

March 2008

Payment by results

Introduction

1. Payment by results (PbR) is the name given to the system of reimbursement for providers introduced in phased fashion over the last four years. Under PbR, contracts are struck between commissioning bodies and providers on the basis of predicted levels of activity adjusted for casemix. By casemix, we mean the way in which different diagnoses and treatments together with their differential resource implications are taken into account.

2. PbR is predicated on a single price or tariff for a given activity regardless of where it is performed, the intention being to drive down costs as those with costs in excess of the tariff seek to bring them into line. A number of objectives have been claimed for PbR including all of the following:

- to provide a transparent, rules-based system for paying NHS providers
- to drive and reward sustained improvements in efficiency
- to support patient choice and encourage hospitals to respond to patient preferences
- to encourage plurality of provision
- to encourage activity for sustainable waiting time reductions
- to maintain and improve quality of care
- to encourage commissioners to provide effective care in the most appropriate settings

3. The Department of Health completed a consultation exercise on the future of PbR in the context of the next Comprehensive Spending Review in July 2007.¹

4. The Audit Commission published a review of the first four years of PbR in February 2008.²

¹Department of Health (2007) *Options for the future of Payment by Results: 2008/09 to 2010/11*
London: The Stationery Office.

² <http://www.audit-commission.gov.uk/reports/NATIONAL-REPORT.asp?CategoryID=&ProdID=30321654-7A78-4be6-ADA3-C2FC1AD3B515>

Scope of PbR

5. Currently, the mandatory PbR tariff is payable for admitted patient care (elective, non-elective and emergency), outpatient attendances and accident and emergency attendances. The following services are **excluded** from PbR:

- Community services
- Mental health services
- Ambulance services (other than patient transport services)
- Private patients in NHS hospitals
- Chemotherapy
- Learning disabilities
- Critical care
- Continuing/intermediate care
- Respite care
- Regular attendees
- Radiotherapy
- Direct access radiology and pathology
- Renal dialysis
- Rehabilitation in discrete rehabilitation ward or unit or activity coded to specialty 314
- Primary Care Services
- Walk in Centres

6. In addition a number of specific HRGs and outpatient specialties fall outside the scope of PbR because they have low volumes, volatile costs, and/or are of a specialised nature. With the expansion of scope following the introduction of HRG4 (see paragraph 10) it is expected that the following will enter the scope of PbR:

- Radiotherapy & chemotherapy
- Further unbundling of diagnostics
- Rehabilitation
- Specialist palliative care

The building blocks for PbR

7. There are three principal components to PbR:

- Diagnostic/Procedure codes
- Healthcare Resource Groups
- Reference Costs

These feed into:

- The national tariff
- Contracts/service level agreements

Diagnostic/Procedure codes

8. These codes are used by hospitals to capture data on diagnoses and treatments of individual patients in systematic form for a variety of purposes but in the case of PbR for use in allocating consultant episodes to a common currency for costing purposes. The current **diagnostic codes** are those for the International Classification of Disease version 10 (ICD10).

An example of an ICD10 coding in the area of Skin, Breast and Burns is:

T203 Burn of third degree of head and neck.

9. For **procedures/interventions**, the current classification is the Office of Population, Censuses and Surveys Surgical Operations and Procedures (OPCS - Revision 4). A new version of the classification (OPCS – 4.3) has now been developed. This will result in 25% more codes being available for classifying patient care and will be used, though not fully, in the 2007/08 tariff.

An example of an intervention code in the same area as the above might be:

S351 Meshed split autograft of skin to head or neck

Healthcare Resource Groups

10. Taken together the codes described above describe the initial diagnosis and consequent treatment of an individual patient. In order to ascribe costs to the episode of care described by these codes they need to be expressed in a common currency i.e. they need to be allocated to a clinically meaningful grouping whose resource use can be predicted to be roughly the same. This will include not only the diagnosis and associated treatment but also other predictors of length of stay and thus cost such as age and comorbidities. The chosen currency is the Healthcare Resource Group (HRG). These were developed initially in the early 1990s as an English measure of hospital casemix. At the time, hospitals were not funded on the basis of their casemix adjusted activity and their main use was in benchmarking exercises, such as setting hospital efficiency targets. Versions have developed over time which can explain more of the variation in length of hospital stay and the current version in use is version 3.5 (HRG 3.5). The introduction of a new version of HRGs – HRG 4.0 – will refine casemix adjustment substantially – there will be over 1,000 HRG codes in HRG 4.0 as against 700 in its predecessor. The expanded number of codes will include not only new codes for activity in areas such as pathology but also additional degrees of complication/comorbidity and more age splits than in existing HRGs. To the extent that these improvements better target severity, they will go some way to meeting concerns about equity. It is proposed that the new version will be used for payments to the service in 2009/10.

The two codes used as examples above would, for an adult patient aged less than 50, map on the basis of HRG 3.5, to the HRG:

J21 Other Burn with 1 Significant Graft Procedure >18 <50

On the basis of the diagnostic code alone it would have mapped to:

J27 Other Burn without Significant Graft Procedure >18 <50

This highlights the importance of accurate clinical coding since the difference in tariff between the two HRGs is tenfold.

Reference Costs

11. The third building block in PbR is costing data. These data derive from the annual national reference cost exercise which obliges hospitals to allocate costs to activity using a methodology specified in the NHS Costing Manual.³ This involves apportioning the various 'costing pools' – fixed and variable, condition-based or time-based, including wards, theatres, outpatients, pharmacy and diagnostics - to specialties, services or programmes. Some apportionment e.g. of pharmacy costs can take place directly to conditions whilst in other cases costs must be allocated indirectly e.g. ward costs using bed days.

NHS providers are then required to identify the HRG which account for at least 80% of cost and activity so as to focus the costing method on the small number of HRG which represent a high proportion of cost. This is done by allocating hospital activity to HRG using a 'grouper' produced by the NHS Information Authority. Not all data are used in this exercise however. For each HRG, a trim point has been calculated in terms of length of stay.⁴ Excess bed days beyond this point are excluded from costs and reported separately. This is done to avoid a small number of outliers skewing the data. The costs reported separately feed into the per diem payment for long stay outliers (see paragraph 17).

12. Resource profiles are set up using advice from nursing and medical staff identifying the key activities involved in each diagnosis/procedure and these are costed either directly or using proxies derived from the apportionment process (see Table 1 below for ICD I634).

Table 1: Derivation of cost for a given ICD

SPECIALTY: GENERAL MEDICINE					
POINT OF DELIVERY: INPATIENT NON ELECTIVE					
HRG: AA 22Z: NON-TRANSIENT STROKE OR CEREBROVASCULAR ACCIDENT					
ICD CODE: I634: CEREBRAL INFARCTION DUE TO EMBOLISM OF CEREBRAL ARTERIES					
COSTING POOL	POOL TYPE	MEASURE	UNITS	COST/ MEASURE £	TOTAL COST £
WARD	TIME	BED DAYS	9	100	900
WARD	EVENT	ADMISSION	1	20	20
NURSING	TIME	BED DAYS	9	70	630
DIAGNOSTICS:					
PLAIN FILM RADIOLOGY	EVENT	BANDED TESTS	2	20	40
PATHOLOGY TESTS	EVENT	BANDED TESTS	10	6	60
THERAPIES:					
OCCUPATIONAL THERAPY	EVENT	SESSION	2	25	50
SPEECH THERAPY	EVENT	SESSION	2	25	50
PHYSIOTHERAPY	EVENT	SESSION	5	27	135
TOTAL COST					1,885

Source: NHS Costing Manual: 2007/8

13. Data on the cost of individual diagnoses or procedures are then weighted by the number of episodes into an average cost for the HRG concerned (see Table 2 below).

³Department of Health (2008) *NHS Costing Manual: 2007/08 edition* London: The Stationery Office.

⁴ This equates to the upper quartile of the national distribution plus 1.5 times the interquartile range. Thus if the lower quartile of the national distribution were 6 days and the upper quartile 20 days, the trim point would be at 41 days - $20 + (1.5 * 14)$.

Table 2: Derivation of average cost for a HRG

SPECIALTY: GENERAL MEDICINE					
POINT OF DELIVERY: INPATIENT NON ELECTIVE					
HRG: A A22Z: NON-TRANSIENT STROKE OR CEREBROVASCULAR ACCIDENT					
NO.	ICD CODE	DESCRIPTION	COST £	EPISODES	TOTAL COST £
1	I634	CEREBRAL INFARCTION DUE TO EMBOLISM OF CEREBRAL ARTERY	1,855	40	74,200
2	I650	OCCLUSION AND STENOSIS OF VERTEBRAL ARTERY	1,748	20	34,960
3	I661	OCCLUSION AND STENOSIS OF ANTERIOR CEREBRAL ARTERY	2,147	10	21,470
4	I672	CEREBRAL ATHEROSCLEROSIS	2,239	10	22,390
				80	153,020
WEIGHTED AVERAGE COST [153,020/80] FOR:					
HRG AA22Z : NON-TRANSIENT STROKE OR CEREBROVASCULAR ACCIDENT					£1,913

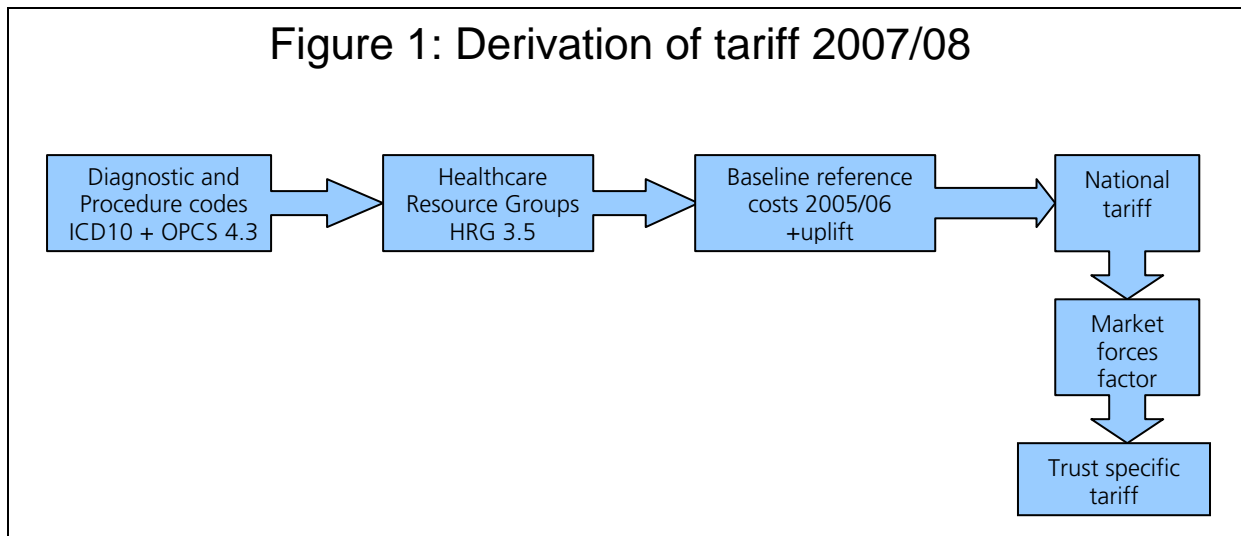
Source: NHS Costing Manual: 2007/8

14. One question posed by the consultation exercise was whether the collection of these data for tariff purposes should be from a sample of best practice providers or as at present from all NHS Trusts.

The tariff

15. The above data averaged across all NHS Trusts and uplifted from their historical baseline form the basis for calculating the tariff for the appropriate HRG. The national tariff is made sensitive to local circumstances by the addition of a Market Forces Factor (MFF). This is Trust-specific and is used to take account of unavoidable differences in the cost of providing services across the country. It is constructed by combining three separate indices - a staff index, reflecting labour market differences, a buildings index and a land index. The MFF varies in magnitude from 1.00 in West Cornwall to 1.446 for St Mary's NHS trust in London. A simplified description of the creation of the tariff for 2007/08 is shown in Figure 1 below. An extract from the national tariff for 2008/09 is shown at Appendix 1.

Figure 1: Derivation of tariff 2007/08



From data to contracts

16. Contracts or service level agreements (SLA) are drawn up between PCTs and providers on the basis of predicted levels of activity by HRG with adjustments to cover over or under delivery. Typically they will use out-turn activity as the base and specify planned activity detailing provider, specialty, point of delivery and HRG for all specialties and HRGs.

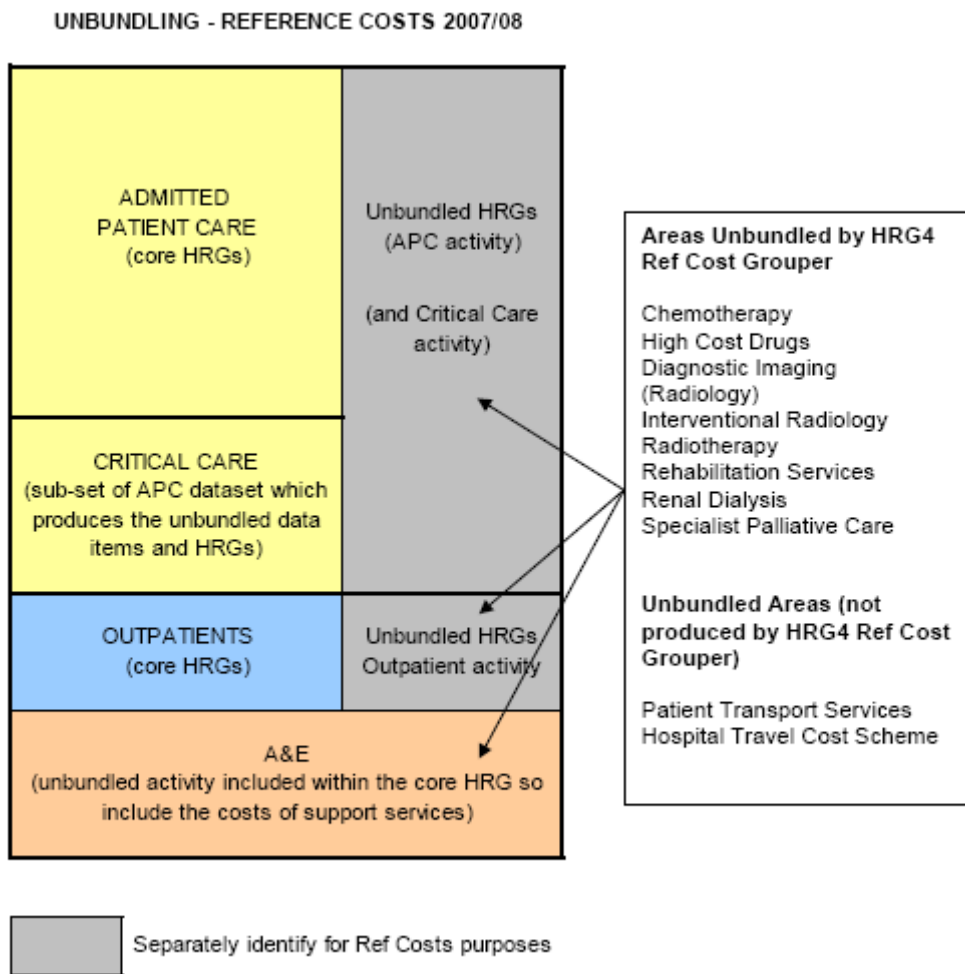
17. The basic principle of PbR is that activity within scope is paid at the published national tariff. However, risk management concerns mean that over or under delivery relative to plan on emergency admissions is adjusted for using a reduced rate tariff of 50%. Other adjustments to price are made for inter alia some specialised services – a percentage top-up to the relevant HRG tariff - and for long lengths of stay (Excess Bed Days) - payable from a pre-determined cut-off for each HRG.

Unbundling the tariff

18. The decision to unbundle some tariffs was foreshadowed in the White Paper *Our Health, Our Care, Our Say*.⁵ Without this facility, the incentive to continue to treat in an inappropriate environment remains strong. Many commentators have pointed to the need to incentivise treatment in the community and thus recognise that traditional care pathways are changing. The 2007/08 tariff inter alia unbundles rehabilitation from acute care for a number of HRGs. However, the way in which this is done does not offer complete scope to fund rehabilitation outside the hospital. An acute care element has been derived by estimating the number of days of post acute care within the relevant HRG and using the existing excess bed day tariffs to convert this estimate to a cost. This is then deducted from the overall tariff to give an indicative acute phase tariff. The Department of Health has emphasised that it is not publishing a rehabilitation tariff per se but rather identifying a sum 'potentially available for commissioners to spend elsewhere in addition to any existing local spend on community rehabilitation'. Figure 2 gives an example of 2007/8 unbundled reference costs.

⁵ Department of Health (2006) *Our Health, Our Care, Our Say: A new direction for community services* London: The Stationery Office.

Figure 2: Unbundled reference costs 2007/08



The consultation

19. The consultation exercise posed a number of questions. There were 281 responses to the consultation. The findings included:

- There was strong support for improving the classification of clinical diagnoses and healthcare interventions to reflect changes in clinical practice.
- Respondents were positive about the feasibility of developing a revised currency for the national tariff - (HRG4) - to improve the way patients are 'grouped', differentiate routine from complex cases more effectively and provide commissioners with flexibility to unbundle payments for high-cost drugs, diagnostics and other items that may need to be commissioned separately.
- Moving towards patient-level costing, involving joint working between managers and clinicians to attribute costs to individual patients was particularly well received.
- Improving the quality of clinical coding and the quality of data in general was supported.
- There was notable support for the use of sampling as the basis for tariff calculation and future work is underway on this.

- Setting prices on a normative basis, as opposed to some form of 'averaging' of providers' reported costs, and further unbundling of the tariff were both supported, though with significant minorities opposed.
- Development work will include using the responses on solutions to where the tariff acts as a barrier to commissioning care pathways.
- Coding of community and outpatient data was seen as desirable, although there were concerns about the feasibility of this were raised by a significant minority.
- The development of PbR for specialised services was supported three to one, though with mixed views from clinical bodies and single specialty hospitals.
- More than 80% of respondents favoured the introduction of price signalling more than a year in advance and the majority were in favour of the governance arrangements for tariff calculation.

Finally, it challenges the national basis for PbR by looking at three alternative models

- local currency and local price
- national currency and local price
- national currency and national price

There was substantial support for this concept. Mental health and long term conditions were identified as areas where this would be particularly beneficial.

The Audit Commission evaluation

20. In February 2008, the Audit Commission published *The Right Result? Payment by Results 2003-2007*, an analysis of the first four years of PbR. The main findings of the report were that PbR has improved the fairness and transparency of the payment system; that it has at most contributed towards an increase in activity and efficiency in elective care and; that the negative impact on quality feared by some had not materialised. Other findings included:

- Organisations are beginning to use PbR as a tool to identify inefficiencies and redesign pathways in the interest of patients – more evident for provider trusts than PCTs.
- Trusts are increasingly devolving financial management to clinical departments and specialties – with the potential to improve decision making and overall management within a Trust.
- Patient level costing may not make sense for all organisations and its merits should be evaluated on a case by case basis.
- Interest in information and improving data quality has increased as a result of PbR with completeness of coding and recording improved, though audits show there is still much to do to improve data quality.
- PCTs have stronger arrangements for monitoring provider activity and performance and engaging practice based commissioners in the process.
- Demand management initiatives are increasing in number and scope.
- Decrease in avoidable admissions.
- Contract negotiation and management still significant weaknesses of commissioning.

- Department of Health's *World Class Commissioning* initiative should help address PCT commissioning capacity.

21. The Audit Commission set out four necessary steps for PbR:

- The information infrastructure needs to be strengthened, including diagnosis, procedure and casemix classifications.
- The national tariff should be made more flexible.
- It would be helpful to introduce some normative tariffs for selected HRGs.
- Separate funding streams for capital and quality, for example, as is the case internationally, should be considered.

Appendix 1: Extract from 2008/09 National tariff

2008-09 Admitted Patient Care Mandatory Tariff

HRG code	HRG name	Elective spell tariff (£)	Elective long stay tripoint (days)	Non-elective spell tariff (£)	Non-elective long stay tripoint (days)	Per day long stay payment (for days exceeding tripoint) (£)	Reduced short stay emergency tariff applicable?	% applied in calculation of Reduced short stay emergency tariff	Reduced short stay emergency tariff (£)	Eligible for specialised tariff top-up (including children's specialised)	Eligible for children's non-specialised tariff top up
A01	Intracranial Procedures Except Trauma - Category 1	1,127	7	1,498	20	260	No	100%	0	Yes	Yes
A02	Intracranial Procedures Except Trauma - Category 2	3,287	12	5,057	29	312	No	100%	0	Yes	Yes
A03	Intracranial Procedures Except Trauma - Category 3	4,174	16	6,677	38	275	No	100%	0	Yes	Yes
A04	Intracranial Procedures Except Trauma - Category 4	5,645	22	8,346	45	276	No	100%	0	Yes	Yes
A05	Intracranial Procedures for Trauma w cc	6,228	46	6,174	46	290	No	100%	0	Yes	Yes
A06	Intracranial Procedures for Trauma w/o cc	4,711	24	4,670	24	291	No	100%	0	Yes	Yes
A07	Intermediate Pain Procedures	563	1	813	2	400	No	100%	0	Yes	Yes
A08	Percutaneous Image Controlled Pain Procedures	425	1	420	1	545	No	100%	0	Yes	Yes
A09	Peripheral Nerve Disorder w cc	1,139	10	3,215	38	236	Yes	20%	643	Yes	Yes
A10	Peripheral Nerve Disorder w/o cc	611	1	1,899	12	226	Yes	20%	380	Yes	Yes
A11	Muscular Disorders	1,098	7	3,922	40	221	Yes	20%	784	Yes	Yes
A12	Disorder of Balance aetiology unknown w cc	1,899	25	2,176	31	176	Yes	20%	435	Yes	Yes
A13	Disorder of Balance aetiology unknown w/o cc	817	5	1,010	7	185	Yes	35%	354	Yes	Yes
A14	Brain Tumours or Cerebral Cysts >69 or w cc	1,975	22	3,796	47	198	Yes	20%	759	Yes	Yes