

Do variations in population cancer mortality risk by socio-economic deprivation vary with age?

A comparison of cancer mortality patterns in the North West for the period 1995-1997 and 2006-2008

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Introduction

Variations in cancer mortality by age and socio-economic deprivation have been extensively investigated and described. However the variations of the effect of socio-economic deprivation on age-specific cancer mortality risk have not been similarly investigated.

Our report describes variations in population cancer mortality risks by socio-economic deprivation (as measured by the 2007 Index of Multiple Deprivation quintiles) and age for 1995-1997 and 2006-2008 periods, and quantifies the changes in the risk between the 2 periods in those aged 55 years and above.

Methods

Records of cancer deaths in North West, excluding deaths from non-melanoma skin cancers (ICD-10 C44), were obtained for those aged 55+ for 1995 to 1997 and 2006 to 2008 from ONS. The data were grouped by age group, sex, and 2007 IMD deprivation quintile and linked to the ONS mid-year population projection for the respective years. The higher the IMD quintile the more deprived an area is.

Multivariate logistic regression for grouped data was used to evaluate the variations in population cancer mortality risk. An interaction term was included in the model to evaluate the changes in mortality risk between the 2 periods.

Results

We found significant variations in the population cancer mortality risk for all age groups across all the IMD deprivation quintiles. Generally the mortality risk increased with increasing age and increasing levels of deprivation (Figure 1).

The greatest relative effect of deprivation was observed in those aged 55 to 64 years among whom those in the most deprived 5th IMD quintile areas were more than 2 times more likely to die from cancer compared with those in the least deprived 1st IMD quintile areas (adjusted OR: 2.12 [2.01-2.23]). The relative impact of deprivation was minimal in those aged 85+ (Figure 2).

Subgroup analyses showed that in males the relative effect of deprivation on age-specific cancer mortality risk was greatest in those aged 55 to 64 years while in females it was greatest among those aged 65 to 74 years.

The mortality risk declined during the 2006/08 period in those aged 65 to 74 years across all the deprivation quintiles attaining statistical significance from the 3rd quintile upward (3rd quintile adjusted OR: 0.89 [0.80-0.99]) while it increased significantly in those aged 85+ across all IMD quintiles (Figure 3). Though there was a decline in the risk in those aged 55 to 64 years it was only statistically significant in the 5th IMD quintile areas. The changes in the risk among those aged 55 to 64 was not significant. Similar patterns of changes in the mortality risk were observed for both sexes. Overall the greatest relative decline in the risk was in the most deprived areas.

Conclusion

The relative effect of deprivation was strongest in the younger age groups in whom the greatest relative decline in the mortality risk was observed between the 2 periods. This suggests that the younger age groups had the greatest potential to benefit from strategies aimed at reducing the inequality gap in cancer deaths. The apparent greater relative decline in the risk in those aged 65 to 74 years was surprising and require a more detailed investigation.

Figure 1: Variation in population mortality risk by age group and IMD quintile

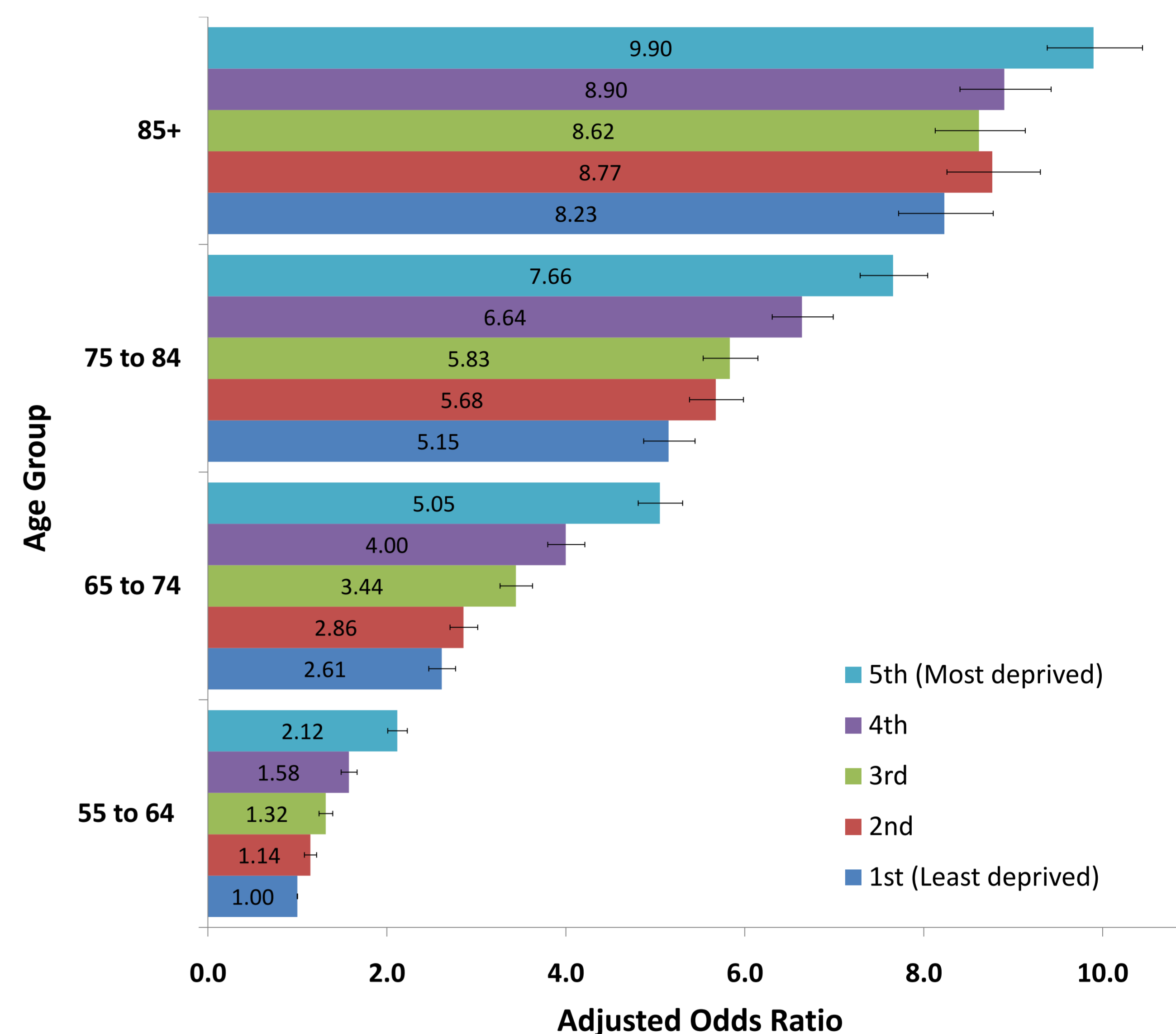


Figure 2: Relative variations in mortality risk for each age group across IMD quintiles

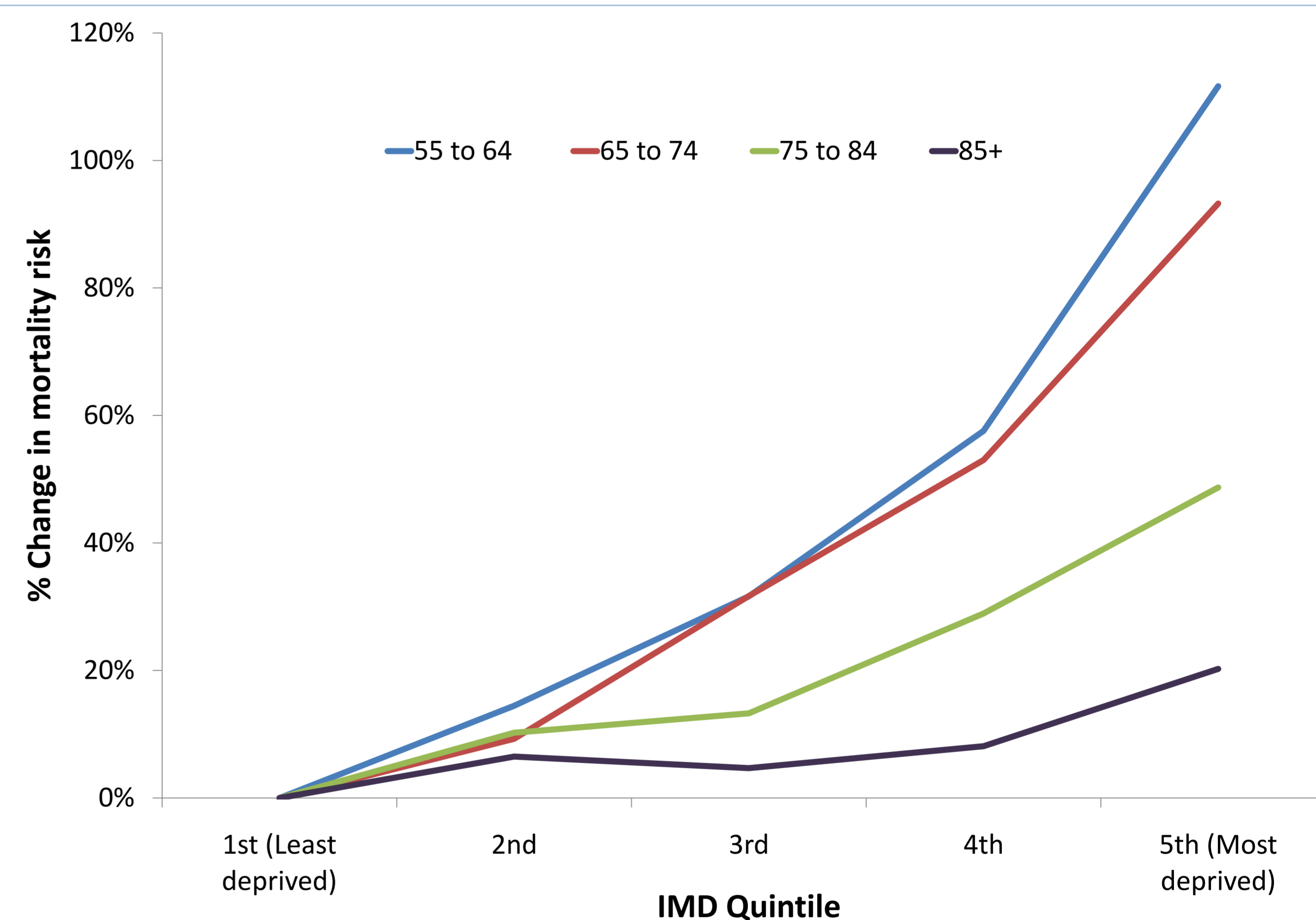


Figure 3: Changes in population mortality risk between the 2 period (1995-1997 vrs 2006-2008) by age group and IMD quintile

