# Paper framework – Mortality trends item 5: mortality trends by deprivation in Scotland

Overall aim

How do recent adverse mortality trends (all-age, all-cause) in Scotland vary by socioeconomic deprivation, and to what extent any differences in mortality trend are underlying the overall population trajectory?

Background

1. Life expectancy improvements have stalled in Scotland; most recent NRS data showed a fall for men and women; the scale of this trend is marked historically and in comparison with other countries.
2. Age-standardised mortality rates (all age, all cause) changed trend from steady decline to a rate of slower or no improvement in the year ending 2012 Q4 for men and the year ending 2014 Q2 for women (paper 1, segmented regression, 2 break model, best estimates).
3. Mortality inequalities are increasing in Scotland:
   1. Long-term monitoring report (HLE, premature mortality SII&RII)
   2. NRS life expectancy by SIMD
4. Several published analyses explore the contribution of deaths by age and cause to overall mortality inequality, and some have repeated this at different time points to explore how the constituents of inequality have changed.
5. Analyses of overall mortality trends have tended to explore the age, cause and geographical variation in this (by decomposition or age/cause specific trends).
6. Bringing together analyses on overall population mortality and mortality inequality is an important step in understanding to what extent
7. Change in fundamentals --> widening health inequalities in longevity

Questions

1. Are increasing inequalities having a marked impact on overall population mortality trends?

Method

Data source

NRS published:

Life expectancy by SIMD 2012 (2001/03-2011/13) <https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/life-expectancy/life-expectancy-in-scottish-areas/time-series-data>

Life expectancy by SIMD 2016 (2014/15-2-15/17) – expected shortly

Age-standardised mortality rate by SIMD 2016 quintile 2001-2017

<https://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/vital-events/deaths/age-standardised-death-rates-calculated-using-the-esp>

ASMR – NRS 2001-2017 SIMD 2016 Quintile

1. Trend
2. Before & after breakpoint (2011)
3. Overall measures of inequality before and after (SII/RII)
4. Gender differences

Results

1. Trend
2. Before & after breakpoint (2011)
3. Overall measures of inequality before and after (SII/RII)
4. Gender differences

Discussion

Limitations

Implications for practice

Implications for research

Questions to be addressed

Key literature/existing analyses

1. **Trends in mortality inequality Scotland**
2. Taulbut M, Agbato D, McCartney NHS Health Scotland G. Working and hurting? Monitoring the health and health inequalities impacts of the economic downturn and changes to the social security system [Internet]. 2018 [cited 2018 Sep 25]. Available from: <http://www.healthscotland.scot/media/2147/working-and-hurting-sep-2018-english.pdf>

* Working age mortality (15-64 years) SIMD 2012, 2001-2015: RII, SII
* All-cause mortality (ASMR) by SIMD quintile 1996-2016 (various SIMD applied)

1. Long-term monitoring report <https://www.gov.scot/publications/long-term-monitoring-health-inequalities-december-2017/>

* Inequality in HLE
* Premature mortality (<75) RII, SII

1. Mesalles-Naranjo O, Grant I, Wyper GMA, Stockton D, Dobbie R, McFadden M, et al. Trends and inequalities in the burden of mortality in Scotland 2000–2015. Devleesschauwer B, editor. PLoS One [Internet]. 2018 Aug 1 [cited 2018 Dec 5];13(8):e0196906. Available from: <https://dx.plos.org/10.1371/journal.pone.0196906>

* SII for years of life lost by cause to 2015

1. **Assessing age/cause contributions to health inequality**

**Scotland**:

Seaman R, Leyland A, Popham F. OP05 Which ages and causes of death explain the widening lifespan variation gap in scotland? a population based study using routine data. J Epidemiol Community Heal [Internet]. 2017 Sep 1 [cited 2018 Aug 29];71(Suppl 1):A3–4. Available from: <https://jech.bmj.com/content/71/Suppl_1/A3.2>

* Lifespan variation, Carstairs 1981-2011, decomposition of age/cause contributors to lifespan gap in 1981 and 2011
* Increased contribution of working age deaths and deaths due to external causes ton inequality

**England**:

1. PHE report: <https://www.gov.uk/government/publications/health-profile-for-england-2018/chapter-5-inequalities-in-health#contribution-of-age-groups-and-causes-of-death-to-the-gap-in-life-expectancy>

* LE and HLE inequality 2014/16 SII
* Age/cause decomposition of LE gap (most-least deprived decile) 2014/16

1. Bennett JE, Pearson-Stuttard J, Kontis V, Capewell S, Wolfe I, Ezzati M. Contributions of diseases and injuries to widening life expectancy inequalities in England from 2001 to 2016: a population-based analysis of vital registration data. Lancet Public Heal [Internet]. 2018 Nov 23 [cited 2018 Dec 5];3(12):e586–97. Available from: <https://www.sciencedirect.com/science/article/pii/S2468266718302147>

**Northern Ireland**:

<https://www.health-ni.gov.uk/publications/health-inequalities-life-expectancy-decomposition-2017>

* Life expectancy decomposition 2009/11-2012/15 by age, sex, cause, rurality

1. **Health inequality in Scotland in context**

Seaman R, Seaman R, Leyland A, Popham F. Lifespan variation since 1950: How does Scotland compare to 16 other Western European countries? [Internet]. [cited 2018 Oct 1]. Available from: https://academic.oup.com/eurpub/article-abstract/24/suppl\_2/cku166-019/2839783