

Featured graphic. Lives on the line: mapping life expectancy along the London Tube network

In contrast to many cities, the richest and poorest people in London live side by side. Whilst this geographic proximity creates a vibrant city and diverse urban landscape, it has done little to reduce the growing disparities in Londoners' wealth and well-being (Dorling, 2012). Maps provide an important tool for highlighting social inequalities and there are many examples from London, not least the iconic works of John Snow and Charles Booth, that harness the power of maps to help improve people's lives. The map presented here (see life.mappinglondon.co.uk for full size version) seeks both to raise awareness and to increase the impact of demographic statistics by relating them to an essential part of London: the Tube map.⁽¹⁾

The map shows two key statistics: (1) the mean life expectancy at birth of those living around each London Underground, London Overground, and Docklands Light Railway (DLR) station and (2) the rank of each London ward on the spectrum of Income Deprivation Affecting Children Index (IDACI). The analogy of changing life expectancy along individual Tube lines, particularly the Jubilee and Central lines, has been used before (see, for example, Atkinson, 2006) to communicate life expectancy statistics, yet there is no comprehensive

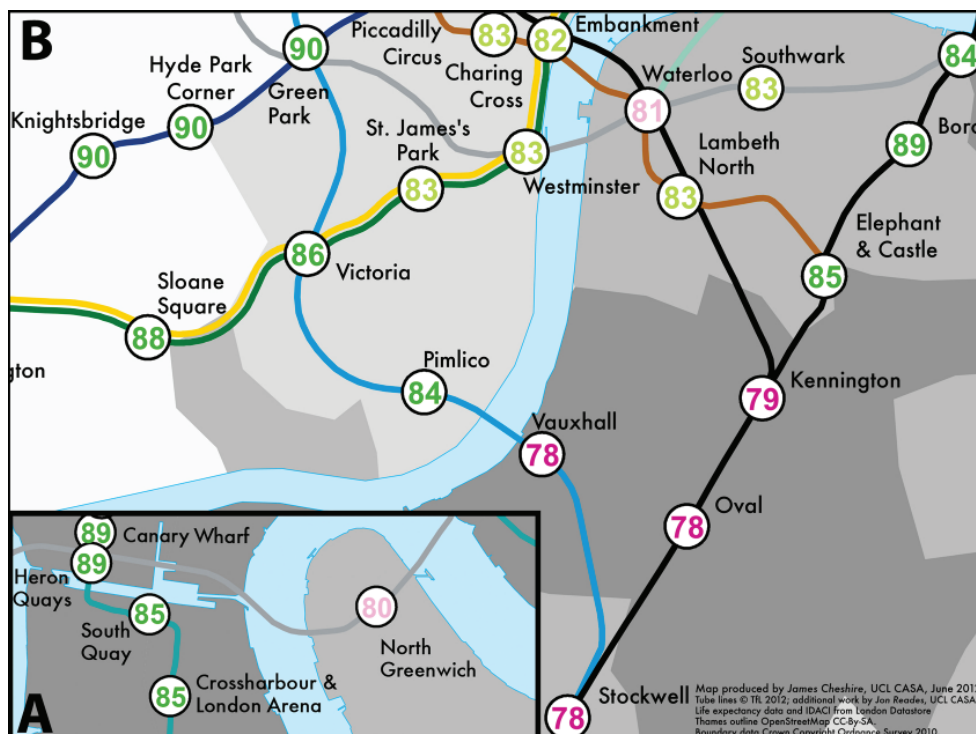


Figure 1. [In colour online.]

⁽¹⁾ It is acknowledged that many of London's poorest areas are not served by the Tube [although the DLR and Overground (included here) fill some of the gaps]. It is also worth noting that the majority of those on the lowest incomes cannot afford to use the network, with 60% commuting by bus (see MacInnes et al, 2011).

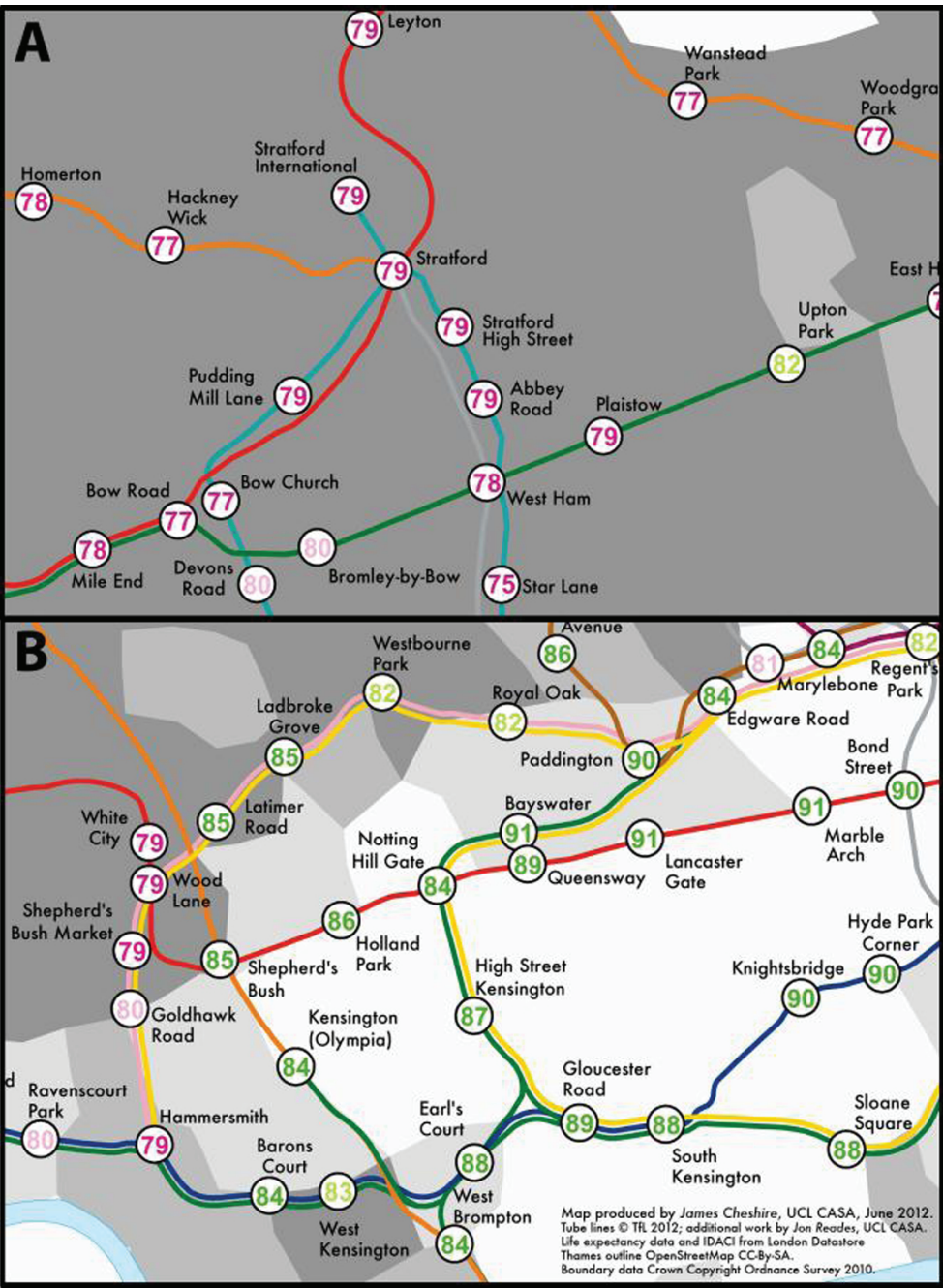


Figure 2. [In colour online.]

map of the data. In addition, the inclusion of the IDACI rank highlights the linkage between deprivation and life expectancy, which is especially poignant in this context as it demonstrates that, without significant social change, the fates of many children living in the poorest parts of London are seemingly already sealed. IDACI also demonstrates the proximity of the richest to the poorest in London: the borough of Westminster, for example, contains wards ranking

among the most deprived (rank 1—Church Street) as well as others among the least deprived (rank 628—Knightsbridge and Belgravia) within its boundaries.

Whilst the mean life expectancy data—taken from the Office for National Statistics' predictions for newborns between 2005 and 2009—show that today's children are expected to live longer, there is a wide range of ages for a single city. This is largely because the predictions extrapolate contemporary indicators and therefore reflect current disparities. If the social composition of London changes radically then the life expectancies at each station will change with it.

Presently, the gulf in life expectancy values is in excess of 20 years, with newborns around Star Lane (on the DLR) predicted to live, on average, for 75.3 years in contrast to 96.38 years for those around Oxford Circus. The smaller disparities are no less striking. For example, as figure 1A shows, 10 years are lost between Canary Wharf and North Greenwich—this is just 1 stop, or 2 minutes, on the Jubilee line. Between Lancaster Gate and Mile End (20 minutes on the Central line) life expectancy decreases by 12 years and crossing the Thames between Pimlico and Vauxhall (figure 1B) sees life expectancy drop by 6 years. The stations serving the Olympic Park (figure 2A) fair badly and contrast with the Olympic Volleyball venue at Earl's Court (figure 2B) whose spectators will be passing through areas with far higher life expectancies and lower child poverty.

In short, this map creates a memorable impression of the persistent inequalities along (and between) the routes travelled by millions of Londoners each day. It is hoped that it also provides an effective means of further communicating such inequalities to both policy makers and the wider public in these uncertain economic times.

Map production

The number of stations on the network (> 400), combined with a desire to produce maps in the future with different or updated data, required an automated approach to assigning life expectancies to each station. To transfer the ward-level values to each station a circle with a 200 m radius was first drawn around them. If this circle overlaps no other wards then that single rounded value is used for the station. If it overlaps multiple wards then an average is used. The 200 m radius was a pragmatic way of accounting for the stations bordering two or more wards. It also served to ensure the resulting life expectancy was reflective of the stations surrounding population, rather than a single geographic unit that may differ markedly from its neighbours. All values were rounded for simplicity. Figure 3 illustrates this process.

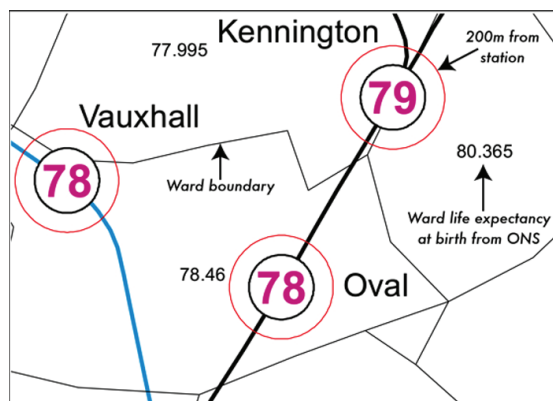


Figure 3. [In colour online.]

Acknowledgements: Many thanks to Jon Reades (UCL CASA) for providing the London transport network information. Thanks also to Danny Dorling and Isla Johns for their constructive suggestions on earlier drafts of the map.

References

- Atkinson S, 2006 *Health Inequalities in London: Where Are We Now?*,
<http://www.london.gov.uk/lhc/docs/publications/healthinlondon/2006/Section02.pdf>
- Dorling D, 2012, "Editorial. Inequality and injustice: some news from Britain" *Urban Geography* **33** 621–629, doi:10.2747/0272-3638.33.5.621
- MacInnes T, Parekh A, Kenway P, 2011 *London's Poverty Profile 2011*,
<http://www.londonpovertyprofile.org.uk/downloads/povertyreport2011-web.pdf>

Software: ESRI ArcMap, Adobe Illustrator

Data: Life expectancy and IDACI: <http://data.london.gov.uk>. Other data sources attributed on the map.