InHALE- Inequalities in Healthy Active Life Expectancy - How to make the best use of census information

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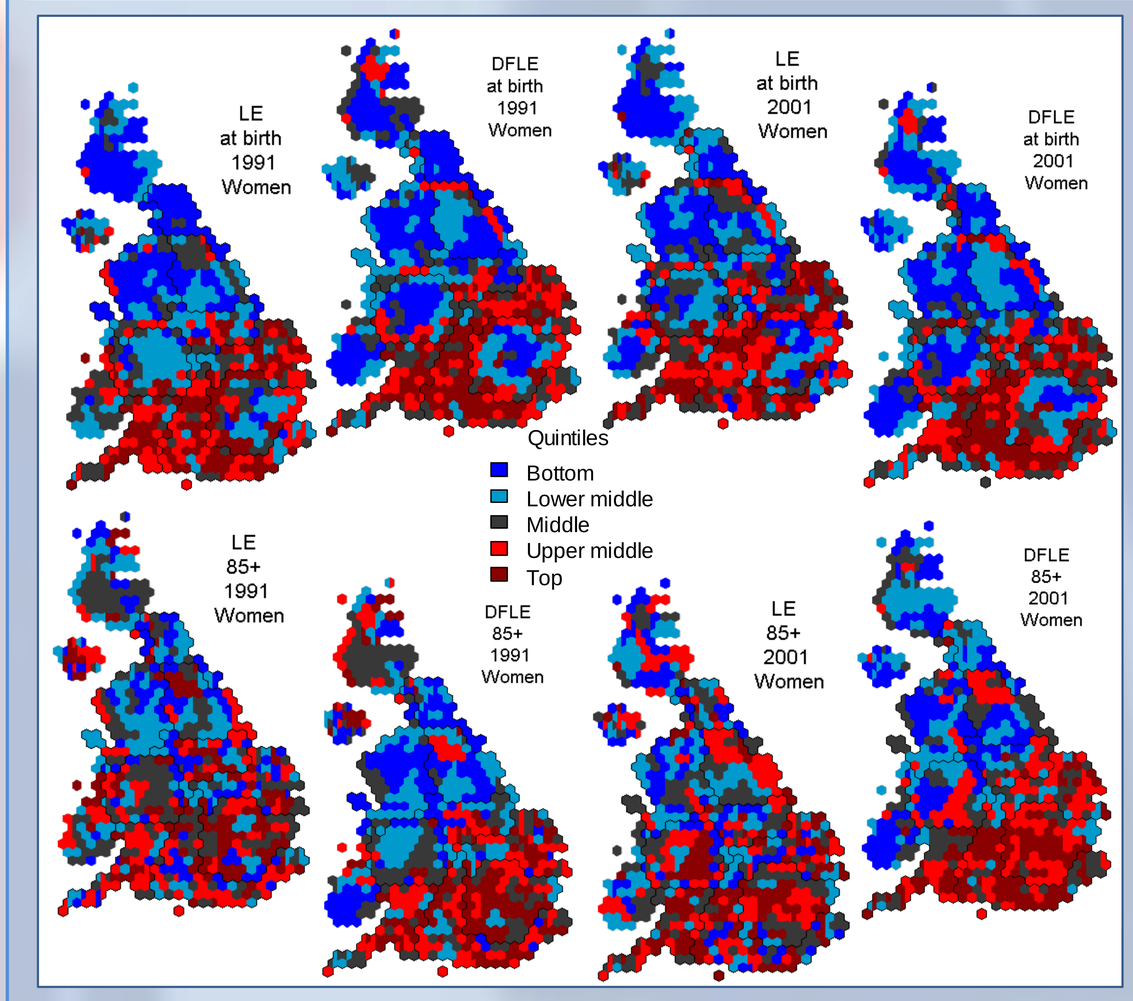
What are Health Expectancies?

Health expectancies (HEs) measure the average number of a persons remaining years spent healthy and are a natural **extension to period life expectancies,** adding a **quality** component. They have become one of the main tools for monitoring inequalities in health, not only in the UK but world wide. The Office for National Statistics regularly reports on two HEs, **Disability-free Life Expectancy** (DFLE), based on self reported limiting long standing/term illness, and **Healthy Life Expectancy** (HLE), based on self-rated health. These are reported for the UK overall, by smaller geographies, by social class and by area deprivation.

InHALE

The InHALE project is a ESRC funded project researching Inequalities in Healthy Active Life Expectancy in the UK. Specifically we are concerned with: how life expectancy (LE) and DFLE at different ages in local authorities changed between 1991 and 2001, and the extent to which the changes can be explained by area-level social factors, such as deprivation, ethnic minority levels, unemployment, or levels of education. Another part of the project looks into the relative contribution of individual-level social, health and lifestyle factors to inequalities in HEs. More on the project, presentations and publications is available at: **http://research.ncl.ac.uk/InHALE/**

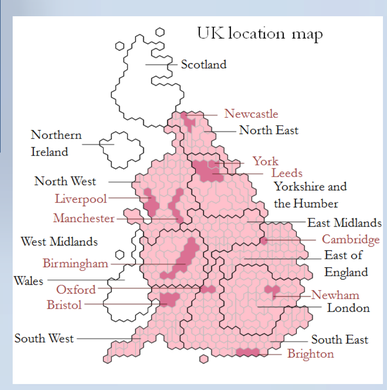
Life expectancy and disability free life expectancy across the UK between 1991 and 2001: inequalities at birth and in old age



Quintiles	LE_0		LE_{85}		$DFLE_0$		$DFLE_{85}$	
	1991	2001	1991	2001	1991	2001	1991	2001
Top	80.6	82.3	7.2	7.3	66.7	68.0	1.8	1.9
	79.5	81.3	6.5	6.7	65.2	66.1	1.6	1.6
	78.9	80.6	6.2	6.4	63.9	64.3	1.4	1.4
	78.1	79.8	5.9	6.1	62.3	62.4	1.3	1.2
Bottom	77.0	78.5	5.4	5.6	59.5	59.1	1.0	1.0

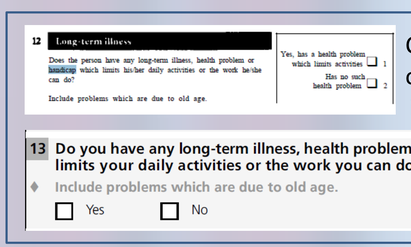
Mean LE and DFLE for quintiles shown above

The figure to the left illustrates local areas ranked by quintiles of LE and DFLE for women, at birth (LE_0, $DFLE_0$) and 85+ (LE_{85}, $DFLE_{85}$), and in 1991 and 2001. Data here are presented in a population based cartogram map to present the population at risk at the same time as the variable. Half a hexagon represents half a parliamentary constituency and LAs are made up of one or more of these basic units. LE and DFLE for women **at birth** show a distinct **north-west south-east divide** in 1991 which still persists in 2001. Similar patterns were observed for men and at ages 50 and 65 (data not shown). By age 85+ a north-west south-east **divide is less apparent** although some local areas in Scotland and Northern Ireland with middle rankings in 1991 were ranked lower by 2001 for HEs at birth and age 85+. Note that unlike LE_0 and $DFLE_0$, for LE_{85} and $DFLE_{85}$ many urban areas are ranked in the upper quintiles which suggests that living in urban areas might be "good" at older ages, possibly because of better **access to healthcare and other services** compared to rural areas. In a different analysis we also found that for the oldest old (85+) the LE and DFLE **gradient with deprivation also disappears**, perhaps indicating selective survival. Whereas there is an unequivocal increase over time in LE both at birth and 85+, the increase in DFLE at birth is marginal and by 85+ almost non-existent (see Table) - suggesting an expansion of morbidity. **Overall LE and DFLE increased in many areas between 1991 and 2001. Thus, even though the gap across the UK has probably widened, the general trend is a positive one.**

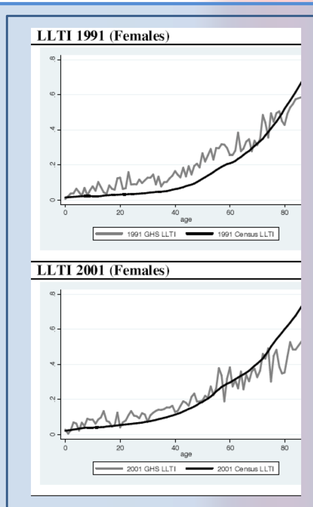


How did we do it? HEs calculations for local areas – temporal comparison

Period HEs can **easily** be calculated using the **Sullivan method**. This is a straightforward method with minor data requirements, needing only the age and sex-specific prevalence of the **health state** of interest from a cross-sectional study and a **period life table** for the same time as the study. The 1991 census for the first time collected self-reported limiting long standing/term illness (LLSI/LLTI) data at local area level for the UK, by gender and age. This was repeated in 2001. Regrettably the questions between 1991 and 2001 varied and the 1991 question led to an under-reporting of LLSI. This made it impossible to track changes in HEs over time on a local area level. To overcome this problem we applied a correction to the 1991 information to align them with 2001 standards, exploiting the fact that there was no change in self rated health questions in the General Household Survey (GHS) for England between 1991 and 2001. Some additional corrections were applied to account for geographical changes as well.



Census questions on LLSI/LLTI in 1991 and 2001



The GHS question stayed the same.

What next? Your feedback, input and needs are of interest to us-DO GET IN TOUCH: pia.wohland@ncl.ac.uk

Alongside the DFLE data briefly presented here, we also analyse HLE for local areas in 2001. In future, we plan to incorporate the 2011 census results to build a time-series for DFLE spanning 3 decades and a time series for HLE starting with 2001. This will allow us to monitor changes over time more closely as well as see the impact of policy changes, as for example the ban on smoking in public places.

Dissemination:

- In September **2012** we had a **workshop** at BSPS especially aimed at local authorities on how to calculate HEs with the Sullivan method for local areas in the UK. We hope to run another **workshop** at this year's (**2013**) BSPS in Swansea. **What topic would be of interest to you?**
- In May **2014** we plan a **workshop** on HE calculations from longitudinal data- stay informed by checking our website.

Further workshops are under consideration as well as making our data more easily available to interested users. In future we hope to develop a tool for users to more easily calculate HE from their own data. If you want to be involved, please get in contact.

References: THOMAS, B. and DORLING, D. (2007) Appendix, In THOMAS, B. and DORLING, D., (eds.) Identity in Britain: A cradle-to-grave-atlas, Policy Press, Bristol. URL http://www.sasi.group.shef.ac.uk/publications/identity/online appendix.pdf Marshall, A. (2009) Developing a methodology for the estimation and projection of limiting long term illness and disability, PhD Thesis, School of Social Sciences, University of Manchester. **Norman PD**; Rees PH; Boyle PJ (2003) Achieving data compatibility over space and time: creating consistent geographical zones, *International Journal of Population Geography*, **9**, pp.365-386. doi: 10.1002/ijpg.294, Manuals on the Sullivan method can be found at: http://www.eurohex.eu/ http://www2.lse.ac.uk/socialPolicy/BSPS/annualConference/2012/Training-session-material.aspx