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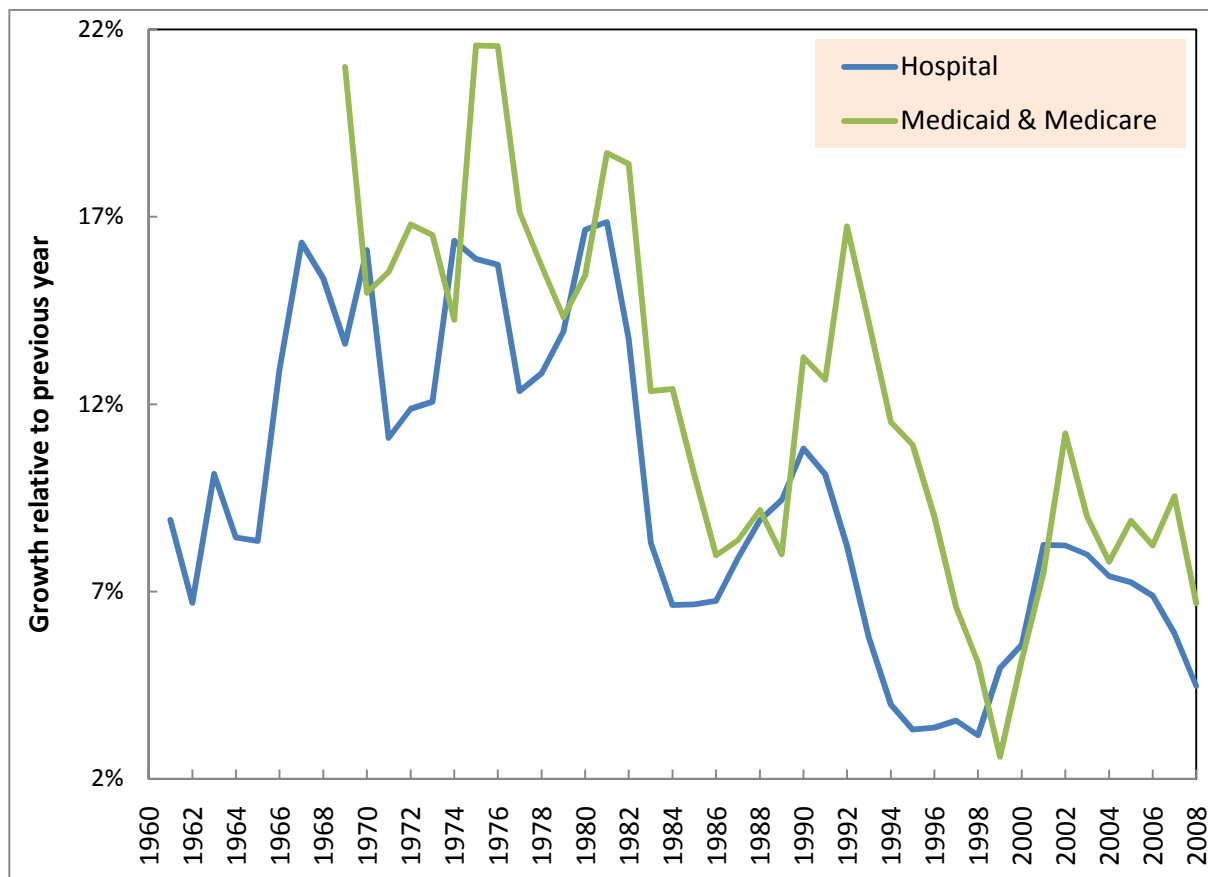
Do NHS cost pressures follow long-term patterns?

Dr Rod Jones, Statistical Advisor discusses the evidence that long-term patterns lie behind recent cost pressures (www.hcaf.biz)

The pressure to achieve targets and balance budgets leaves most within the NHS with little time to explore fundamental issues such as the very long-term patterns behind demand and cost. For example, during 2009 most PCTs experienced huge and totally unexpected pressure on budgets. Did this really come from nowhere or could it be that our hidden/unarticulated assumptions regarding the basis for movement in costs is flawed?

To explain, Figure 1 investigates the past 48 years of cost pressures in the USA. The USA has been chosen simply because costs are not constrained by government budgets and are therefore free to express what may otherwise be hidden patterns in the fundamental behaviour of costs.

Fig. 1: Change in US healthcare costs



Footnote: National health expenditures by type of service and source of funds were obtained from http://www.cms.hhs.gov/NationalHealthExpendData/02_NationalHealthAccountsHistorical.asp

Several interesting points emerge from this simple but fascinating view of the long-term basis of costs. Firstly costs rise and fall in long-term cycles. The implication to the NHS in the UK is that while funding may be fixed by government budgetary allocations the cost pressures experienced by PCTs may follow very different patterns.

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The second and crucial point is that each cycle of higher cost is always initiated by a large step increase (after making allowance for the fact that the step change may occur in mid-year), i.e. the fundamental nature of costs is that of a sudden, unexpected and large increase which is then followed by a period of higher cost pressures which eventually abates.

The third point is that there may be lagged effects between hospital and primary care costs as evidenced by the lag in Medicaid/Medicare costs behind hospital costs. This lag could arise through the way in which the tariff for services is determined in a retrospective way.

Do we have any idea of the forces behind this cyclic behaviour? It is of interest to note that adjusting for factors such as the growth in gross domestic product (GDP) or population only reduces the magnitude of the raw percentage shifts but does not remove the fundamental cycles. Indeed what is the source of the large step increases in cost which seem to trigger the next cycle?

In this respect one potential source for step increases in cost has recently been identified in the UK. It has been observed over a 25 year period (perhaps longer) that there is a fundamental three to six year pattern of step increases in medical admissions (Jones 2009a,b). Further research has shown that these step increases are particular to specific diagnoses and that the initial step-change then triggers a time-dependant pattern in the number of admissions (Jones 2010b,c). It has been proposed that this pattern represents repeating outbreaks of a fundamentally different kind of infectious outbreak which is best described as an outbreak of a 'Commonly infectious Immune function impairment' (CiiFi).

It has also been proposed that the step changes associated with this outbreak are responsible for the cycle of surplus and deficit seen within the NHS (Jones 2010a). In the USA such a cycle would show up as a step increase in costs rather than the change in cost pressures experienced within the confines of a fixed NHS budget.

So where does all this leave us? Firstly, our conceptual models for healthcare costs are crude and naïve. Secondly, for whatever reason healthcare expenditure is regulated by step changes. Cycles in surplus and deficit should therefore be expected to be 'normal' and indeed should be anticipated via the detection of the onset of each 'outbreak' of increased emergency medical admissions.

Hopefully all concerned will ponder the implications of the above to healthcare policy, PCT planning and the knock on effects to government budgetary cycles.

References

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