

What government data on death rates fail to show

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What the ONS failed to mention about deaths

Key Points

- Deaths are currently running at levels expected 15-20 years into the future
- Previous ONS forecasts do not anticipate the changes in deaths which have occurred from 2012 onward
- Hospital admissions have risen in parallel with the increase in deaths
- Whitehall appears reluctant to discuss the implications

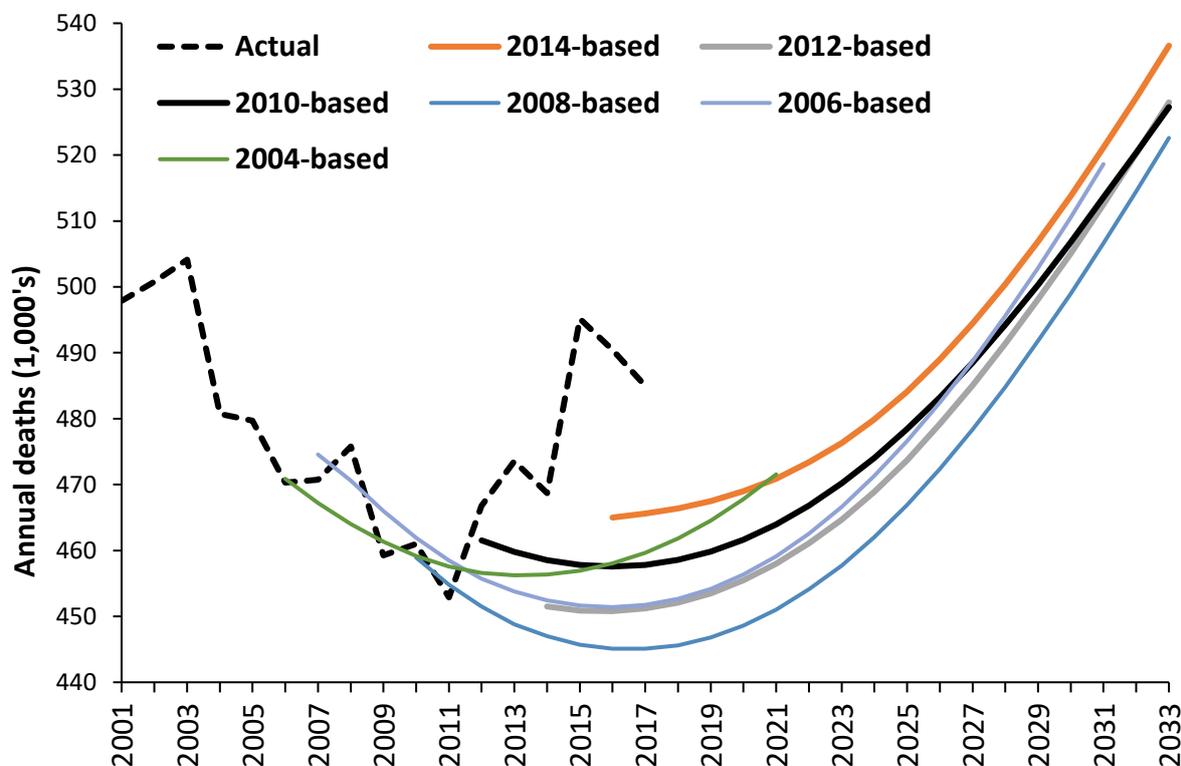
A series of articles in BJHCM and elsewhere have been exploring the importance of the role of absolute number of deaths in the marginal changes in health care demand and costs (Jones 2016f). The basic importance lies in the fact that the last year of life, irrespective of the age at death, marks a period of rapid functional, cognitive and biochemical decline such that emergency admissions especially escalate in the last 22 weeks of life. This reaches a crescendo in the last weeks of life. The last year of life can account for over 55% of lifetime admissions and bed occupancy (Beeknoo and Jones 2016).

It is not the ageing population that matters, hospital demand is simply shifted to higher age as life expectancy increases. Hence the trends in the total number of deaths are of vital importance to understanding the marginal changes in admissions and especially emergency admissions.

In this respect, Figure 1 shows the calendar year total trend in deaths in England from 2001 onward, along with various Office for National Statistics (ONS) forecasts for future deaths. Several points require elaboration. Firstly, the 2004-based forecast rises more rapidly than the other forecasts simply because the ONS was underestimating the increase in life expectancy back at that point in time. As an example, the older 2000-based forecast (only available for the whole of the UK, data not shown) expected deaths to reach a minimum between 2009 and 2012. Next there is a degree of volatility in the actual annual numbers, which then cascades into volatility in the forecasts, i.e. the successive forecasts start at higher or lower positions in Fig 1.

However, there was nothing in any forecast to anticipate that which happened after 2011. As can be seen, in recent years deaths have been running at a level expected for some 15 to 20 years into the future.

Figure 1: Office for National Statistics (ONS) forecasts of total deaths in England versus actual deaths



Footnote: All data from Office for National Statistics. Figure for 2017 is an estimate.
<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/monthlyfiguresondeathsregisteredbyareaofusualresidence>

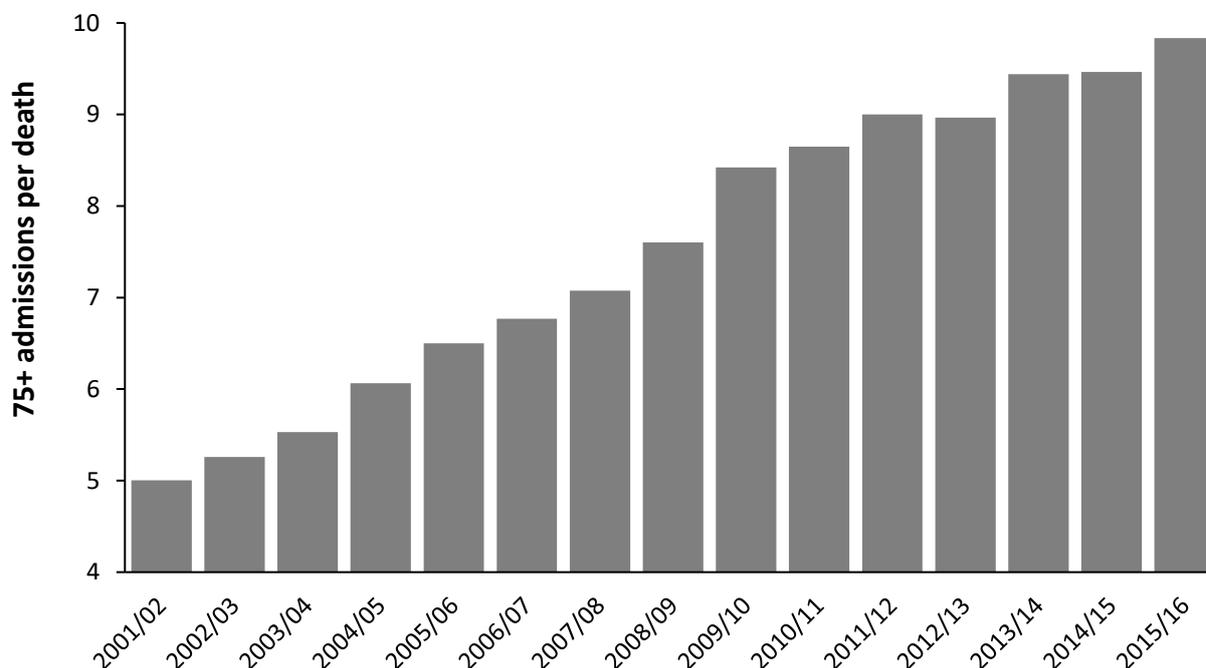
Several recent studies have attempted to suggest that the huge increase since 2011 are due to austerity and cuts to local government expenditure on (elderly) social services (Loopstra et al 2016, Hiam et al 2017a,b, Green et al 2017). However, very small-area outbreaks of a presumed infectious agent totally contradict this theory (see Jones 2017a,b), as does the observed increase in the stillbirth rate and the gender ratio which accompany these events (Jones 2017b). NHS staff sickness absence also rises and falls in response to these presumed infectious events, along with the ratio of follow-up to first outpatient attendances (Jones 2015b,2016b). Most importantly, medical admissions, medical length of stay, and hence occupied beds also increase (Jones 2015b-d,2016e-f). The proportion of total deaths which occur in hospital also rises (Jones 2016d). Persons with neurological conditions suffer the highest increase in deaths (Jones 2016a). It has been proposed that the volatile nature of the actual deaths in Fig 1 arise from the intermittent nature of these presumed infectious outbreaks.

Indeed, one of the studies attempting to implicate austerity in the increased deaths, noted a curious saw-tooth pattern of single-year-of-age increase in deaths for those aged 75+ between 2014 and 2015 (Hiam et al 2017b). This single-year-of-age pattern has been repeatedly associated with these events (Jones 2014). Such patterns are generated by antigenic original sin, which is a process of immune priming by repeated exposure to

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different strains of the same infectious agent (Jones 2016g). In addition, these events can be traced back to the 1950s (Jones 2015a), which precludes recent austerity.

Figure 2: Number of admissions per death for persons aged 75+ in England



Footnote: Financial year deaths were calculated from ONS monthly data (<https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/monthlyfiguresondeathsregisteredbyareaofusualresidence>). 75+ admissions are from Hospital Episode Statistics (HES) obtained from NHS Digital. <http://content.digital.nhs.uk/hesdata>

Some may claim that such enhanced numbers of elderly deaths since 2010 in Fig. 1 are entirely desirable since it leaves fewer elderly to care for, and so costs will reduce. However, as Figure 2 elegantly demonstrates there have been around 9 to 10 admissions for persons aged 75+ per death since 2011/12. The rise in admissions per death since 2001/02 was largely driven by the A&E 4-hour target, and the simultaneous opening of assessment units. There are now around 1.5 million more same day emergency 'admissions' than in 2001/02. A figure of 10 medical admissions per death has also been calculated in Northern Ireland (Jones 2016g).

A run of five years in a row of vastly higher deaths has accrued more than 130,000 unexpected deaths, 1.3 million excess admissions, and more than £1,300 million of unanticipated costs over the period. Given relatively flat-line funding since 2010/11 it is no wonder the NHS has a £1 billion deficit. Two large outbreaks of this suspected infectious agent centred around 2003 and 2008, which are partly hidden by the downward trend in Figure 1, led to £750 to £1,000 million (in today's costs) of extra costs (Jones 2012). However, those were the days when the Blair government was increasing funding at around 8% per annum, and the resulting higher costs were quickly overwhelmed by ongoing increases in funding.

In the meantime, Whitehall maintains a wall of inscrutable silence which would make the fictional character Sir Humphrey (in 'Yes Minister') proud. Political expediency seeks to lay the blame for the associated rises in medical admissions on the NHS for not being 'efficient' enough. While political expediency may create a short-term solution for politicians, it acts to

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deflect the attention of the medical research community away from developing solutions to the real problem.

References

- Beeknoo N, Jones R (2016) The demography myth - how demographic forecasting underestimates hospital admissions, and creates the illusion that fewer hospital beds or community-based bed equivalents will be required in the future. *Brit J Med Medical Research* 19(2): 1-27. doi: 10.9734/BJMMR/2017/29984
- Green M, Dorling D, Minton J (2017) The geography of a rapid rise in elderly mortality in England and Wales, 2015-15. *Health & Place* 44: 77-80.
- Hiam L, Dorling D, Harrison D, McKee M (2017a) What caused the spike in mortality in England and Wales in January 2015? *J R Soc Med* 110:1-7.
- Hiam L, Dorling D, Harrison D, McKee M (2017b) Why has mortality in England and Wales been increasing? An iterative demographic analysis. *J R Soc Med* 110: 1-10.
- Jones R (2012) Time to re-evaluate financial risk in GP commissioning. *BJHCM* 18(1): 39-48.
- Jones R (2014) Unexpected single-year-of-age changes in the elderly mortality rate in 2012 in England and Wales. *Brit J Med Medical Research* 4(16): 3196-3207. doi: 10.9734/BJMMR/2014/9072
- Jones R (2015a) A previously uncharacterized infectious-like event leading to spatial spread of deaths across England and Wales: Characteristics of the most recent event and a time series for past events. *Brit J Med Medical Research* 5(11): 1361-1380. doi: 10.9734/BJMMR/2015/14285
- Jones R (2015b) Are emergency admissions contagious? *BJHCM* 21(5): 227-235.
- Jones R (2015c) Is length of stay a reliable efficiency measure? *BJHCM* 21(7): 344-345.
- Jones R (2015d) Recurring Outbreaks of an Infection Apparently Targeting Immune Function, and Consequent Unprecedented Growth in Medical Admission and Costs in the United Kingdom: A Review. *Brit J Med Medical Research* 6(8): 735-770. doi: 10.9734/BJMMR/2015/14845
- Jones R (2016a) A presumed infectious event in England and Wales during 2014 and 2015 leading to higher deaths in those with neurological and other disorders. *Journal of Neuroinfectious Diseases* 7(1): 1000213. doi: 10.4172/2314-7326.1000213
- Jones R (2016b) Unusual trends in NHS staff sickness absence. *BJHCM* 22(4): 239-240.
- Jones R (2016c) A regular series of unexpected and large increases in total deaths (all-cause mortality) for male and female residents of mid super output areas (MSOA) in England and Wales: How high-level analysis can miss the contribution from complex small-area spatial spread of a presumed infectious agent. *FGNAMB* 2(2): 1-13.
- Jones R (2016d) Trends in proportion of deaths occurring in hospital. *BJHCM* 22 (11): 572-573.
- Jones R (2016e) Rising emergency admissions in the UK and the elephant in the room. *Epidemiology (Sunnyvale): Open Access* 6(4): 1000261. doi: 10.4172/2161-1165.1000261
- Jones R (2016f) Deaths and the marginal changes in healthcare costs. *BJHCM* 22(10): 503-509.
- Jones R (2016g) Is cytomegalovirus involved in recurring periods of higher than expected death and medical admissions, occurring as clustered outbreaks in the northern and southern hemispheres? *Brit J Med Medical Research* 11(2): 1-31. doi: 10.9734/BJMMR/2016/20062
- Jones R (2017a) Year-to-year variation in deaths in English Output Areas (OA), and the interaction between a presumed infectious agent and influenza in2015. *SMU Medical Journal* (in press)
- Jones R (2017b) Outbreaks of a presumed infectious agent associated with changes in fertility and the gender ratio at birth. *Brit J Med Medical Research* (in press)
- Loopstra R, McKee M, Katikireddi S, et al (2016) Austerity and old-age mortality in England: a longitudinal cross-local area analysis, 2007-2013. *J R Soc Med* 109: 109-116.