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# Cycles in inpatient waiting time

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**Key Words:** financial cycles, healthcare costs, inpatient waiting lists, number waiting, average waiting time, emergency admissions, NHS surplus and deficit, GP Commissioning, referral to treatment targets, waiting time guarantee

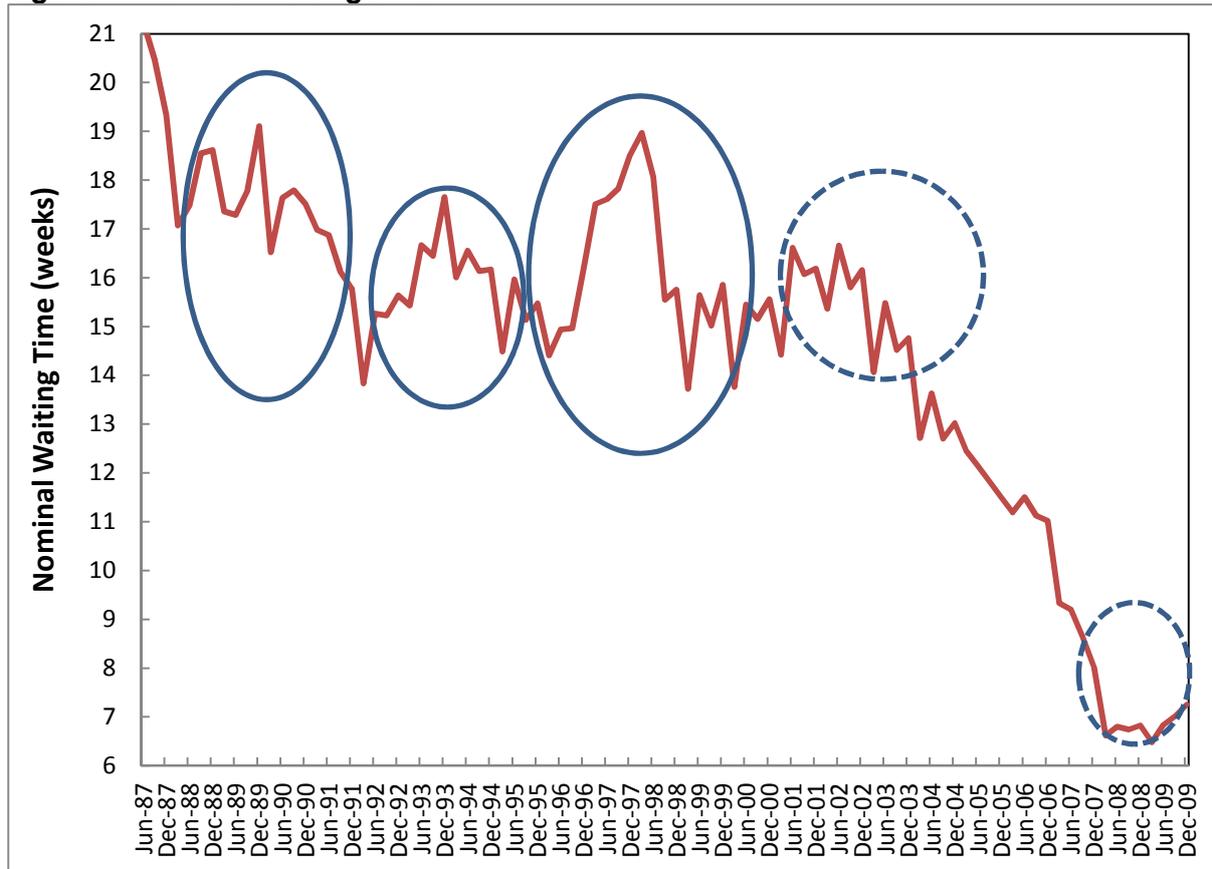
**Dr Rod Jones, Statistical Advisor, discusses the curious long-term behaviour behind inpatient waiting time**

Over the past months a series of articles in BJHCM and has been investigating the issue of long term cycles in NHS financial pressures which appear to be coupled with changes in medical emergency admissions (with a high proportion of female admissions), bed occupancy, attendance at Accident & Emergency and total costs in both primary and secondary care (Jones 2009a-e, 2010a-j, 2011).

It is a well known fact that in former years the inpatient waiting list acted as a buffer between available funds and ongoing demand. Hence any fundamental cycles in surplus and deficit should reflect in the total number of patients on the waiting list. While this in itself is a useful measure it is necessary to adjust the waiting list for the relative 'size' of the NHS and the division of number waiting by annual activity gives a ratio which is called the 'Nominal Waiting Time' or 'Clearance Time'. This basically gives the time it would take (in weeks) to clear the existing list in the absence of any new arrivals. As a general approximation the maximum inpatient waiting time is 2-times the nominal waiting time (Jones 1996).

Figure 1 presents such a trend over the period 1987 to 2009. Five cycles in the nominal waiting time can be observed with the suggestion of an additional cycle prior to 1987. The first three cycles (from trough to peak) absorbed around £100million to £350million of cost pressures – a luxury no longer available and this explains why the cycle of surplus and deficit seen in the NHS since 2000 has been so pronounced (Jones 2010a,c,f). The first three cycles are relatively clear while the last two cycles are less obvious due to various waiting time initiatives from 2000 onward culminating in the introduction of the Referral to Treatment (RTT) waiting time target in the NHS Improvement Plan of 2004. It was initially envisaged that all patients would be treated within 18 weeks of GP referral by December 2008, but this was later revised to 90 per cent in the NHS Operating Framework for 2008/09 of December 2007. In January of 2007 statistics indicated that some 47% of patients had been treated within 18 weeks while at October of 2007 60% had been achieved (<http://www.civitas.org.uk/press/prcs70.php>).

**Figure 1: Nominal waiting time**



Footnote: The nominal waiting time has been calculated as Total Waiting (Active + Suspended + Deferred)/ Activity (Admissions + Removals). Data is from the 'Download Historical Time Series' link: <http://www.dh.gov.uk/en/Publicationsandstatistics/Statistics/Perfomancedataandstatistics/HospitalWaitingTimesandListStatistics/index.htm>

These factors account for the decline in the waiting time seen between 2002 and 2008. Prior to this point the waiting time remained relatively constant apart from the cyclic fluctuations, i.e. the total number waiting was roughly rising in line with the size of the NHS.

Unfortunately the Department of Health chose to stop collecting the basic total number waiting data from December 2009 onward and the behaviour during 2010 cannot be determined although anecdotal evidence is that both the inpatient and outpatient waiting time (and total number waiting) is once again increasing in spite of the RTT guarantee.

The point of interest is that all five cycles shown in Figure 1 correspond with the cycles in emergency admissions, bed occupancy, A&E attendance and total costs referred to above, i.e. the waiting list (as measured by waiting time) is indeed responding to fundamental cycles in surplus and deficit and bed availability. In the case of the 2007 cycle it should be noted that the increase in the total number waiting commenced around January 2008 (data not shown); however, this increase was partly compensated for by increased activity leading to the apparent constant nominal waiting time between Jan-08 and Jan-09 in Figure 1. Beyond Jan-09 the increasing waiting list outstripped the increase in activity which had ceased to continue rising at this point due either to affordability or capacity constraints.

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At this point it should be clear to all involved that the fundamental causes for these cycles need to be investigated. Cyclic behaviour can only arise when the 'system' is subject to recurring dynamic forces. Such cycles are clearly at variance with the concept of a guaranteed waiting time, i.e. the current way that the NHS is funded does not permit the resulting cost pressures to be abated in any other way. To repeat what I have previously stated – at the very least health care demand is not behaving in the way we have all assumed that it 'should'. Indeed, if one may respectfully observe, attempts to make cost savings will usually fail if they do not address the root causes of the 'problem'.

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