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Trends in unscheduled care

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Unscheduled care is currently a political hot potato with everyone blaming everyone else. One group say one thing and another group then contradict them (Kaffash 2013). Political point scoring and personal opinion is creating a fog of confusion. What are the key issues and what does the data actually say.

The NHS in England is operating on a knife edge. Average hospital occupancy is now so critically high that there are all manner of hidden queues to admission (see Jones 2011a,b). This has been exacerbated by well-intended attempts to close beds and save money – with highly predictable consequences (Jones 2009a-d, 2011c). The system is simply so stretched that any perturbation to status quo will lead to rapid deterioration of performance.

In explanation, a presumed infectious outbreak which entered England & Wales in early 2012 (Jones 2012, 2013a-b) has provided just such a system perturbation. As a result, what is being observed is system ‘failure’, however, the real cause of the problem is not the systems or their presumed deficiencies, per se, but the perturbation.

Figure 1 which is a running 12 month total of activity relative to 2007/08 out-turn summarises the salient points – note that in a running total an abrupt change in slope signifies a step-increase rather than a gradual change. Firstly there has been a confusing change in the trajectory of total A&E attendances since December 2010. Arguments rage around the role that counting minor injury unit data has had upon the trend since 2003/04 (Appleby 2013) and thresholds to an A&E attendance, however, for whatever reason(s) the total A&E attendances are behaving in their own unique way.

A possible clue to the unique behavior of A&E attendances is given in Figure 2 where the ratio of primary care physicians per 1000 head of population is ranked among OECD countries. As can be seen the UK is well down the ranking with around 28% fewer GPs per head than Switzerland or Germany or 14% lower than the OECD average. This will partly reflect in the equilibrium between primary and secondary care (Oliver 2013). The apparent lower ratio for the US arises from poor primary care access for the uninsured. It is suggested that any country seeking to switch to a primary care led health service may be better placed to do so with more GPs or GP equivalent resource per 1000 head than is currently the case in the UK. To attempt to do so without first expanding primary care is to invite a shift in the equilibrium position to acute care should unexpected sources of demand arise. Whatever the ultimate explanation the public appear to be voting with their feet and this is making the position regarding A&E more difficult to interpret especially regarding the more recent position.

However, the double arrow marks the point that deaths increase and also marks the point that admissions via A&E increase along with total emergency admissions. Recall that a significant proportion

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of the GP referred unscheduled flow gets admitted direct to assessment units and hence is counted as an emergency admission not an A&E attendance and that these step-like increases in emergency admissions are almost exclusively made up of medical as opposed to surgical or trauma admissions (Jones 2009a). The key point is that both measures of admissions step up to a higher rate exactly at the point that deaths increase. Given the already high bed occupancy any increase in emergency admissions will immediately lead to longer queues to admission in A&E (Jones 2011b) as has been experienced across the UK.

People do not just die in large numbers for no apparent reason, i.e. approximately 40,000 excess deaths since the onset of the outbreak, and as explained the kinetic characteristics behind the excess deaths is consistent with an infectious outbreak (Jones 2013a,b). Having suggested that the infectious agent is cytomegalovirus (CMV), to which there is no current vaccine, it is apposite to quickly review some relevant developments. In the EPIC-Norfolk (England) study which ran from 1993 to 2011, i.e. the study spanned four outbreaks in 1993, 1996, 2002 and 2007, CMV infection was associated with a 16% increase in all-cause mortality (+6% cardiovascular disease, +13% cancer and +23% other causes of which 12% were respiratory, 16% gastrointestinal and 21% central nervous system leaving 60% across other body systems (Gkrania-Klotsas et al 2013). CMV infection of the heart is common in fatal myocarditis (Kyto et al 2005). The role of different strains of CMV is important and infection of mice with multiple CMV strains leads to active infection of the salivary ducts with the more pathogenic strains (McWhorter et al 2013) while infection of infants showed clustering of disease types according to CMV Glycoprotein B genotypes (Gandhoke et al 2012). The ability of CMV strains to produce active infection of endothelial cells (the most common clinical source of CMV infection and disease) depends on mutations in the UL133-UL138 locus of the CMV genome (Buglio et al 2013). Hence introduction of a new strain is a feasible reason for these outbreaks.

Combining the above with the output from the Kings Fund study into A&E trends (Appleby 2013) gives the following conclusions:

1. Queues in A&E have arisen due to a jump in emergency admissions both via A&E and assessment units which has compounded existing very high hospital occupancy
2. Growth in A&E attendances at acute hospitals has not been unduly high, except for the growth in A&E attendances leading to an admission.
3. Growth in attendances has been mainly via walk in centers (WIC) and minor injury units (MIU)
4. With 28% fewer GPs per head of population than Germany or Switzerland primary care capacity in the UK is probably saturated
5. Growth in WIC and MIU attendances is probably making up the deficit in primary care capacity in the UK

While it is entirely appropriate that the relevant authorities do not declare a new infectious outbreak based on one person's research, at the very least they should respond rapidly to investigate the validity of such claims as part of wider attempts to understand the dynamics and costs of unscheduled care. To ascribe events to the incorrect cause misses the opportunity to make a correct diagnosis of both cause and necessary remedies. Is this a classic example of where epidemiology influences financial and capacity planning?

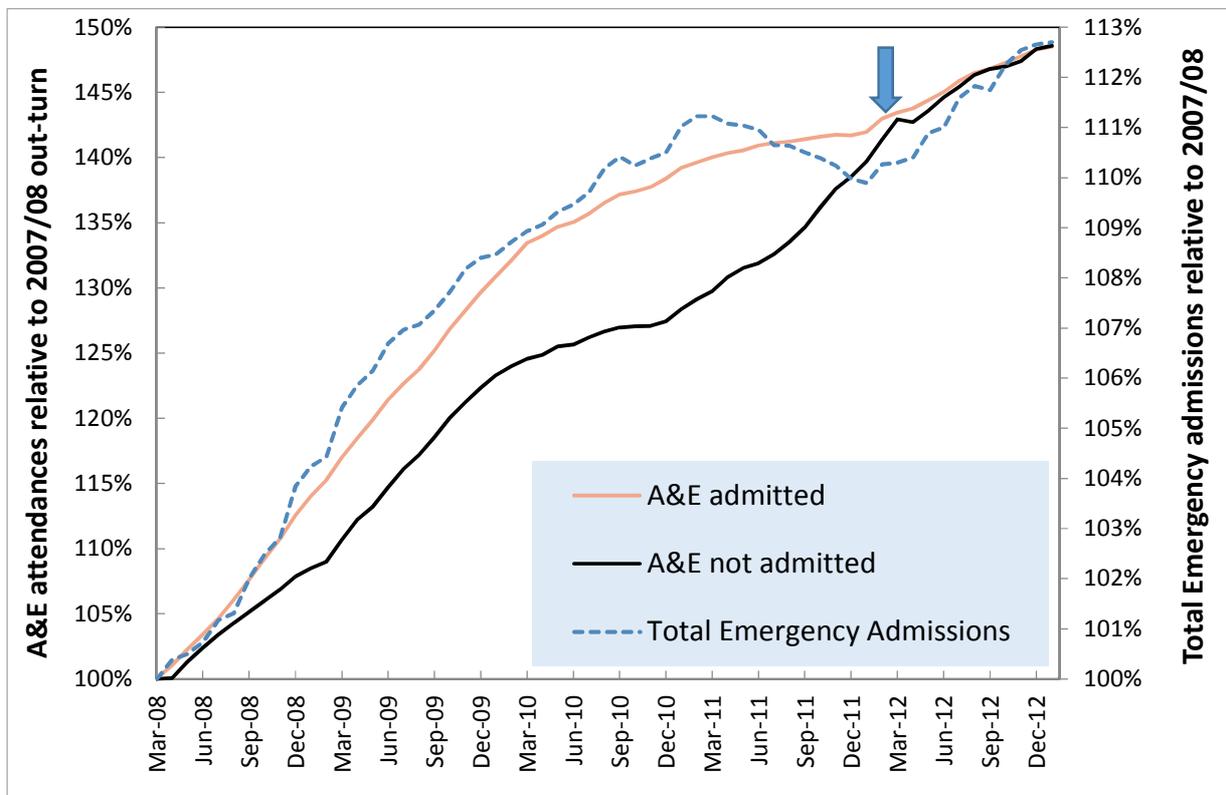
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Figure 1: Trend in unscheduled attendances/admissions

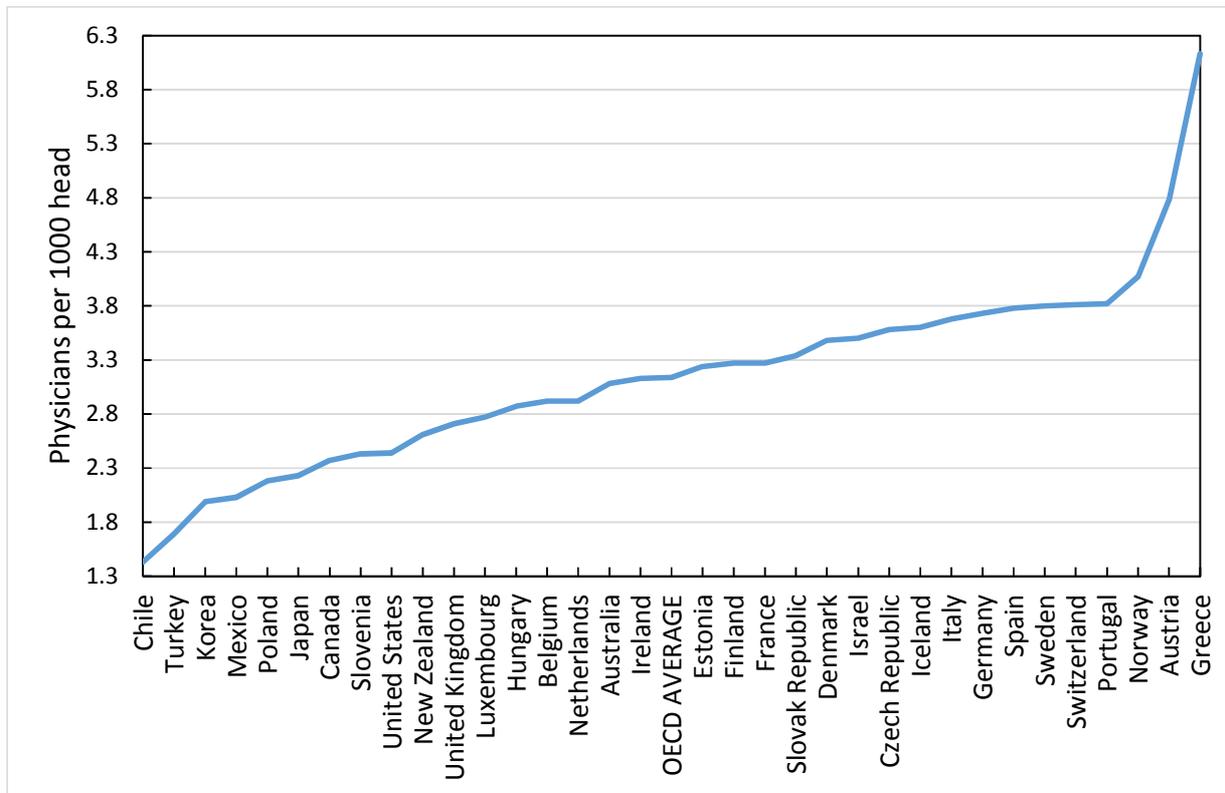


Monthly Hospital Episode Statistics (HES) data is from

<http://www.hscic.gov.uk/searchcatalogue?productid=11643&q=title%3a%22hospital+episode+statistics%22&sort=Relevance&size=10&page=1#top>

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Figure 2: Primary Care Physicians per 1000 head of population



Data for 2010 is from OECDStatExtracts http://stats.oecd.org/Index.aspx?DataSetCode=HEALTH_REAC