ORIGINAL ARTICLE

Payment by results: a guide for emergency physicians

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Payment by results is a new funding mechanism being introduced into the National Health Service. It is a key part of current health reforms and will impact significantly on the way emergency departments are financed and run. This paper aims to describe the basics of payment by results, examines how it relates to and impacts upon emergency medicine, and considers how emergency physicians can set about integrating this new system into current practice and thinking.

Payment by results (PbR) is a key part of current health reforms. Despite this, the mechanics of PbR remain unclear to many emergency physicians.

A simplistic view of PbR is that emergency departments (EDs) should get paid for what they do. Because demand for emergency medicine is rising, and emergency medicine is efficient, we should therefore be able to take advantage and run successful, developing departments.

The assumptions here are that:

- Commissioners will pay Trusts for what happens in EDs
- Trusts will distribute income earned by EDs, back to EDs
- Income will cover expenditure
- EDs will be able to continue doing what they do, and to develop.

This paper challenges those assumptions. We have used our own ED as a starting point, modifying local circumstances to enable broader generalisation. Clearly managerial arrangements differ between hospitals but the basic principles will still apply.

PAYMENT BY RESULTS

PbR, introduced into the National Health Service in 2004, is a financial system aiming to pay health care providers standardised ''tariffs,'' adjusted for case mix (complexity), on the basis of the clinical work they undertake. PbR is the most important part of the incentives environment for institutions in the NHS[1 2] and is designed to facilitate other key policy areas such as plurality of provision, and patient choice. It also introduces financial instability into the NHS. PbR is currently something of a misnomer, since the system reimburses activity alone. Whether it will drive improved quality is unresolved.[3]

Within PbR the price for a given unit of activity is set in advance, and the income derived is based on multiplying the relevant price by the amount of activity undertaken. This relatively simple concept is underpinned by a complex set of rules and operational issues, and is becoming more complex.[4] PbR introduces a ''currency'' for negotiations and transactions within the NHS, known as healthcare resource groups (HRGs). Organisations providing health care under PbR must translate their activity into HRGs, each of which attracts a tariff, using the HRG grouper. This piece of software from the NHS information centre takes information from both ICD-10 and OPCS-4 coding, plus demographic and length of stay data, and creates an HRG for each inpatient spell or ED/outpatient attendance.

An inpatient spell is the period from admission to discharge in one provider, for any one patient. Within each spell there may be several episodes of care (finished consultant episodes (FCEs)). The diagnostic and procedural codes from each FCE are used to generate a single HRG per episode. However, as a final output, only one HRG is generated for each inpatient spell (the dominant HRG). This will be one of the HRGs from the inpatient spell, selected by the grouper.

A patient admitted from the ED generates two units of activity: an ED HRG, and an inpatient HRG. Each of these will attract a payment. Fig 1 illustrates the relationships between FCEs, spells, and HRGs, using as an example a patient admitted to hospital from the ED with a myocardial infarction, and who subsequently falls and fractures a hip:

The HRGs that apply to EDs relate to:

- ED attendances (table 1)
- Outpatient attendances (for follow up clinics)
- Inpatient spells (for patients admitted to clinical decision units/observation units (CDUs)).

Tariffs are calculated at the Department of Health (DoH). Initially, most tariffs were calculated on the basis of average reference costs derived from a limited number of hospitals, and the exact methodology was unclear. Introduction of tariffs was chaotic,[6] and there was widespread concern about the accuracy of many.[4 7] In addition, tariffs are adjusted for inflation, expected changes in practice, and may be reduced by expectations of efficiency (a proxy cost improvement target driven through the tariff). There is thus already disconnection between actual costs, and tariff.

The cash paid to a healthcare provider for undertaking a given unit of activity under PbR is the tariff, uplifted by the market forces factor (MFF) to reflect local costs of healthcare provision, and adjusted in some cases by length of stay, variance between predicted and actual activity, and specialist provision of services. There may also be local adjustments negotiated.

Abbreviations: CDUs, clinical decision units; CT, computed tomography; DoH, Department of Health; EDs, emergency departments; FCEs, finished consultant episodes; GPs, general practitioners; HRGs, healthcare resource groups; MFF, the market forces factor; PbR, payment by results; PCTs, primary care trusts

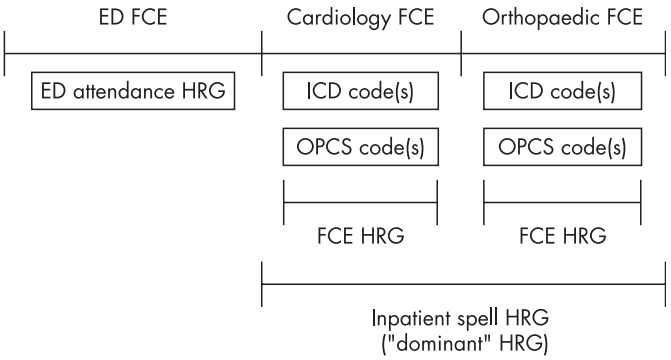

Figure 1 Finished consultant episodes (FCEs) and spells. ED, emergency department; HRG, healthcare resource group. See box for glossary of other terms.

There are inherent risks under PbR.[4] The key risk for commissioners is paying for work at a nationally set price if this price is higher than the local cost of provision. For healthcare providers, risk arises if activity falls, if their costs are high, or if the tariff is so low that it cannot cover costs. Both commissioners and providers are at risk if actual activity differs from planned activity. This is particularly the case for some elements of unplanned care.

Future developments in PbR include a move from average-cost based pricing to normative pricing (where tariffs are set with the intention of driving best or more efficient practice), attempts to base costing on patient level data rather than using top down costing, and ''unbundling'' payments for different elements of care. The current HRGs (HRG 3.5) are already being modified in HRG 4, which is targeted for introduction in 2009/10 (table 2). For emergency medicine HRG 4 will represent a complete change in the way activity is grouped, since the main determinants will be investigations performed, and treatments given. The idea is to make the HRGs more reflective of resources consumed, and also allow them to become ''setting independent'' so that they can be applied to emergency care delivered in a variety of settings.[5] HRG 4 may be further refined, or replaced with currencies used elsewhere in the world.[1] The system must also evolve to take account of changes in healthcare delivery, and to reflect policy priorities.

HOW DOES AN EMERGENCY DEPARTMENT, UNDER PAYMENT BY RESULTS, DERIVE INCOME FOR THE ACTIVITY IT UNDERTAKES?

To answer this question we need to examine:

Glossary of terms

- **ICD10:** International Classification of Diseases (10th revision). The international standard diagnostic classification, managed by the World Health Organization
- **OPCS-4:** Office of Population, Censuses and Surveys Classification of Surgical Operations and Procedures (4th revision). Translates into code all operations and surgical procedures that can be carried out on a patient during an episode of health care in the NHS acute sector. Mandatory NHS standard, managed by NHS Connecting for Health
- **HRG:** Healthcare resource group—grouping of treatment episode which are similar in resource use and clinical response. These are the equivalent of diagnosis resource groups (DRGs) used elsewhere in the world.[5] They are developed by the NHS information centre.

(1) How Trusts charge the primary care trusts (PCTs) for activity performed in the ED
(2) How Trusts distribute income derived from PbR within their organisations
(3) The financial reality of running an ED.

How the Trust charges the PCT for activity performed in the ED

For a Trust to be paid for activity there are five essential steps:

- The projected level of activity must be agreed
- Activity must be recorded
- Activity must be translated into HRGs
- The data must be passed to the PCTs
- The PCT must accept the data, and pay for the activity.

The relationship between PCTs and Trusts must be strong and collaborative. For Trusts, recording activity is a weak link. Visually scanning inpatient activity attributed to our own ED revealed problems with coding accuracy. The Audit Commission quotes a national average error rate of 11.9% for coding.[9] Within our Trust internal audits of speed and accuracy of coding are undertaken, although none relate to our speciality. Clinicians in the ED are responsible for inputting data into the ED computer system, and those data are

Table 1 Healthcare resource groups relating to emergency departments (version 3.5)

HRG codes	Code label	A&E tariff payment	Basic tariff (2006/7)
U06	Attendance disposal invalid for grouping	No payment	Nil
DOA	Dead on arrival	Standard	£71
V01	High cost imaging (died/admitted)	High cost	£99
V02	High cost imaging referred/discharged)		
V03	Other high cost investigation (died/admitted)		
V04	Other high cost investigation (referred/discharged)		
V05	Lower cost investigation (died/admitted)	Standard	£71
V06	Lower cost investigation (referred/discharged)		
V07	No investigation (died/admitted)	Minor A&E and minor injuries unit	£54
V08	No investigation (referred/discharged)		
V100MC	Non-24 h A&E department/casualty department		
V100MI	Discrete minor injuries unit		

A&E, accident and emergency; HRG, healthcare resource group.
High cost imaging = CT or MRI. High cost investigation = plain *x* ray, cross match, ultrasound, histology. Lower cost investigation = ECG, urine, haematology, biochemistry.

Table 2 Healthcare resource group 4 (HRG 4) and emergency medicine. In HRG 4, there are 11 HRGs for emergency and urgent care[8]

HRG	HRG label
VB01Z	Any investigation with category 5 treatment
VB02Z	Category 3 investigation with category 4 treatment
VB03Z	Category 3 investigation with category 1–3 treatment
VB04Z	Category 2 investigation with category 4 treatment
VB05Z	Category 2 investigation with category 3 treatment
VB06Z	Category 1 investigation with category 3–4 treatment
VB07Z	Category 2 investigation with category 2 treatment
VB08Z	Category 2 investigation with category 1 treatment
VB09Z	Category 1 investigation with category 1–2 treatment
VB10Z	Dental care
VB11Z	No investigation with no significant treatment

For example, VB01Z is expected to consume the highest resource, VB11Z the least. It can be seen that the HRG codes are derived from a combination of investigations and treatments. For example, computed tomography (CT) is a category 3 investigation, while lumbar puncture is a category 4 treatment. A patient undergoing both CT and lumbar puncture would be "coded" HRG VB02Z. Further detail, with some worked examples, can be obtained from the NHS Information Centre website (case mix section).[8]

submitted unverified to the PCT. Audit of letters to general practitioners (GPs) that rely on the same information shows that there is under-recording of activity (particularly treatment activity) performed in the ED.

For any given ED, activity performed is translated into HRGs by its parent Trust. The Trust submits this information to commissioners, and is reimbursed for the activity. How much the ED sees of the money depends on how the Trust manages its finances.

Financial flows within Trusts

Most NHS Trusts are structured into directorates, which can broadly be thought of in three groups:

- Corporate directorates, providing functions necessary for the Trust as a whole (for example, human resources). These charge their services to other directorates as "overheads."
- Clinical support directorates, providing services linked directly to patient care. These charge their services to front-line directorates on a pay-per-use basis ("recharging"). Our Trust plans to introduce recharging for diagnostics, theatres and anaesthetics. Over time Trusts will become more sophisticated in their recharging structures, and in calculation of overheads.
- Front-line directorates, responsible for delivering patient care. These will derive their income largely from providing healthcare (for example, through PbR), although other income streams may exist (for example, research). EDs will commonly be regarded as, or be part of, front-line directorates.

Modern financial regimens, driven by PbR, should lead to the distribution of income "earned" to the directorates that earn it. Overheads are apportioned between directorates. Support directorates will charge directorates who use their services. Funding received for education and training should be passed straight through. There will be adjustments for Trust savings/

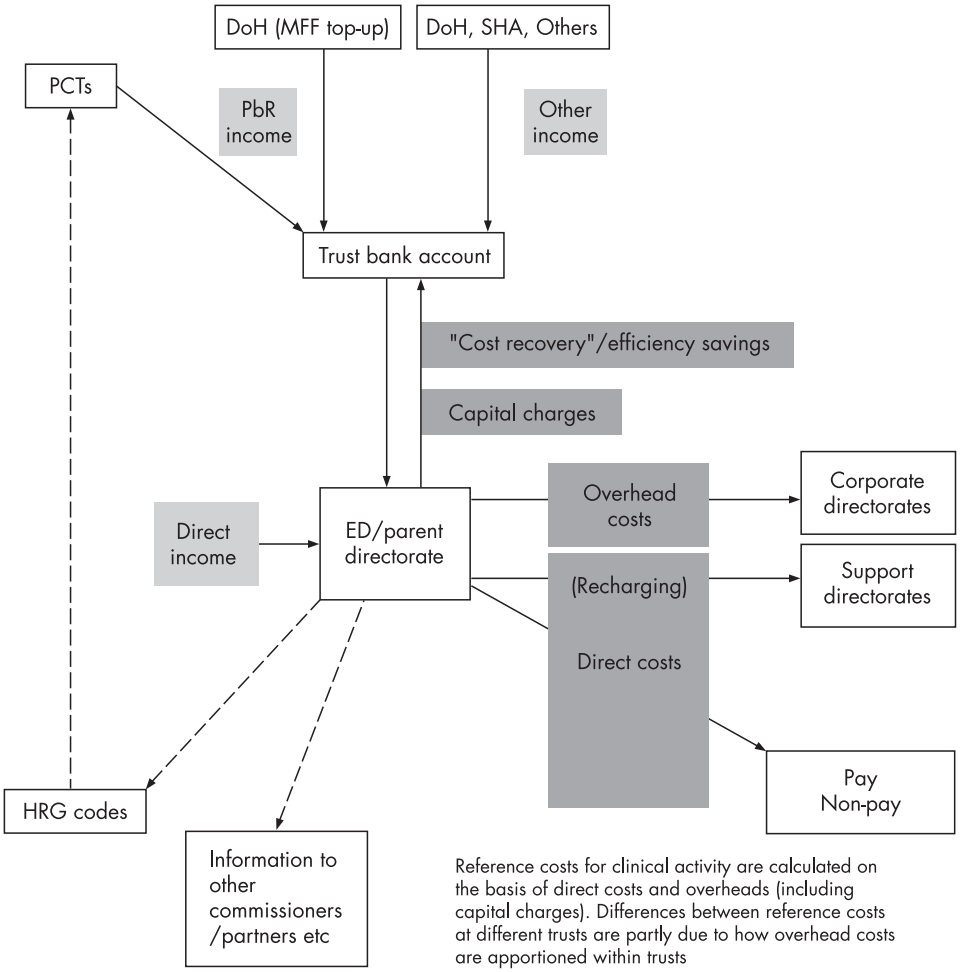

Figure 2 Schematic showing main financial flows for a front line directorate under current arrangement. DoH, Department of Health; ED, emergency department; HRG, healthcare resource group; MFF, market forces factor; PbR, payment by results; PCTs, primary care trusts; SHA, strategic health authority.

Table 3 How healthcare resource groups will be translated into income, how cross charging will work, and financial implications for the emergency department

What happens to the patient	Payment from PCT to Trust	What the ED should be paid (assuming tariff follows the patient)	Financial implications for the ED
I. Seen in ED and discharged, no further follow up	ED HRG	ED HRG. Under recharging the costs of all investigations will be charged to the ED	Straightforward
II. Seen in ED and discharged, follow up in ED clinic	ED HRG and clinic HRG	ED HRG and clinic HRG. Under recharging the cost of all investigations will be charged to the ED	Significant financial implications for the type of clinic HRG allocated to each attendance
III. Seen in ED, admitted to CDU, and then discharged	ED HRG and HRG associated with the admission	ED HRG and HRG associated with the admission. Under recharging the costs of all investigations will be charged to the ED	Straightforward
IV: Seen in ED, admitted to CDU, and then admitted to hospital under another specialty	ED HRG and HRG associated with the admission	ED HRG. The HRG associated with the admission will be paid to the speciality picking up the dominant HRG for the spell. Under recharging all investigations will be charged to the same speciality.	Makes financial sense to ensure that patients likely to be admitted are admitted directly to the main hospital, since they may not carry any income with them (the ED unlikely to pick up the dominant HRG, although in future could recharge the other specialty)
V: Seen in ED, admitted to hospital under another specialty	ED HRG and HRG associated with the admission	ED HRG. Under recharging all investigations should be recharged to the admitting speciality (or, if more than one speciality, the speciality picking up the dominant HRG from the spell)	Recharging in its proposed form does not mean that there are adverse financial consequences to the ED from our current practice of performing as much investigation as possible in the ED, before disposing of the patient.

CDU, clinical decision unit; ED, emergency department; HRG, healthcare resource group; PCT, primary care trust.

efficiency targets. Directorates will be expected to achieve financial balance.

The broad picture is summarised in fig 2. Table 3 shows how the income will flow, including details about how recharging might fit in (using our Trust as a model).

Arrangements for how income will be distributed within Trusts will vary. For ED patients Trusts will receive income for all ED and clinic attendances, and all inpatient spells following admission. In our Trust our directorate will receive income for the former two, but the inpatient HRG will only be paid to the directorate holding the dominant HRG for a particular spell.

EDs are highly dependent upon PbR income. In our Trust, 74% of our Trust income is ''PbR'' income, but for our ED the proportion is around 94%.

Finances of an emergency department

It is possible to conceptualise how ED finances work, as shown in fig 3.

Where EDs are directorates in their own right financial management is straightforward. However, many EDs belong to larger directorates, and it is likely that their overheads, and some recharges/claw backs, are not separated out on balance sheets. This makes financial planning at departmental level challenging.

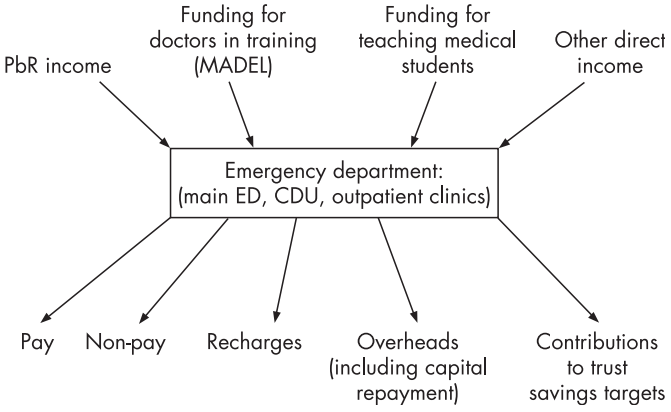

Figure 3 Simplified income/expenditure for the emergency department (ED). CDU, clinical decision unit; MADEL, Medical and Dental Education Levy.

It is likely that at this stage, in many Trusts, there is no real certainty regarding fixed, variable and hence marginal costs for the ED. Unsurprisingly, there are no published data looking at the cost of running an ''average'' ED in the UK. Calculation of marginal costs is crucial when making plans around changes in ED activity.

Whether an ED makes a profit under PbR depends on whether income streams are transparent, and costs are known. Without hard data it will be impossible to engage in informed financial planning. There is a widespread feeling in our Trust that income for our ED will not meet costs. This is mostly based on the belief that tariffs do not reflect true costs in the ED. However, our costs are not known, so we cannot test our hypothesis.

IMPACT OF PAYMENT BY RESULTS ON EMERGENCY DEPARTMENTS

PbR is likely to result in clinical teams rethinking the way they practice, as happened in the USA when prospective payment systems were introduced, as it was realised that EDs carry significant financial risk.[10]

There will be a focus on maximising income throughout Trusts but EDs may be ''loss-making'' under the PbR system. While it is untenable that EDs will close purely due to this, failure to generate surpluses will precipitate reassessment of our role, and of the specific financial arrangements relating our departments. It should be remembered that the overall economics of running an ED cannot simply be viewed at departmental level. If the ED admits a patient, the hospital will earn revenue associated with downstream activity. In competitive environments, using the ED as a ''loss-leader'' to bring in revenue generating activity may be a more sophisticated approach.

Competition for activity around high-tariff-low-cost patients is likely.[11] In the ED ''non-urgent'' patient visits will carry the lowest costs,[12] and are likely to be the target for competition. Indeed, we are already seeing a version of this locally with a PCT proposing to put general practitioners into the ED to see primary care patients (case study 1). This could multiply the loss-making effect of low-tariff-high-cost patients since fixed costs and overheads are likely to remain largely unchanged.

It is worth noting that PCTs are currently able to act as both commissioners and providers of emergency care. This has significant implications if one considers that PbR is meant to

Case study 1: GPs working in the ED

- **Summary:** A PCT has persuaded a Trust to allow PCT-employed GPs to work in the ED, seeing ''primary care'' patients. The PCT will indirectly pick up the tariff, but will pay ''rent'' to locate the GPs in the ED.
- **Implications:** Loss of income for the Trust. ''Primary care'' patients likely to carry the lowest marginal costs of all patient groups, so cost base for other patient groups skewed. If GPs request investigations, the ED bears further increase in costs through recharging. Lack of data around cost means that ''rent'' cannot be accurately calculated, and the financial impact of the GP service will be unknown. Cost base to PCT transparent, and PCT will make profit provided tariffs exceed rent/cost of GPs.
- **Long term solution:** Calculate true cost of seeing minors patients in the ED and use as basis for ''rent.'' Recharge PCT for all investigations performed.
- **Notes:** Interesting concept from business perspective. The PCT is both a commissioner and provider, so the Trust is effectively allowing a competitive enterprise onto its premises. It is doing so under pressure from the PCT, in its role as a commissioner.

Case study 2: Increasing attendances

- **Summary:** ED attendances are increasing. In the past this has been regarded as a problem, because traditional budget systems usually failed to match increased demand with increased expenditure. Under PbR there is a potential opportunity because more patients should mean more income.
- **Implications:** The basic problem is that the cost of running the average ED is unknown. Specifically we do not know the marginal cost of seeing additional patients, and cannot compare that with the current tariff. It is possible that for each patient we see, we make a loss, or it is possible that some groups of patients are more ''profitable'' than others. Without this knowledge it is impossible to plan accurately which parts of our practice to develop, and which we can afford to ''give away'', when examining our position from a financial perspective.
- **Solution:** Understand our costs.
- **Notes:** The marginal cost of seeing an ED patient is probably higher than expected.[13] In addition, marginal cost analyses are only likely to be useful in EDs with spare capacity,[14] a situation not usually found in the UK. Business plans based on current tariffs are risky because the operation of PbR will change. In addition, it is possible that as capacity is stretched, diseconomies of scale will come into play.

drive competition. One could argue that PCTs are in a position to be anti-competitive, either by putting mechanisms in place to restrict access to EDs, or by targeting their urgent care provision at patient groups who are likely to generate the highest income yield, while putting mechanisms in place to ensure that they capture those patients.

As PbR evolves it is likely that there will be financial instability around emergency medicine. If the direction of travel is for patient-level-costing, then income should increase. If the direction of travel is for normative pricing, then income may decrease. The impact of HRG 4 is hard to assess. Although the system looks encouraging in its increased level of detail, the tariffs applied will be the final arbiter, and are unknown.

Finally, there is a danger that financial considerations will feature over-prominently in the delivery of good clinical care.

HOW SHOULD EMERGENCY MEDICINE, AND YOUR EMERGENCY DEPARTMENT, RESPOND TO PAYMENT BY RESULTS?

At a national level

There is a clear need for emergency physicians to be involved in the design of current and future payment systems, and the setting of tariffs. This is happening through the Clinical Effectiveness Committee of the College of Emergency Medicine, which has undertaken detailed work looking at costings. The speciality is also represented on the committee of clinical working group leads advising the DoH through the ''PbR Transition Board.'' However, it should be noted that the process of setting tariffs is internal to the DoH. We also need to start building a clearer picture of what is happening in EDs nationally. While the average ED is indefinable, there are undoubtedly patterns emerging which can inform financial planning, and which can help us benchmark.

Clinical engagement

There is currently poor clinical engagement with the concept of PbR, and its implications. This should be addressed through a combination of communication and education, aiming for more ''local ownership'' of departmental finances. It is usual for our colleagues in general practice, or in the private sector, to have a detailed understanding of the financial workings of their practices. In the authors' experience this is not the case in emergency medicine. If clinicians can be engaged the drive to record activity accurately is more likely to be successful, and clinicians are more likely to spot problems with the way their departments are costed/charged (for example, identifying charges for expensive equipment bought by other departments). It is, after all, our responsibility to understand the costs associated with our practice.

Financial structure

EDs should be run as separate business units, even if operating within larger directorates.

This approach would facilitate business planning. The key is working out costs. With detailed costing information we can look at how to become more efficient, and can perhaps challenge our overheads. We will be able to answer fundamental business questions around such issues as competition and the increasing demand for emergency care.

ED attendances are increasing: under PbR there is a potential opportunity because more patients should mean more income. However, we do not know the marginal cost of seeing additional patients, and cannot compare that with the tariff. It is possible that for each patient we see, we make a loss, or it is possible that some groups of patients are more ''profitable'' than others (case study 2).

Finally, we can answer the simple question of whether the ED can make a profit, or must make a loss. If our ED does not make a profit, then there would be a strong case for reorganising the ED finances, perhaps treating it as a support directorate rather than a front-line directorate, or more realistically adopting a hybrid model.

Case study 3: Chest pain observation pathway

- **Summary:** The ED recently developed a pathway for patients with chest pain. These patients were previously admitted, but may now be discharged from the ED to return the next day for exercise testing.
- **Implications:** The Trust forfeits the inpatient tariff for each patient in the pathway. The tariff for the ED HRG is unlikely to cover the total cost of the process, which now includes exercise testing and additional paperwork. ED reference costs increase. The Trust can, however, use the bed savings to generate other income.
- **Long term solution:** Negotiate a local tariff with the PCT. To do this the cost of operating the chest pain pathway would need to be known.
- **Notes:** Admission avoidance pathways are potentially costly for the Trust, while beneficial for the patient, and the overall health economy. This is an example of a disincentive brought about by a financial system. The way to address this centrally is to build it into reimbursement. In the meantime local solutions would seem to be the way forward.

Information management

It is essential to ensure that activity recording is accurate. In the first instance EDs should audit coding accuracy. Teams must recognise the importance of recording activity on ED computer systems since this is linked directly to income, and should also ensure that the most common diagnostic groups on CDUs are accurately coded. It is essential that ED computer systems are capable of recording activity in a way that integrates with clinical process and practice. Administrative processes and computer systems should be designed to align with HRG 4, and we should ensure that the grouper integrates with our systems so that patients with multiple investigations and treatments are grouped appropriately. Of course, good information management and data quality control comes at a cost.

Maximising income streams

We must record all activity as currently as there may be some that is unrecorded (for example, telephone consultations). We should also look for opportunities to increase activity, provided the income generated outstrips costs. Good information management will help maximise income streams.

Financial planning

Keeping a close eye on developments in reimbursement systems will help us plan ahead, rather than react.

Integrating financial planning into clinical planning

There will clearly be financial implications associated with changes in clinical practice. Traditionally clinical practice has always been the prime driver, but we will now be forced even more to examine clinical issues from a financial perspective (for example, can we afford to do this?) and we will need to involve commissioners so that financial arrangements can be made to support advances in practice (case study 3). Finally, there are going to be times when the financial implications of changes in systems or clinical care will be impossible to predict. In this case we will still need to rely on common sense.

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REFERENCES

1 **Department of Health**. Options for the future of Payment by Results: 2008/09 to 2010/11. 2007. http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_073103(Accessed 20 April 2007).
2 **Dixon J**. Payment by results – new financial flows in the NHS. *BMJ* 2004;**328**:969–70.
3 **O'Connor R**, Neumann VC. Payment by results or payment by outcome? The history of measuring medicine. *J R Soc Med* 2006;**99**:226–31.
4 **Audit Commission**. Early lessons from payment by results. 11 October 2005. http://www.audit-commission.gov.uk/reports/NATIONAL-REPORT.asp?CategoryID=ENGLISH574SUBJECT4700&ProdID=B502F0FC-E007-4925-AD24-529C4889AD02&SectionID=sect1#(Accessed 12 May 2007).
5 **NHS Information Centre**. http://www.ic.nhs.uk/our-services/classification-and-standards/casemix (Accessed 19 May 2007).
6 **Mooney H**. Anxiety and disbelief as DoH fiasco scuppers business plans. *Health Serv J* 2006;**116**:15.
7 **Department of Health**. Report on the tariff setting process for 2006/07. 18 July 2006. http://www.dh.gov.uk/en/publicationsandstatistics/publications/publicationspolicyandguidance/dh_4137329(Accessed 14 April 2007).
8 **NHS Information Centre**. http://www.ic.nhs.uk/our-services/classification-and-standards/casemix (Accessed 4 June 2007).
9 **Audit Commission**. Payment by Results Assurance Framework. Pilot results and recommendations. 7 December 2006. http://www.audit-commission.gov.uk/reports/NATIONAL-REPORT.asp?CategoryID=ENGLISH574SUBJECT4700&ProdID=BE765294-44C1-4a5d-BE76-1328BCD45747&SectionID=sect1#(Accessed 14 April 2007).
10 **Munoz E**, Laughlin A, Regan DM, *et al*. The financial effects of emergency department-generated admissions under prospective payment systems. *JAMA* 1985;**254**:1763–71.
11 **Carlisle D**. Payment by results. How to steer clear of PbR gaming. *Health Serv J* 2006;**116**:22–3.
12 **Williams RM**. Distribution of emergency department costs. *Ann Emerg Med* 1996;**28**:671–6.
13 **Bamezai A**, Meinick G, Nawathe A. The cost of an emergency department visit and its relationship to emergency department volume. *Ann Emerg Med* 2005;**45**:483–90.
14 **Showstack J**. The costs of providing nonurgent care in emergency departments. *Ann Emerg Med* 2005;**45**:493–4.

USEFUL ADDITIONAL SOURCE

- Department of Health payment by results website: http://www.dh.gov.uk/en/policyandguidance/organisationpolicy/financeandplanning/nhsfinancialreforms/index.htm