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The Devolution of Health Funding in Greater Manchester in the UK: A Travel Map of Life Expectancy

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As part of a public health campaign linked to a newly devolved health funding initiative in the UK we created a life expectancy map that people would immediately recognise and which could still be used for navigation. The map was designed to raise public awareness of the inequalities in public health by linking the data to peoples’ everyday journeys.

Health funding devolution and living longer

Greater Manchester is home to a population of 2.7 million people. In 2016, it became the first English region to be handed control of £6bn health and social care funding from central government (Manchester City Council 2016).

The initiative faces some big challenges, including differences in how long people live. In 1851 life expectancy in England and Wales was estimated to be only 41 years and just 30 years in Manchester (Szreter and Mooney 1998). Today life expectancy is estimated to be 81.5 years in the UK (79.5 years for men and 83.2 years for women) (ONS 2016). However the gap between economically deprived and prosperous areas is increasing (Hacking et al. 2011). The city of Manchester area is in the top ten in the UK with the lowest life expectancy, with people having an estimated lifespan of 74.8 years. Manchester has the lowest life expectancy of any local authority area in England and Wales for women.

As shown in Figure 1 we linked Office for National Statistics (ONS) ward level estimates of life expectancy and information on socio-economic deprivation to the tram stops on the Greater Manchester tram network. Opened in the 1990’s the tram network now includes 100 kilometres of track, 93 stops and 33.4 million journeys in 2015.

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1 For discussion of life expectancies across the London Tube network see (Dorling 2013; Cheshire 2012).
2 See http://www.metrolink.co.uk
The data

The estimates are calculated from five years of mortality data and linked with the wards based on the postcode of the deceased’s usual residence (ONS 2006). The mean number of deaths in the wards was 306. The ward level life expectancy estimates are subject to some margin of error and include confidence intervals.

The estimates are not the years a baby born in the ward could expect to live, because the death rates and health care provision in an area are likely to change and many of those born in a ward will live elsewhere for some part of their lives.

Mind the gap

The journey from Timperley (one of the most economically prosperous areas) to Rochdale (one of the most economically deprived areas) can take around 75 minutes for a journey of 26 kilometres, but the difference in life expectancy between the areas is more than a decade - around a year for every 7 minutes. The life expectancy gap between men and women is striking at the local level. For example, in Timperley life expectancy for men is estimated to be 78.3 years compared to 81.3 years for women – a difference of 3 years. In Rochdale life expectancy for men is estimated to be 65.7 years compared to 74.3 years for women – a difference of 8.6 years.

Healthy life expectancy also varies considerably across local areas (ONS 2016). In Timperley healthy life expectancy is 73.7 years, compared to 58.3 years in central Manchester (Monsall) and 58.1 years in Rochdale. The gap for men is higher, at nearly 18 years compared to 13 years for women.
A number of interrelated factors are associated with lower life expectancy including: low income, employment status, the local environment, housing, access to health care, smoking and alcohol consumption levels, diet, exercise, social status and social isolation. The deprivation levels of an area and premature mortality have been shown to be strongly associated (Marmot 2010). It is also notable that smoking and alcohol consumption rates are higher amongst people living on low incomes and those working in routine and manual occupations (HSCIC 2016). The most common causes of death in the UK are from circulatory diseases (including heart disease and strokes), cancer, respiratory diseases, dementia and Alzheimer's disease (ONS 2014).

Account also needs to taken of the industrial history of some these areas including employment where conditions have been shown to have had long-term impacts on health for example, chronic lung disease as a result of working with asbestos. In addition, the ethnic diversity of some of these local areas continues to change. Different ethnic populations can have different health profiles and can face additional barriers to accessing health services (Becares 2013).

**A human rights issue**

The lost years of life and healthy living have an impact not just on the individual but on those people who care for them and who are ultimately left behind including partners, children and grandchildren. As has been argued by Marmot (2010) the differences in life expectancy between areas in the UK can be seen as a human rights issue.

We all need to look after our health but many of us, including the most vulnerable populations, need help at a time when evidence suggests that public services are being cut (Humphries et al. 2016). 1.6 million UK pensioners live below the poverty line (DWP 2012) and research by Age UK (2014) has highlighted how nearly one million older people have unmet social care needs.

**Map design and use – the public and practitioners**

A key design consideration was that map needed to resonate with the style of the existing tram network map and be instantly recognisable and usable for navigation - an everyday map. We used similar colours and fonts without infringing copyright. Using the tram stops provides something that people can engage with compared to producing ward level data in a table. Most people know which tram stop they live near. The design did however involve some compromises and we could have included additional information in the map such as ward boundaries, healthy life expectancy estimates and the ethnic diversity of the different areas.

The devolution of health funding has brought the health inequalities across Greater Manchester into renewed focus and tackling the long-term inequalities in life expectancy and years of healthy living needs to be a priority.
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