

Costing Emergency Assessment Unit Admissions

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Key Points

- An emergency assessment unit (EAU) attendance costs between £200 and £300
- Some trusts appear to be using EAU as an alternative to A&E
- Under the short stay emergency tariff trusts make a profit margin of around £340 for every patient admitted and discharged on the same day
- PCTs and SHAs are advised to question trusts which have more than 10% of emergency admissions made via an EAU

Introduction

So-called ‘admissions’ to emergency assessment units (EAU) have driven the apparent growth in emergency admissions within the NHS in England over the past five years. Large proportions of these so-called admissions have a zero day stay, i.e. admitted and discharged on the same day (Robinson 2007). Many will be unaware that there is no definition for an ‘emergency assessment unit’ in the NHS Data Dictionary and activities conducted in an EAU appear to conform to the definition of an A&E attendance (NHS Data Dictionary 2008, A&E Definition 2008) - bold added for emphasis.

“A&E attendance is a care contact. An individual visit by one patient to an A&E department to receive treatment from the accident and emergency service. The accident and emergency service may be provided by staff from other main specialty. During an A&E Attendance the patient may temporarily leave the A&E department, e.g. for an X-ray, whilst still under the responsibility of the A&E department. An A&E Emergency Attendance may be as a result of a request from a General practitioner for help with a diagnosis or treatment. **Any facility set up to receive and treat emergency cases is regarded as an A&E department for this purpose.**”

This paper will explore the non-clinical pressures to use EAUs and investigate the basis for the cost of patient attendance at an EAU.

Methods

The 2006/07 reference costs data bases were obtained on CD from the Department of Health (DH 2008). Assessment unit and other costs were extracted using either Trust type or size. Costs were not market forces factor adjusted due to the general lack of correlation between cost and this factor Jones (2009).

Reference Costs

In the 2006/07 reference costs submission (the basis of 2009/10 tariff prices) Acute Trusts were supposed to submit separate reference costs for all ‘admissions’ occurring via an EAU, however, some 35% of Teaching hospitals, 18% of large acute Trusts and 31% of medium sized acute Trusts either did not have any assessment units or chose to lump assessment unit costs in with the cost of an ordinary emergency admission.

Unsurprisingly the apparent cost of an emergency admission at these Trusts is 24% lower than the cost at those Trusts where the two costs have been reported separately. The true cost of an emergency admission has simply been diluted by the low-cost EAU activities. Table 1 gives the different costs seen at Teaching hospitals for the 30 highest volume ‘emergency’ admissions. The failure of a significant proportion of acute Trusts to submit separate prices effectively forces the Payment by Results (PbR) team to lump the two costs together and approximate the likely cost of a short stay admission via the short stay tariff. For whatever reason the PbR team have chosen to include zero day and one day stay within the short stay tariff which somewhat obscures the real nature of the problem. It would appear that the above factors have forced the PbR team to re-write the rules and the 2007/08 reference cost submission no longer required separate costs for assessment units but instead asks for costs of short stay admissions (zero and one day cost combined).

Short Stay Tariff

The patients admitted and discharged on the same day (zero day stay emergency admissions) are paid under the short stay tariff. Some 57% of HRG are not covered by the short stay tariff. In the 2008/09 national tariff a zero day stay in a HRG covered by the short stay tariff costs from £225 to £1,453 while a zero day stay in a HRG not covered by the short stay tariff can cost from £337 to £18,448.

Within the structure of the reference costs an EAU admission was grouped in the table dealing with admitted patient care, however, a flag was added in the specialty column to indicate if the person is admitted and discharged from the assessment unit (EMSNA) or progresses to an overnight stay admission (EMSAD). Unfortunately this flag obscures the nature of the assessment unit and so paediatric, medical, surgical or ante-natal assessment activities are all lumped together with only the HRG as a means of identifying the type of assessment unit we may be dealing with.

Table 1 gives some exceedingly important indicators about the nature of ‘assessment units’.

- Very high volume of ante-natal care (HRG commencing ‘N’ or ‘M’)
- High volumes of investigation & observation
- High volumes of general symptoms
- The 11th highest volume activity is for invalid codes
- Work covered by paediatric assessment units can be discerned as HRG commencing with ‘P’ and includes what are otherwise considered to be ‘healthy babies’.

In other words the case mix is very much A&E focused and is characterized by a set of diagnoses which are described by short-hand descriptions, hence, the high number of invalid codes. This is indicative of the fact that this is not a genuine inpatient environment and the assignment of a definitive diagnosis is not essential.

This is especially relevant to the 57% of HRG are not covered by a short stay tariff. Hence there is huge potential for short-hand descriptions of otherwise minor conditions, tests and procedures to end up in what appear to be HRG describing costly admissions of up to £18,448.

The next issue to be addressed is the proportion of so-called emergency admissions which are made up from EAU activities. This is illustrated in Figure 2 where data for all Trusts reporting separate assessment activities is compared as a proportion of total ‘emergency admissions’.

A&E Waiting Time

A&E waiting time can be understood using queuing theory (Lane et al 1998, Gunal & Pidd 2006, Mayhew & Smith 2007, Smith 2008). Queuing theory informs us that at a constant ratio of attendances per staff the length of time in a queue will increase as the size of the facility decreases (Stallings 2000). Hence the common national target for a four hour wait in A&E will penalize smaller A&E departments both in terms of the cost per attendance and ability to consistently achieve a fixed target. As can be seen in Fig. 2 there is a tendency for smaller Trusts to process much higher proportions of patient flows via assessment units. If assessment units were being used to process a clinically necessary proportion of patients then

Table 1: Cost of an emergency ‘admission’ at Teaching hospitals

HRG	Description	Separate	Lumped	Cost Difference
EB01Z	Non interventional acquired cardiac conditions 19 years and over	£1,075	£754	30%
NZ04A	Clinical contact for observation (ante- or post-natal) 19 years and over	£557	£504	10%
NZ05A	Clinical contact with investigation (ante- or post-natal) 19 years and over	£531	£466	12%
NZ08A	Admission with investigation 19 years and over	£1,104	£861	22%
FC05C	General Abdominal Disorders without CC	£1,032	£784	24%
NZ07A	Admission for observation only 19 years and over	£690	£615	11%
AA22Z	Non-Transient Stroke, Cerebrovascular Accident, Nervous system infections	£3,418	£2,539	26%
EB10Z	Actual or suspected myocardial infarction	£2,153	£1,833	15%
AA26Z	Muscular, Balance, Cranial or Peripheral Nerve disorders; Epilepsy; Head Injury	£1,634	£1,154	29%
EB07I	Arrhythmia or Conduction Disorders without CC	£1,183	£951	20%
UZ01Z	Invalid codes	£2,026	£672	67%
DZ11B	Lobar, Atypical or Viral Pneumonia with CC	£2,159	£1,474	32%
DZ21J	Chronic Obstructive Pulmonary Disease or Bronchitis without NIV	£2,113	£1,693	20%
MB08A	Threatened or Spontaneous Miscarriage 19 years and over	£552	£497	10%
PB02Z	Minor Neonatal Diagnoses	£1,481	£1,023	31%
EB08I	Syncope or Collapse without CC	£1,173	£595	49%
SA13Z	Single Plasma Exchange, Leucopheresis or Red Cell Exchange	£2,002	£1,696	15%
EB03I	Heart Failure or Shock without CC	£2,295	£1,698	26%
LA04A	Kidney or Urinary Tract Infections with Major CC	£3,354	£2,267	32%
DZ22B	Unspecified Acute Lower Respiratory Infection with CC	£1,885	£1,247	34%
DZ21A	Chronic Obstructive Pulmonary Disease or Bronchitis discharged home	£403	£321	20%
LA04B	Kidney or Urinary Tract Infections with Intermediate CC	£1,961	£1,429	27%
PA11Z	Acute Upper Respiratory Tract Infection and Common Cold	£1,293	£669	48%
PA29Z	Abdominal Pain	£902	£742	18%
PA21B	Infectious and Non-Infectious Gastroenteritis without CC	£939	£709	24%
FC04C	Large Intestinal Disorders without CC	£1,669	£1,333	20%
FC02C	Stomach or Duodenum Disorders without CC	£1,258	£932	26%
PA61Z	Healthy Baby	£808	£478	41%
FC05B	General Abdominal Disorders with Intermediate CC	£1,204	£1,002	17%
PA19Z	Viral Infections	£922	£633	31%

Footnote: In the column headed ‘Separate’ Trusts have separated out the cost of EAU admissions while in ‘Lumped’ the costs are combined under the general heading of an emergency admission.

there would be no size dependant feature to this figure. Indeed the lack of economy of scale in smaller A&E departments will make it harder to achieve the four hour target; hence, there is an inherent greater ‘need’ to divert patients to an alternative to A&E. This is the expected outcome of a target which does not recognize the importance of size. This concurs with recent queuing theory analysis which concluded that the re-designation of patients forms a significant part of the apparent ‘improvement’ in A&E performance (Mayhew & Smith 2007, Smith 2008).

While most Trust’s will publically claim that this has nothing to do with the A&E four hour target it can be appreciated that diverting 35% to 65% of such attendances into an ‘admitted’ care environment (where the four hour target does not apply) may have some advantage.

In the DH document ‘Clinical exceptions to the four hour emergency care target’ (Alberti 2003) it was envisioned that less than 1% of A&E patients would need to be diverted to an observation unit. Figure 1 shows that the use of assessment units far exceeds this guideline. Given the role of size as a pressure to divert patients into an assessment unit the acceptable proportion of patients will be toward the lower edge of the data shown in Fig. 1. This appears to be somewhere around 10% of emergency admissions for Trusts with 20,000 or more genuine emergency admissions (i.e. excluding zero day admissions) per annum. Trusts above this limit may be using the EAU in a way that is not clinically justified.

Having established that a high proportion of acute Trusts are using EAU admissions in a way that closely approximates to an A&E attendance the final proof is to look at the cost of activities occurring in EAUs.

Cost of an EAU ‘admission’

Figure 2 shows the average cost of ‘admissions’ to assessment units from the 2006/07 reference costs collection. Costs have been averaged to illustrate the point. The average cost for persons progressing to admission or discharge home is roughly the same, i.e. the average cost for both ‘admission’ types can be used to obtain an accurate assessment of overall average costs. Data for 11 Trusts with average costs over £700 have been excluded. Discussion with one of these Trusts indicates that this very high cost was the result of incorrect counting and similar errors will be assumed for this group. As can be seen there are large economies of scale to be gained in the larger Trusts with cost declining from £300 (at the smallest) to £220 per ‘admission’ at the largest Trusts. The key observation is that the average cost of an ‘admission’ to an EAU is around that of an outpatient attendance or the high end of an A&E attendance. Claims by acute Trusts that EAUs are high cost due to intensive care and diagnosis is not supported by the submitted costs.

As can be seen in Table 2 the A&E attendances closest to an assessment unit admission are Category 2 (with category 3 or 4 treatment) with an average cost of £145 to £175, Category 3 (with category 4 treatment) with an average cost of £328 or any category 5 treatment costing £339 (Jones 2009). The differences in average price across the different types of acute Trust appears to be due to differences in allocation of patient attendances to the different A&E attendance categories and treatment sub-categories.

The absolute minimum cost for a zero day stay emergency admission is £225 (for the 43% of HRG with a short stay tariff) or £337 (for the 57% of HRG not covered by a short stay tariff) while the maximum possible cost for a category 5 treatment in A&E is £339. Hence it is fairly obvious that under the current tariff arrangements (which are based on 2006/07 norms of activity) any Trust choosing to divert A&E activity to an EAU will make a substantial financial gain by calling these activities an ‘emergency admission’. An approximate calculation of the surplus arising on EAU admissions can be made using national average case-mix. Based on the 08/09 tariff and making the very generous assumption that zero day assessment unit ‘admissions’ cost £300 (maximum cost for the smallest Trusts – from Fig. 2) we are left to conclude that on average every Trust makes a surplus of somewhere up to £340 for every assessment unit admission where the patient is ‘discharged’ home on the same day. One suspects that more than one acute Trust is achieving a trust-wide surplus from this single lucrative source of income.

Conclusions

Some Trusts are diverting larger than required volumes of A&E attendances to assessment units. In doing so they avoid the four hour A&E target and make a substantial financial gain. Economy of scale forms a significant feature of NHS costs and the failure of current tariff to recognise this penalizes smaller organisations. Very small acute sites, i.e. where the A&E department services emergency inpatient admissions (zero day stay excluded) of less than 20,000 per annum, are a special case due to the inability of the national A&E target to reflect the effect of very small size on A&E waiting time.

Lastly the formulation of the short stay tariff is acting to encourage the drift to ‘admission’ via an EAU. Both zero day and one day stay are indicative of low resource usage, however, an average tariff for both only leads to a high profit margin for those trusts that are making the greatest use of this ‘loophole’. PCTs and SHAs are within their rights to claim that this is not due to the needs of patient care and above a 10% EAU admission rate the activity is better described by the appropriate A&E treatment category which have a maximum average cost of £339 per ‘admission’ for the equivalent of category 5 treatment at an A&E. Alternatively the price equivalent to a first outpatient attendance (an urgent attendance) in the appropriate speciality may also be appropriate ‘tariff’ for these activities (range £160 to £425).

Table 2: National average cost for A&E attendances (from 2006/07 reference costs)

A&E Treatment	Teaching	Large Acute	Medium Acute	Small Acute	All Acute
Category 3 (category 1-3 treatment)	£172	£226	£163	£111	£143
Category 2 (category 4 treatment)	£109	£271	£156	£168	£145
Category 2 (category 3 treatment)	£180	£165	£150	£207	£174
Category 3 (category 4 treatment)	£322	£330	£331	£295	£328
Any category 5 treatment	£408	£440	£216	£264	£339
Average of raw reference cost data, i.e. not adjusted for MFF					

Conflict of Interest : None

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Figure 1: Short stay assessment 'admissions' as a proportion of total emergency admissions.

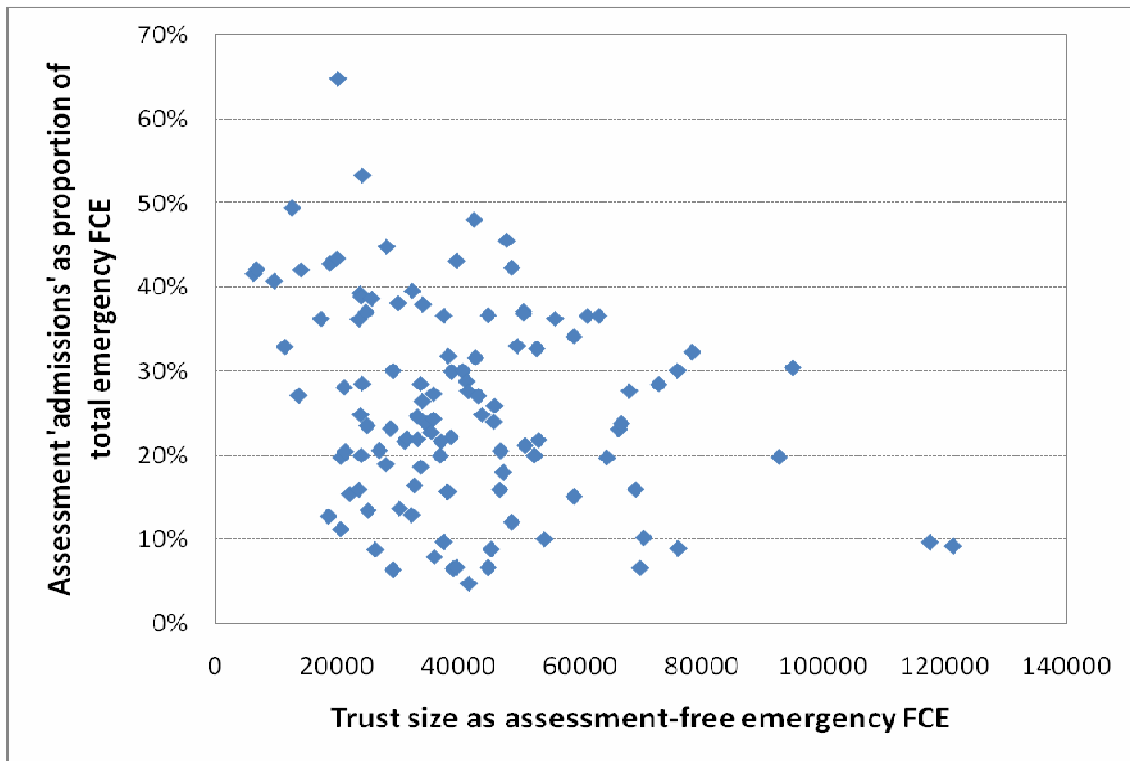


Figure 2: Average cost of an admission to an assessment unit

