An edited version of this article has been published as: **Jones R (2012) Age-related changes in A&E attendance. British Journal of Healthcare Management 18(9): 508-509**. Please use this to cite.

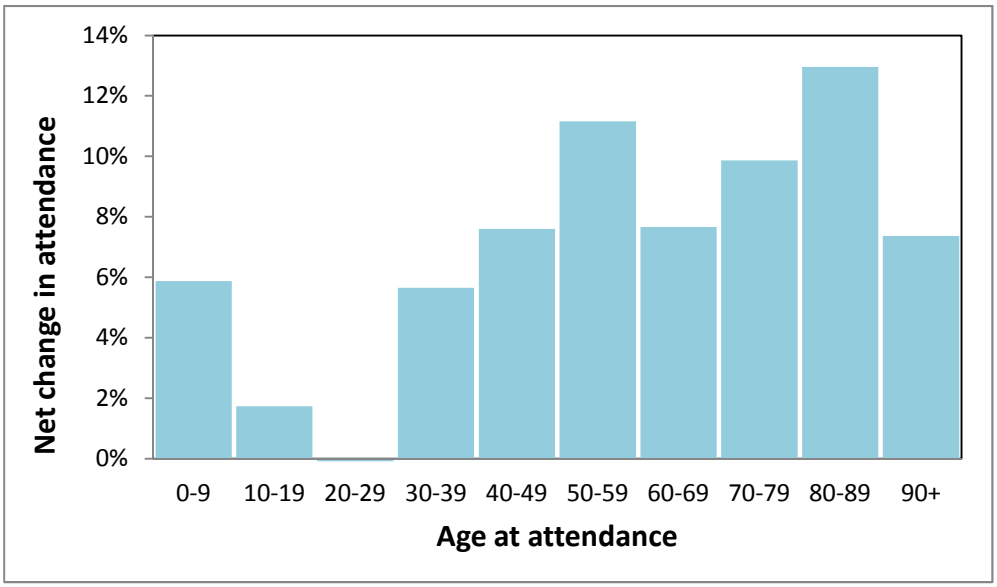
Age-related changes in accident and emergency (A&E) attendance

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

For further articles in this series please go to: http://www.hcaf.biz
The published version can be obtained from http://www.bjhcm.co.uk or via Athens.

A series of articles in BJHCM have explored the trends over time for a variety of health care contact/cost types (A&E, outpatient, inpatient, etc). This analysis has sought to highlight the fact that demographic change, i.e. the ageing population, is only able to explain a tiny proportion of the 'real world' trends. Indeed a recurring event, which has similarities to an infectious spread, appears to offer greater insight into why the data shows such curious age, sex and time-dependant anomalies which have repercussions across all aspects of health care in multiple countries (Jones 2012b,c). Step-like increases in A&E attendance following these events have been demonstrated to occur (Jones 2010).

Figure 1: Adjusted growth between 2007/08 and 2009/10 by age band



Footnote: Data for total A&E attendances in England was extracted from http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=1834. Attendances in each age band have been pro-rata adjusted for attendances where age is missing and the discrepancy between quarterly monitoring returns and HES A&E data. Data on population growth was obtained from ONS 2006 mid-year population forecasts.

An edited version of this article has been published as: **Jones R (2012) Age-related changes in A&E attendance. British Journal of Healthcare Management 18(9): 508-509**. Please use this to cite.

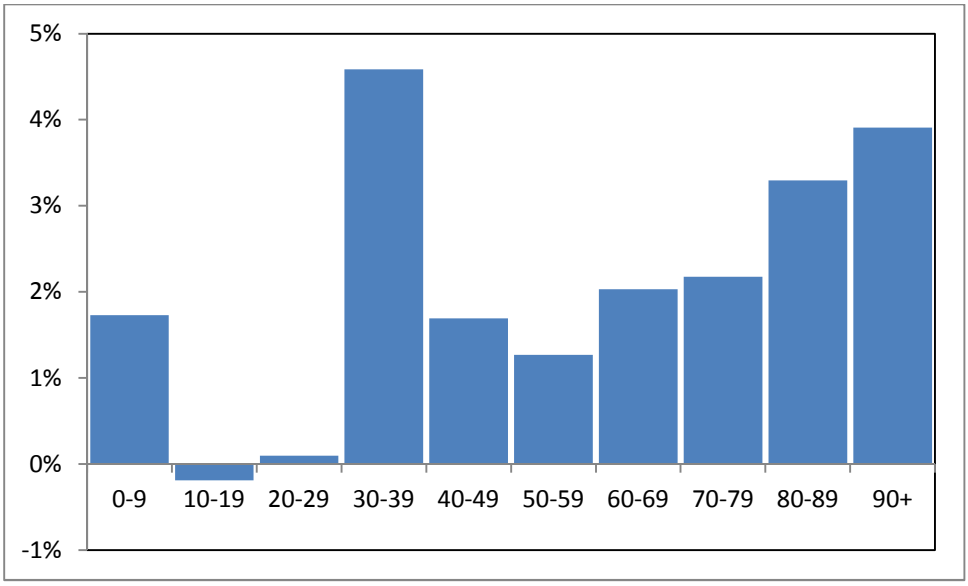
In this respect, Figure 1 shows the net change in A&E attendance (after adjusting for underlying demographic growth) by age band after the latest of these events which occurred toward the latter part of the 2007/08 financial year in many parts of England.

The first and obvious fact is that growth is highly age dependant which appears to be a common theme among all aspects of health care affected by these events (Jones 2012b,c). The point of great relevance is that there was no net growth in attendances for the 20-29 year age group. This is despite the reputation of this age group for not registering with a GP and using A&E as an 'easy' alternative to primary care. Net growth is highest for ages 50-59 and 80-89 who cannot be accused of using A&E as an easy alternative to primary care and in most instances will have developed a good relationship with their preferred GP.

Even more curious is the variable net growth between the different age bands. This is entirely different to the rather gradual increase in the proportion of A&E attendances which convert to become an admission as age increases. Clearly something out of the ordinary is happening.

To illustrate further the change in deaths seen in 2008 arising from the 2007 event (see Jones 2012a for more detail) have been calculated (Figure 2) using the same age bands as for A&E attendances. While the cascade of physiological events leading to ultimate death represent an extreme form of the need for an A&E attendance there are broad similarities between the two figures.

Figure 2: Net change in deaths in 2008



Footnote: Data is from the UK Office for National Statistics and covers deaths in England & Wales. Deaths in 2008 were compared to those in 2007 and 2009. Due to the ongoing decline in deaths over time the trend for each age band was determined using a polynomial curve fit. Data for 2008 and 2009 was then adjusted to account for the underlying decline in deaths.

An edited version of this article has been published as: **Jones R (2012) Age-related changes in A&E attendance. British Journal of Healthcare Management 18(9): 508-509**. Please use this to cite.

Deaths and A&E attendances in the very young increased and the 30-39 age group marks the start of a dramatic increase in both A&E attendance and deaths (although in both instances this age group represent only a small proportion of total attendances and deaths).

Hence it is clear that something fundamental has happened to lead to these substantial increases which in extreme instances can lead to death – although different expressions of the effect of the event are evident over time. Something has clearly changed both the propensity to die and the perceived need to attend A&E for an urgent expert opinion.

All financial forecasting, health care policy and its effective implementation rely on knowledge of the mechanisms by which different aspects of health care demand changes over time. In your opinion the possibility of an infectious outbreak may be an implausible explanation. The scientific process then implies that researchers disprove the former and establish a new hypothesis which is consistent with the known facts. It would seem that it is time for a far wider discussion regarding possible mechanisms rather than avoiding the issue and hoping it will all go away. It would appear that the ageing population is merely providing a context rather than a cause per se.

References

Jones R (2010) Forecasting emergency department attendances. BJHCM 16(10): 495-496.

Jones R (2012a) End of life and financial risk in GP commissioning. BJHCM 18(7): 374-381.

Jones R (2012b) Trends in GP referrals: jump or push? BJHCM 18(8): 488-497.

Jones R (2012c) Could cytomegalovirus be causing widespread outbreaks of chronic poor health. In “Hypotheses in Clinical Medicine”, Chapter 4; Eds M. Shoja et al., New York: Nova Science Publishers Inc.