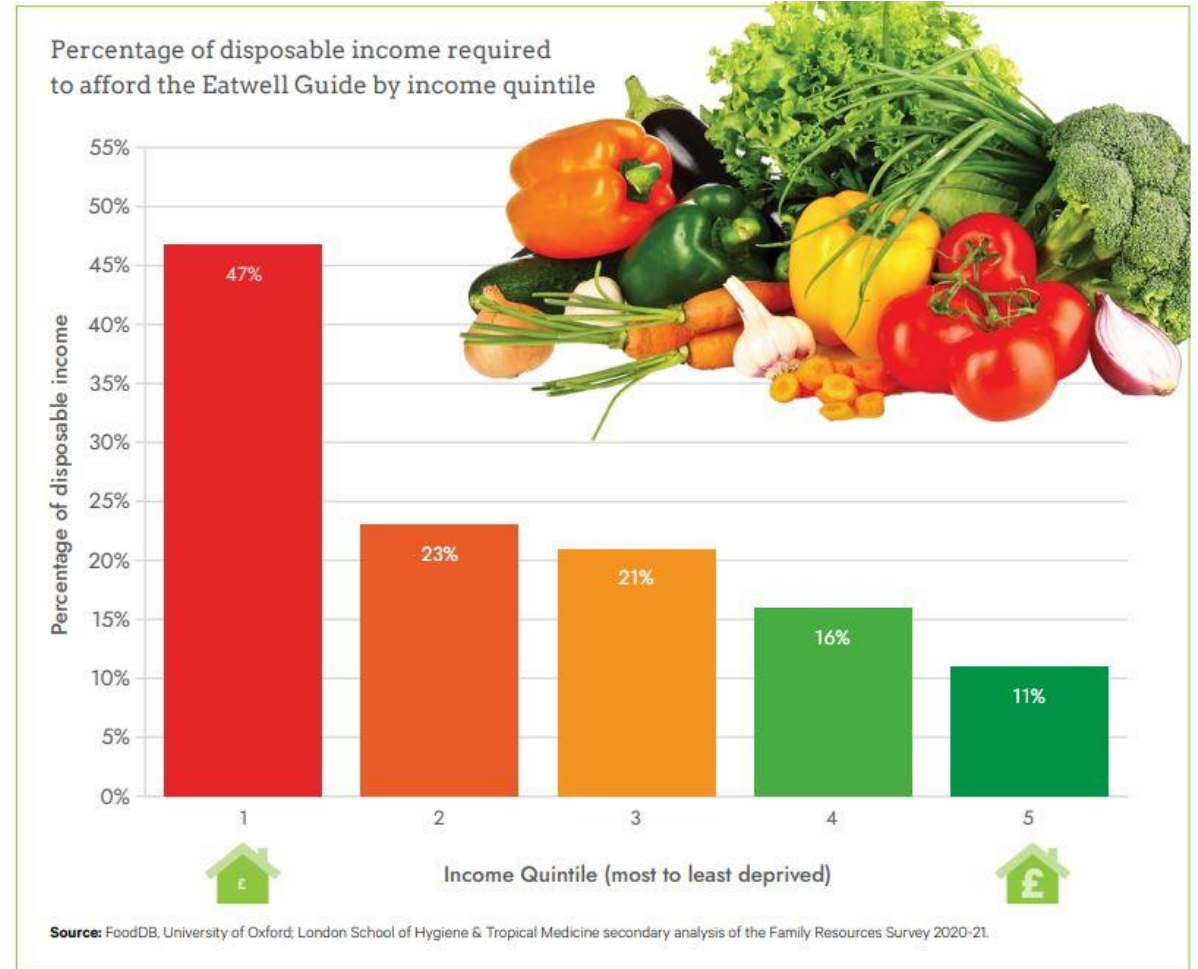
Logos for Arsenal, AFC Bournemouth, Chelsea, Leicester City, Liverpool, Manchester City, Manchester United, and Tottenham Hotspur.

Dr Margaret Chan, WHO, 2013, 8th Global Conference on Health Promotion



Access to green spaces and cost of healthy eating

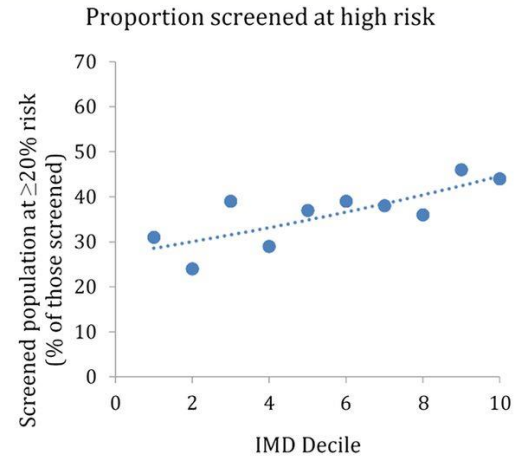
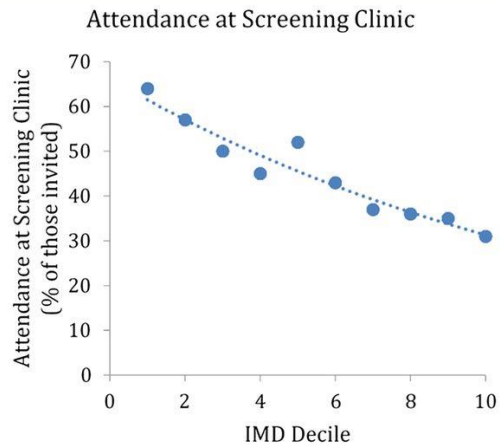
Deprivation quintile	% of adults in Scotland who	% of adults in Scotland who
-	live ≤5 min walk from nearest green, blue, open space	dissatisfied with nearest green, blue, open space
Most deprived	62	20
Least deprived	67	6



Food Foundation. Broken plate 2022



Risk perception



	IMD decile										Total
	1	2	3	4	5	6	7	8	9	10	
Attending screen (% within decile)	451 (63.3)	113 (56.8)	72 (50.0)	183 (44.6)	235 (52.2)	373 (43.0)	153 (36.4)	181 (35.7)	213 (34.0)	347 (30.7)	2321 (42.4)
High risk at screening (% within decile)	138 (30.6)	27 (23.9)	28 (38.9)	53 (29.0)	88 (37.4)	144 (38.6)	58 (37.9)	65 (35.9)	98 (46.0)	153 (44.1)	852 (36.7)

‘[a man in a manual socioeconomic group whose] mother had angina, her twin sister had died of heart disease at 52, and his father had died of a heart attack at 57. However, when he was asked whether any illnesses or weaknesses ran in his family, he said “no, bar from my mum having glaucoma in her eyes... but not heart problems as far as I know.” (R42, working class man with a perceived family history of heart disease).’

Hunt et al. Lancet 357, 9263: 1168-1171 (2001)

‘my dad died at 56 of a heart attack, I’m sure I will too’



Health literacy

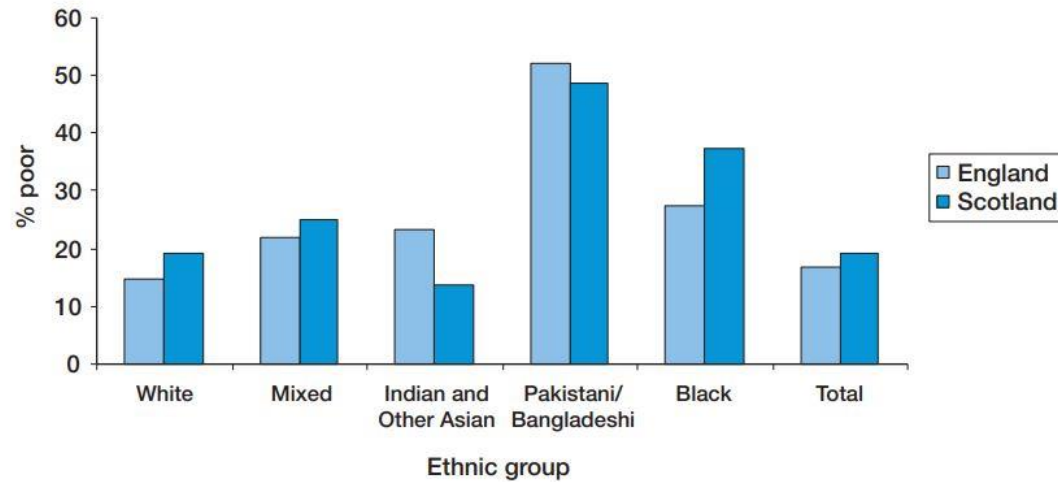
British social attitudes survey 2018,
2,309 respondents

Higher score = higher literacy

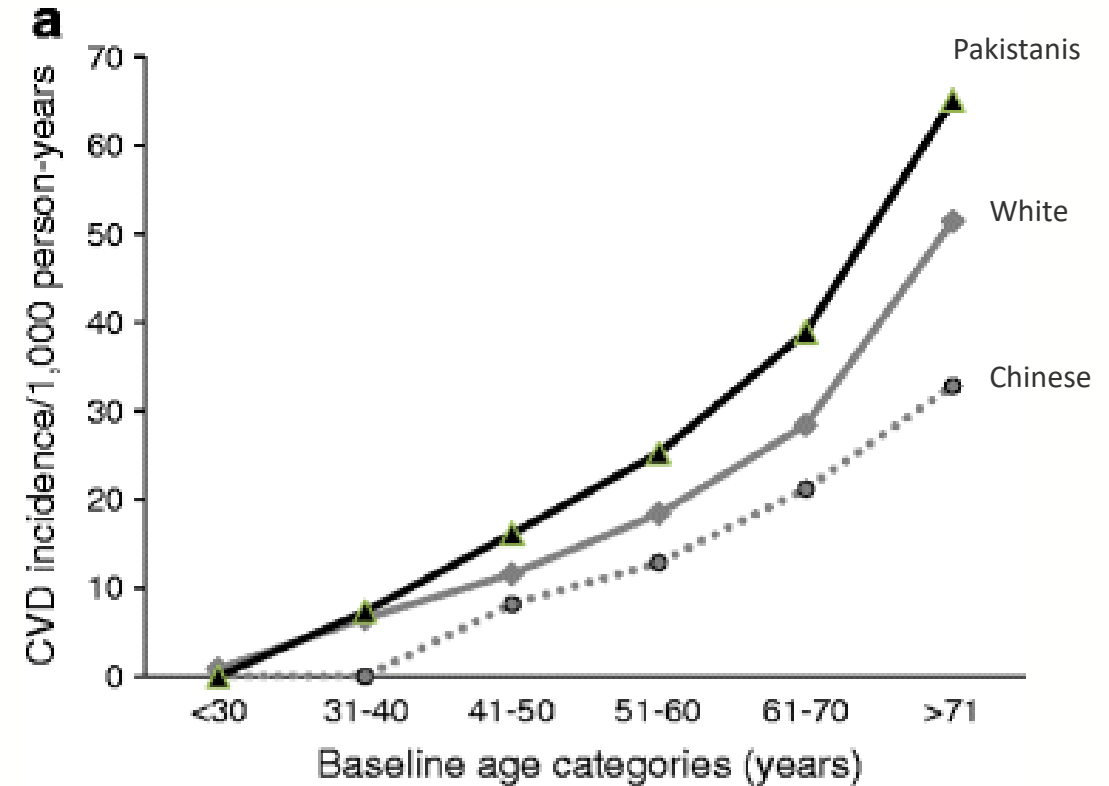
IMD Quintile	Understanding Information Mean (95% CI) N	Ability to Engage Mean (95% CI) N
1 (Most)	3.78 (3.69, 3.87) 410	3.67 (3.58, 3.75) 411
2	3.91 (3.82, 3.99) 392	3.75 (3.68, 3.83) 392
3	4.03 (3.97, 4.10) 443	3.87 (3.80, 3.94) 443
4	4.08 (4.02, 4.14) 520	3.92 (3.86, 3.97) 519
5 (Least)	4.10 (4.05, 4.16) 504	3.95 (3.89, 4.01) 504

Minority ethnic groups

Figure 1: Poverty by ethnicity and country 1999–2008 (income, before housing costs, below 60% of median)



Poverty and ethnicity in Scotland. Joseph Rowntree Foundation 2011



Malik, M.O., Govan, L., Petrie, J.R. et al. Ethnicity and risk of cardiovascular disease (CVD): 4.8 year follow-up of patients with type 2 diabetes living in Scotland. *Diabetologia* 58, 716–725 (2015)



Combinations of health behaviours and socioeconomic circumstances

'I could get [cannabis] because it was just there'

'if you're anxious you wont go out'

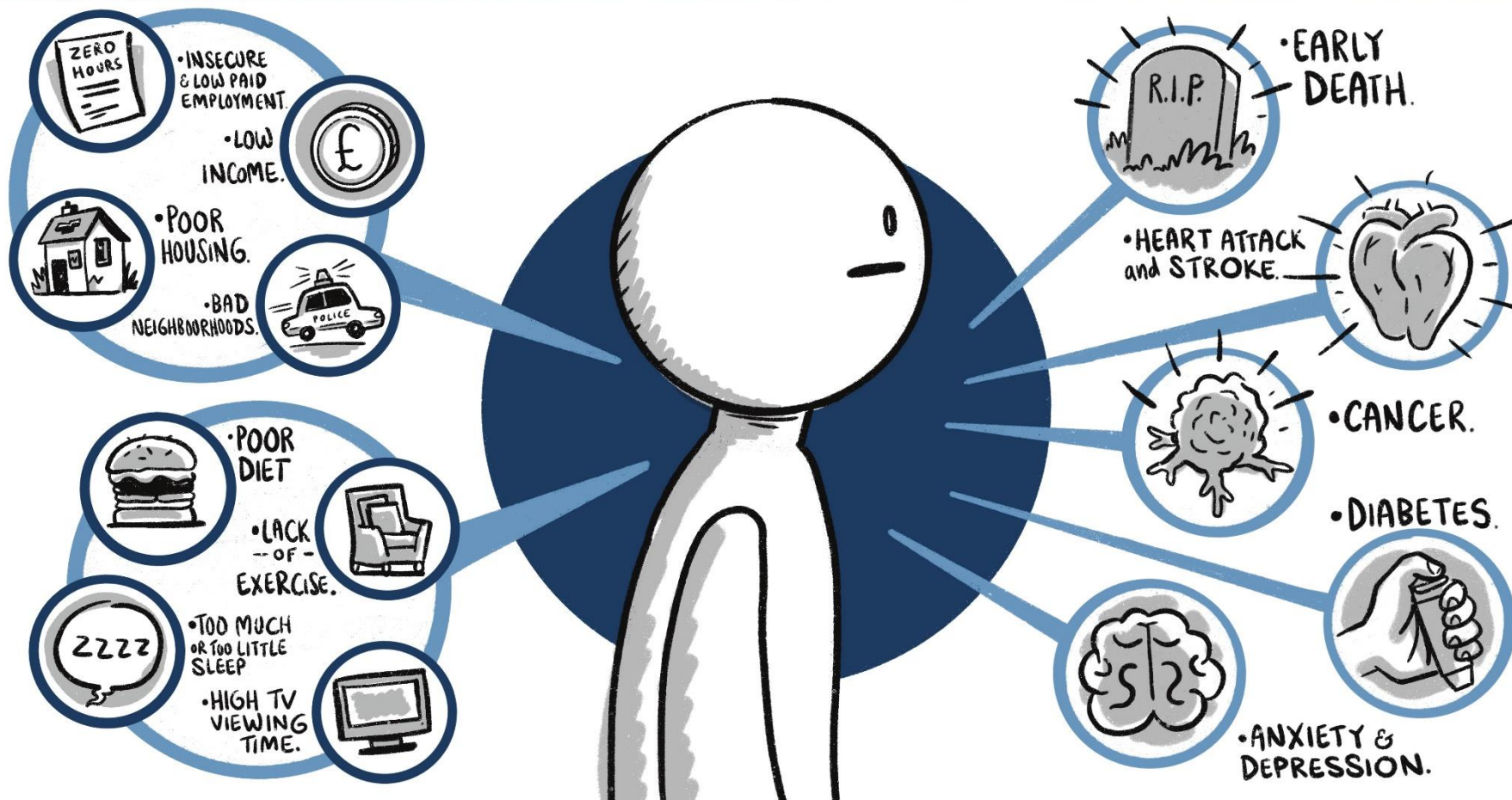
'I knew at football practice they were mostly white'

'..you have to grab life by the nettle...'

'if you don't have hope then you wont try...'

'People wont be able to afford to heat their homes...'

BOTH UNHEALTHY LIFESTYLE FACTORS AND DIFFICULT FINANCIAL SITUATIONS AFFECT MANY ASPECTS OF HEALTH



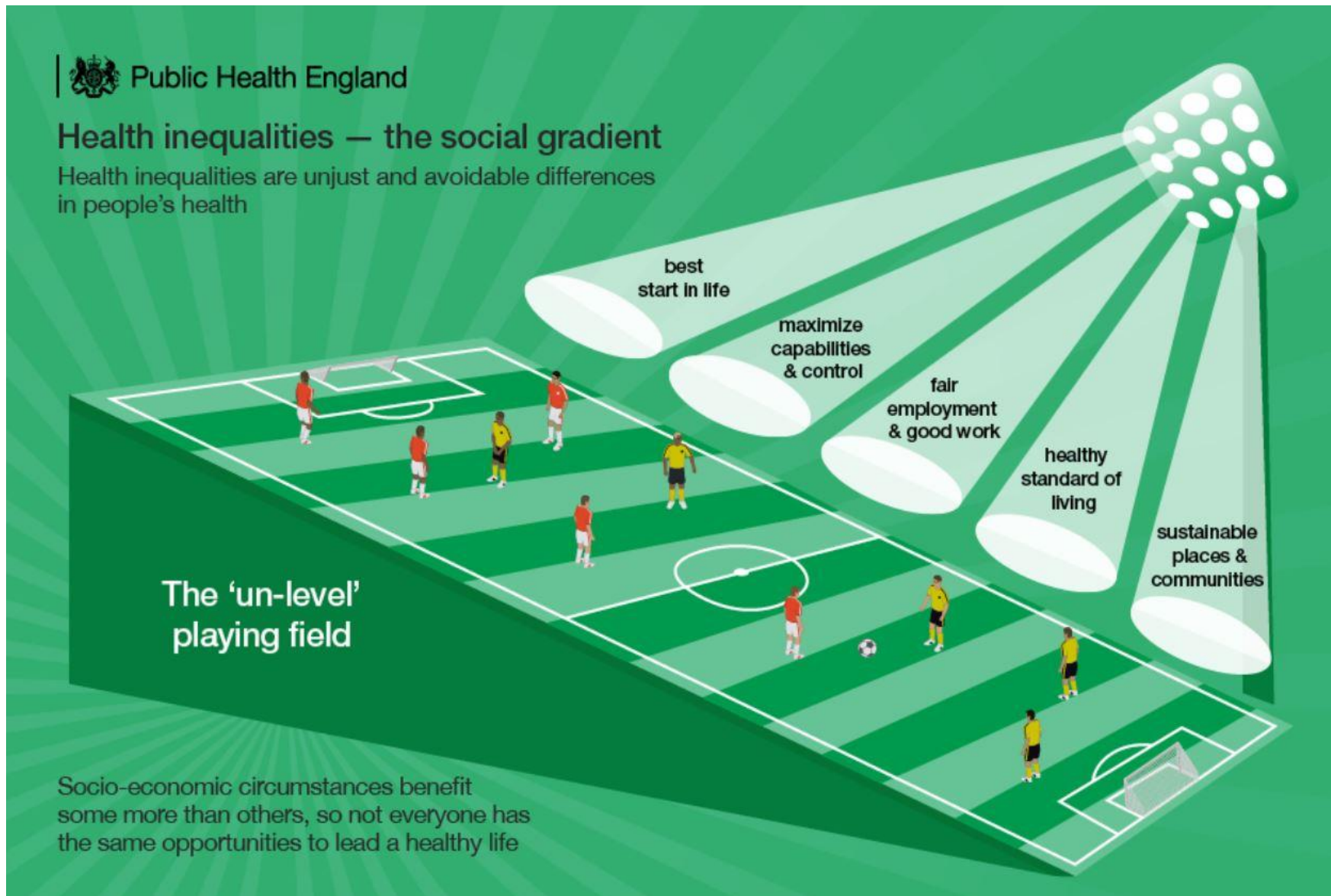


Challenges Summary

- More health problems
- More complicated combinations
- Less time, fewer resources
- Harder to engage for patients and clinicians
- More behaviours contributing to risk
- Environment less conducive to healthy behaviours
- Less financial power to make healthy change
- Reduced perception that there is a problem/opportunity
- Lower health literacy to utilise advice/resources
- Higher rates of language barriers
- Less hope, less future planning

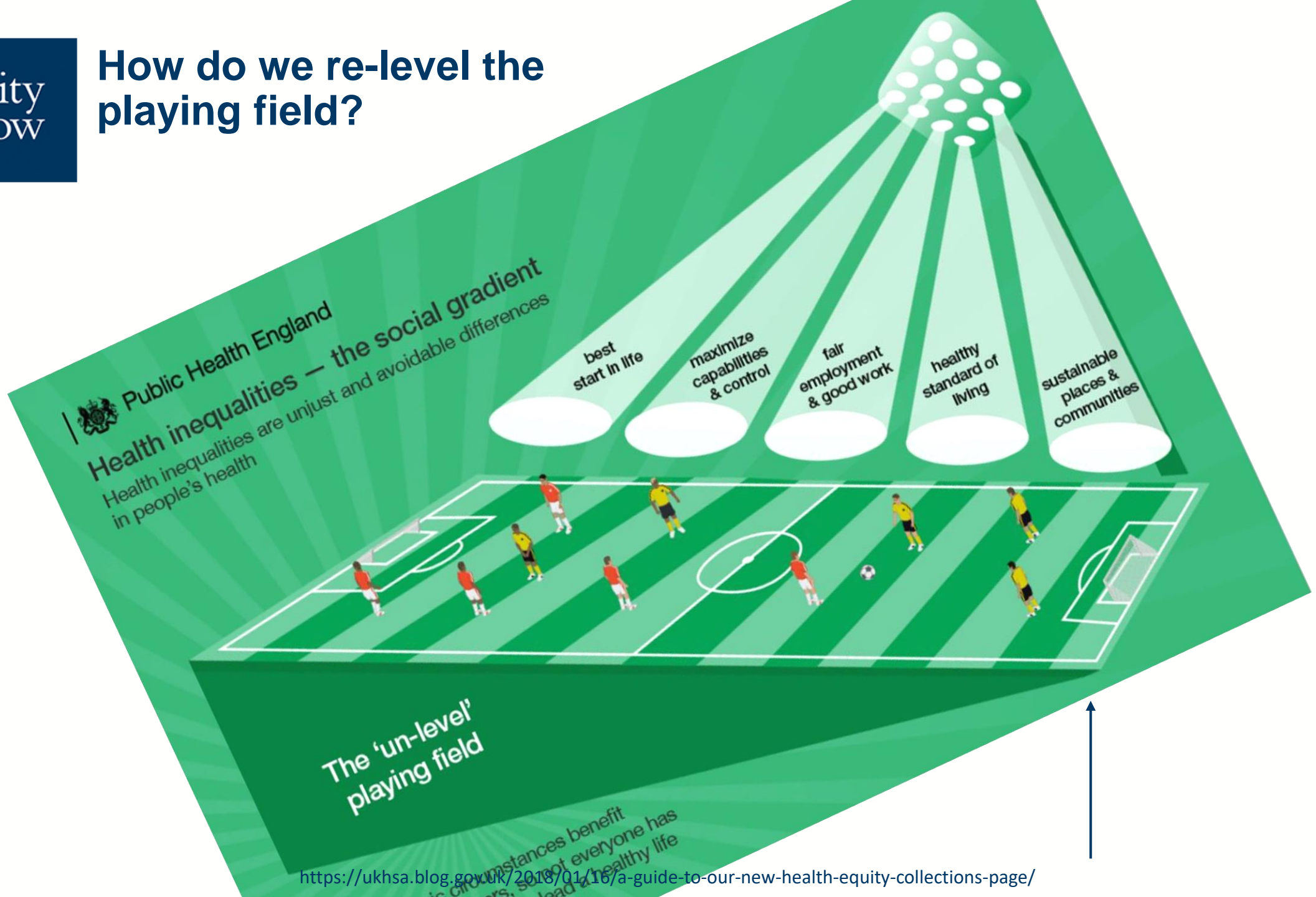


The solutions





How do we re-level the playing field?





Potential solutions

addressing poverty and inequalities more broadly

addressing inequalities in the NHS - proportionate universalism

investment in general practice - longer appointments to explore and enable

trauma informed services

research into how risk is calculated and explained without stigmatising/victimising

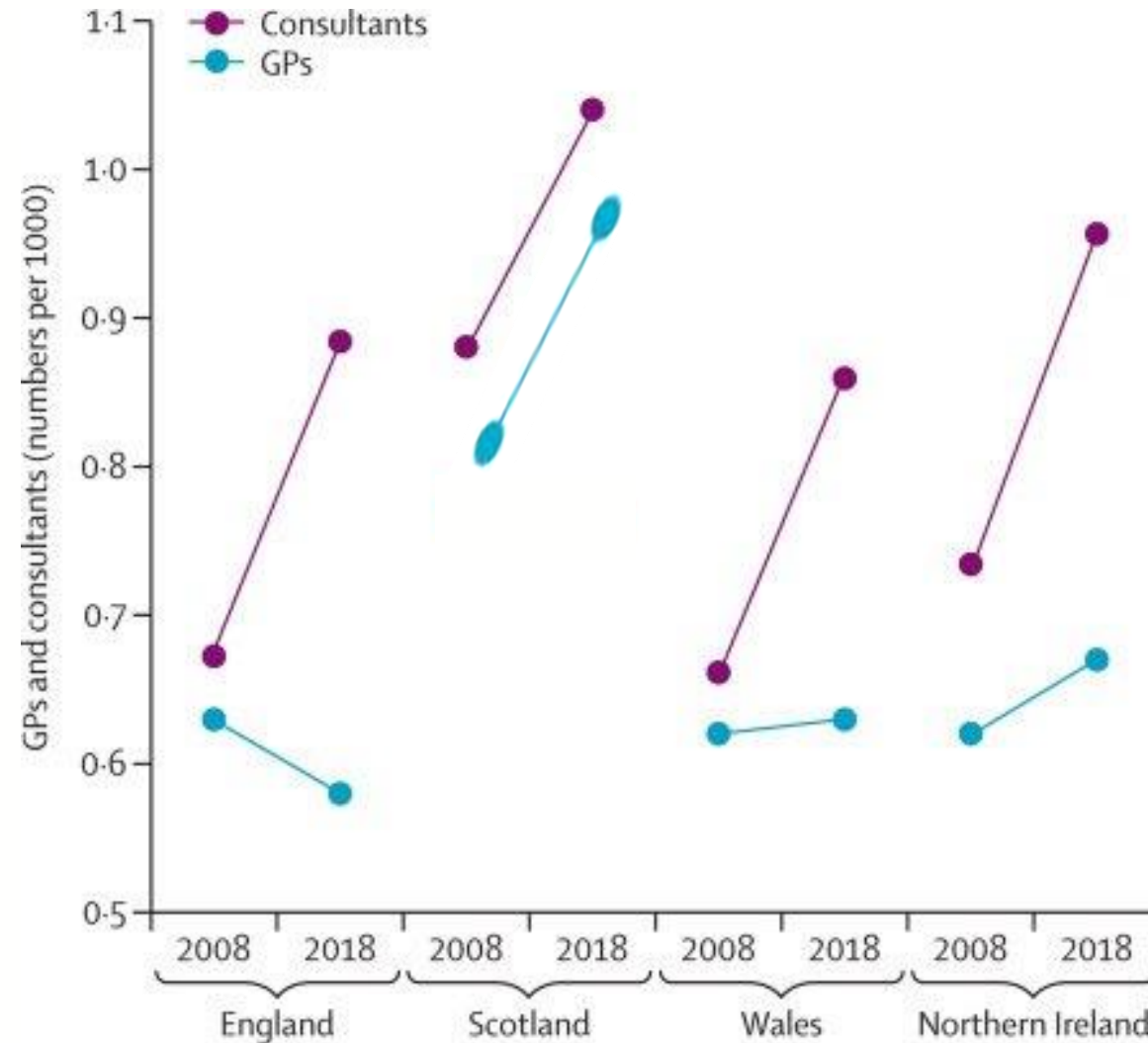
assess interventions for risk of increasing inequalities - individual versus pop. level

ask patient/communities - social capital/capacity

advocate for healthy nurseries/schools

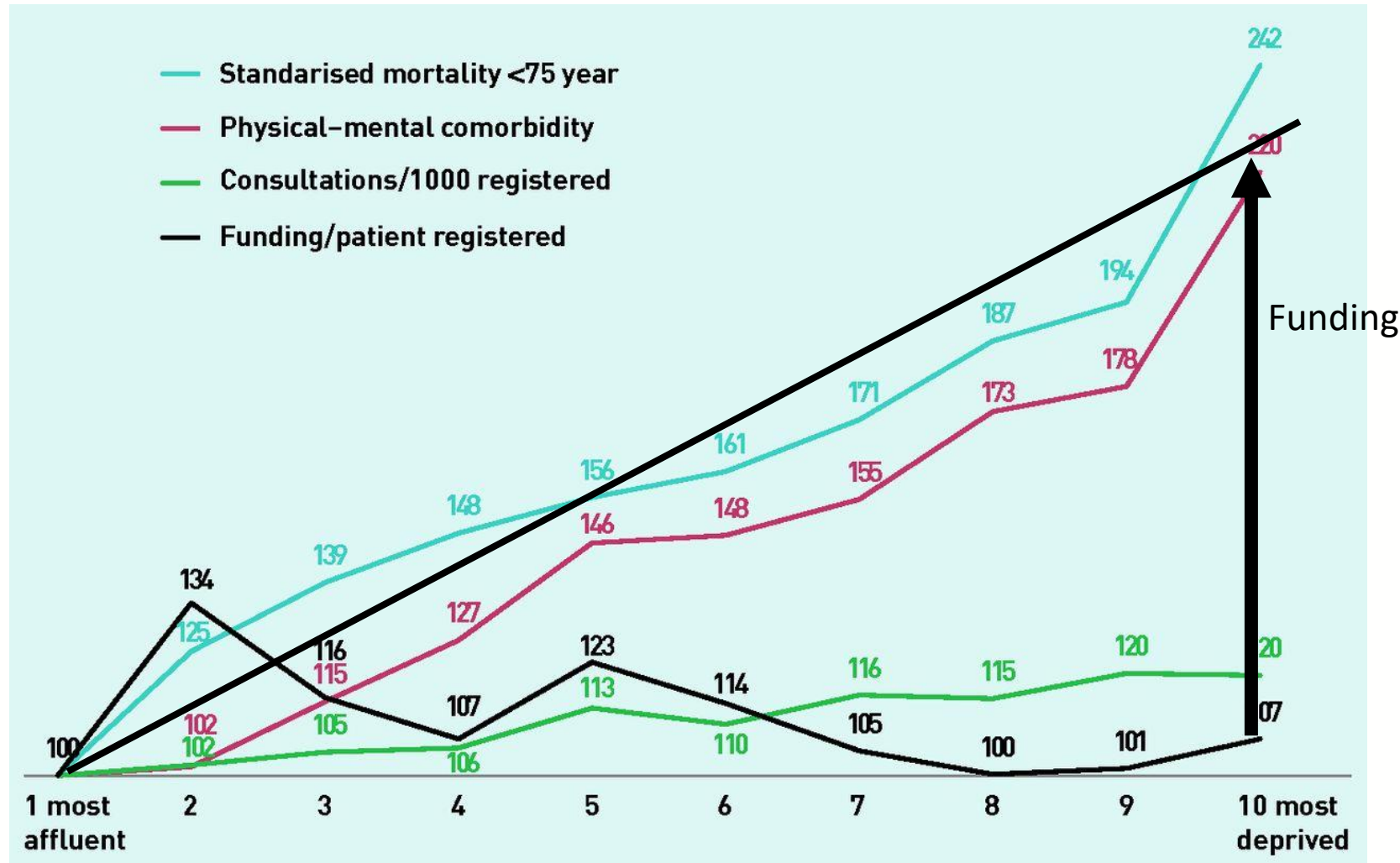
sustainability agenda - active transport

The solutions – do we want to reduce CVD risk in primary care?





Proportionate universalism



% Differences from least deprived decile for mortality, comorbidity, consultations, and funding.

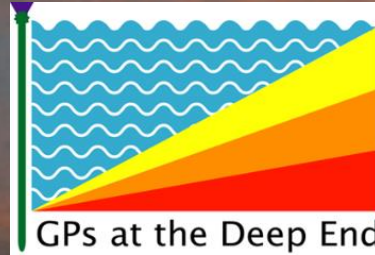


What can we do on an individual level when faced with some impacted by poverty?

*“You have to **expand reactive care** and make it richer and more imaginative...
If you really care about people you **care about their future**, not just about the immediate reason they have come to see you...
You’ve got to do more than meet expectations – **expectations in deprived areas are very low**; you’ve got to raise them...
You have to get **immersed in their story**, take their story seriously, give them the feeling that they are valuable people...
Including those **people who are losing confidence that they are of value**, you’ve got to show that you really care about them.”*



Dr Julian Tudor Hart, 1927-2018



“Therefore, I suggest, when you hear “X is impossible” treat it with even more scepticism than usual. Nothing that is allowed by the laws of physics is beyond the scope of human creativity.”

“..optimism is the proposition that all evils are due to a lack of knowledge, and that knowledge is attainable by the methods of reason and science.”

David Deutsch, physicist - I think he has a good reason why we can be optimistic; the problem is a knowledge creation and distribution problem.

Thanks to colleagues, supervisors, collaborators:

Dr Carey Lunan

Dr David Blane

Dr Suzy Scarlett

Prof Kate O'Donnell

Prof Frances Mair

Prof Jason Gill

Prof Duncan Lee

hamish.foster@glasgow.ac.uk

 [@hamishfoster](https://twitter.com/hamishfoster)