Why are deaths in the UK behaving in such a peculiar way?

Rodney P Jones PhD, ACMA, CGMA
Statistical Advisor
Healthcare Analysis & Forecasting, UK
hcaf_rod@yahoo.co.uk

Abstract

Deaths across all regions and countries of the UK showed a mysterious maximum in the rolling 52-week total of deaths in the interval 20th April 2018 to 4th May 2018, except for London which reached a peak at 10th August 2018. After this point deaths dramatically drop to a new lower level, as a step-change, rather than a trend. This follows a continuous period of unexplained increases in deaths and associated falling life expectancy after early 2012. Explanations based on government austerity fail to explain these highly unusual trends. We need to look wider afield for possible causes, which may even extend into the realm of infectious disease epidemiology.

Introduction

Various academics in England noticed an increase in deaths and associated reduction in life expectancy roughly around the time which local government austerity was imposed across the whole UK [1-12]. It has subsequently emerged that the increase in death is an international phenomenon [13-21].

However, local government austerity was unequally applied across the UK with local government areas in England experiencing double the level elsewhere in the UK [9].

Research has shown that whatever is happening commences at very small area level and involves both deaths and hospital medical admissions [see http://www.hcaf.biz/2010/Publications_Full for an extended series of studies]. These trends extend back well before austerity was even necessitated by the financial crash and are truly international in scope. The austerity theory is not without challenge [13,14,22] and the international scope would seem to question an exclusive role for austerity. Indeed, in the UK
the availability of the National Health Service has meant that there has been uninterrupted access to both Primary and Secondary care, where anyone with a long-term condition or above the retirement age is entitled to free prescription for their pharmaceutical products. This would largely be expected to mitigate the effects of austerity on human health.

In this short communication weekly deaths across the regions of England and the other three countries of the UK are used to construct a rolling 52-week total of deaths and the trend is compared to the point of maximum deaths.

Methods

Weekly deaths were obtained from government agency websites [23-25]. Weekly data was converted into a rolling 52-week total using Microsoft Excel. The rolling 52-week total deaths was then compared against the 52-week period of maximum deaths which occurred in 2018. Single year of age deaths for the UK and single year of age population for the UK were obtained from the Office for National Statistics [26,27].

Results

All parts of the UK show the same trend

Figure 1 shows the rolling 52-week total for deaths across all parts of the UK commencing at the 52-week period ending at 27th December 2013. As can be seen 2013 represents a common minimum point for deaths across the UK. The differences in the trends between the different regions and countries arise from different age structure and relative levels of deprivation/social class where deaths tend to occur earlier in life in the more deprived areas [28]. However, despite these differences all areas show remarkably similar trends.

Even more remarkably most regions reach the point of maximum 52-week rolling deaths within a two-week window, except for London. Hence rolling 52-week maximum at 20th April 20918 (North East, North West, Yorkshire & the Humber, Wales, Scotland and Northern Ireland); 4th May 2018 (East Midlands, West Midlands, East of England, South East, South West) and then London at the 52-week period ending at 10th August 2018.

There are no unique metrological events which could lead to this unusual congruence.

There is unique single-year-of-age specificity

All parts of the UK showed a unique increase in deaths for 2015, however, it is not widely appreciated that this also shows unique single-year-of-age specificity. This is explored in Figure 2 where deaths in 2015 are compared to 2014 after adjusting for the differences in population between the two years. Note that Figure 2 is truncated at ± 15% deaths. There are more than 1,000 male and female deaths for all ages above 50 years. Most differences exceed the 98% Confidence Interval, except for some of younger ages. However, the remarkable difference for infant deaths among males (+6.5%) and females (-7%) is statistically significant. As can be seen female deaths are generally higher among those aged over 73 years, except for females aged 77. However, single year of age specificity is clear especially for those aged 72, 68, 40-41, 31, 23, 16, 9-10, 5-6, 2-3 all showing lower deaths.
Figure 1: Rolling 52-week total deaths for Regions/Countries of the UK compared to the rolling 52-week maximum in each area. Rolling 52-week total commences at 27th December 2013.

Figure 2: Single-year-of-age differences in deaths for the whole UK, 2015 versus 2014, after adjusting deaths in each age for the differences in population between the two years.
Respiratory deaths are a key indicator

An earlier study identified that respiratory deaths and admissions increased during these curious events [29]. Respiratory deaths are around 15% of all deaths and Figure 3 shows that respiratory deaths in England and Wales respond more strongly to these curious events than do total deaths. This supports the notion that respiratory deaths are a marker for these events.

Figure 3: Rolling 52-week totals of all deaths and respiratory deaths in England and Wales, both relative to the rolling 52-week maximum deaths

Discussion

Whatever is happening defies simple explanations based on austerity. Austerity in England is double that elsewhere in the UK [9], yet the trends are remarkably similar. All the trends show features which defy a simple explanation. Austerity is unable to account for the large reduction in deaths commencing during 2018.

Recall that in a rolling 52-week total seasonal behaviour is largely removed and sudden and semi-permanent changes in deaths show up as ramp-like trends. All countries so-far studied show these ramp-like trends [30,31] which indicate totally unexplained sudden changes in deaths. These sudden changes have been around for many years but have seemingly been ignored [32].
Likewise, single-year-of-age specificity has been previously observed [32,33]. In this respect, in actuarial science and sociology year of birth cohort effects are widely recognised [34,35].

Conclusions

The evidence is pointing toward something other than austerity and toward a unique kind of disease outbreak. Researchers need to interrogate their own national data, especially for males/females, and looking for age specificity. As per previous studies respiratory deaths appear to be a specific marker associated with these curious events. Respiratory infection is a common marker for failing immune function at end of life. This lends support to the notion that we are dealing with an agent which modifies immune function in a susceptible portion of the population, see http://www.hcaf.biz/2010/Publications_Full.pdf

References


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