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Lay Summary

HOW MUCH SHOULD BE PAID FOR PRESCRIBED SPECIALISED SERVICES?

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Background

English hospitals are paid according to the number and type of patients they treat. Different types of patients are described using a system called Healthcare Resource Groups (HRGs). Prices (or tariffs) are higher for patients in HRGs that require more resources during their hospital treatment. These prices are based on the average costs of all hospitals providing these treatments.

But HRGs are not perfect. In particular it is possible that the costs of providing specialised care are not properly accounted for in the way that HRGs are designed. If so, hospitals that provide specialised care may be under-funded. This work assesses whether this is the case and, if so, what might be done about it.

What is the purpose of the work?

This work analyses whether the costs of patients who receive specialised care are different from the costs of other patients allocated to the same HRG.

How did we go about the analysis?

We compare the costs of patients who received specialised care with those that did not. We examine data for every patient treated in English hospitals for three years: 2011/12, 2012/13 and 2013/14.

The main steps of the analysis were:

1. To determine whether or not a patient had received a particular type of specialised care
2. To determine the costs of care provided to each patient while in hospital
3. To assess the percentage difference in costs between patients who received specialised care and those who did not, for every type of specialised care
4. To assess the overall financial impact of providing specialised care at both national and hospital level
5. To make recommendations about how the payment system might be refined in order to ensure appropriate funding of specialised care.

What is specialised care?

Specialised care is provided in relatively few hospitals, to patients with rare or complex conditions. These conditions are defined on the basis of specific diagnoses that a patient has or procedures that that they undergo during their treatment.

The diagnoses and procedures used to identify each type of specialised care are set out in system called Prescribed Specialised Services (PSS) developed by clinicians. The original PSS system has recently been updated, and the update is called the Prescribed Specialised Services Shadow Monitoring Tool (PSS-SMT).

The PSS identifies 69 different markers of specialised care provided in hospital. The PSS-SMT has 98 markers of specialised care that apply to patients treated in hospital.

How are costs determined?

The costs of care for each patient are determined using Reference Cost data compiled by every English hospital. These Reference Cost data are also used to calculate national average costs on which HRG prices are based.

The costs for each patient capture costs associated with long lengths of stay in hospital (so-called excess bed day costs) and for some types of services which may be funded in addition to HRG payments (so-called unbundled services).

What analyses were performed?

We perform a series of analyses of costs using multiple regression techniques. In every analysis we take account of the HRGs to which patients are allocated. This allows us to examine whether costs are explained by whether or not patients received specialised care, over and above the HRG to which they were allocated.

The analyses vary according to (i) what costs we examine; (ii) which patients are included in the analysis; and (iii) how specialised care is defined.

We estimate six different models:

- Model 1: This examines costs for every patient treated in hospital. The costs include excess bed day and unbundled costs.
- Model 2: Like Model 1, but this analysis excludes patients allocated to HRGs in which everybody received specialised care or in which nobody did. This is because, for these patients, the costs of their care are already reflected in HRG prices.
- Model 3: Like Model 2, but, instead of examining the full cost of treatment, this examines only those costs on which HRG tariffs are based. This means that excess bed day and unbundled costs are not considered.
- Model 4: As Model 3, but the definition of specialised care is more tightly defined. Not only do patients have to have specific diagnoses and procedures recorded in the medical record, but they also have to have been treated in particular hospitals.
- Model 5: In this model we examine the costs of excess days in hospital, but only for those patients with very long lengths of stay compared to other patients allocated to their HRG.
- Model 6: This examines length of stay for every patient in hospital. This is a sensitivity analysis conducted because of concerns that Reference Costs are not truly patient-level costs.

All of these models use the PSS definitions of specialised care to explain variations in cost or length of stay. We also estimate Models 1, 2 and 3 using the PSS-SMT definitions of specialised care.

The models are estimated using Ordinary Least Squares and Random Effects. The Random Effects model allows the analysis to control for differences in costs that are related to the hospital in which the patient was treated.

We also examine the extent to which specialised care is concentrated within or spread across hospitals and HRGs.

What did we find?

We analyse costs for around 12.5m patients in each of the three years. Around 10.5% of these patients received specialised care as defined using the original PSS rules. Under the new PSS-SMT rules, 11.8% of patients are defined as having received specialised care.

We find that for some, but not all, types of specialised care, costs are significantly higher than for other patients allocated to the same HRGs. Concentrating on those types of specialised care received by more than 100 patients a year, we find:

- For 29 of the 69 PSS markers, cost differentials are in excess of 10% when analysing the cost of the core HRG to which patients are allocated (Model 3 Random Effects).
- Only 24 of these 29 PSS markers have cost differentials in excess of 10% when the updated PSS-SMT rules are applied.
- We find that 6 of the 35 new PSS-SMT markers have cost differentials in excess of 10%.
- We observe fewer cost differentials when considering excess bed day costs (Model 5 Random Effects), the differential being in excess of 10% for only 9 PSS markers.

Defined using the original PSS, the additional costs associated with the provision of specialised care to the entire patient population are estimated to amount to £572m in 2011/12, £628m in 2012/13 and £589m in 2013/14.

What did we recommend?

For those types of specialised care in which we find a significant cost differential, we make recommendations that fall into four main categories.

1. Apply a top-up to the HRG tariff reflecting the estimated cost differential, if:

    - The cost differential is stable over time, in terms of both statistical significance and size.
    - Activity is spread across many HRGs.
    - If the cost differential is unstable over time, review the differential when 2014/15 data are available.

We identify 20 of the original PSS markers as candidates for top-ups, including several cardiac and children's services. The following new PSS-SMT markers implemented in the PSS Shadow Monitoring Tool are also candidates for top-up arrangements: Sarcoma, Head and Neck cancer – Sarcoma; Upper Gastrointestinal Surgery; Specialised Urology - Penile cancer; Specialised Urology - Testicular cancer; Spinal cord injury; and Paediatric Surgery - Trauma and Orthopaedics.

2. Apply a top-up to the core tariff in the short term, but consider sub-dividing HRGs, if:

    - The cost differential is stable over time, in terms of both statistical significance and size.
    - Activity is concentrated among few HRGs.

PSS markers identified as candidates for HRG split include Radiotherapy; Cardiac – Primary Percutaneous Coronary Intervention and Structural Heart Disease; Ears - Cochlear Implants; and Colorectal - Transanal Endoscopic Microsurgery.

3. Re-assessment of the criteria used to identify whether or not somebody has received specialised care.

In particular there is a case for re-visiting the identification rules for Neurosciences – Neurosurgery.

4. For some types of specialised care no further action appears warranted, usually because matters have changed with the introduction of the PSS-SMT.

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