



Developing and Evaluating Communication strategies to support Informed Decisions and practice based on Evidence

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Royal College of Physicians of Edinburgh, Scotland

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This project has received funding from the European Union's Seventh Framework Programme for research, technological development and demonstration under grant agreement n°258583



How useful are evidence-based guidelines to primary care?

Bruce Guthrie

Professor of Primary Care Medicine

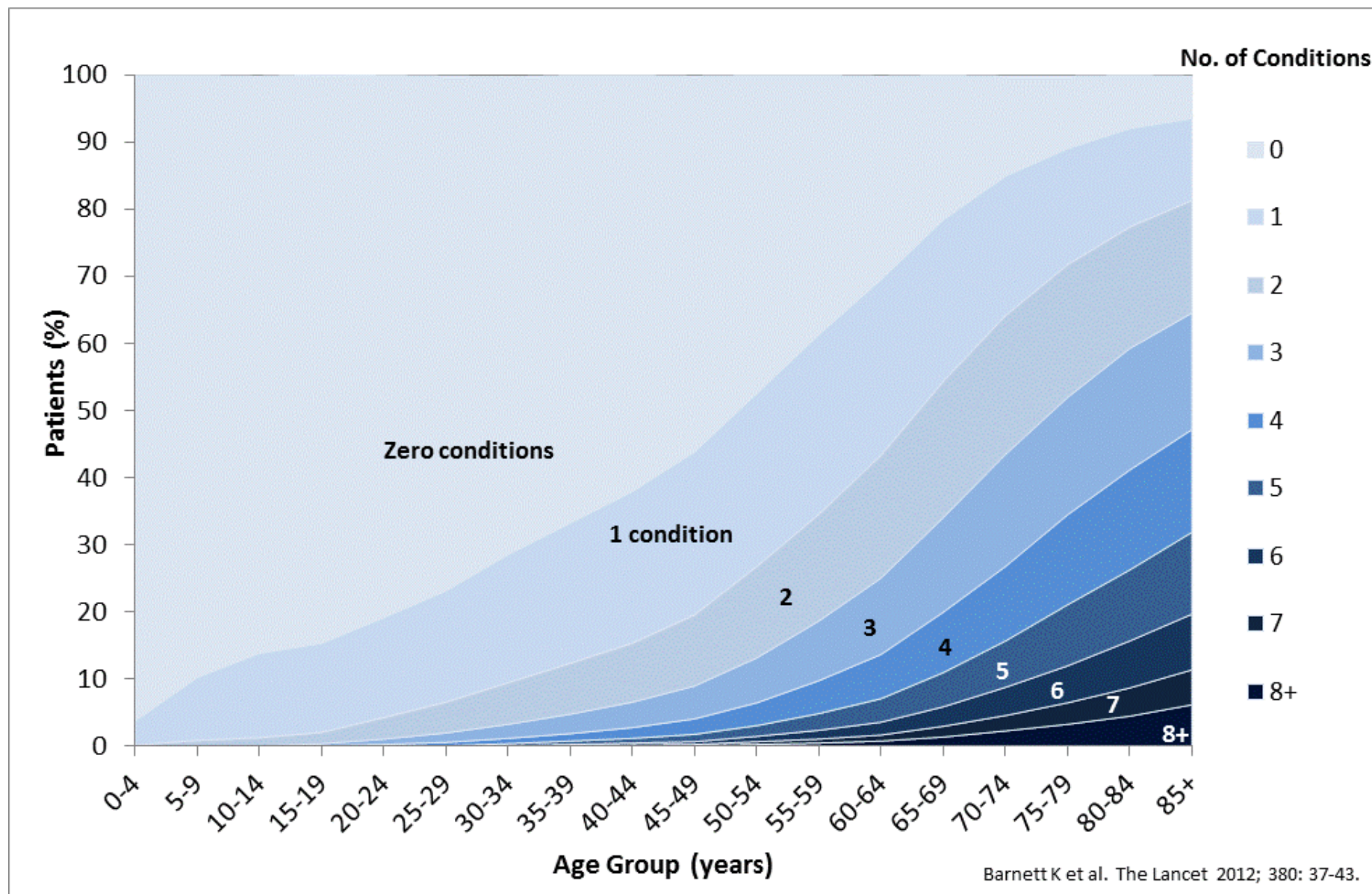
University of Dundee

How useful are guidelines?

- The short answer
 - They are very useful
- The long answer
 - Depends on circumstances...
- What's the problem?
 - Multimorbidity
 - Polypharmacy
 - Life expectancy

Guidelines and multimorbidity

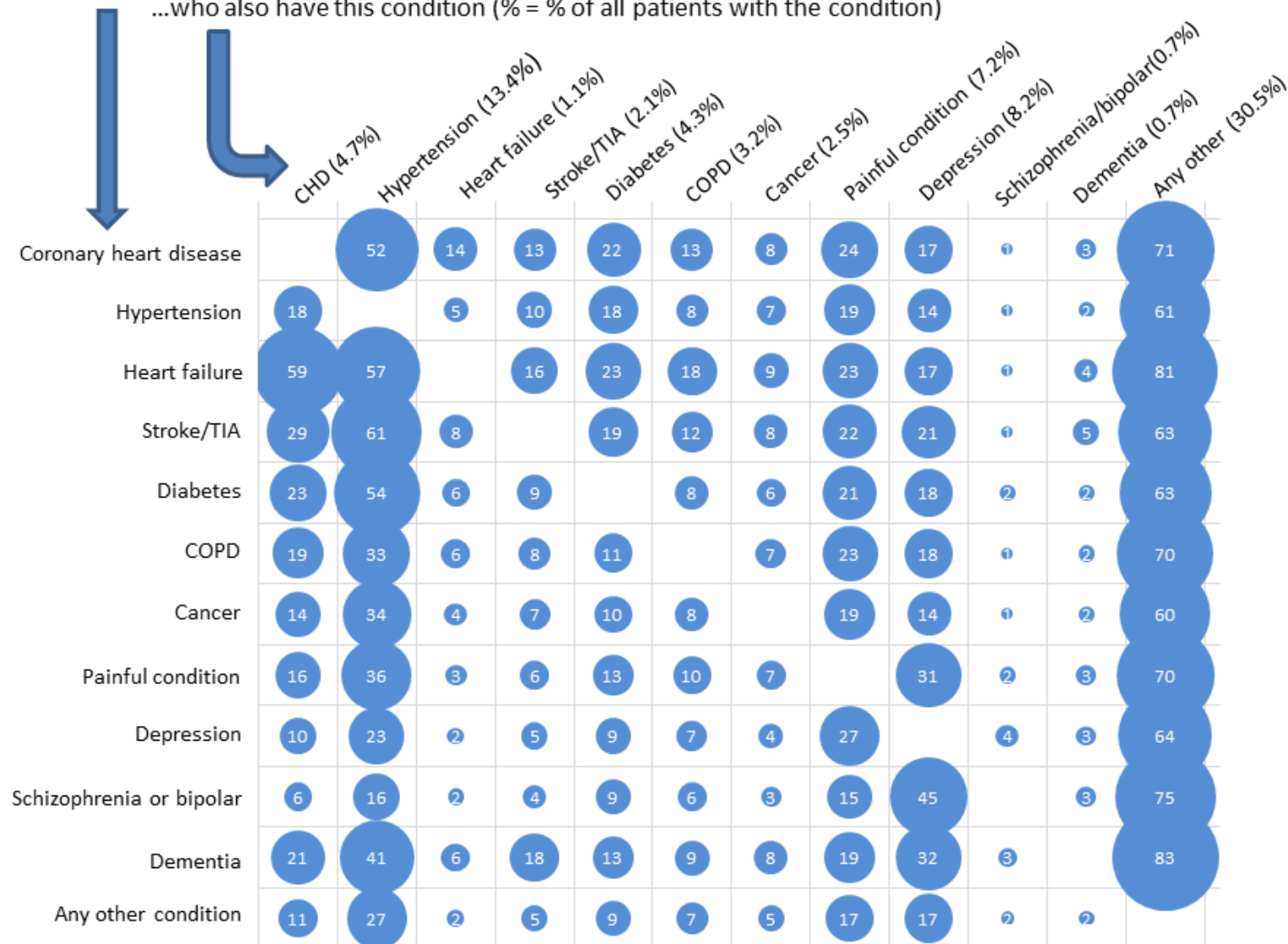
- 78 year old woman with 5 conditions and who smokes
 - MI, T2DM, OA knees, COPD and depression
- NICE guidelines recommend
 - A minimum of 11 drugs (+/- another 10)
 - A minimum of nine self-care/lifestyle activities
 - Attend 8-10 routine primary care appointments, 4-6 other medical appointments, 8-30 psychosocial intervention appointments +/- smoking cessation, pulmonary rehabilitation





% of patients with this condition...

...who also have this condition (% = % of all patients with the condition)



What's the problem?

- Guidelines largely ignore multimorbidity
 - Guidelines can't account for all possible combinations (at least on paper)
 - Guidelines reflect the evidence base (but applicability not always well handled)
 - Guidelines don't make it easy to compare treatments in terms of benefits
 - Guidelines focus on decisions to start treatments, but not usually on stopping treatments

Applicability

- One element of GRADE (in)directness
 - Patients in trials may differ from those being treated
 - Evidence is almost always indirect in this way
- Maximum of 51% of people with new T2DM eligible for relevant trials of glycaemic control
- <25% of older people discharged from hospital with heart failure eligible for key trials
- <10% of people with COPD eligible for key trials
- 81% of trials in high-impact journals exclude people with common medical conditions, half poorly justified

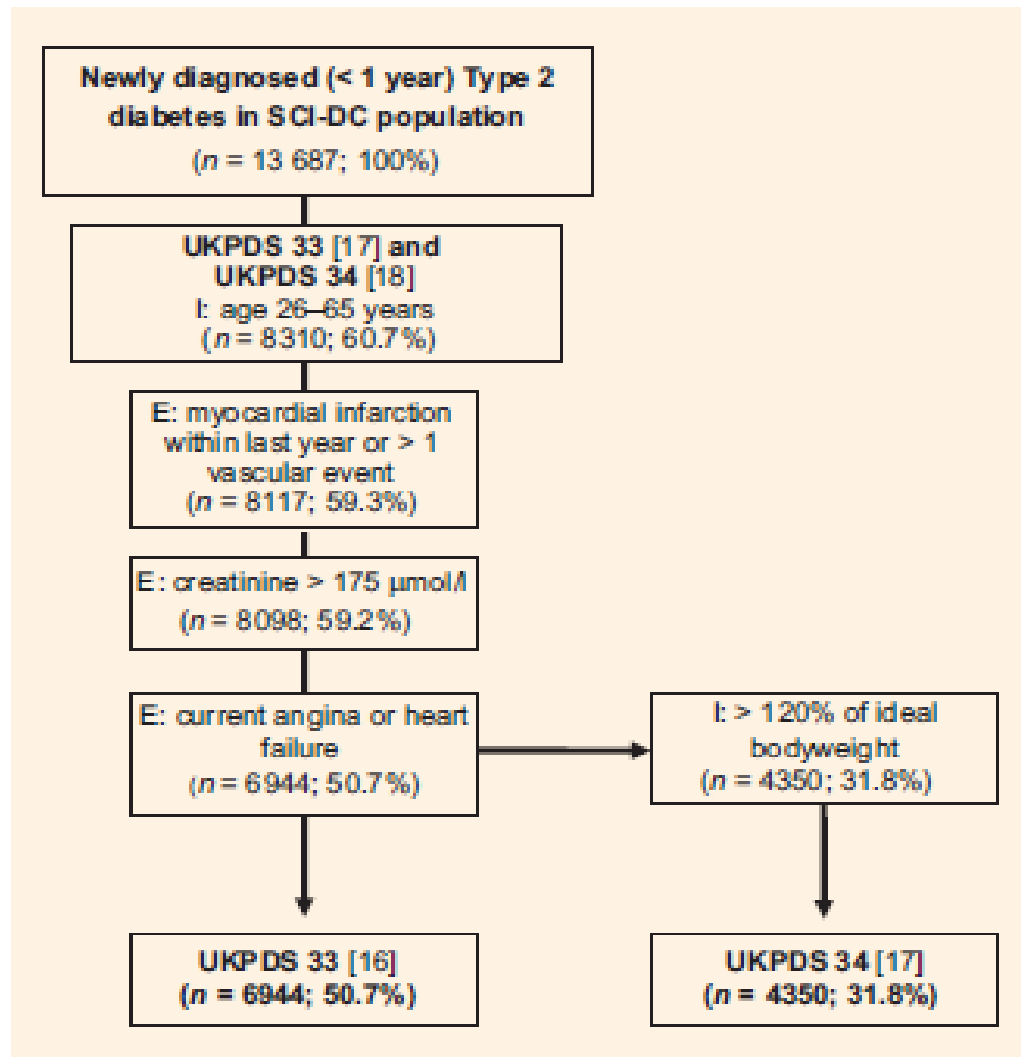
NICE and directness

- “The GDG may wish to extrapolate to the recommendations from the evidence – for example, from high-quality evidence in a largely similar patient group. The GDG will need to make its approach explicit, stating the basis it has used for extrapolating from the data and the assumptions that have been made.” (NICE Guidelines Manual)
- Unusual for NICE to identify ‘serious indirectness’
- Implicitly, any differences between trial and real-world populations won’t alter recommendations

Unaltered recommendations?

- Constant risk reduction across populations
- Constant harm across populations
- Or at least
 - Benefit outweighs harm across populations
 - Even if harm is higher, absolute benefit may be greater if baseline risk is higher
 - Assumes no significant competing risks

Newly diagnosed type 2 diabetes





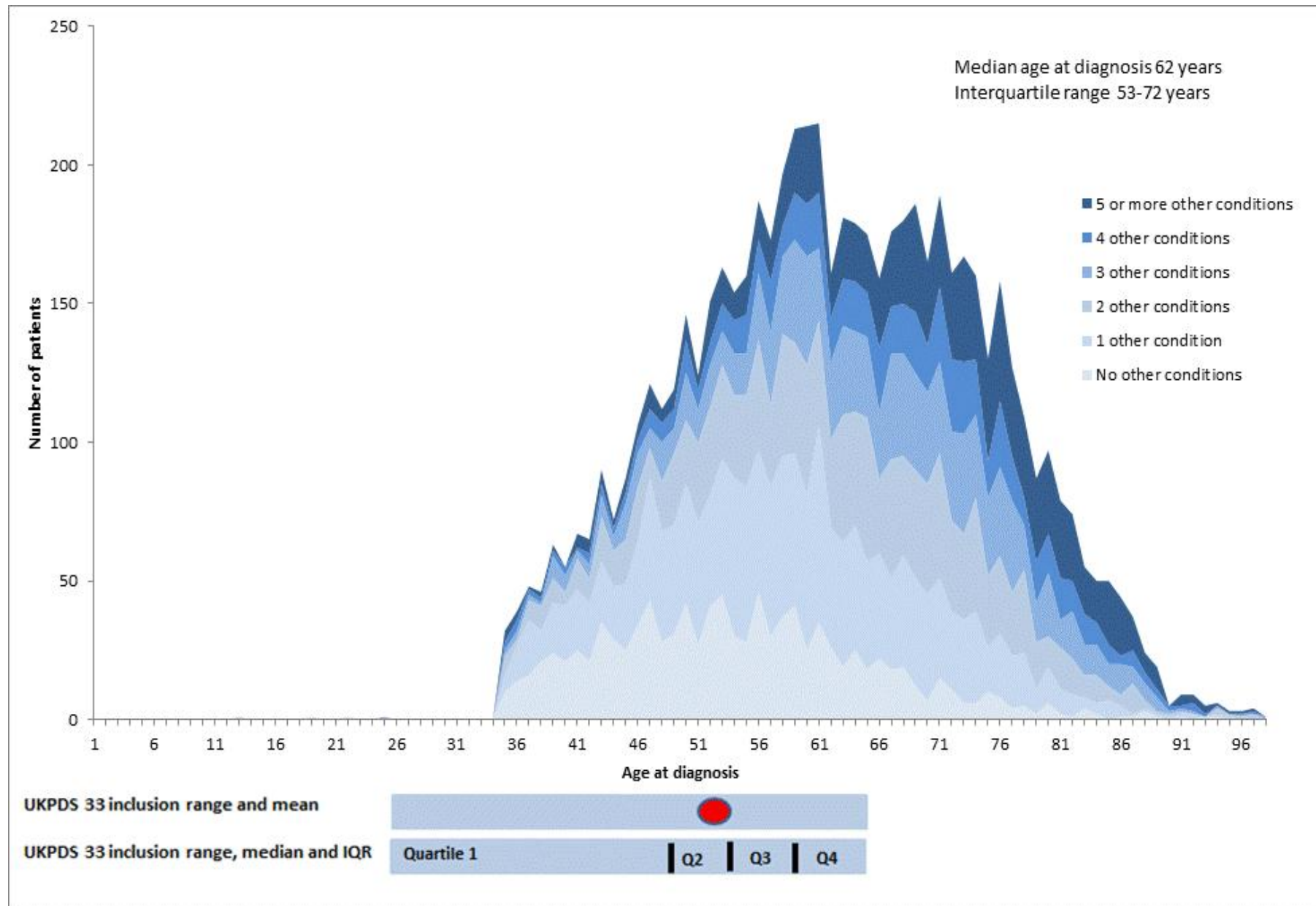
1 3 5 7 9 11 13 15 17 19 21 23 25 27 29 31 33 35 37 39 41 43 45 47 49 51 53 55 57 59 61 63 65 67 69 71 73 75 77 79 81 83 85 87 89 91 93 95 97

UKPDS 33 inclusion range and mean



UKPDS 33 inclusion range, median and IQR

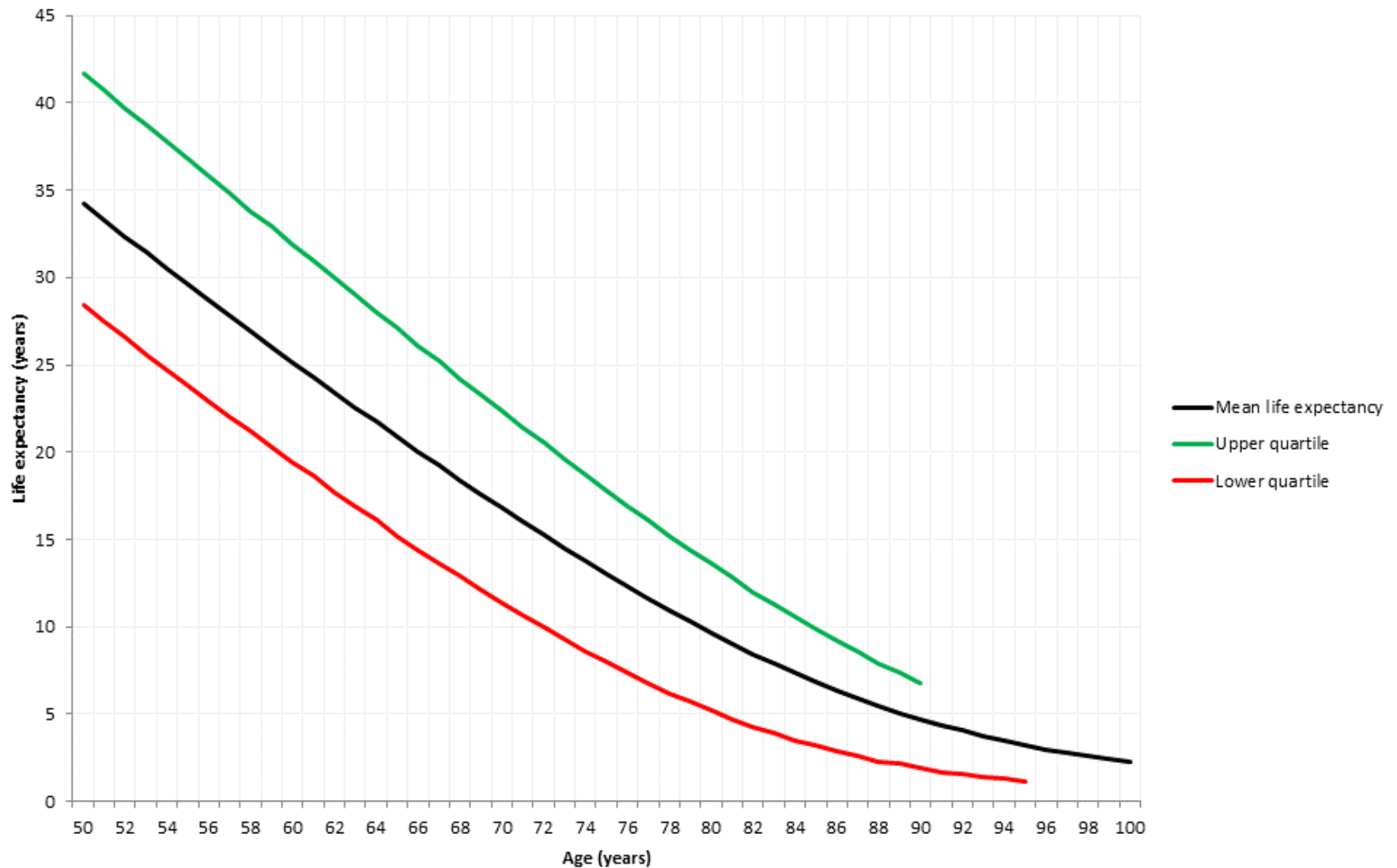




Unaltered recommendations?

- Constant relative risk reduction across populations
 - Accept that (although limited evidence for it)
- Constant harm across populations
 - Very unlikely to be true (age, multimorbidity, poly-pharmacy, frailty)
- Or at least, benefit continues to outweigh harms
 - Benefit is small over first 11 years of treatment (12% reduction for any diabetes related endpoint, mostly non-blinding retinopathy)
- Absolute benefit may be greater
 - Only if no significant competing risks

Life expectancy (2010-2012 data) for women, England and Wales



Applicability in guidelines

- Is the treatment effect on a *clearly important* outcome *large enough* over a *short enough period of time* to make applicability problems unlikely to be important?
 - ACE inhibitors in moderate to severe LVSD
 - Blood pressure control in new type 2 diabetes
 - Glycaemic control in new type 2 diabetes
- (None of this helps us decide when to stop treatments...)

Comparing absolute benefits

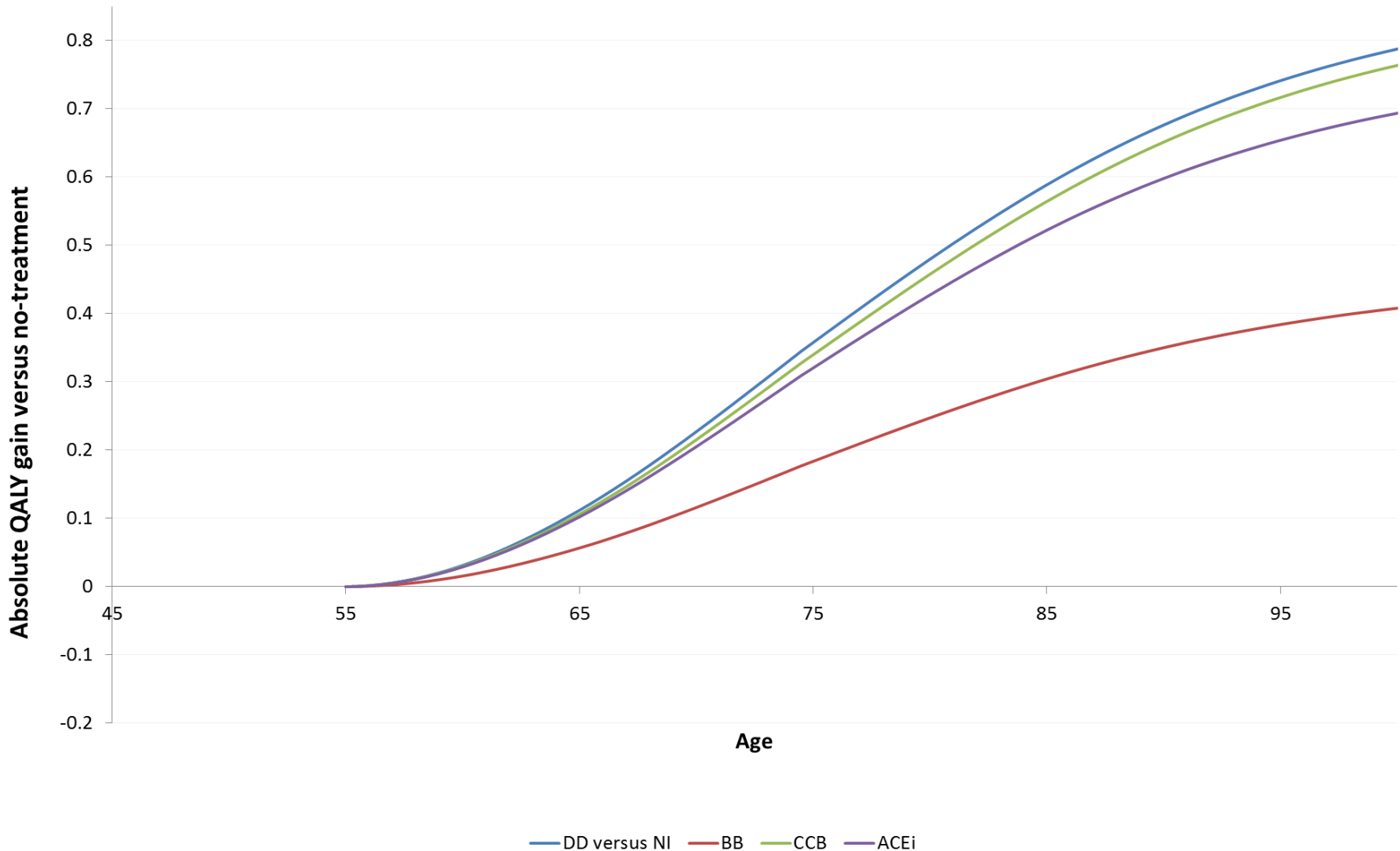
- NNTs proposed but refer to trial population
 - Vary widely depending on baseline risk (even assuming relative risk reduction is stable), so need a baseline risk calculator
 - Apple and oranges comparisons
- QALYs are a potential common metric
 - Not always available
 - Not that good at transient harms
 - Not that liked by clinicians as black box
 - Drive economic models

Economic modelling

- Work in progress University of Manchester
- Better incorporate harm into economic models
- Create bespoke models for common situations
 - Example = depression and CHD (account for SSRI-antithrombotic interaction)
- Modify existing models to explore impact of harm
 - Example = NICE model for hypertension treatment

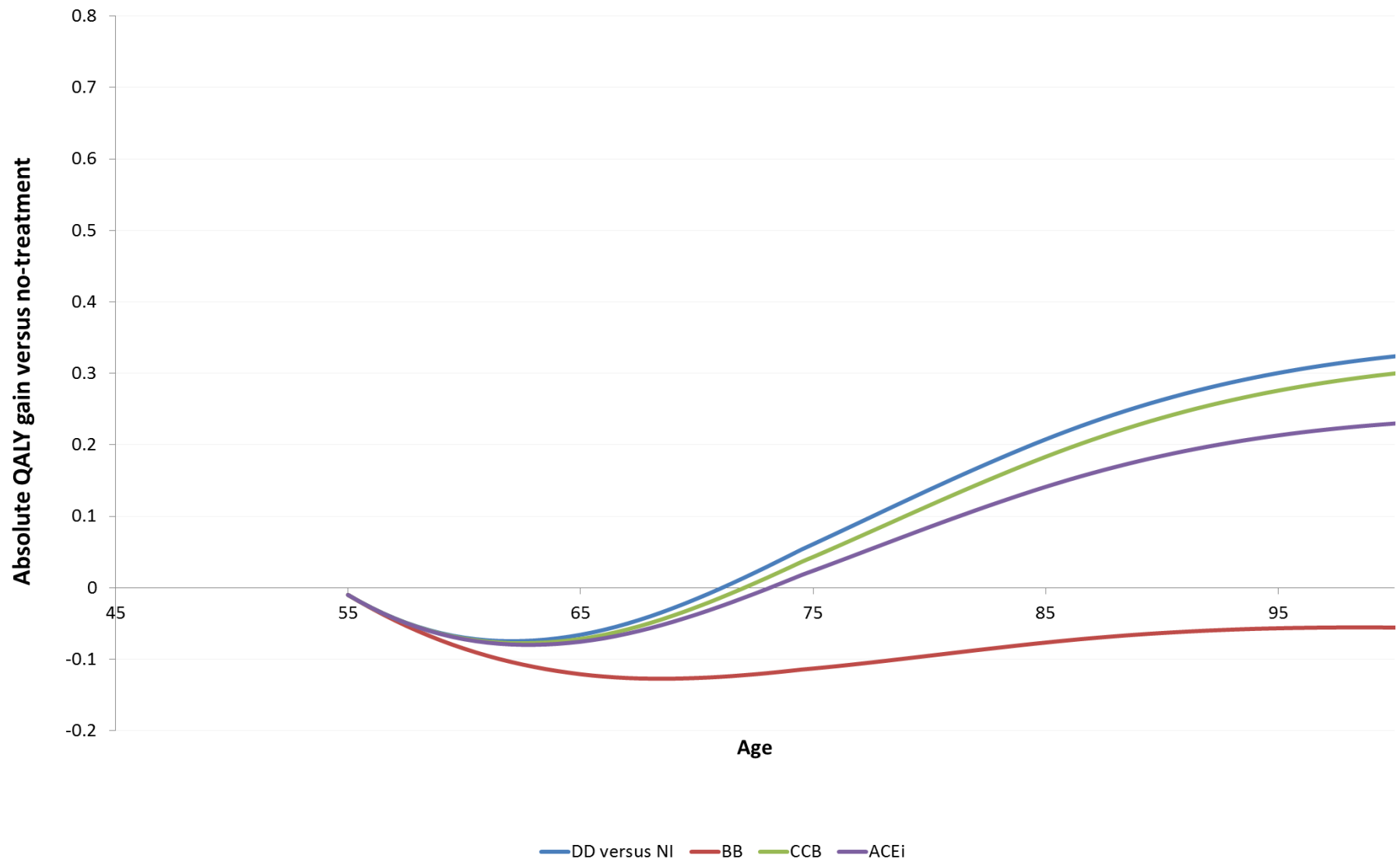


Cumulative Absolute QALY gain for a range of anti-hypertensives for a male cohort (harm = 0)





Cumulative absolute QALY gain for a range of anti-hypertensives for a male cohort (harm = 0.02)



Summary

- Guidelines are great
- Guidelines are problematic in the frail and in presence of multimorbidity
- Incremental improvements
 - Guidelines for common co-morbidities?
 - Guidelines for ‘multimorbidity’?
 - Make applicability more explicit
 - Better account for harms in modelling

Acknowledgments 1

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- Marion McMurdo and Lloyd Hughes

Acknowledgements 2

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- On behalf of the Better Guidelines Project Team
 - Katherine Payne, Alex Thompson, Siobhan Dumbreck, Angela Flynn, Phil Alderson, Matt Sutton, Martin Wilson, Stewart Mercer, Shaun Treweek, Ian Lewin

A faded background image of a large steel truss bridge spanning a body of water. The bridge has multiple arches and is supported by numerous piers. In the foreground, a series of dark, rectangular concrete blocks are arranged in a line across the water, receding towards the bridge.

Thank you!





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