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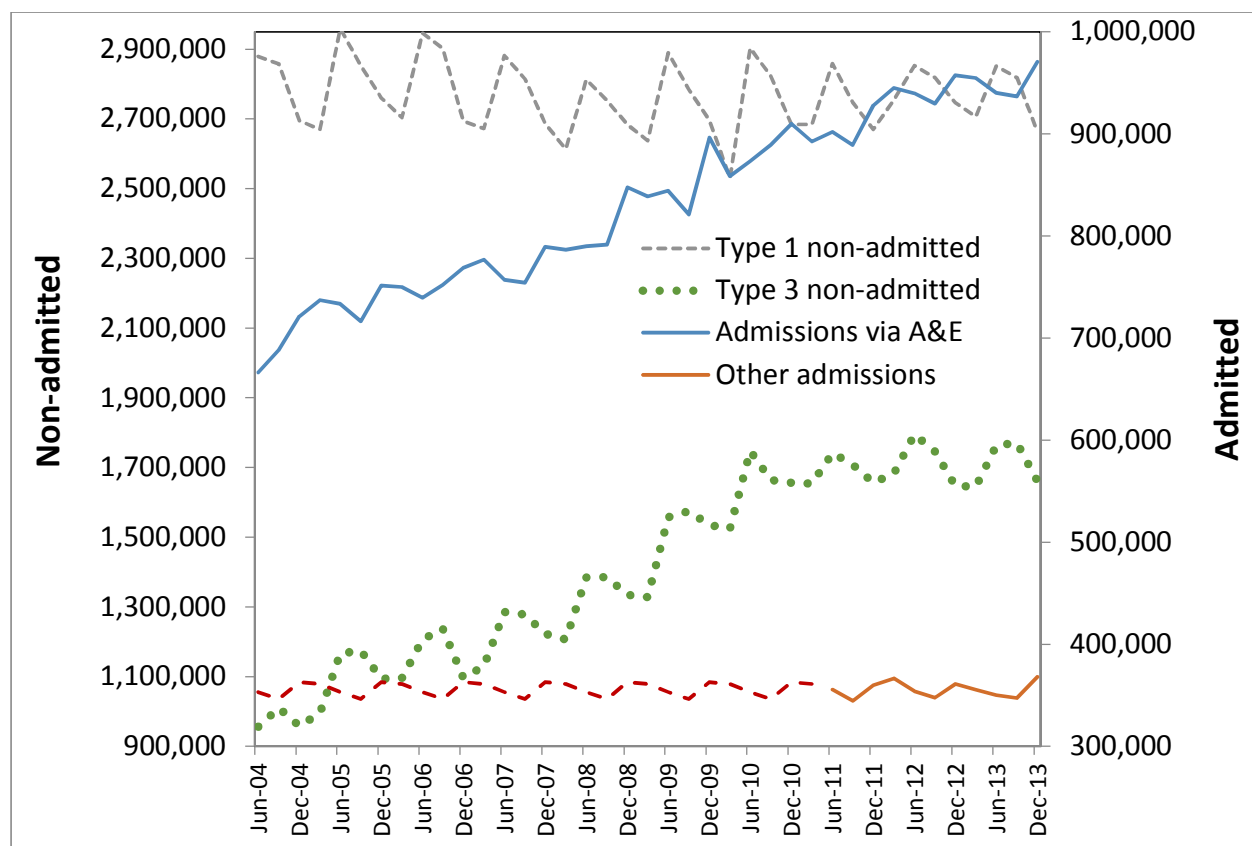
Untangling the A&E Crisis

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A number of articles in the BJHCM 'Money Matters' series has sought to shed light on the multifactorial nature of the A&E crisis which emerged early in 2012. It was demonstrated that the general increase was due mainly to the elderly, thereby ruling out 'irresponsible youth', serial attenders, immigrants and any number of other distracting possibilities as the primary cause.

Figure 1: Quarterly totals (England) for admitted and non-admitted A&E attendances



Footnote: Data is from <http://www.england.nhs.uk/statistics/tag/ae/>

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Figure 1 seeks to shed further light on the issues by using quarterly summation of the daily situation report (SITREP) data. The use of SITREP data should avoid some of the data capture problems involving other sources of A&E numbers. Type 2 A&E data which includes single specialty hospitals such as Moorfields eye hospital are relatively small numbers and have been included in the Type 1 (major A&E department) figures. Type 3 A&E are the smaller Minor Injury Units, Walk in Centre's, etc.

Firstly note that it is the non-admitted attendances which are the most highly seasonal, i.e. the saw-tooth behavior, and this presents its own problems in terms of capacity planning and seasonal work-load pressures. This stream of activity will be far more sensitive to the weather and a search in Google Scholar or similar will quickly yield hundreds of articles confirming this association. By definition annual trends are likely to be more volatile and can lead to incorrect conclusions if only short-term data is used.

Secondly note the slight downward trend in Type 1 non-admitted A&E attendances during the period up to December 2010. It is during this time that there was a push to open Type 3 A&E units, however, from 2011 onward the number of these units have reached a plateau and in more recent times some of these units have been closed. Was the expansion in non-admitted attendances from 2004 to 2009 supply-induced or was it simply meeting a growth in expressed demand, i.e. GP capacity issues?

However turning to the A&E attendances which resulted in an admission it is easy to see where the A&E crisis emanated from (even in the absence of A&E recruitment issues). Particularly note the trend for 'other admissions' which are mainly direct admissions made by GP's either to medical assessment units or to a ward. SITREP data for these other admissions only commences in 2011, however, it is apparent that the trend is fairly flat (the dotted line prior to 2011 is an estimate assuming no growth). Since 2001 full-time equivalent GP numbers have only increase by 2% p.a. (NHS Information Centre 2012) and hence the number of admissions via this route will be limited by GP availability. The pressure behind admissions therefore seems to be arising spontaneously from the community.

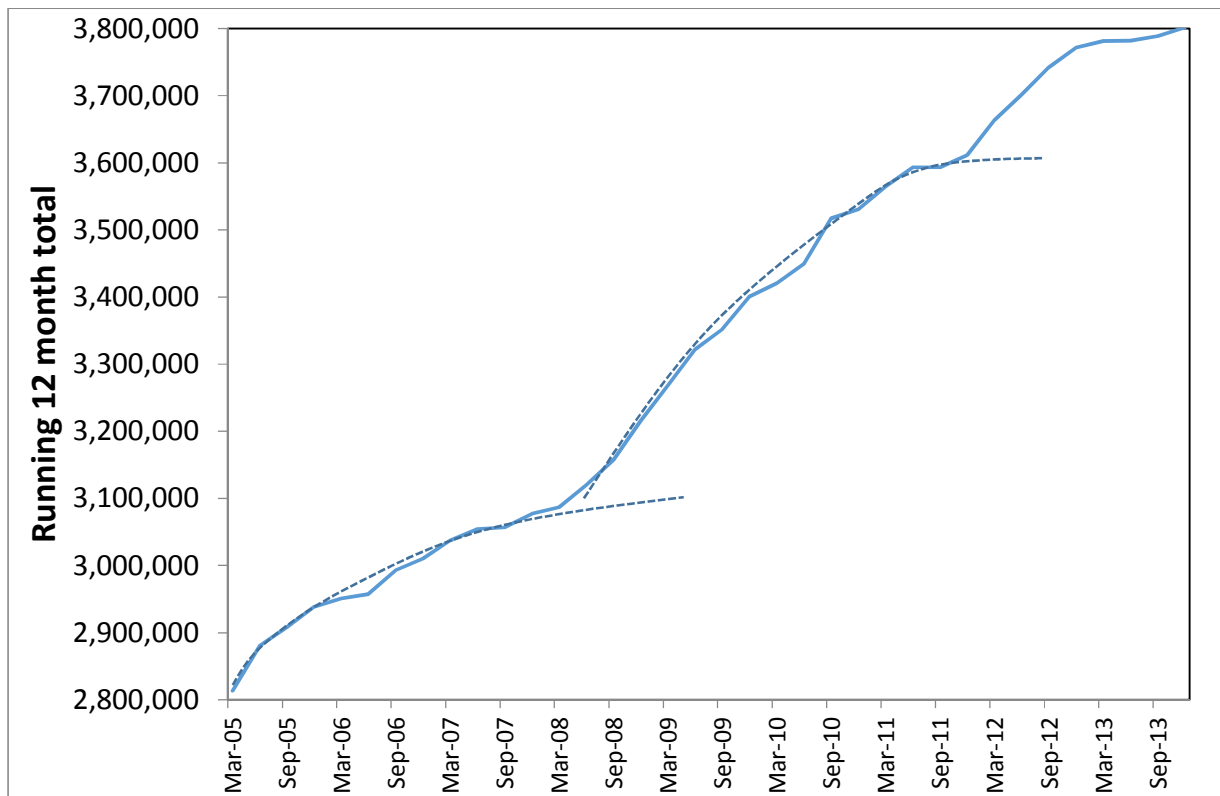
In this respect Figure 2 presents a running 12 month total of admissions via A&E where three cycles of growth can be seen. The three cycles arise from events in 2003, 2008 and 2012 where deaths in the UK show totally unexpected increases (Jones 2012, 2013b). The increased deaths during these spikes are gender, age and condition specific (Jones 2013, Jones 2014b, Jones & Goldeck 2014) and have been linked to rapid increases in A&E attendance (and case-mix) and medical admissions (Jones 2013d, 2014a,c,e, Jones & Beauchant 2014).

Deaths during the 2012 event have been demonstrated to show single-year-of-age saw-tooth patterns reminiscent of the patterns left by sequential infection by different strains of the same infectious agent (Jones 2014f). Spatial spread across England & Wales over a two year period has also been demonstrated (Jones 2014g), and this somewhat disproves explanations based on health service inefficiency or failure to manage demand. It would seem that the 2012 event

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probably led to 50,000 to 60,000 excess deaths (Jones 2014g) and this fairly high fatality rate may have acted to self-limit the wider effect on medical admissions - hence the smaller cycle after 2012 seen in Figure 2. Interestingly the 2008 event had generally fewer deaths (Jones 2012) and it would seem that the balance of infectious potency was expressed against morbidity rather than mortality. A potential candidate has been identified (Jones 2013a,c, 2014d) but this requires confirming medical studies.

Figure 2: Trend in admissions via A&E



The situation in A&E has been made vastly worse by general closure of acute beds and attempting to run acute hospitals at insanely high occupancy (Jones 2009,2011). Hence while blaming GP's and other health service organisation's may be politically expedient it would seem that the real answer may lie in a previously unrecognized public health threat which is deserving of far greater attention. It would seem that a variety of government agencies need to 'get their skates on' since the next outbreak is due in the interval 2015 to 2020.

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