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Will 2018 set a record for deaths?

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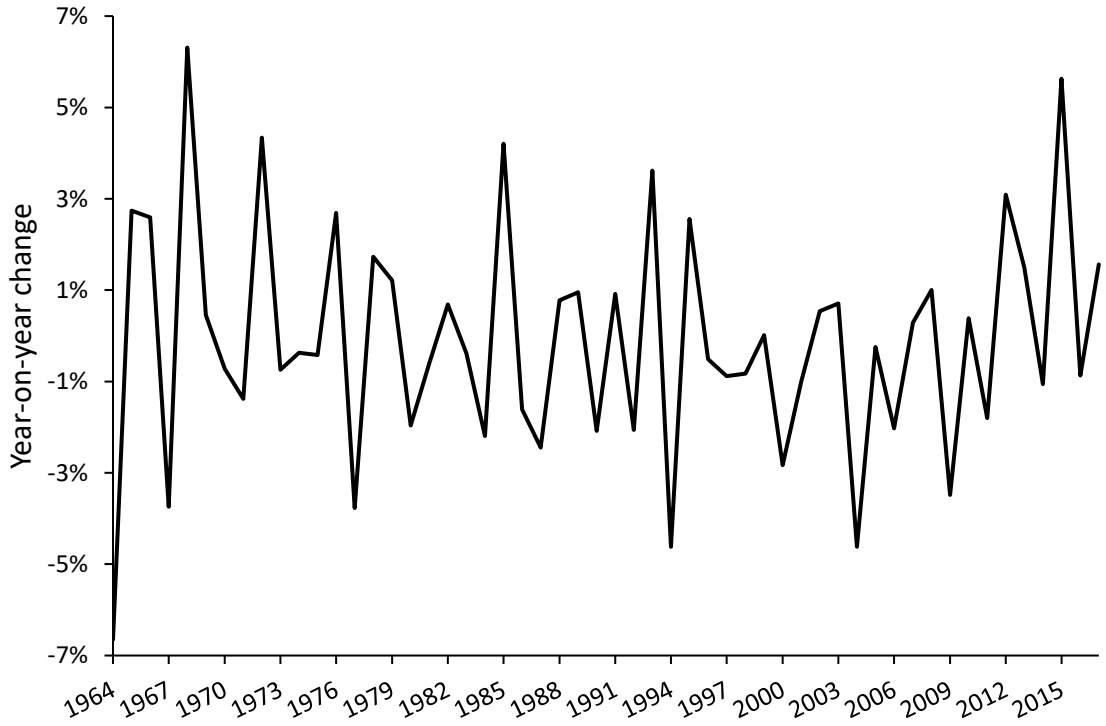
NHS staff can obtain the published version via an Athens login at www.bjhcm.co.uk

It has been known for many years that the last year of life represents the most resource intensive in terms of health care costs (Hanlon et al 1998, Busse et al 2002, Sheshamini and Gray 2003, Dixon et al 2004, Payne et al 2007, Jones 2011, Moore et al 2017, Curtin et al 2018). It is therefore vitally important that all concerned understand the trends in the absolute number of deaths and their implications to the marginal changes in costs (Jones 2015b,c, 2017a).

The totally unexplained increase in deaths since 2011 is a major contributor to NHS cost pressures and overspends, exacerbating funding constraints, which is politically expedient to conceal from both the NHS and the public (Jones 2017a, 2018b,c, Beeknoo and Jones 2017). Indeed, unexplained increases in deaths and hospital admissions around 2002 and 2007 added around £100 million (in today's costs) of unanticipated acute costs into the NHS (Jones 2012) – a fact which receives no official recognition. A serious flaw in the CCG funding formula has also been identified due to the omission of deaths as an explanatory variable in local costs (Jones and Kellett 2018).

Figure 1: Year-on-year change in deaths in England and Wales



Footnote: Annual deaths in England and Wales are from the Office for National Statistics https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/deathregistrationssummarytablesenglandandwalesdeathsbysingleyearofagetables

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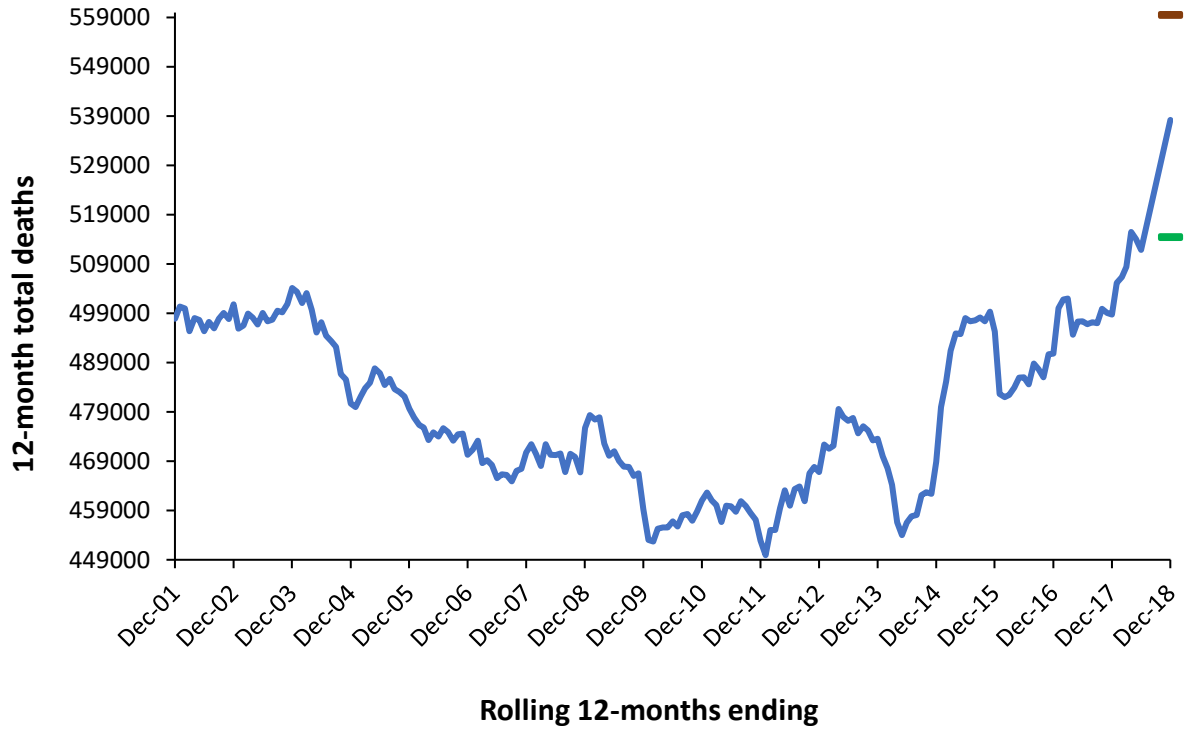
The year 2015 witnessed the largest year-on-year increase in deaths in almost 50 years (Office for National Statistics 2016). The trend in year-on-year difference in calendar year deaths is shown in Figure 1 for England and Wales where the 1968 and 2015 maxima are clearly seen. These maxima seem only to occur in the years where there is an outbreak of a seeming type of novel disease, possibly the WHO Disease X? (Jones 2013,2015a,b, 2016a,b, 2017 b-e, Jones 2018b, World Health Organization 2018).

The large peak in deaths in 1993 (Figure 1) has likewise been clearly documented (Jones 2015b, 2018a), yet once again receives no official explanation.

While there is a degree of high-low behaviour it does not automatically follow that a high year is followed by a low year and the R^2 for this association is only 0.187 (see online Supplementary material), i.e. the previous year only explains 18.7% of next year's value. The culling theory of reduced deaths following a peak therefore has limited application.

The use of calendar year differences can be misleading, and Figure 2 therefore shows the trend in total deaths in England using a rolling (moving or running) 12-month total. The trend starts with a 12-month total ending Dec-01. The 2015 change is highly time-frame dependent. With a year-on-year increase of +9.1% for the 12-months ending Jun-15 versus Jun-14 and drops to +0.6% for the 12-months ending Jan-16 versus Jan-15. There is a further maximum increase of +5% for the 12-months ending Jan-13 versus Jan-12 (Jones 2013).

Figure 2: Rolling 12-month total deaths in England, 2001 to 2018



Footnote: Monthly deaths are from the Office for National Statistics, https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/monthlyfiguresondeathsregisteredbyareaofusualresidence

Included in Figure 2 is an estimate for the year-end total deaths in 2018 which is based on the 6-months ending June 2018. The maximum (2.24 occurring in 2014), minimum (2.045 occurring in 2015) and median (2.136 occurring in 2007) values for the mid-year multiplier have been calculated

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based on June total versus December total deaths for the 17-year period 2001 to 2017. A minimum value of the mid-year to full-year multiplier occurs when deaths are loaded toward the end of the year, hence, the maximum year-on-year increase in deaths in 2015 was due to higher deaths earlier in the year (Jones 1996).

The final issue as to whether 2018 may set a record for year-on-year increase is where this year lies in the range of mid-year multipliers. The Supplementary online material shows weekly deaths for each year since 2010. The record increase seen in 2015 versus 2014 is unlikely simply because 2014 had a very low number of deaths and deaths in 2017 were not low (Figure 2). Deaths in 2018 have also run very high for the first 26 weeks of the year (online Supplementary material), hence, the likely year-end outcome will most likely lie in the range between the minimum and the median.

Despite this restriction, the total number of deaths in 2018 will be the highest since 2001. By implication, end-of-life costs within the NHS and social care will continue to escalate as will accompanying bed pressures (Jones 2015b, 2018c).

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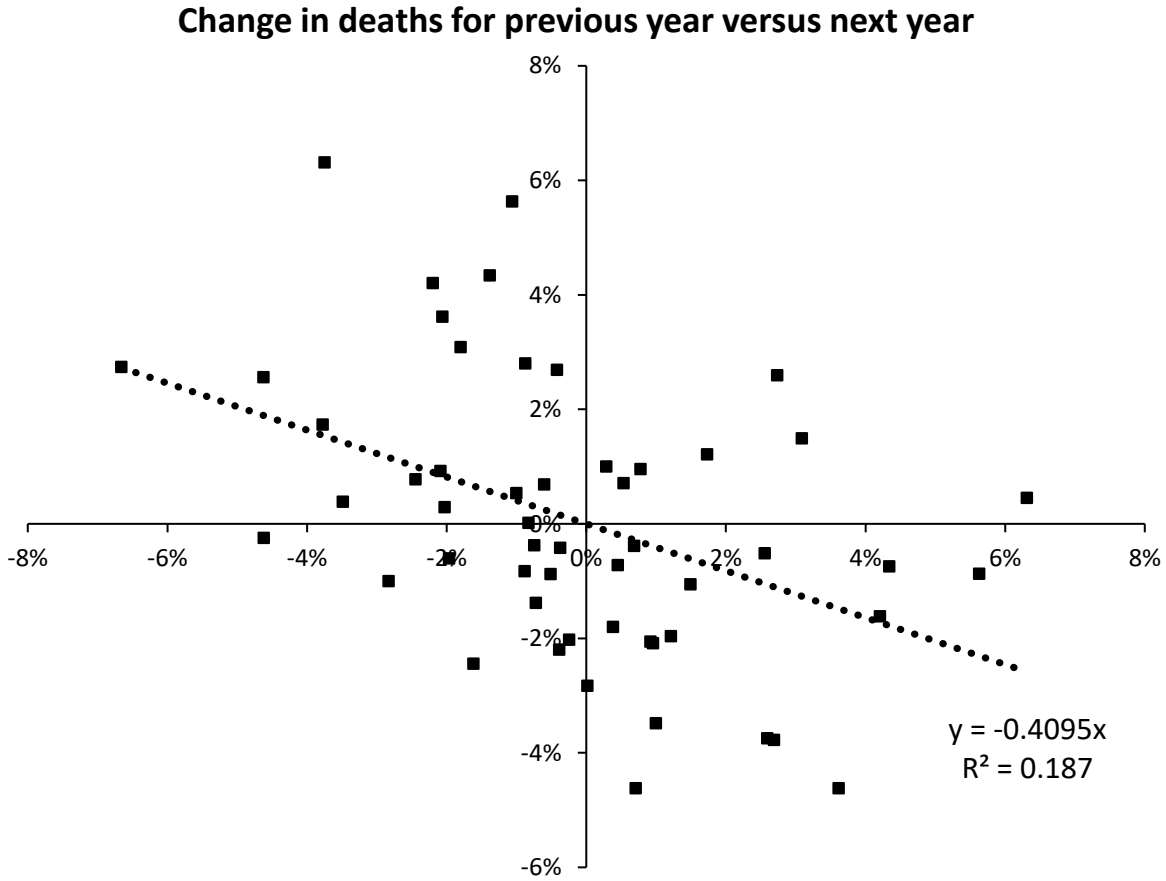
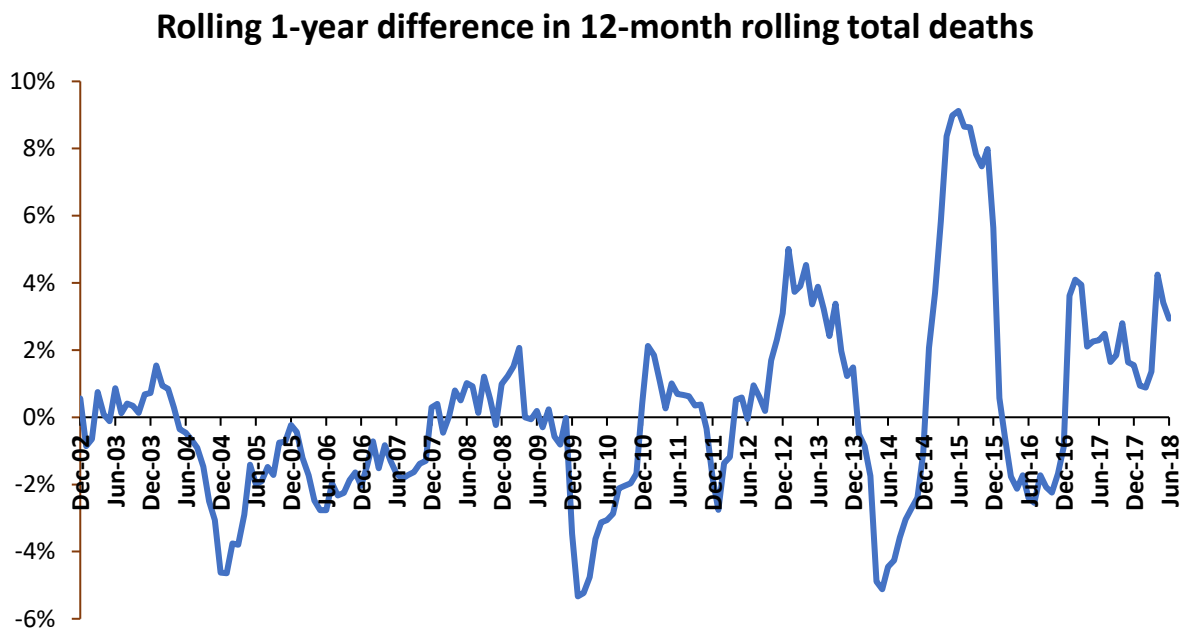
Supplementary Material





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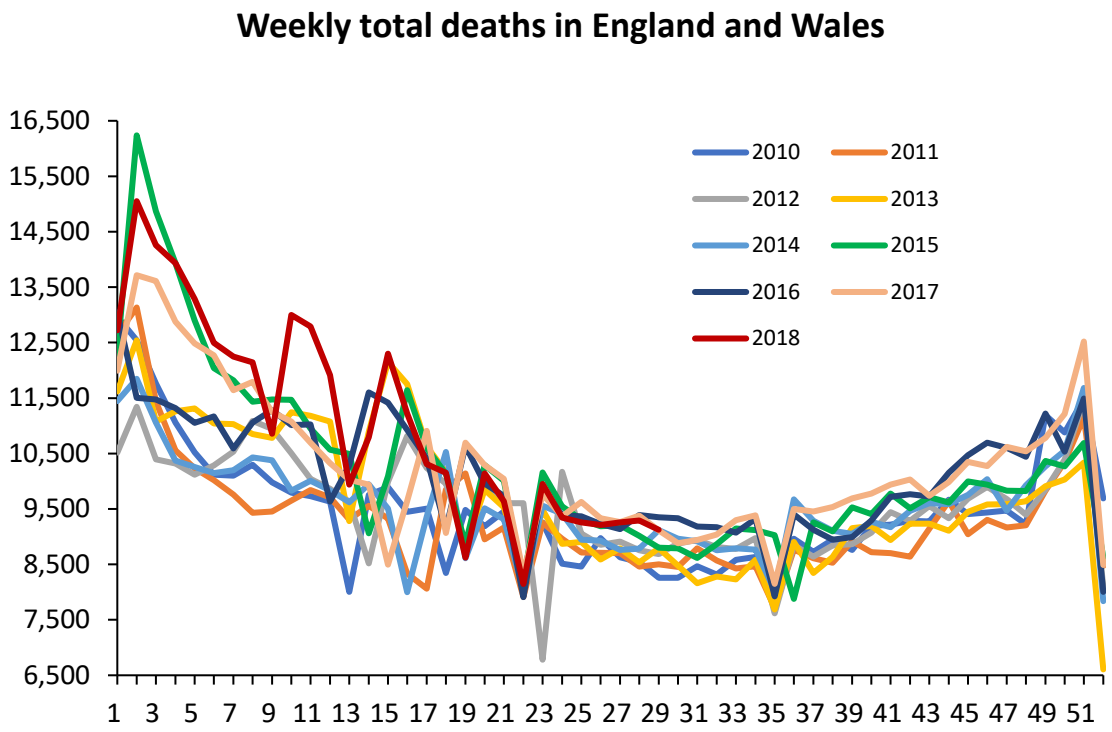
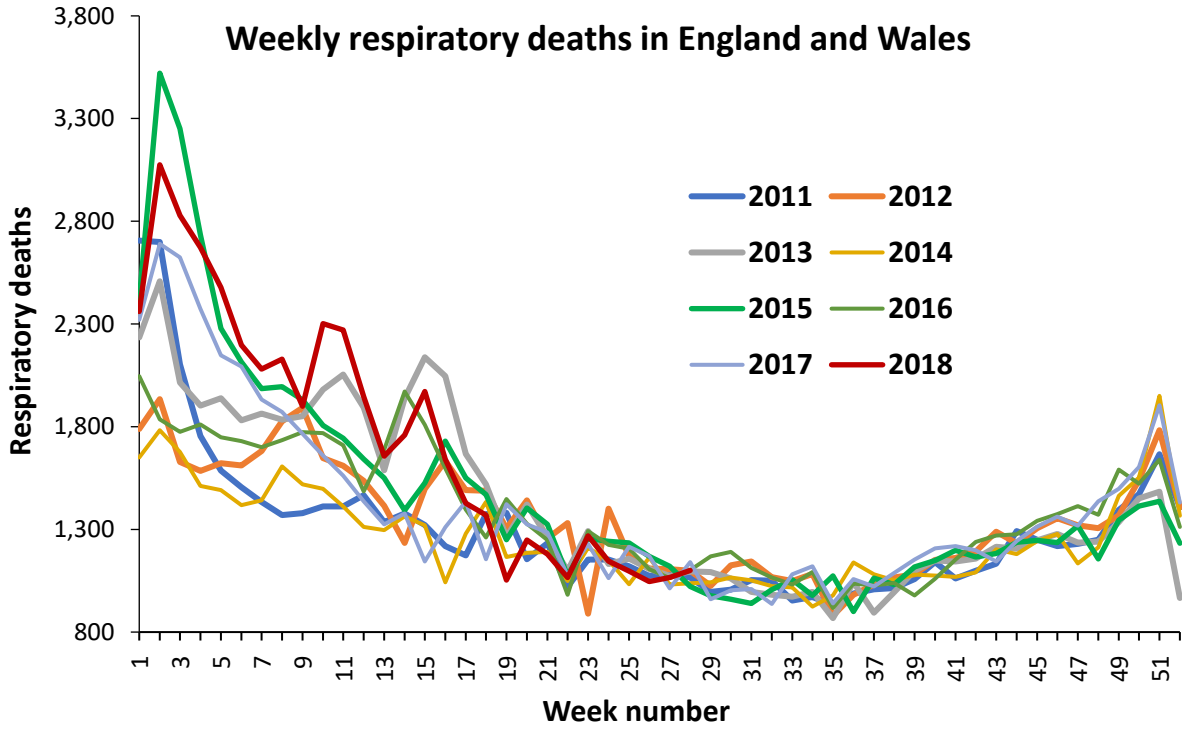


Footnote: Weekly deaths (the week in which the death is reported) are from the Office for National Statistics, https://www.ons.gov.uk/peoplepopulationandcommunity/birthsdeathsandmarriages/deaths/datasets/weeklyprovisionalfiguresondeathsregisteredinenglandandwales. Note that spikey behaviour in the trends is due to lower death registrations in some weeks due to public holidays and this especially applies to week 52 and Christmas.



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