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Declining length of stay and future bed numbers

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In the early 1990's I can recall reading an article demonstrating that the trends in LOS during the 1980's and early 1990's extrapolated to zero by around 2015. Clearly this has not happened and this leads us to a consideration of how trends in LOS are behaving in recent times. The Advisory Board International noted that by around 2000 the average LOS for overnight stay admissions in the USA had effectively reached an asymptote (Advisory Board 2009). The US is generally about a decade in front of the NHS in the UK in terms of average LOS. In this respect Fig. 1 shows the trends for LOS in England from 1998 to 2013.

As can be seen the medical group, surgical group, obstetric/midwifery and trauma and orthopaedics are all showing asymptotic behavior while other specialties show near linear trends but with only a tiny reduction per annum. Haematology, oncology and to a lesser extent medicine, follow complex cycles, although if you look closely there are cycle-like movements around the trend line in other specialties (Jones 2015).

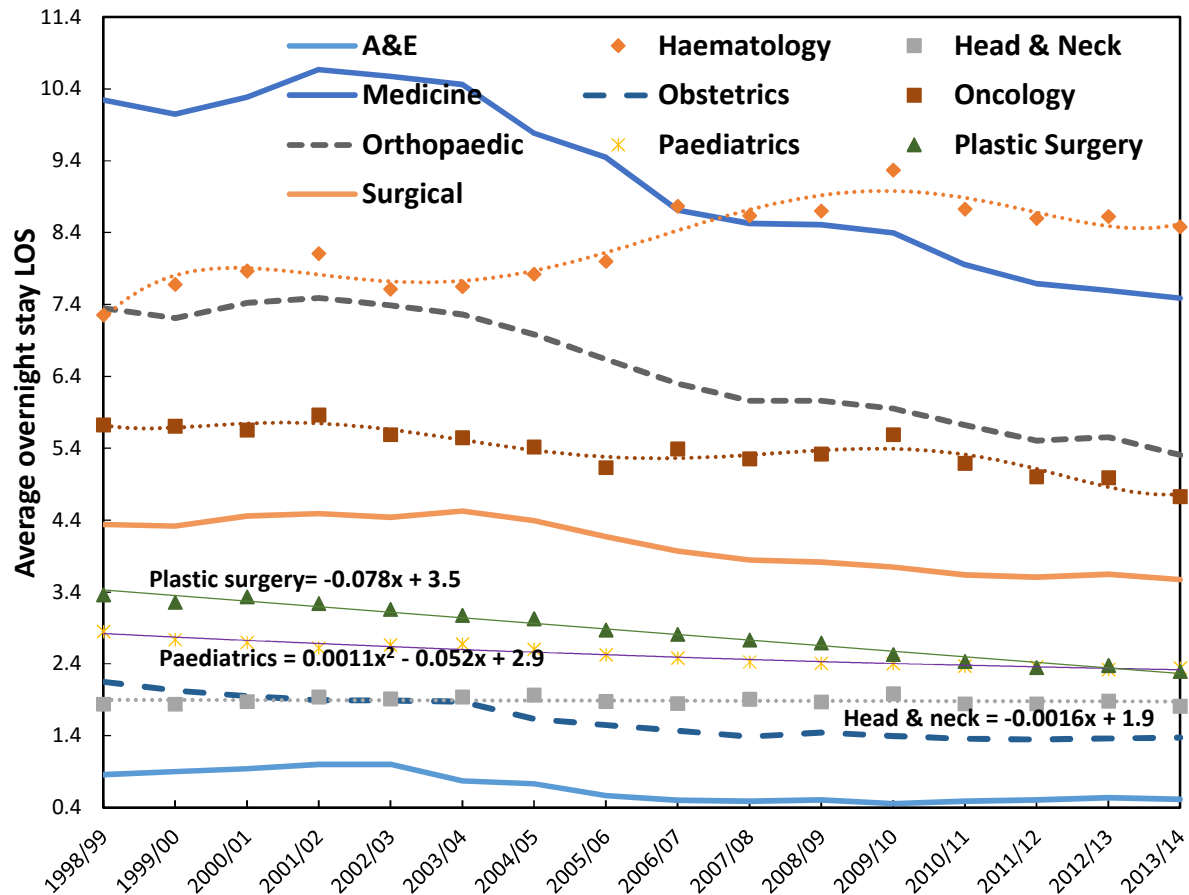
Part of the reason for LOS tending to an asymptote lies in the ageing population, since LOS increases with age, i.e. increasing LOS efficiency is being offset by the pressure of an older population leading to increased LOS (see Fig. 2). In the surgical specialties the on-going trend to day surgery also leaves behind patients with longer than average LOS which then puts further upward pressure on average LOS.

However while average LOS may be slowly declining, admissions have been increasing and the net effect on occupied beds is shown in Fig. 3, where it can be seen that apart from a peak in occupied beds between 2001/02 and 2005/06 (which corresponds with a period of higher LOS in Fig. 1), the number of occupied beds has barely declined from that seen in 1998/99. Over this period the number of available acute overnight beds has declined by 23% (overnight plus day case by 19%) (see <http://www.england.nhs.uk/statistics/statistical-work-areas/bed-availability-and-occupancy/bed-data-overnight/>) – the difference between occupied and available leading to the almost unsustainable levels of high occupancy (and the undesirable effects of high occupancy) seen in recent years (Jones 2011b,c, 2013a,b, 2014). Recall that zero day stay emergency admissions have increased considerably over this time with some 1.5 million of such admissions in 2012/13 and this amounts to around 3,000 daytime

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occupied beds – effectively taking 2013/14 occupied beds to a higher number than in 1998/99 when zero day stays were very low (Jones 2009b).

Figure 1: Trends in average LOS for overnight admission (elective + emergency) for various specialties and specialty groups in England



Footnote: Data is from Hospital Episode Statistics (HES) via the Health and Social Care Information Centre web site

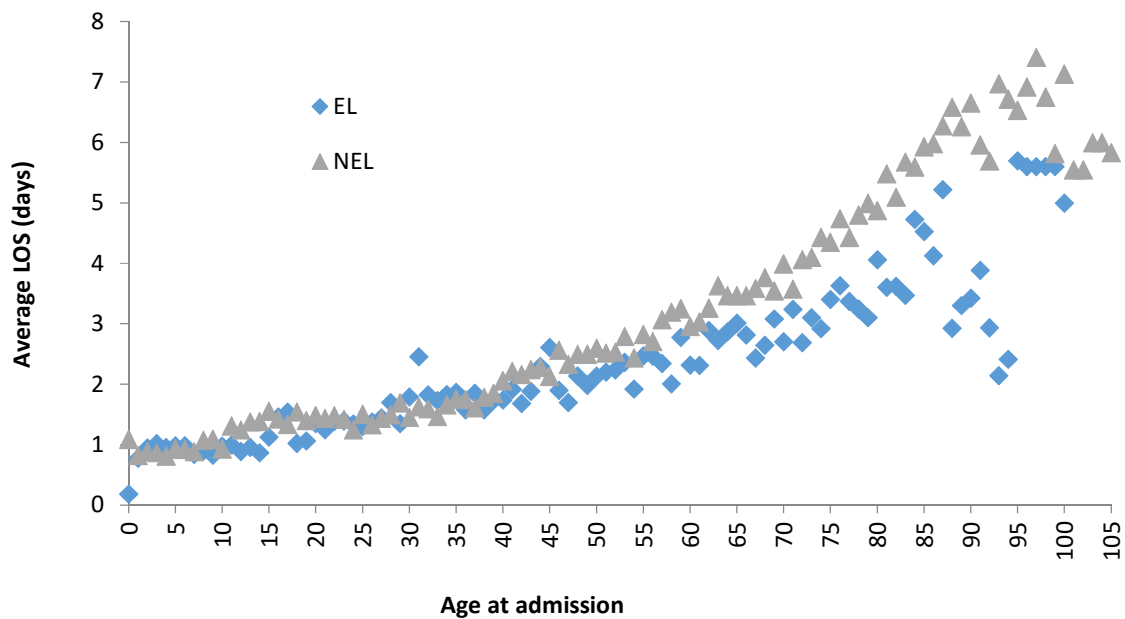
As has been repeatedly highlighted in this journal the trend over time shows considerable volatility which implies that a margin of safety needs to be maintained in the national bed pool (Jones 2009a, 2011d,f).

Looking to the future, the desire to further reduce acute bed numbers must of necessity come from keeping people out of hospital, since Fig. 1 demonstrates that reduction in acute LOS is only likely to yield diminishing returns. Admission avoidance at end of life will be a key component of any strategy since bed demand escalates in the last year of life (Jones 2011a,e).

It remains to be seen if the NHS can deliver this quantum change in the way health services are delivered, because if not, then it will be acute average occupancy which will further suffer leading to almost institutionalised inefficiency in the acute sector.

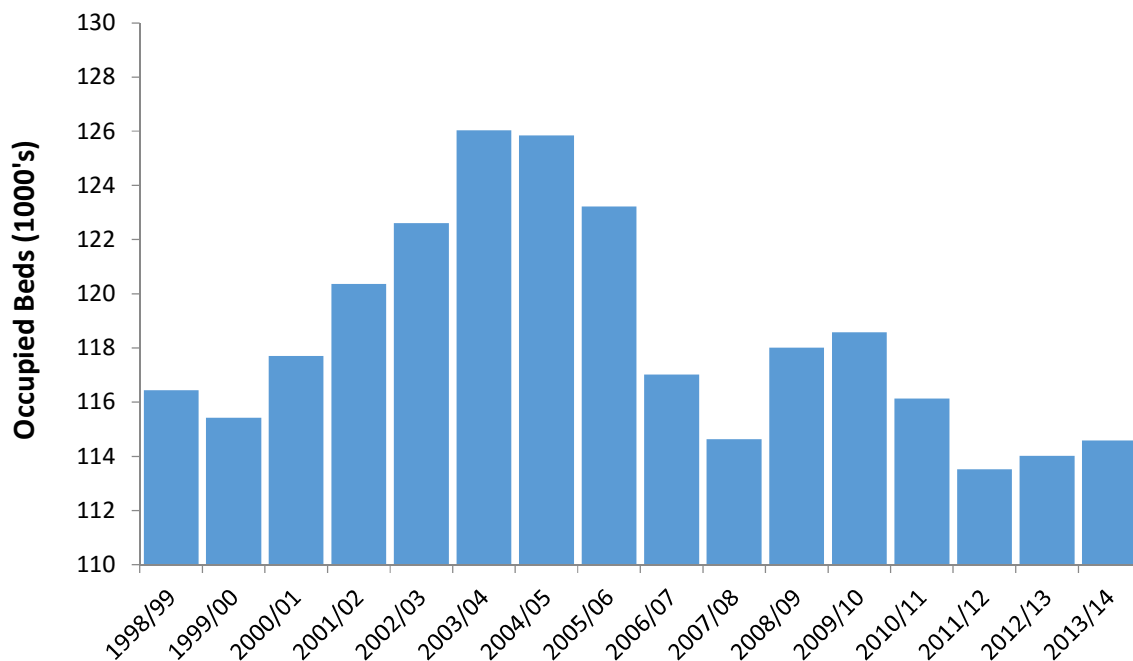
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Figure 2: Effect of age on average inpatient length of stay



Footnote: Data covers a five year period from 2010 to date and was kindly provided by a medium sized acute hospital. Age will also be reflective of case-mix.

Figure 3: Trend in total occupied beds in England



Footnote: Data is from Hospital Episode Statistics (HES) via the Health and Social Care Information Centre web site

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