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Trends in crude death rates in English hospitals

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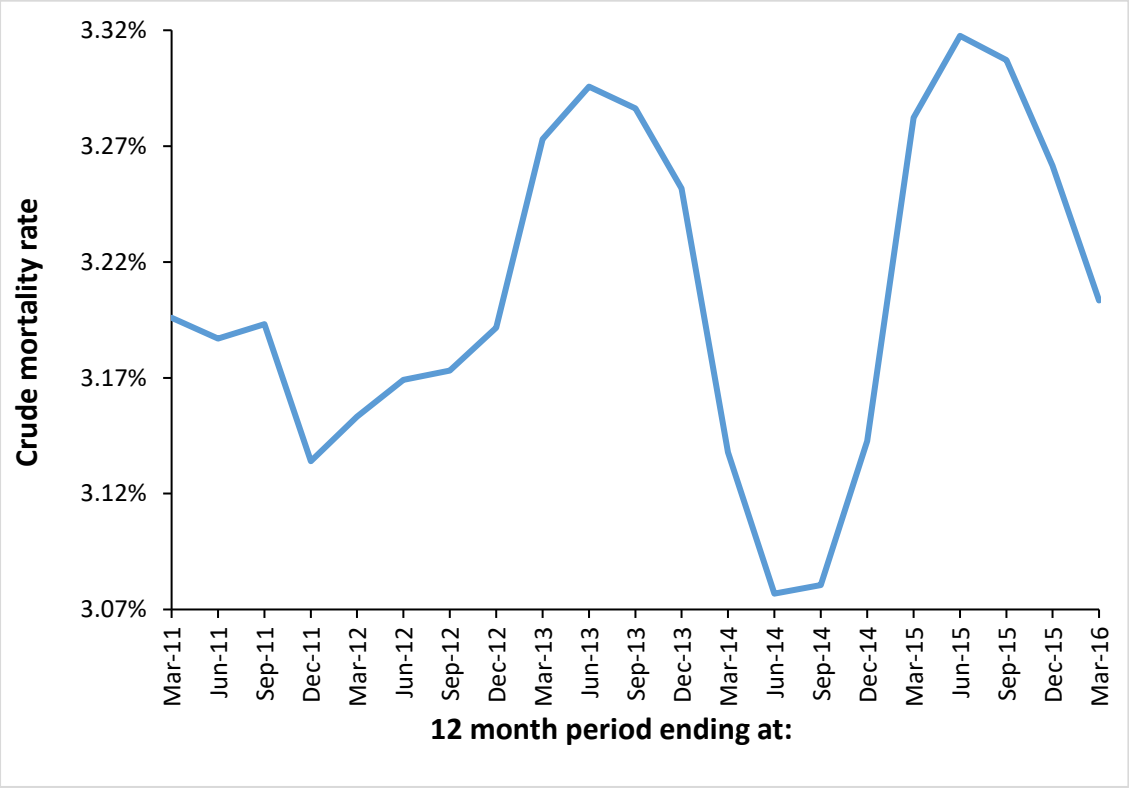
Over the past years, a series of articles in BJHCM and elsewhere has highlighted entirely anomalous behaviour in every aspect of human health, namely, emergency department attendances, medical admissions, all-cause mortality, staff sickness absence, GP referrals and the ratio of follow-up to first attendances, and the gender ratio at birth (reviewed in Jones 2015c, 2016b).

Figure 1: Trend in the crude mortality rate for English hospitals as a running 12-month total



It has been pointed out that this anomalous behaviour, in which the sensitivity of human population health appears to go through an on/off time series (step-up and step-down in rates of death, etc), leads to a discontinuity in the numerator and denominator of all forms of hospital standardized

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mortality calculations (Jones 2015b), and explains why these models need to be constantly 'recalibrated'. This on/off behaviour is best illustrated using a running 12-month total.

This is illustrated in Figure 1 where the crude death rate for English hospitals has been followed over a series of 12-month totals which increment forward at quarterly intervals. The data comes from NHS Digital website (http://content.digital.nhs.uk/catalogue/PUB21665), and includes deaths within 30 days of discharge, and commences with the 201/11 financial year.

As can be seen the trend follows the typical 'apparent' cycle generated in a running 12-month total where there is on/off switching in population health status (Jones 2015a). Switch-on (poorer health) occurs at the bottom of the cycle while switch-off (back to relatively better health) occurs at the top.

Each cycle is generated by a presumed infectious outbreak of an immune modifying agent (Jones 2016b,d-f). Figure 1 captures the switch-off following the cessation of the 2010 outbreak, both switch on and off associated with the 2012 outbreak (Jones & Beauchant 2015, Jones 2015e,f), and finally, switch-on arising from the 2014 outbreak, and the eventual switch-off after the cessation of the outbreak. A further outbreak in 2016 will generate a further cycle commencing in the June-2016 quarter (Jones 2016f) – there are complex lags in the national data due to spread of the agent, changes in case-mix during the outbreaks, and the fact that deaths lag behind admissions. In this respect, the shape of the trend is determined by the spatial synchrony (speed of spread between areas) of each outbreak. The 2010 outbreak had very low synchrony and spread across England occurred over a two-year period (Jones 2015f), hence the somewhat muted step-down associated with switch-off after the 2010 outbreak. Finally, the 2014 outbreak is augmented by an influenza outbreak in January 2015 (Jones 2016g).

Why is this important? Firstly, it is that during the periods of 'poor' population health, both bed occupancy and total health care and social care costs reach a maximum, and that very large sums of money are involved (Jones 2015c, 2016a-c).

Secondly, no government agency appears to have the least interest (Jones 2016f). Indeed, in the attached link is an 'official' weekly report by Public Health England (PHE) (https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/553316/Weekly_report_mortality_15_Sept.pdf). Figure 1 in the PHE report is of interest, and observe the transition to higher deaths around the beginning of 2016 when an outbreak of the agent commences. Deaths then run very close to the upper limit for the rest of 2016. A point which PHE seemingly ignore, but rather concentrate on the fact that the latest weekly data does not breach the upper limit – which is true, but misleading in the wider context of a long series of inexplicably higher deaths. Note that the EUROMomo methodology used in Figure 2 of the PHE report leads to a biased estimate of the baseline, which is sensitive to the magnitude and timing of these outbreaks (Jones 2013).

Thirdly, the most concerning outcome is that population health appears to be slowly eroding as a legacy of each outbreak (Jones 2016e,f), i.e. the underlying trend upward in Figure 1 to increasing crude mortality.

In conclusion, health care costs are switching on/off in a manner over which the health and social care services have no control. Government agencies appear to have no (public) interest in researching why this behaviour is so fundamental. If it is indeed true that a new kind of infectious event is involved, then no amount of effort on behalf of the health services and social care will solve the basic problem until the agent is identified and appropriate public health measures are instituted. We have a seemingly inconvenient and policy-disruptive discovery.

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References

Jones R (2013) Analysing excess winter mortality: 2012/13. BJHCM 19(12): 601-605.

Jones R (2015a) Simulated rectangular wave infectious-like events replicate the diversity of time-profiles observed in real-world running 12 month totals of admissions or deaths. ***FGNAMB*** 1(3): 78-79. doi: 10.15761/FGNAMB.1000114

Jones R (2015b) A 'fatal' flaw in hospital mortality models: How spatiotemporal variation in all-cause mortality invalidates hidden assumptions in the models. ***FGNAMB*** 1(3): 82-96. doi: 10.15761/FGNAMB.1000116

Jones R (2015c) Recurring Outbreaks of an Infection Apparently Targeting Immune Function, and Consequent Unprecedented Growth in Medical Admission and Costs in the United Kingdom: A Review. ***British Journal of Medicine and Medical Research*** 6(8): 735-770. doi: 10.9734/BJMMR/2015/14845

Jones R (2015d) A new type of infectious outbreak? ***SMU Medical Journal*** 2(1): 19-25.

Jones R (2015e) Unexpected and Disruptive Changes in Admissions Associated with an Infectious-like Event Experienced at a Hospital in Berkshire, England around May of 2012. British Journal of Medicine and Medical Research 6(1): 56-76. doi: 10.9734/BJMMR/2015/13938

Jones R (2015f) Small area spread and step-like changes in emergency medical admissions in response to an apparently new type of infectious event. FGNAMB 1(2): 42-54. doi: 10.15761/FGNAMB.1000110

Jones R, Beauchant S (2015) Spread of a new type of infectious condition across Berkshire in England between June 2011 and March 2013: Effect on medical emergency admissions. British Journal of Medicine and Medical Research 6(1): 126-148. doi: 10.9734/BJMMR/2015/14223

Jones R (2016a) Bed occupancy and hospital mortality. ***BJHCM*** 22(7): 380-381.

Jones R (2016b) Is cytomegalovirus involved in recurring periods of higher than expected death and medical admissions, occurring as clustered outbreaks in the northern and southern hemispheres? ***British Journal of Medicine and Medical Research*** 11(2): 1-31. doi: 10.9734/BJMMR/2016/20062

Jones R (2016c) The real reason for the huge NHS overspend? ***BJHCM*** 22(1): 40-42.

Jones R (2016d) Deaths in English Lower Super Output Areas (LSOA) show patterns of very large shifts indicative of a novel recurring infectious event. ***SMU Medical Journal*** 3(2): 23-36.

Jones R (2016e) The unprecedented growth in medical admissions in the UK: the ageing population or a possible infectious/immune aetiology? E***pidemiology (Sunnyvale)*** 6(1): 1000219

Jones R (2016f) Rising emergency admissions in the UK and the elephant in the room. ***Epidemiology (Sunnyvale): Open Access*** 6(4): 1000261

Jones R (2016g) 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