Reference costs 2011-12

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Foreword by David Flory CBE

I am pleased to introduce the publication of these 2011-12 reference costs that I asked NHS trusts and NHS foundation trusts to submit at the start of the year.

Reference costs serve a diverse audience. This publication is designed to meet their different needs: it combines an accessible introduction to patients and members of the public with an interest in the costs of NHS services, and important messages about data quality to colleagues on trust Boards.

Reference costs are part of the Department's commitment to making a vast wealth of information available to the public and to providing accountability and transparency in relation to the cost of services provided by the NHS. These were some of the objectives for the first collection of reference costs in 1997-98 and they remain just as valid today. You will find here detailed cost information on over 1,600 treatments and procedures and other patient and service user contacts with 248 NHS trusts and foundation trusts delivering acute, mental health and community services in 2011-12. This publication will help navigate you through the data.

Reference costs are used for a variety of purposes, principally in recent years to inform the national tariff. Under the Health and Social Care Act (2012), Monitor and the NHS Commissioning Board will have joint responsibility for determining tariffs for 2014-15 and beyond and it will be for them to confirm to what extent these data are used. However, these 2011-12 costs will be used to inform the development for 2013-14 of benchmark costs for mental health, and a tariff for cystic fibrosis.

Publication of these data reflects the output of an ongoing drive to improve the quality of costing and provision of cost data in the NHS both nationally, through more rigorous scrutiny of the data, and locally through a wider take up of patient level costing. In addition, it is recognised that effective clinical and finance engagement is vital to the production of good quality costs. As a result, we now know for the first time to what extent finance managers and clinicians have been collaborating in the costing process and I am pleased to see 20 percent of trusts reporting a significant level of engagement.

Looking ahead, and given its various uses, there are now a number of national bodies with a significant interest in the quality and accuracy of reference costs. The Department will continue to work with our partners to collect and publish data of the highest possible standard.

David Flory

David Flory
Deputy Chief NHS Executive

Section one: Introduction

Purpose

1. This document supports the publication of 2011-12 reference costs, which give the most detailed picture available about how 248 NHS trusts and NHS foundation trusts (trusts) spent £53 billion delivering healthcare to patients in 2011-12.

2. Section one provides an introduction to reference costs, how and why we collect them, and highlights some of the main changes we made to the 2011-12 collection.

3. Section two explains the data that we have published alongside this document[1]:

   (a) national schedules of reference costs. These show the national average unit costs derived from the unit costs of NHS providers
   (b) reference cost index (RCI). A measure of the relative efficiency of NHS providers
   (c) database of source data. This allows a more detailed analysis of organisation level costs.

4. Section three is devoted to the spell costs that we collected for the first time from all trusts submitting equivalent finished consultant episode (FCE) costs. A spell is the period from admission to discharge within a single provider and may comprise of more than one FCE. Previous reference costs for admitted patient care have only been reported by FCE, whilst the national tariff for admitted patient care is spell based.

5. Section four analyses the results of the survey of trusts we conducted as part of the collection, mainly to assess the extent to which trusts are implementing patient level information costing systems (PLICS), and using these systems to compile their reference costs.

6. Section five describes why quality is important, and what actions we have taken to improve and validate the quality of 2011-12 reference costs.

Background

7. Reference costs are one of the building blocks of Payment by Results (PbR). This is the system that covers the majority of NHS funded acute healthcare in England, under which NHS commissioners pay acute trusts a national tariff for each patient seen or treated, taking into account the complexity of the patient's healthcare needs. All trusts submit their costs and activity for each particular service, and prices are then set based on the national average across all trusts. We refer readers who would like a fuller understanding of PbR to our publication, *A simple guide to Payment by Results*[2].

8. PbR was introduced in 2003-04. Reference costs were introduced several years earlier, in 1997-98, from a desire to understand how all hospital costs compared to each other. The NHS had always accounted for its expenditure in terms of staffing,

[1] http://www.dh.gov.uk/health/category/policy-areas/nhs/resources-for-managers/nhs-costing/
[2] http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128862

goods, services and so on. Reference costs allowed unit costs of healthcare in hospital trusts to be compared down to the level of treatments and procedures. By unit costs, we simply mean the expenditure incurred in providing one unit of a service. For example, one tonsillectomy, heart transplant, outpatient attendance, antenatal visit, and so on. Each year we collect and publish reference costs from all NHS providers of secondary healthcare services to NHS patients in England[3].

9. Meaningful unit costs cannot be derived simply by dividing total expenditure by the number of patients. Reference costs use casemix adjusted measures where they are available, in which the care provided to a patient (case) is classified according to its complexity (mix). The casemix measure for acute care in England is Healthcare Resource Groups (HRGs)[4]. HRGs are maintained by the Casemix Service at the NHS Information Centre. They are defined by clinicians and reflect clinical practice in the UK, providing standard groupings of similar treatments that use similar resources. We have used the latest version, HRG4, in reference costs since 2006-07. Outpatient attendances are classified according to their treatment function code (TFC), and other services use different currencies.

10. The collection of reference costs is supported each year by detailed guidance and the *NHS costing manual*, designed to minimise variation caused by different costing methodologies. Increasingly, the *clinical costing standards*, originally published by the Department but now maintained by the Healthcare Financial Management Association (HFMA)[5], are enabling trusts to move beyond minimum standards towards a framework that reflects the increasing use of PLICS. Trusts submit reference costs on a full absorption basis, which simply means that all the running costs of providing these services are included within the return. Each reported unit cost therefore includes:

    (a) direct costs – which can be easily identified with a particular activity (e.g. consultants and nurses)
    (b) indirect costs – which cannot be directly attributed to an activity but can usually be shared among a number of activities (e.g. laundry and lighting)
    (c) overheads – which relate to the overall running of the organisation (e.g. finance and human resources).

11. Trusts undertake a reconciliation of their reference cost return to their final financial accounts, to ensure they have reported all relevant costs.

Uses of reference costs

12. The Department in partnership with the Audit Commission conducted a review of the uses and quality of reference costs in 2010[6]. The review found a wide audience for the data and we hope that this guide will further promote their use.

13. The value of services covered in reference costs is broader than the tariff (£53 billion compared to around £29bn in 2011-12), and reference costs have a number of other uses besides setting prices. They support the Department's commitment to improving data transparency and making a vast wealth of relevant information available to the

[3] http://www.dh.gov.uk/health/2011/11/reference-costs-guidance/
[4] http://www.ic.nhs.uk/casemix
[5] http://www.hfma.org.uk/costing
[6] http://www.dh.gov.uk/en/Managingyourorganisation/NHScostingmanual/DH_104762

public, as set out in its business plan for 2011 to 2015[7], and inform several input indicators in its business plan quarterly data summary[8].

14. NHS providers and commissioners use the data for reporting to executive teams, benchmarking, contract negotiations and local pricing of non-tariff areas.

15. Reference costs are, or will be, also used by the Department, Monitor, the NHS CB, the NHS Trust Development Authority (NHS TDA), the NHS Information Centre, and other organisations and individuals to:

    (a) hold the Department and its ministers to account for the use of NHS resources in replies to parliamentary questions, freedom of information requests and other official correspondence
    (b) support elements of national programme budgeting[9], an alternative method of assessing NHS expenditure across broader categories of illness such as cancer, cardiovascular diseases and mental health
    (c) support implementation of the EU cross border healthcare directive, which requires transparent and objective mechanisms for the reimbursement of patient costs between member states
    (d) inform the weighted capitation formula used to allocate resources to NHS commissioners
    (e) provide comparative costs to support evaluation of new or innovative medical technologies
    (f) help assess whether NHS trusts are ready to become NHS foundation trusts
    (g) support Office for National Statistics (ONS) estimates of NHS productivity
    (h) inform the design of HRGs and other payment currencies
    (i) inform other academic research.

Changes to 2011-12 reference costs

16. We made a number of changes to this year's reference costs collection, designed to:

    (a) **support tariff calculation**. Spell costs were collected for the first time from all trusts submitting equivalent FCE costs. This is a potentially significant change for the development of the national tariff, and we discuss this further in section three. For now, readers should note that all quoted costs relating to admitted patient care in this document, with the exception of section three, are on an FCE basis. We will also continue to respond to parliamentary questions, freedom of information and other data requests using FCE costs unless the question specifically asks for spell costs
    (b) **support the expansion of Payment by Results currencies and tariffs into other services**. Costs were collected for the first time against a number of new currencies, including mental health care clusters, cystic fibrosis year of care bands, and ambulance service currencies (described further in Annex A)
    (c) **ensure the collection remains fit for purpose**. 2011-12 reference costs were collected from all NHS trusts and NHS foundation trusts[10]. Unlike previous years, they were not collected from primary care trusts (PCTs), which had

[7] http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128494
[8] http://www.transparency.dh.gov.uk/2012/07/13/busplan-qds-july-2012
[9] http://www.dh.gov.uk/health/2011/12/programme-budgeting-pct-benchmarking-tool-2011/
[10] With the exception of Calderstones Partnership NHS Foundation Trust and Oxfordshire Learning Disability NHS Trust (both learning disability trusts), and NHS Direct

largely transferred their provider functions to NHS trusts and NHS foundation trusts, or from personal medical service plus (PMS+) pilots

(d) **support improvements in quality**. We discuss this further in section five.

17. We list all changes, and our reasons for making them, in our *Reference costs guidance for 2011-12 (pp 10-18)*[11].

Headlines

18. The following represent some notable findings from the data[12] collected for 2011-12 (and some comparisons to 2010-11 in parentheses):

- 2011-12 reference costs cover £53.4 billion of NHS expenditure, an increase of £0.5 billion (1%) over the £53 billion in 2010-11
- This represents over 50% of the £101.6 billion[13] estimated NHS revenue expenditure in 2011-12
- 4.7 million data items were submitted by 248 NHS trusts and NHS foundation trusts
- Detailed costs were provided for over 1,600 treatments or procedures covering over 15 million episodes within admitted patient care alone
- The average cost of a day case is £682 (£668)
- The average cost of an elective inpatient stay excluding excess bed days is £3,215 (£3,093)
- The average cost of a non-elective inpatient short and long stay combined excluding excess bed days is £1,436 (£1,399)
- The average cost of an excess bed day is £264 (£258)
- The average cost of an outpatient attendance is £106 (£102)
- The average cost of an A&E attendance is £108 (£101).

19. Annex B provides further summary statistics from 2006-07 to 2011-12.

20. Key findings from this year's survey are that:

- 145 trusts (58%) have implemented or are in the process of implementing PLICS, compared to 126 (54%) who reported being at the same stage last year
- Of the 93 trusts that have implemented PLICS, 89 used PLICS data to underpin some or all of their reference cost return, and 84 used the HFMA clinical costing standards
- When asked to score themselves against four levels of clinical and financial engagement, from purely board level (level 1) through to full engagement at different levels and across all clinical specialties (level 4), 49 trusts (20%) reported working at level 4
- A further 53 trusts (21%) are planning to implement PLICS, the majority in the next one to two years
- An increasing number of mental health trusts are planning to implement PLICS, 33 (59%) in 2012 compared to 17 (33%) in 2011

[11] http://www.dh.gov.uk/health/2012/01/reference-costs-manua/
[12] The full dataset, including HRGs in subchapter WD and UZ01Z
[13] Source: Department of Health Annual Report and Accounts 2011-12, http://www.dh.gov.uk/health/2012/10/dh-report-accounts/

- By 2015, 87% of acute trusts, 73% of mental health trusts, 38% of community trusts and 9% of ambulance trusts should be running PLICS.

Queries

21. The volume of information in reference costs is vast. We hope this guide assists readers in finding and using relevant information.

22. If you have a query, please see if the information that you are seeking is already available using the resources (e.g. schedules, database, code to group workbooks) described in this guide. If you request information that is already available, then we will simply refer you to the published source.

23. If you are unable to find the information you require using these resources, you can contact us at pbrcomms@dh.gsi.gov.uk.

Section two: Data

Introduction

24. The data are presented in three ways:

    (a) national schedules of reference costs. These show the national average unit costs derived from the unit costs of NHS providers
    (b) reference cost index. A measure of the relative efficiency of NHS providers
    (c) database of source data. This allows a more detailed analysis of organisation level costs.

National schedules of reference costs

25. The national schedules of reference costs show the national average unit cost for each service for which costs were collected in 2011-12 reference costs. They cover services provided in hospitals, in the community, and in a range of other settings. Thus, services included range from a visit by a district nurse to the provision of high-level secure placements for mental health patients, and from ultrasound scans to renal dialysis and transplant surgery.

26. The schedules show:

    (a) activity, ie the number of appointments, attendances, bed days, clients, episodes, tests or treatments appropriate to the service
    (b) the national average (mean) unit cost, i.e. total cost divided by total activity
    (c) the lower and upper quartile unit costs[14]
    (d) the number of data submissions.

27. Two schedules are provided:

    (a) Schedule 1 - NHS trusts and NHS foundation trusts' own data (i.e. the cost to the organisation where it provides the service itself)
    (b) Schedule 2 - NHS trusts and NHS foundation trusts' sub-contracted out data (i.e. the cost to the organisation where it sub-contracts services to the

[14] Note that it is sometimes possible for the national average mean unit cost to be less than or more than the lower and upper quartiles. In the following example, trust B has a high proportion of the total activity and therefore the mean (£529) lies outside the lower and upper quartiles (£600).

	Unit cost	Activity	Total cost
Trust A	£100	1	£100
Trust B	£600	6	£3,600
Mean	£529	7	£3,700

Unit cost	
£100	
£600	Lower quartile
£600	
£600	Median
£600	
£600	Upper quartile
£600	

independent sector. It is in effect the price paid by the NHS for the service, and not the cost to independent sector organisations of providing the service).

28. The costs included in the schedule are the actual reported costs. Unavoidable cost differences across the country, which are reflected in the market forces factor (MFF) index, have not been removed.

29. Within each schedule, information is shown separately for:

    (a) **elective inpatients** – where the patient has a planned admission to hospital with the expectation that they will remain in hospital for at least one night
    (b) **non-elective inpatients** – where the patient has an unplanned admission. Includes emergency admissions and admissions for maternity, births, and non-emergency patient transfers from another hospital
    (c) **day cases** – where the patient has a planned admission and is discharged on the same day
    (d) **regular day and night admissions** – patients admitted electively during the day or night, as part of a planned series of regular admissions for an on-going regime of broadly similar treatment and who are discharged the same day or next morning
    (e) **day care facilities** - provided for the clinical treatment, assessment and maintenance of function of patients, in particular, though not exclusively, those who are elderly, who have had strokes, or who have mental health issues. These facilities do not have hospital beds and function separately from any ward
    (f) **outpatient attendances** – at clinics in hospital, community health centres, general practices or other locations, split by whether or not the attendance was (i) under the clinical direction of a consultant, (ii) face to face (iii) first or follow up, and (iv) single or multi-professional
    (g) **outpatient attendances where a procedure is performed** – HRG4 allows the separate reporting of certain procedures in an outpatient setting
    (h) **cancer multi-disciplinary teams** – meetings between healthcare professionals to discuss treatment plans for cancer patients
    (i) **accident and emergency (A&E) services** - split by 24 hour, non-24 hour, minor injury unit and walk-in centre, and by whether or not the attendance led to an admission
    (j) **unbundled HRGs** for a number of services. These costs are generally high and only relate to a limited number of patients. Including them as an overhead on treatments and procedures would significantly distort costs and lead to wide variations. Trusts therefore report them separately as follows:
        (i) **chemotherapy** – drug costs for cancer patients, split between procurement of regimens and delivery, with other costs included in the relevant admitted patient or outpatient setting
        (ii) **critical care (adult, neonatal, paediatric, and outreach services)** – costs associated with critical care services. The HRG4 design is based on the number of organs supported in a critical care period
        (iii) **high cost drugs** – a list of specific high cost drugs
        (iv) **diagnostic imaging** - including MRI and other scans (plain film x-rays that are part of an admission or outpatient attendance are not reported separately due to their high volume and low cost)
        (v) **radiotherapy** – treatment costs for cancer patients

(vi) **rehabilitation** – covering a wide range of rehabilitation taking place under a specialist rehabilitation consultant or within a discrete rehabilitation unit

(vii) **specialist palliative care** – care provided under a specialist palliative care medical consultant either in a palliative care unit or in a designated palliative care programme

(k) **renal dialysis** – covering both haemodialysis and peritoneal dialysis. Costs of providing dialysis away from base rather than at the patient's usual hospital were collected for the first time in 2011-12

(l) **services accessed directly** – diagnostic or pathology services that are undertaken in admitted patient care, critical care, outpatients or emergency medicine are included as part of the composite costs of these types of care. Where these services are provided independently of an admission or outpatient attendance, because a patient is referred by a GP for a test or self-refers, the reference costs collection classifies these as services accessed directly. A range of diagnostic services, including physiological and clinical measurement tests (reported by HRG), plain film x-rays, and pathology services are covered

(m) **cystic fibrosis** – 2011-12 reference costs were collected for the first time on the basis of a year of care currency which allocates cystic fibrosis patients into one of seven bands, each one describing an increasingly complex year of care

(n) **audiological services** – services for people with hearing difficulties, covering assessment, fitting and repair of hearing aids, and neonatal screening

(o) **adult mental health services** – 2011-12 reference costs were collected for the first time on the basis of mental health care clusters for working age adults and older people that reflect service user needs over extended periods of time from four weeks to one year and may contain multiple different care interventions

(p) **other mental health services** – covers children and adolescent mental health services (CAMHS), drug and alcohol services, specialist mental health services (e.g. autistic spectrum disorder and eating disorder services) and secure mental health services

(q) **community nursing services** – a range of district nursing and health visitor services covering routine and specialist services outside hospitals and often in patients' homes, local health centres, etc

(r) **other community services** – services provided by staff in local areas in the wider community (including hospital bases if necessary) such as midwifery, podiatry, speech therapy etc

(s) **hospital at home and early discharge schemes** - these schemes allow the early discharge of patients from hospital in order for them to continue receiving healthcare in their homes

(t) **ambulance services** – 2011-12 reference costs from ambulance service NHS trusts were collected for the first time on the basis of new currencies which reflect the number of emergency and urgent calls received, whether an ambulance was dispatched, and whether the patient was treated at the scene or conveyed to another healthcare provider.

30. This list reflects the range of services and locations in which the NHS operates. By splitting the costs, it is possible to build up the total costs of treatment across the patient pathway, e.g. diagnostic tests requested by GP, an outpatient attendance following referral, inpatient stay (including critical care) or day case, outpatient attendances following discharge and district nurse visits.

31. The elective and non-elective inpatient schedules include the cost of excess bed days. To ensure a like for like comparison of activity and costs, trusts separately

report the costs of bed days that fall outside nationally set lengths of stay, known as trim points[15], published by the NHS Information Centre[16].

32. Within each schedule, we have multiplied unit costs and activity reported by the NHS to estimate:

    (a) the total cost of each activity (by HRG etc) across all settings
    (b) the total cost of all activity in each setting (inpatients, day cases, outpatients etc).

33. As in previous years, we have excluded HRG UZ01Z (data invalid for grouping), and HRGs in subchapter WD (treatment of mental health patients by non-mental health providers) from the schedules.

34. Reference costs are not always directly comparable between years because of annual changes to:

    (a) the scope of the collection
    (b) the collection guidance
    (c) the currencies for which costs are reported. *HRG4 2011-12 Reference Costs Grouper Roots*[17] describes changes to HRGs from 2006-07 (when the latest version of HRGs - HRG4 - was introduced) to 2011-12.

Reference cost index

35. Whereas the schedule provides detailed information on the average costs for each treatment or procedure, the reference cost index (RCI) provides an at a glance comparison of costs at the aggregate level for each trust.

36. The RCI shows the actual cost of a trust's casemix compared with the same casemix delivered at national average cost. A trust with costs equal to the national average will score 100, with higher cost trusts scoring above 100 and lower cost trusts scoring below 100. For example, a score of 110 suggests that costs are 10% above the average whilst a score of 90 suggests costs are 10% below the average. The RCI is therefore a measure of relative efficiency.

37. Each trust's RCI is calculated by dividing its actual costs (unit costs x activity) by the expected costs (national average mean unit cost x activity), and multiplying the result by 100. Note that national average unit costs for elective inpatients and day cases are combined for this calculation. In previous years, we based the RCI on the average for the provider type, rather than for all organisations. This allowed for meaningful comparison of similar organisations. 2011-12 reference costs were only collected from NHS trusts and foundation trusts (and not PCTs or PMS+ sites), and this is no longer necessary.

38. The RCI is presented in two different ways:

[15] 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.
[16] http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/downloads/costing/hrg4-2011-12-reference-costs-grouper-documentation
[17] http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/downloads/costing/hrg4-2011-12-reference-costs-grouper-documentation

(a) the non-MFF adjusted RCI based on reported actual costs
(b) the MFF adjusted RCI, which is the preferred index because it gives a fairer comparison of costs once unavoidable cost differences are removed.

39. Trusts in some parts of the country have higher costs because labour, land and buildings cost more in these areas. The MFF compensates for the unavoidable cost differences of providing healthcare in different parts of the country. The purpose and derivation of the MFF, and its use to adjust RCIs, is described in *Payment by Results and the market forces factor 2012-13*[18].

40. We adjust the RCI by dividing each trust's index by its latest published MFF, scaled to ensure that the total national value of reference costs (the quantum) remains constant. Scaling does not affect the relative differences between the MFF values of different trusts.

41. Trusts located in areas with higher than average unavoidable costs have an MFF greater than 1, so their RCI will decrease. Those in lower than average cost areas will have an MFF of less than 1, so their RCI will increase. For example:

(a) the RCI for Royal Cornwall Hospitals NHS Trust increases from 88 to 95 (MFF of 0.9239)
(b) the RCI for University College London Hospitals NHS Foundation Trust decreases from 133 to 111 (MFF of 1.1951).

42. We present organisation wide RCIs both including and excluding excess bed days, with the former normally preferred when comparing relative efficiency.

43. As well as organisation wide scores, RCIs are provided for the following services:

(a) elective inpatient and day case
(b) non-elective inpatient
(c) excess bed days
(d) critical care
(e) outpatient services
(f) other acute services
(g) community services
(h) mental heath
(i) paramedic services
(j) A&E
(k) unbundled services.

44. The source database (paragraph 50) lists a RCI "mapping pot" to enable costs to be mapped to the above services. We have also published an intermediate level analysis (organisation level data) that shows the cost variance (the difference between local and average unit cost) for each service code in each trust.

45. Where trusts ceased to exist in 2011-12, the successor organisation reported one reference cost return for their organisation, incorporating the activities and costs of predecessor organisations. In these circumstances, no comparable RCI data exists

18 http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132654

for 2010-11. The data reflect the organisations in existence at 31 March 2012. We have not reflected any subsequent change in status (for example, NHS foundation trust approval) in this publication.

46. Table 1 illustrates the calculation of the RCI for one NHS provider.

Table 1: Worked example of RCI calculation

	A	B	C	D = (A*B)	E = (A*C)	F = (D/E*100)	G	H = (F/G)
	Activity	Cost	National average cost	Actual cost	Expected cost	RCI (not MFF adjusted)	MFF	RCI (MFF adjusted)
HRG A	10	10	15	100	150			
HRG B	20	30	20	600	400			
Total				700	550	127	0.95	134

47. We base the RCI calculation on each trust's own costs, excluding as in previous years:

(a) the costs of services sub-contracted to the independent sector
(b) HRG UZ01Z (data invalid for grouping). HRGs are designed to be iso-resource, by which we mean standard groupings of clinically similar treatments that use similar levels of resource. Since UZ01Z could include any costs relating to any patient activity that cannot be coded, it is inappropriate to include in a measure of relative efficiency
(c) HRGs in subchapter WD (treatment of mental health patients by non-mental health providers). Given that mental health services provided by specialist providers are captured using other currencies, the HRGs within WD effectively form the residue of treatment of mental health patients by non-specialist mental health service providers and are also not iso-resource.

48. This year we also excluded from RCIs:

(a) adult mental health services reported against the mental health care clusters. Clustering of patients has only been mandated from December 2011, and therefore the extent to which mental health trusts have submitted comparable data will vary. Once the care clusters are excluded, the RCI represents a small proportion of net operating expenses for mental health trusts and is subject to high variability as a result. Only 66% of mental health trusts have an RCI in the range 86 to 115, compared to 99% of acute (excluding specialist and teaching) trusts. This exclusion is for one year only, and in 2012-13 we will include care cluster costs in the RCI
(b) the cystic fibrosis year of care currency. The collection reflects shared care arrangements that exist for cystic fibrosis by allowing for the reporting of costs for the same patient from both a specialist centre and second trust where local care is provided. Because the use of these shared care arrangements will vary, the costs cannot be considered iso-resource
(c) adult critical care outreach services. Trusts report these services separately, rather than as an overhead to admitted patient care, and as a total cost rather than a unit cost because there is no national dataset for collecting the activity
(d) cancer multi-disciplinary teams where trusts submitted a total cost rather than a unit cost.

49. We also applied the same methodology for deriving each organisation's overall RCI to the service specific RCIs, but only activity, unit costs and national average costs relevant to that service are included in the calculation.

Database

50. We have provided the source data submitted for the 2011-12 reference costs collection in a series of comma separate variable (CSV) files. Annex C describes the files and their contents. Annex F gives instructions for downloading and importing the data into Microsoft Access.

51. We have also made available, on the Unify2[19] forum, the source data submitted by trusts in the reconciliation statement workbook. This workbook provides assurance that trusts have correctly included all costs, identified services excluded from reference costs, and netted off allowable income from their reference costs quantum. It also provides information on the costs of certain high cost drugs and devices included in reference cost returns, and other memorandum information useful to the Department. We are releasing this information on Unify2 in the interests of transparency and consistency, and to enable trusts to benchmark their data.

Using the data

52. We offer four examples to illustrate how the data can be used to analyse and investigate costs across the NHS.

Calculating average costs - normal delivery in an inpatient setting

53. To determine the average cost for the normal delivery of a baby in an inpatient setting, the first step is to identify the relevant HRGs (Table 2).

Table 2: Normal delivery HRGs

HRG code	Description
NZ11A	Normal delivery with complications and comorbidities (CC)
NZ11B	Normal delivery without CC
NZ11C	Normal delivery with epidural with CC
NZ11D	Normal delivery with epidural without CC
NZ11E	Normal delivery with induction with CC
NZ11F	Normal delivery with induction without CC
NZ11G	Normal delivery with post-partum surgical intervention

54. The second step is to identify a weighted average cost from the total activity and costs across the required settings (Table 3). As described above, inpatient costs are split between those below the trim point (inlier) and those beyond the trim point (excess). When calculating a weighted average cost, the inlier and excess costs need to be summed but the excess bed day activity, which is already included in the inlier activity, must be ignored.

[19] Unify2 is the corporate collection system used by the Department to collect reference costs and other management information

Table 3: Calculating the average cost of a normal delivery

Setting	Activity	National average unit cost (£)	Activity x unit cost (£)
	A	B	C = A x B
Elective inpatient	1,426	1,280	1,825,071
Elective inpatient excess bed day	77	707	54,405
Non-elective inpatient (long stay)	166,210	2,204	366,248,675
Non-elective inpatient (long stay) excess bed day	55,938	435	24,307,691
Non-elective inpatient (short stay)	243,538	1,093	266,134,918
Day cases	13	1,292	16,801
All inpatient settings	411,187	1,602	658,587,561

55. The national average unit cost of an inpatient normal delivery is £1,602. Note that these costs relate to the delivery episode itself, and no costs are incurred in health terms for a healthy baby. If the baby requires health care in its own right, then this becomes a separate episode with its own costs. These figures also do not represent all the costs to the NHS of a birth, which will also include the costs of home births and other events such as GP consultations and antenatal and postnatal outpatient attendances.

Using the code to group - coeliac disease

56. Hospital episode statistics (HES)[20] are collected by individual diagnoses or procedures. Reference costs are not. With thousands of codes in primary classification systems used to describe clinical information in patient records, this would not be practical.

57. However, it is possible to use the Code to Group workbook[21], published by the NHS Information Centre, to understand how HRGs are derived from a given set of ICD-10 codes for diagnoses and OPCS-4 codes for procedures. Such an approach for estimating the costs of a particular diagnosis or procedure would need to be undertaken with caution. The precise grouping to HRGs depends on other ICD-10 and OPCS-4 codes and patient characteristics (e.g. age, length of stay, complications and comorbidities) present in the episode of care, and the resulting costs would be affected by other diagnoses and procedures in the HRG.

58. For example, the costs associated with coeliac disease (ICD-10 code K900) are included in one of the HRGs for small intestinal disorders (excluding inflammatory bowel disease) with an HRG root code of FZ33, and splits dependent on length of stay and complications or comorbidities. Once the required HRGs have been identified, the method described in example one can be followed to obtain the average cost for this and clinically similar disorders.

Comparing costs over time - cholecystectomy

59. To examine the difference between the day case and elective inpatient costs of performing a cholecystectomy (gall bladder removal) between 2005-06 and 2011-12, the first step is again to identify the relevant HRGs. However, a complicating factor

[20] http://www.ic.nhs.uk/statistics-and-data-collections/hospital-care/hospital-activity-hospital-episode-statistics--hes
[21] http://www.ic.nhs.uk/services/the-casemix-service/using-this-service/reference/downloads/costing/hrg4-2011-12-reference-costs-grouper-documentation

when comparing reference costs between years, especially over an extended period, is that they have been collected on different versions of HRGs. Table 4 shows the relevant HRGs under HRGv3.5 for 2005-06, Table 5 shows the relevant HRGs under HRG4 for 2006-07 to 2008-09 and Table 6 shows the relevant HRGs under HRG4 from 2009-10[22].

Table 4: Cholecystectomy HRGs under HRGv3.5 in 2005-06 reference costs

HRG	Description
G13	Cholecystectomy >69 or with CC
G14	Cholecystectomy <70 without CC

Table 5: Cholecystectomy HRGs under HRG4 in 2006-07 to 2008-09 reference costs

HRG	Description
GA10A	Cholecystectomy with CC
GA10B	Cholecystectomy without CC

Table 6: Cholecystectomy HRGs under HRG4 in 2009-10 to 2011-12 reference costs

HRG	Description
GA10C	Open cholecystectomy without CC
GA10D	Laparoscopic cholecystectomy with length of stay 1 day or more without CC
GA10E	Laparoscopic cholecystectomy with length of stay 0 days without CC
GA10F	Open or laparoscopic cholecystectomy with CC

60. Once the required HRGs for each year have been identified, the method described in example one can be followed to obtain the required average cost.

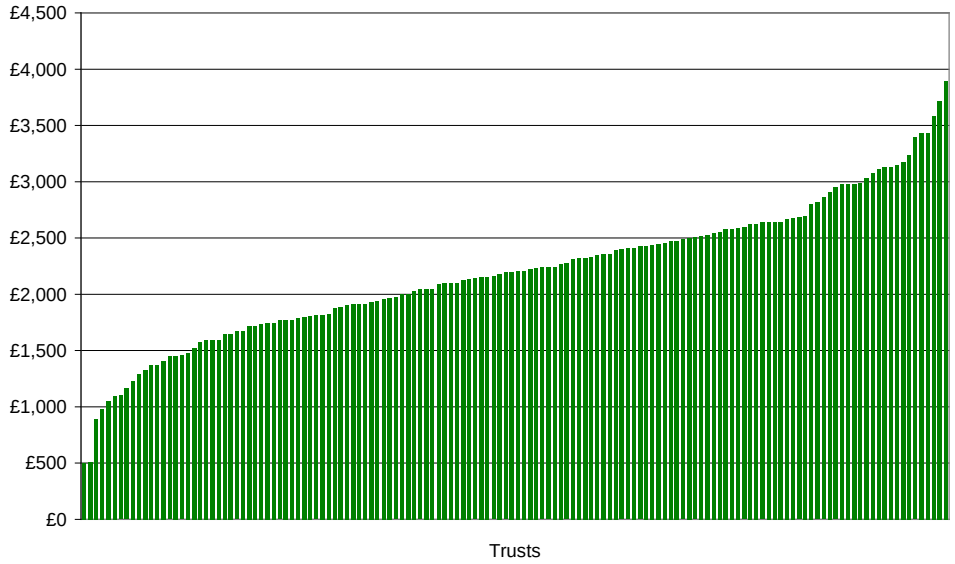
Comparing costs between trusts - normal delivery

61. Table 3 showed the national average unit cost for the normal delivery HRGs across all organisations. We can undertake a more detailed organisation level analysis using the source data provided on our website.

62. Figure 1 shows the organisation level data for normal delivery with CC (NZ11A) for non-elective inpatient (long stay). Even though the national average unit cost is £2,218, the organisational level data shows a range of different costs across organisations.

[22] The HRGs were redesigned for the introduction of a best practice tariff for cholecystectomy in 2010-11, which illustrates that the primary purpose of HRGs is to support the payment system.

Figure 1: Inlier unit costs for normal delivery with complications and comorbidities, non-elective inpatient (long stay), NHS trusts and NHS foundation trusts, 2011-12[23]



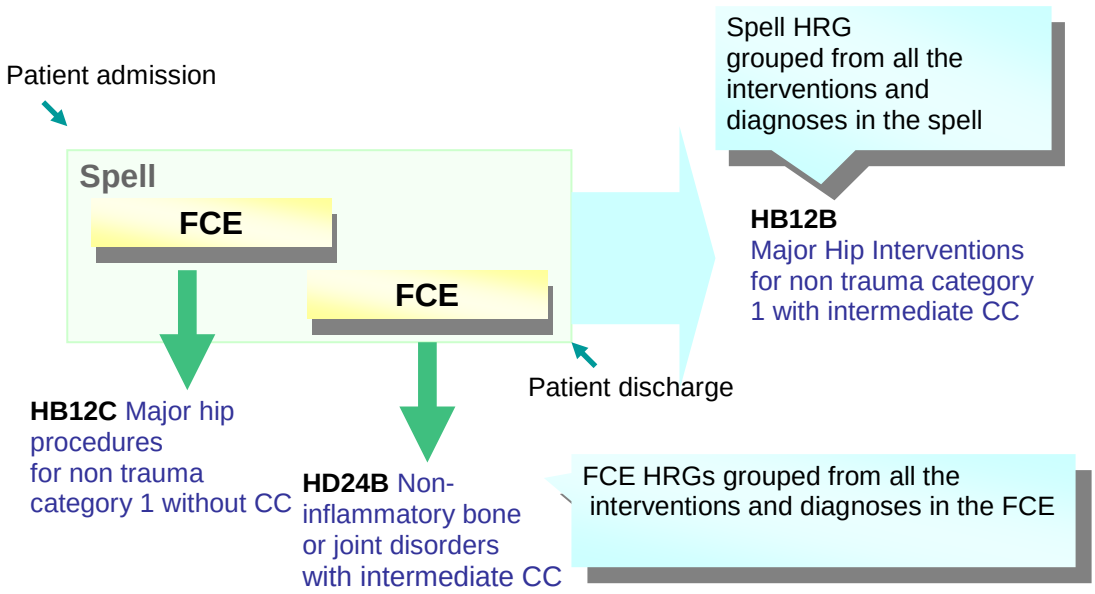
[23] TFC is excluded from the analysis

Section three: Spell data

Introduction

63. A spell is the period from admission to discharge within a single provider and may comprise of more than one FCE. HRG4 supports spell based grouping, unlike earlier versions of HRGs. It is possible to group individual FCEs 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 2).

Figure 2: Spell and FCE HRGs



64. The national tariff for admitted patient care is paid for a spell of care. But trusts have historically reported reference costs by FCE. The conversion of FCE costs into spell prices is complicated, and the collection of spell costs has long been considered a key development in the move towards a more transparently calculated tariff.

65. To support consideration of such a move, and following separate pilot collections of spell costs from 9 providers in 2009-10 and 28 providers in 2010-11 that demonstrated its feasibility, we mandated and mainstreamed the collection of spells costs alongside FCE costs for admitted patient care in 2011-12.

66. Spell costs were submitted as follows:

(a) for trusts' own costs, ignoring any sub-contracted services (paragraph 27)
(b) by admission method (day case, elective inpatient, non-elective inpatient long stay and non-elective inpatient short stay)
(c) number of spells by HRG
(d) average unit cost per spell by HRG, untrimmed for any excess bed days
(e) number of spell inlier bed days by HRG
(f) number of spell excess bed days by HRG.

67. The submission of spell costs and activity was otherwise on the same basis as the submission of FCE costs and activity.

Headlines

68. We have published a separate national schedule for spell reference costs. The following represent some of the key findings[24] (with comparisons to the equivalent FCE costs in parentheses):

- £22.5 billion of spell costs were submitted by 186 trusts (representing every trust that had submitted equivalent FCE costs, with the single exception of one trust that had submitted its equivalent FCE costs against HRG UZ01Z)
- The average spell cost of a day case is £684 (£682)
- The average spell cost of an elective inpatient stay including excess bed days is £3,526 (£3,325)
- The average spell cost of a non-elective inpatient short stay and long stay combined including excess bed days is £2,052 (£1,570).

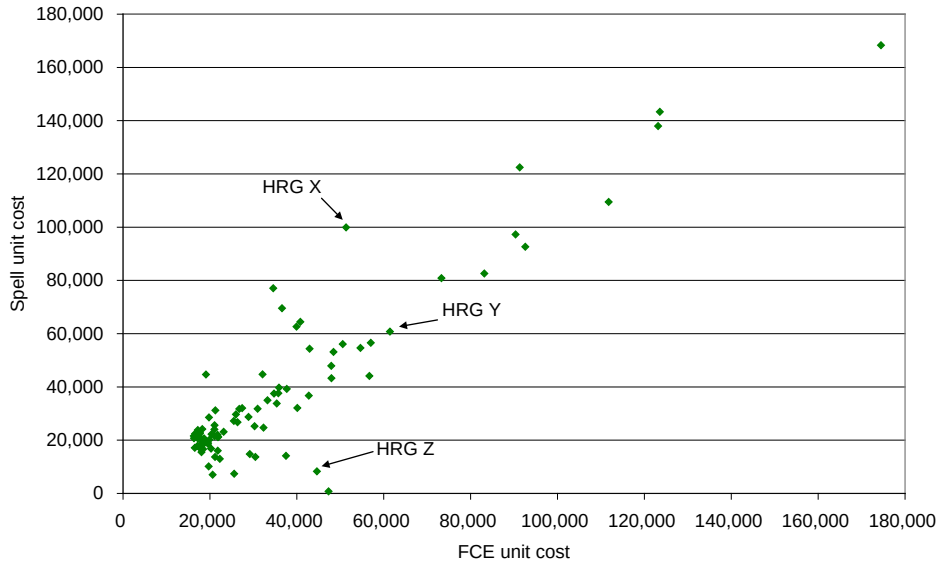
Analysis

69. At HRG level, the mean unit costs reported for spells and FCEs are not directly comparable because:

(a) spell costs include excess bed days over the HRG spell trimpoints, and should therefore be compared with the equivalent FCE costs with excess bed days included
(b) each spell includes one FCE as a minimum, and on average 1.16 FCEs, and its unit cost is therefore generally higher for any given HRG
(c) where a spell unit cost is lower than an FCE unit cost, this may be a function of grouping (paragraph 63) or data quality (paragraph 149).

70. Figure 3 plots the FCE unit costs against the spell unit costs across all admission methods and shows a high degree of correlation (R^2 = 0.8362).

Figure 3: FCE (including excess bed day) and spell unit costs across all admission methods, £



[24] The full dataset, including HRGs in subchapter WD and UZ01Z

71. There is no single driver for the complex relationship between the mean spell and FCE unit costs for any particular HRG. Using Figure 3, we can suggest some possible interpretations for different HRG unit costs:

    (a) HRG X has a significantly higher spell unit cost than FCE unit cost. The most likely scenario is that the spells of care grouped to this HRG commonly contain more than one FCE. In the majority of cases, the FCEs recorded against this HRG are joined in longer spells of care in which the individual patients also had episodes of care recorded under other HRGs, but the interventions and procedures from this HRG are tending to dominate when the spell HRG is calculated. Or, two or more different FCE HRGs are generating a different spell HRG to either FCE HRG, due to the conventions of intervention and diagnosis grouping
    (b) HRG Y, which has a similar unit cost in both the FCE and spell collections (and therefore falls on the 45-degree line), is almost exclusively one where single episodes of care make up the reported spells. This is the most common scenario, because 90-95% of spells comprise of a single episode
    (c) HRG Z has a lower spell unit cost than FCE unit cost. This situation is most likely to be the reverse of HRG X. Here the FCEs with a higher than average unit cost being reported against this HRG are through spell grouping usually grouped with other FCEs to a different HRG, leaving only the lower cost FCEs to form the (commonly single episode) spells of care in this HRG.

72. Annex D shows how mean unit costs for spell and FCE compare by HRG chapter and admission method.

73. As noted in paragraph 16, we will continue to respond to parliamentary questions, freedom of information and other data requests using FCE costs rather than spell costs unless the question specifically asks for spell costs.

74. We have also published an organisation wide spell RCI (before and after adjustment for the MFF) for each of the 186 trusts, using the same methodology described in section two. Annex E compares these spell RCIs with the equivalent FCE based RCI, and provides an analysis of the differences observed. We recommend that the FCE based RCIs described in section two remain the default RCI for comparisons between acute trusts.

Section four: Survey

Introduction

75. In recent years, we have conducted an annual survey of organisations submitting reference costs regarding their implementation of patient level information costing systems (PLICS)[25].

76. PLICS are computerised information systems in hospitals that identify and record the costs of individual patients. Events such as theatre minutes, diagnostic tests and prosthetics can be tagged to the patient record, electronically where such data capture systems are in place. Essentially a bottom up approach, rather than a traditional top down approach based on averages and apportionments, costing at a patient level should better reflect actual interactions and events related to individual patients and the associated costs.

77. PLICS provide trusts with the ability to understand their economic and financial drivers, benchmark their costs in detail against other providers, and a basis for meaningful engagement with clinicians to improve services for the benefit of patients.

78. Better costing locally means better quality data being available nationally to underpin pricing. The Department, though it has not mandated the implementation of PLICS for NHS organisations, has continued to support its development.

79. The clinical costing standards[26] provide recommended best practice for the production of patient level costs and build on the costing principles outlined in the NHS costing manual[27]. Many of the standards are also appropriate for non-PLICS costing. Separate standards now exist for acute and mental health services. Originally developed and published by the Department in 2009, in the following year the Department commissioned the HFMA to develop the standards. This reflects a shared belief that the finance profession should have the lead role in setting standards and promoting the highest quality in costing.

80. The Department produces a PLICS reference cost best practice guide that we updated for 2011-12, to help organisations using PLICS to produce reference costs.[28]

81. Clinical and financial engagement in the NHS is vital in order to respond to the quality and efficiency agenda, and an integral part of the costing process. This is an area we wanted to assess in this year's survey.

82. The purpose of the survey was therefore to determine:

    (a) progress in the NHS in implementing PLICS

[25] http://www.dh.gov.uk/health/2011/11/plics-systems/
[26] http://www.hfma.org.uk/costing/
[27] http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132395
[28] http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_132989

(b) the extent to which trusts are using PLICS to underpin their reference costs, and for which service areas
(c) the extent to which trusts are using the clinical costing standards and the PLICS and reference cost best practice guide
(d) levels of clinical and financial engagement.

83. For the first time, we made the 2012 survey mandatory for all trusts. The data provided for earlier years reflect only those trusts choosing to complete the survey and therefore are not directly comparable to this year, although response rates were generally high (with 86% of acute trusts responding in 2010 and 93% in 2011).

PLICS implementation

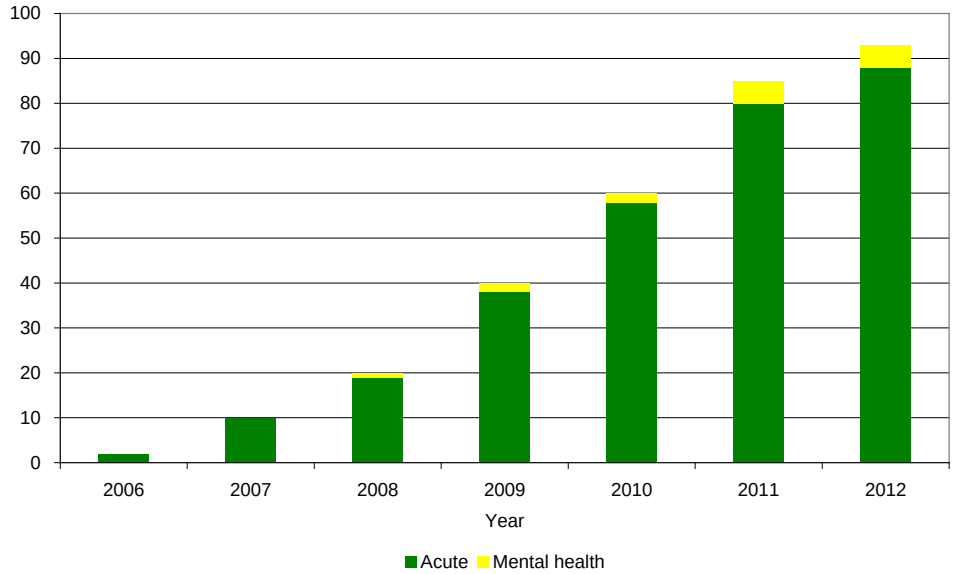
84. The survey results show that 145 trusts (58%) have implemented or are in the process of implementing PLICS (Table 7), compared to 126 (54%) who reported being at the same stage in the 2011 survey. A further 53 trusts (21%) are planning to implement PLICS.

Table 7: PLICS in NHS trusts and NHS foundation trusts, 2012

	Acute	Ambulance	Community	Mental health	All trusts
Implemented	88	0	0	5	93
Implementing	41	1	2	8	52
Planning	15	0	5	33	53
Not planning	21	10	9	10	50
Total	165	11	16	56	248

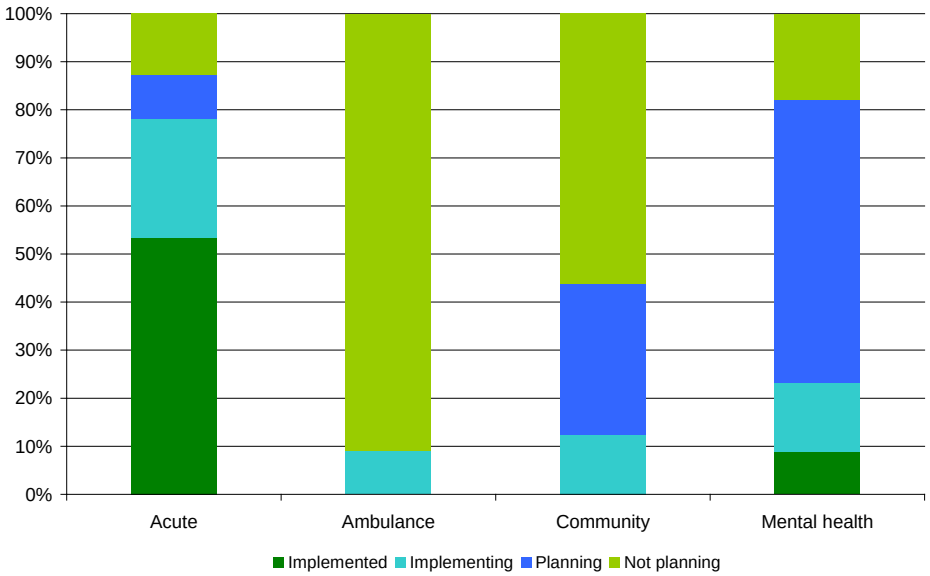
85. These numbers reflect a steady increase towards PLICS implementation since the Department first started surveying uptake (Figure 4).

Figure 4: PLICS implementation in NHS trusts, 2006-2012



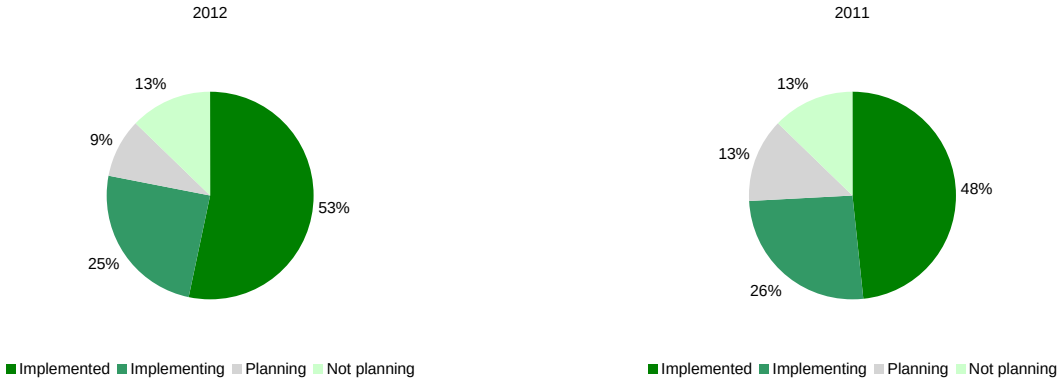
86. 93 trusts (38%) have now implemented PLICS. However, implementation varies widely by organisation type, with over 88 acute trusts (53%) having implemented PLICS, compared to five mental health trusts (9%) and no community or ambulance trusts (Figure 5).

Figure 5: PLICS implementation by organisation type



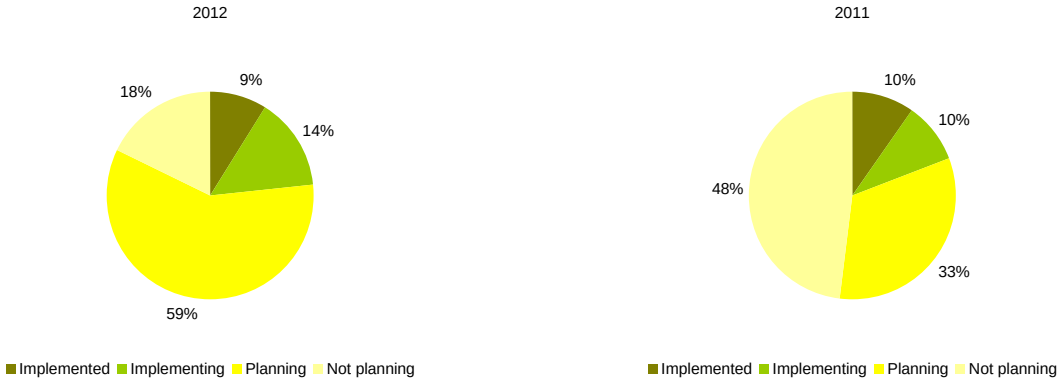
87. Figure 6 shows that between 2011 and 2012 there has been a continued increase in acute trusts that have implemented PLICS, from 75 (48%) to 88 (53%). The percentage of acute trusts not planning to implement PLICS has remained constant at 13%.

Figure 6: Acute trusts and PLICS, 2011 and 2012



88. The percentage of mental health trusts that have implemented PLICS did not significantly change between 2011 and 2012 (Figure 7). However, there has been a marked increase in mental health trusts planning to implement PLICS, from 17 (33%) to 33 (59%). This may reflect the more detailed costing required for the mental health care clusters.

Figure 7: Mental health trusts and PLICS, 2011 and 2012

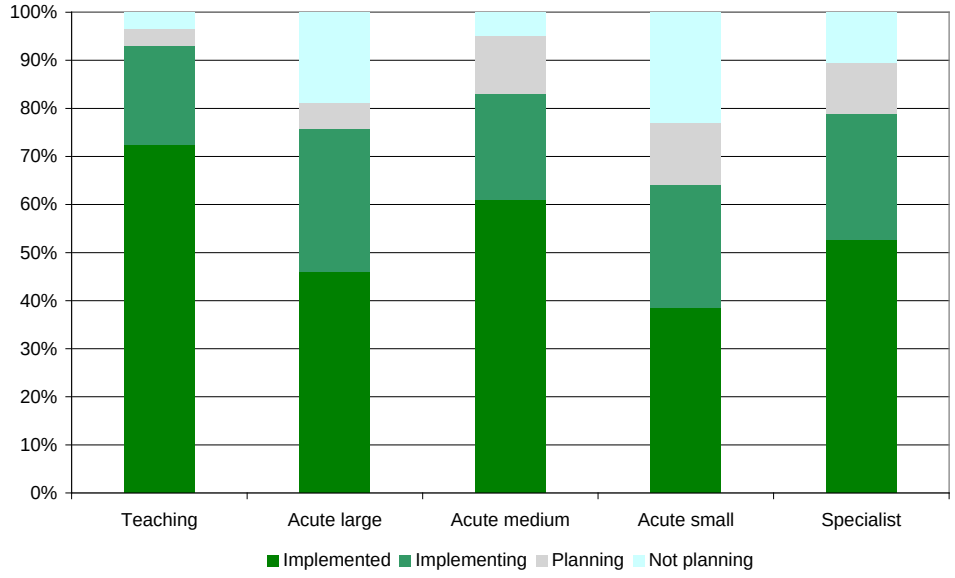


89. NHS foundation trusts have made slightly more progress than NHS trusts in implementing PLICS (Figure 8).

Figure 8: NHS foundation trusts and PLICS

90. There is also some variation in PLICS implementation in acute trusts by organisation size, with 72% of teaching trusts having implemented PLICS compared to 38% of small acute trusts (Figure 9).

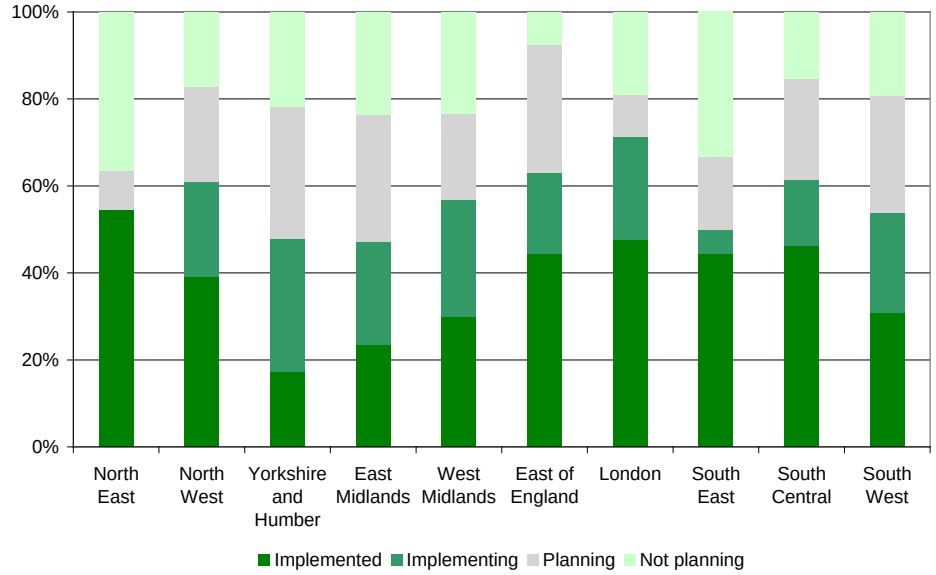
Figure 9: PLICS implementation in acute trusts by cluster type



91. Figure 10 shows that the highest levels of PLICS implementation by strategic health authority (SHA) area are in the North East with 6 out of 11 trusts (55%) followed by

London with 20 out of 42 trusts (48%). Levels are lowest in Yorkshire and the Humber with 4 out of 23 (17%).

Figure 10: PLICS implementation by SHA area



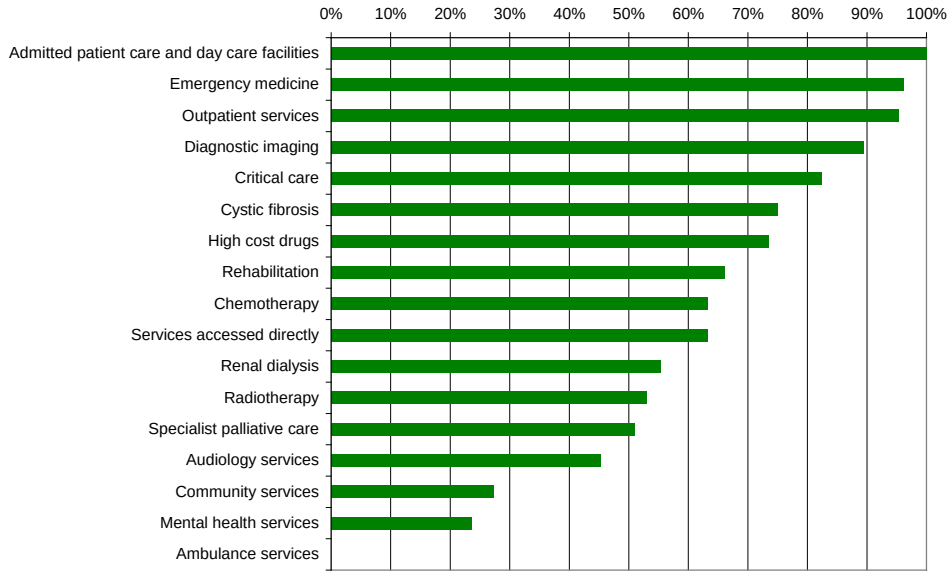
92. 89 of the 93 trusts that have implemented PLICS used their system to inform some or all of their 2011-12 reference costs return (Table 8). The four trusts that did not cited differences in reference costs and PLICS methodology, or said that their system was not fully developed and tested.

Table 8: Trusts using PLICS to underpin reference costs

	Acute	Mental health	All trusts
Yes	85	4	89
No	3	1	4
Total	88	5	93

93. Although trusts have implemented PLICS, this might not necessarily be across all services provided by the trust. We therefore asked these trusts to indicate which services in their reference costs were underpinned by PLICS data. Figure 11 shows the number of acute trusts which have implemented PLICS and used it as the basis for each service in their reference costs return as a proportion of acute trusts which have implemented PLICS and returned costs against each service. It suggests that PLICS data are mostly used in established clinical areas with good data flows, such as admitted patient care and outpatients. Use of PLICS data is least in community services.

Figure 11: Use of PLICS in acute trusts to underpin reference costs by service area



94. Table 9 shows the extent to which the quantum of costs for each service in reference costs was underpinned by all trusts using PLICS to inform their return. £12.8 billion (57%) of admitted patient care costs were derived from PLICS compared to no ambulance service costs.

Table 9: Reference costs underpinned by PLICS by service (£ millions)

Service	Cost of service underpinned by PLICS	Total cost of service	Percentage of service underpinned by PLICS
Admitted patient care[29]	12,821	22,659	57%
Ambulance services	0	1,527	0%
Audiology services	44	202	22%
Chemotherapy	323	894	36%
Community services	196	3,985	5%
Critical care	1,387	2,566	54%
Cystic fibrosis	44	84	52%
Diagnostic imaging	399	815	49%
Emergency medicine	981	1,988	49%
High cost drugs	539	1,237	44%
Mental health services	512	6,478	8%
Outpatient services	4,382	8,311	53%
Radiotherapy	135	342	39%
Rehabilitation	160	806	20%
Renal dialysis	193	536	36%
Services accessed directly	308	921	33%
Specialist palliative care	22	92	24%
All services	22,444	53,442	42%

95. Trusts that are implementing PLICS are at various stages in the process (Table 10).

[29] Includes department codes DC, DCFRAD, DCRA, EI and NEI

Table 10: Trusts in the process of implementing PLICS

	Acute	Ambulance	Community	Mental health	All trusts
Completed and improving accuracy	16	1	1	3	21
Dual running with existing costing system	19	0	1	2	22
Supplier chosen	6	0	0	3	9
Total	41	1	2	8	52

96. Table 11 shows the timescales for the 52 trusts currently implementing and Table 12 for the 53 trusts planning to implement PLICS. By 2015, 143 acute trusts (87%), 41 mental health trusts (73%), 6 community trusts (38%) and 1 ambulance trust (9%) should be running PLICS.

Table 11: Timescales for trusts implementing PLICS

	Acute	Ambulance	Community	Mental health	All trusts
Within 1 year	33	1	2	4	40
1-2 years	7	0	0	3	10
2-3 years	1	0	0	1	2
Total	41	1	2	8	52

Table 12: Timescales for trusts planning to implement PLICS

	Acute	Ambulance	Community	Mental health	All trusts
Within 1 year	4	0	0	5	9
1-2 years	10	0	4	15	29
2-3 years	0	0	0	8	8
3 years +	1	0	1	5	7
Total	15	0	5	33	53

Clinical and financial engagement

97. Clinical and financial engagement should be an integral part of the costing process in order to ensure good quality data. The Department has asked Dr Mahmood Adil, national adviser on quality innovation productivity and prevention (QIPP)[30], to investigate and promote collaborative relationship between clinicians and finance managers to improve quality and efficiency.

98. Dr Adil conducted two national surveys in partnership with the HFMA between November 2011 and February 2012[31] to understand the extent to which clinical and finance professionals understand each other's business on cost and quality. Following these surveys, four scenarios were defined, describing levels of clinical and financial engagement in the NHS from purely board level (level 1) through to full engagement at different levels and across all clinical specialties (level 4):

(a) Level 1: Engagement is only at board/strategic level. For example, dialogue takes place between medical director and finance director, but there is no real joined-up, collaborative work between the wider clinical and finance teams
(b) Level 2: There is some joined-up, collaborative work between clinical and finance teams but only on an ad hoc basis when required, for example for a specific Commissioning for Quality and Innovation (CQUIN) project

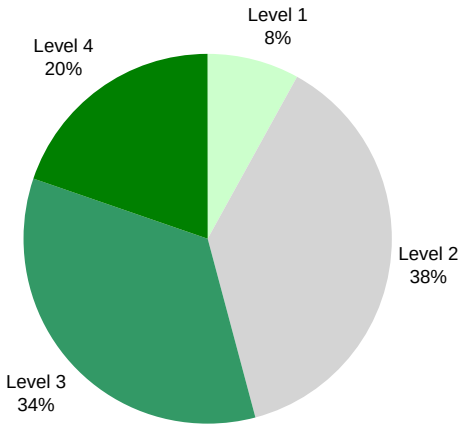
[30] http://www.dh.gov.uk/health/2011/08/clinical-finance-engagement/
[31] http://www.hfma.org.uk/publications-and-guidance/publications.htm?sort=3&keyword=&categories=info_8

(c) Level 3: Joined-up collaborative working between clinical and finance teams is the norm in at least one clinical specialty/directorate. For example, a finance manager works as an integral part of a clinically led quality improvement team. There is also a plan to roll this out across other directorates

(d) Level 4: Joined-up collaborative working between clinical and finance teams is the norm across all clinical specialties/departments. Finance managers routinely work as integral members of clinically led quality improvement teams and both professional groups share cost and quality data to improve outcomes.

99. We asked trusts to score themselves against these four levels in our survey. 49 trusts (20%) considered themselves to be at level 4 (Figure 12). We are planning further work in the coming months to help trusts understand how they can move up through the levels and improve the quality of their cost data in the future.

Figure 12: Clinical and financial engagement in trusts



100. Levels of engagement are similar between acute, mental health, community and ambulance trusts (Table 13).

Table 13: Clinical and financial engagement by trust type

	Acute	Ambulance	Community	Mental health	All trusts
Level 1	12	4	0	4	20
Level 2	60	4	6	24	94
Level 3	62	0	7	16	85
Level 4	31	3	3	12	49
Total	165	11	16	56	248

101. We also asked how frequently costing information is shared with clinicians and other service leaders (Table 14) and whether clinicians and other service leaders are supported in using this information to run their departments (Table 15). These questions were from the Audit Commission quality checklist in the reference costs guidance.

Table 14: Frequency with which costing information is shared with clinicians and other service leaders

	Acute	Ambulance	Community	Mental health	All trusts
Monthly	51	8	8	15	82
Quarterly	81	0	5	22	108
Annually	33	3	3	19	58
Total	165	11	16	56	248

Table 15: Trusts supporting clinicians and other service leaders to use costing information to run their departments

	Acute	Ambulance	Community	Mental health	All trusts
Yes	139	9	15	43	206
No	26	2	1	13	42
Total	165	11	16	56	248

102. Finally, the 52 trusts implementing PLICS were asked whether clinicians were working with the finance team on implementation (Table 16).

Table 16: Clinicians working with finance teams on PLICS implementation

	Acute	Ambulance	Community	Mental health	All trusts
Yes	33	1	2	8	44
No	8	0	0	0	8
Total	41	1	2	8	52

103. *Patient-level costing: can it yield efficiency savings (Nuffield Trust, 2012)*[32] recommends that policy makers encouraging the introduction of PLICS should publish specific examples of cost saving and improved clinical engagement. Figure 13 offers one example and we will look to promote further examples in the coming months.

Figure 13: Case study of clinical and financial engagement in costing

Wrightington, Wigan and Leigh NHS Foundation Trust

Wrightington, Wigan and Leigh's service line management (SLM) pathfinder project involved finance managers and clinicians working collaboratively using PLICS and SLM to understand clinical practices and move a service line from loss to profit making.

The motivation for the project was that primary total prosthetic replacement of hip joint, the most common procedure in their specialist elective orthopaedic centre at Wrightington Hospital with over 1,000 patients each year from across the UK, delivered excellent clinical outcomes but in SLM showed an annual loss of £1 million.

The musculo-skeletal division (MSK) reviewed patient level costs, allowing them to identify specific areas of practice that adversely affected income, whilst linking with quality outcomes. As a result, they identified efficiency opportunities of £1.5 million through re-design of clinical practices and pathways. These included productivity savings where reductions to patient length of stay freed up capacity for an additional 600 spells of new activity in 2011-12 without an increase in associated resources. The procedure pathways were standardised to ensure that patients receive the best quality care and experience, e.g. no unnecessary radiology or pathology tests, and being discharged when medically fit.

[32] http://www.nuffieldtrust.org.uk/publications/patient-level-costing-can-it-yield-efficiency-savings

The trust has improved the efficiency of its hip procedures whilst maintaining high quality care through effective clinical and financial engagement between its MSK clinical and SLM finance teams.

Clinical costing standards

104. 84 of the 93 trusts that have implemented PLICS reported using the HFMA clinical costing standards (Table 17).

Table 17: Use of the clinical costing standards by trusts that have implemented PLICS

	Acute	Mental health	All trusts
Yes	80	4	84
No	8	1	9
Total	88	5	93

105. We also asked the 52 trust implementing PLICS whether they were using the standards. 47 said they were (Table 18).

Table 18: Use of the clinical costing standards by trusts that are implementing PLICS

	Acute	Ambulance	Community	Mental health	All trusts
Yes	38	0	2	7	47
No	3	1	0	1	5
Total	41	1	2	8	52

106. Table 19 shows the reasons given by the 14 trusts in Table 17 and Table 18 for not using the standards.

Table 19: Reasons for not using the clinical costing standards

Reason	Number of trusts
Our PLICS does not support them	5
We were not aware of them	4
We intend to review and implement the standards in the autumn as it is available within our software	1
The level of information for the standards was not available for phase 1 of our PLICS	1
In most cases we use the standards but in a couple of areas we have adapted them differently	1
We are committed to the standards and are working with our supplier to achieve them	1
None provided	1

107. 25 of the 93 trusts that have implemented PLICS have used the materiality and quality score (MAQS)[33] to assess their costing performance. The MAQS was developed by the HFMA to provide a consistent methodology for trusts to assess and improve the quality of their costing data.

108. Trusts were optionally able to provide their current MAQS. A number of scores in the range of 0.42 to 0.76 were provided.

109. 83 of the 93 trusts that have implemented PLICS reported using the Department's *PLICS and reference costs best practice guidance* (Table 20).

[33] http://www.hfma.org.uk/costing/supporting-material/

Table 20: Trusts using the PLICS and reference costs best practice guidance

	Acute	Mental health	All trusts
Yes	78	5	83
No	10	0	10
Total	88	5	93

110. Nine trusts experienced issues not detailed in the PLICS and reference costs best practice guidance (Table 21), although only two trusts provided more details: a mental health trust reporting issues with costing initial assessments, and another trust saying that the guidance was too broad to cover all their service configurations. Our intention is to subsume this guide into the main reference costs guidance for 2012-13.

Table 21: Trusts experiencing issues not covered by the PLICS and reference costs best practice guidance

	Acute	Mental health	All trusts
Yes	7	2	9
No	71	3	74
Total	78	5	83

Other findings

111. Service line management (SLM) takes a combined view of resources, costs and income, and hence profit and loss, by each service line or specialty within a trust, rather than at aggregate level for the whole trust. This allows clinicians and managers to understand the profitability of their services. Originally developed by Monitor for NHS foundation trusts, our survey results show that SLM has now been implemented in 206 trusts (Table 22).

Table 22: Trusts using SLM/R

	Acute	Ambulance	Community	Mental health	All trusts
Yes	144	10	9	43	206
No	21	1	7	13	42
Total	165	11	16	56	248

112. SLM and PLICS are complementary tools, offering mutual benefits to trusts, requiring similar levels of clinical engagement, and often provided by the same software suppliers. The Department most recently signalled its continued support for both PLICS and SLM in *Liberating the NHS: An Information Revolution* (2010, p48)[34]. Table 23 shows the extent to which trusts have implemented or are implementing PLICS and are using SLM.

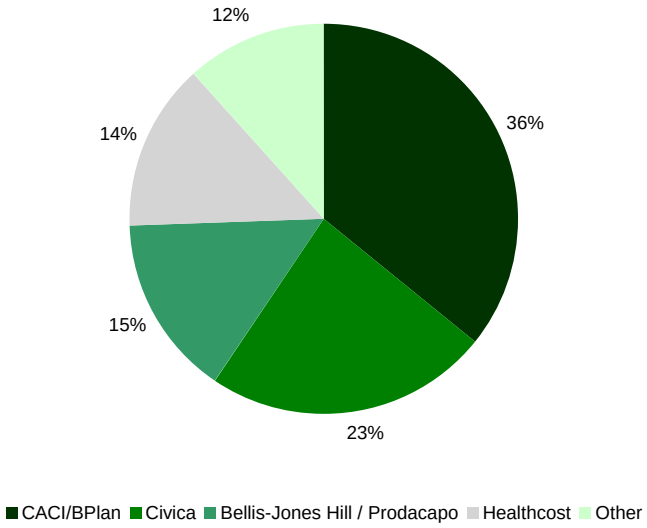
Table 23: Trusts using PLICS and SLM

	Acute	Ambulance	Community	Mental health	All trusts
PLICS and SLM/R	113	1	0	8	122
PLICS only	16	0	2	5	23
SLM/R only	31	9	9	35	84
Neither	5	1	5	8	19
Total	165	11	16	56	248

[34] http://www.dh.gov.uk/en/Consultations/Liveconsultations/DH_120080

113. PLICS IT is implemented or being implemented by a number of software suppliers (Figure 14). Four systems make up 88% of the market. The remaining 12% consists of five different system providers and trusts that provide systems internally. The Department welcomes the benefits that these suppliers bring to the NHS, does not promote any of the organisations listed, and recognises there may be others available.

Figure 14: Suppliers of PLICS IT to trusts that have implemented or are implementing systems



Section five: Quality

Introduction

114. There are many important uses for reference costs and, since its joint review of reference costs with the Audit Commission in 2010, the Department has made considerable progress against its action plan to improve their quality. One of our first actions was to ask the Audit Commission to integrate an audit of 2009-10 reference costs into their PbR data assurance programme. The Audit Commission report, *Improving coding, costing and commissioning, annual report on the Payment by Results data assurance programme 2010-11 (2011)*, found that:

    "most trusts' reference costs submissions were accurate in total, although one in eight were not. However, the accuracy of individual unit costs varied and, in some cases, was poor. One in four trusts had one or more individual unit costs that were materially inaccurate."

115. The size and complexity of the reference costs collection, with over 4.7 million data items prepared between April and June and submitted during a three to four week window in July each year, make it very challenging to ensure that every single item is accurate. Nevertheless, a continuous effort to improve the quality of reference costs should be the common goal of providers submitting the data and all national bodies with a stake in the data.

116. Responsibility for the production of sound, accurate and timely reference costs that are right first time begins with each trust.

117. Finance Directors were required to sign off their 2011-12 reference costs, confirming that:

    (a) the costing was carried out in line with all current costing guidance as outlined in reference costs guidance and the NHS costing manual
    (b) the return was reconciled internally and represents a true and fair view in cost and activity terms of the services provided
    (c) finance teams actively engaged clinicians in the costing process
    (d) the quality checklist had been used to improve the quality of their return.

118. Parts (c), designed to encourage the clinical and financial engagement described in section four and (d), developed by the Audit Commission during their review of 2010-11 reference costs, were introduced for the first time in the 2011-12 collection.

119. We undertook a number of other actions before the 2011-12 collection, designed to support improvements to reference cost returns. These included:

    (a) a thorough review of the reference costs guidance. Feedback from the NHS has been that the collection guidance for 2011-12 was a substantial improvement on previous years in terms of clarity of expression. For 2012-13, as well as producing guidance that is clear and easy to understand, we are committed to consolidating guidance as far as possible to minimise the sources of reference for costing professionals at cost collection time

(b) detailed accounting guidance on the reconciliation process to assist trusts in accurately reconciling their reference cost quantums to the published final accounts
(c) more validations in the reference cost workbooks, including for the first time a number of non-mandatory validations. Trusts were required to confirm, before submitting their data, that they had "investigated all non-mandatory validations and made any necessary corrections"
(d) requiring trusts to make an initial return during the open submission window (the first two weeks of a four week collection during July 2012). Experience from previous collections showed that organisations not making an initial submission during this period faced the most challenges. 17 out of 248 trusts did not follow this guidance and so we may consider ways of enforcing compliance in 2012-13
(e) consulting with our reference cost advisory group (RCAG) to ensure changes to the guidance, workbooks and processes are acceptable and practical for the NHS.

Validation

120. During the collection window, we carried out a number of checks on the data as it was being returned by trusts and provided daily feedback. Some trusts have told us of their intentions to run these checks through their costing systems at appropriate intervals (e.g. quarterly) during the year in preparation for the annual cost collection.

121. Our mandatory validations were designed to assure the basic integrity of the data and included the following checks:

(a) both activity and a unit cost were reported
(b) activity reported as a positive integer
(c) unit costs reported as positive and to two decimal places
(d) all codes (e.g. HRG, TFC) were valid
(e) all combinations of supplier type, department code, service code and currency code were unique
(f) no fields were missing in any record
(g) inlier costs and activity were reported if excess bed day costs were reported
(h) the number of inlier bed days were greater than or equal to the number of FCEs
(i) inlier bed days were not greater than the HRG trim point multiplied by number of FCEs
(j) other checks specific to certain services or currencies (e.g. costs were not allocated to HRG codes SB97Z or SC97Z).

122. The final data passes these checks.

123. The completion of the reconciliation statement workbook is a fundamental part of the reference costs process. The workbook provides assurance that all costs have been correctly included, services excluded identified and allowable income netted off the reference costs quantum. Total reference costs for each trust were required to be within a 5% tolerance of their adjusted net operating expenses as reported in their reconciliation statement workbook. All trusts passed this check and 242 (98%) were within 1%, suggesting that the tolerance could be reduced in 2012-13. We also checked the net operating expenses reported in the workbook against the published final accounts. In the very few cases where there were differences, trusts we spoke

to said that the accounts were still being finalised at the time of the reference costs return.

124. We also conducted a number of non-mandatory validations designed to improve the quality and accuracy of the data. We asked trusts to investigate these and resubmit their data where appropriate. Table 24 summarises the number of remaining non-mandatory validations against the number of records (unweighted for activity) to which the validation applied in the complete final dataset for 2011-12, with a comparison against 2010-11. In each case, there is a reduction in the number of issues.

Table 24: Number of non-mandatory validations in the final 2010-11 and 2011-12 datasets

	2010-11			2011-12		
Description of non-mandatory validation	Validations	No of records	Validations as % of records	Validations	No of records	Validations as % of records
Day case unit cost more than double elective inpatient unit cost[35]	2,026	73,569	2.8%	1,837	74,846	2.5%
Single-professional more than double multi-professional outpatient attendance unit cost	119	3,331	3.6%	99	3,998	2.5%
Unit cost does not cover the cost of a device	472	926	51.0%	376	1,217	30.9%
Market share larger than 5%[36]	2,461	33,293	7.4%	2,118	32,354	6.5%
Outliers (unit cost is less than one-twentieth or more than twenty times the mean unit cost)[37]	1,803	487,479	0.4%	1,624	549,543	0.3%
Unit cost under £5[38]	645	1,082,686	0.1%	142	1,171,485	0.0%
Unit cost over £50,000[39]	403	1,082,686	0.0%	382	1,171,485	0.0%
Non-elective long stays with an average length of stay less than two days[40]	15,540	366,103	4.2%	11,631	371,555	3.1%

125. The following paragraphs describe these non-mandatory validations in more detail. It may be that were legitimate reasons for reporting the data as it was, in which case no further action was required. There is also an issue of proportionality: there is a difference between one trust reporting an unexpected unit cost for 100 episodes of care, and another trust reporting an unexpected unit cost for one episode of care. For some of our validations, we therefore applied a materiality threshold to ensure trusts focused their attention on addressing issues likely to have the most impact.

Day case unit costs greater than ordinary elective unit costs

126. We would generally expect the same HRG to cost less in a day case setting than in an elective setting. We queried data returns where the day case unit cost was more than double the elective unit cost for the same HRG. Trusts we spoke to suggested that there might be some data quality issues here, particularly in their cost apportionment tables, which they were unable to address in the time available.

[35] Excludes UZ01Z
[36] Excludes UZ01Z and HRG subchapter WD and total costs under £100,000
[37] Excludes UZ01Z, HRG Subchapter WD, total cancer multi-disciplinary team costs, critical care outreach services, mental health care clusters and cystic fibrosis year of care currencies
[38] Excludes UZ01Z, SB97Z, SC97Z, direct access pathology, total cancer multi-disciplinary team costs, critical care outreach services, mental health care clusters (non-admitted patient care and initial assessments), elective inpatient excess bed days and non-elective inpatients (long stay) excess bed days
[39] Excludes UZ01Z, SB97Z, SC97Z, direct access pathology, total cancer multi-disciplinary team costs, critical care outreach services, mental health care clusters (non-admitted patient care and initial assessments), elective inpatient excess bed days and non-elective inpatients (long stay) excess bed days
[40] Excludes UZ01Z

127. In the final dataset, 1.5% of day case FCEs have a unit cost that is more than double the same elective inpatient HRG. The highest ratio of day case unit cost to elective inpatient unit cost for the same HRG is 293. However, there were only eight data records submitted with day case unit costs more than double elective inpatient unit costs where the number of FCEs against both was greater than 50.

Single-professional outpatient attendance unit costs greater than multi-professional unit costs

128. Similar to the previous validation, we would generally expect an outpatient attendance where one care professional was present to cost less than an attendance where more than one care professional was present. We queried data returns where the single-professional unit cost was more than double the multi-professional unit cost for the same outpatient attendance in the same TFC.

129. In the final dataset, 2% of single-professional outpatient attendances (HRGs with a root of WF01) have a unit cost that is more than double that of the multi-professional outpatient attendance (HRGs with a root of WF02) for the same TFC. The highest ratio of single-professional unit cost to multi-professional unit cost for the same TFC is 20. However, there are only 26 records where the number of attendances against both the WF01 and WF02 unit cost was greater than 100 and the single-professional unit cost was more than double the multi-professional unit cost.

Costs that do not cover the cost of a device

130. Our validations highlighted a small number of HRGs where the activity should always include the high cost device, and an expected minimum cost for that device. We queried all returns where the reported unit cost was less than the expected minimum. Trusts we spoke to suggested their costing systems faced challenges in allocating all high cost consumables to patients.

Larger than expected market share

131. We queried data returns where a trust's market share of activity within a service (defined as the combination of department code and HRG sub-chapter for acute services, or department code and currency for non-acute services), was greater than 5%. For example, we found two trusts that between them reported 56% of all day case activity in HRG subchapter NZ, obstetric medicine. Since coding requirements dictate that all maternity episodes should be reported as non-electives, this particular example is likely to be a result of miscoding.

Outliers

132. We queried unit costs that were less than one-twentieth, or more than twenty times, the national mean unit cost. We have generally excluded these costs from the tariff calculation in previous years. In the final dataset, 0.03% of activity has a unit cost of less than one-twentieth or more than twenty times the national mean unit cost.

Unit costs under £5

133. The Audit Commission's quality checklist required trusts to carry out a sense check of their data, and to ask whether unit costs under £5 were justifiable. Low unit costs are expected for some services, for example some pathology tests have a mean cost under £5.

134. In the final dataset, only 28 records covering 169 FCEs (0.001%) from 15.4 million submitted for admitted patient care have a unit cost under £5. Trusts we spoke to suggested that small costs might arise when patients are immediately discharged, or transferred to another consultant. Whether such reasons would apply to all relevant records in the final dataset, or such costs would be under £5, is not understood.

Unit costs over £50,000

135. The quality checklist also required trusts to ask whether unit costs over £50,000 were justifiable. High unit costs are expected for some services, for example, bone marrow transplants have a mean cost over £50,000. In a few cases, it was clear that trusts had reported the total cost of the service rather than its unit cost.

136. In the final dataset, only 348 data records covering 1,034 FCEs (0.007%) from 15.4 million FCEs submitted for admitted patient care have a unit cost over £50,000. These are generally single episode HRGs relating to complex and costly patient care submitted by specialist hospitals. Trusts we spoke to confirmed the integrity of their data.

Year on year changes

137. We included within the reference costs workbook a comparison of the total costs and activity a trust was proposing to submit against each worksheet, and the same data reported by that trust in 2010-11. Our validations repeated this analysis at a more granular level. We queried any data return where the change in total cost or activity by department code and HRG sub-chapter for acute services, or service code for non-acute services (where we focused our attention on outpatient attendances, outpatient procedures and emergency medicine), was greater than 25%. Large increases or decreases might reflect service reconfiguration or changes to coding practice. For example, one trust we spoke to that had reported a significant decrease in non-consultant led outpatient attendance costs was now reporting its midwifery services as community contacts.

Classification of non-electives

138. The reference costs guidance requires that all non-elective inpatients should be separately identified as either:

    (a) short stay – where the average length of stay is less than two days. These costs inform the calculation of the short stay emergency adjustment in the national tariff
    (b) long stay – where the average length of stay is greater than or equal to two days.

139. We queried all non-elective inpatient long stays with an average length of stay (defined as number of inlier bed days plus excess bed days divided by number of FCEs) of less than two.

140. However, a number of trusts we spoke to were not aware that the decision about whether a non-elective inpatient stay is short (zero or one day) or long (two or more days) is taken after, not before, length of stay adjustments for critical care, rehabilitation and specialist palliative care. Whilst this issue is covered in PbR guidance, we accepted that it was not clear in the reference costs guidance and. therefore treated it as non-mandatory. But we will clarify the guidance and enforce compliance in 2012-13.

Reporting of particular services

141. For spinal injury (reported against TFC 323) and the most expensive paediatric critical care (reported against HRGs in subchapter XB), we published in the collection guidance lists of trusts that we have been advised are the only trusts in the country providing these services. We queried the returns of trusts on these lists that did not provide data as expected, and the returns of trusts that unexpectedly provided data. One trust, a provider of specialised children's services, told us they were unable to extract the costs or identify the activity within their data for the expected HRG (XB01Z, paediatric critical care – ECMO/ELS).

142. We performed some other simple sense checks. We queried the data returns of acute trusts reporting less than 1,000 outpatient procedures – a few specialist trusts fall into this category. We also queried the data returns of acute trusts not reporting paediatric treatment function codes (TFCs). Again, trusts falling into this category are specialist, or have neighbouring children's trusts.

Same cost HRGs

143. Previous NHS costing manuals included a minimum requirement on trusts to select and profile the HRGs that cover at least 80% of their cost and activity at each point of delivery, with the discretion that they could submit standard costs for up to 20% of the remainder of HRGs. The latest NHS costing manual removed this discretion. Trusts were therefore expected to accurately profile 100% of their costs and activity, and not to report the same costs against multiple HRGs.

144. Whilst we did not provide feedback on this issue during the collection, we observed that some trusts were:

    (a) reporting the same unit costs against multiple HRGs. Often this was a case of trusts not distinguishing between the costs of, for example, a major and minor procedure. But in one case we observed that a trust had submitted the same unit cost for over 2,000 non-elective short stays across 15 HRG chapters
    (b) calculating a specialty level cost and applying this to multiple HRGs in that specialty.

145. We plan to do some further work with trusts to understand the reasons why some are unable to identify appropriate cost drivers to distinguish between different HRGs.

Services excluded from reference costs

146. The collection guidance lists services excluded from reference costs. Trusts are required to identify services from this list that they have excluded, in the reconciliation statement workbook. The workbook provides a number of user-defined lines for other services that trusts wished to exclude. To strengthen assurance in this area, for 2011-12 we specified that trusts must not use these user-defined lines to exclude other services without first seeking our permission. The total costs excluded from reference costs has decreased by 14% from £5.6 billion in 2010-11 to £4.9 billion in 2011-12. The number of user-defined lines has decreased by 84% from 1,256 in 2010-11 to 200 in 2011-12.

147. A preliminary analysis of the 200 user defined service exclusions suggests they fall into one of four categories:

    (a) services that are already excluded in the national list and that did not need to be user defined
    (b) services that have a currency in reference costs and were therefore incorrectly excluded
    (c) services that we agreed, after discussions with the trusts concerned, should be excluded and that we will add to the national list for 2012-13
    (d) services where more information is needed.

148. We plan to do some more work to tighten the reporting of service exclusions that will inform the 2012-13 collection guidance.

Spell validations

149. The reference costs submitted for spells (section three) were not subjected to the non-mandatory validations described above. However, we did ensure that the total spell costs submitted by each trust reconciled to their total FCE inlier and excess bed day costs by each admission method. In the final dataset, the spell quantum by trust and admission method is always within 1% of its FCE equivalent, and within 0.1% for 79% of these combinations.

Resubmission requests

150. A very small number of trusts (Table 25) asked to resubmit data having identified errors in their returns, subsequent to the validation process and after the collection had closed. We denied these requests: the collection guidance was clear that we would not allow trusts to request submissions, and accepting them would have impacted on the publication timetable.

Table 25: Trusts that asked to resubmit data

Trust	Issue	Tariff impact	RCI[41]	Estimated revised RCI
Leicestershire Partnership NHS Trust	Over or understated unit costs or activity against 15 community service currencies	None	122	119
Hull and East Yorkshire Hospitals NHS Trust	Transposed unit cost and activity against 29 high cost drug XD HRGs	None	102	107
The Hillingdon Hospitals NHS Foundation Trust	High cost drug unit costs and activity incorrectly submitted against both admitted patient care and outpatient settings. Data should only have been submitted against an outpatient setting. Data against 21 XD HRGs in admitted patient care should be blank.	None	101	101

Assurance

151. A full assessment of the quality of these reference costs cannot be part of this publication. That has to be part of an assurance programme.

152. The Audit Commission have included periodic reviews of reference costs as part of their PbR data assurance programme[42], which also assesses the accuracy of clinical coding that underpins payments in the PbR system.

[41] Organisation wide, including excess bed days, MFF adjusted
[42] http://www.audit-commission.gov.uk/health/paymentbyresults/assuranceframework/Pages/default.aspx

Glossary

A&E	Accident and emergency; also known as urgent and emergency care or emergency medicine.
Admitted patient care	An overarching term covering the following classifications of patients who have been admitted to a hospital: ordinary elective admissions, ordinary non-elective admissions, day cases, regular day admissions and regular night admissions.
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.
Complications and comorbidities	Many HRGs differentiate between care provided to patients with and without complications and comorbidities. Comorbidities are conditions that exist in conjunction with another disease, eg diabetes or asthma. Complications may arise during a period of healthcare delivery.
Core HRG	Represents a care event (eg finished consultant episode, outpatient attendance or A&E attendance).
Cost driver	Activity that influences the cost of a service, eg length of stay or time in theatre.
Currency	A unit of healthcare activity such as spell, episode or attendance.
Data quality	The degree of completeness, consistency, timeliness and accuracy that makes the data appropriate for a specific use.
Direct costs	Costs that directly relate to the delivery of patient care. Examples include medical and nursing staff costs.
Excess bed days	Days that are beyond the trim point for a given HRG.
Finished consultant episode (FCE)	An episode of treatment under one consultant that has finished.
Healthcare resource group (HRG)	Standard groupings of clinically similar diagnosis and procedure codes that use similar levels of resources.
HES	Hospital episode statistics. A national source of patient non-identifiable data.
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
Indirect costs	Costs that are indirectly related to the delivery of patient care. They are not directly determined by the number of patients or patient mix but costs can be allocated on an activity basis to service costs.
MFF	Market forces factor. An index used in PbR and in PCT allocations to estimate the unavoidable cost differences of providing healthcare.

Overhead costs	Costs that are not driven by the level of patient activity and which have to be apportioned to service costs as there is no clear activity-based allocation method. An example would be the chief executive's salary.
Patient level costing	Allocating costs, wherever possible, to a patient. Historically, costs have been allocated to a specialty or healthcare resource group (HRG) and then allocated across all patients, producing average costs. Assigning costs down to patient level provides opportunities for much greater understanding of how costs are built up.
Patient level costing and information systems (PLICS)	The systems that support patient level costing.
Payment by results	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 Department's *A simple guide to Payment by Results*[43] provides a useful introduction.
Quantum	The total monetary amount available at a trust to be allocated within reference costs.
Service line reporting (SLR) or management (SLM)	Service line reporting or management was introduced by Monitor for NHS foundation trusts and involves identifying specialist areas and managing them as distinct operational units. This allow trusts to analyse the relationship between activity and expenditure; much like a local store would do when wanting to understand which sections within the store are most profitable.
Spell	The period from date of admission to date of discharge for one patient in one hospital. A spell may consist of more than one FCE.
Tariff	The fixed prices for units of healthcare activity published by the Department.
Trim point	A defined length of stay for each HRG. Technically defined as the upper quartile length of stay for the HRG plus 1.5 times the inter-quartile range of length of stay.
Unbundled HRG	An unbundled HRG represents an additional element of care. An unbundled HRG will always be associated with a core HRG that represents the care event, and will always be produced in addition to a core HRG.

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43 http://www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_128862

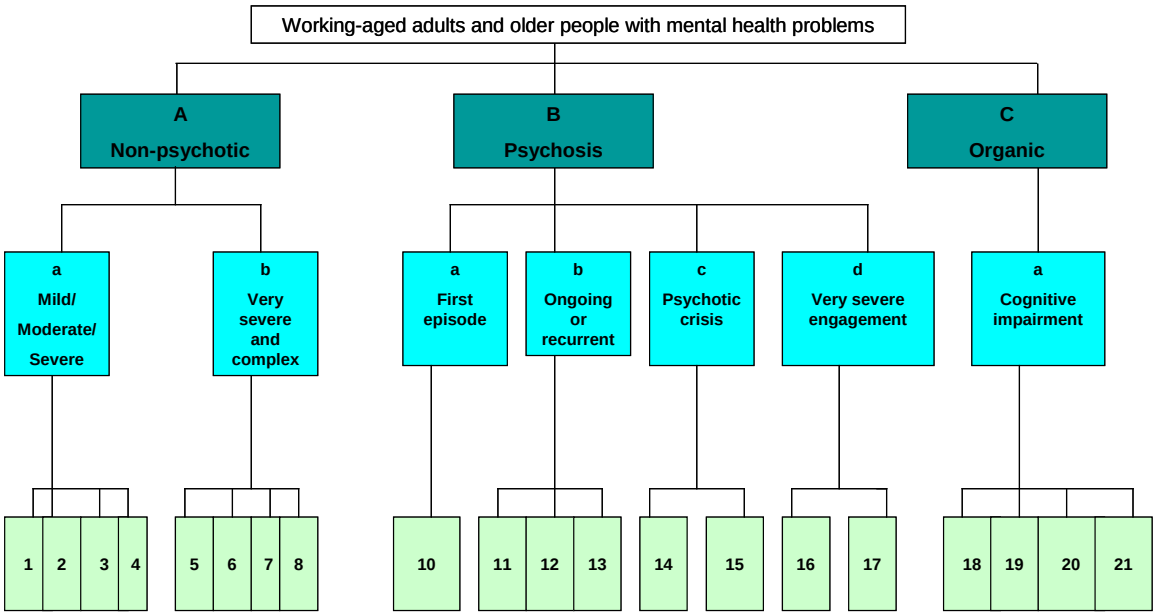
Annex A: New currencies in 2011-12 reference costs

1. To support the expansion of Payment Results currencies and tariffs, 2011-12 reference costs were collected for the first time against a number of new currencies.

Mental health care cluster

2. The mental health care clusters (Figure 15), developed initially by Care Pathways and Packages Project (CPPP), a consortium of NHS commissioners and providers from NHS Yorkshire and the Humber and NHS North East, 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.

Figure 15: Mental health care clusters



3. The care clusters cover working age adults and older people only, and replace previous reference cost currencies for adult and elderly mental health services. They also include some services previously reported as specialist mental health services or mental health specialist teams. Existing reference cost currencies for children and adolescent, drug and alcohol, and some specialist mental health services remain, but we have refined these in light of the introduction of the care clusters.

Cystic fibrosis year of care currency

4. The cystic fibrosis currency is based on a year of care, and was used by adult and paediatric cystic fibrosis centres[44] and other providers where shared care arrangements are in place to report 2011-12 reference costs.

5. Under the new currency model, each patient is allocated to one of seven bands derived from clinical information including cystic fibrosis complications and drug requirements, each of which describes an increasingly complex year of care.

[44] http://www.cftrust.org.uk/aboutcf/cfcare/ukcfcentres/

Ambulance service currency

6. These currencies have been developed and agreed with ambulance trusts and commissioners to support the contracting and payment of emergency and urgent ambulance services from April 2012. The four currencies are:

   (a) calls
   (b) hear and treat or refer
   (c) see and treat or refer
   (d) see and treat and convey.

Annex B: Key figures

£ billion	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Analysis by setting						
Elective inpatient	4.4	4.7	5.1	5.3	5.4	5.3
Non-elective inpatient	10.3	10.7	11.8	12.6	13.3	13.7
Day case	2.5	2.8	3.1	3.4	3.4	3.5
Outpatient attendance[45]	5.7	6.2	6.8	7.4	7.7	7.4
Outpatient procedure	0.3	0.3	0.5	0.7	0.9	0.9
Accident and emergency	1.4	1.5	1.6	1.8	1.9	2.0
Other non-acute	16.8	17.6	18.6	20.0	20.3	20.6
Total across all settings	41.3	43.9	47.6	51.2	53.0	53.4
Analysis by schedule[46]						
Schedule 1 – NHS and foundation trusts	36.2	37.4	41.5	44.7	47.3	53.0
Schedule 2 – PCTs[47]	4.4	4.7	5.2	5.5	4.5	N/A
Schedule 3 – PMS+ sites[48]	0.0	0.0	0.0	0.0	0.0	N/A
Schedule 4 – NHS and foundation trusts and PCTs combined	40.6	42.2	46.7	50.3	51.8	N/A
Schedule 5 – Services subcontracted to non-NHS providers	0.5	0.5	0.6	0.7	0.9	0.3
Analysis by HRG chapter[49]						
Chapter A – Nervous system	1.1	1.1	1.1	1.3	1.3	1.3
Chapter B – Eyes and periorbita	0.4	0.5	0.5	0.5	0.5	0.5
Chapter C – Mouth, head, neck and ears	0.7	0.7	0.8	0.8	0.9	0.9
Chapter D – Respiratory system	1.1	1.1	1.4	1.5	1.6	1.6
Chapter E – Cardiac surgery and primary cardiac conditions	1.7	1.8	1.9	2.0	2.0	2.3
Chapter F – Digestive system	2.1	2.3	2.5	2.7	2.7	2.8
Chapter G – Hepatobiliary and pancreatic system	0.5	0.5	0.5	0.6	0.6	0.7
Chapter H – Musculoskeletal system	3.1	3.4	3.7	3.8	3.9	3.8
Chapter J – Skin, breast and burns	0.8	0.8	0.9	0.9	0.9	0.9
Chapter K – Endocrine and metabolic system	0.2	0.2	0.2	0.2	0.2	0.3
Chapter L – Urinary tract and male reproductive system	1.2	1.2	1.4	1.5	1.5	1.6
Chapter M – Female reproductive system and assisted reproduction	0.6	0.6	0.6	0.7	0.7	0.7
Chapter n – obstetrics	1.3	1.4	1.5	1.7	1.8	1.9
Chapter P – Diseases of childhood and neonates	0.8	0.8	0.9	0.9	1.0	1.0
Chapter Q – Vascular system	0.5	0.5	0.5	0.6	0.5	0.5
Chapter R - Radiology and nuclear medicine	-	-	-	-	0.2	0.2
Chapter S – Haematology, chemotherapy, radiotherapy and specialist palliative care	0.4	0.4	0.5	0.5	0.5	0.5
Chapter U – Undefined groups	0.1	0.1	0.1	0.1	0.1	0.0
Chapter V – Multiple trauma, emergency medicine and rehabilitation	0.2	0.1	0.2	0.2	0.2	0.2
Chapter W – Immunology, infectious diseases and other contacts with health services	0.5	0.6	0.7	0.8	0.9	0.9
Analysis by own, contracted out and commissioned						
Own data	40.8	43.2	46.9	50.5	52.1	53.2
Commissioned[50]	0.3	0.3	0.3	0.4	0.6	N/A
Contracted out	0.2	0.2	0.3	0.3	0.3	0.3

[45] Includes consultant-led and non-consultant led outpatient attendances, and cancer multi-disciplinary teams
[46] Excludes UZ01Z and WD HRGs
[47] Data not collected from PCTs from 2011-12
[48] Data not collected from PMS+ sites from 2011-12
[49] Covers elective inpatient, non-elective inpatient and day case settings only
[50] Data not collected from 2011-12

Annex C: Source data

We have provided the source data in several CSV files, listed below.

CSV file name	Contents
1 Data	Organisation level data
2 Organisation description	Data provider code and name, SHA code and name, SHA cluster code and name and MFF value
3 Department description	Department code and name
4 Service description	Service code and name
5 Currency description	Currency code and name
6 Units	Activity unit for all department/service/currency combinations
7 Mapping pots	For calculating service level RCIs
8 Memorandum data	Memorandum activity data, excluding mental health
9 MH memorandum data	Mental health memorandum activity and costs data
10 Spells data	Organisation level spell data
11 PLICS survey	Responses to the PLICS survey

The following tables describe the contents of each CSV file

1 Data

Field name	Description
Org code	Organisation code
Supplier type	Type of data (own or sub-contracted out)
Department code	Department code (e.g. EI)
Service code	Service code (e.g. 100)
Currency code	Currency code (e.g. AA02A)
Unit cost	Average cost to the organisation of providing the activity
Activity	See units table for details
Bed days	Number of inlier bed days
Mean[51]	National mean average unit cost
Actual_cost	Organisation's activity multiplied by organisation's unit cost
Expected_cost	Organisation's activity multiplied by national mean unit cost
Mapping_pot[52]	Maps all activity to one of 13 groups for the purposes of calculating service level RCIs

2 Organisation description

Field name	Description
Org code	Organisation code
Organisation name	Organisation name
SHA code	SHA code of organisation
Org type	Trust type: acute, mental health or community
MFF	Market forces factor for the organisation, specifically used for calculating RCIs

[51] DC and EI are combined. Service code is not taken into account when calculating the means for DC, EI, NEI, DCRA, DIAGIM and OPROC data.
[52] Supplier type OUT, CF department codes, MHCC service codes, UZ01Z, WD11Z, WD22Z and WD11Z HRG codes, are not included in the published RCI calculation. They are allocated to the 13_Excl pot.

3 Department description

Field name	Description
Department code	Department code (e.g. EI)
Department name	Department name (e.g. elective inpatient)

4 Service description

Field name	Description
Service code	Service code (e.g. 100)
Service name	Service name (e.g. general surgery)

5 Currency description

Field name	Description
Currency code	Currency code (e.g. AA02A)
Currency name	Currency name (e.g. intracranial procedures for trauma with major diagnosis)

6 Units

Field name	Description
Department code	Department code (e.g. EI)
Service code[53]	Service code (e.g. 100)
Currency code[54]	Currency code (e.g. AA02A)
Units	E.g. FCE

7 Mapping pot

Field name	Description
Mapping pot	Mapping pot (e.g. 01_EI)
Mapping pot name	Mapping pot description (e.g. elective inpatient and day case)

8 Memorandum data

Field name[55]	Description
Activity P2	This field includes: - the number of critical care periods, collected in addition to the number of critical care bed days for adult critical care - the number of requests, collected in addition to the number of tests for directly accessed pathology services - the number of completed packages of care, collected in addition to the number of team contacts for hospital at home care - the average number of sessions per week per patient of home haemodialysis, collected in addition to the number of sessions for haemodialysis

9 Memorandum units

Field name	Description
Department code	Department code (e.g. EI)
Service code[56]	Service code (e.g. 100)

[53] Where the fields are blank, this indicated that the units of measurement are the same regardless of the service code

[54] Where the fields are blank, this indicated that the units of measurement are the same regardless of the currency code

[55] The file also includes the primary activity and unit cost values included in the '1 Data' file.

Units	E.g. FCE

10 MH memorandum data

Field name[57]	Description
Cluster days	Number of cluster days
Unique service users	Total number of unique service users
Service user episodes	Total number of service user episodes
APC admissions	Number of admitted patient care admissions
Outsourced cost (included in the cluster cost)	Outsourced cost (included in the cluster cost)

11 Spell data

Field name	Description
Org code	Organisation code
Department code	Department code (e.g. EI)
HRG code	Currency code (e.g. AA02A)
Unit cost	Average cost to the organisation of providing the activity
Activity	Number of spells
Inlier bed days	Number of inlier spell bed days
Excess bed days	Number of excess spell bed days
Mean[58]	National mean average unit cost
Actual_cost	Organisation's activity multiplied by organisation's unit cost
Expected_cost	Organisation's activity multiplied by national mean unit cost
Mapping_pot	For calculating service level RCIs

12 PLICS survey

Field name	Description
	All organisations
Q1	What is the current status of patient level information and costing systems (PLICS) in your organisation?
Q2	Do you use service line management or reporting (SLM/R)?
Q3	Is costing information routinely shared with clinicians and other service leaders?
Q4	Are clinicians and other service leaders supported in using this information to run their departments?
Q5	What is the level of clinical and financial engagement in your organisation? (defined in paragraph 99 of the reference costs guidance)

	Implemented: organisations which have implemented PLICS only
Q7	Did you use PLICS to underpin your reference costs return?
Q8	If you answered yes to Q7, which service areas were underpinned by PLICS?
Q8a	All services
Q8b	Admitted patient care and day care facilities
Q8c	Outpatient services
Q8d	Emergency medicine
Q8e	Chemotherapy

[56] Where the fields are blank, this indicated that the units of measurement are the same regardless of the service code

[57] The file also includes the primary activity and unit cost values included in the '1 Data' file.

[58] DC and EI are combined. Service code is not taken into account when calculating the means.

Q8f	Critical care
Q8g	Diagnostic imaging
Q8h	High cost drugs
Q8i	Radiotherapy
Q8j	Rehabilitation
Q8k	Specialist palliative care
Q8l	Renal dialysis
Q8m	Services accessed directly
Q8n	Mental health services
Q8o	Community services
Q8p	Ambulance services
Q8q	Obstetric and maternity services
Q8r	Cystic fibrosis
Q8s	Audiology services
Q9	If you answered no to Q7, is there a particular reason for this?
Q10	Did you use the PLICS and reference costs best practice guidance when producing your reference costs?
Q11	If you answered yes to Q10, did you experience any issues not detailed in the PLICS and reference costs best practice guidance?
Q12	Did you use the HFMA Clinical Costing Standards when producing your reference costs?
Q13	If you answered no to Q12, why are you not using the Clinical Costing Standards?
Q15	Optional - If you answered yes to Q14, what is your current MAQS score?
Q16	When was your PLICS system implemented?
Q17	Who is the supplier of your PLICS system?

	Implementing: organisations which are currently implementing PLICS only
Q18	What stage of implementation are you at?
Q19	What is your timescale for completing PLICS implementation?
Q20	Are your clinicians working with the finance team in the implementation of PLICS ?
Q21	Are you using the HFMA Acute Clinical Costing Standards ?
Q22	If you are not using the Clinical Costing Standards why is this?
Q23	Who is the supplier of your PLICS system?

	Planning: organisations which are planning to implement PLICS only
Q24	What is your timescale for completing PLICS implementation?
Q25	Who is the supplier of your PLICS system?

	No plans: organisations which are not planning to implement PLICS only
Q26	If you not planning to implement PLICS, what are the main reasons why not?

	All organisations
Q27	Do you have any other comments?

Annex D: Comparing spell and episode based unit costs

Table 26 compares spell and FCE national average mean unit costs[59] by HRG chapter and admission method. Generally, spell unit costs are higher than FCE unit costs because the ratio of spells to FCEs is, on average and across all admission methods, 1.16.

Table 26: Spell and FCE mean unit costs by HRG chapter and admission method

		Day cases				Elective inpatients				Non-elective inpatients			
HRG chapter	Description	Episode to Spell ratio	FCE unit cost £	Spell unit cost £	% difference	Episode to Spell ratio	FCE unit cost £	Spell unit cost £	% difference	Episode to Spell ratio	FCE unit cost £	Spell unit cost £	% difference
A	Nervous System	0.98	657	650	-1.1%	1.10	4,183	4,609	10.2%	1.50	1,897	2,729	43.8%
B	Eyes and Periorbita	1.00	787	789	0.2%	1.01	2,111	2,179	3.2%	1.17	1,388	1,678	20.9%
C	Mouth Head Neck and Ears	1.00	780	784	0.5%	1.02	2,485	2,555	2.8%	1.17	1,213	1,507	24.3%
D	Respiratory System	0.97	597	626	4.9%	1.13	2,857	3,119	9.2%	1.72	1,538	2,541	65.2%
E	Cardiac Surgery and Primary Cardiac Conditions	1.01	1,226	1,229	0.3%	1.15	4,850	5,544	14.3%	1.49	1,428	2,088	46.2%
F	Digestive System	1.01	561	565	0.6%	1.13	3,087	3,499	13.4%	1.43	1,499	2,230	48.8%
G	Hepatobiliary and Pancreatic System	1.00	1,017	1,026	0.8%	1.13	2,817	3,153	11.9%	1.54	2,025	3,117	53.9%
H	Musculoskeletal System	1.01	1,010	1,017	0.7%	1.02	4,544	4,698	3.4%	1.26	2,514	3,249	29.3%
J	Skin, Breast and Burns	1.01	745	750	0.7%	1.02	3,019	3,081	2.0%	1.28	1,709	2,172	27.1%
K	Endocrine and Metabolic System	1.01	363	363	0.1%	1.06	2,690	2,886	7.3%	1.65	1,346	2,014	49.7%
L	Urinary Tract and Male Reproductive System	1.02	499	505	1.1%	1.05	2,498	2,616	4.7%	1.50	1,644	2,376	44.5%
M	Female Reproductive System and Assisted Reproduction	1.01	749	752	0.4%	1.02	2,538	2,601	2.5%	1.06	1,041	1,101	5.7%
N	Obstetrics	1.00	615	615	0.0%	1.07	2,142	2,127	-0.7%	1.03	1,430	1,473	3.0%
P	Diseases of Childhood and Neonates	1.01	650	654	0.6%	1.14	2,963	2,998	1.2%	1.06	967	982	1.5%
Q	Vascular System	1.02	688	694	0.8%	1.11	3,383	3,799	12.3%	1.32	2,920	4,267	46.1%
R	Radiology and Nuclear Medicine	1.00	929	937	0.9%	1.04	3,983	4,272	7.3%	1.16	4,834	6,618	36.9%
S	Haematology, Chemotherapy, Radiotherapy and Specialist Palliative Care	1.01	434	437	0.6%	1.13	4,517	5,027	11.3%	1.45	1,818	2,541	39.7%
V	Multiple Trauma, Emergency Medicine and Rehabilitation	1.01	1,240	1,257	1.4%	1.15	4,995	5,669	13.5%	1.33	3,528	4,759	34.9%
W	Immunology, Infectious Diseases and other contacts with Health Services	1.01	394	396	0.6%	1.08	1,174	1,169	-0.4%	1.37	1,182	1,774	50.1%
	All chapters	1.01	681	685	0.6%	1.07	3,311	3,528	6.5%	1.31	1,570	2,053	30.8%

[59] Own data, excluding UZ01Z and WD HRGs

Annex E: Comparing spell and FCE based RCIs

Introduction

1. The organisation level RCIs, which use FCEs as the unit of activity for admitted patient care (day cases, elective inpatients, and non-elective inpatient short and long stays), cover £49 billion of reference costs across both admitted and non-admitted patient care after applying the exclusions in paragraphs 47 and 48.

2. The spells collection only covers admitted patient care. After applying the same relevant exclusions (subcontracted out services, HRGs in sub chapter WD and HRG UZ01Z), this amounts to £22 billion, or 46% of the costs included in the FCE based RCIs.

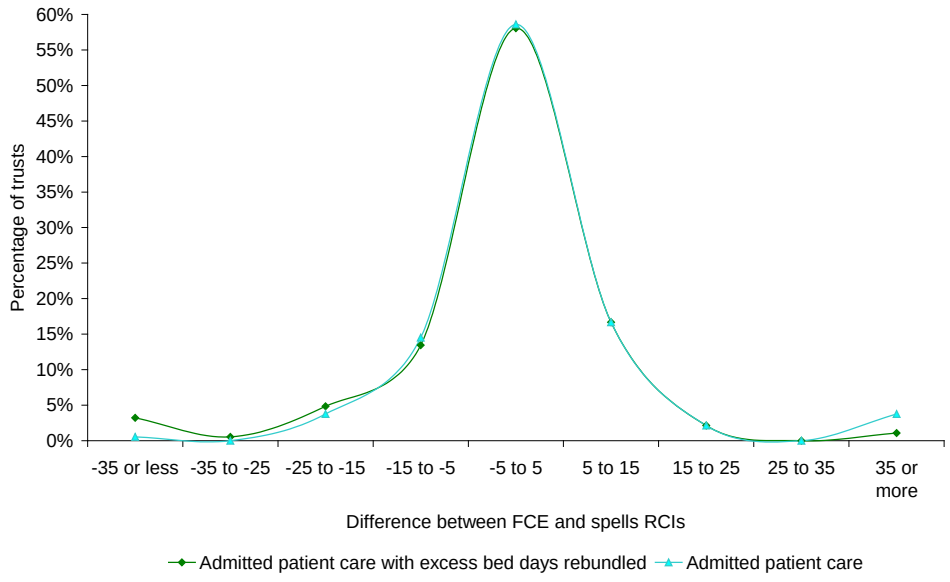
3. To make comparisons, we therefore calculated admitted patient care FCE based RCIs. We did this in two ways:

   (a) by using the same method as for the organisation level RCIs, i.e. calculating separate national average unit costs for the reported inlier and excess bed day costs, but restricting the scope to the admitted patient care costs and activity
   (b) by rebundling the excess bed day costs into inlier costs to facilitate the calculation of one national average unit cost for each HRG including both inlier and excess costs. This second method is consistent with the calculation of the spell RCIs.

4. The results of these two methods are included alongside the published spell RCIs.

5. Figure 16 shows the distribution of the difference between the admitted patient care FCE based RCIs, calculated using both methodologies outlined above, and spell RCIs. Almost 60% of trusts have a spell RCI within 5 points of their FCE RCIs, and almost 90% of trusts are within 15 points.

Figure 16: Differences between admitted patient care FCE based RCIs and spell RCIs



6. However, just over 10% of trusts have differences of greater than 15 RCI points. We identified three reasons for the observed differences between FCE based and spell based RCIs:

   (a) excess bed days per FCE that vary from the national average
   (b) an FCE to spell ratio that varies from the national average
   (c) misreporting of non-elective inpatients.

Excess bed days per FCE

7. As already noted, we calculated the admitted patient care FCE based RCIs using two methods. Figure 17 illustrates the first method, which is the one that we have used to date when calculating organisation level RCIs.

Figure 17: Method (a) - inlier and excess bed day costs calculated separately and then added together

Inlier costs

Trust	Unit cost	Activity	National average unit cost	Actual cost	Expected cost	RCI
A	200	10	250	2,000	2,500	80
B	300	10	250	3,000	2,500	120

Excess bed day costs

Trust	Unit cost	Activity	National average unit cost	Actual cost	Expected cost	RCI
A	100	50	102	5,000	5,098	98
B	200	1	102	200	102	196

Adding inlier costs and excess bed day costs gives the following overall RCIs

Trust	Actual cost	Expected cost	RCI
A	7,000	7,598	92
B	3,200	2,602	123

8. Figure 18 illustrates the second method, assuming the costing information is exactly the same as that in Figure 17.

Figure 18: Method (b) - excess bed day costs rebundled into inlier costs

National average unit cost is calculated as: total actual cost (inlier plus excess bed day) / inlier activity

Total actual cost (inlier and excess)	X	10,200
Total inlier activity	Y	20
National average unit cost	X / Y	510

This gives the following RCIs

Trust	Unit Cost	Activity	National average unit cost	Actual Cost	Expected cost	RCI
A	700	10	510	7,000	5,100	137
B	320	10	510	3,200	5,100	63

9. We can observe that method (b) changes the overall RCIs. Trust A's RCI has changed from 92 to 137 and trust B's from 123 to 63. The change is caused by the present methodology not taking the number of excess bed days per FCE into

account. The first table in Figure 18 shows how the national average unit cost is calculated. However, we can also express this as per Figure 19.

Figure 19: Using national average excess bed days per FCE to calculate the RCI

National average excess bed days per FCE

Trust	FCEs (A)	Excess Beddays (B)	Excess Beddays per FCE (B / A)
A	10	50	5
B	10	1	0.1
National	20	51	2.6

National average unit cost = average inlier cost + (average excess bed day unit cost × average excess bed days per FCE)

Average inlier unit cost	X	250
Average excess bed day unit cost	Y	102
Excess bed days per FCE	Z	2.6
National average unit cost	X + (Y × Z)	510

10. As Figure 19 shows, the national average unit cost is based on the national average excess bed days per FCE. Organisations with a higher number of excess bed days per FCE than the national average (like trust A), will have a higher RCI if excess costs are rebundled compared to when they are calculated separately and then added back in, and vice versa.

11. Therefore, when comparing spell and FCE RCIs, we have used the method (b) RCIs to make the comparison.

FCEs per spell

12. The ratio of the number of FCEs per spell will affect the relationship between FCE and spell RCIs. Figure 20 illustrates.

Figure 20: Ratio of FCEs per spell

FCEs

Trust	Unit cost	Activity	National average unit cost	Actual cost	Expected cost	RCI
A	700	10	510	7,000	5,100	137
B	320	10	510	3,200	5,100	63

Spells

Trust	Unit cost	Activity	National average unit cost	Actual cost	Expected cost	RCI
A	875	8	1,020	7,000	8,160	86
B	1,600	2	1,020	3,200	2,040	157

FCEs per spell

Trust	FCEs	Spells	FCEs per spell
A	10	8	1.3
B	10	2	5.0
National	20	10	2.0

13. As seen in this worked example, trust B has a higher number of FCEs per spell than the national average. This means that their spell unit costs are higher and this increases their spells RCI compared to their FCE RCI. Trust A has a lower number of FCEs per spell than the national average and hence their spells RCI is lower than their FCEs RCI.

14. The data shows that nationally there are 1.16 FCEs per spell. Trusts that deviate significantly from this ratio will see a deviation between their episode and spell based RCIs.

15. Some trusts reported the same total number of FCEs and spells. This drives down their reported spell unit costs and consequently their spell based RCI when compared to their episode based RCI. It is not clear though whether the low ratio is an accurate reflection of their casemix of care, or whether it is driven by an error in the episode to spell conversion process undertaken locally. A very few trusts reported fewer spells than FCEs.

16. Conversely, there are trusts with a significantly higher number of FCEs per spell, where the spell unit cost is consequently higher than the average. This drives up their spell RCI. Again, it is not clear whether this is an accurate reflection of casemix.

Reporting of non-electives

17. A few trusts reported all of their non-elective short stay FCEs as non-elective long stay spells. This means that their activity is potentially compared to the wrong national averages, and gives an inaccurate, deflated, spell RCI.

Annex F: Using the source data

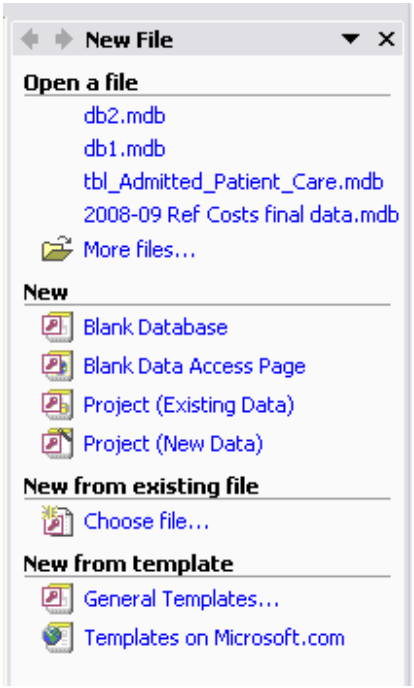
Introduction

1. This guidance provides instructions for users on how to import the CSV files described in Annex B into Microsoft Access 2002 and then use the data analysis tool. Please note that the process required for other versions of Access may differ slightly.

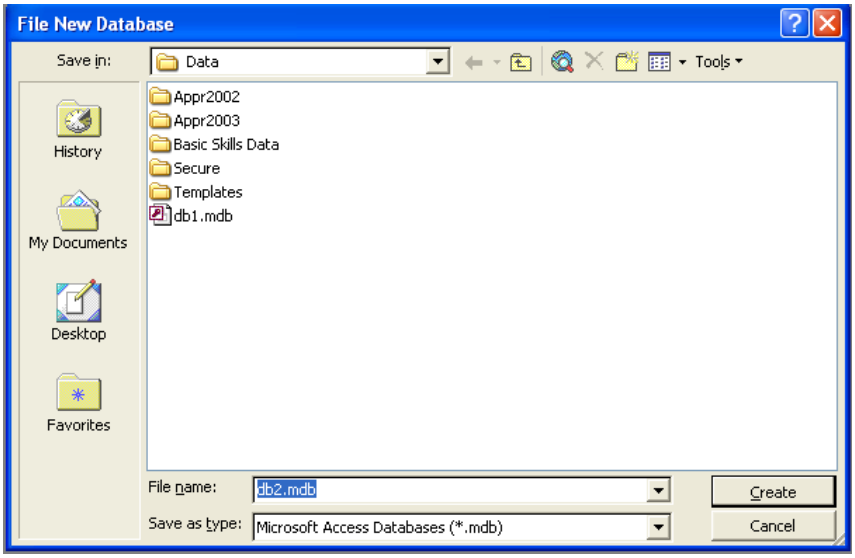
Stage 1: Importing the CSV files into Microsoft Access

2. Download the documents from the DH website and save the CSV files somewhere easy to find (e.g. your desktop). Please do not open the CSV files.

3. Open up Microsoft Access. From the menu bar at the top of the screen, click: “File”, “New”. A new pane will appear on the right hand side.

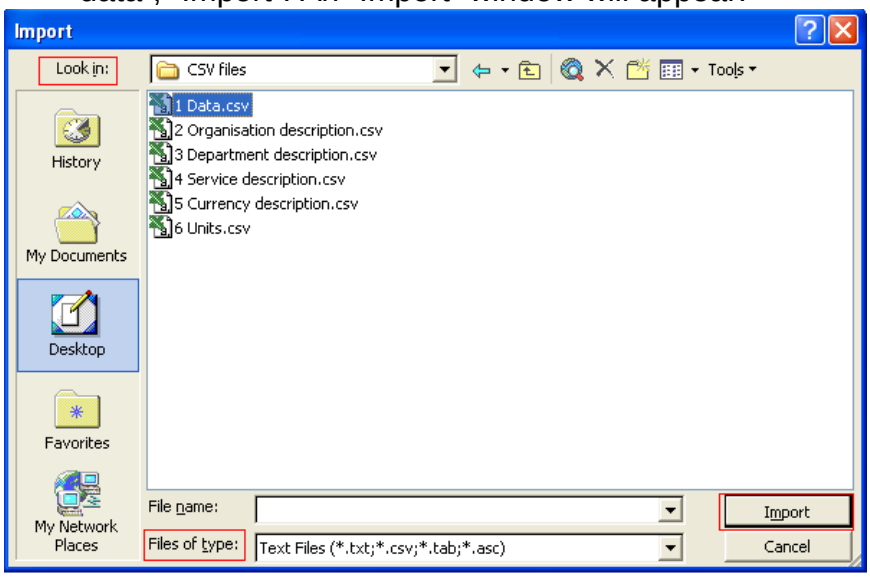


4. Click on “Blank database”. A “File New database” window will appear.



5. Save the database where it is easily accessible (e.g. your desktop).

6. Click: “Create”. From the menu bar at the top of the screen, Click “File”, “Get External data”, “Import”. An “Import” window will appear.



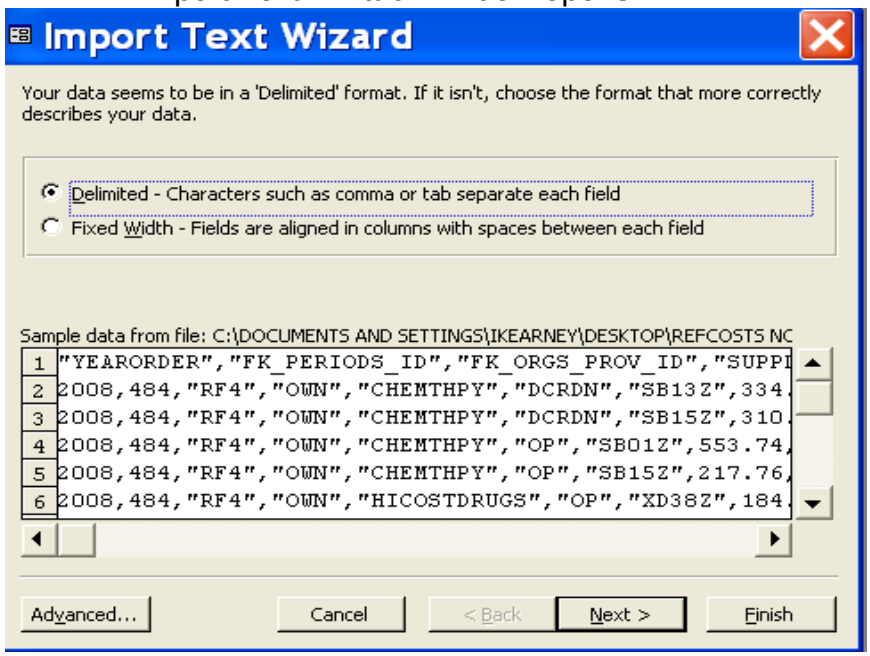
7. Change the “Files of type” box (at the bottom of the window) to “Text Files (*txt; *csv;*tab;*asc)”.

8. Change ‘Look in’ box to the folder where you saved the CSV files.

9. Select the “1 Data.csv” file from it (so that it appears with a blue background).

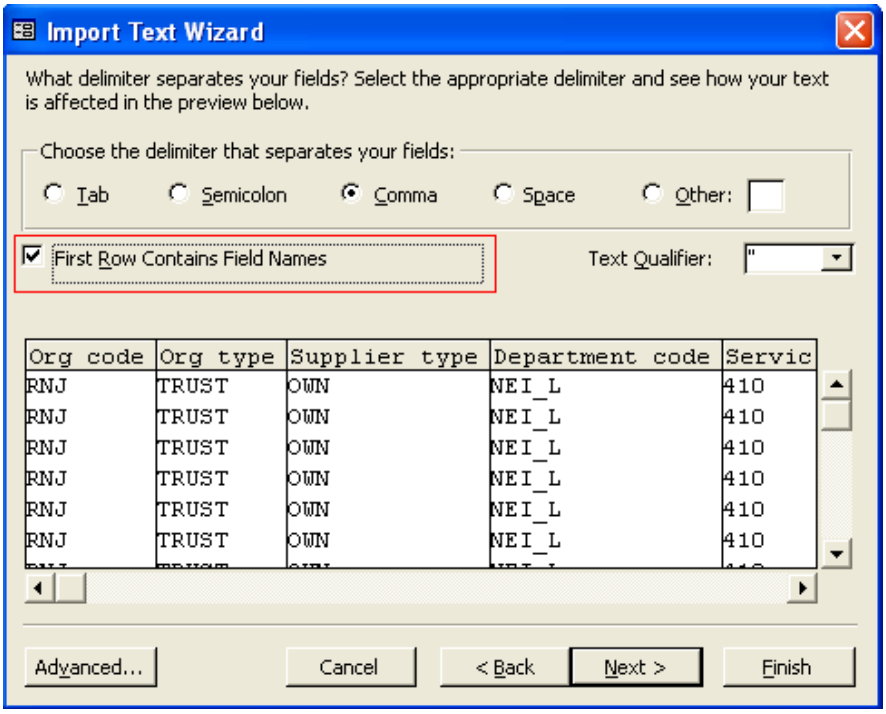
10. Click: “Import”.

11. An “Import Text Wizard” window opens.



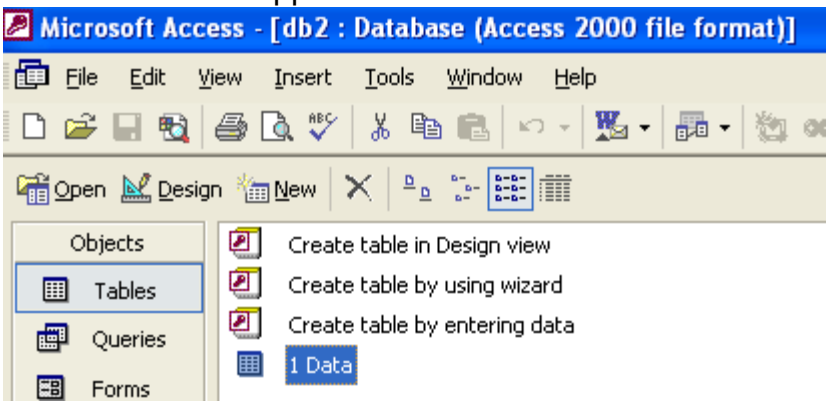
12. Click: “Next”.

13. Tick: “First Row Contains Field Names”.



14. Click: “Finish”.

15. “1 Data” will appear in “Tables”.

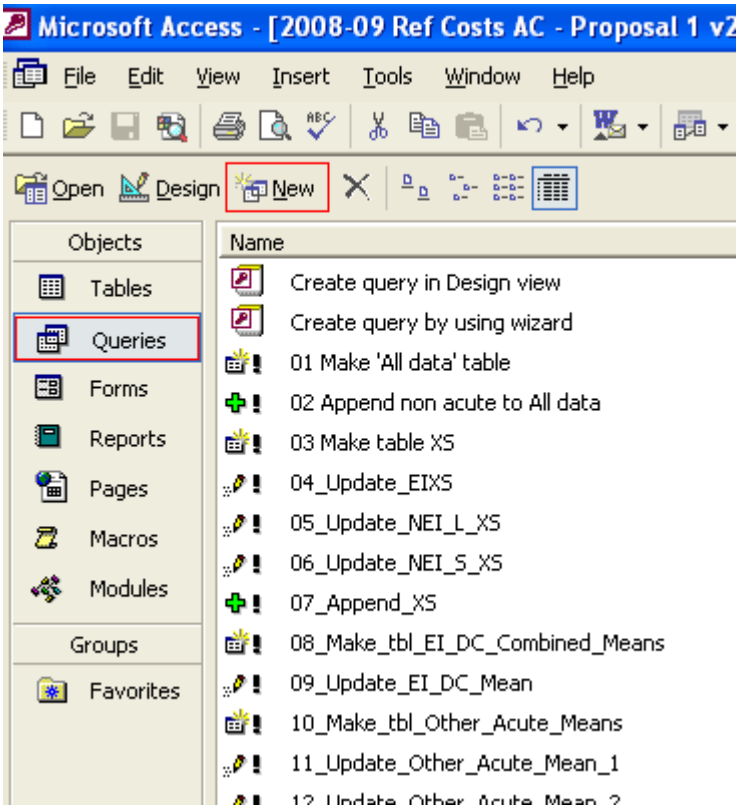


16. Repeat steps 6 to 14 above for the other CSV files.

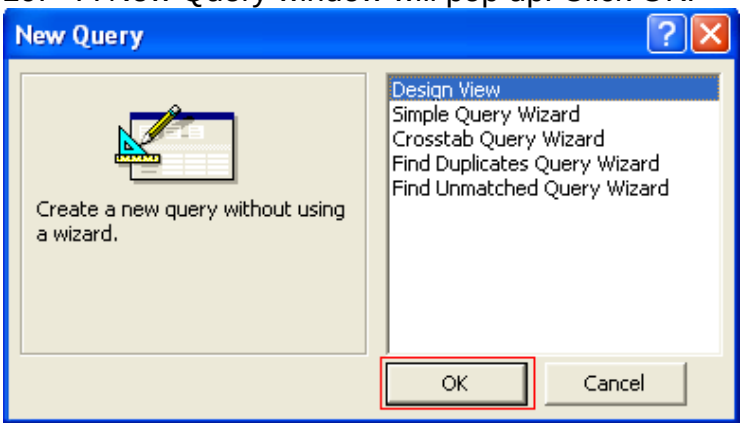
Stage 2: Creating standard queries for data analysis

17. This process will create standard queries which will allow organisations to compare their data against the national averages and calculate the RCIs. Users are able to create other queries, as required.

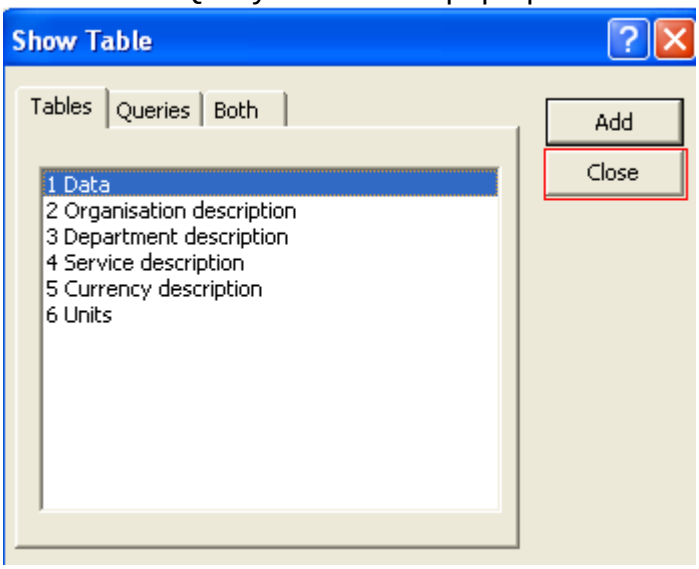
18. Go into the Queries, and then Click on New.



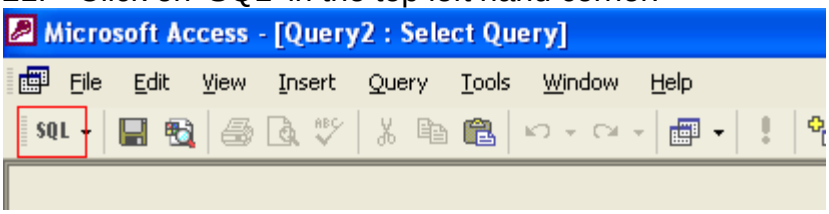
19. A New Query window will pop up. Click OK.



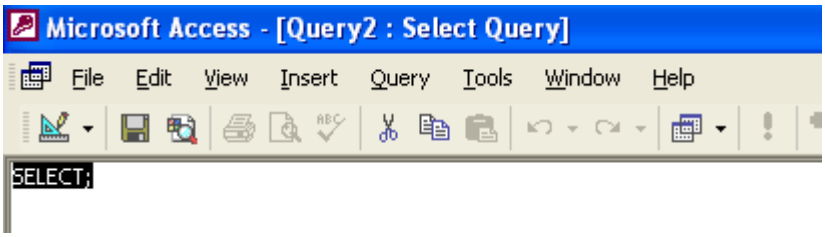
20. A New Query window will pop up. Click Close.



21. Click on 'SQL' in the top left hand corner.



22. A new window will appear.

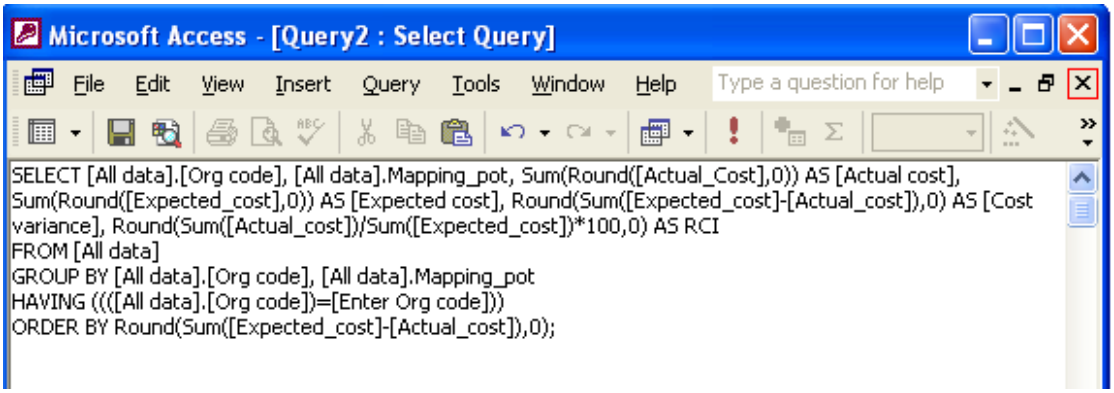


23. Paste the SQL text in the first row of the table below into the window.

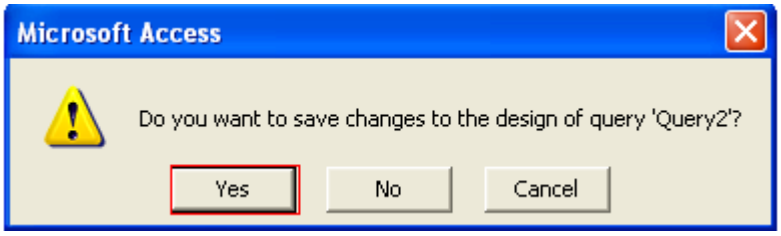
SQL text – RCI related queries	Query name
SELECT [1 Data].[Org code], [1 Data].Mapping_pot, Sum(Round([Actual_Cost],0)) AS [Actual cost], Sum(Round([Expected_cost],0)) AS [Expected cost], Round(Sum([Expected_cost]-[Actual_cost]),0) AS [Cost variance], Round(Sum([Actual_cost])/Sum([Expected_cost])*100,2) AS RCI FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].Mapping_pot HAVING ((([1 Data].[Org code])=[Enter Org code])) ORDER BY Round(Sum([Expected_cost]-[Actual_cost]),0);	01 By Org and RCI pot
SELECT [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code], Sum(Round([Actual_Cost],0)) AS [Actual cost], Sum(Round([Expected_cost],0)) AS [Expected cost], Round(Sum([Expected_cost]-[Actual_cost]),0) AS [Cost variance], Round(Sum([Actual_cost])/Sum([Expected_cost])*100,2) AS RCI FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code] HAVING ((([1 Data].[Org code])=[Enter Org code]) AND (([1 Data].Mapping_pot)=[Enter Mapping pot - 01_EI, 02_NEI, 03_XS, 04_CCS, 05_OP, 06_OAS, 07_Com, 08_MH, 09_Trans, 10_PAR, 11_A&E, 12_UB, 13_Excl])) ORDER BY Round(Sum([Expected_cost]-[Actual_cost]),0);	02 By Org, RCI pot, Dept
SELECT [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code], [1 Data].[Service code], Sum(Round([Actual_Cost],0)) AS [Actual cost], Sum(Round([Expected_cost],0)) AS [Expected cost], Round(Sum([Expected_cost]-[Actual_cost]),0) AS [Cost variance], Round(Sum([Actual_cost])/Sum([Expected_cost])*100,2) AS RCI FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code], [1 Data].[Service code] HAVING ((([1 Data].[Org code])=[Enter Org code]) AND (([1 Data].Mapping_pot)=[Enter Mapping pot - 01_EI, 02_NEI, 03_XS, 04_CCS, 05_OP, 06_OAS, 07_Com, 08_MH, 09_Trans, 10_PAR, 11_A&E, 12_UB, 13_Excl]) AND (([1 Data].[Department code])=[Enter Department code])) ORDER BY Round(Sum([Expected_cost]-[Actual_cost]),0);	03 By Org, RCI pot, Dept and Service
SELECT [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code], [1 Data].[Service code], [1 Data].[Currency code], Sum(Round([Actual_Cost],0)) AS [Actual cost], Sum(Round([Expected_cost],0)) AS [Expected cost], Round(Sum([Expected_cost]-[Actual_cost]),0) AS [Cost variance], Round(Sum([Actual_cost])/Sum([Expected_cost])*100,2) AS RCI FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].Mapping_pot, [1 Data].[Department code], [1 Data].[Service code], [1 Data].[Currency code]	04 By Org, RCI pot, Dept, Service and Currency

HAVING ((([1 Data].[Org code])=[Enter Org code]) AND (([1 Data].Mapping_pot)=[Enter Mapping pot - 01_EI, 02_NEI, 03_XS, 04_CCS, 05_OP, 06_OAS, 07_Com, 08_MH, 09_Trans, 10_PAR, 11_A&E, 12_UB, 13_Excl]) AND (([1 Data].[Department code])=[Enter Department code]) AND (([1 Data].[Service code])=[Enter service code])) ORDER BY Round(Sum([Expected_cost]-[Actual_cost]),0);	
SQL text – unit cost related queries	**Query name**
SELECT [1 Data].[Org code], [1 Data].[Department code], [1 Data].[Currency code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit Cost] FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].[Department code], [1 Data].[Currency code];	05 Unit Cost by Organisation, Department and Currency
SELECT [1 Data].[Org code], [1 Data].[Department code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].[Department code];	06 Unit Cost by Organisation and Department
SELECT [1 Data].[Org code], [1 Data].[Currency code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Org code], [1 Data].[Currency code];	07 Unit Cost by Organisation and Currency
SELECT [1 Data].[Department code], [1 Data].[Currency code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Department code], [1 Data].[Currency code];	08 Unit Cost by Department and Currency
SELECT [1 Data].[Org code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Org code];	09 Unit Cost by Organisation
SELECT [1 Data].[Department code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Department code];	10 Unit Cost by Department
SELECT [1 Data].[Currency code], Sum([1 Data].Actual_cost) AS SumOfActual_cost, Sum([1 Data].Activity) AS SumOfActivity, Sum([Actual_Cost])/Sum([Activity]) AS [Unit cost] FROM [1 Data] GROUP BY [1 Data].[Currency code];	11 Unit Cost by Currency

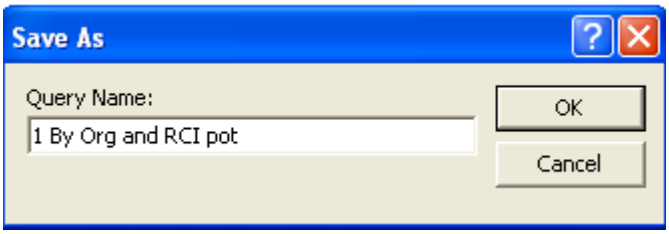
24. Close the window.



25. A new window will appear. Click ‘Yes’.



26. A new window will appear. Type in the name from the table above in step 23, then click 'OK'.



27. Repeat this process for the other three queries listed in step 23 above.

Stage 3: Using the standard queries

RCI queries

28. The standard queries are designed to allow organisations to drill into their data. Organisations may want to use this to highlight areas in which they have substantial activity and where their costs are much higher or lower than the national average.

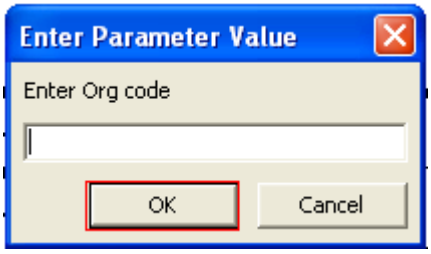
29. The RCI standard queries all show actual cost, expected cost, cost variance (expected cost – actual cost) and RCI. The cost variance is similar to the RCI, however it takes activity into account. The queries are sorted by cost variance – ascending.

30. The amount of detail shown increases with each standard query. The table below shows how the detail builds up.

Query	Org code	RCI pot	Dept	Service	Currency
1 By Org and RCI pot	✓	✓			
2 By Org, RCI pot and Dept	✓	✓	✓		
3 By Org, RCI pot, Dept and Service	✓	✓	✓	✓	
4 By Org, RCI pot, Dept, Service and Currency	✓	✓	✓	✓	✓

31. The standard queries require some of the variables to be selected after running the query, e.g. the "1 By Org and RCI pot" query requires org code to be selected. These pre-selected fields are shaded in the table.

32. Once the query has been set up, it can be run by double clicking it. A new window(s) will appear. Enter the information required and click on OK.



Unit cost queries

33. The unit cost standard queries are designed to allow organisations to compare unit cost for activity defined by organisation code, department code and currency code, or any combination of these fields.

34. Unlike the RCI standard queries, they will not require the input of an organisation code.