

Limitations of the HRG Tariff

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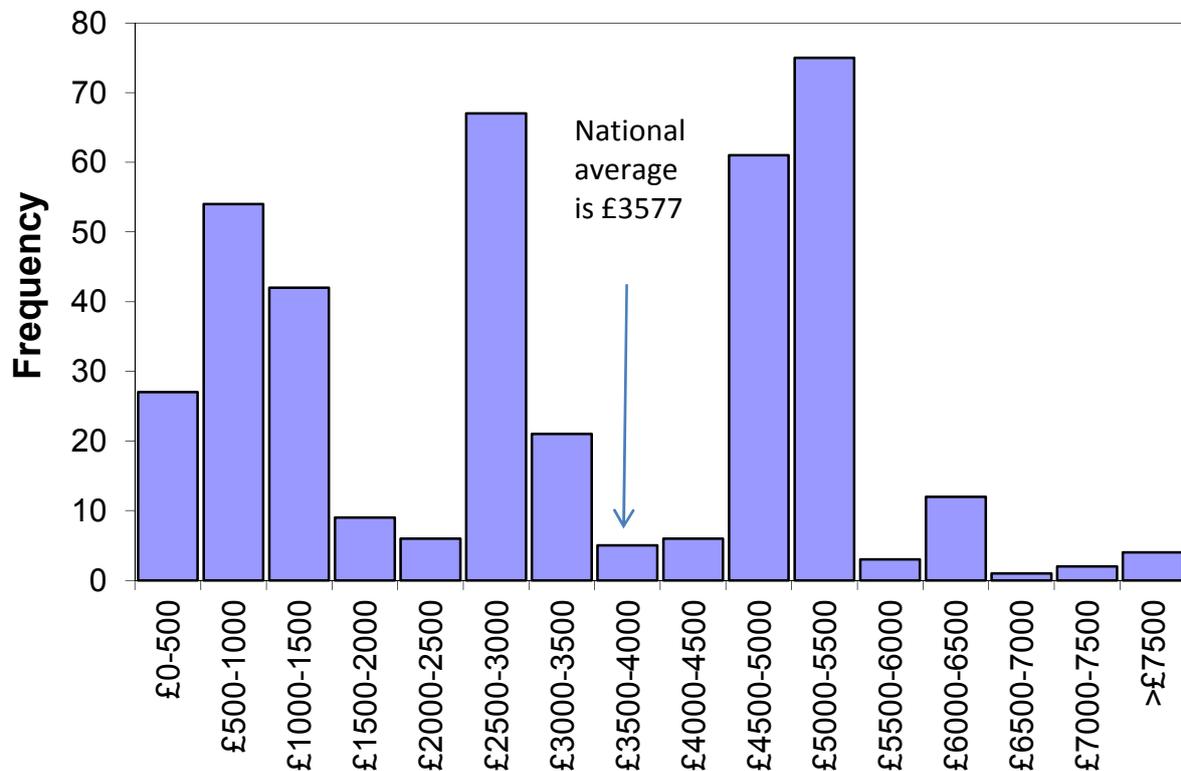
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Introduction

Case mix adjustment systems around the world may have a fatal design flaw. They all omit the specialty of care as a factor influencing length of stay and cost.

Figure 1 illustrates a common theme for the majority of HRG, namely, the three peaks in cost represent the three main specialties performing the procedures which make up this HRG. The cost is iso-resource within specialty but not within the HRG as a whole.

Figure 1: Reference cost data for HRG AA03Z (Inter-cranial procedures for trauma with minor diagnosis)



Specialty Specific Factors

Recent research using the UK's HRG system of case mix adjustment has shown that the following elements of cost are all highly specialty dependant.

1. Cost per day

Using the latest version 4 of the HRG (equivalent to a DRG in other countries) the cost of a day stay in hospital (excluding the costs relating to the initial procedure or diagnosis) has been shown to be largely a function of the specialty of care and not the HRG *per se*. A paediatric admission in each specialty usually costs more than the adult equivalent (to facilitate identifying this difference the NHS has instituted a revision of specialty codes such that all specialties have a paediatric alternative). While this may be somewhat obvious to all clinicians, the UK has had to implement a complex system of specialist uplifts to compensate for what is a simple specialty dependant factor, i.e. the HRG price is an all specialty average and hence particular specialties such as Orthopaedics can be unfairly disadvantaged.

The UK uses a separate tariff for lengths of stay beyond what is deemed to be the upper length of stay trim point. In other healthcare systems such as the US there is no payment for a length of stay beyond the upper trim point. However, in the UK the omission of a specialty component has been shown to have huge implications to the cost of an excess bed day and results in large financial imbalances for hospitals which have a non-standard case mix, i.e. single specialty, teaching or specialist hospitals.

2. Specialty costs & length of stay for the same HRG

All HRG have been show to have a unique total cost (initial procedure/diagnosis costs plus length of stay costs) which is applicable to each specialty. Likewise length of stay for the same HRG is also specialty dependant. Specialties such as dermatology and elderly care tend to have a longer length of stay (LOS) than the supposed average (all specialty average) LOS which is commonly used as a so-called efficiency benchmark.

3. Hospital Cost & LOS Efficiency

In the UK a reference cost index (RCI) is calculated for each hospital. This is effectively the average cost of running the hospital divided by the expected cost (using the all specialty HRG average prices). Analysis of a time series of the RCI for each hospital shows that the RCI is not measuring cost efficiency *per se* but is rather a measure of hospital size and complexity, i.e. hospitals cost more or less to run depending on their size and complexity. While this may be a statement of the obvious the HRGs (i.e. case mix in general) are not making the correct adjustments for these factors.

Revised Efficiency Measures

Recalculation of the (official) RCI for each hospital using specialty-HRG cost combinations has been shown to give a more stable measure of efficiency, i.e. it moderates the large over- and under-estimates of efficiency to which the all-specialty average approach is prone.

In the UK an additional measure of cost called the market forces factor (MFF) is applied. The MFF uses cost of living type factors to calculate a relative cost adjustment. However analysis of the MFF shows that it fails to explain the huge variation in the cost of a day stay seen between different hospital types. Hence in addition to a specialty component of cost (identified above) and the MFF adjustment there are additional specific factors relating to hospital size, local population age structure and deprivation, hospital location (i.e. island-based hospitals) and to depreciation charges (or its equivalent for PFI funded hospitals) which need to be applied to reach a true measure of cost efficiency.

Other Limitations

Research has also identified that a group of diagnoses show step-like changes in admission rates due to behaviour which is similar to that expected from an outbreak of an infectious disease. This behaviour also appears to lead to a step-like increase in the proportion of female admissions and their associated length of stay. Such unique behaviour violates the hidden assumptions within the tariff that the ratio of fixed to variable costs remains roughly constant over time.

General Conclusions

Having studied the multiple deficiencies within the HRG tariff one reaches the inescapable conclusion that in its current form the tariff creates opportunity for gaming, creaming and other undesirable features of direct manipulation to derive a profit and at the same time ignores the real cost-driving issues of economy of scale and population age structure, etc. This leads to a cascade of financial imbalances which a good tariff should not engender.

Financial & Investment Implications

The wider implications to invest/disinvest decisions at acute hospitals should be obvious. Less obvious are the effects on CCG decisions to move care into the community based on HRG average price. CCGs should carefully review the basis for such decisions (financial due diligence) in the light of the above findings.

If you are a hospital or CCG and would like a re-appraisal of your real efficiency, an estimate of the cost pressures arising from the tariff or an appraisal of the implied financial risk arising from the tariff for a specific project please contact HCAF at hcaf_rod@yahoo.co.uk

Rod has two decades of NHS experience and conducts consultancy work on behalf of health care organisations.

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