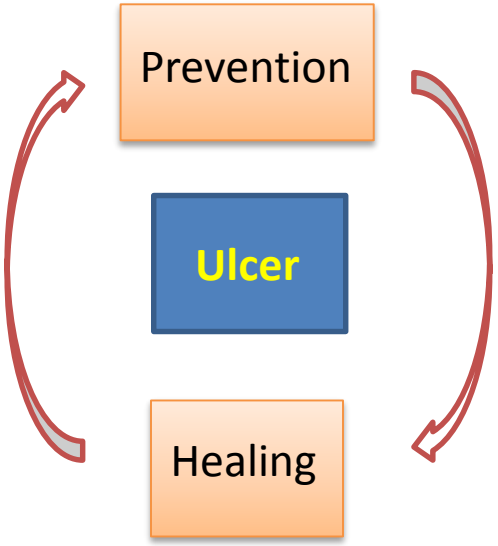
The future of vascular surgery will be addressing diabetic foot disease

Wesley Stuart
Queen Elizabeth University Hospital
Glasgow

Natural History of DM Foot Ulcers



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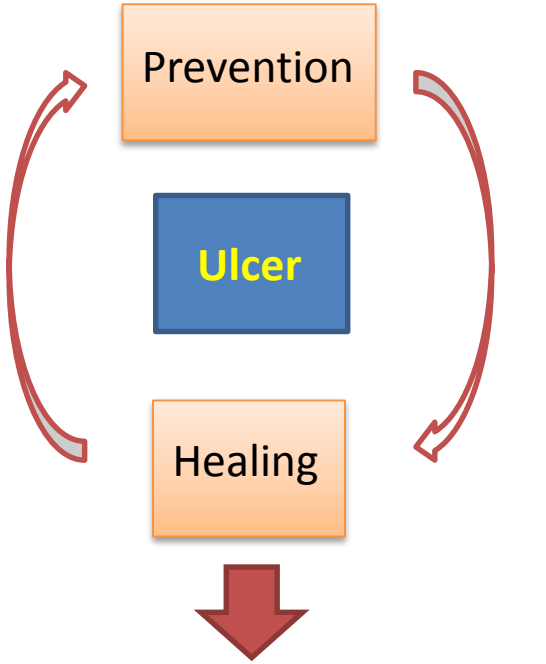
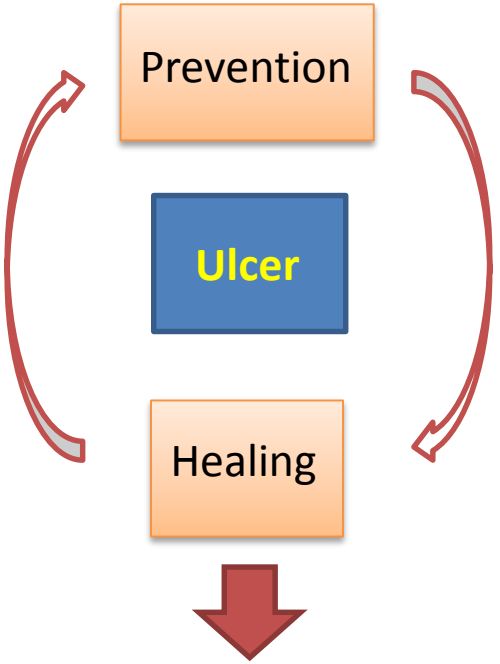


Natural History of DM Foot Ulcers

NHS Greater Glasgow and Clyde

Multiple personnel and Therapies



- Physicians
- Nurses
- Surveillance
- Off-load
- Surgery
  - Ortho
  - Vascular
- Orthotics
- Podiatry
- Education
- Psychological support

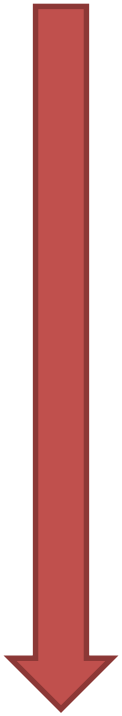
Major adverse events
- **Amputation**
- **Recurrence**
- **Septic episode**
- **Death**

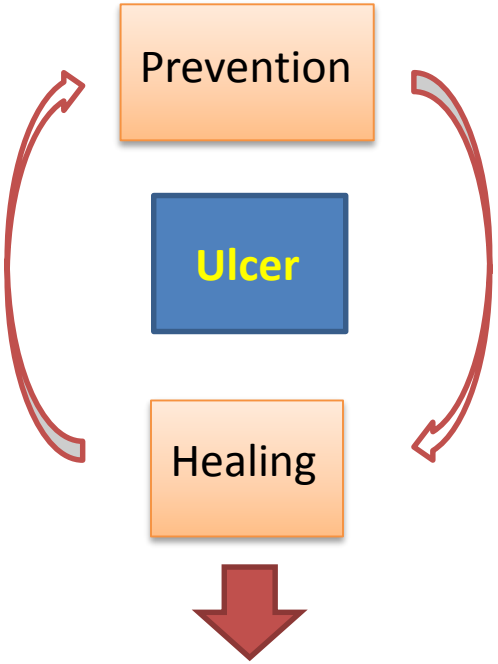
Natural History of DM Foot Ulcers

NHS Greater Glasgow and Clyde

Disease Progression

- PAOD
- Neuropathy
- Infection
- Deformity





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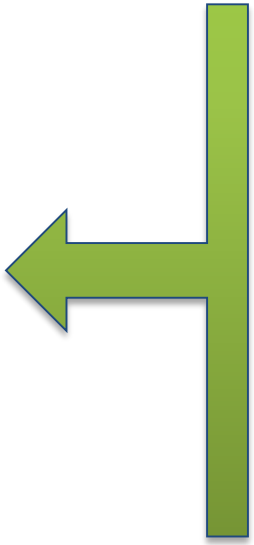

- Physicians
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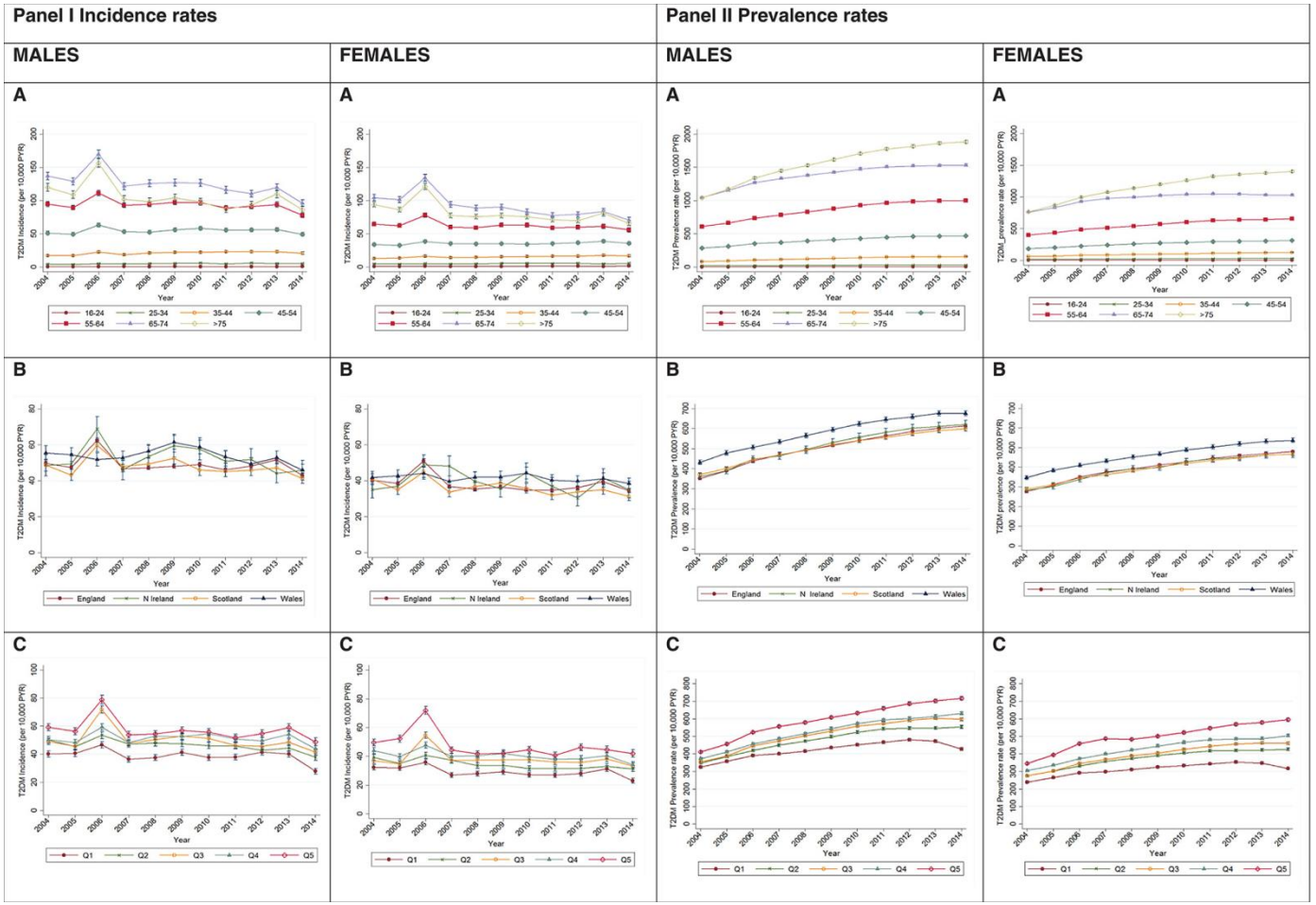
Incidence and Prevalence of DM in UK

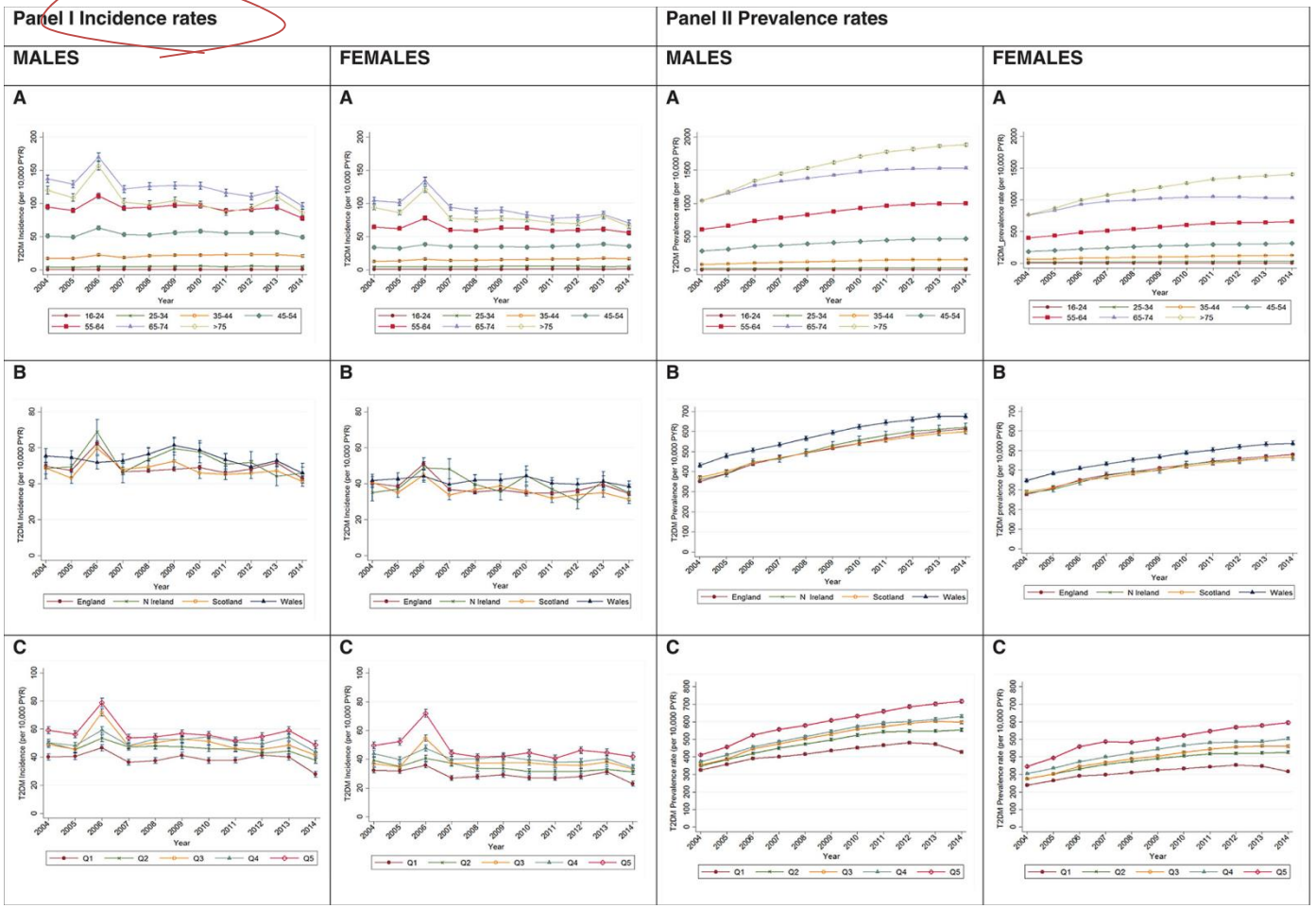


Age group

Four nations

Diabetes Obes Metab 2017 Zhgebi et al

Incidence and Prevalence of DM in UK



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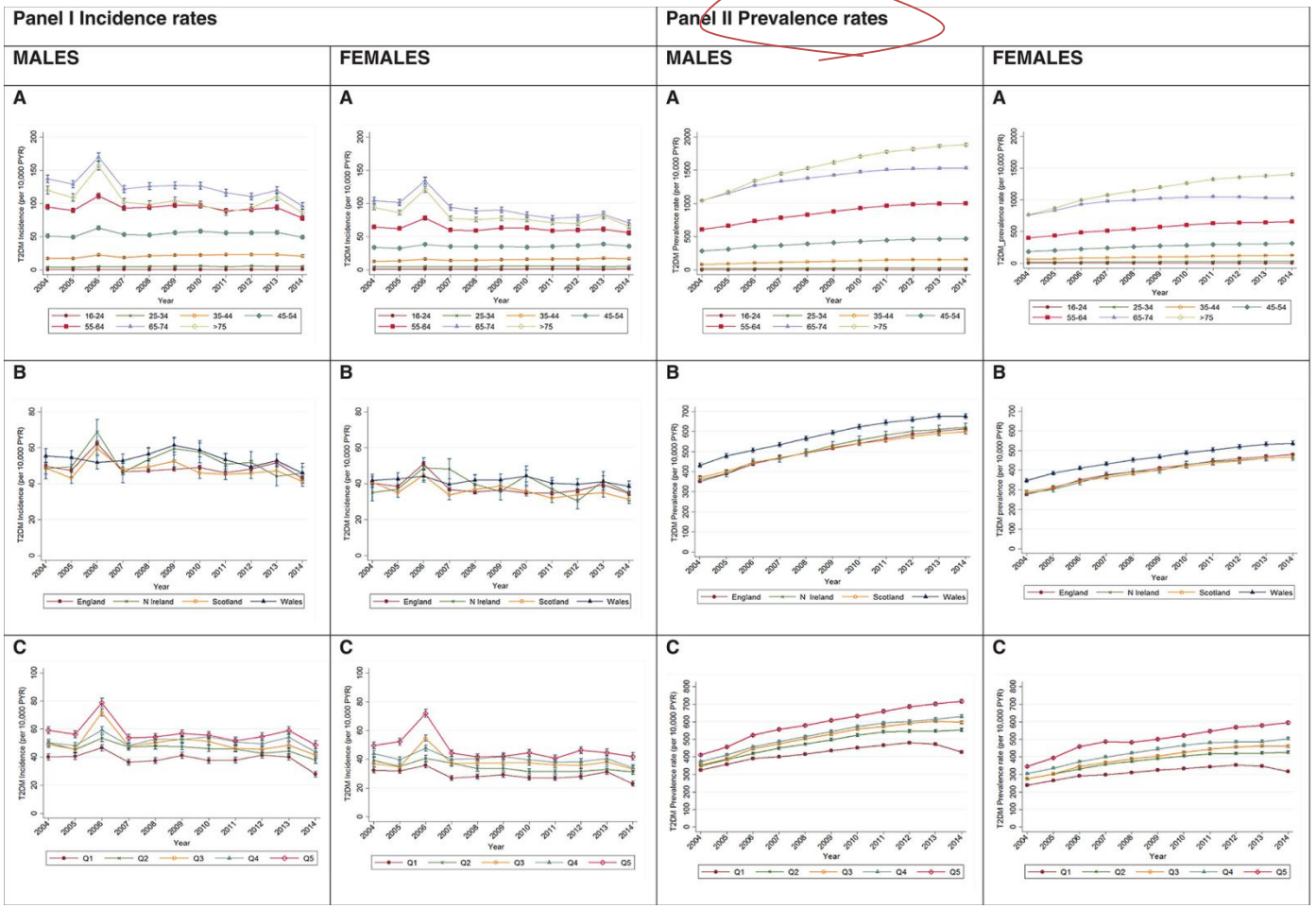

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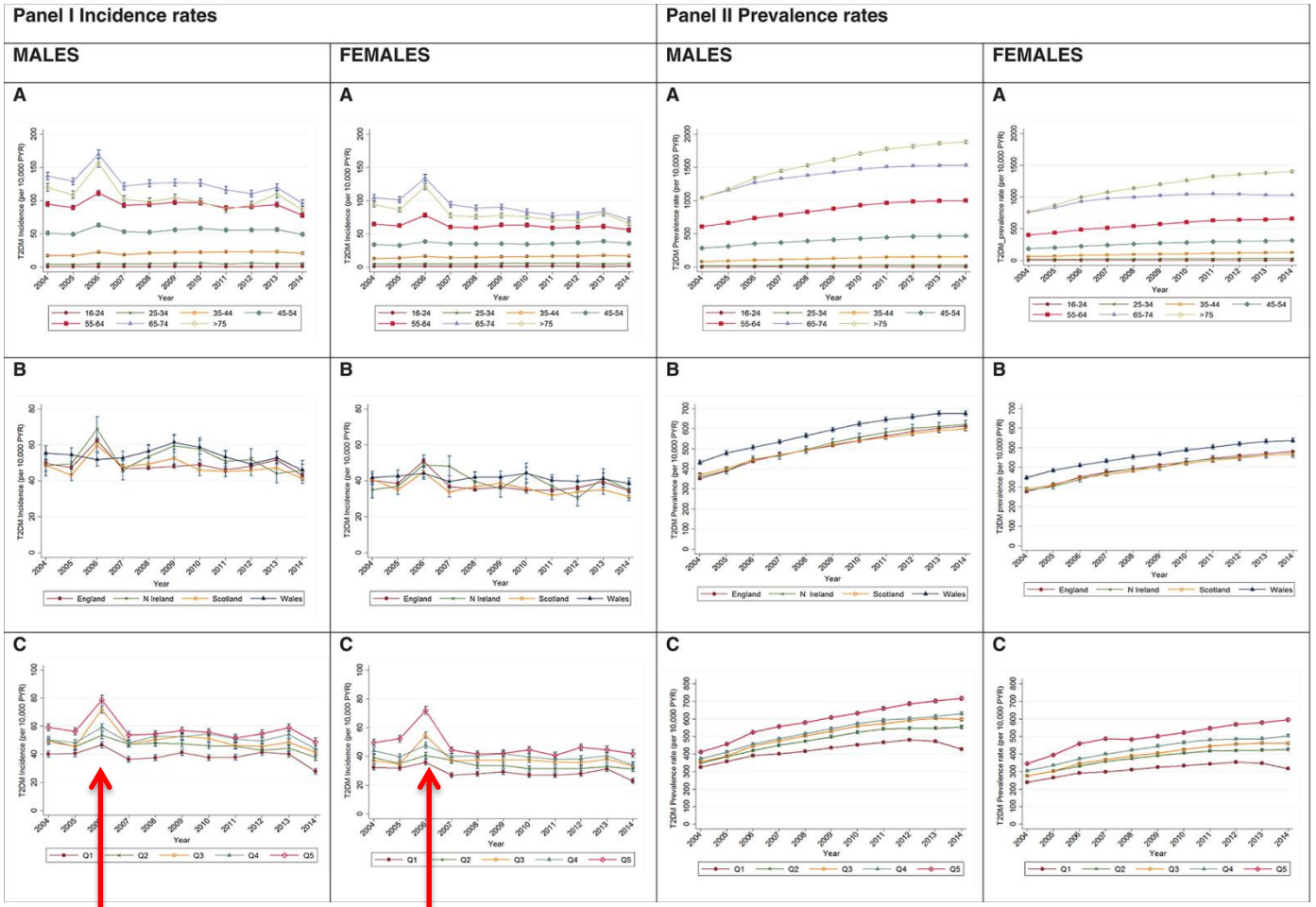

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Deprivation

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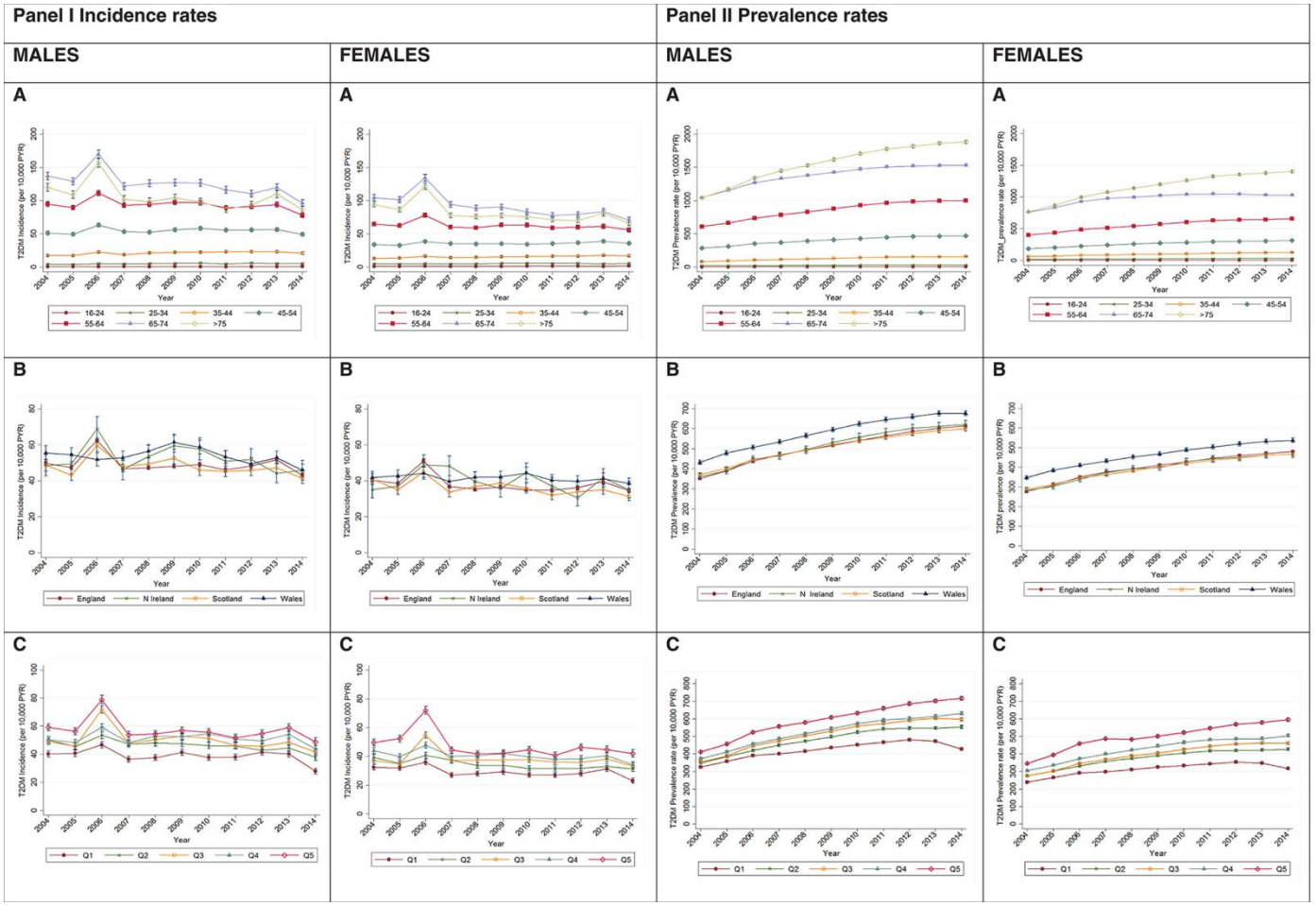

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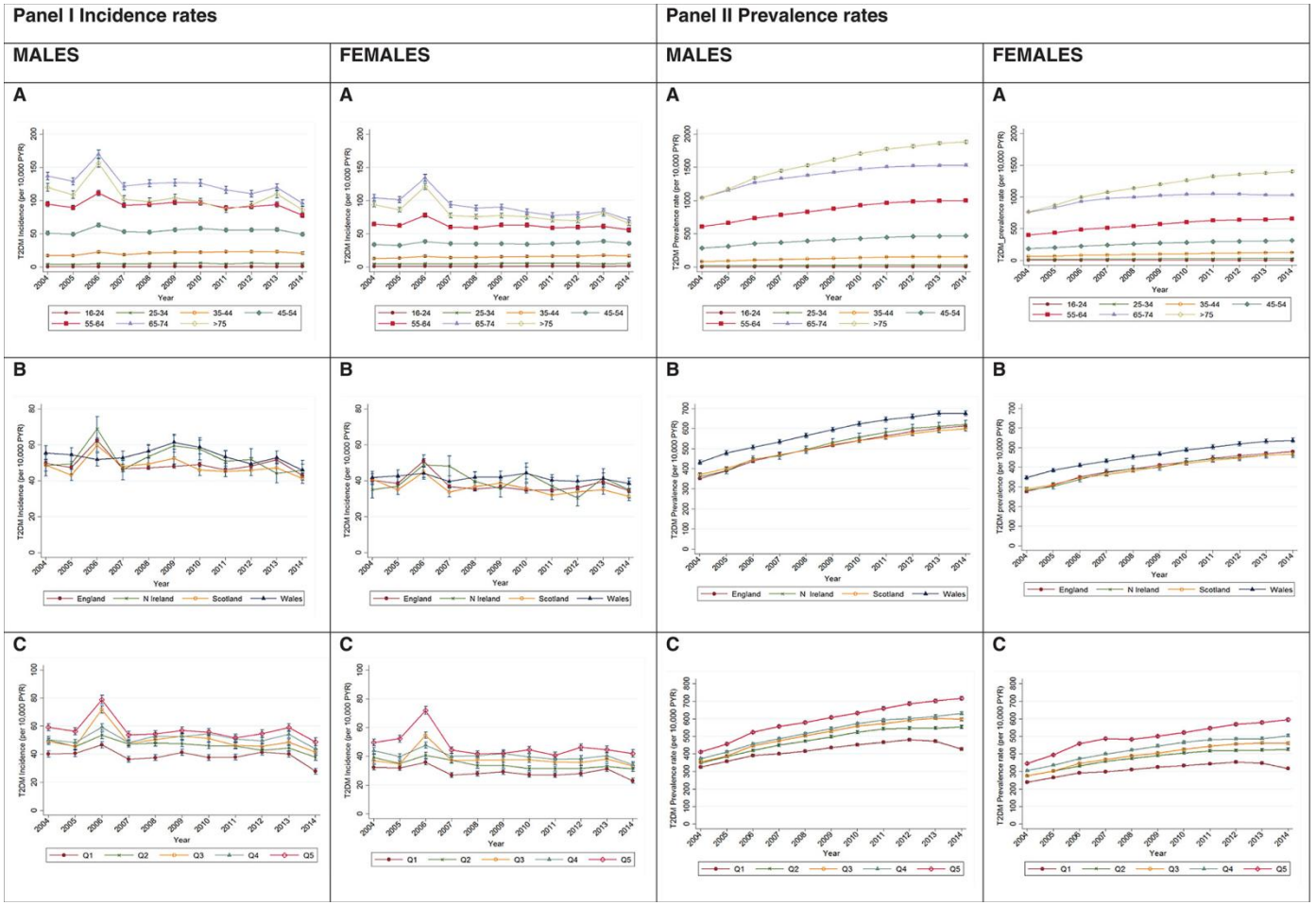

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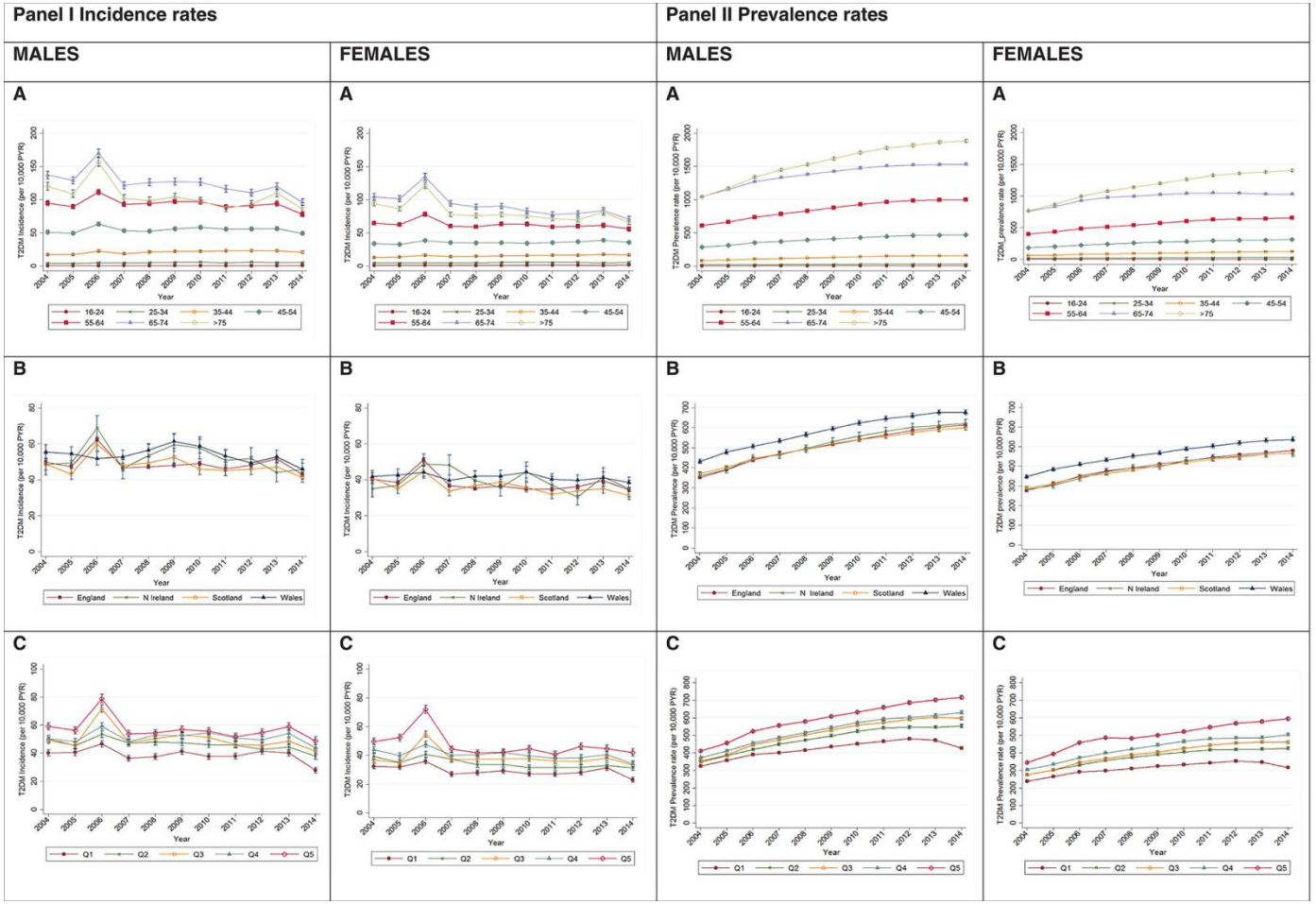

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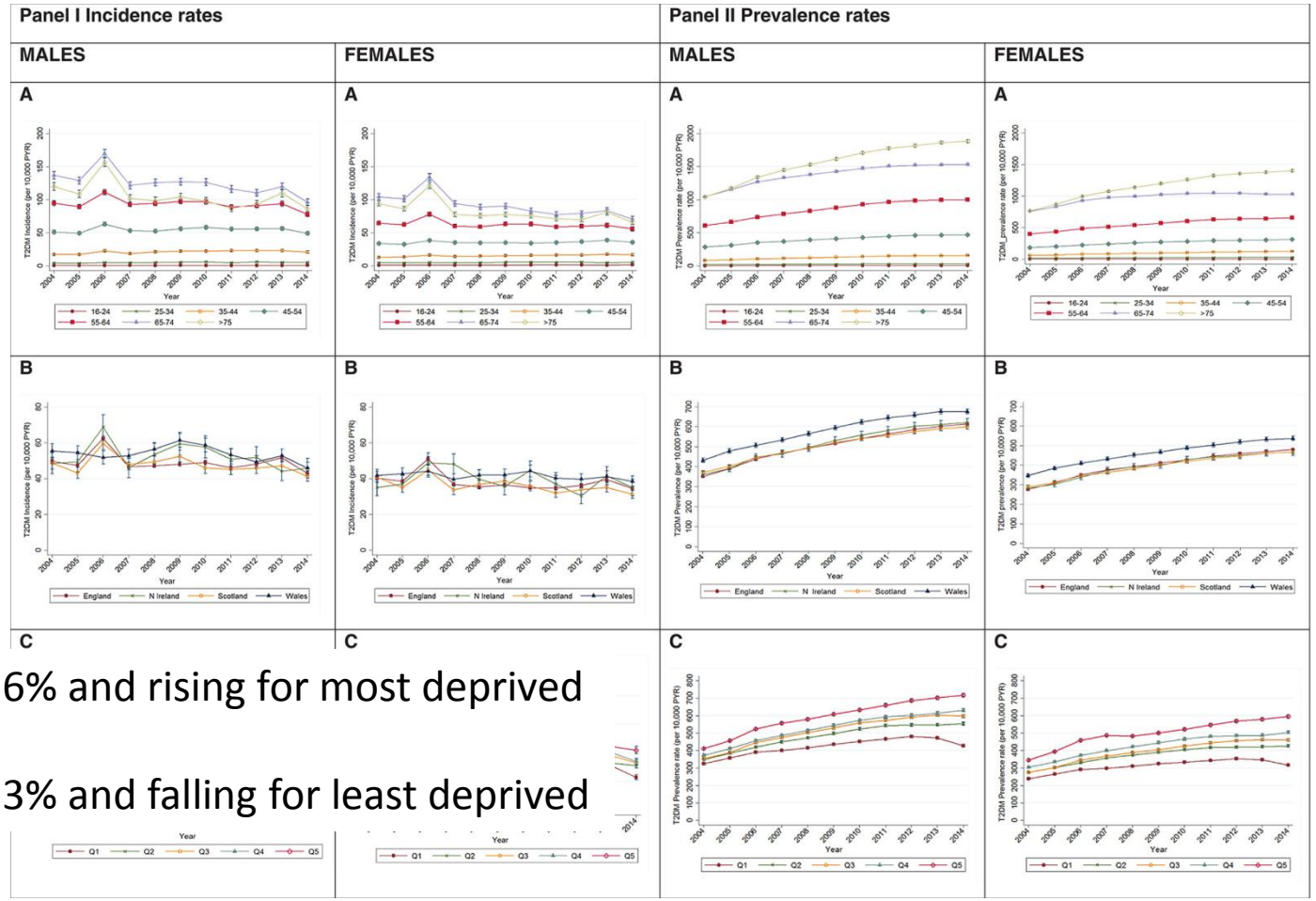


Age group

Four nations

Deprivation

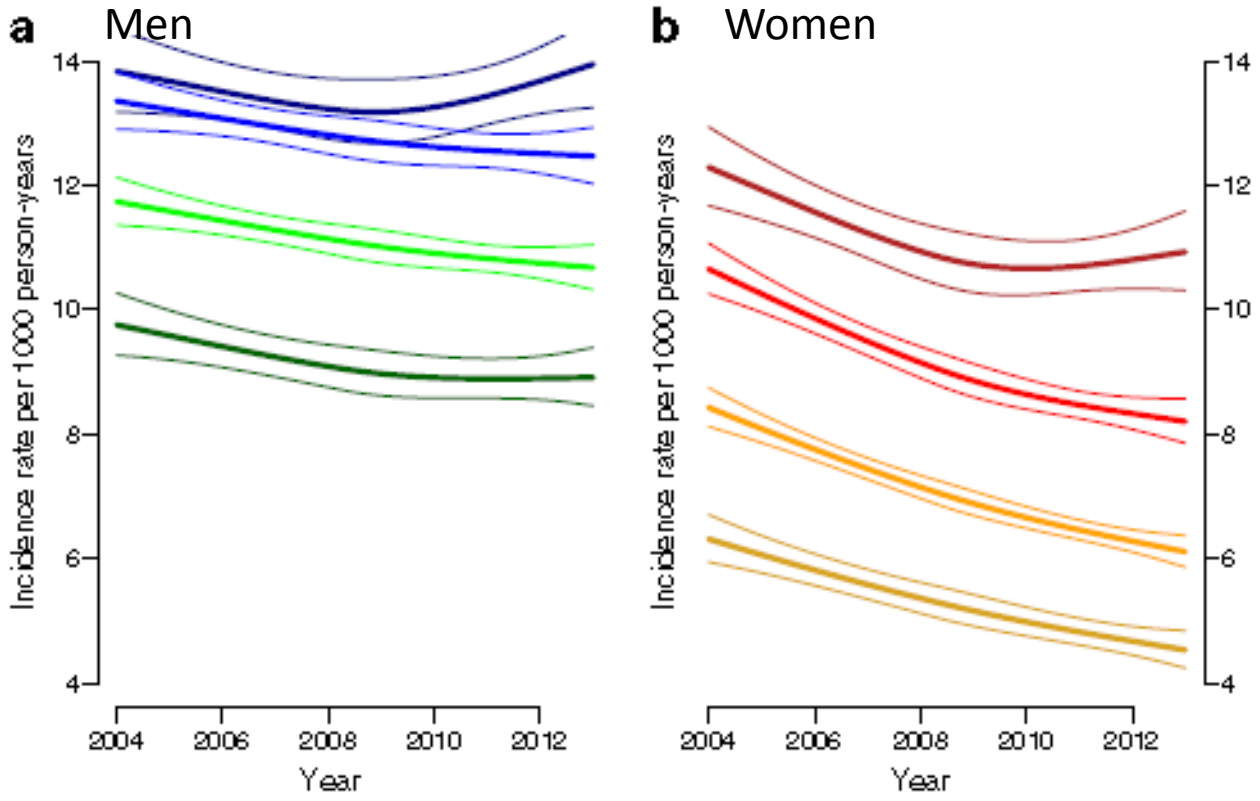
6% and rising for most deprived

3% and falling for least deprived

Diabetes Obes Metab 2017 Zhgebi et al

Scottish Incidence Trends for DM with Deprivation

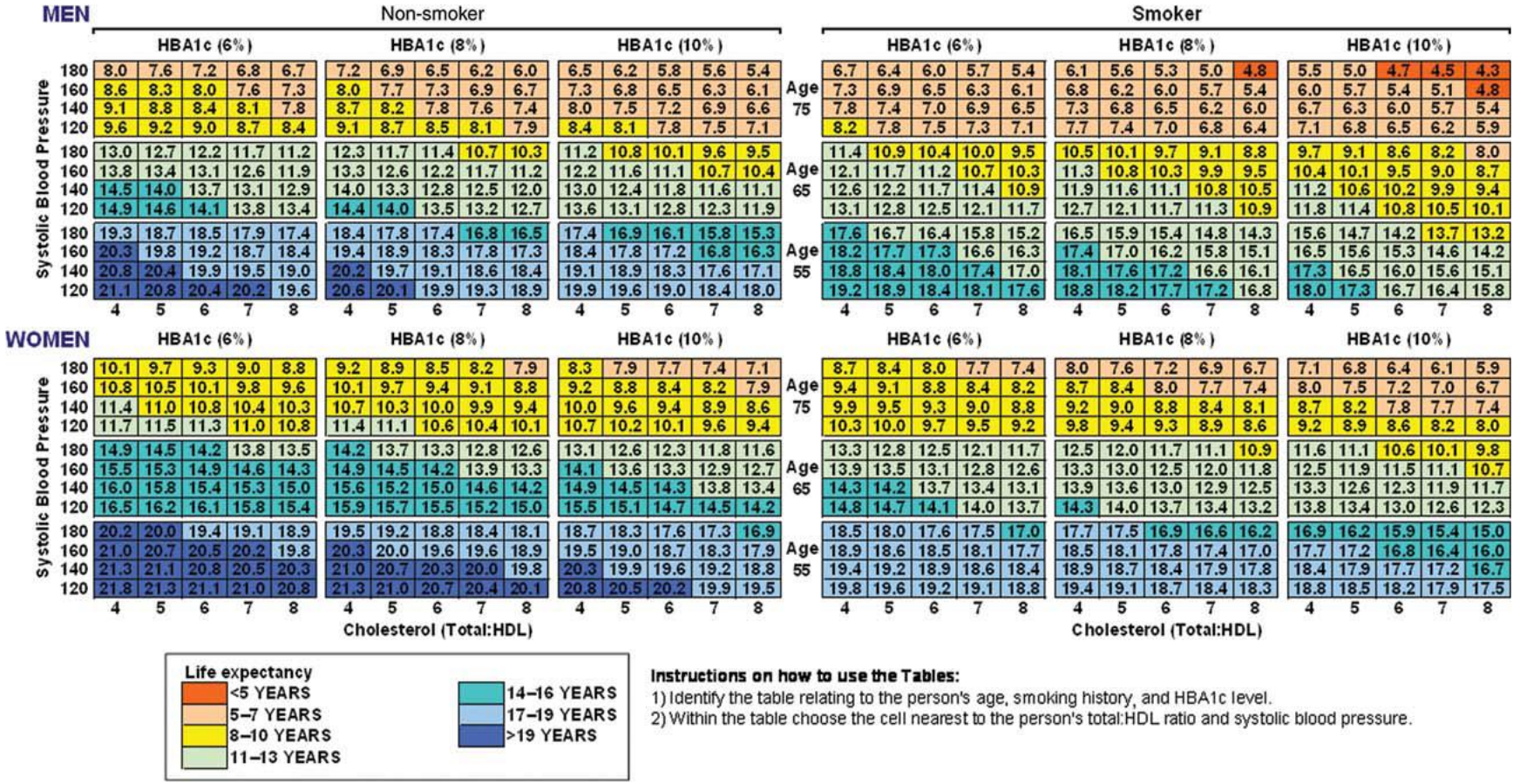
Increasing deprivation



DM incidence trends for men and women in Scotland by socio-economic deprivation. Diabetologica 2016, Read et al.

Life expectancy after diagnosis of type 2 DM (UKPDS outcomes model)

NHS Greater Glasgow and Clyde



Instructions on how to use the Tables:

1) Identify the table relating to the person's age, smoking history, and HBA1c level.
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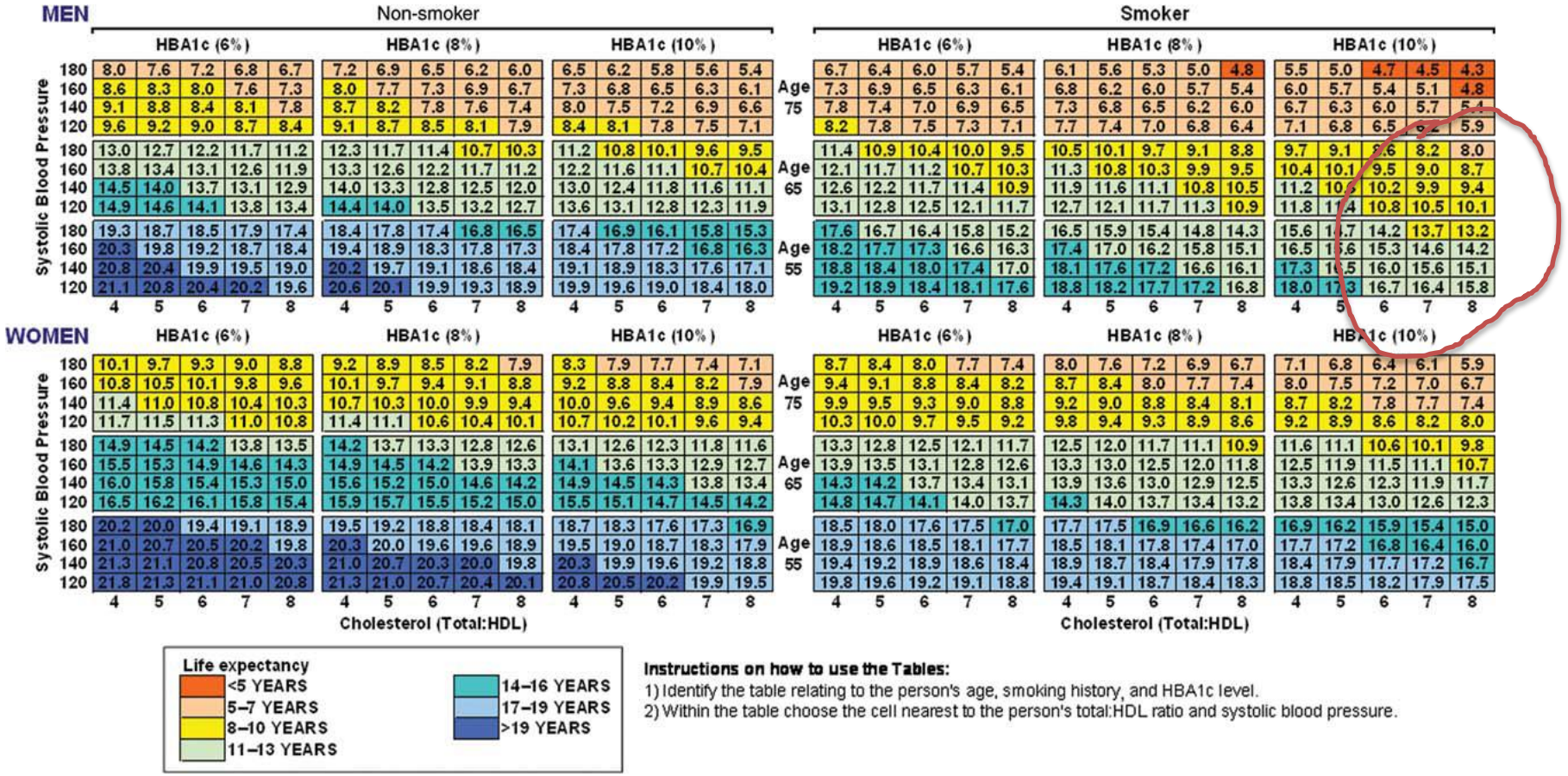

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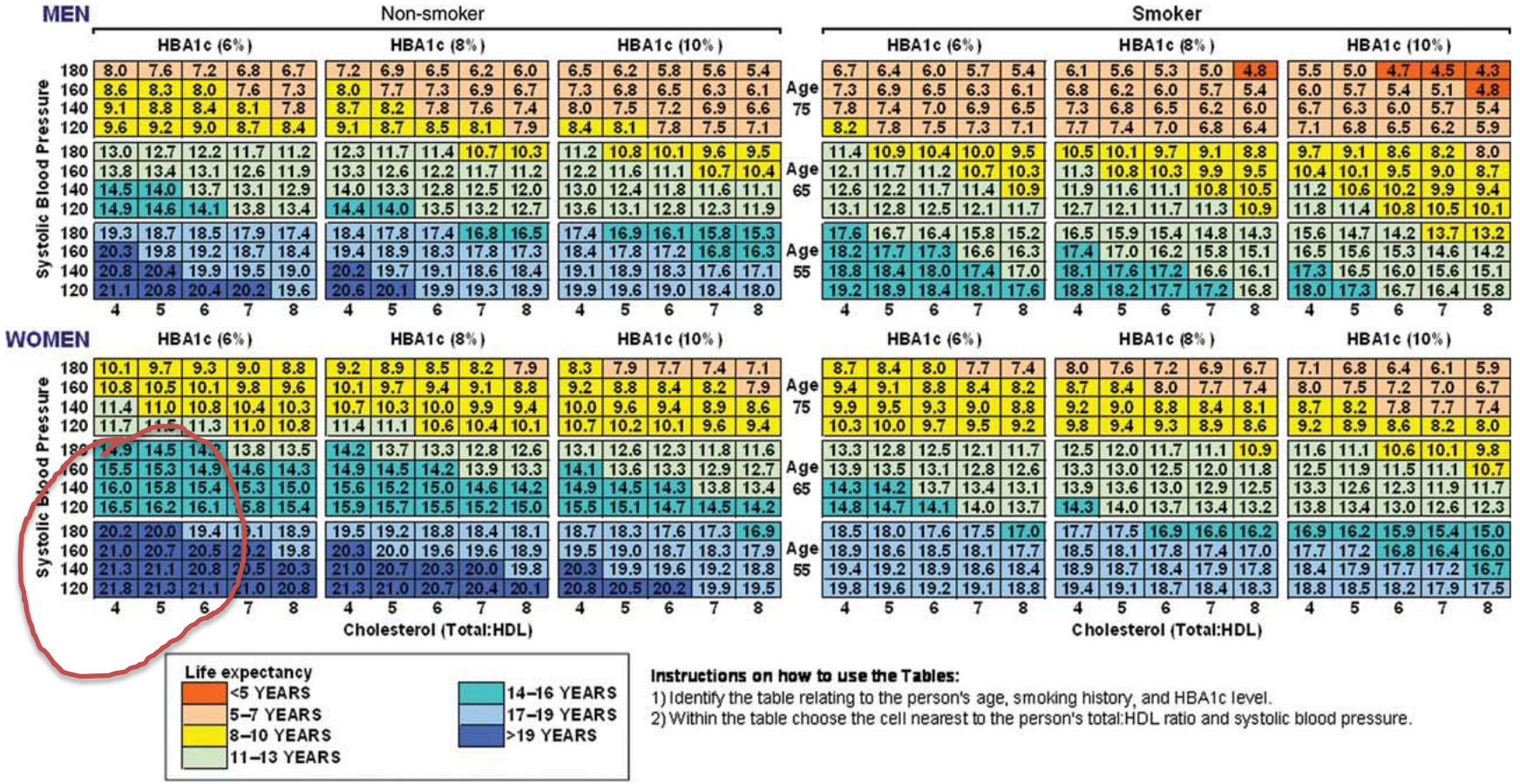

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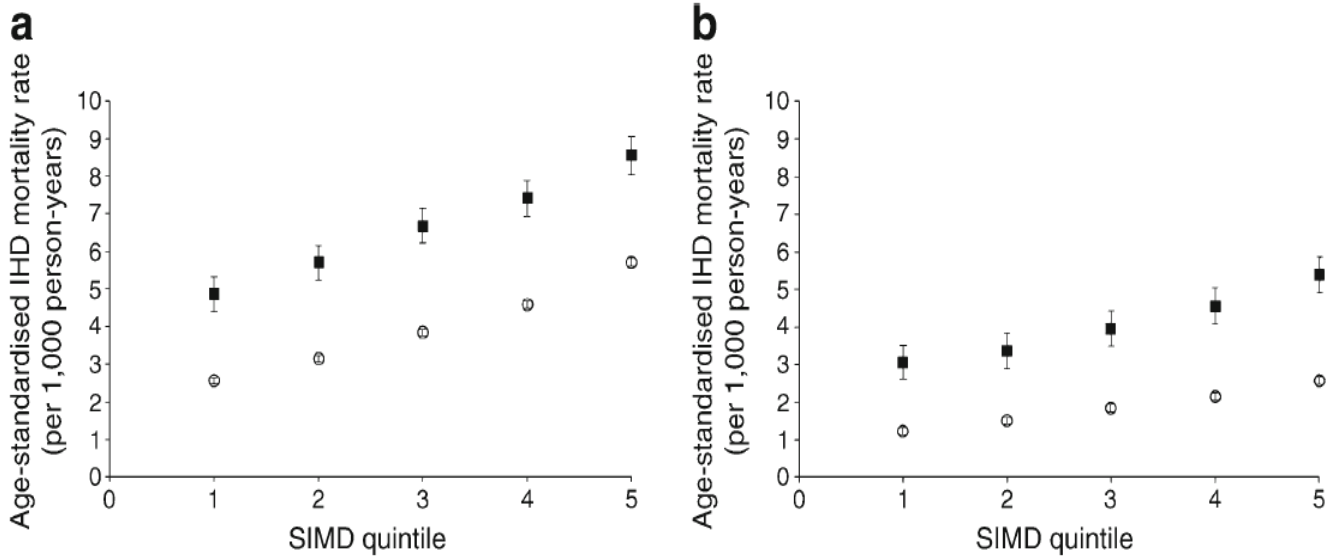
Impact of Type 2 DM and poverty on IHD Mortality

Fig. 1 Age-standardised IHD mortality rates by SES for men (**a**) and women (**b**) with (black squares) and without (white circles) type 2 diabetes. Error bars are 95% CIs



Jackson et al Diabetologica 2012

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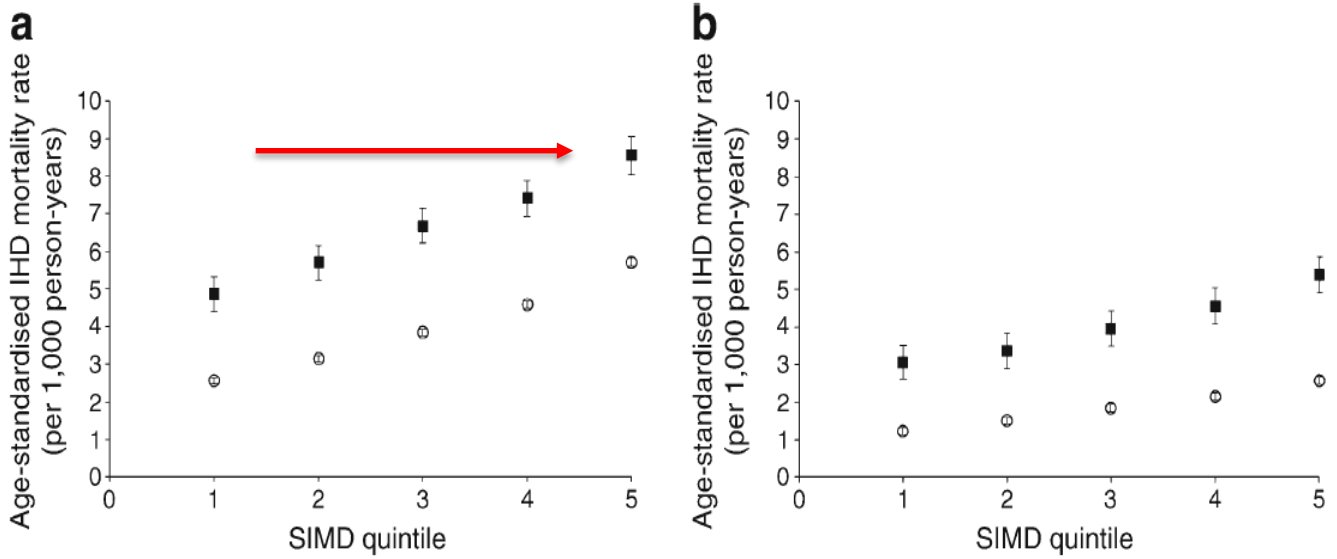

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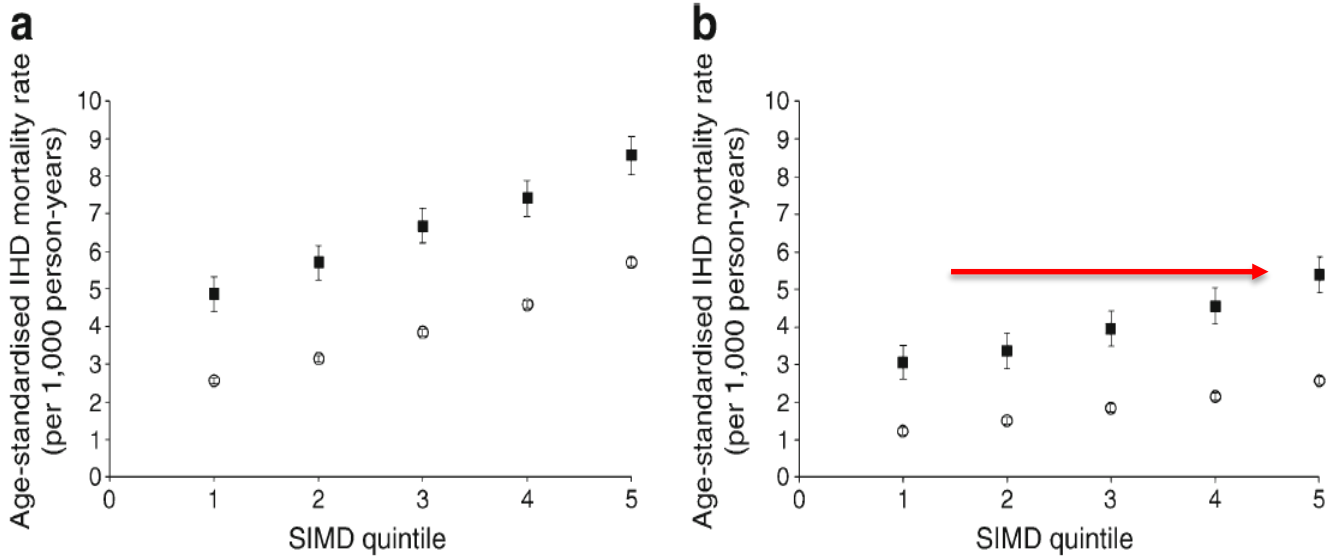


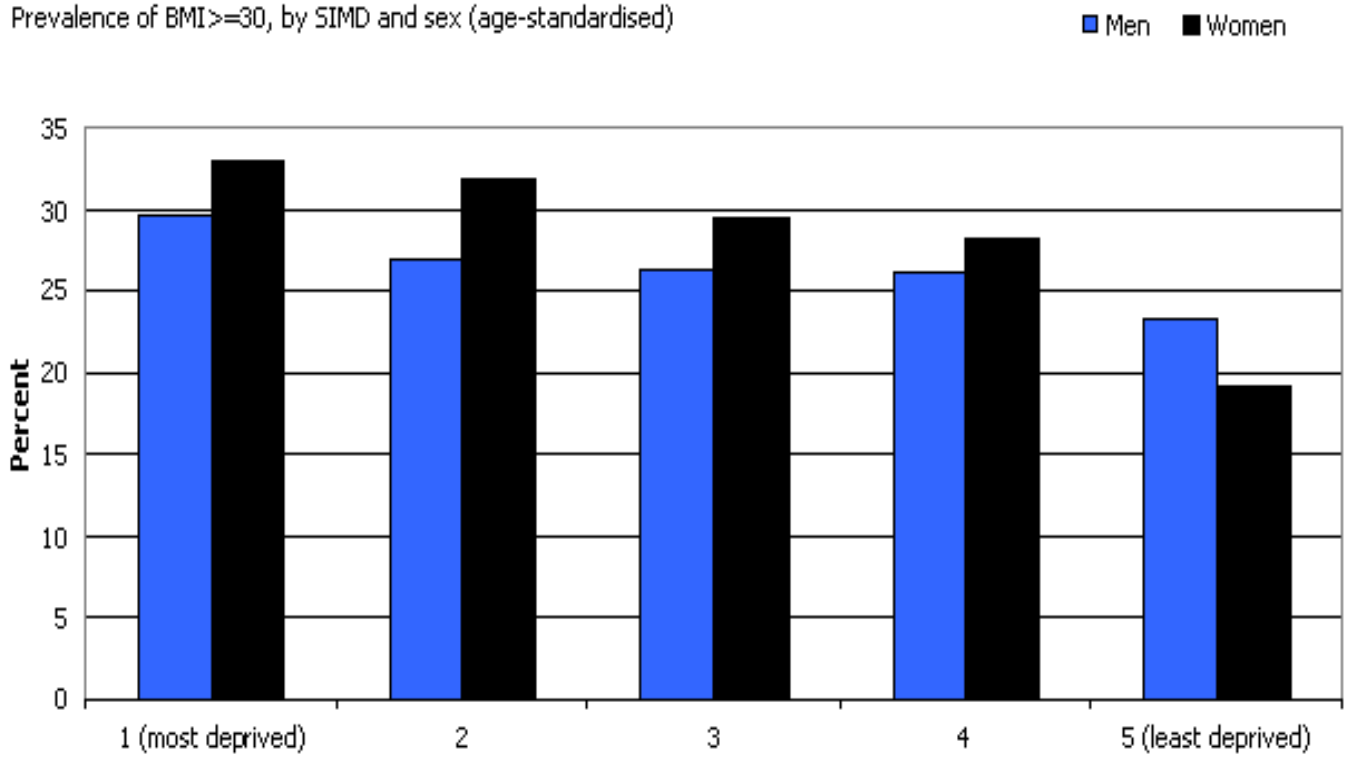
Jackson et al Diabetologica 2012

Deprivation and illness behaviour

- Deprivation-associated health behaviour
  - Late disease presentation
  - Crisis engagement with health care providers
  - Poor concordance with treatments
  - Non-standard routes to care (eg via ED not GP or OPD)
  - “Crash-landers” with septic crisis- emergency amp
- Poorer outcomes for management of most conditions
- Highest rates of smoking

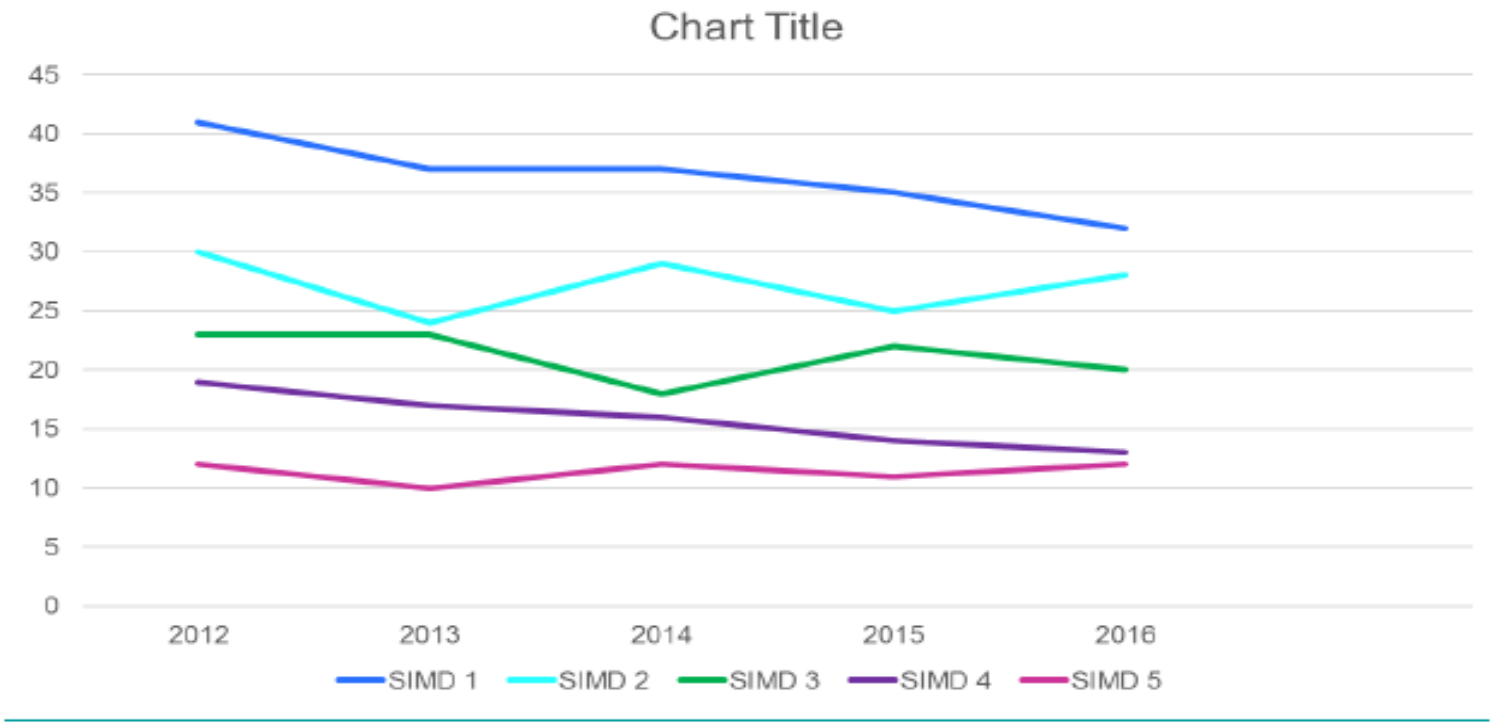
Prevalence of obesity in Scotland

Figure 2.5
Prevalence of BMI>=30, by SIMD and sex (age-standardised)



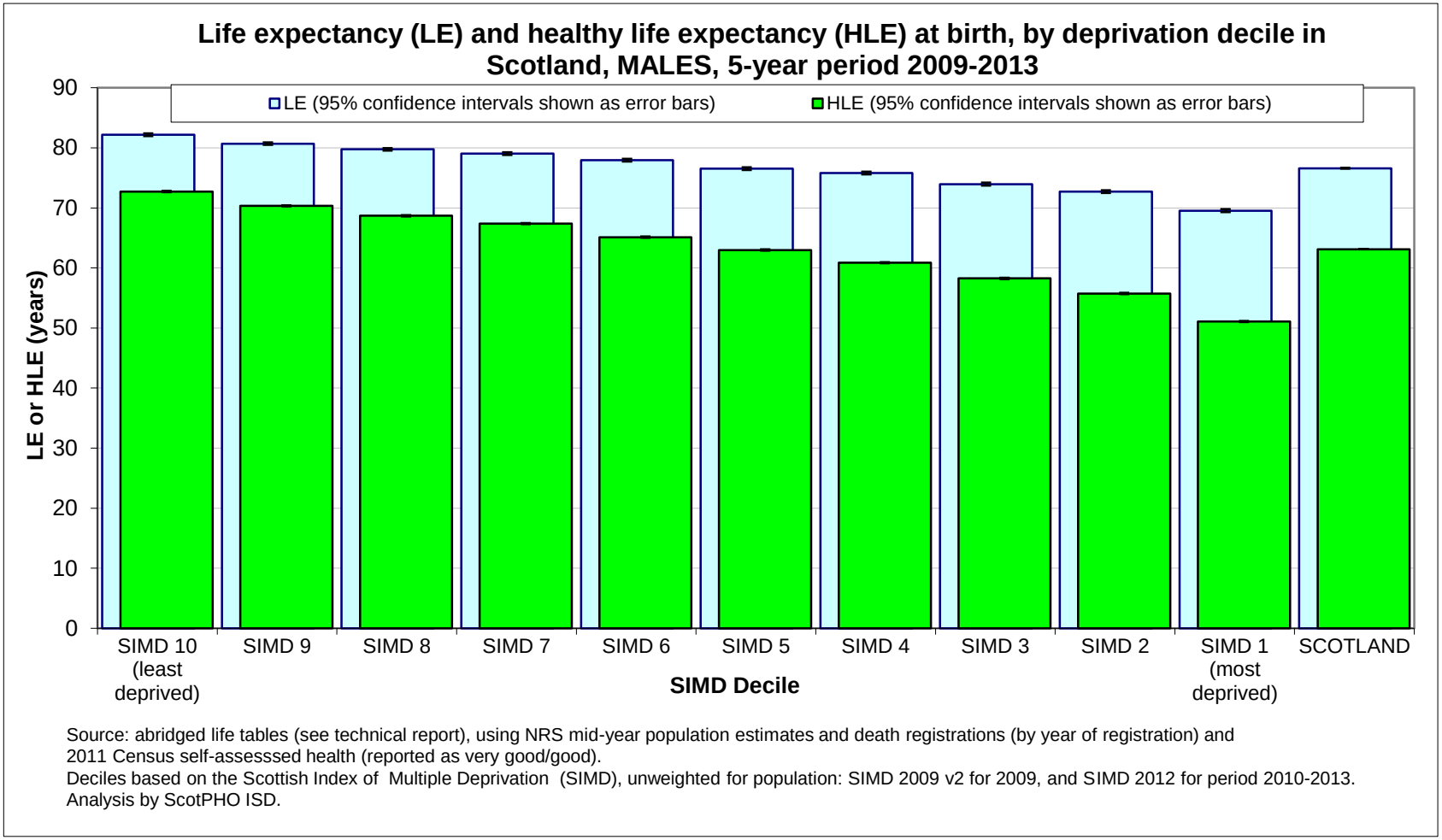
Source: Scottish Health Survey 2011

Smoking by deprivation trends (SHeS)



Source: Usher Institute for Health Sciences and Infomatics, University of Edinburgh

Life expectancy in Scotland



Source: abridged life tables (see technical report), using NRS mid-year population estimates and death registrations (by year of registration) and 2011 Census self-assesssed health (reported as very good/good).
Deciles based on the Scottish Index of Multiple Deprivation (SIMD), unweighted for population: SIMD 2009 v2 for 2009, and SIMD 2012 for period 2010-2013.
Analysis by ScotPHO ISD.

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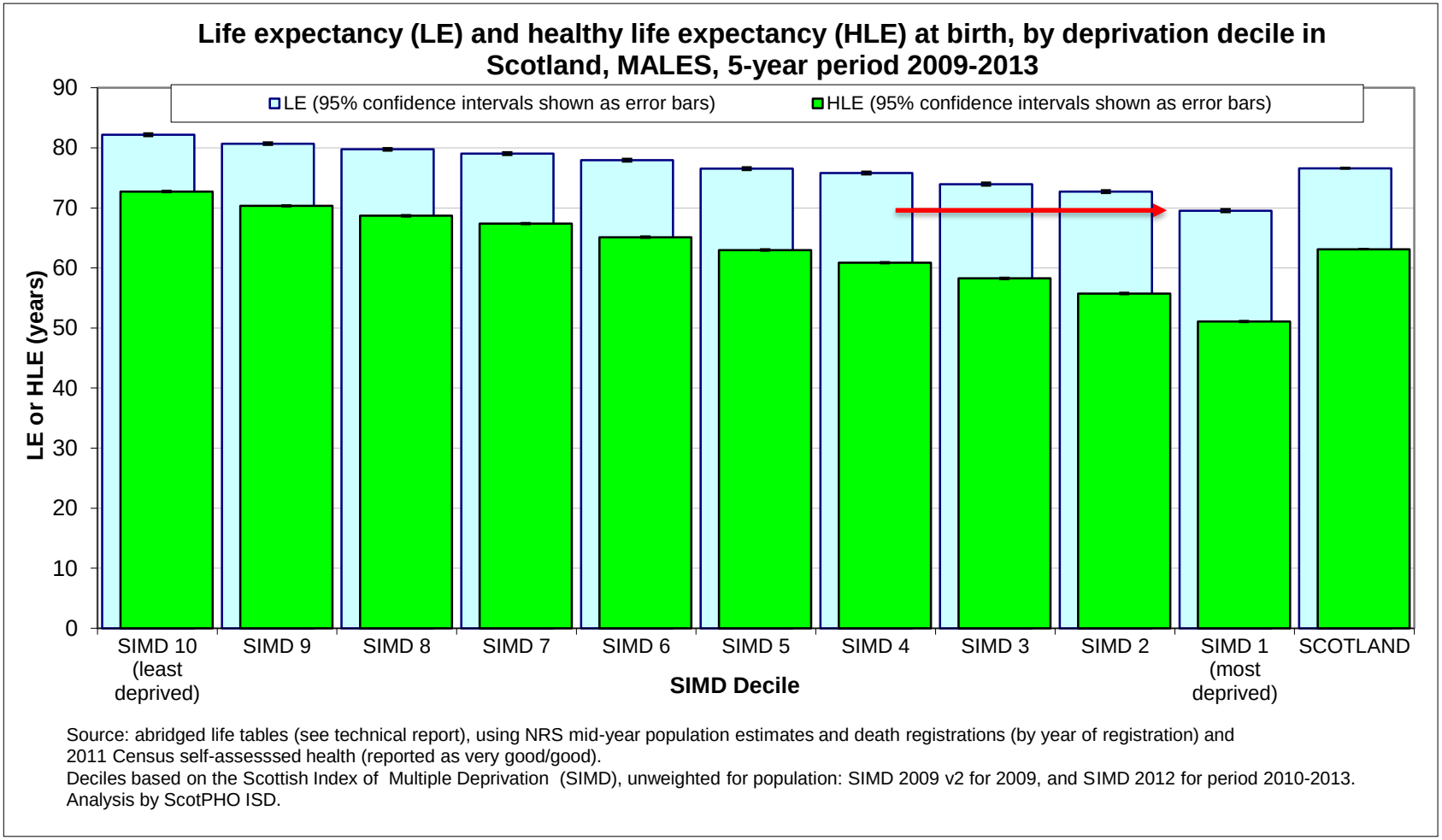

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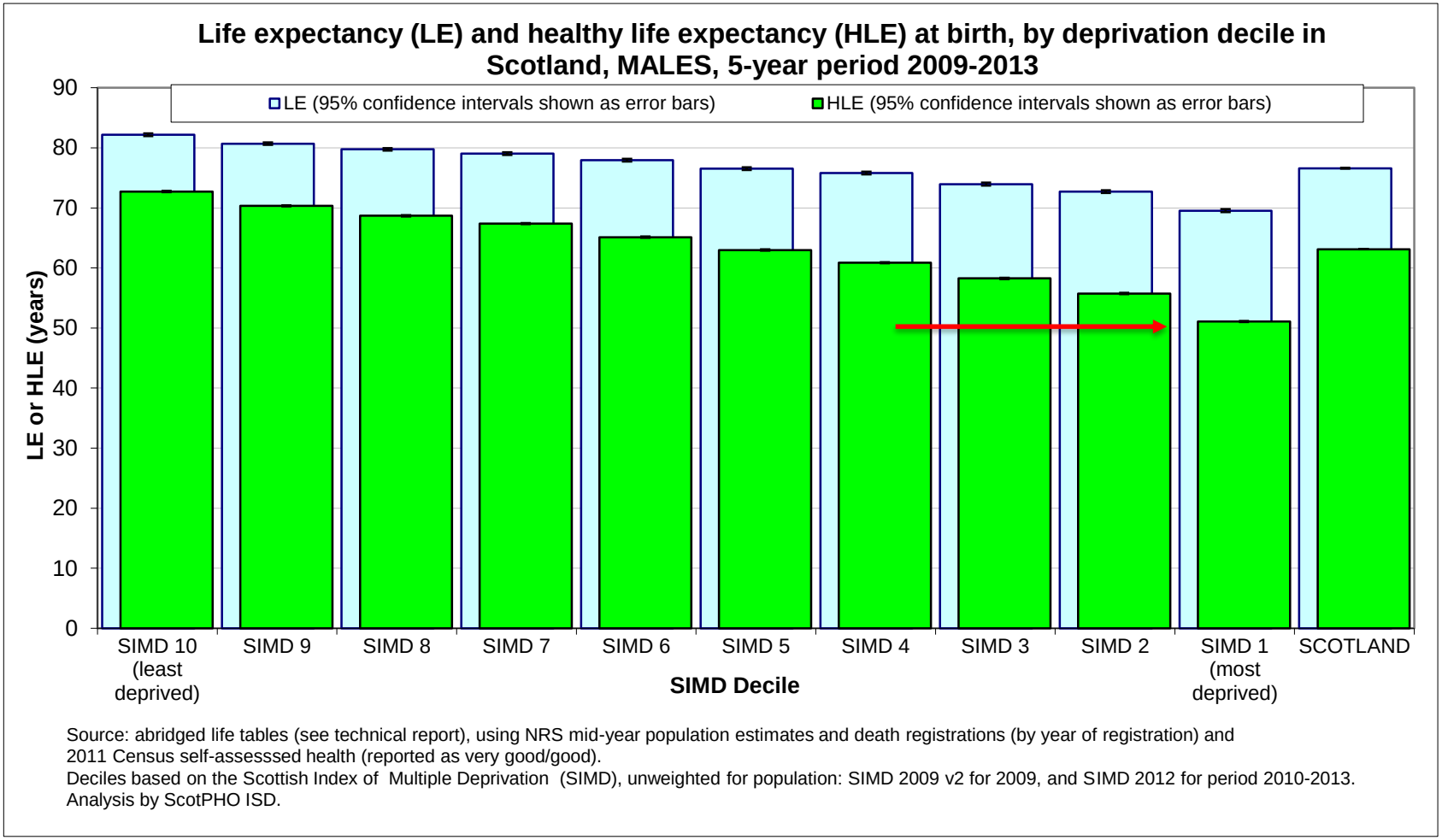

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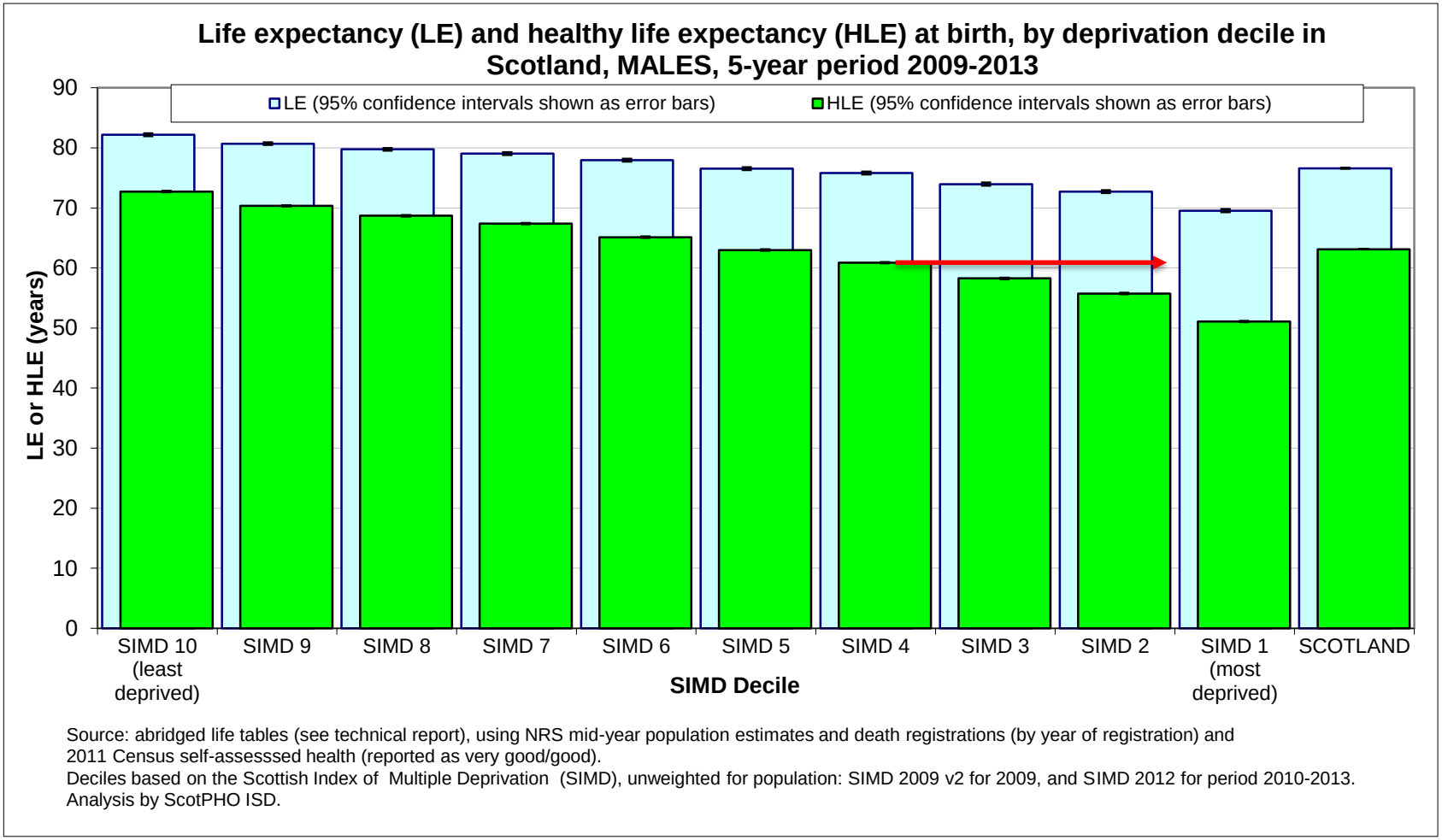

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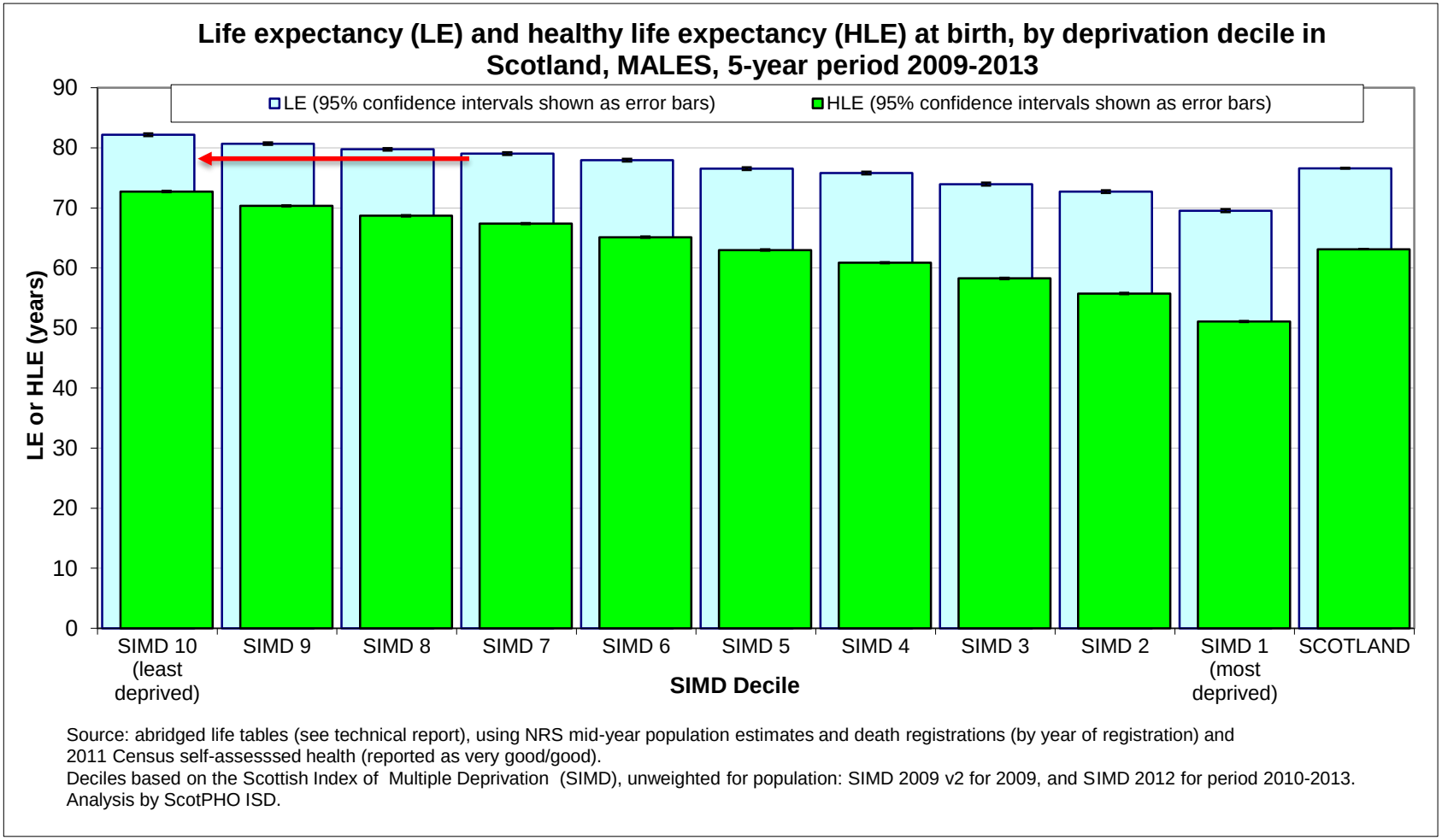

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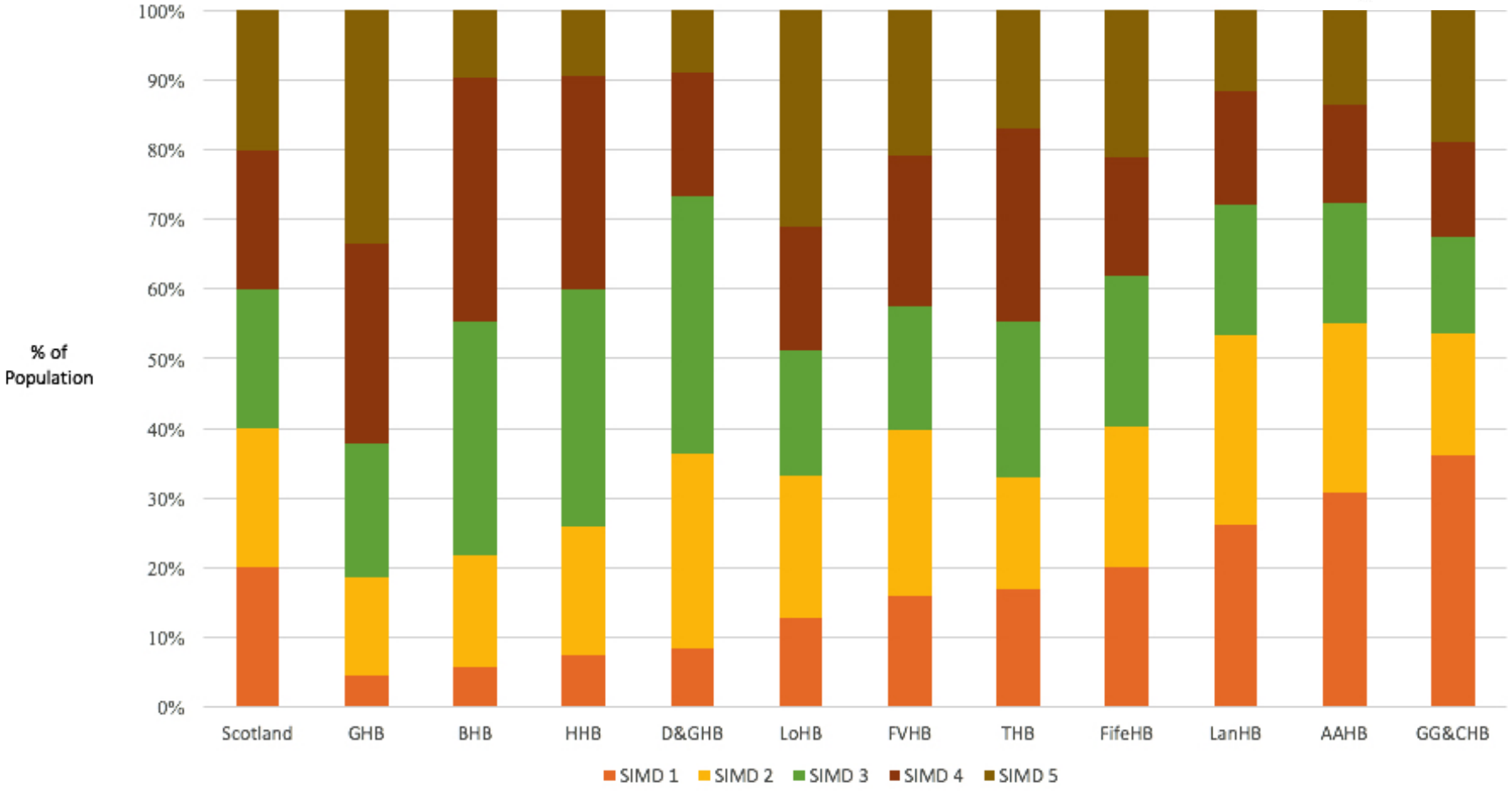
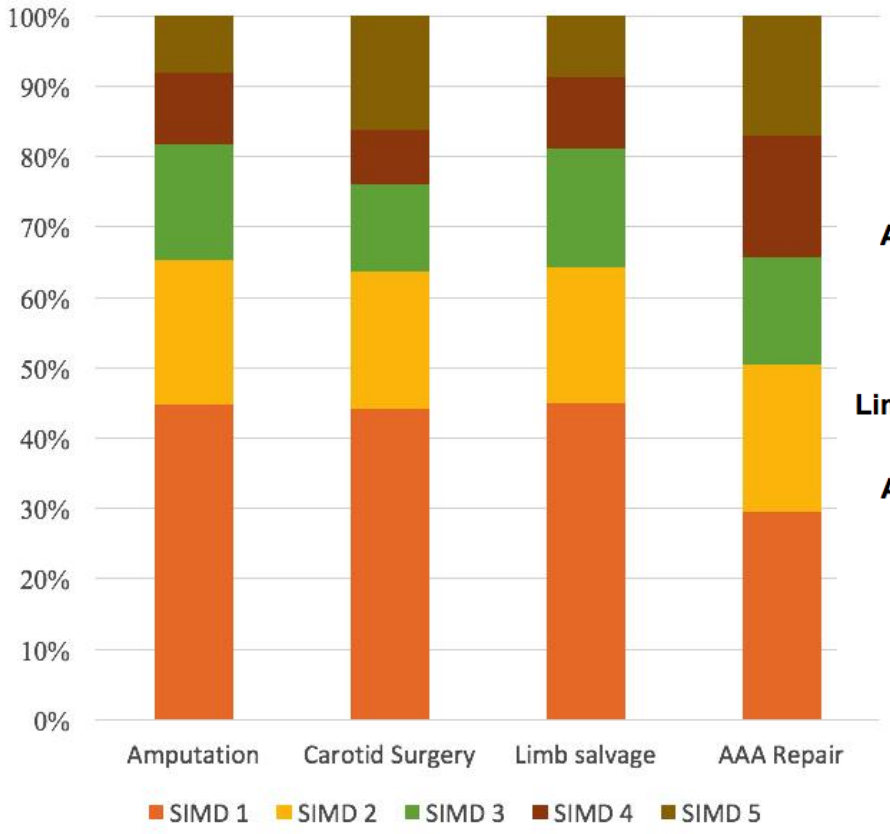
Socio-economic Deprivation Levels in Scotland



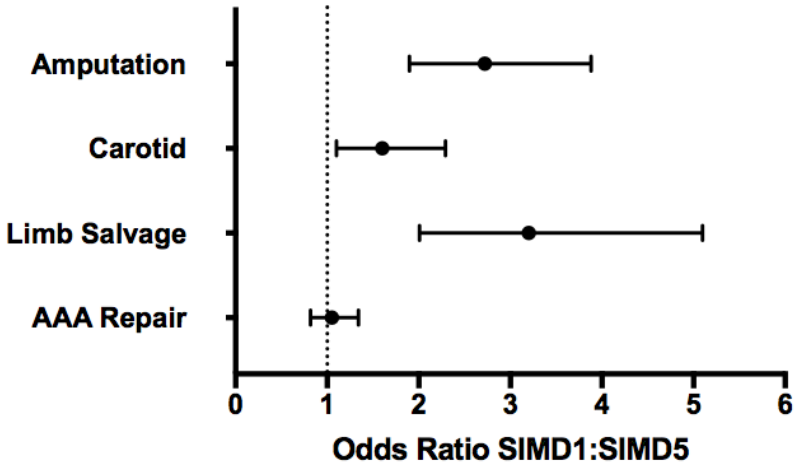
Impact of Deprivation on Vascular Interventions

NHS Greater Glasgow and Clyde

SIMD Quintiles for Vascular Interventions



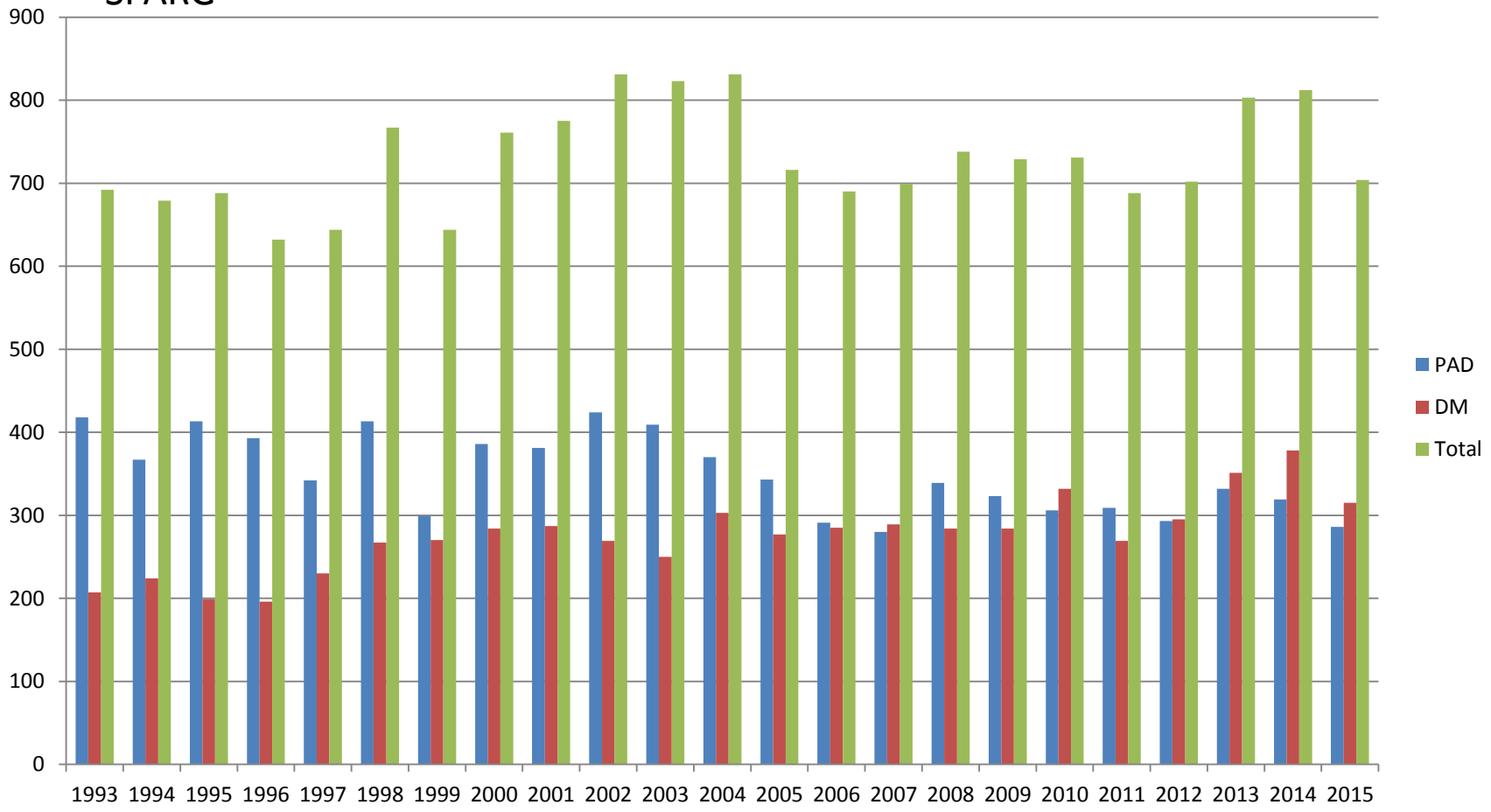
Odds Ratios for Vascular Interventions – Most and Least Deprived Quintiles



Major amputations in Scotland

SPARG

NHS Greater Glasgow and Clyde



Major amputations in Scotland. Data courtesy of Scottish Physiotherapy Audit and Research Group.

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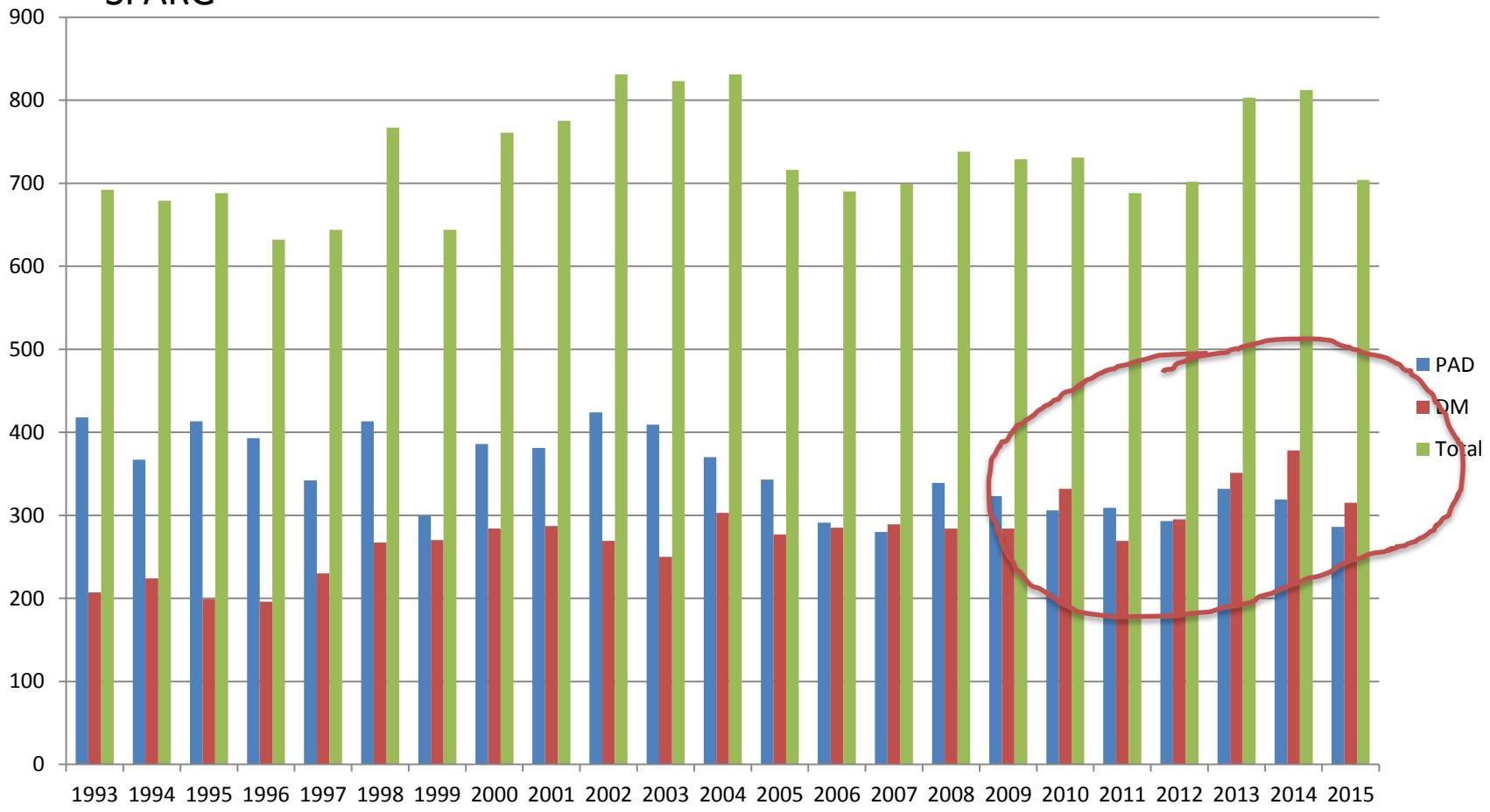
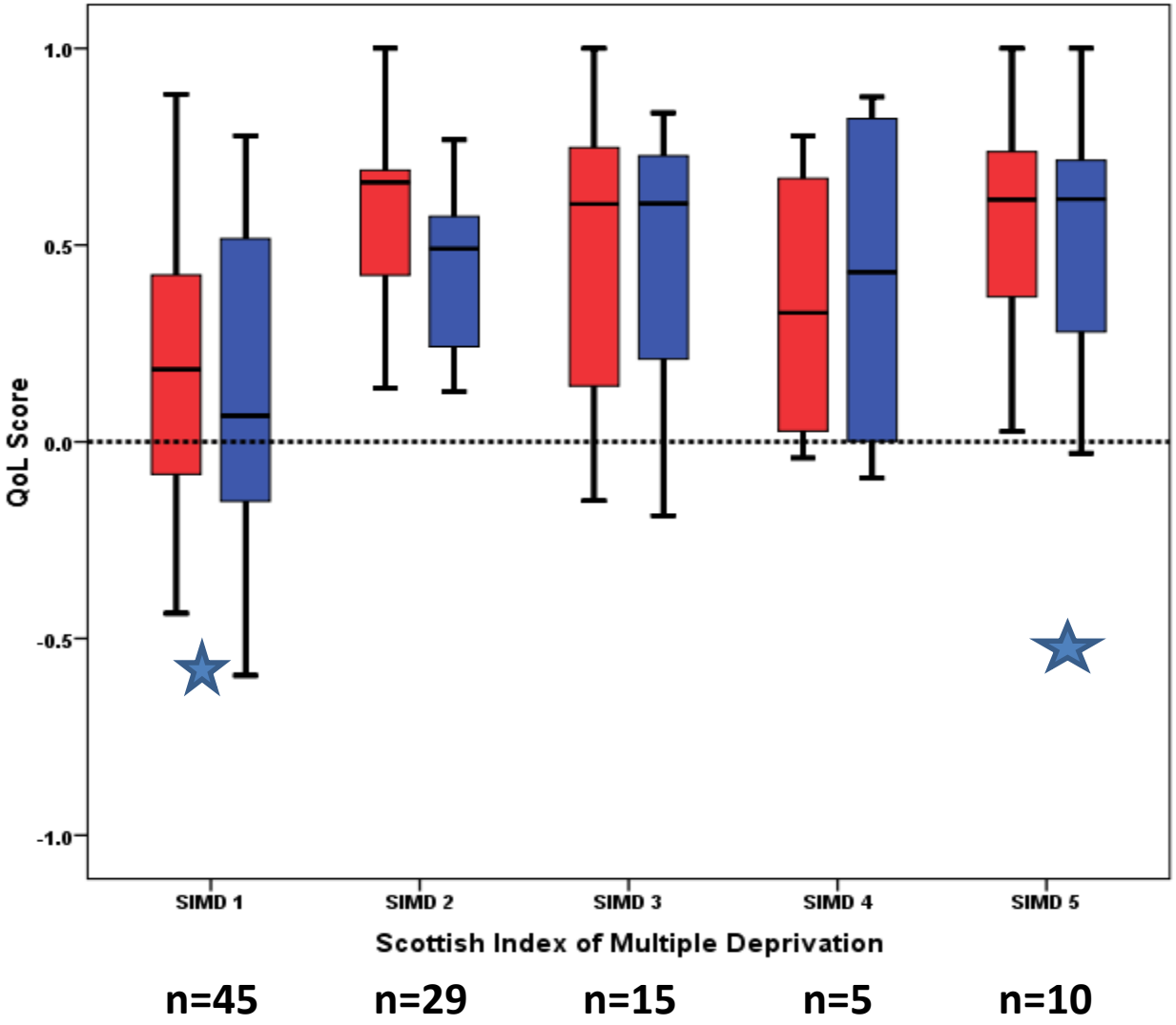


Major amputations in Scotland. Data courtesy of Scottish Physiotherapy Audit and Research Group.

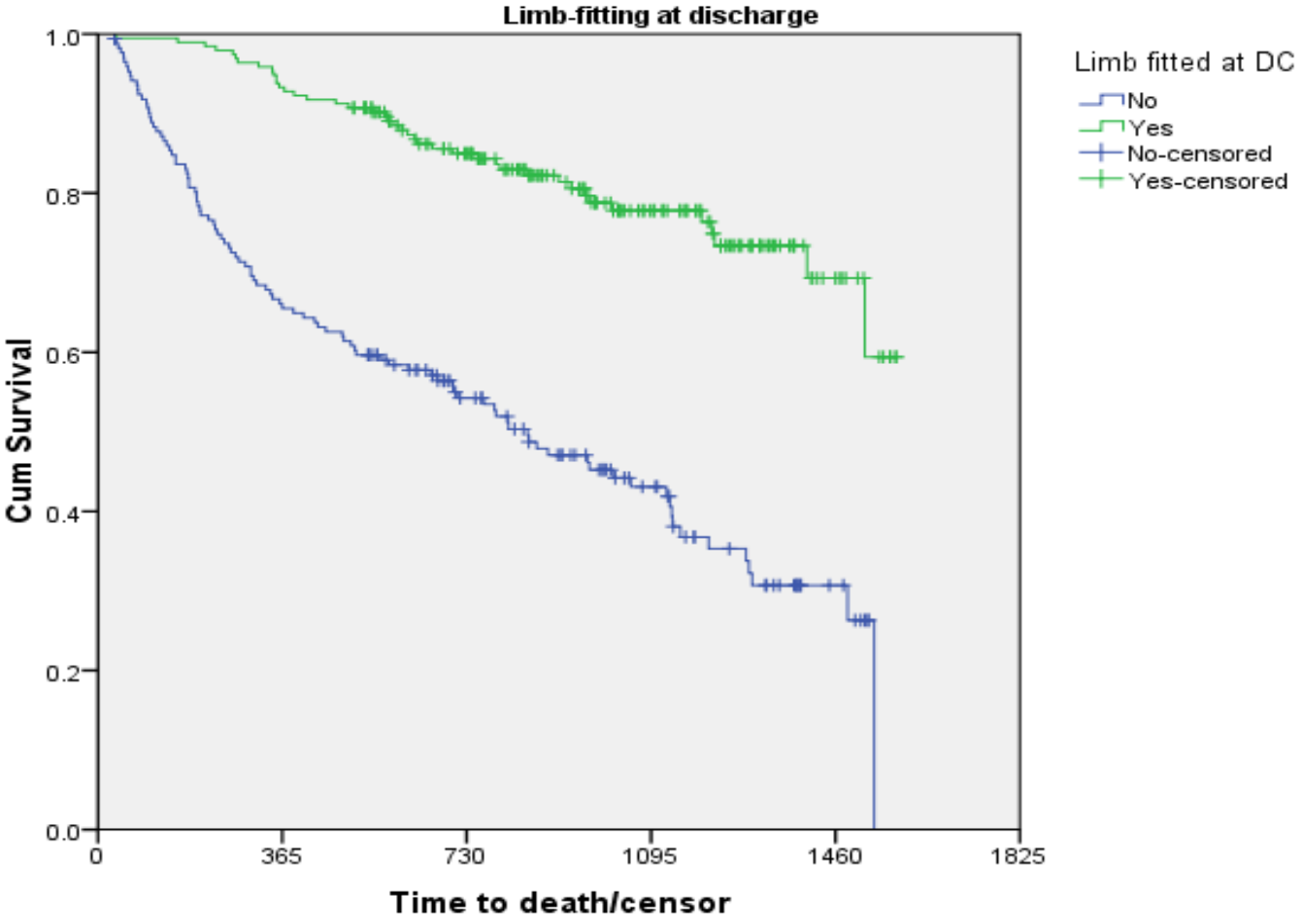
Quality of Life and SIMD



- 67% of those housebound were single room living
- More people reported their Quality of Life as "worse than death" in SIMD 1
- Quality of life is better if limb fitted

*6 Months
*12 Months
★p<0.001

Survival following amputation and limb-fitting



Convergence of factors

- Rise in prevalence of DM
- Changes in service provision
  - Rise of DM foot clinics and screening (lead time bias)
  - Reduction in ortho and general surgical involvement
  - Vascular centralisation: distant
- Effects of changing population
  - Living longer with chronic disease (including DM)
  - New manifestations of disease due to duration

Conclusions

- The prevalence of DM is rising and therefore DFU rates will increase
- The impact will be very different by geography
- The disease will probably become increasingly difficult to manage
- Preventative strategies will likely impact differently on different populations