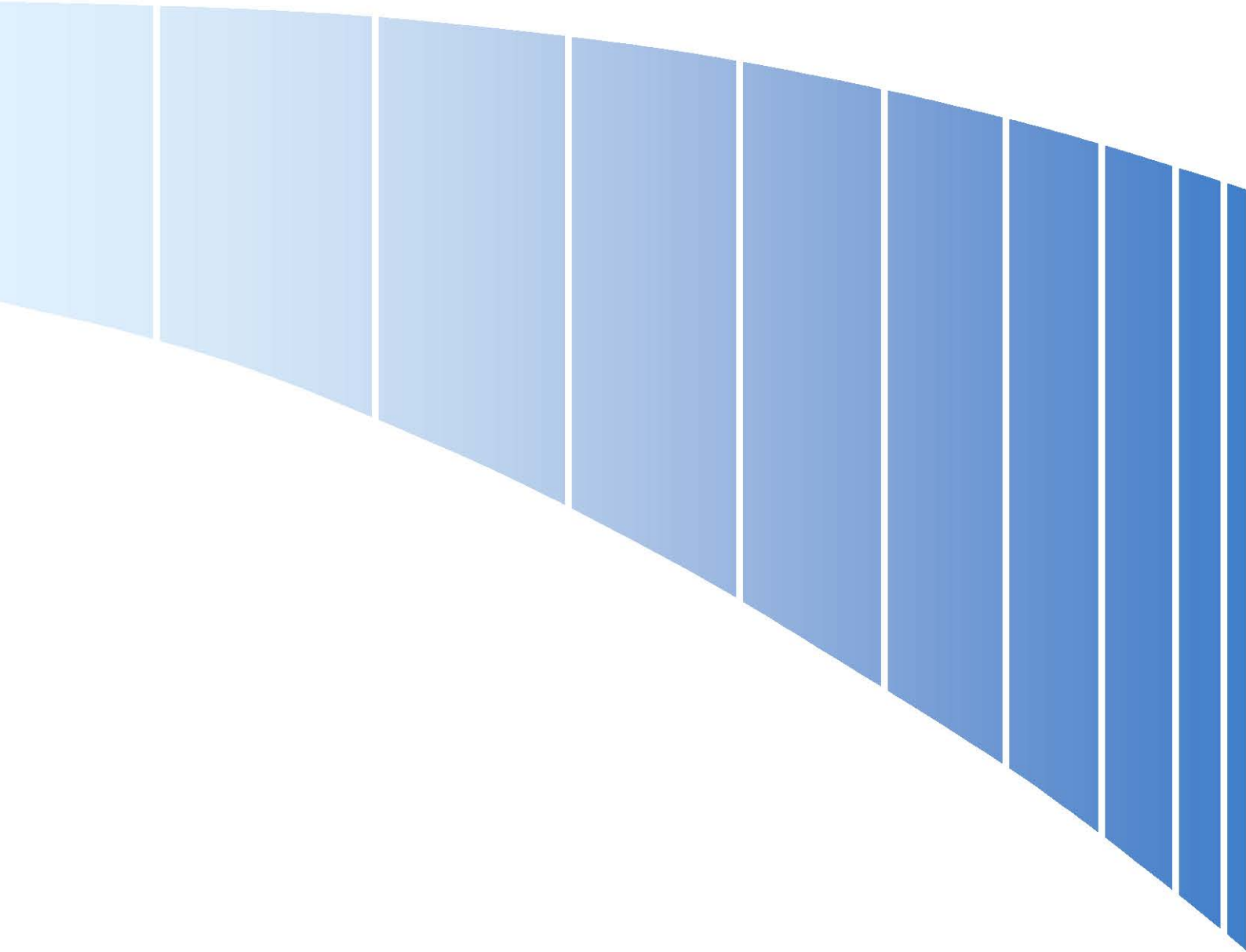


# A simple guide to Payment by Results



## A simple guide to Payment by Results

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## Introduction

1. Payment by Results (PbR) has transformed the way funding for secondary care flows around the NHS in England.
2. The aim of this guide is to provide a simple introduction for newcomers to PbR, from NHS health professionals, managers and administrators, to people engaged in academic study and interested members of the public both in the UK and abroad. Detailed technical guidance on the operation of PbR each year, and a wide range of other information, is available at [www.dh.gov.uk/pbr](http://www.dh.gov.uk/pbr).
3. This guide has been updated to reflect the shape of PbR in 2012-13.
4. The guide is organised as follows:

### Basics

#### Chapter 1 From patient notes to pound notes

PbR begins when a patient is treated in hospital and ends when the hospital is paid for that treatment. Here we give an overview of the whole process.

#### Chapter 2 Building blocks

PbR is a data driven process that has its foundations in patient level data. We explore the three building blocks of classification, currency and costing.

#### Chapter 3 Producing the tariff

We describe the production of the tariff and explore some of the key themes that determine the tariff structure and prices.

#### Chapter 4 Expanding the scope of PbR

This guide concentrates on PbR for acute services, but the Government intends that it should expand into other areas. Here we take stock of progress.

#### Chapter 5 History of PbR

Tells the story of PbR, summarises some of the research papers on PbR, and looks briefly at international experience of similar systems.

### Glossary of terms and abbreviations

### Annexes

PbR requires a basic understanding of the structure and funding of the NHS, which can be found here. We also provide some useful facts and figures about PbR.

5. Each chapter ends with a **find out more section** which lists references and sources of further information.
6. The Department of Health PbR team produces this guide. The first edition was published in September 2010. This third edition covers developments in PbR up to the publication of the 2012-13 PbR package in February 2012.
7. The Health and Social Care Act (2012) introduces changes to arrangements for tariff design and price setting. The Department of Health will lead on the development of

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the tariff and PbR arrangements for 2013-14, in consultation with Monitor and the NHS Commissioning Board (NHS CB). Beyond the 2013-14 tariff, Monitor and the NHS CB will have responsibility for the tariff, currency design and price setting.

8. We hope that this guide provides a useful introduction. We would welcome feedback on whether it has achieved its aim and suggestions as to how it might be improved. Please send your feedback to [pbrcomms@dh.gsi.gov.uk](mailto:pbrcomms@dh.gsi.gov.uk).
9. Figures are in 2012-13 prices unless otherwise stated.

## Basics

10. PbR is the payment system in England under which commissioners pay healthcare providers for each patient seen or treated, taking into account the complexity of the patient's healthcare needs. The two fundamental features of PbR are nationally determined currencies and tariffs. Currencies are the unit of healthcare for which a payment is made, and can take a number of forms covering different time periods from an outpatient attendance or a stay in hospital, to a year of care for a long term condition. Tariffs are the set prices paid for each currency.
11. PbR currently covers the majority of acute healthcare in hospitals, with national tariffs for admitted patient care, outpatient attendances, accident and emergency (A&E), and some outpatient procedures. For example, £119 for an outpatient attendance in obstetrics or £5,323 for a hip operation. The Government is committed to expanding PbR by introducing currencies and tariffs for mental health, community and other services.
12. The currency for admitted patient care and A&E is the healthcare resource group (HRG). HRGs are clinically meaningful groups of diagnoses and interventions that consume similar levels of NHS resources. With some 26,000 codes to describe specific diagnoses and interventions, grouping these into HRGs allows tariffs to be set at a sensible and workable level. Under the latest version, HRG4, there are over 1,500 tariffs. Each HRG covers a spell of care, from admission to discharge. The currency for outpatient attendances is the attendance itself, divided into broad medical areas known as treatment function codes (TFCs).
13. When a patient is discharged, a clinical coder working in the hospital translates their care into codes using two classification systems, ICD-10 for diagnoses and OPCS-4 for interventions. When a patient attends an outpatient clinic, their TFC is similarly recorded. This information, together with other information about the patient such as age and length of stay, is sent from the hospital's computer system to a national database called the Secondary Uses Service (SUS). Reports from SUS allow commissioners to pay providers for the work they have done or to adjust any regular monthly payments for actual activity undertaken.
14. Tariff prices have traditionally been based on the average cost of services reported by NHS providers in the mandatory reference costs collection. In practice, various adjustments are made to the average of reference costs, so that final tariff prices may not reflect published national averages. Because the reference costs from which the tariff is produced are three years in arrears, an uplift is applied which reflects pay and price pressures in the NHS, and includes an efficiency requirement. The introduction of best practice tariffs in 2010-11 has started to ensure that tariffs are determined by best clinical practice rather than average cost.
15. The tariff received by the provider is multiplied by a nationally determined market forces factor (MFF). This is unique to each provider and reflects the fact that it is more expensive to provide services in some parts of the country than in others. There may also be other adjustments to the tariff for long or short stays, for specialised services, or to support particular policy goals.



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16. Before PbR, commissioners tended to have block contracts with hospitals where the amount of money received by the hospital was fixed irrespective of the number of patients treated. PbR was introduced to:
  - (a) support patient choice by allowing the money to follow the patient to different types of provider;
  - (b) reward efficiency and quality by allowing providers to retain the difference if they could provide the required standard of care at a lower cost than the national price;
  - (c) reduce waiting times by paying providers for the volume of work done; and
  - (d) refocus discussions between commissioner and provider away from price and towards quality and innovation.
17. PbR was introduced to support healthcare policy and the strategic aims of the NHS. As these change and develop over time, so will PbR. The tariff is now seen increasingly as a vital means of supporting quality outcomes for patients and delivering additional efficiency in the NHS.
18. PbR began in a limited way, with national tariffs for 15 HRGs in 2003-04 and 48 HRGs in 2004-05. The first NHS foundation trust (FT) applicants moved to the full PbR system in 2005-06 and other NHS trusts in 2006-07. PbR now represents over 60% of acute hospital income and about one-third of primary care trust (PCT) budgets.
19. PbR is not unique to England. Many other countries in Europe, North America and Australasia operate similar payment systems.

## Chapter 1 From patient notes to pound notes

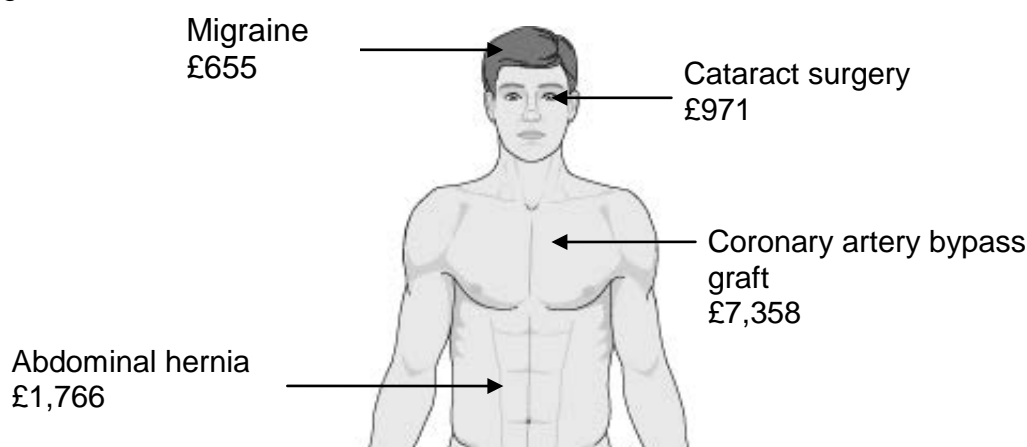
### Summary

- PbR is the payment system in England in which commissioners pay healthcare providers for each patient seen or treated, taking into account the complexity of the patient's healthcare needs
- The two fundamental features of PbR are nationally determined currencies and tariffs. Currencies are the unit of healthcare for which a payment is made. Tariffs are the set prices for a given currency
- PbR covers the majority of acute healthcare provided in hospitals, and there are national tariffs for admitted patient care, outpatients and A&E
- The currencies for admitted patient care and A&E are set out in HRG4, covering a spell of care from admission to discharge
- When a patient is discharged, clinical coders translate their care into codes using two classification systems, ICD-10 and OPCS-4
- Patient data is submitted to a national database called the Secondary Uses Service, which groups clinical codes into HRGs and calculates a payment
- Commissioners either pay variable amounts on the basis of actual activity undertaken or agree monthly payments to providers in the NHS standard contract, which are then adjusted for the actual value of activity in the monthly SUS report

### Introduction

20. In the NHS in England the commissioning and providing of healthcare for local populations are separate functions carried out by different types of organisation. PbR is the payment system that governs transactions between commissioners and secondary healthcare providers. Whilst not their only source of income, it represents over 60% of income for the average acute hospital. Under PbR, commissioners pay providers a national tariff or price for each patient seen or treated<sup>1</sup>. The price varies according to the complexity of the treatment or condition, as illustrated in Figure 1.

Figure 1: National tariffs for different treatments and conditions



<sup>1</sup> Payment is to the organisation as a whole. PbR is not intended to provide an identifiable revenue stream to individual departments within a hospital.

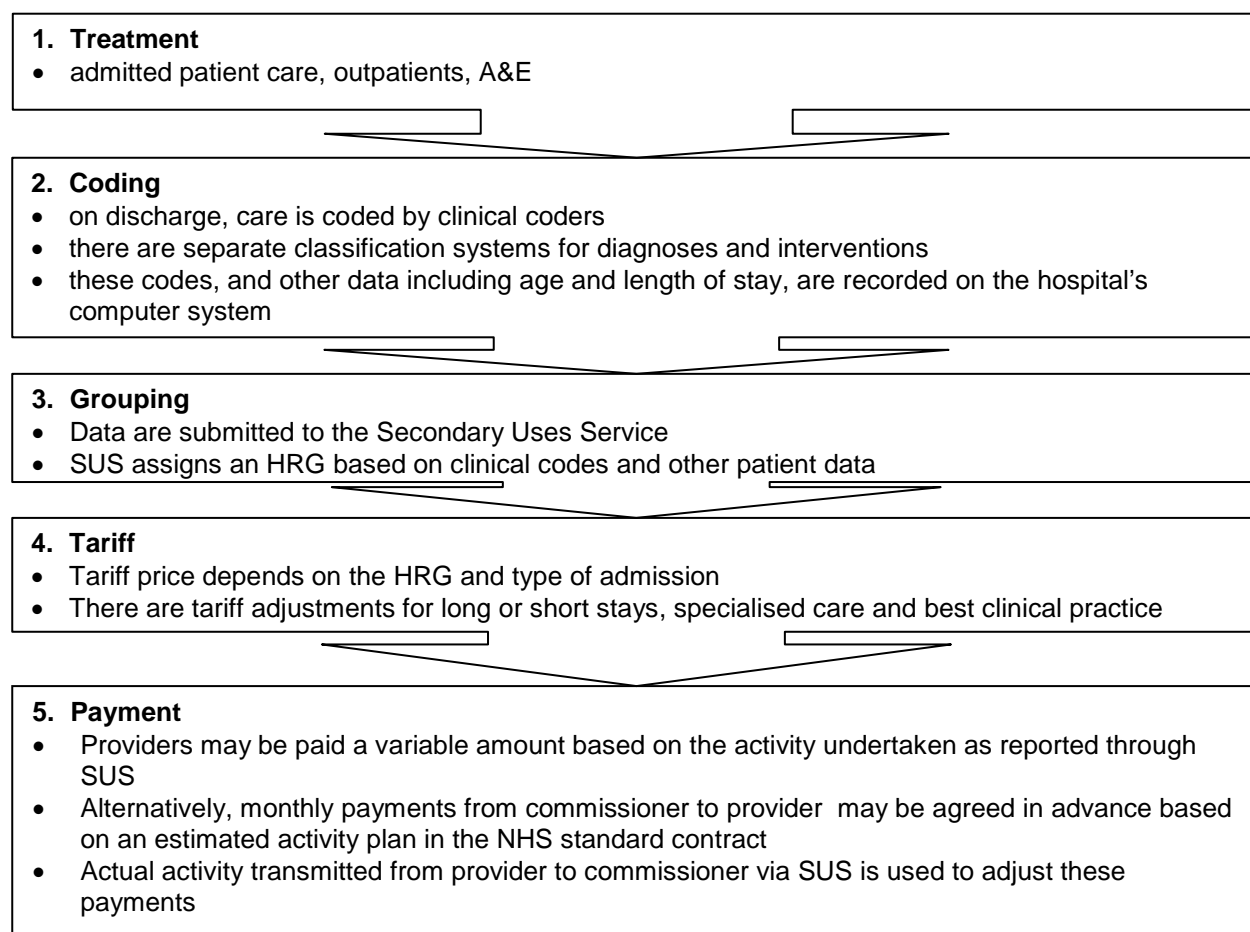
21. The Department of Health (DH) publishes the national tariff every year. Figure 2 is an extract from the 2012-13 national tariff. It shows that there are different prices for different treatments or conditions and for different types of admission or attendance. The currency, or unit of healthcare for which payments are made for admitted patient care and A&E attendances, is called a healthcare resource group (HRG). We will look at HRGs in more detail in [Chapter 2](#). The currency for outpatient attendances is the attendance itself, split between first and follow-up attendances and the broad medical area, known as treatment function code (TFC). We cover TFCs in [Chapter 3](#).

Figure 2: Some tariff prices in 2012-13

<b>Admitted patient care</b>			
HRG code	Description	Combined day case and elective tariff	Non-elective spell tariff
AA31Z	Headache or migraine	£655	£537
BZ01Z	Enhanced cataract surgery	£971	£2,348
EA14Z	Coronary artery bypass graft	£7,358	£9,055
FZ17C	Abdominal hernia procedures 19 years and over without CC	£1,766	£2,527
<b>Outpatient attendances</b>			
TFC code	Description	First attendance – single professional	Follow-up attendance – single professional
100	General surgery	£191	£101
430	Geriatric medicine	£303	£139

22. The PbR lifecycle begins with a clinician making notes on the patient record and ends with the commissioner making a payment to the patient's provider. Figure 3 summarises the process.

Figure 3: PbR from treatment to payment



## Treatment

23. PbR covers the majority of acute services provided in hospitals, with tariffs covering admitted patient care, attendances and some procedures in outpatients, and A&E attendances. The tariff for admitted patient care is set at spell level. A spell is the period from admission to discharge within a single provider for a single patient. An admission is when a consultant, nurse or midwife assumes responsibility for care of a patient following a decision to admit. A discharge is when a patient's stay in a provider is complete.
24. Whilst admitted, a patient may see more than one consultant during a spell of care. These are called finished consultant episodes (FCEs). The vast majority of patient spells have only one FCE in them, some have two and there are a small number with three or more. This distinction between spell and FCE is important in PbR and we shall return to it later.
25. Admitted patient care includes different kinds of admissions:
- day cases, where the patient's admission is elective (planned) and the patient is planned to be, and is, discharged on the same day;
  - ordinary elective, where the patient's admission is again planned but the intention is to keep the patient in hospital over night; and

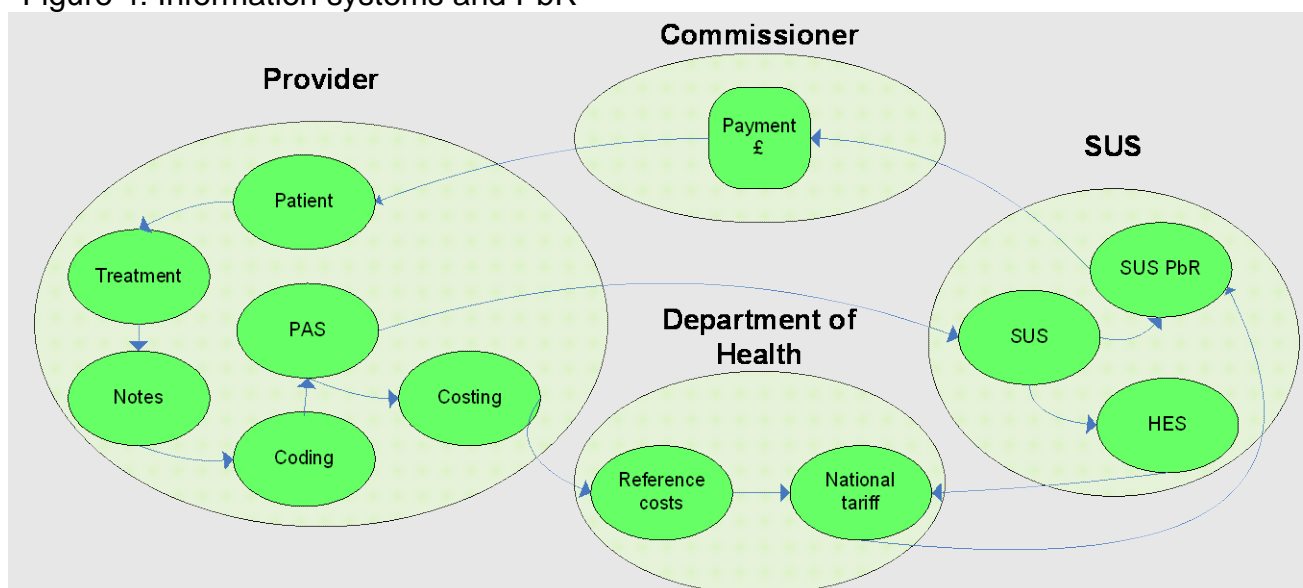
## A simple guide to Payment by Results

- (c) non-elective, where the patient's admission is not planned, including emergency admissions and admissions for maternity, births, and non-emergency patient transfers.
26. Some admitted patient care does not have a tariff, for example critical care during a spell. The pricing of this activity is for local agreement between commissioners and providers.
  27. The admitted patient care tariff does not cover services before admission or after discharge. For example, an A&E attendance before admission or a series of outpatient attendances following surgery are reimbursed with separate tariffs.

## Coding

28. When a patient is discharged from hospital, a clinical coder translates the patient's notes into codes which describe information about the patient's diagnoses and care in a standard format. These codes use two classification systems: ICD-10 for diagnoses and OPCS-4 for interventions.
29. The coder records the diagnoses and intervention codes on the hospital's local system, often called a patient administration system (PAS), together with other information about the patient such as age and dates of admission and discharge.
30. Providers submit an extract from their PAS, in a standard format called Commissioning datasets (CDS), to the Secondary Uses Service (SUS). SUS is essentially a large national database of activity. Figure 4 provides more detail on the information systems which support PbR.

Figure 4: Information systems and PbR



### Patient administration systems

Patient administration systems (PAS) are hospital computer systems that record information about patients. The type of system used varies from hospital to hospital.

### Commissioning datasets

Commissioning datasets (CDS) contain data on hospital activity that support PbR payments and are managed by the National Datasets Service. Changes to the CDS have a wide impact. They need to be assured by the Information Standards Board (ISB) for Health and Social Care and mandated via the issuing of an Information Standards Notice (ISN).

### Information Standards Board

The Information Standards Board (ISB) approves information standards for the NHS and adult social care in England. The board consists of all the major organisations involved in health and social care, including the NHS Information Centre, Nursing and Midwifery Council and Intellect. To approve a standard, ISB work with the NHS Data Model and Dictionary team to ensure fit with the national data model.

### NHS Data Model and Dictionary

CDS are supported by the NHS Data Model and Dictionary, which gives common definitions and guidance to support the sharing, exchange and comparison of information across the NHS. The NHS Data Model and Dictionary defines some of the fundamental terms used in PbR. For example, to find a definition for a day case, go to <http://www.datadictionary.nhs.uk/>. Click on All Items Index (A-Z). Click on P and then Patient Classification (Attribute). This defines a day case admission as:

“A PATIENT admitted electively during the course of a day with the intention of receiving care who does not require the use of a Hospital Bed overnight and who returns home as scheduled. If this original intention is not fulfilled and the PATIENT stays overnight, such a PATIENT should be counted as an ordinary admission.”

### Secondary Uses Service

The Secondary Uses Service (SUS) is part of the National Programme for IT, delivered by NHS Connecting for Health. It is a national data warehouse and provides anonymised patient data for purposes other than direct patient care. Reports from SUS allow commissioners and providers to make adjustments to monthly contract values agreed in the NHS standard contract.

### Hospital Episode Statistics

Hospital Episode Statistics (HES) is a data warehouse containing details of all admissions to NHS hospitals in England. HES comprises record-level patient data collected by SUS. It contains admitted patient care data from 1989 onwards, with more than 12 million new records added each year, and outpatient attendance data from 2003 onwards, with more than 40 million new records added each year. HES data are used in tariff development, in particular to convert FCEs to spells, which we discuss in [Chapter 3](#).

## Grouping

31. With some 26,000 codes used to describe interventions and diagnoses, paying at this level would be very complex. So a methodology has been developed which collates all of these interventions and diagnoses into common groupings so that tariffs can be set at a sensible and workable level. The currencies for admitted patient care are HRGs, the latest version of which is HRG4. Each HRG is a clinically meaningful group of diagnoses and interventions that consume similar levels of NHS resources.
32. HRGs are maintained by the Casemix Service at the NHS Information Centre, which also produces the grouper software to enable ICD-10 and OPCS-4 codes to be assigned to HRGs. The same grouping logic is included in SUS.

## Assigning a tariff

33. There are tariffs for over 1,500 HRGs. Tariff prices have traditionally been based on the average cost of services reported by NHS providers in the annual reference costs collection. The introduction of best practice tariffs in 2010-11, and a commitment to expand them in future years, has seen tariffs increasingly determined by best clinical practice rather than average cost.
34. HRGs provide a currency for payment for the average patient. Some patient's care will vary a great deal from the average, for example because of an unusually short or long stay in hospital, or because of the need for specialised and therefore more expensive care. Therefore, adjustments are sometimes applied to the tariffs, including short stay emergency adjustments, long stay payments, and specialised service top-ups. Some best practice tariffs also offer additional payments.
35. The tariff received by the provider is multiplied by a nationally determined market forces factor (MFF) unique to each organisation to reflect the fact that it is more expensive to provide services in some parts of the country than in others.
36. Provider income under PbR can thus be represented as follows:

Provider income = activity x price x MFF

## Payment

37. The NHS standard contract is a mandated document published by DH that commissioners must use when contracting for healthcare services. Included within the contract is an indicative activity plan that sets down the amount of work expected to be done, based on a standard currency (eg HRG or TFC) and the price to be paid, based on the national tariff (Figure 5). Commissioners and providers may agree an estimated annual contract value, paid in equal twelfths each month which is adjusted based on actual activity.

Figure 5: Extract from activity plan<sup>2</sup>

Year	2012-13	Provider name		PCT name	
Type of activity	Elective PbR spells	Provider code		PCT code	

Code	HRG	Apr-12	Total		PbR tariff	Revenue, April 2012	Revenue, total 2012-13
FZ60Z	Diagnostic endoscopic procedures on the upper gastrointestinal tract 19 years and over	300	3,600		£370	£111,000	£1,332,000
FZ50Z	Intermediate large intestine procedures 19 years and over	200	2,400		£508	£101,600	£1,219,200
EB01Z	Non interventional acquired cardiac conditions 19 years and over	100	1,200		£1,002	£100,200	£1,202,400
	Total	600	7,200			£312,800	£3,753,600

38. SUS, having grouped the patient data to an HRG based on clinical codes, assigns the relevant tariff and applies any pricing adjustments. Commissioners and providers extract reports from SUS, which they use to compare and financially adjust for the difference between the actual value of activity and the expected contract value. This could be an additional payment from the commissioner to the provider if actual is greater than plan, or a refund from the provider to the commissioner if it is less.



## Case studies

39. We conclude this chapter with two case studies using two fictitious patients, whom we shall call Mrs Smith and Mr Jones, and follow how the hospitals they used are paid for their care (Figure 6). For simplicity, these examples focus on care whilst admitted to hospital and ignore care received in other settings like outpatients or A&E.
40. Mrs Smith is 30 years old and pregnant with twins. NHS Lambeth is the responsible commissioner for Mrs Smith's care, because she is registered with a GP practice there. Mrs Smith is booked into Guy's and St Thomas' NHS Foundation Trust for an elective caesarean in April due to complications during pregnancy.
41. Mr Jones is 80 years old and fractures his left hip after a fall at home. He is taken to Leeds Teaching Hospitals NHS Trust, where he is admitted to hospital via A&E. His responsible commissioner is NHS Leeds.

<sup>2</sup> The plan profiles the whole financial year.



Figure 6: PbR case studies

	<b>Mrs Smith</b>	<b>Mr Jones</b>
<b>The patients<sup>3</sup></b>		
<b>Treatment</b>	Elective caesarean during a 7 day spell in April	Emergency admission for fragility hip fracture in April
<b>Code</b>	ICD-10 codes are <b>O300 (twin pregnancy)</b> and <b>Z37.2 (twin both live born)</b>  OPCS-4 code is <b>R17.2 (elective lower uterine segment caesarean delivery)</b>  Submitted to SUS in May	ICD-10 codes are <b>S7200 (fractured neck of femur)</b> and <b>W19.0 (unspecified fall at home)</b>  OPCS-4 codes are <b>W37.1 (primary total prosthetic replacement of hip joint using cement)</b> and <b>Z94.3 (left sided operation)</b>  Submitted to SUS in May
<b>Group</b>	HRG payment currency is <b>NZ13A (planned lower uterine caesarean section with complications)</b>	HRG payment currency is <b>HA12C (major hip procedures category 1 for trauma without complications and comorbidities)</b>
<b>Tariff</b>	Elective and non-elective spell tariff is <b>£2,704</b>	Base tariff is <b>£5,323</b>
<b>Tariff adjustments</b>	The expected length of stay for NZ13A is 5 days. A <b>long stay payment</b> of £394 is payable for each additional day's stay, in this case 2 days.	There is a best practice tariff for fragility hip fracture which applies to HA12C and some other HRGs.  An <b>additional best practice payment</b> of £1,335 is payable where care complies with clinical characteristics of best practice. In this case, surgery within 36 hours of arrival in A&E, under expert care of a consultant geriatrician.
<b>MFF</b>	<b>Guy's and St Thomas'</b> has an MFF payment index of <b>1.2770</b>	<b>Leeds Teaching's</b> MFF is <b>1.0461</b>
<b>Reimbursement</b>	Total payment is:  $(£2,704 + (2 \times £394)) \times 1.2770 =$ <b>£4,459</b>  SUS extract in July informs monthly reconciliation between NHS Lambeth and Guy's and St Thomas'	Total payment is:  $(£5,323 + £1,335) \times 1.0461 =$ <b>£6,965</b>  SUS extract in July informs monthly reconciliation between NHS Leeds and Leeds Teaching

<sup>3</sup> Images from the NHS Photo Library. The models (not their real names) have consented to make their images available for DH and NHS publications.

## Find out more

Commissioning datasets

<http://www.ic.nhs.uk/services/datasets/dataset-list/cds>

Hospital episode statistics

<http://www.hesonline.org.uk>

Information Standards Board

<http://www.isb.nhs.uk>

NHS Data Model and Dictionary

<http://www.datadictionary.nhs.uk>

NHS standard contracts 2012-13

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131988](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131988)

PbR in 2012-13

<http://www.dh.gov.uk/pbr>

Secondary Uses Service

<http://www.connectingforhealth.nhs.uk/systemsandservices/sus>

## Chapter 2 Building blocks

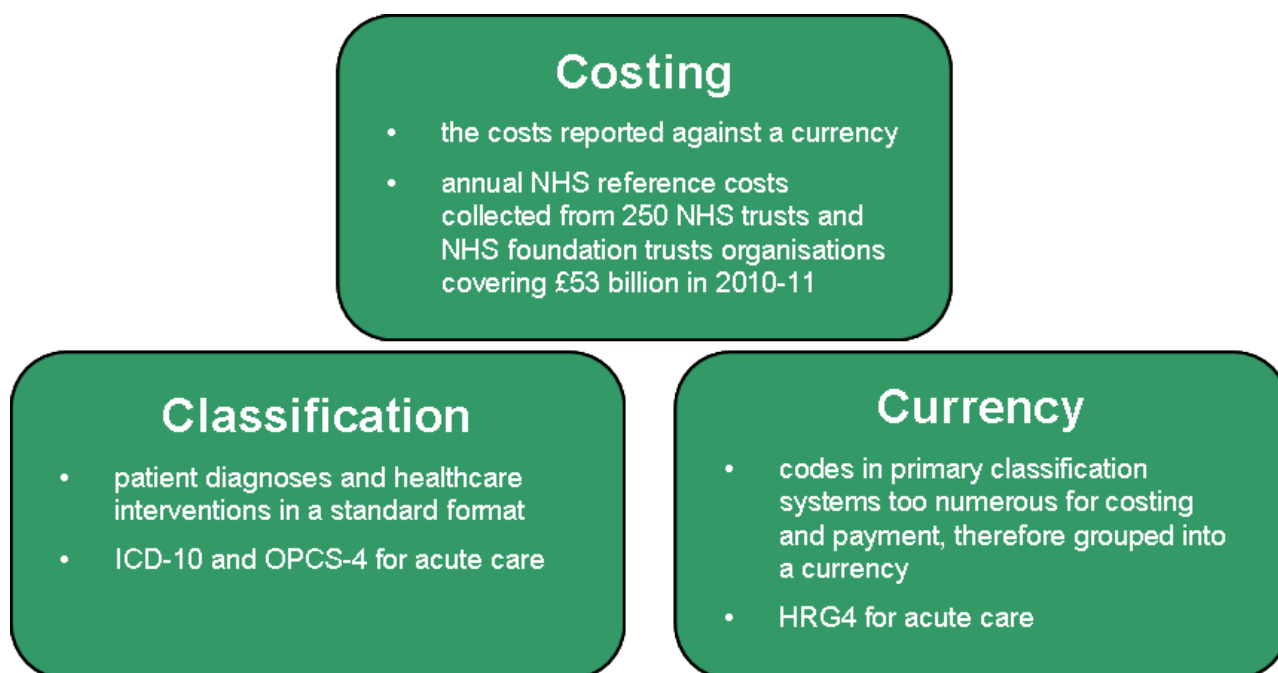
### Summary

- The three building blocks of PbR are classification, currency and costing
- Classification systems - OPCS-4 for interventions and ICD-10 for diagnoses - capture information from patient records
- A currency is the unit of healthcare for which a payment is made
- HRGs are the currency for admitted patient care and A&E attendances and are groupings of clinically similar treatments which use common levels of healthcare resource
- There are over 1,500 HRGs in HRG4, and over 1,100 have tariffs
- Grouping software assigns OPCS-4 and ICD-10 codes in the patient record to an HRG
- Tariffs are calculated for HRGs based on the average costs of services submitted by NHS organisations in annual NHS reference costs
- Patient level information and costing systems (PLICS) can identify and record the costs of individual patients

### Introduction

42. PbR is a data-driven system that has its foundation in patient-level data. To operate effectively, PbR needs three building blocks (Figure 7):
- (a) a classification system – to capture information about patient diagnoses and healthcare interventions in a standard format
  - (b) a currency – the codes in the primary classification systems above are too numerous to form a practical basis for payment. They are therefore grouped into currencies, the unit of healthcare for which payment is made
  - (c) costing information – once we have a currency, we then need to attach costs to that currency and assign a price. Where the price is set nationally, it is called the tariff.

Figure 7: Building blocks of PbR



## Classification

43. Clinical classification systems are used to describe information from patient records using standardised definitions and nomenclature. This is necessary for creating clinical data in a format suitable for statistical and other analytical purposes such as epidemiology, benchmarking and costing. PbR relies on two standard classifications in order to process clinical data on acute care: OPCS-4 and ICD-10.
44. OPCS-4, which is an abbreviation of the Office of Population, Censuses and Surveys Classification of Surgical Operations and Interventions (4th revision), translates operations, interventions and interventions carried out on a patient during a spell of care into alphanumeric code. Previously produced by the Office of Population Censuses and Surveys, ownership and responsibility for maintaining OPCS-4 now lies with NHS Connecting for Health. The latest version, OPCS-4.6, was released in April 2011 and contains over 9,000 codes. We saw some examples at the end of [Chapter 1](#):
- R17.2 - elective lower uterine segment caesarean delivery
  - W37.1 - primary total prosthetic replacement of hip joint using cement.
45. The International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) is a coding of diseases and signs, symptoms, abnormal findings, complaints, social circumstances and external causes of injury or diseases, as classified by the World Health Organization (WHO). The version used in England contains about 17,000 codes. We saw some examples earlier:
- O300 - twin pregnancy
  - Z37.2 - twins, both live born
  - S7200 - fractured neck of femur

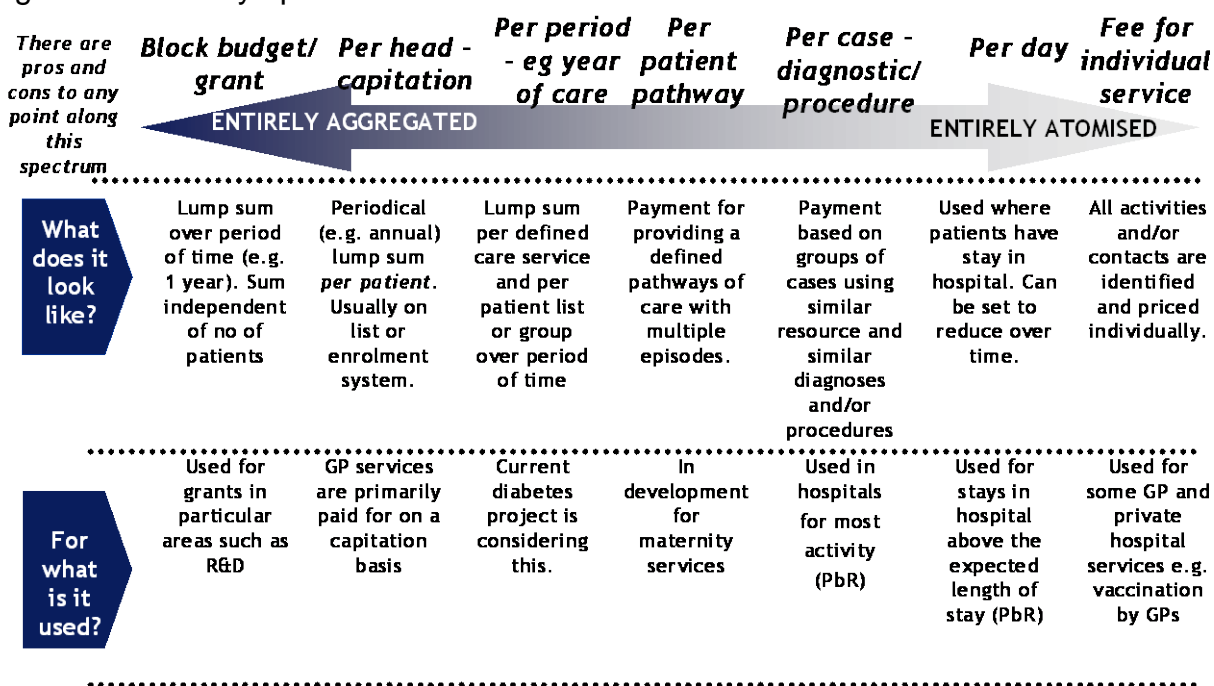
(d) W19.0 – unspecified fall at home

46. Clinical coders translate patient notes into OPCS-4 and ICD-10 codes. They are health care professionals who require knowledge of medical science and terminology, and the ability to make decisions about the appropriate codes to assign based on the clinical documentation. NHS Connecting for Health organises their specialist training.

## Currency

47. The term currency refers to the units of healthcare for which a payment is made and can take a variety of forms (Figure 8).

Figure 8: Currency options



48. This chapter focuses on HRGs, which are the currency for admitted patient care, outpatient procedures and A&E attendances. We will encounter other currencies in [Chapter 4](#).

## Healthcare resource groups

49. HRGs are the chosen currency for acute healthcare in England. As we noted earlier, with some 26,000 codes used to describe interventions and diagnoses, paying at this level would be very complex. So a method is needed to collate these interventions and diagnoses into common groupings, each one forming a currency, which enable the associated tariffs to be set at a sensible and workable level. Such currencies also need to be clinically meaningful. It is clinicians after all who dictate patient pathways and take the decisions that actually consume resources. HRGs are therefore standard groupings of clinically similar treatments which use similar levels of healthcare resource. The term casemix is also often applied to HRGs, to reflect a system whereby the complexity (mix) of the care provided to a patient (cases) is reflected in an aggregate secondary healthcare classification.

50. HRGs were introduced by the then National Casemix Office (NCMO)<sup>4</sup> in 1991 as the NHS equivalent of the diagnosis related groups (DRGs) pioneered in the USA, and adapted to reflect UK medical practice. They were first used for benchmarking, and have provided the currency for reference costs since 1997-98 and for the national tariff since 2003-04 (Figure 9).

Figure 9: History of HRGs

Year	Version	Purpose
1991	HRG v1	English DRGs
1994	HRG v2	Benchmarking
1997	HRG v3	1997-98 reference costs
2003	HRG v3.5	2003-04 national tariff
2008	HRG4	2009-10 national tariff

51. In 2006, the NHS Information Centre introduced HRG4, which we have used to collect reference costs since 2006-07 and to inform tariff payments since 2009-10. HRG4 has been developed with significant clinical input. 33 Expert Working Groups and four Expert Reference Panels, involving approximately 280 clinicians representing over 40 Royal Colleges or societies, in addition to managers and other healthcare professionals, were involved in developing HRG4. HRGs are updated every year in response to changes to the underlying classification systems, to clinical practice, and to the requirements of the tariff.
52. HRG4 is a major revision of its predecessor and the first version of the currency to be developed in the knowledge that it would be used to support payment. It extends the number of groupings from 650 under HRGv3.5 to over 1,500, arranged in 21 chapters each covering a body system (Figure 10).

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<sup>4</sup> the NCMO was absorbed into the NHS Information Authority in 1999 which in turn was absorbed into the NHS Information Centre in 2005.

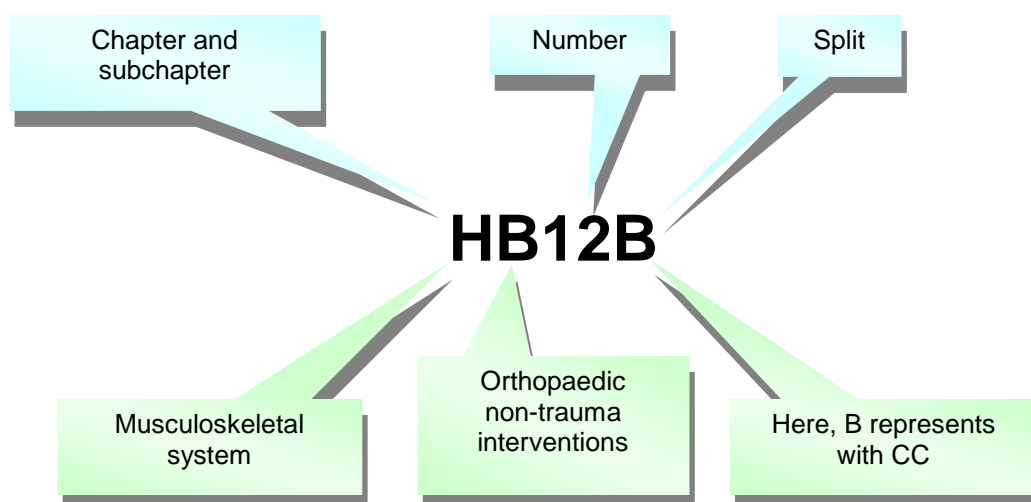
Figure 10: HRG chapters

HRG Chapter	Description
A	Nervous system
B	Eyes and periorbita
C	Mouth head neck and ears
D	Respiratory system
E	Cardiac surgery and primary cardiac conditions
F	Digestive system
G	Hepatobiliary and pancreatic system
H	Musculoskeletal system
J	Skin, breast and burns
K	Endocrine and metabolic system
L	Urinary tract and male reproductive system
M	Female reproductive system and assisted reproduction
N	Obstetrics
P	Diseases of childhood and neonates
Q	Vascular system
R	Radiology and nuclear medicine
S	Haematology, chemotherapy, radiotherapy and specialist palliative care
U	Undefined groups
V	Multiple trauma, emergency medicine and rehabilitation
W	Immunology, infectious diseases and other contacts with health services
X	Critical care and high cost drugs

53. Figure 11 illustrates the format of the five character HRG4 code where:

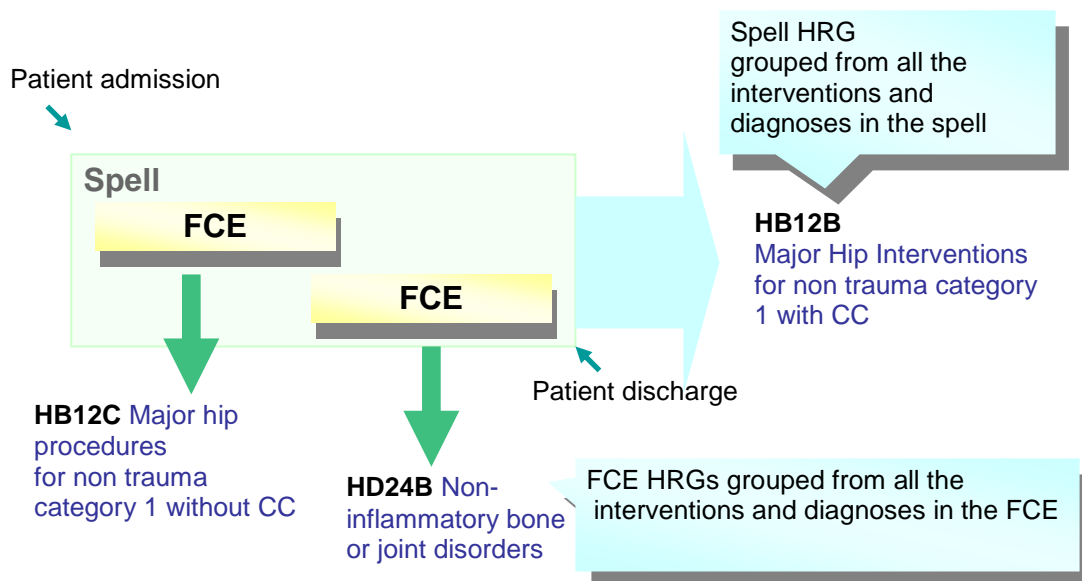
- the first letter represents the chapter
- the second letter represents the sub-chapter
- the number represents the intervention or diagnosis. These four characters give the HRG root
- the last letter represents the split for age, complications and comorbidities (CC) or length of stay (Z is used where there is no split).

Figure 11: An HRG code



54. HRG4 is spell based, unlike its predecessors which were FCE based. It is possible to group each individual FCE to a HRG but a feature of HRG4 is that the overall spell groups to a HRG based on the coding in all the FCEs within the spell (Figure 12).

Figure 12: Spell and FCE HRGs



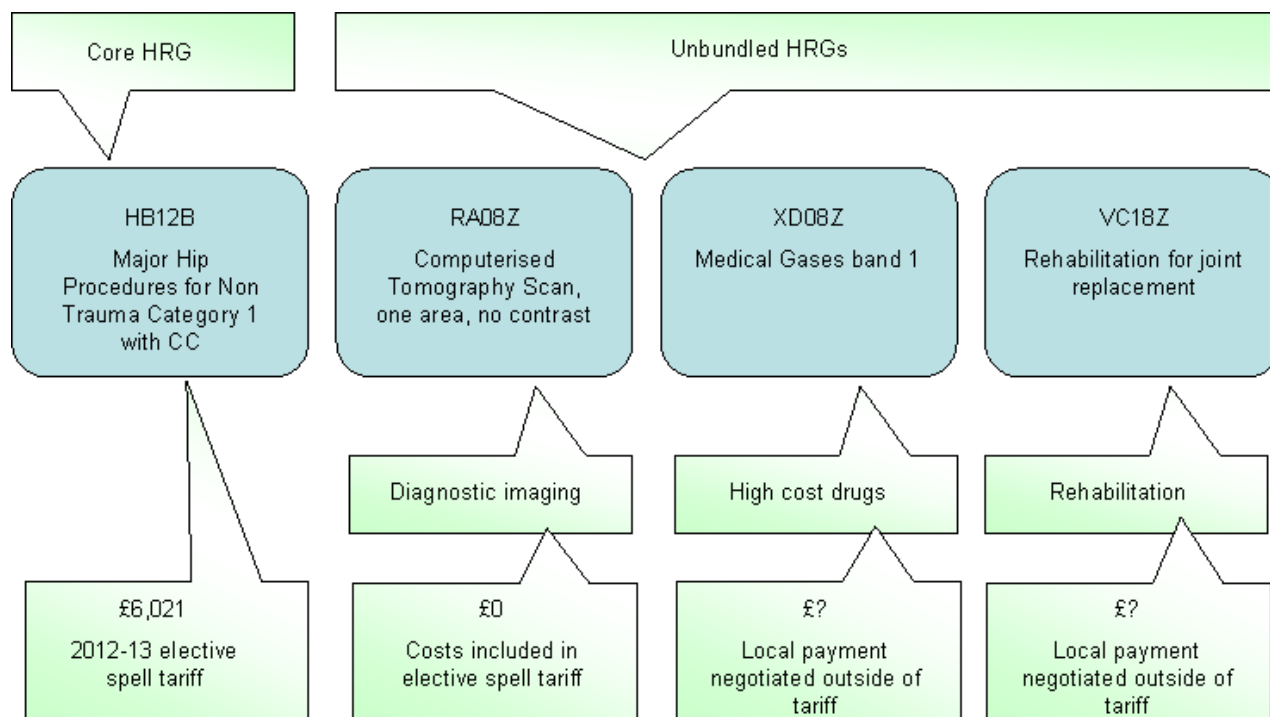
55. A spell is a more robust activity measure than a FCE. The number of FCEs can be influenced (eg by transferring patients between consultants) in ways that spells cannot.
56. HRG4 is more detailed than its predecessor, and therefore better able to differentiate between routine and complex treatments, with more splits recognising:
- comorbidities – additional conditions that the patient might come into hospital with that increase the complexity of the primary intervention
  - complications – events during treatment that again increase complexity
  - age – which can have a major impact on length of stay and the costs of an intervention. Many splits in HRG4 are child related (18 or under), recognising that treating children is often more resource intensive than the same procedure carried out on an adult
  - length of stay.
57. Previous versions of HRGs were designed to reflect admitted patient care. HRG4 is designed to support the delivery of services in other settings, for example outpatients. In other words, it is setting independent.
58. HRG4 introduced unbundled HRGs, making it possible to separately report, cost and remunerate the different components within a care pathway. This provides a mechanism for moving parts of a care pathway – diagnostic imaging or rehabilitation for instance – away from the traditional hospital setting. There are unbundled HRGs in 2012-13 for:
- chemotherapy
  - critical care
  - diagnostic imaging
  - high cost drugs



- (e) radiotherapy
- (f) rehabilitation
- (g) specialist palliative care

59. Unbundled HRGs, in addition to a core HRG, may be generated for the same spell of care (Figure 13).

Figure 13: Core HRG and unbundled HRGs



60. There is an important distinction between currency structure and funding policy, which means that unbundled HRGs will not necessarily attract a tariff. For example, the costs of diagnostic imaging HRGs are included, or rebundled, into core HRGs for admitted patient care and outpatient attendances. These unbundled HRGs act as a marker that the activity has taken place, but do not receive a separate tariff. However some other unbundled HRGs such as critical care are excluded from the scope of the tariff and are therefore subject to local pricing.

## Grouping

61. Grouping describes the process by which OPCS-4 and ICD-10 codes are assigned to an HRG using software called a grouper.
62. The NHS Information Centre releases two groupers each year to the NHS for general use: the local payment grouper and the reference costs grouper. Providers use the local payment grouper to plan, benchmark and send results to commissioners as part of their request for payment, and the reference cost grouper to group their activity for submitting costs annually. Commissioners can also use the grouper if they have access to the raw data.
63. The grouper employs grouping logic to assign data to an HRG. It identifies the FCE HRGs, but then goes back to the original classification codes to determine the spell HRG. For the purposes of grouping, interventions and diagnoses have a hierarchy. If

any significant interventions take place, as determined by the hierarchy, the HRG generated will be based on intervention. However, if no significant interventions take place, for example for a medical admission, the HRG will be based on diagnosis.

64. Some HRG4 chapters have different logic from other chapters. In the musculoskeletal chapter, if an intervention is performed in conjunction with another intervention, from a specified list, the HRG that is generated will be a higher HRG in resource terms than would have been generated for the first intervention alone. For example, a minor knee procedure with a minor foot procedure would generate an intermediate knee procedure HRG.
65. The NHS Information Centre produce a Microsoft Excel workbook called the Code to Group, which enables users of the HRG4 groupers to understand the logic used. [Annex D](#) gives a worked example.
66. They also produce other useful documentation including HRG chapter summaries, HRG chapter listings, and the table of coding equivalence (TOCE). The TOCE details the mapping used within the grouper to map new OPCS codes to older OPCS codes. In time, the OPCS codes within the TOCE are removed, as the newer OPCS codes are incorporated into the grouper design.
67. The final local payment grouper design is incorporated into SUS. SUS also applies the tariff and tariff adjustments, which the grouper does not.

## Costing

68. The development and implementation of a national tariff requires robust, reliable costing information. To date, we have based the national tariff on the average cost of services submitted by NHS organisations in the annual NHS reference costs collection.

## Reference costs

69. Reference costs are the average unit cost to the NHS of providing a defined service in a given financial year. We have collected them every year since 1997-98 from all NHS providers of health services to NHS patients in England. FCE and bed day activity levels are also included in the collection, as is activity contracted from independent sector providers.
70. Alongside the reference cost guidance, we publish the NHS costing manual. This sets out the principles and practice of costing and is designed to ensure consistency across all NHS organisations. The costing manual states that costs and income have to be:
  - (a) calculated on a full absorption basis (Figure 14). This means that the full running costs of each activity are included in the return<sup>5</sup>
  - (b) charged directly to the relevant activity where possible. Costing involves a distinction between
    - i) direct costs (eg doctors, nurses, drugs) which can be easily identified with an activity

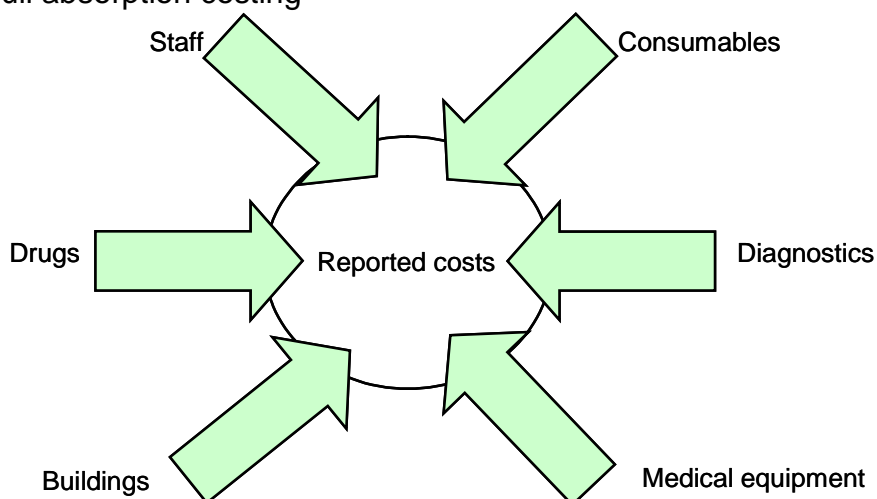
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<sup>5</sup> Income streams, e.g. teaching, which are not related to PCT payments for clinical activity are netted off.

## A simple guide to Payment by Results

- ii) indirect costs (eg laundry) which cannot be directly attributed to an activity but can usually be allocated among a number of activities, eg in proportion to the number of bed days in each ward
  - iii) overheads (eg finance and human resources) which relate to the overall running of the organisation and are charged out on a more general basis
- (c) matched with the services that generate them to avoid cross subsidisation.

Figure 14: Full absorption costing



71. HRG costing uses a mixture of:

- (a) top down costing – where cost pools (used to collect indirect and overhead costs) are allocated to HRGs using the total cost of that cost pool weighted for each HRG based upon the best available data
- (b) bottom up costing – which builds up the costs of an HRG from the bottom up where the actual costs are known, e.g. prosthetics in hip replacement HRGs.

72. In addition to underpinning the calculation of the national tariff, reference costs are used for:

- (a) local prices where activity is outside the scope of the tariff
- (b) accountability for the cost of NHS services
- (c) programme budgeting, which is the analysis of expenditure in healthcare programmes, such as cancer, mental health and cardiovascular diseases
- (d) academic research
- (e) calculating public service healthcare output, undertaken by the Office for National Statistics (ONS).

### National schedule of reference costs and reference costs index

73. Reference costs are the richest source of financial data available about the NHS, enabling detailed comparisons between NHS organisations about the cost of treating patients. 2010-11 reference costs were collected from over 400 NHS organisations in England and covered £53 billion of NHS expenditure. They are broader in scope and cover more services than the national tariff, which covered about £29 billion in 2010-11.

74. We publish the information in three ways:

- (a) **national schedule of reference costs.** These show the national average unit costs derived from the unit costs of NHS providers. We would encourage readers who are interested in the cost to the NHS of individual treatments to explore these schedules
- (b) **reference cost index (RCI).** A measure of the relative efficiency of NHS organisations. It is in the form of an index centred around 100 that compares the actual cost of a provider's casemix with the same casemix calculated using national average unit costs. For example, an RCI of 110 suggests that a provider's costs are 10% above the average, whilst a score of 90 suggests they are 10% below the average
- (c) **database of source data.** This allows a more detailed analysis of organisation level costs.

### Patient-level information and costing systems

75. Some NHS providers have systems that can identify and record the costs of individual patients. These are called patient level information and costing systems (PLICS), and are becoming increasingly common in the NHS. Once costs have been identified at individual patient level, they can still be aggregated to HRG level.

### Data assurance framework

76. Since 2007, the Audit Commission have delivered a data assurance programme, paid for by PCTs, the focus of which has been to improve the quality of data that underpins payments under PbR.
77. In August 2012 the Audit Commission published *Right data, right payment*<sup>6</sup>, the report of the data assurance programme in 2011-12. The programme found that clinical coding accuracy rates had improved, with HRG error rates in the sample audits decreasing from 9.1 per cent in 2009-10 to 7.5 per cent in 2011-12. The audits showed that coding errors were leading to both under and overpayments balance with a slight bias to providers being underpaid. Overall however, clinical coding has improved since the PbR assurance framework started.
78. The Audit Commission has also developed an online tool called the national benchmarker which compares acute hospital activity data, clinical coding and PbR related measures with other organisations.

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<sup>6</sup> <http://www.audit-commission.gov.uk/SiteCollectionDocuments/Downloads/pbr2012.pdf>

## Find out more

Costing, including NHS reference costs, the NHS costing manual, PLICS, national schedules of reference costs, RCIs and the review of reference costs

<http://www.dh.gov.uk/health/category/policy-areas/nhs/resources-for-managers/nhs-costing/>

Grouping, including the latest local payment groupers and reference cost groupers, code to group workbooks, HRG chapter summaries and HRG chapter listings

<http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/downloads>

HRG4

<http://www.ic.nhs.uk/services/the-casemix-service>

ICD-10

<http://www.who.int/classifications/icd/en/index.html>

National benchmarker

<http://www.audit-commission.gov.uk/health/audit/paymentbyresults/benchmarkandportal>

OPCS-4

<http://www.connectingforhealth.nhs.uk/systemsandservices/data/clinicalcoding/codingstandards/opcs4>

PbR data assurance framework

<http://www.audit-commission.gov.uk/health/audit/paymentbyresults/assuranceframework>

## Chapter 3: Producing the tariff

### Summary

- Producing the tariff requires decisions about its scope (the range of services covered) and structure (the design that will create the right incentives and support particular policy goals)
- We take account of views from the NHS and other partners on scope and structure, and test the tariff before publication
- The tariff has traditionally been calculated on the mean unit cost of reference costs, but there is an increasing emphasis on best practice tariffs that have been structured and priced to encourage high quality care
- Tariff adjustments are used for long or short stays of care and for specialised services
- The market forces factor is an index which recognises unavoidable cost differences faced by each organisation in providing health care
- A tariff uplift recognises pay and price inflation in the NHS and includes an efficiency requirement

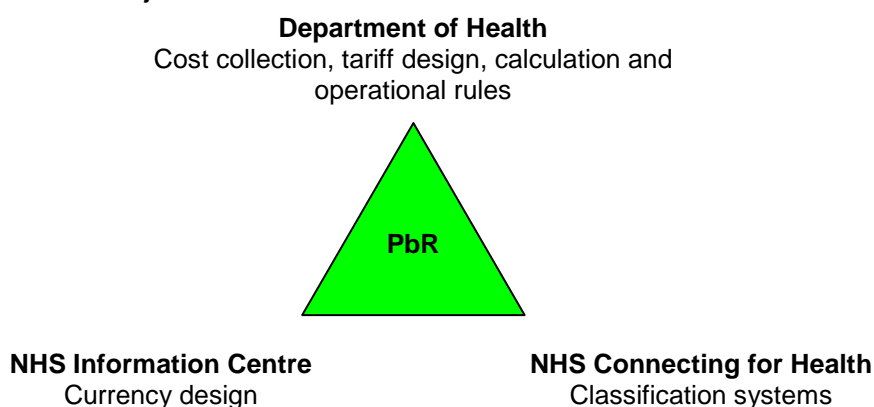
### Introduction

79. Producing the tariff is quite a long and complex process. Before it can begin, all the building blocks described in [Chapter 2](#) need to be in place: classifications and currencies developed, and costs collected. Then advice needs to be sought from governance and advisory groups, draft prices calculated and quality assured, and guidance written to support the implementation of final prices. Two words are used often in the context of the tariff: scope and structure.
80. By scope we mean the range of services covered, which is mainly acute care in hospitals, and so here we focus on production of the mandatory tariffs for admitted patient care, outpatients and A&E. In [Chapter 4](#) we describe progress on expanding PbR currencies and tariffs into new services.
81. By structure we mean the design of the tariff to create the right incentives and achieve particular policy goals, and we devote much of this chapter to exploring some of the key themes that have informed the tariff structure in recent years. Since its introduction in 2003-04, the tariff has been calculated on the mean (or simple average) unit costs of NHS providers collected annually in reference costs. The logic is that organisations with costs above the average will make efficiency savings to reduce their costs in line with the tariff, which in turn will drive down the tariff in future years. We describe the tariff calculation later, but turning retrospective costs into prospective prices is far more than an exercise in number crunching. The tariff also has to recognise care that is significantly different from the average of reference costs, create the right incentives to treat patients in the most efficient setting and to provide the highest quality care, and support particular policy goals or business rules (e.g. a reduction in emergency admissions). Increasingly, tariffs are being informed by clinical best practice rather than average cost. The tariff is accompanied by detailed operational guidance that is as important as the prices themselves.

## Governance

82. The Department leads on the tariff and PbR arrangements for 2013-14, in consultation with Monitor and the NHS CB. Beyond the 2013-14 tariff, Monitor and the NHS Commissioning Board will have responsibility for the tariff, currency design and price setting.
83. We manage the development and implementation of PbR policy through a number of governance and advisory groups. The four main groups are the:
- PbR Programme Board - monitors progress against plans to ensure DH, the NHS Information Centre and NHS Connecting for Health deliver the elements of the PbR programme for which they are responsible (Figure 15)
  - External Advisory Group (EAG) – senior managers from NHS commissioners, providers, Monitor, NHS CB, Audit Commission, professional bodies and the independent sector who give policy advice
  - Clinical Advisory Panel (CAP) – doctors, nurses and allied health professionals who give clinical advice
  - Technical Working Group (TWG) - NHS people with expertise in data and information systems who give technical advice on the feasibility of implementation.

Figure 15: PbR is a joint endeavour



84. There are also a number of other PbR working and advisory groups covering mental health, children's issues and other areas.
85. The NHS Information Centre have several groups to support the ongoing development of HRG4, including:
- Expert Working Groups (EWGs) - HRG chapter specific, NHS membership, and clinical leads and chairs
  - Expert Reference Panels (ERPs) – look at the design of HRGs across chapters from the perspective of specific patient groups. Four ERPs were convened during the development of HRG4 to cover children and paediatrics, chronic illness, specialised services and cancer
  - Steering Groups - advise on which high cost drugs and devices should be excluded from the tariff.

## Scope

86. The mandatory national tariff is payable by commissioners for day cases, ordinary elective and non-elective admitted patient care, outpatient attendances, some outpatient procedures, some direct access services, and A&E attendances carried out by NHS trusts, NHS foundation trusts or independent sector providers.

## Exclusions

87. Some activity is excluded from PbR and remains subject to local prices rather than mandatory tariff. There are various reasons for this:
- (a) services outside the scope of reference costs are, by default outside the scope of PbR
  - (b) some services either have not yet had currencies developed for them, or do have currencies but the costs associated with them are not considered robust
  - (c) some drugs are typically specialist, and their use concentrated in a relatively small number of centres rather than evenly spread across all providers that carry out activity in the relevant HRGs. They would not be fairly reimbursed if funded through the tariff
  - (d) some medical devices represent a high and disproportionate cost relative to the cost covered under the relevant HRG.
88. Each year, alongside the tariff, we publish an exclusions list which covers activity, drugs and devices.

## Non-mandatory currencies and prices

89. In addition to mandatory tariffs which must be used by all commissioners when commissioning services, we also publish non-mandatory currencies and prices. Examples include non-face to face outpatient contacts and hearing aid fitting and maintenance. Non-mandatory currencies can be used as a contracting unit and the prices can be used as a guide or starting point for local negotiation. We sometimes use non-mandatory prices<sup>7</sup> to send a signal to the service that we anticipate being able to bring the service within the mandatory list in due course.

## Flexibilities

90. PbR is meant to be a tool, not a straitjacket. It should never be seen as a barrier to providing the best care for patients. Flexibilities allow for deviation from tariff rules where the patient and the NHS benefits. For example, innovation payments give commissioners the flexibility to make an additional payment for a new device, drug or technology that gives better care than is provided for in the tariff.
91. A flexibility for commissioners to vary tariff price where a provider is not doing the full range of services within a HRG category was introduced for 2012-13. The guidance published alongside the tariff each year lists the full range of flexibilities which are available and the principles that govern their use.

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<sup>7</sup> Non-mandatory prices were referred to as indicative tariffs before 2009-10.



## Structure

### Paying for elective care

92. Over a period of many years, and in most comparative health care systems, one of the main ways to increase the efficiency of the acute sector and the quality of the patient experience has been to drive down length of stay. This has been made possible through changes in clinical practice (eg developments in anaesthetics and less invasive treatments) as well as changing models of care and design of services (eg admitting patients on the day of surgery and developing day case suites). In the past, much of the focus has been on increasing the use of day case surgery and rates have increased over the years. More recently, the focus has been on the development of ambulatory care and moving care and treatments to other settings where possible, such as outpatient clinics.
93. The tariff for elective care, when first established in PbR, sought to support the desire to move activity into day case settings where appropriate by setting a price that was based on the average of ordinary elective and day case costs, weighted according to the proportion of activity in each (Figure 16). This meant that the price would reward providers that were achieving higher than average levels of day cases and under reward those providers whose day case rate were lower than the average.

Figure 16: Setting a combined day case and elective tariff

	Activity	Cost	
Day case	4,000	£	500
Ordinary elective	1,000	£	1,000
Combined tariff		£	600

94. HRG4 allows the capture of procedures in outpatients, which raises the possibility of setting tariffs to move care to this more cost efficient setting, where clinically appropriate.

### Paying for non-elective care

95. Non-elective care is by its nature unplanned and, on average, more costly than elective care. Most, but not all non-elective care is a result of emergency admissions, though it also includes maternity admissions and hospital transfers. Although we have in the past consulted on a combined tariff for elective and non-elective admissions, using the same method as for the combined ordinary elective and day case tariff, the preference has always been for separate tariffs.
96. In recent years there has been a rising trend in the number of emergency admissions and readmissions, and one way of managing this is through the tariff. Providers are paid a marginal rate set at 30% for increases in emergency activity. In 2012-13, providers will not be reimbursed for the proportion of readmissions judged to have been avoidable. This proportion is defined by a clinical review involving the provider, commissioner and clinically led by a person not employed by the provider. These business rules are designed to reduce the number of emergency admissions in the future, to facilitate closer working between commissioners and providers, and to ensure patients receive better care outside of hospitals.

## Long stays

97. HRGs can only adjust for the casemix complexity of the average patient. Typically, any particular patient will cost slightly more or slightly less than the average, although overall the impact of most patients will average out. Some patients vary from the average by a large amount. This may be related to length of stay – which could be much longer or shorter than average – or it could be related to the provision of more complex care.
98. For patients who for clinical reasons remain in hospital beyond an expected length of stay, we allow an additional reimbursement to the tariff called a long stay payment (sometimes referred to as an excess bed day payment). The long stay payment applies at a daily rate to all HRGs where the length of stay of the spell exceeds a trim point specific to the HRG<sup>8</sup>. The minimum trim point for any HRG is five days.
99. There are separate trim points for elective and non-elective admissions, although the price per day is the same. Usually, the elective trim point is shorter than the non-elective trim point.

## Short stays

100. There is a reduced tariff for short stay emergency spells (less than two days) to prevent full payment for a short stay admission in an HRG where a longer length of stay would generally be expected. The reduced rate is related to the average length of stay for the HRG: the higher the average length of stay, the lower the short stay emergency tariff.

## Specialised services

101. Patients who receive specialised care may be more expensive than those allocated to the same HRG who do not require specialised care. Top-up payments recognise these additional costs and are applied as a percentage increase to the tariff price. For example, in 2012-13 a 50% top-up is applied to specialised children's services.
102. Top-ups are triggered when an ICD-10 or OPCS-4 code, from a list based on the latest editions of the specialised services national definition sets (SSNDS) produced by the National Commissioning Group (NCG), is present in the spell. Some top-ups are limited to eligible providers.
103. The methodology underpinning these payments is described in *Estimating the costs of specialised care* (February 2011), a research paper commissioned from the Centre for Health Economics (CHE) at York University.

## Outpatients

104. We use treatment function codes (TFCs) in PbR to describe types of outpatient attendances. TFC is based on the main specialty code, which is the speciality within which the consultant is recognised or contracted to the organisation. TFC records the

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<sup>8</sup> Technically, the trim point is defined as the upper quartile length of stay for the HRG plus 1.5 times the inter-quartile range of length of stay.

service within which the patient is treated and is, in effect, a sub-specialisation. In 2012-13 there are 56 TFCs which have a mandatory outpatient attendance tariff, representing the vast majority of outpatient activity.

105. Figure 17 gives some examples.

Figure 17: Examples of TFCs

TFC	TFC label
110	Trauma and orthopaedics
501	Obstetrics
560	Midwife episodes

106. An outpatient attendance tariff is payable for a pre-booked appointment at a consultant-led clinic (the consultant may not be physically present but they remain clinically responsible)<sup>9</sup>. As with the admitted patient care tariff, we have aimed to provide the right incentives by publishing separate tariffs for:

- (a) first attendances that include some of the costs of follow up attendances to disincentivise unnecessary follow ups
- (b) single-professional and multi-professional or multi-disciplinary attendances that recognise the benefit to the patient in seeing two or more healthcare professionals at the same time.

107. In a move towards tariffs that are setting independent, in recent years we have published mandatory HRG tariffs for a limited number of procedures performed in outpatients.

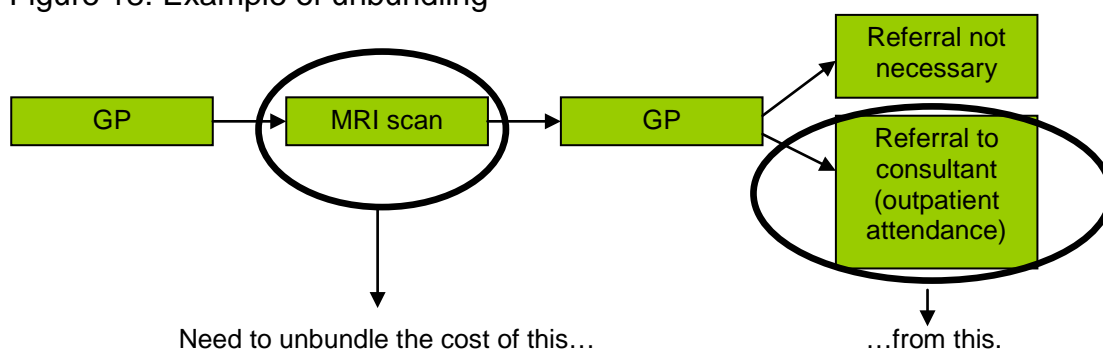
## Unbundling

108. A typical care pathway consists of individual service elements such as diagnostic imaging, high cost drugs and rehabilitation. This raises the question of whether to separate these elements, so that they can be commissioned, priced and paid for separately. We call this unbundling.

109. Unbundling is useful where it supports changes to care pathways. PbR has sought to include prices for unbundled services from early on, although most have been non-mandatory, and HRG4 incorporates a number of unbundled service areas in its design. For example, Figure 18 illustrates the need to recognise in the tariff that diagnostic imaging is sometimes accessed directly from primary care to avoid the need for an outpatient attendance.

<sup>9</sup> The exception is maternity services, where we have set the same price for consultant and midwife led activity.

Figure 18: Example of unbundling



## Pathway tariffs

110. In contrast to unbundling, pathway tariffs are a way of paying for all the encounters a patient has with the NHS for a given condition. They are an opportunity to improve the patient experience and deliver care more cost effectively. We are currently developing a pathway tariff for maternity services. This could begin with the booking-in assessment and subsequent antenatal care, then the birth itself, and conclude with postnatal care provided in a community setting by health visitors.

## Best practice tariffs

111. Best practice tariffs were a commitment in *High Quality Care For All*, the final report of Lord Darzi's NHS Next Stage Review. They are tariffs that have been structured and priced to encourage patient care that is both high quality and cost effective, and mark a significant departure from pricing tariffs on the national average of reference costs.

112. Rather than being set at the national average cost, these tariffs reflect the cost of delivering best practice which could be higher or lower than national average costs. For example, if it is best practice for a particular procedure to treat a patient as a day case rather than an overnight inpatient, this is likely to cost less than national average costs, based on activity that includes significant levels of admitted patient care. On the other hand, best practice could involve extra steps in the treatment or the use of more expensive technology or drugs and require a tariff that is higher than national average costs.

113. The first best practice tariffs were released in 2010-11 for two elective and two non-elective high volume service areas, all characterised by significant unexplained variation in practice and clear consensus of what clinical best practice constitutes:

- (a) cataracts – aims to reduce the number of times patients are assessed before and after surgery by setting a price for the whole pathway rather than pricing each spell of activity
- (b) cholecystectomy (gall bladder removal) – aims to encourage keyhole surgery in a day case setting where clinically appropriate
- (c) fragility hip fracture – makes an additional payment for providing rapid surgery and orthogeriatric care
- (d) stroke – makes additional payments for urgent brain imaging and care in an acute stroke unit.

114. The second wave of best practice tariffs in 2011-12 included:

- (a) adult renal dialysis – aims to improve care for patients undergoing haemodialysis<sup>10</sup>
- (b) day case procedures – encourages providers to increase their day case rates in a number of surgical procedures including hernia repair and prostate resection
- (c) interventional radiology – incentivises use of minimally invasive techniques rather than open surgery where clinically appropriate
- (d) paediatric diabetes – a non-mandatory payment to encourage the running of high quality paediatric diabetes clinics
- (e) primary total hip and knee replacements – encourages best clinical management of patients and minimal lengths of stay
- (f) transient ischaemic attack (or mini-stroke) – a tariff for timely and effective outpatient systems for treating patients with TIA to complement the acute stroke best practice tariff.

115. In 2012-13, we introduced best practice tariffs for:

- (a) major trauma – encourages best practice treatment and management of trauma patients within a regional trauma network
- (b) same day emergency care – promotes management of 12 clinical scenarios on a same day basis in an ambulatory emergency care manner
- (c) procedures in outpatients – encourages three procedures to be performed in an outpatient setting
- (d) day cases – two further procedures have been added to the list introduced in 2011-12 to incentivise day case activity
- (e) paediatric diabetes – applies to providers who provide services in accordance with the best practice specification
- (f) interventional radiology – the list of procedures covered by the interventional radiology best practice programme has been expanded to include a further five.

116. We have commissioned an external evaluation of the early best practice tariffs. This will inform the future development of the programme.

## **Market forces factor**

117. Organisations in some parts of the country have higher costs because labour, land and buildings cost more in these areas. The purpose of the MFF is to compensate for the unavoidable cost differences of providing healthcare in different parts of the country.

118. The MFF originated in the weighted capitation formula used to allocate funding to PCTs. Prior to PbR, the assumption was that the local prices paid by commissioners to providers would reflect cost differences. With the introduction of PbR, there was a need to include a pricing adjustment to the tariff.

119. The MFF is in the form of an index which allows for a comparison of each organisation's unavoidable costs relative to every other organisation. There are two versions of the MFF index:

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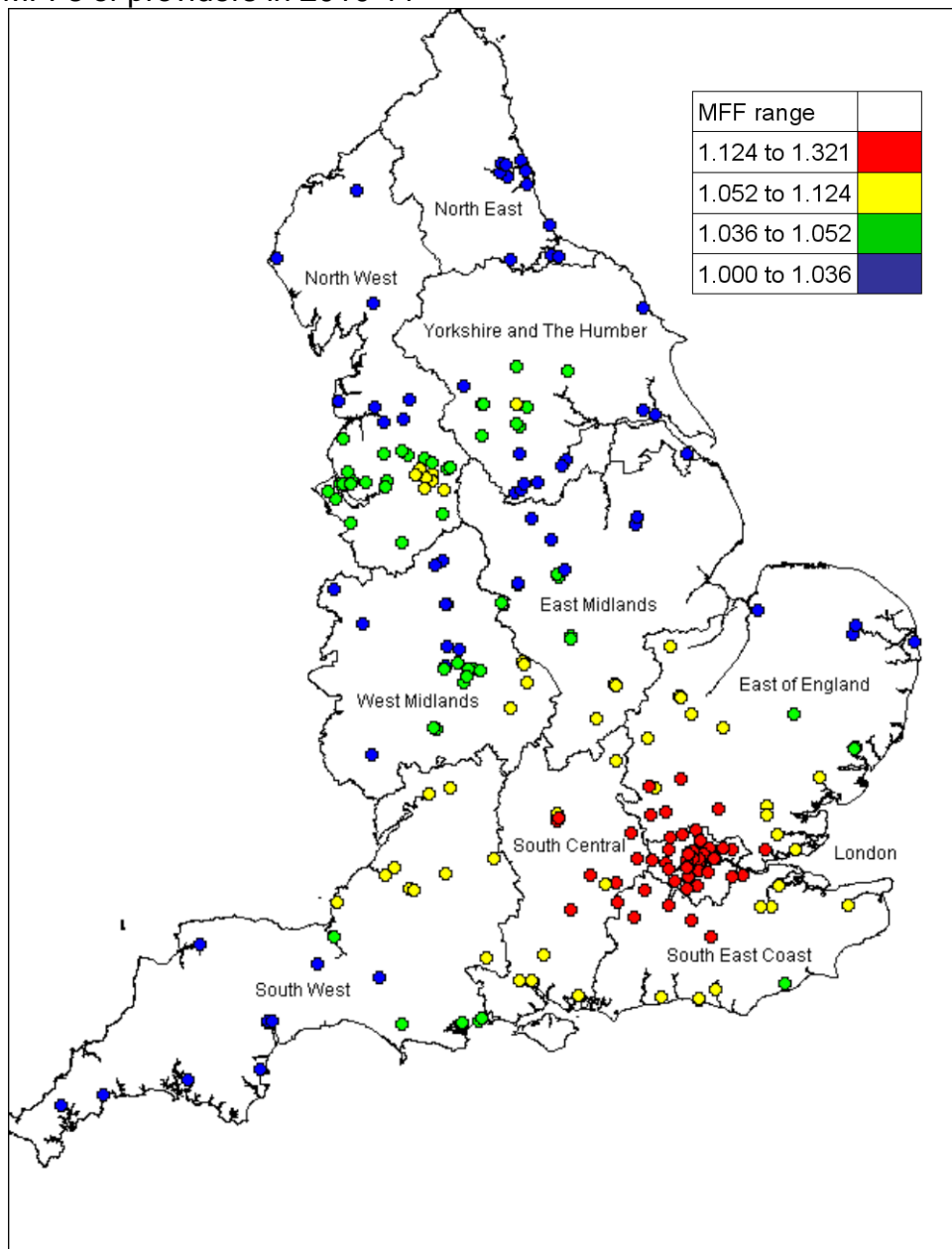
<sup>10</sup> This was introduced in the form of a mandatory currency with a one year transition from local prices to national tariff in 2012-13.

## A simple guide to Payment by Results

- (a) the underlying index used in the weighted capitation formula
- (b) the payment index used in PbR.

120. The MFF payment index operates as a multiplier to each unit of activity. For an organisation with an index of 1.10, each £1,000 of PbR income is worth an additional £100. The index always has a lowest value of 1.00 and currently has a highest value of 1.30.
121. Figure 19 shows the MFF payment index for all providers. It illustrates that London and the south east of England are the highest cost areas. On average, the MFF adds about 8% to the value of the tariff.

Figure 19: MFFs of providers in 2010-11



122. The MFF consists of several components that capture the different dimensions of unavoidable costs, each with their own index which is combined into an overall index using relative expenditure on each component (Figure 20).

Figure 20: Components of the MFF

<b>Staff</b> 54.9%	Applies to all non-medical staff. National NHS pay scales do not fully reflect the variation in employment costs in the broader labour market. If wages do not reflect the going rate for an area then this can lead to indirect costs such as greater use of agency staff and higher vacancy and turnover rates. Uses data from the Annual Survey of Hours and Earnings (ASHE) produced by the ONS.
<b>Medical and dental</b> 13.9%	Medical staff costs do not vary in the same way as other staff groups, but they are significantly higher in London. This index therefore applies only to London providers. Compares the average paybill for hospital doctors in London to the national average.
<b>Buildings</b> 2.7%	NHS providers in areas where building costs are higher will pay more in capital charges. Uses data from the Building Cost Information Service (BCIS).
<b>Land</b> 0.4%	NHS providers in areas where land is more expensive to acquire will pay higher capital charges. Uses NHS estate valuations by the Valuation Office Agency (VOA).
<b>Other</b> 28.1%	Organisations receive an index of 1.00 for costs (eg equipment, consumables and drugs) that do not vary by location.

123. While still sometimes subject to criticism, the assumptions behind the MFF are backed by a considerable body of academic research<sup>11</sup>. It is periodically reviewed by the independent Advisory Committee on Resource Allocation (ACRA). These reviews may result in changes that are significant for some providers. To manage the changes in PbR, a capping policy ensures that no provider's overall income should change by more than 2% as a result of using the updated MFF.
124. The MFF has not always been paid locally by the PCT. Between 2005-06 and 2008-09, the MFF element of the tariff payments was handled centrally, with DH removing the cost of the MFF (£2.8 billion in 2008-09) from PCT budgets and paying out this sum to providers through a central payment mechanism. This supported and protected choice by enabling PCTs to commission services from NHS providers at a standard price under the PbR tariff regardless of where the activity was delivered, whilst continuing to compensate providers for unavoidable cost differences.
125. Since 2009-10, in light of the full roll out of patient choice and improvements to the MFF, commissioners have retained the responsibility and the funding to enable them to pay the relevant MFF directly to providers. This is more transparent and administratively less burdensome than central payments.

## Calculating the tariff

126. Each tariff is several years in the making. Cost and activity data from year 1 are collected in year 2 and analysed in year 3 before being used for prospective payments in year 4, as
127. Figure 21 illustrates. This lag between collecting data and publishing a tariff is of limited significance if costs are fairly stable over time, as long as prices are updated in line with inflation and some account is taken of changing clinical practice and technology, and allows time for the testing of the tariff with the NHS.

<sup>11</sup> Published as resource allocation research papers (RARPs) at [www.dh.gov.uk/allocations](http://www.dh.gov.uk/allocations)

Figure 21: The tariff is years in the making

2010				2011				2012				2013					
Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct	Jan	Apr	Jul	Oct		
	2010-11 reference costs																
				Reference costs collected and published													
								Tariff strategy									
								Tariff design									
									Tariff calculation								
									Sense check								
										Road test							
												Tariff published					
													Tariff in operation				

128. The reference cost collection predates the introduction of the tariff, and the tariff is therefore calculated using the reference costs of all NHS organisations, in contrast to some other countries with tariff systems which do not have a comprehensive collection and therefore use a sample of providers. The reference costs are, however, filtered to remove services outside the scope of the tariff, and any extreme outliers are removed (the general rule is less than one twentieth of, or greater than twenty times, the national average). Each organisation's reference costs are divided by its MFF index to remove differences in unavoidable costs.
129. Reference costs are collected for FCEs, but the admitted patient tariff is paid on a spell basis. The conversion of FCE costs into spell costs is complicated, and the collection of spell costs has long been considered a key development in the move towards a more transparently calculated tariff. To support consideration of such a move, and following two years of small pilot collections, we mandated the collection of spell costs alongside FCE costs within the 2011-12 reference costs collection.
130. Some costs, notably those arising from National Institute for Health and Clinical Excellence (NICE) recommendations on the use of new medicines and treatments, have come into effect after the reference cost period and need to be added.
131. The underlying costs are inflated to tariff year prices. Finally, we may also make a number of normative changes to specific prices in response to feedback during testing of the tariff or to correct known problems.



## Tariff adjustment

132. The tariff adjustment is used to turn historic costs into prospective prices, and is the net result of an increase for NHS pay and price inflation and a decrease for efficiency. Three years of adjustments are used in the calculation in line with the lag between reference costs and the tariff.

133. Figure 22 shows the uplifts applied to the 2012-13 tariff.

Figure 22: Tariff uplifts

Tariff year	Pay and price inflation (%)	Efficiency requirement (%)	Net tariff uplift (%)
2009-10	4.7	-3.0	1.7
2010-11	3.5	-3.5	0.0
2011-12	2.5	-4.0	-1.5
2012-13 <sup>12</sup>	2.2	-4.0	-1.8

134. In recent years, we have also targeted particular inflationary increases at specific tariff prices, for example to take account of cost pressures arising from NHS contributions to the Clinical Negligence Scheme for Trusts (CNST).

135. The combination of more recent reference costs, and a reduction in prices if the efficiency requirement exceeds inflation, means that providers may be paid less as well as more for treating a patient than they were for carrying out the same procedure in the previous year.

## Testing the tariff

136. Before publishing the final tariff, we share the draft tariff prices and guidance with the NHS for comment. This has two stages: sense check and road test.

137. The sense check involves some of our advisory groups (EAG and CAP), a network of clinicians who are expert in the development of PbR currencies (the EWGs), all single specialty hospitals and a small group of NHS providers and commissioners. The aims of the sense check are to scrutinise the draft prices to ensure that there are no hidden incentives to perverse clinical practice and to double check, using up-to-date data available to providers and commissioners, the impact of what we are proposing. As the sense check is necessarily limited to a small number of organisations we also write to the wider service at this point, letting them know as much as we can about the proposed structure of the tariff for the following year.

138. The road test, which generally happens in December, allows all organisations to familiarise themselves with the detail of the tariff and its accompanying guidance. The expectation is that the tariff will not change between road test and the final published tariff, although we will update the guidance to reflect feedback.

<sup>12</sup> In 2011-12 and 2012-13, some of the efficiency requirement was built into the tariff prices, for example through best practice tariffs.

## Find out more

EWGs and ERPs

<http://www.ic.nhs.uk/services/the-casemix-service/getting-involved/groups-panels-and-meetings>

PbR guidance for 2012-13

PbR governance

PbR and the market forces factor in 2012-13

Best practice tariffs

Step-by-step guide: calculating the 2012-13 national tariff

<http://www.dh.gov.uk/pbr>

*Review of specific cost approach to staff market forces factor (RARP31)*

*Review of the market forces factor following the introduction of Payment by Results*

*(2005): exploring the general labour market method (RARP32)*

[http://www.dh.gov.uk/en/Managingyourorganisation/Financeandplanning/Allocations/DH\\_4108515](http://www.dh.gov.uk/en/Managingyourorganisation/Financeandplanning/Allocations/DH_4108515)

TFCs

[http://www.datadictionary.nhs.uk/web\\_site\\_content/supporting\\_information/main\\_specialty\\_and\\_treatment\\_function\\_codes.asp?shownav=1](http://www.datadictionary.nhs.uk/web_site_content/supporting_information/main_specialty_and_treatment_function_codes.asp?shownav=1)

## Chapter 4 Expanding the scope of PbR

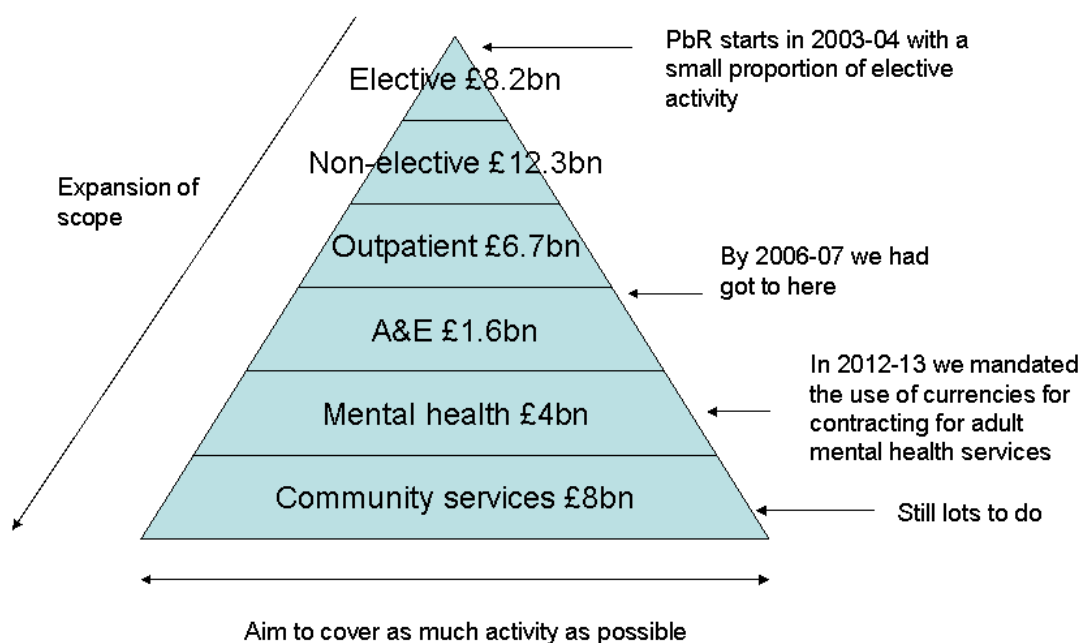
### Summary

- PbR began in a small way in 2003-04, but from the outset there were plans for it to cover as much secondary care as possible
- Mental health and community services are priorities for the expansion of PbR

### Introduction

139. PbR began in a small way in 2003-04, covering about £100 million of activity, but from the outset there were ambitious plans for it to ultimately cover as much secondary care expenditure - as possible (Figure 23). Primary care expenditure on GPs, dentists, opticians and prescribing (about £20 billion) is already covered by separate national contracting and funding arrangements.

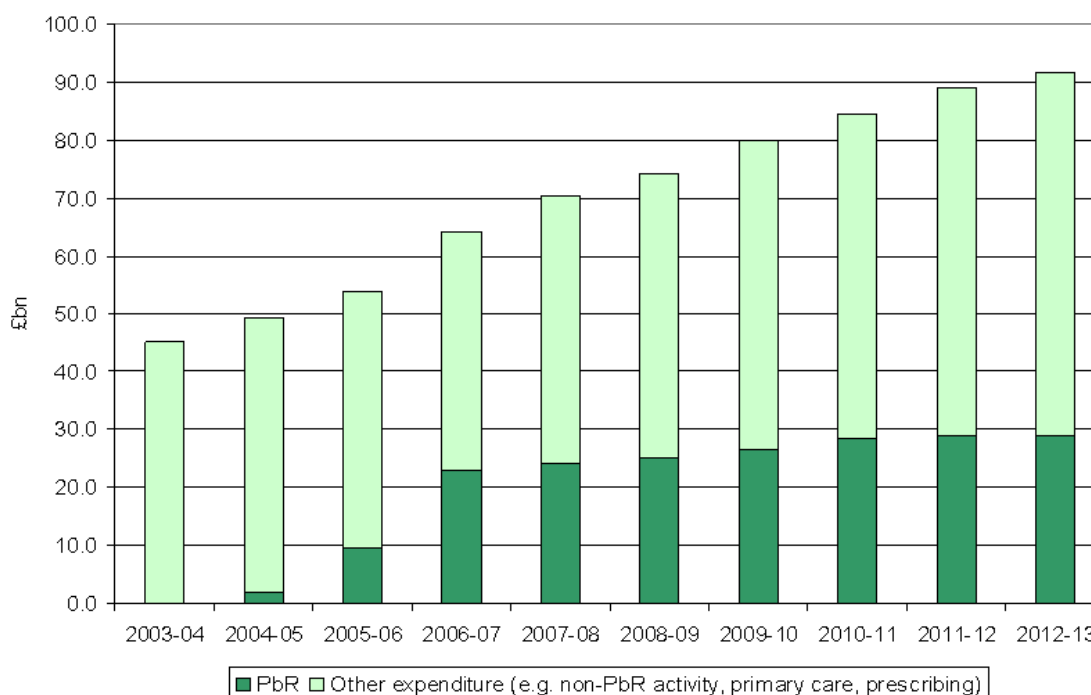
Figure 23: Expanding the scope of PbR<sup>13</sup>



140. By 2006-07, PbR had expanded rapidly (shows progress) to cover most acute activity, initially applying only to the NHS but extended to the independent sector in 2008-09. However, the original aim of covering most secondary care had not been achieved and a number of services – notably mental health and community health – remained outside the scope of PbR. For these services, the price paid still has to be worked out by negotiation between commissioners and providers each year. *Liberating the NHS* set out the Government's renewed ambition to extend the benefits of PbR into these and other areas.

<sup>13</sup> Mental health and community services figures from 2009-10 summarised accounts of PCTs. Other figures are 2011-12 estimates.

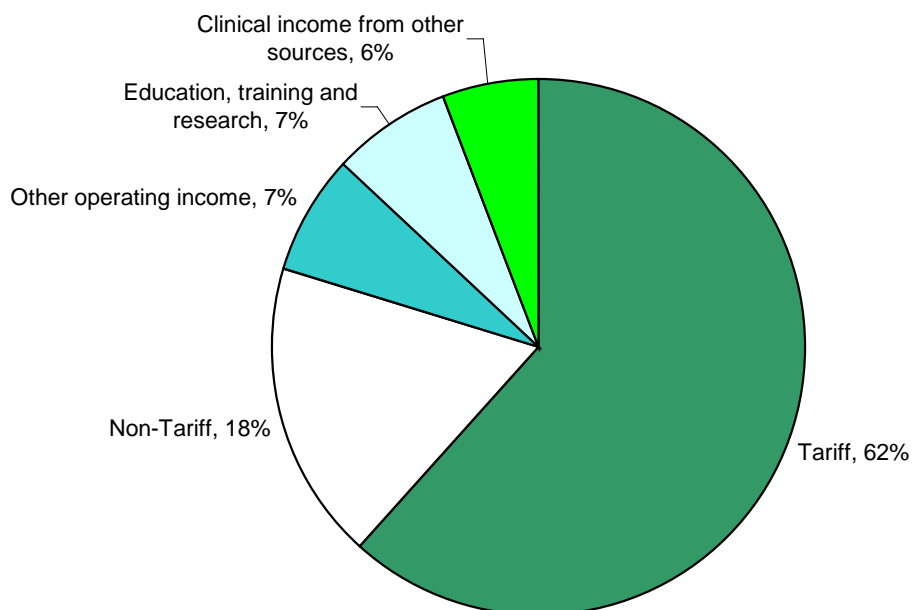
Figure 24: PbR and PCT budgets



141. The timescale for bringing services into the scope of PbR can be quite lengthy and reflects the processes that have to be followed when introducing new data flows and collecting the information needed to introduce PbR without destabilising services or organisations. As new services are brought into the scope of PbR, they do not automatically have both a national currency and a national tariff. Many are introduced initially as a national currency with local prices. This helps create a common contracting unit for benchmarking and comparison, whilst providing the flexibility to fit with the financial situation of local health economies. Such an approach may be part of a phased transition with a national tariff introduced in subsequent years.

## Acute services

142. In 2012-13 the tariff covers about £29 billion of services, representing around 60% of acute provider income. In addition to tariff income, providers also receive income from locally agreed payments for services which are outside the scope of PbR. Teaching hospitals will also receive funding for education and training, and some will receive funding for research and development (R&D). Figure 25 illustrates this.
143. The proportion of provider income covered by tariff may increase in future years, as we have introduced a number of currencies, some of which are mandatory and some of which are non-mandatory, which may be developed into tariffs.

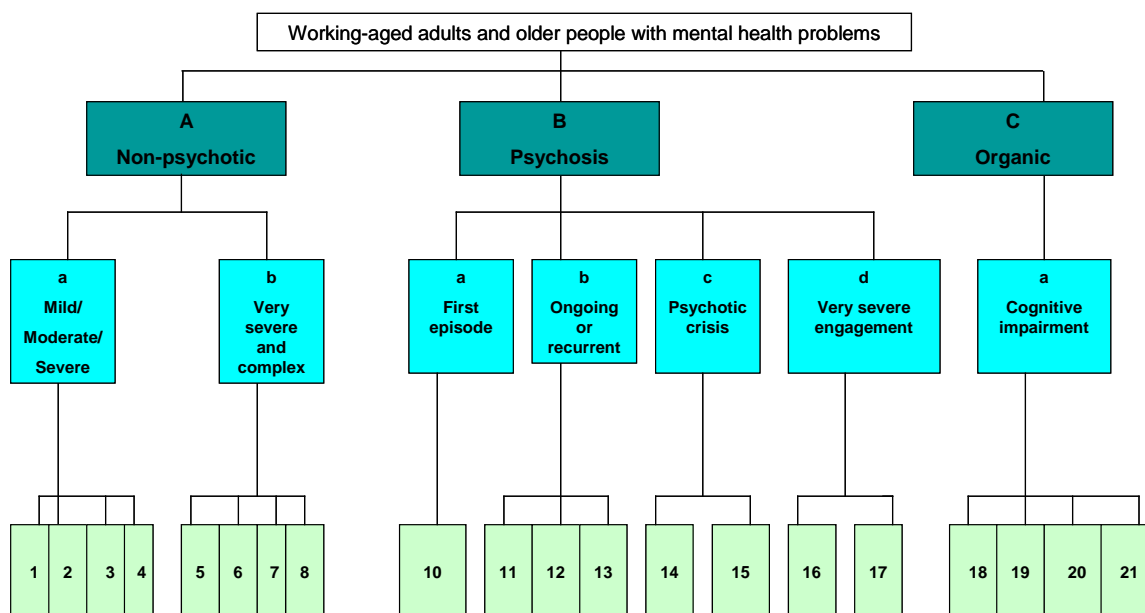
Figure 25: Breakdown of acute provider income<sup>14</sup>

## Mental health

144. Mental health emerged as the number one priority for expansion of the scope of PbR in the consultation *Options for the Future of PbR: 2008-09 to 2010-11*, and *High Quality Care for All* committed DH to make national mental health currencies available for use in 2010-11.
145. In 2010-11, we published a national mental health currency – the care cluster (Figure 26). Developed initially by the NHS in Yorkshire and Humber and the North East, the clusters reflect patient need over specific periods of time that range from four weeks to 12 months, and apply to both admitted patient and community care. They therefore balance the risks between commissioners and providers. Commissioners do not have to pay extra for each contact and intervention. Providers know they will be paid for each patient they care for and they also have an incentive to innovate and support the patient in the most cost effective setting.

<sup>14</sup> Estimates based on 2009-10 summarised accounts of NHS trusts and internal analysis

Figure 26: Mental health care clusters



146. In 2012-13 the clusters were introduced as the mandatory contract currency, to be used with local prices.

147. *Liberating the NHS* announced that currencies would also be developed for child and adolescent mental health services (CAMHS) and talking therapies.

## Community services

148. *Liberating the NHS* also announced plans to accelerate the development of currencies and tariffs for community services. Community services (such as health visiting and district nursing) have lacked some of the building blocks such as national data flows that allow the consistent capture of a classification or currency, and this has impeded the move away from block contracts.

149. *Transforming community services: currency and pricing options for community services* recognises the challenges in progressing this work nationally and helps the NHS to create new local currencies and better pricing.

150. In 2011-12 we introduced a smoking cessation currency which uses an outcomes approach with providers paid on the basis of patients who quit smoking at four and 12 weeks. This continues in 2012-13.

## PbR development sites

151. The PbR development sites programme enables staff in the NHS to lead PbR development in their area of expertise. Development sites are a mechanism for developing local currencies and funding models for services currently outside the scope of PbR, or as an alternative to national currencies for services already within the scope of tariff.

152. The first phase of development sites was launched following *Options for the Future of PbR*. Over 40 sites progressed sufficiently to be evaluated in 2009. The work of the

## A simple guide to Payment by Results

most successful sites has resulted in the introduction of national currencies for ambulance services, cystic fibrosis and smoking cessation.

153. A second phase was launched in 2010 to support the new Government's objective of accelerating the expansion of PbR, particularly into non-acute services. Some sites have subsequently been incorporated into existing PbR workstreams such as palliative care, learning disabilities and burns care.

**Find out more**

Developing PbR for mental health

PbR development sites

<http://www.dh.gov.uk/pbr>

Transforming community services

<http://www.dh.gov.uk/tcs>

## Chapter 5 History of PbR

### Summary

- Before PbR, many hospitals were paid according to block contracts – a fixed sum based largely on historic funding patterns and locally negotiated annual increases
- PbR began with national tariffs for 15 HRGs in 2003-04 and 48 HRGs in 2004-05
- NHS foundation trusts were early implementers of PbR, moving to the full system in 2005-06
- A transition period between 2005-06 and 2007-08 smoothed the impact of PbR on providers and PCTs
- The consultation paper *Options for the Future of Payment by Results: 2008-09 to 2010-11* set out proposals to strengthen the building blocks of PbR and extend its scope
- With the introduction of HRG in 2009-10 the number of tariffs increased to over 1,000
- In 2010-11 the first best practice tariffs were introduced, and a mental health currency for local use
- The white paper *Liberating the NHS* was published in July 2010 and set out the new Government's vision to reform PbR. The 2011-12 tariff began the task of implementing this vision
- The Health and Social Care Act (2012) will prompt the transfer of responsibility for tariff design and price setting from the Department of Health to the NHS Commissioning Board and Monitor.

### Introduction

154. This section outlines the history of PbR from its origins in the *NHS Plan* to the reforms set out in *Liberating the NHS* and the Health and Social Care Act 2012. It includes a summary of the major research papers into PbR, and a brief survey of prospective payment systems in other countries. Supporting tables in [Annex B](#) and [Annex C](#) provide key facts about the scope and structure of the national tariff from 2003-04 to 2012-13.

### Reforming financial flows: 2003-04

155. Before PbR, many hospitals were paid according to block contracts - a fixed sum of money for a broadly specified service based largely on historic funding patterns and locally negotiated annual increases. There was no incentive for providers to increase activity to reduce waiting times, since they got no additional funding. If providers failed to deliver planned activity, there was no agreed basis for commissioners to withdraw funding, in order to commission care elsewhere. Some areas of the NHS, however, were using more sophisticated cost and volume agreements as the basis for their contracts, and were using HRGs to adjust their agreements for casemix.

156. PbR has its origins in the *NHS Plan* (July 2000) and the 2002 Budget, although the phrase first appears in *Delivering the NHS Plan* (April 2002): "in order to get the best from the extra resources we plan major changes to the way money flows around the NHS...Instead of block contracts for hospitals they will be paid for the elective activity they undertake. This is a system of payment by results"<sup>15</sup>.

<sup>15</sup> Delivering the NHS Plan, p20



157. The early aims of PbR were to pay different types of providers fairly and transparently to support patient choice, reward efficiency and encourage activity to reduce waiting times. The objectives were later formalised within the *PbR Code of Conduct*. The purpose of the *Code* is to establish the principles that should govern organisational behaviour under PbR and set expectations as to how the system should operate.
158. The consultation document *Reforming NHS Financial Flows: Introducing payment by results* (October 2002) set out plans to move to a national tariff over five years. DH had examined the use of casemix payment systems internationally in countries such as Australia, Norway and Sweden. DRGs had been pioneered in the USA and adopted for the publicly financed Medicare programme in the 1980s.
159. PbR began in a small way in 2003-04. Cost and volume agreements were introduced for six surgical specialities but with prices determined locally rather than by the national tariff. Some interventions (e.g. cataracts and hip replacements) were considered so important to the delivery of national targets to reduce waiting times that a national tariff was introduced for 15 HRGs, but only for extra activity above 2002-03 planned activity.

### **Transition: 2004-05 to 2007-08**

160. *Payment by Results Consultation: Preparing for 2005* (August 2003) again sought views from the NHS on the rollout of PbR, including a transition period from 2005-06 to 2007-08.
161. If introduced overnight, PbR would have had a significant impact on the income of some NHS providers and the purchasing power of the PCTs that commissioned services from them. The transition period was designed to ensure that the move to the tariff was manageable and the financial impact did not destabilise NHS organisations. Transitional adjustments for providers compared income at local prices against income at national tariff. Gains and losses from this comparison were limited to 25% in 2005-06, 50% in 2006-07 and 75% in 2007-08. PCTs were also protected from the impact of the move to the national tariff of their providers, to prevent PCTs dealing mainly with high cost providers gaining and PCTs dealing with low cost providers losing. Purchaser parity adjustments to PCT allocations were funded at 100% in 2005-06, 50% in 2006-07 and 25% in 2007-08. Figure 27 summarises the transition process.
162. In 2004-05, the principle of paying at national tariff for activity above a baseline was maintained, but the coverage was extended to 48 HRGs. The first wave of FT applicants ([Annex E](#)) were early implementers of PbR, moving to the full system one year ahead of the rest of the NHS.
163. The original intention had been to extend the scope of PbR in 2005-06 to cover all elective and non-elective admitted patient care, outpatients and A&E. This was considered too ambitious for NHS trusts for which PbR covered only elective care with the other areas deferred until 2006-07. The number of HRGs with national tariffs increased from 48 to 550.

164. An independent review into the setting of the 2006-07 tariff was published in 2006, following its withdrawal and reissue after errors were found. The Lawlor review<sup>16</sup> made a number of recommendations, including the strengthening of governance arrangements and more engagement with stakeholders. DH responded by introducing the current governance structure, and arrangements for sense checking and road testing the tariff with the NHS. Following Lawlor, minimal changes were made to the national tariff in 2007-08 apart from a price uplift.

Figure 27: Implementation of PbR

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
	£100m	£2bn	£9.5bn	£23bn	£24bn	£25bn
No. of HRGs	15	48	550	548	548	546
Application of national tariff	All acute trusts: growth over plan	Wave 1 FTs and Early Implementers: elective, non-elective and outpatients	Wave 1 FTs and Early Implementers: elective, non-elective, A&E and outpatients	All acute trusts: elective, non-elective, A&E and outpatients		
		All other acute trusts: growth over plan	All other acute trusts: elective activity only	Differential tariff for emergency activity		
Trust transitional path	Percentage difference received between national and local prices:					Transition complete for acute trusts. All trusts paid at national price
		Wave 1 FTs and Early Implementers: 25% loss or gain	Wave 1 FTs and Early Implementers: 50%	Wave 1 FTs and Early Implementers: 75% of income gained under PbR	Wave 1 FTs and Early Implementers: 100% of income gained under PbR	
			All other acute trusts: 25%	All other acute trusts: 50%	All other acute trusts: 75%	
PCT transitional path		100% of purchasing parity funded		50% of purchasing parity funded	25% of purchasing parity funded	Transition complete for PCTs.

## Options for the future: 2008-09 to 2010-11

165. In 2007 DH embarked on a third consultation, *Options for the Future of Payment by Results: 2008-09 to 2010-11*. This wide-ranging consultation set out, amongst other things, proposals to strengthen the building blocks of PbR and to extend its scope. The building blocks of PbR are the classification systems that describe patient diagnoses and interventions, the currency for payments, and the costing information which informs pricing decisions. Most notably, HRGv3.5, the national tariff currency to this point, had originally been designed for financial benchmarking and not for payment. *Options* considered international alternatives for replacing HRGv3.5, such as the Australian DRGs, but rejected them in favour of HRG4 that was being developed by the NHS Information Centre. *Options* proposed three incremental models for the expansion of PbR: local currency and price, national currency and local price, national currency and price. Mental health emerged as a clear priority for future development of national currencies.

<sup>16</sup> named after its author John Lawlor, then Chief Executive of Harrogate and District NHS Foundation Trust.

166. In 2008-09 the national tariff was extended to all independent sector organisations providing services under Free Choice, fulfilling the original vision that it should support patient choice and plurality of provider. Indicative, or non-mandatory, tariffs had been published since 2005-06 and in 2008-09 were provided to support the unbundling of services such as diagnostic imaging and rehabilitation. Care pathways were changing, and there was a desire to develop currencies and tariffs to encourage appropriate alternatives to traditional hospital bundles of care.
167. *High Quality Care For All* (June 2008), the final report of Lord Darzi's NHS Next Stage Review, made several commitments on PbR: projections for tariff uplifts and efficiency gains on a multi-year basis, aligning with future Spending Reviews and PCT allocations; a best practice tariff programme that would pay for best practice rather than average cost; and the development of mental health currencies for use by 2010-11.
168. 2009-10 saw the introduction of HRG4, the first version designed for payment. It increased the number of HRGs from 650 to over 1,400, and improved the way they work. A tariff was not calculated for all the new HRGs, although the number of tariffs nearly doubled from around 550 to over 1,000. HRG4 included new unbundled HRGs for areas such as critical care, chemotherapy, radiotherapy and specialist palliative care, but the underlying data were not considered robust enough to introduce national tariffs for these areas. Nevertheless, the potential remained to introduce tariffs for new services once data quality and design issues were addressed.
169. At the same time, a new MFF payment index was introduced. The MFF is shared with the weighted capitation formula for PCT allocations, and the review was undertaken by ACRA. This was not the first time the MFF had been reviewed, but the latest review used innovative techniques to deal with the cliff edge problem, where neighbouring providers operating in the same labour market have noticeably different MFFs. The impact of the MFF on provider income under PbR is substantial and, in order to help organisations adjust to the new index, a cap of 2% change to each provider's overall PbR income was imposed.
170. Finally, 2009-10 also saw the introduction of a planned same day (PSD) tariff for day cases and outpatient procedures. Like the combined elective and day case tariff, it was designed to incentivise a further shift in care towards more cost effective settings. Concerns about patchy collection and coding meant that the PSD tariff was non-mandatory for outpatient procedures, and feedback from the NHS during 2009 was that negotiating prices had been difficult. The 2010-11 tariff structure reverted to the combined elective and day case approach, with a limited number of mandatory outpatient procedure tariffs, but collecting and coding outpatient procedures is still important to enable PbR to support the development of ambulatory care in the future.

## **A changing landscape: 2010-11 onwards**

171. The 2010-11 national tariff met the commitments in *High Quality Care For All* on best practice tariffs and mental health. The first best practice tariffs were in four high volume areas where there was significant unexplained variation in clinical practice: cataracts, cholecystectomy, fragility hip fracture and stroke. The introduction of mental health currencies for local use was the first step towards a tariff for mental health services in future years.

172. The 2010-11 tariff also began the process of a change in direction brought about by the tougher economic climate. The tariff uplift was 0%, including a 3.5% efficiency requirement that offset the 3.5% inflation in pay and prices. A marginal rate of payment of 30% of the published tariff price applied to increases in emergency admissions to encourage providers to work with commissioners to manage this activity.
173. PbR is sometimes described as a lever or enabler. In other words, PbR supports healthcare policy and the strategic aims of the NHS. As policy and objectives change over time, so will PbR. *Liberating the NHS*, the White Paper published in July 2010 set out the new Coalition Government's objectives:
- (a) money will follow the patient through transparent, comprehensive and stable payment systems across the NHS to promote high quality care, drive efficiency, and support choice
  - (b) providers will be paid according to their performance. Payment should reflect outcomes, not just activity, and provide an incentive for better quality.
174. *Liberating the NHS* announced an expansion of PbR currencies and tariffs into new areas such as mental health (including CAMHS and talking therapies) and community services; a review of payments systems to support end of life care; and pathway tariffs for use by commissioners. There will be incentives to reduce avoidable readmissions. The number of best practice tariffs will increase, and the scope for developing a benchmarking approach to setting prices will be explored.
175. The 2011-12 and 2012-13 tariffs began the task of implementing this vision, guided by the following key principles:
- (a) incentivising quality and better patient outcomes
  - (b) embedding efficiency within the tariff
  - (c) integration and patient responsiveness
  - (d) expanding the scope of PbR
176. Whilst overall NHS funding was protected in real terms in the 2010 Spending Review, the need to deliver efficiency savings continues. Tariff prices in 2012-13 are reduced by -1.8%, with a 4% efficiency requirement offsetting pay and price inflation of 2.2%. Meanwhile, the best practice tariff programme continues to expand, with the introduction of a new best practice tariffs for major trauma care, same day emergency care in 12 clinical scenarios and three procedures in outpatients.
177. We have begun the introduction of post discharge tariffs, have mandated the use of currencies for contracting for adult mental health services and have begun the introduction of a year-of-care tariff for cystic fibrosis.
178. The Government is concerned that the number of emergency readmissions into hospital has increased by 50% between 1998-99 and 2007-08. From 2012-13, providers will not be reimbursed for the proportion of readmissions judged to have been avoidable. This proportion is defined by a clinical review involving the provider, commissioner and clinically led by a person not employed by the provider.

179. A flexibility for commissioners to vary tariff price where a provider is not doing the full range of services within a HRG category was introduced for 2012-13.
180. The Department of Health leads on the tariff and Payment by Results arrangements for 2013-14, in consultation with Monitor and the NHS CB. During 2012-13, the transition of responsibility for the tariff to Monitor and the NHS CB will begin.
181. Beyond the 2013-14 tariff, Monitor and the NHS CB will have responsibility for the tariff, currency design and price setting.

## Research and evaluation

182. PbR is the subject of rigorous research and evaluation. Several studies have been published:
- *Payment by Results and Demand Management: learning from the South Yorkshire laboratory* (December 2005), Centre for Health Economics (CHE) at the University of York, explores demand management in South Yorkshire PCTs in response to the introduction of PbR, Patient Choice and other reforms
  - *The administrative costs of Payment by Results* (July 2006), CHE, found that administrative costs associated with the introduction of PbR had increased by £100,000 to £180,000 in hospitals and £90,000 to £190,000 in PCTs. These costs represent about 0.2% of the total cost of activity covered by PbR
  - *Reimbursing highly specialised hospital services: the experience of activity-based funding in eight countries* (December 2006), International Healthcare Comparisons Facility of the London School of Hygiene and Tropical Medicine, showed that other countries also find that highly specialised care requires special funding arrangements and that this is done through augmented prices rather than funding aimed at particular types of organisation
  - *National Evaluation of Payment by Results* (November 2007), Health Economics Research Unit (HERU) at the University of Aberdeen, found evidence of reductions in units of cost and increases in the volume of spells associated with the introduction of PbR, and no evidence of negative impact on care. This study has been extended to cover the years 2004-05 to 2007-08 and further results will be published in due course.
183. The Audit Commission has produced a series of largely favourable reports on PbR, most recently *The right result? Payment by Results 2003-2007* (February 2008).

## International comparisons

184. PbR is not unique to England. Over the past two decades a growing number of countries have decided to use measures of hospital casemix – often called DRGs – to pay for health care. These are known variously as casemix funding, patient classification or prospective payment systems. The common element to all is the use of a fixed level of reimbursement that is determined in advance of the care being delivered. In some countries the entire reimbursement is paid on a prospective basis but in other systems there is a mix of prospective and other methods such as block funding.

185. DRGs were developed by researchers at Yale University and adopted for the publicly financed Medicare programme in the USA in 1983. For the first time, a payer had a way of comparing the outputs of one hospital with those of another and a basis of paying hospitals in a standardised fashion for the products they produced. Prospective payment replaced retrospective and open ended fee-for-service payment.
186. Many other countries in Europe and elsewhere have developed their own DRG systems and used them for payment including Australia, Canada, France, Germany and Sweden. Some countries have extended the casemix approach to ambulatory care, rehabilitation and a range of community health services. Figure 28 compares some of these systems.
187. *Assessment of systems for classification of clinical diagnoses, interventions and casemix* (March 2009), a study by the firm CHKS, compared the classification and casemix systems used in England with comparators in Australia, Canada and Germany, and concluded that HRG4 performs as well as any of the other classification systems.

## Find out more

Delivering the NHS Plan

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4005818](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4005818)

Equity and excellence: Liberating the NHS

<http://www.dh.gov.uk/en/Healthcare/LiberatingtheNHS/index.htm>

High quality care for all

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_085825](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_085825)

NHS Plan

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_4002960](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4002960)

Reforming NHS Financial Flows: Introducing payment by results

Payment by Results Consultation: Preparing for 2005

Options for the Future of Payment by Results: 2008-09 to 2010-11

PbR Code of Conduct

Research and evaluation

<http://www.dh.gov.uk/pbr>

The operating framework for the NHS in England 2012-13

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131360](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131360)

The Health and Social Care Act 2012

<http://healthandcare.dh.gov.uk/act-factsheets/>

## A simple guide to Payment by Results

Figure 28: Casemix funding in other countries

	Australia	Canada	France	Germany	Sweden	USA
Funding basis	Social insurance	Government health insurance	Social insurance	Social insurance	Decentralised NHS model	Mixed: employment and government insurance
Year adopted casemix funding	1993	1983	1998	2005	1991	1983
Currency	Australian refined (AR) DRG	Adjustment of US DRG system	GHM (Groupes Homogenes de Malades)	German (G) DRG	Nord DRG (Swedish version)	Healthcare Financing Administration (HCFA) DRG
Goals and purpose	Allocation of public hospital budgets; cost efficiency	Utilisation management and financial and length of stay comparisons; comparability of hospitals	Financing hospitals	Increase hospital efficiency; contain health spending; reduce length of stay	Increase hospital productivity; support policy goal of patient free choice; funds follow the patient	Forecast hospital costs; Government health care budget control tool
Extent of use	Inpatient hospital care, outpatient and emergency care	Inpatient, day surgery, emergency, ambulatory care, home care, psychiatric care, functional abilities	Acute hospital care (medical, surgical and obstetrics)	Acute inpatient hospital care	Acute inpatient hospital care; psychiatric care DRGs were being developed as at 2006	Inpatient care for Medicare beneficiaries; in 1997 extended to outpatient, skilled nursing, long-term care, home care and rehabilitation
% share of hospital income from casemix funding	70%	-	35%	80%	70%	-

Source: The Globalization of Managerial Innovation in Health Care (Kimberley, de Povourville and D'Aunno 2008) pp348 to 352. This book examines casemix funding systems in 15 different countries throughout the world.



## Glossary of terms and abbreviations

### ACRA

Advisory Committee on Resource Allocation. Independent body which leads on reviewing the MFF for both PCT allocations and PbR.

### A&E

Accident and emergency; also known as urgent and emergency care or emergency medicine.

### ASHE

Annual Survey of Hours and Earnings. An ONS led survey used in the staff MFF index which provides information about the levels, distribution and make-up of earnings and hours paid for employees within industries, occupations and regions.

### BCIS

Building Cost Information Service. An analysis of tender prices for public and private building contracts used in the buildings MFF index.

### Block contract

The old method of funding acute hospitals before PbR – a fixed sum based largely on historic funding patterns and locally negotiated annual increases.

### CAMHS

Child and adolescent mental health services.

### CAP

Clinical Advisory Panel. A PbR advisory group that provides clinical advice.

### Care pathway

This refers to the sequence of steps or encounters a patient has with the health service for a given condition. The components making up a complete pathway may include primary prevention, advice and reassurance, diagnosis, treatment, rehabilitation, continuing care, secondary prevention, and palliative care. It may also involve co-ordination with social services as well as family and community support. Streamlining the patient care pathway, and increasing co-ordination, communication along the pathway are critical elements of improving patient experience, as well as improving efficiency and outcomes.

### Casemix

A system whereby the complexity (mix) of the care provided to a patient (cases) is reflected in an aggregate secondary healthcare classification. Casemix adjusted payment means that providers are not just paid for the number of patients they treat in each specialty, but also for the complexity or severity of the mix of patients they treat.

### CC

Complications and comorbidities. Comorbidities tend to be part of the initial patient presentation, whilst complications arise during a period of health care delivery, and are recorded in patient records using ICD-10. Many HRGs differentiate between care provided to a patient without any CCs, and those where CCs are present, in order to reflect the higher expected resource use of treating the latter. CCs may be deemed to be major, intermediate or insignificant in terms of requiring additional resource use to treat.

### CDDA

Casemix Design and Delivery Authority. Part of the casemix governance structure within the NHS Information Centre responsible for HRG development.

### CDS

Commissioning dataset.

### CE

Consultant episode. Defined in the NHS Data Model and Dictionary as “the time a PATIENT spends in the continuous care of one CONSULTANT using Hospital Site or Care Home bed(s) of one Health Care Provider or, in the case of shared care, in the care of two or more CONSULTANTS.”

### Capital charges

Capital charges were introduced in the NHS to promote awareness of the true cost of capital. The building and land components of the MFF recognise that the capital charges paid by NHS organisations vary around the country.

### CHE

Centre for Health Economics at the University of York. Has produced a number of studies on PbR.

### Cliff edge

In the context of the MFF, the cliff edge problem refers to large differences in MFF values between neighbouring hospitals.

### CNST

Clinical Negligence Scheme for Trusts. Handles clinical negligence claims against NHS member bodies. The costs are met by membership contributions. In the tariff calculation, price increases are targeted at some HRGs (eg maternity) to take account of cost pressures arising from these contributions.

### Commissioning

Commissioning ensures that the health and care services provided effectively meet the needs of the population. It is a complex process with responsibilities ranging from assessing population needs, prioritising health outcomes, procuring products and services to managing service providers. Currently undertaken by 152 PCTs in England, but *Liberating the NHS* announced plans to abolish PCTs and replace them with GP commissioning consortia.

### Core HRG

The main HRG for a patient care event. Unbundled HRGs may also be produced for the same patient care event.

### Cost

The expenditure of funds or use of property to acquire or produce a product or service. The opposite of revenue.

**Currency**

A unit of healthcare activity such as spell, episode or attendance. Under PbR, currency is the unit of measurement by which the national tariff is paid, e.g. admitted patient care HRGs.

**DH**

Department of Health

**DRG**

Diagnosis related groups. The first casemix system developed by Yale University, adopted for the Medicare programme in the USA in 1983 and by other countries since.

**EAG**

External Advisory Group. A PbR advisory group that provides strategic policy advice.

**ERP**

Expert Reference Panel. Part of the casemix governance structure within the NHS Information Centre. They have a wider remit than single HRG chapters, NHS and DH members, and clinical leads and chairs.

**EWG**

Expert Working Group. Part of casemix governance within the NHS Information Centre. They are HRG sub-chapter specific, with NHS staff and clinical leads and chairs.

**FCE**

A consultant episode that has finished. See also CE

**FT**

NHS foundation trust.

**HERU**

Health Economics Research Unit at the University of Aberdeen

**HES**

Hospital episode statistics. A national source of patient non-identifiable data

**HRG**

Healthcare resource groups. The currency for the admitted patient care tariff based on standard groupings of clinically similar treatments which use similar levels of healthcare resource.

**HRG root**

This represents a stage in the grouping process whereby activity is mapped to a partially defined 4-character HRG prior to applying any split logic.

**ICD-10**

International Classification of Disease and Related Health Problems. An internationally defined classification of disease, managed by the World Health Organisation (WHO) – currently in its 10th Revision.

**ISB**

Information Standards Board.

**ISN**

Information Standards Notice.

**MFF**

Market forces factor. An index used in PbR and PCT allocations to estimate the unavoidable cost differences of providing healthcare.

**Monitor**

The independent regulator of NHS foundation trusts.

**MSC**

Main speciality code.

**NCS**

NHS Classifications Service. The definitive source of clinical coding guidance sets the national standards used by the NHS in coding clinical data.

**NHS CB**

The NHS Commissioning Board

**NICE**

National Institute for Health and Clinical Excellence.

**ONS**

Office for National Statistics.

**OPCS-4**

The standard classification system used to record healthcare interventions in England. Originally named after the Office of Population Censuses and Surveys, now ONS.

**PAS**

Patient administration system. Used in hospitals to record information about patients.

**PCT**

Primary care trust.

**PLICS**

Patient level information and costing systems.

**PSD**

Planned same day. A type of tariff introduced in 2009-10, calculated from the weighted average of day case and outpatient procedure costs, designed to incentivise the delivery of care in the most efficient settings. The PSD tariff was mandatory for day cases and non-mandatory for outpatient interventions. It was withdrawn in 2010-11.

**Purchaser parity adjustment**

Annual non-recurrent adjustments to PCT allocations between 2005-08 and 2007-08 to protect them from the impact of their providers moving from local prices to national tariff.

**RARP**

Resource allocation research papers. A catalogue of research papers into the weighted capitation formula used to inform allocations to NHS commissioners, but a number (notably RARP31 and RARP32) also relate to the development of the MFF and its application in PbR.

**Reference costs**

The national average unit cost of an HRG or similar unit of healthcare activity, reported as part of the annual mandatory collection of reference costs from all NHS organisations in England, and published each year since 1997-98.

**RCI**

Reference cost index. A measure of the relative efficiency of NHS organisations.

**Responsible commissioner**

Commissioners enter into contracts with providers for the population for which they are responsible. *Who pays? Establishing the responsible commissioner* states that in general, the responsible commissioner will be determined on the basis of registration with a GP practice or, where a patient is not registered, their place of residence.

**Resource**

The total means available to an organisation for increasing activity or improving production, for instance, staff, theatre time, consumables, etc.

**SHA**

Strategic health authority.

**Spell**

The period from patient admission to discharge within a single healthcare provider. A spell may comprise of more than one FCE.

**SSNDS**

Specialised service national definition set. A list of OPCS-4 and ICD-10 codes that determine specialised services and used in PbR for top-up payments for these services.

**SUS**

Secondary Uses Service. A national data warehouse managed by NHS Connecting for Health. It provides anonymous patient based data for purposes other than direct clinical care.

**Tariff**

The prices for a unit of healthcare activity published by DH.

**TFC**

Treatment function code.

**TOCE**

Table of coding equivalence.

**TWG**

Technical Working Group. A PbR advisory group that provides technical advice.

### Unbundling

The process of breaking down currencies or tariffs so that they reflect different parts of a patients' pathway of care.

### VOA

Valuation Office Agency. Their valuation of the NHS estate has historically been used for the land MFF index.

### WHO

World Health Organisation.

## Annex A – The NHS in England

188. The following information is correct at time of publication.
189. PbR is a system for transactions, or payments, between two types of organisation – commissioners and providers – that requires an understanding of the NHS, its structure and funding. This annex provides a brief overview.

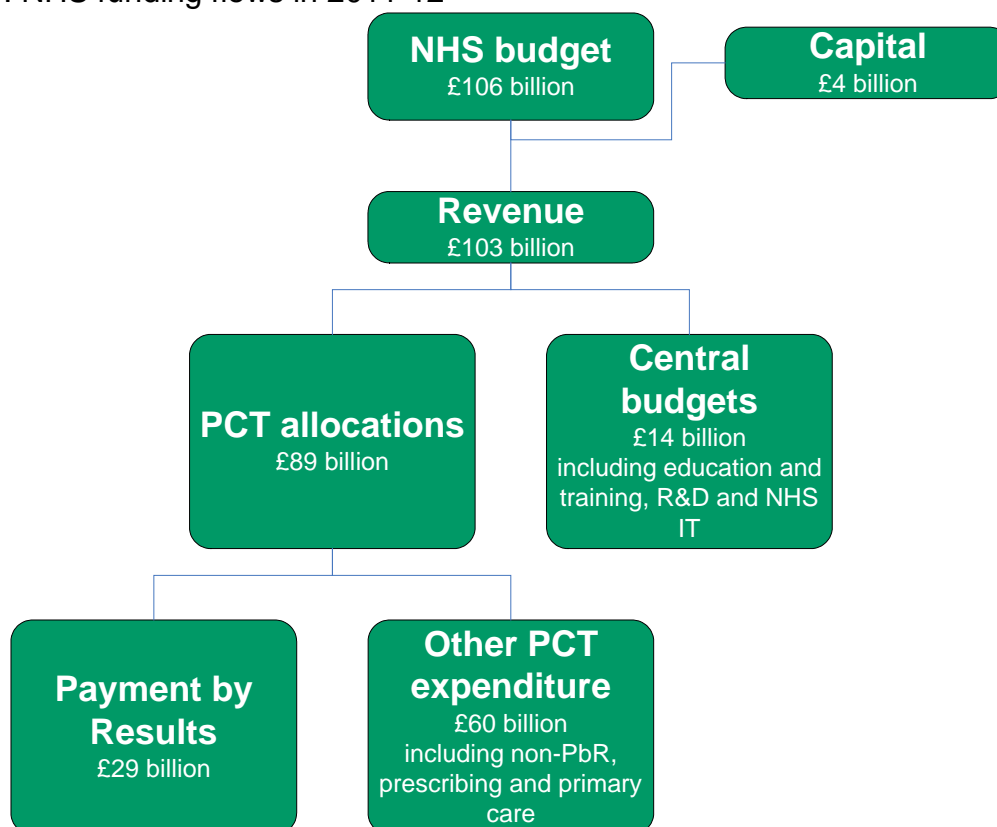
### NHS structure

190. The NHS is financed mainly by general taxation, and is free to users at the point of delivery. NHS services are managed separately in England, Scotland, Wales and Northern Ireland. The services remain similar in most respects, but differences have emerged in some areas, including PbR, which only operates in England.
191. In 1991 the then Government introduced an internal market in the NHS in England, the key feature of which was the separation of hospital services from the commissioning or purchasing function – the so-called purchaser/provider split.
192. Currently, commissioning is primarily undertaken by primary care trusts (PCTs) which contract for services from independent primary care practitioners such as GPs, dentists and pharmacists, and commission secondary care from hospital providers in the NHS and independent sector. *Liberating the NHS* announced plans for GP commissioning consortia – groups of GP practices working with other health and care professionals in partnership with local communities and local authorities – to commission the majority of NHS services for their patients.
193. There are several types of organisation providing services to NHS patients. NHS trusts were created in 1991 to manage hospitals and were quite distinct from health authorities. NHS foundation trusts are a newer type of NHS trust that offer greater autonomy and freedom set against a national framework of standards and inspection. The independent sector also provides services which are funded through the NHS and are free to patients. PCTs agree delivery of NHS funded services with providers using NHS standard contracts.

### Financial framework

194. Total NHS funding is agreed in Spending Reviews between Her Majesty's Treasury and government departments. The most recent review – the 2010 Spending Review – fixes spending budgets from 2011-12 to 2014-15.
195. Over time, DH has allocated an increasing share of the revenue budget to PCTs, so that by 2011-12 PCTs controlled £89 billion, representing about 80% of the NHS budget. DH allocates funding to PCTs based on the relative needs of their populations. A weighted capitation formula is used to determine PCTs' target shares of available resource to enable them to commission similar levels of healthcare for populations with similar healthcare needs. This formula based approach to funding means that PCTs are able to meet the healthcare needs of their population, whether they are in primary care or in secondary care under PbR. PCTs have a statutory duty to live within their cash limits. Figure 29 illustrates how the NHS budget is allocated.

Figure 29: NHS funding flows in 2011-12



Figures may not sum due to rounding.

196. Under changes outlined in *Liberating the NHS* and subsequently enacted by the Health and Social Care Act 2012, the NHS Commissioning Board will allocate revenue resources to clinical commissioning groups from 2013-14 onwards on the basis of seeking to secure equivalent access to NHS services relative to the burden of disease and disability.

## Find out more

The NHS in England

<http://www.nhs.uk/NHSEngland/thenhs/Pages/thenhshome.aspx>

PCT allocations

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_131805](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_131805)

Resource allocation: weighted capitation formula (seventh edition)

[http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH\\_124946](http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_124946)



## Annex B: Scope of Payment by Results 2003-04 to 2012-13

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Financial coverage (1)</b>										
PCT announced allocation £bn	45.0	49.3	53.9	64.3	70.4	74.2	80.0	84.4	89.1	91.6
Reference cost quantum	33.0	36.4	39.2	41.3	43.9	47.6	51.2	53	-	-
Estimated value of PbR activity £bn (2, 3, 4)	0.1	2.0	9.5	22.8	24.0	25.0	26.5	28.5	29.1	28.9
PbR as % of PCT announced allocation	0.2%	4.1%	17.6%	35.5%	34.2%	33.7%	33.1%	33.7%	32.7%	31.5%
<b>Tariff uplift</b>										
Tariff uplift	3.3%	7.7%	5.3%	4.0%	2.5%	2.3%	1.7%	0.0%	-1.5%	-1.8%
Efficiency included in tariff uplift	-	-	-1.7%	-2.5%	-2.5%	-3.0%	-3.0%	-3.5%	-4.0%	-4.0%
<b>Number of mandatory tariffs</b>										
Admitted patient care	15	48	550	548	548	546	1072	1074	1186	1216
Outpatient procedure	0	0	0	9	9	8	0	49	52	79
Outpatient attendance	0	0	39	39	39	38	38	48	57	57
A&E	0	0	0	3	3	3	3	3	5	5

(1) Sources: PCT revenue allocations exposition books, Hospital episode statistics, national tariff, Payment by Results MFF adjustment exercise

(2) All figures include MFF

(3) Figures not directly comparable because of different scope of PbR in different years. In 2004-05, only early implementers of PbR were operating at full scope (elective, non-elective, outpatients and A&E). In 2005-06, non-early implementers operated at national tariff for elective activity only, moving to full scope in 2006-07. No significant scope changes since 2006-07.

(4) 2003-04 figure is estimated from *Reforming NHS Financial Flows: Introducing payment by results* (October 2002); 2004-05, 2005-06 and 2009-10 to 2012-13 figures are DH estimates; 2006-07 to 2008-09 figures are from PbR MFF adjustment actual outturn exercise (stage 4)

## Annex C: Structure of Payment by Results 2003-04 to 2012-13

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
<b>Currency and classification</b>										
HRG currency	HRGv3.5 FCE	HRGv3.5 spell	HRGv3.5 spell (3.2 A&E)	HRGv3.5 spell (3.2 A&E)	HRGv3.5 spell (3.2 A&E)	HRGv3.5 spell (3.2 A&E)	HRG4 spell (3.2 A&E)	HRG4 spell (3.2 A&E)	HRG4 spell	HRG4 spell
OPCS classification	4.2	4.2	4.2	4.3	4.4	4.4	4.5	4.5	4.6	4.6
<b>Structural adjustments</b>										
Short stay emergency adjustment	x	x	x	✓	✓	✓	✓	✓	✓	✓
Short stay elective adjustment	x	x	x	x	x	x	✓	x	x	x
Long stay payment	x	x	✓	✓	✓	✓	✓	✓	✓	✓
Specialised service top-up payment	x	x	✓	✓	✓	✓	✓	✓	✓	✓
Eligibility required?	x	x	x	x	x	✓	✓	✓	3 of 4	3 of 4
Marginal rate emergency tariff	x	x	x	x	x	x	x	30% above	30% above	30 % above
Differential tariff for emergency admissions	x	x	x	50% above/ below	50% above/ below	50% above/ below	x	x	x	x
A&E 80/20 funding rule	x	x	✓	✓	✓	✓	x	x	x	x
Non-payment for some emergency readmissions within 30 days of discharge	x	x	x	x	x	x	x	x	✓	✓
<b>Short stay emergency adjustment percentages</b>										
0-1 days	-	-	-	100%	100%	100%	100%	100%	100%	100%
2 days	-	-	-	50%	50%	50%	75%	70%	70%	70%
3-4 days	-	-	-	35%	35%	35%	55%	45%	45%	45%
5 or more days	-	-	40%	20%	20%	20%	35%	25%	25%	25%
<b>Specialised service top-up payment percentages</b>										
Cancer	-	-	4%	-	-	-	-	-	-	-
Cardiology	-	-	19%	16%	16%	18%	-	-	-	-
Children non-specialised	-	-	18%	11%	11%	12%	-	-	-	-
Children specialised	-	-	53%	69%	69%	90%	78%	78%	60%	50%
Colorectal	-	-	54%	35%	35%	39%	-	-	-	-
Hepatology	-	-	7%	9%	9%	10%	-	-	-	-
Infectious disease	-	-	11%	-	-	-	-	-	-	-

## A simple guide to Payment by Results

	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13
Neurosciences	-	-	12%	24%	24%	27%	-	-	28%	28%
Orthopaedics	-	-	156%	70%	70%	79%	14%	30%	24%	24%
Respiratory	-	-	6%	17%	17%	19%	-	-	-	-
Spinal surgery	-	-	12%	24%	24%	27%	-	-	32%	32%
<b>Market forces factor</b>										
Payment mechanism	Local	Local	Central	Central	Central	Central	Local	Local	Local	Local
MFF used (1)	2002 Warwick	2002 Warwick	2004 Warwick	2004 Warwick	2004 Warwick	2004 Warwick	2008 HERU	2008 HERU	2010 HERU	2011 HERU
Capping policy	-	-	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%	+/-2%
Maximum	1.345600	1.283700	1.446064	1.446064	1.446064	1.420888	1.347691	1.320737	1.297607	1.297607
Minimum	0.881500	0.885000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000	1.000000
<b>Calculation</b>										
Reference cost data	2001-02	2002-03	2003-04	2004-05	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
Activity (HES) data	-	2002-03	2003-04	2004-05	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10

(1) The staff component of the MFF is the product of independent academic research from the University of Warwick (2002 and 2004) and the Health Economics Research Unit (HERU), University of Aberdeen (2008 and 2010).

## Annex D: Code to Group

The Code to Group is a Microsoft Excel workbook that enables manual mapping of underlying OPCS-4 and ICD-10 codes to HRGs. The following instructions are based on the 2012-13 Local Payment Grouper design.

The workbook has different worksheets, summarised in the table.

Home	Summary of the workbook
Quick Start	A quick start guide to using the Code to Group
HRG4 Chapter	A list of HRG4 chapters used within the grouper software (and Code to Group)
HRG4 Sub-Chapter	A list of HRG4 sub-chapters used within the grouper software (and Code to Group)
HRG4 Labels	A list of HRG4 HRGs used within the grouper software (and Code to Group)
OPCS-4	A list of OPCS codes used within the grouper software (and Code to Group)
ICD-10	A list of ICD-10 codes used within the grouper software (and Code to Group)
PBC Labels	A list of programme budget codes used within the grouper software (and Code to Group)
Code To Group	The main sheet showing the mapping of codes to the root (4 digit) HRG
Group To Split	Maps from the root (4 digit) HRG to final (5 digit) HRG
Documentation Flags	A list of all the logic flags and their purpose
Hierarchy Lists	A list of the hierarchies for OPCS and ICD codes (the logic that determines which procedure or ICD code is used for grouping where there are multiple codes)
Other Lists	Other lists used for qualifying logic (for example site logic in the orthopaedic chapter and age splits)
CC Lists	The complications and co-morbidities lists
Global Lists	Lists that are not specific and can be used across different chapters (for example approach codes)
PBC Mappings	Mapping of ICD codes to PBCs
ICD-10 TOCE	The Table Of Coding Equivalence, showing the mapping from newer versions of OPCS codes
OPCS TOCE	The Table Of Coding Equivalence, showing the mapping from newer versions of OPCS codes

Previously we introduced Mrs Smith who was pregnant and gave birth to twins by elective caesarean. This was recorded with an ICD-10 code of O300 and an OPCS-4 code of R178. We will now map this to an HRG using the Code to Group

### Step 1: Download the Code to Group

Download the Code to Group from <http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/downloads/payment/hrg4-2012-13-local-payment-grouper-documentation>

## Step 2: Check the hierarchy value of the procedure

As the patient has had a procedure, the procedure code will be used to generate the grouping. If we look on the Hierarchy Lists sheet we can see that OPCS-4 code R178 has a hierarchy of 5. Values of 3 or more can be used to drive grouping.

List ID	Code Type	Code	Code Description	Hierarchy Value
ProcHier	OPCS	R178	Other specified elective caesarean delivery	5

## Step 3: Look up procedure code in Code to Group table

Now if we look on the Code To Group sheet for R178 we can see that it can map to two different root HRGs, NZ15 with a flag of NZ\_CSection\_Comp or NZ13, with a flag of a.

Code Type	Code	Code Description	HRG 1	Flag 1	HRG 2	Flag 2
OPCS	R178	Other specified elective caesarean delivery	NZ13	a	NZ15	NZ_CSection_Comp

## Step 4: Documentation flags

As the Code to Group sheet works from right to left, we first need to first see if the patient meets the criteria for NZ\_CSection\_Comp.

If we look on the Documentation Flags sheet and filter the chapter to N and the subchapter to NZ we can see that the flag NZ\_CSection\_Comp has a description of "Requires a diagnosis of eclampsia, pre-eclampsia or placenta praevia from list NZ\_CSection\_Comp in any position".

HRG Chapter	HRG Sub Chapter	Documentation Flag ID	Doc Flag description
N	NZ	a	Base HRG
N	NZ	Age_16to40	Age between 16 and 40 years
N	NZ	LoS_0	Length of stay of 0 days
N	NZ	NZ_cc	With CC
N	NZ	NZ_CSection_Comp	Requires a diagnosis of eclampsia, pre-eclampsia or placenta praevia from list NZ_CSection_Comp in any position
N	NZ	NZ_Epidural	Requires an epidural procedure from list NZ_Epidural in any position
N	NZ	NZ_Epidural_cc	Requires an epidural procedure from list NZ_Epidural in any position with CC
N	NZ	NZ_Induction	Requires a medical or surgical induction of labour procedure from list NZ_Induction in any position
N	NZ	NZ_Induction_cc	Requires a medical or surgical induction of labour procedure from list NZ_Induction in any position with CC
N	NZ	NZ_PP_Surgery	Requires a procedure indicating post partum surgery from list NZ_PP_Surgery in any position

If we look on the Other Lists sheet and filter to the list ID to NZ\_CSection\_Comp we can see that to map to NZ15 the patient would need to have one of eleven diagnoses. We know that Mrs Smith does not have any of these extra diagnoses and as such the activity would not map to NZ15.

## A simple guide to Payment by Results

List ID	Code Type	Code	Code Description	Value
NZ_CSection_Comp	ICD	O11X	Pre-existing hypertensive disorder with superimposed proteinuria	
NZ_CSection_Comp	ICD	O140	Moderate pre-eclampsia	
NZ_CSection_Comp	ICD	O141	Severe pre-eclampsia	
NZ_CSection_Comp	ICD	O142	HELLP syndrome	
NZ_CSection_Comp	ICD	O149	Pre-eclampsia, unspecified	
NZ_CSection_Comp	ICD	O150	Eclampsia in pregnancy	
NZ_CSection_Comp	ICD	O151	Eclampsia in labour	
NZ_CSection_Comp	ICD	O152	Eclampsia in the puerperium	
NZ_CSection_Comp	ICD	O159	Eclampsia, unspecified as to time period	
NZ_CSection_Comp	ICD	O440	Placenta praevia specified as without haemorrhage	
NZ_CSection_Comp	ICD	O441	Placenta praevia with haemorrhage	

As we know now that the activity would not map to NZ15 we next need to see if the activity would map to the next HRG (NZ13). If we review the flag (a) on the documentation flag list we can see that a flag of a means that there is no additional logic and so the procedure maps to HRG root NZ13.

### Step 5: Group to split

Now that the HRG Root has been established, the next step is to find the split which will determine the HRG. Select the Group To Split sheet. If we filter column A to the root HRG already identified, NZ13, we can see the different HRGs that the root HRG maps to and the flags required to map to each HRG. As the logic works from right to left, the first logic to be tried is the flag of NZ\_CC.

HRG Root	HRG Root Description	HRG 1	Flag 1	HRG 2	Flag 2	HRG 3
NZ13	Planned Lower Uterine Caesarean Section	NZ13B	a	NZ13A	NZ_cc	

If we look on the Documentation Flags sheet and filter the chapter to N and the subchapter to NZ we can see that the flag NZ\_CC has a description of “with CC”.

HRG Chapter	HRG Sub Chapter	Documentation Flag ID	Doc Flag description
N	NZ	a	Base HRG
N	NZ	Age_16to40	Age between 16 and 40 years
N	NZ	LoS_0	Length of stay of 0 days
N	NZ	NZ_cc	With CC
N	NZ	NZ_CSection_Comp	Requires a diagnosis of eclampsia, pre-eclampsia or placenta praevia from list NZ_CSection_Comp in any position
N	NZ	NZ_Epidural	Requires an epidural procedure from list NZ_Epidural in any position
N	NZ	NZ_Epidural_cc	Requires an epidural procedure from list NZ_Epidural in any position with CC
N	NZ	NZ_Induction	Requires a medical or surgical induction of labour procedure from list NZ_Induction in any position
N	NZ	NZ_Induction_cc	Requires a medical or surgical induction of labour procedure from list NZ_Induction in any position with CC
N	NZ	NZ_PP_Surgery	Requires a procedure indicating post partum surgery from list NZ_PP_Surgery in any position

If we now look at the CC Lists sheet and filter in column a to the List ID NZ\_CC we can see that there are 104 potential diagnosis codes for the CC list, and that one of these codes is O300, which was Mrs Smith’s diagnosis.

## A simple guide to Payment by Results

List ID	Code Type	Code	Code Description
NZ_CC	ICD	O101	Pre-existing hypertensive heart disease complicating pregnancy, childbirth and the puerperium
NZ_CC	ICD	O102	Pre-existing hypertensive renal disease complicating pregnancy, childbirth and the puerperium
NZ_CC	ICD	O103	Pre-existing hypertensive heart and renal disease complicating pregnancy, childbirth and the puerperium
NZ_CC	ICD	O104	Pre-existing secondary hypertension complicating pregnancy, childbirth and the puerperium
NZ_CC	ICD	O109	Unspecified pre-existing hypertension complicating pregnancy, childbirth and the puerperium
NZ_CC	ICD	O11X	Pre-existing hypertensive disorder with superimposed proteinuria
NZ_CC	ICD	O140	Moderate pre-eclampsia
NZ_CC	ICD	O141	Severe pre-eclampsia
NZ_CC	ICD	O142	HELLP syndrome
NZ_CC	ICD	O149	Pre-eclampsia, unspecified
NZ_CC	ICD	O150	Eclampsia in pregnancy
NZ_CC	ICD	O151	Eclampsia in labour
NZ_CC	ICD	O152	Eclampsia in the puerperium
NZ_CC	ICD	O159	Eclampsia, unspecified as to time period
NZ_CC	ICD	O16X	Unspecified maternal hypertension
NZ_CC	ICD	O223	Deep phlebothrombosis in pregnancy
NZ_CC	ICD	O240	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, insulin-dependent
NZ_CC	ICD	O241	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, non-insulin-dependent
NZ_CC	ICD	O242	Diabetes mellitus in pregnancy: Pre-existing malnutrition-related diabetes mellitus
NZ_CC	ICD	O243	Diabetes mellitus in pregnancy: Pre-existing diabetes mellitus, unspecified
NZ_CC	ICD	O244	Diabetes mellitus arising in pregnancy
NZ_CC	ICD	O249	Diabetes mellitus in pregnancy, unspecified
NZ_CC	ICD	O262	Pregnancy care of habitual aborter
NZ_CC	ICD	O266	Liver disorders in pregnancy, childbirth and the puerperium
NZ_CC	ICD	O267	Subluxation of symphysis (pubis) in pregnancy, childbirth and the puerperium
NZ_CC	ICD	O300	Twin pregnancy
NZ_CC	ICD	O301	Triplet pregnancy
NZ_CC	ICD	O302	Quadruplet pregnancy
NZ_CC	ICD	O308	Other multiple gestation
NZ_CC	ICD	O309	Multiple gestation, unspecified
NZ_CC	ICD	O422	Premature rupture of membranes, labour delayed by therapy
NZ_CC	ICD	O430	Placental transfusion syndromes
NZ_CC	ICD	O431	Malformation of placenta
NZ_CC	ICD	O432	Morbidly adherent placenta
NZ_CC	ICD	O438	Other placental disorders
NZ_CC	ICD	O440	Placenta praevia specified as without haemorrhage

However, O300 was Mrs Smith's primary diagnosis and not a secondary diagnosis, as the cc logic only looks in the secondary positions the code would not be used to map to the HRG. As Mrs Smith has not had any of the other diagnosis codes reported she would not map to NZ13A.

As we know now that the activity would not map to NZ13A we next need to see if the activity would map to the next HRG (NZ13B). If we review the flag (a) on the documentation flag list we can see that a flag of a means that there is no additional logic.

By combining these steps we can now see that Mrs Smith will map to root HRG NZ13 with a final 5th digit of B to make a final HRG of NZ13B.

### Step 6: Look up HRG label

Select the HRG4 Labels Sheet and custom filter or search to find that NZ13B is a planned lower uterine caesarean section without CC.

HRG	HRG Label - Including Split	HRG Core (C) and Unbundled (U)
NZD3C	Caesarean Section with complications	C

## **Annex E: Early implementers of PbR**

Barnsley Hospital NHS Foundation Trust  
Basildon and Thurrock University Hospitals NHS Foundation Trust  
Bradford Teaching Hospitals NHS Foundation Trust  
Calderdale and Huddersfield NHS Foundation Trust  
Cambridge University Hospitals NHS Foundation Trust  
Chesterfield Royal Hospital NHS Foundation Trust  
City Hospitals Sunderland NHS Foundation Trust  
Countess of Chester Hospital NHS Foundation Trust  
Derby Hospitals NHS Foundation Trust  
Doncaster and Bassetlaw Hospitals NHS Foundation Trust  
Frimley Park Hospital NHS Foundation Trust  
Gateshead Health NHS Foundation Trust  
Gloucestershire Hospitals NHS Foundation Trust  
Guy's and St Thomas' NHS Foundation Trust  
Harrogate and District NHS Foundation Trust  
Heart of England NHS Foundation Trust  
Homerton University Hospital NHS Foundation Trust  
King's College Hospital NHS Foundation Trust  
Lancashire Teaching Hospitals NHS Foundation Trust  
Liverpool Women's NHS Foundation Trust  
Moorfields Eye Hospital NHS Foundation Trust  
North Tees and Hartlepool NHS Foundation Trust  
Nuffield Orthopaedic Centre NHS Trust  
Papworth Hospital NHS Foundation Trust  
Peterborough and Stamford Hospitals NHS Foundation Trust  
Queen Victoria Hospital NHS Foundation Trust  
Royal Devon and Exeter NHS Foundation Trust  
Royal National Hospital for Rheumatic Diseases NHS Foundation Trust  
Sheffield Teaching Hospitals NHS Foundation Trust  
South Tyneside NHS Foundation Trust  
Stockport NHS Foundation Trust  
The Rotherham NHS Foundation Trust  
The Royal Bournemouth and Christchurch Hospitals NHS Foundation Trust  
The Royal Marsden NHS Foundation Trust  
University College London Hospitals NHS Foundation Trust  
University Hospital Birmingham NHS Foundation Trust