Department of Health

Reference costs 2013-14

November 2014

Contents

Foreword

The 2013-14 reference costs published today are the second produced under new arrangements put in place following the Health and Social Care Act (2012). This act transferred responsibility for the National Tariff Payment System in England from the Department to Monitor and NHS England. Monitor is now accountable for the reference costs collection, with the Department continuing to collect reference costs on its behalf.

Understanding the cost of patient care is an essential element in determining and setting appropriate prices. The reference costs also provide a wealth of data abouth the cost of delivering NHS services which are also widely used by the Department, it's Arms Length Bodies (ALBs) and the wider healthcare community.

Monitor set out its long-term strategy for costing and cost collection to inform price setting in *Costing Patient Care*. This set out an intention to move towards using patient-level cost collection as the main source of cost data informing price setting and supporting the other uses of reference costs.

The transition from reference costs to patient-level costing (PLICS) will be a gradual process, stretching over a number of financial years. Care and consideration is required to ensure robust costing data is available throughout the transitional period.

In the medium term, Monitor and NHS England will continue to use reference costs to inform price setting and currency development. It is essential that NHS providers and national bodies work together to ensure that costing data underpinning both reference costs and patient-level costs is of high quality.

The following stakeholders supported the collection of 2013-14 reference costs.

- The National Casemix Office (NCO) at the Health and Social Care Information Centre (HSCIC) have continued to develop enhanced Healthcare Resource Group (HRG) currencies to differentiate more effectively between levels of care complexity;
- The Healthcare Financial Management Association, the representative body for NHS finance professionals, has continued to develop the clinical costing standards which set out best practice for deriving cost data;
- The NHS Trust Development Authority (NHS TDA) supported query resolution and managed the submission of reference costs by NHS trusts; and
- The Reference Costs Advisory Group, with members from national bodies and a representative sample of NHS providers, provided advice on the design of the guidance and collection.

There is an ongoing, collaborative process to improve both the quality of the underlying costing and the process of cost collection. 126 NHS providers now use PLICS to inform some or all of their reference costs return. Over three quarters (£18.3bn) of admitted patient care reference costs returns are now underpinned by PLICS.

Our shared ambition is for costing data that supports the delivery of high quality care for patients and better value for the NHS.

Department of Health **Monitor** **NHS England** **NHS Trust Development Authority**

Chapter 1: Overview and headline statistics

Overview

1. Reference costs are the average unit cost to the NHS of providing defined services to NHS patients in England in a given financial year and are collected annually by the Department. The accuracy of the data has improved year on year due to refinements in the guidance and the collection process.

2. This document supports the publication of 2013-14 reference costs, which give the most comprehensive picture available about how 244 NHS providers (98 NHS trusts and 146 NHS foundation trusts) spent £58.3bn delivering healthcare to patients in 2013-14.

3. This chapter provides a brief overview of reference costs and some headline findings, key figures and analysis from the 2013-14 reference costs collection.

4. Chapter 2 provides information on the background and uses of reference costs data.

5. Chapter 3 explains the data that we have published with this document:

   (a) the national schedules of reference costs. These show the national average unit costs derived from the average unit costs of NHS providers;
   (b) the reference cost index (RCI). A measure of the relative cost difference between NHS providers; and
   (c) a database of source data. Publishing the data submitted by trusts provides a valuable source of information for benchmarking of costs and other more detailed analysis.

6. Chapter 4 sets out the actions we took to improve and validate the quality of 2013-14 reference costs. This includes a summary of trusts' responses to the mandatory self-assessment quality checklist.

7. Chapter 5 shows the high level results of the annual survey conducted during the collection period. The survey is mainly used to assess the extent to which trusts are implementing PLICS, and using these systems to compile their reference costs. Analysis of the survey can be found in Annex A and the trust level responses to the survey can be alongside this publication.

8. If the information you are looking for is not available in this publication or on our web pages please contact us at ReferenceCosts@dh.gsi.gov.uk

Headlines and analysis

9. The main findings from the 2013-14 data collection[1] are set out below:

- the 2013-14 reference costs cover £58.3bn of NHS expenditure, an increase of £3.2bn (5.8%) from the £55.2bn[2] collected in 2012-13,
- this represents 55% of £106.5bn total NHS revenue expenditure[3] in 2013-14;
- around 1.5m lines of data were submitted by 244 NHS providers, and;
- for admitted patient care services, detailed costs were provided for 2,025 treatments and procedures covering over 16 million finished consultant episodes (FCEs).

Finished Consultant Episodes

10. An FCE is the time a patient spends in the care of one consultant. Where care is provided by two or more consultants in the episode, one consultant takes overriding responsibility and only one FCE is recorded.

11. FCE-based average costs for 2013-14, by point of delivery, are set out in Table 1 (2012-13 figures shown for comparison)

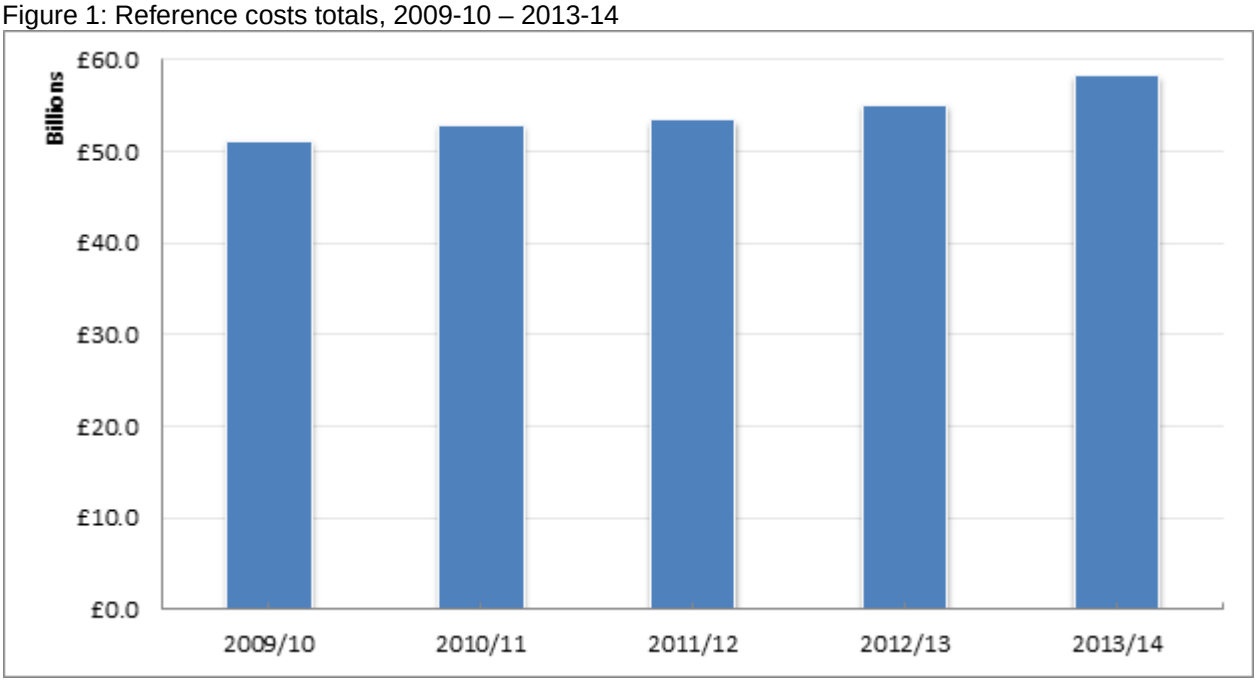
Table 1: FCE based average costs 2012-13 and 2013-14

Point of delivery	2012-13 (£'s)	2013-14 (£'s)
Day case	693	698
Elective inpatient (excluding excess bed days)	3,366	3,375
Non-elective inpatient (excluding excess bed days)	1,489	1,542
Excess bed day	273	275
Outpatient attendance	108	111
A&E attendance	114	124

12. Figure 1 shows the growth of the reference costs collection over the past 5 years from £51.2bn in 2009-10 to £58.3bn this year.

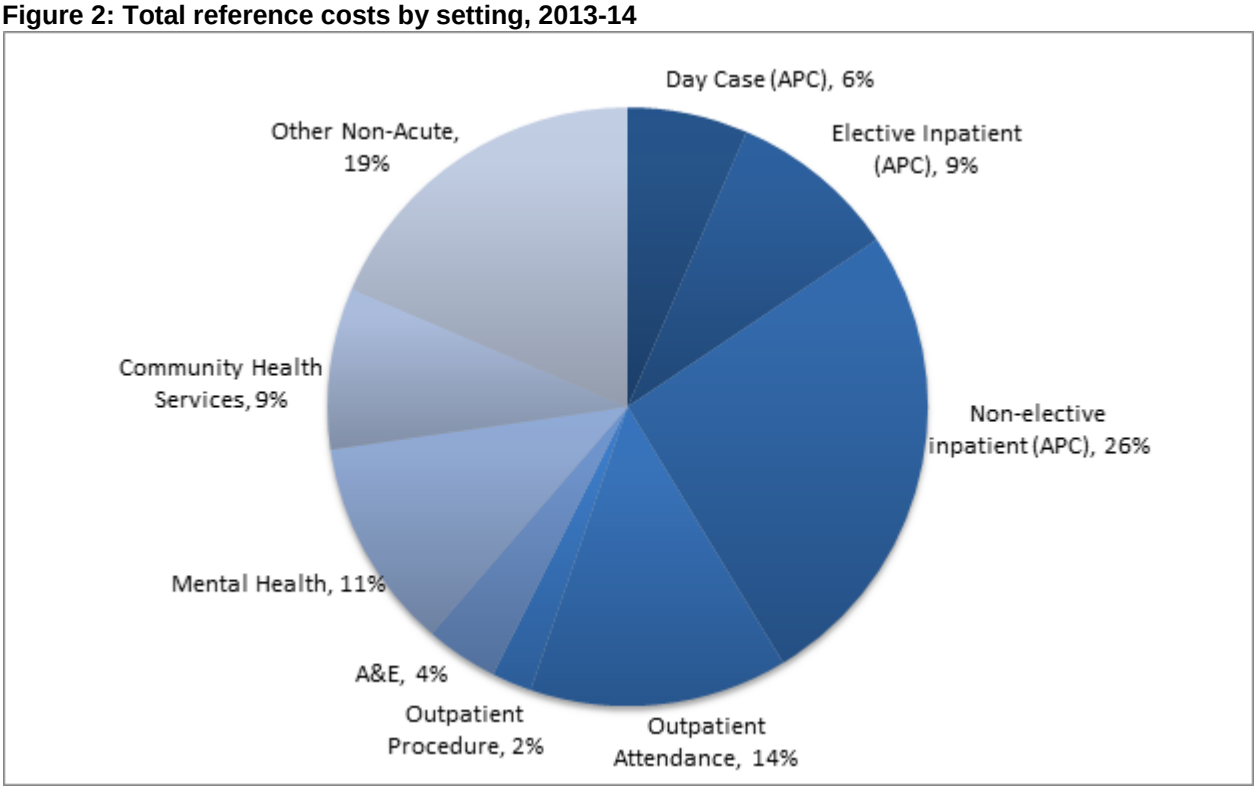
[1] Figures exclude HRG UZ01Z – Data invalid for grouping. In 2013-14, £79.7m of costed activity was coded as UZ01Z
[2] Figures do not sum due to rounding
[3] Department of Health Annual Report and Accounts 2013-14, pp.30. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335166/DH_annual_accounts_2013-14.pdf

Figure 1: Reference costs totals, 2009-10 – 2013-14



13. Figure 2 shows the total costs reported in 2013-14 by setting, with admitted patient care (APC) accounting for 41% of the reported costs.

Figure 2: Total reference costs by setting, 2013-14



Key figures and timeseries

14. Table 2 provides summary statistics for the reference costs collected between 2009-10 and 2013-14. Care must be taken when comparing reference costs between years due to changes to the scope of the collection, the collection guidance, and the currencies against which costs are reported.[4]

[4] *HRG4+ 2013/14 Summary of Changes* provides a description of the changes to HRGs since the 2012-13 reference costs collection. This can be found at: http://www.hscic.gov.uk/media/13824/HRG4-201314-RC-Summary-of-Changes/pdf/HRG4__RC1314_Summary_of_Changes_v1.0.pdf

Table 2: Summary statistics for reference costs collected between 2009-10 and 2013-14

£ billion	2009-10	2010-11	2011-12	2012-13	2013-14
Total reference costs	51.2	53	53.4	55.2	58.3
Total NHS revenue expenditure [5]	97.1	100.4	100.3	102.6	106.5
Reference Costs as % of Total Health System Expenditure	52.8%	52.7%	53.3%	53.8%	54.8%
Analysis by setting					
Day case	3.4	3.4	3.5	3.6	3.8
Elective inpatient	5.3	5.4	5.3	5.2	5.3
Non-elective inpatient	12.6	13.3	13.7	14.3	15.0
Outpatient attendance[6]	7.4	7.7	7.4	7.6	8.1
Outpatient procedure	0.7	0.9	0.9	1.1	1.3
Accident and emergency	1.8	1.9	2.0	2.1	2.3
Mental Health	6.0	6.1	6.5	6.5	6.6
Community Health Services	4.2	4.2	3.9	4.2	5.1
Other non-acute	9.8	10.0	10.2	10.5	10.8
Analysis by HRG chapter[7]					
A-Nervous system	1.3	1.3	1.3	1.4	1.5
B-Eyes and periorbita	0.5	0.5	0.5	0.5	0.5
C-Ear, Nose, Mouth , Throat, Neck and Dental	0.8	0.9	0.9	0.9	0.9
D-Respiratory system	1.5	1.6	1.6	1.8	1.9
E-Cardiac surgery and primary cardiac conditions	2.0	2.0	2.3	2.3	2.4
F-Digestive system	2.7	2.7	2.8	2.8	3.0
G-Hepatobiliary and pancreatic system	0.6	0.6	0.7	0.7	0.7
H-Musculoskeletal system	3.8	3.9	3.8	3.8	3.9
J-Skin, breast and burns	0.9	0.9	0.9	0.9	0.9
K-Endocrine and metabolic system	0.2	0.2	0.3	0.3	0.3
L-Urinary tract and male reproductive system	1.5	1.5	1.6	1.6	1.7
M-Female reproductive system and assisted reproduction	0.7	0.7	0.7	0.7	0.7
N-Obstetrics	1.7	1.8	1.9	1.9	2.0
P-Diseases of childhood and neonates	0.9	1.0	1.0	1.1	1.2
Q-Vascular system	0.6	0.5	0.5	0.5	-
R-Radiology and nuclear medicine	-	0.2	0.2	0.2	-
S-Haematology, chemotherapy, radiotherapy and specialist palliative care	0.5	0.5	0.5	0.5	0.6
U-Undefined groups	0.1	0.1	0	0.1	0.1
V-Multiple trauma, emergency medicine and rehabilitation	0.2	0.2	0.2	0.2	0.3
W-Immunology, infectious diseases and other contacts with health services	0.8	0.9	0.9	0.9	1.0
Y-Vascular Procedures and Disorders and Imaging Interventions	-	-	-	-	0.7

[5] Department of Health Annual Report and Accounts 2013-14, pp.30. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335166/DH_annual_accounts_2013-14.pdf

[6] Includes consultant-led and non-consultant led outpatient attendances, and cancer multi-disciplinary teams

[7] Chapter definitions have been updated to reflect 2013-14 HRG design

Spells data

15. As well as collecting FCE data, we also collect spells data from providers who deliver admitted patient care services.

16. The 2013-14 spells data shows that £23.9bn of spell costs were submitted by 181 trusts. This is an increase on the £23.2bn submitted in 2012-13 (by 182 trusts).

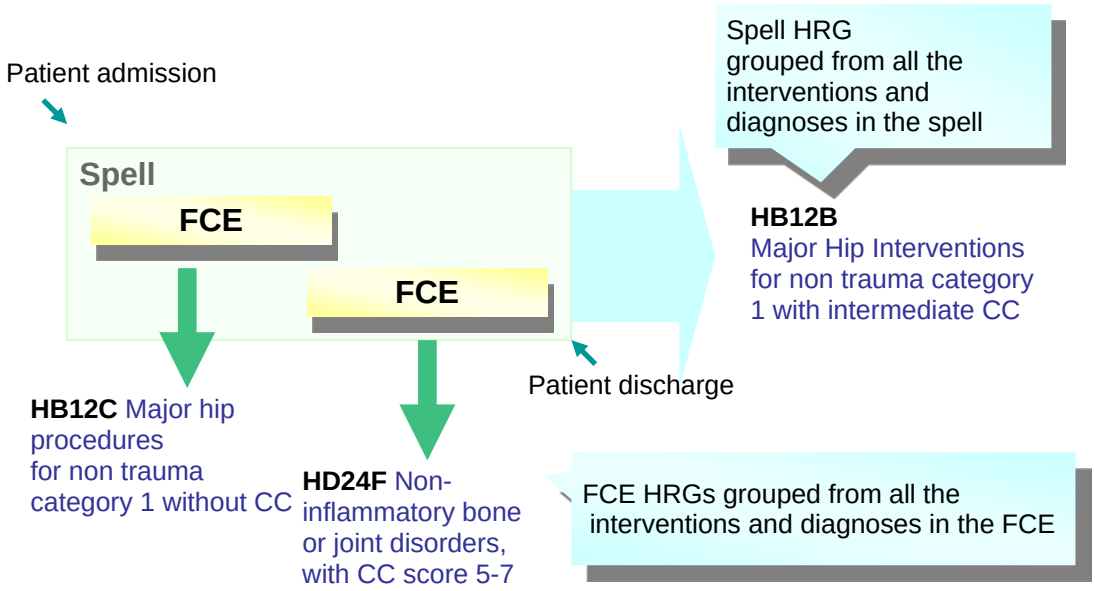
17. The spell-based average costs for 2013-14, by point of delivery, are set out in Table 3 (2012-13 figures shown for comparison).

Table 3: spell based average costs 2012-13 and 2013-14

Point of delivery	2012-13 (£'s)	2013-14 (£'s)
Day case	696	698
Elective inpatient (including excess bed days)	3,706	3,688
Non-elective inpatient (including exccess bed days)	2,118	2,160

18. 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. It is possible to group individual FCEs to a HRG, but the overall spell groups to a HRG based on the coding in all the FCEs within the spell (Figure 3).

Figure 3: Spell and FCE HRGs



19. National prices for admitted patient care are 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 was introduced by the Department to support a move towards more transparently calculated prices.

20. Spell costs were submitted as follows:

    (a) by admission method (day case, elective inpatient, non-elective inpatient long stay and non-elective inpatient short stay)

(b) number of spells by HRG
(c) average unit cost per spell by HRG, untrimmed for any excess bed days
(d) number of spell inlier bed days by HRG
(e) number of spell excess bed days by HRG.

21. The submission of spell costs and activity is otherwise on the same basis as the submission of FCE costs and activity. Our validation checks ensured that the total spell costs submitted by each trust reconciled to within 0.1% of equivalent total FCE inlier and excess bed day costs by admission method.

22. Note that quoted costs relating to admitted patient care elsewhere in this publication are on an FCE rather than spell basis. We will continue to respond to parliamentary questions, freedom of information and other data requests using FCE costs unless the question specifically asks for spell costs.

23. We have also published an organisation wide spell RCI for each trust, using the same methodology described in Chapter 2. We recommend that the FCE based RCIs remain the default RCI for comparisons between acute trusts.

Chapter 2: Background to reference costs

Background

24. Reference costs were introduced in 1997-98, from a desire to understand how hospital costs compared to each other. The NHS had always accounted for its expenditure in terms of staffing, goods, services and so on. Reference costs allowed unit costs of healthcare in hospital trusts to be compared at the level of treatments and procedures. Unit costs are simply the costs incurred in providing one unit of a service. For example, one episode of care for a hip replacement or outpatient attendance. Each year, the Department collects and publishes reference costs from all NHS providers of secondary healthcare services to NHS patients in England.

25. Reference costs are one of the building blocks for setting prices for NHS-funded services in England. These price setting arrangements currently cover the majority of NHS-funded acute services in England, under which NHS commissioners pay acute trusts a national price for each patient seen or treated, taking into account the complexity of the patient's healthcare needs. All NHS providers submit their costs and activity for each particular service, and national prices are set based on the average of these costs.

26. From 1 April 2013 Monitor and NHS England assumed responsibility for the payment system and the term National Tariff was introduced to refer to the entire set of national prices; the methodology for price setting; and the rules for varying national prices and agreeing local prices.

27. The responsibility is split between the two organisations with Monitor having responsibility for tariff development and price setting whilst NHS England are responsible for developing currencies.

28. 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 HRGs[8]. HRGs are maintained by the NCO at the HSCIC, and provide standard groupings of similar treatments that use similar resources. The current version, HRG4+, has been used since the 2012-13 reference costs collection. The HRG classification system covers admitted patient care, outpatients and emergency care.

29. Outpatient attendances are classified according to their specialty (e.g. general surgery or trauma and orthopaedics). Mental health services use a currency called the care cluster which defines patient need over different periods of time depending on the severity of the condition. Other services use a range of different currencies.

30. Reference costs are the average cost to the provider for each unit of currency. They therefore do not give any information on the variation of costs between patients in the currency. Nor do they usually give any information on individual diagnoses or

[8] http://www.hscic.nhs.uk/casemix

treatment, because HRGs are a secondary classification system based on underlying primary classification systems for diagnoses and procedures.

31. Reference costs are supported each year by detailed costing and cost collection guidance, designed to minimise variation caused by different costing methodologies. Monitor's *Approved Costing Guidance* brings existing guidance into a single framework. It incorporates costing principles that should be applied to all NHS costing exercises, clinical costing standards developed by the HFMA, reference costs collection guidance for 2013-14[9], and guidance for Monitor's PLICS collection.

32. Trusts submit reference costs on a full absorption basis, which means that all the running costs of providing these services are included within the submission. Each reported unit cost includes:

    (a) **Direct costs** - relating directly to the delivery of patient care, e.g. medical staffing costs;
    (b) **Indirect costs** - indirectly related to the delivery of care, but cannot always be specifically identified to individual patients, e.g. catering and linen; and
    (c) **Overhead costs** - costs of support services that contribute to the effective running of the organisation, and that cannot be easily attributed to patients, e.g. payroll services.

33. 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

34. The value of services covered in reference costs (£58.3bn in 2013-14) is broader than the scope of national prices (around £30bn in 2013-14).

35. Reference costs have a number of other uses besides price setting.

36. They support the Department's commitment to data transparency for the benefit of patients and the public as set out in its business plan for 2013-2015[10].

37. NHS providers and commissioners use reference cost data for:

    (a) reporting to executive teams;
    (b) benchmarking;
    (c) contract negotiations; and
    (d) local pricing of non-tariff areas.

38. Reference costs are also used by the Department, Monitor, NHS England, the NHS TDA, the HSCIC and other organisations and individuals to[11]

[9] https://www.gov.uk/government/publications/nhs-reference-costs-collection-guidance-for-2013-to-2014

[10] http://webarchive.nationalarchives.gov.uk/+/www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyandGuidance/DH_121393

[11] Results of a 2010 audit commision consultation (http://webarchive.nationalarchives.gov.uk/20130107105354/http:/www.dh.gov.uk/en/Managingyourorganisation/NHScostingmanual/DH_104762)

(a) hold the 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) calculate the reference costs index (RCI);
(c) support implementation of the European Union cross border healthcare directive, which requires transparent and objective mechanisms for the reimbursement of patient costs between member states;
(d) provide comparative costs to support evaluation of new or innovative medical technologies;
(e) support Office for National Statistics estimates of NHS productivity for calculating Gross Domestic Product;
(f) inform the design of HRGs and other payment currencies; and
(g) inform academic research.

Changes to 2013-14 reference costs

39. There were no changes to the 2013-14 reference costs collection which will materially impact this publication. Changes to the collection are guided by the following principles:

(a) supporting the development of price setting;
(b) improving data quality, validation and assurance; and
(c) ensuring the collection remains fit for purpose.

As well as changes from ongoing development of HRGs, there were minor additions to some currencies. For example, the introduction of improved mechanisms to report wheelchair services. If you are interested in the changes made, please refer to the 2013-14 reference costs guidance[12], paragraphs 6-34.

[12] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/289224/reference_costs_collection_2013-14_2.pdf

Chapter 3: Introduction to the 2013-14 data

Introduction to the data

40. The reference costs data are presented in three ways:

    (a) the national schedules of reference costs,
    (b) the reference cost index (RCI), and
    (c) a database of source data.

National schedules of reference costs

41. The national schedules of reference costs (NSRC) show the national average unit cost for each service submitted by the 244 NHS providers in 2013-14. There are two schedules:

    (a) NSRC01 – the main schedule, showing data for the whole range of services provided by trusts, including admitted patient care on an FCE basis; and
    (b) NSRC02 – showing admitted patient care services on a spell basis.

42. The schedules show:

    (a) activity, measured by the number of attendances, bed days, clients, episodes, tests, or other unit of activity 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[13] unit costs[14]; and
    (d) the number of data submissions, i.e. the number of trusts reporting costs against each service.

43. The costs included in the schedules are the average of the actual reported costs. We have not removed unavoidable cost differences due to geographic location, which are reflected in the market forces factor (MFF) index.

44. Information is shown separately for the following services:

[13] Quartiles are the values that divide a list of ordered numbers into quarters.
[14] In very rare circumstances it is 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

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

(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) **Day cases** – where the patient has a planned admission and is discharged on the same day;
(c) **Non-elective inpatients** – where the patient has an unplanned admission. This includes emergency admissions and admissions for maternity, births, and non-emergency patient transfers from another hospital;
(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) **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;
(f) **Outpatient attendances where a procedure is performed** – HRG4+ allows the separate reporting of procedures in an outpatient setting;
(g) **Cancer multi-disciplinary teams** – meetings between healthcare professionals to discuss treatment plans for cancer patients;
(h) **Emergency medicine** - split by A&E department type, and by whether or not the attendance led to an admission;
(i) **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:
    - **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;
    - **Critical care (adult, neonatal, and paediatric)** – costs associated with critical care services;
    - **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);
    - **High cost drugs** – for certain high cost drugs;
    - **Radiotherapy** – treatment costs for cancer patients;
    - **Rehabilitation** – covering a wide range of rehabilitation taking place under a specialist rehabilitation consultant or within a discrete rehabilitation unit; and
    - **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.
(j) **Renal dialysis** – covering renal dialysis for both chronic kidney disease and acute kidney injury;
(k) **Direct access services** – 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 direct access services. A range of diagnostic services, including physiological and clinical measurement tests (reported by HRG), plain film x-rays, and pathology services are covered;

(l) **Adult mental health services** – costs were collected against mental health care clusters for working age adults and older people. The clusters reflect service user needs over extended periods of time from four weeks to one year, and may contain multiple different care interventions;
(m) **Other mental health services** – covers children and adolescent mental health services, drug and alcohol services, specialist mental health services (e.g. autistic spectrum disorder and eating disorder services) and secure mental health services;
(n) **Community services** – costs cover a range of staff groups providing community services, including allied health professionals, health visitors and midwives, community paediatricians and dentists, and specialist and district nurses;
(o) **Ambulance services** – costs were collected from NHS ambulance service trusts against 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; and
(p) **Cystic fibrosis** – costs were collected against a year of care currency which allocates cystic fibrosis patients into one of seven bands, each one describing an increasingly complex year of care.

45. Historically we have only presented national average unit costs for APC by HRG. In 2012-13 we showed them by HRG and TFC but this was found to be of little value to providers so in 2013-14 we have reverted back to showing them by HRG only. If providers do require this information at TFC level, it can still be accessed via the source data published alongside this document.

46. To ensure a like-for-like comparison of activity and costs, the main schedule shows separately the costs of bed days - for elective and non-elective inpatients - that fall inside and outside nationally set lengths of stay, known as trim points[15]. Costs that fall inside the trim point are known as inlier costs. Costs that fall outside the trim point are known as excess bed day costs.

47. Within the schedules, we have used unit costs and activity reported by the NHS to estimate

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

48. We continue to exclude HRG UZ01Z (data invalid for grouping) from the schedules, as in previous years.

[15] The trim point is defined as the upper quartile length of stay for the HRG plus 1.5 times the interquartile range of length of stay. HRG4+ 2013-14 Reference Costs Grouper trim points are published at http://www.hscic.gov.uk/casemix/costing

Reference cost index (RCI)

49. The RCI is a measure of the relative cost difference between NHS trusts. It 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. Trusts with higher costs will score above 100 and trusts with lower costs will score 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.

50. Whereas the schedule provides detailed information on the national average cost for each treatment or procedure, the RCI provides a comparison of costs at the aggregate level for each trust.

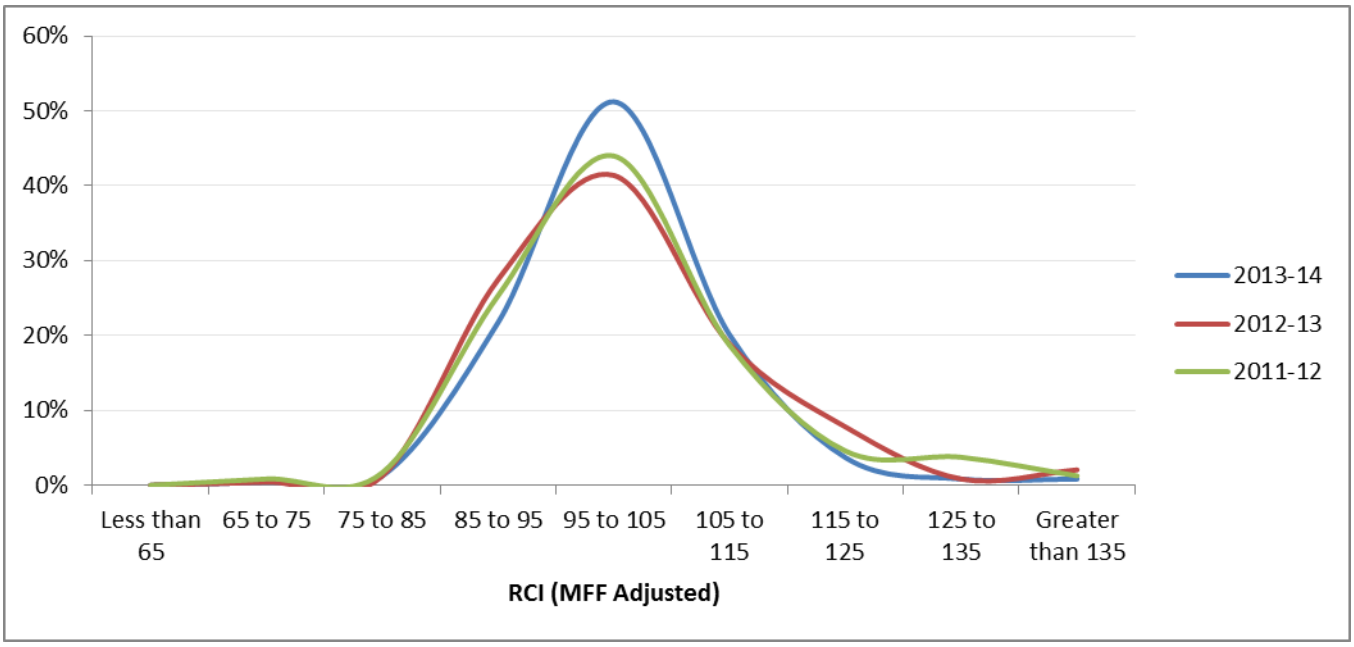
51. Each trust's RCI is calculated by dividing its actual costs (unit costs x activity) by the expected costs (national average mean unit cost x activity), and multiplying the result by 100. Table 4 illustrates the calculation of the RCI for two trusts.

Table 4: Worked example of RCI

		A	B	C	D = C/A	E	F = B*D	G = B*E	H = F/G*100
Trust	HRG	MFF	Activity	Unit cost (£)	Unit cost adjusted for MFF (£)	National average unit cost adjusted for MFF(£)	Actual cost adjusted for MFF (£)	Expected cost adjusted for MFF (£)	RCI adjusted for MFF
Trust A	HRG1	1.1	10	12.0	10.9	11.2	109.1	112.0	
Trust A	HRG2	1.1	20	22.0	20.0	23.6	400.0	472.0	
Total							**509.1**	**584.0**	**87**
Trust B	HRG1	0.9	15	10.0	11.1	11.2	166.7	168.0	
Trust B	HRG2	0.9	15	25.0	27.8	23.6	416.77	354.0	
Total							**583**	**522.0**	**112**

52. Figure 4 shows the distribution of RCIs for trusts since 2011-12. In 2013-14, over half (51.2%) of all trusts have an RCI within five points of 100, and the percentage of trusts with exceptionally high or low RCIs has decreased compared to previous years.

Distribution of MFF adjusted RCIs, 2011-12 to 2013-14



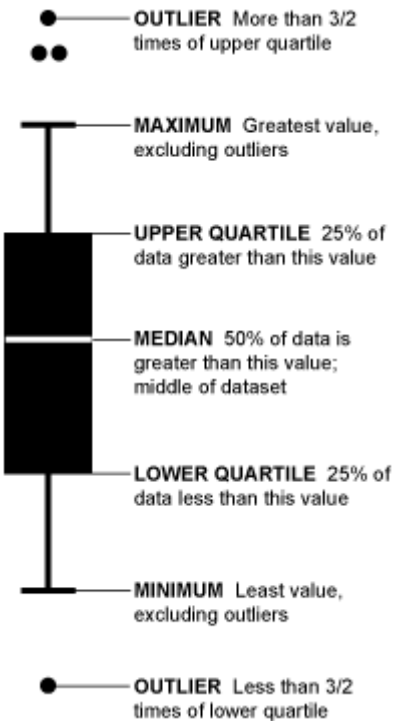
53. Figure 5 shows a box-plot[16] of the RCI distribution for 2013-14 by trust type.

54. The following is an explanation of how to read a box-plot graph:

"A box-and-whisker plot gives a visual representation of the distribution of data. The diagram below shows the statistics that are presented and which fall into two main areas:

(a) The 'box' which shows the interquartile range ie the middle 50% of the data.
(b) The 'whiskers' which show range of data values ie the maximum and minimum (excluding outliers).

For interpretation purposes, the narrower the IQR and range the smaller the variation in the data. The position of the median within the IQR also gives an indication of how centric/skewed the data are.



55. Figure 5 shows that acute trusts have a relatively tight distribution around 100. Mental health trusts demonstrate the widest variation which is attributable to the fact that currencies (care clusters) for mental health have only been collected since 2012-13.

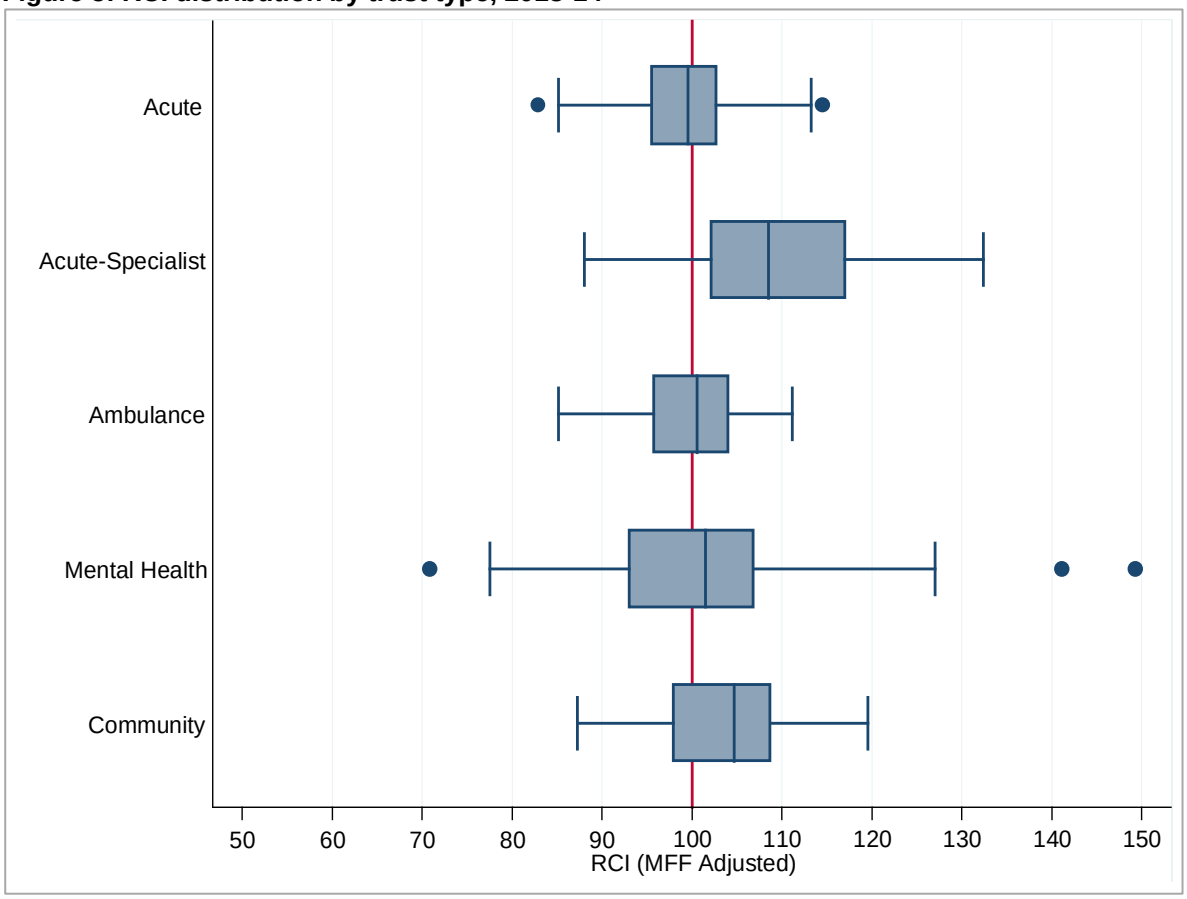
56. As part of the annual data assurance framework Capita recently audited 25 mental health trusts to assess the quality of their care cluster cost information in 2012-13. The report acknowledges that costing in the mental health sector is less developed than in the acute sector and offers advice on how it can be improved in future years[17].

[16] http://flowingdata.com/2008/02/15/how-to-read-and-use-a-box-and-whisker-plot/
[17] https://www.gov.uk/government/publications/payment-by-results-review-of-mental-health-care-costing-in-the-nhs

57. It should be noted that whilst specialist trusts are separately identified in a single cluster, the individual organisations within the group provide a range of very different services which cannot be compared e.g. ophthalmology, orthopaedics, cancer and children's services.

58. It is also worth noting that it is not unexpected for specialist trusts to have an RCI in excess of 100, this is due to the higher complexity and therefore cost of the services that they deliver.

Figure 5: RCI distribution by trust type, 2013-14



59. As well as organisation wide scores, RCIs are provided for

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

60. We use the same methodology for deriving each trust's overall RCI to the service specific RCIs. Only activity, unit costs and national average costs relevant to that

service are included in the calculation. The source database includes an RCI "mapping pot" to enable costs to be mapped to the above services.

61. Where trusts ceased to exist in 2013-14, the successor trust reported one reference cost return for their organisation.This return incorporates the activities and costs of predecessor trusts. In these circumstances, no comparable RCI data exists for 2012-13. The data reflect organisations in existence at 31 March 2014, and do not reflect any subsequent change in status (e.g. NHS foundation trust approval).

Database of source data

62. We have produced a separate technical document which explains how to understand and use the data and can be found in Annex C.

Chapter 4: Quality

Introduction

63. Good quality cost data is an essential element in developing a pricing system and the other uses of reference costs. It helps to deliver high quality care for patients and better value for the taxpayer as well as assisting providers with decision making by providing the data for benchmarking tools.

64. Better cost information will also help the leaders in NHS providers to manage their organisations by:

    (a) highlighting variations in cost,
    (b) eliminating waste and reducing avoidable costs,
    (c) informing the efficient redesign of pathways, and
    (d) facilitating meaningful dialogue between clinicians and managers.

65. The Department has worked over a number of years to develop the reference costs collection process to improve quality control. In 2012-13, we implemented changes to raise the profile of costing in NHS providers and improve quality, this was as a result of the 2011-12 Costing Patient Care[18] audit. These were:

    (a) trust board approval of the costing process,
    (b) a self-assessment quality checklist embedded in the reference costs return[19], and
    (c) a targeted external assurance process.

66. We kept these improvements in 2013-14 and the subsequent audit carried out by Capita as part of the 2012-13 data assurance programme[20] has found that costing quality has improved as a result.

67. Not only have we have refined some of the existing validations we have also introduced some new validations. This is designed to assure the basic integrity of the data and to improve quality and accuracy. Wherever possible, we embedded these validations into the collection templates. These changes are discussed in more detail in the rest of this chapter.

68. We undertook a number of other actions, designed to support improvements to reference cost returns:

    (a) Enforcing sign off requirements by deactivating Unify2 accounts with “sign off” functionality not belonging to Finance Directors. Finance Directors who could not personally sign off the collection had to nominate a deputy;
    (b) Working in partnership with the NHS Trust Development Authority to performance manage submissions from NHS trusts; and

18 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/303161/Costing_Patient_Care_201112__FINAL_0.pdf

19 The results of the self-assessment survey for all 244 providers can be found in Annex B

20 https://www.gov.uk/government/publications/payment-by-results-costing-in-the-nhs

(c) Consulting with our Reference Costs Advisory Group to ensure changes to the guidance, workbooks and processes were workable for the NHS.

Resubmissions of data

69. As part of the data validation process, an initial analysis of the reference costs data is performed, by trust, to establish if any trust has submitted reference cost data so materially incorrect that the trust would be required to resubmit their data via Unify2. Unless data is so incorrect that it would have a material impact on any national average unit cost in tariff, the policy is to not allow resubmissions. This encourages trusts to get data right first time. Trusts identified as having significant outliers were contacted to discuss their data submission and the impact on the overall collection.

Validation

70. We have maintained the process from 2012-13 of having all validations checked in the workbooks prior to submission. Each provider must clear all mandatory validations before they are able to submit their reference costs data. We also have provision for checking non-mandatory validations. A non-mandatory validation is not in itself an indication that the data are incorrect but an opportunity for trusts to investigate their data further. We only ask that these are considered and any necessary revisions made. Unify2 also includes a report to allow trusts to compare their unit costs against the emerging national average unit cost.

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

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

72. The final 2013-14 data passed all of the mandatory checks.

73. We conducted a number of non-mandatory validations designed to improve the quality and accuracy of the data. Some trusts are running these checks through their costing systems at appropriate intervals (e.g. quarterly) during the year in preparation for the annual cost collection, and the self-assessment quality checklist asked trusts whether they had considered these and made necessary revisions.

74. We were advised by trusts that the number of non-mandatory validations in 2012-13 were unmanageable. In 2013-14 we reduced the number of non-mandatory validations and for some of those that remain we introduced materiality threshholds.

75. Full details of both mandatory and non-mandatory validations can be found in the 2013-14 reference costs guidance.[21]

Assurance

76. Under the Health and Social Care Act 2012, Monitor took over the responsibility for the Payment and Tariff Assurance Framework (previously the PbR Data Assurance Framework) on 1 April 2014. On behalf of Monitor, Capita are auditing the arrangements for submission of reference cost returns, and the quality and accuracy of data. In 2014/15, unlike in previous years, all trusts selected will be subject to a combined costing audit (analysing reference costs) and a coding audit. Monitor will meet with the Chief Executive, Audit Chair and Finance Director at the start of an audit to explain its scope, and Monitor's responsibilities in relation to this.

Survey

77. The Department encourages organisations to implement PLICS, endorsing the use of the *HFMA clinical costing standards* and encourage the level of clinical and financial engagement to improve the quality of costing.

78. The *HFMA clinical costing standards*[22] sets out best practice for the production of patient-level costs. Many of the standards are also appropriate for providers that have not implemented PLICS. Separate standards currently exist for acute and mental health services. The intention is that standards will be developed for community and ambulance services in the future. The standards were originally published by the Department in 2009. The following year, the Department asked HFMA to take over responsibility for developing 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.

79. Effective clinical[23] and financial engagement should be an integral part of the costing process in order to ensure good quality data. The Department has defined four levels of engagement:

    (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;
    (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

[21] https://www.gov.uk/government/publications/nhs-reference-costs-collection-guidance-for-2013-to-2014
[22] http://www.hfma.org.uk/costing/
[23] The term "clinical" is used here to cover the full range of clinical staff working in the NHS, including medical, nursing, and allied health professionals.

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; and

(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.

80. As part of the collection we conduct a mandatory survey of all trusts to assess:

(a) progress in implementing PLICS,
(b) the extent to which providers are using PLICS to underpin their reference costs,
(c) the extent to which trusts are using the *HFMA clinical costing standards, and*
(d) their level of clinical and financial engagement.

81. The headline findings for 2013-14 survey are shown below:

a) PLICS implementation

- 207 (85%) providers have implemented, are implementing, or are planning to implement PLICS, this is the same number as in the 2012-13 survey;
- Although there has been no increase in this figure since 2012-13, there has been an increase in those who have actually implemented PLICS 130 providers have implemented PLICS, compared to 121 in 2012-13;

b) PLICS to underpin reference costs

- 126 of the 130 (97%) providers that have implemented PLICS used the data to support some or all of their reference cost return, and
- £18.4bn (76%) of admitted patient care costs were supported by PLICS to inform their reference cost return.

c) Use of HFMA clinical costing standards

- 124 (95%) of the 130 trusts that have implemented PLICS reported using the HFMA clinical costing standards to support their reference costs return,
- 114 (88%) of the 130 trusts that have fully or partially implemented PLICS used the HFMA clinical costing standards as part of their implementation.

d) Level of clinical and financial engagement

- When asked to score themselves against the four levels of clinical and financial engagement, there has been an increase in trusts reporting level 3 engagement compared to last year,
- 49 trusts reported working at level 4. This is a reduction from the 56 trusts that reported working at level 4 in 2012-13;

82. The full findings of the 2013-14 survey can be found in Annex A and the spreadsheet containing the trust level responses can be found alongside this publication.

Glossary

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, e.g. diabetes or asthma. Complications may arise during a period of healthcare delivery.
Core Healthcare Resource Group (HRG)	An HRG that represents a care event (e.g. finished consultant episode, outpatient attendance or A&E attendance).
Cost driver	Activity that influences the cost of a service, e.g. length of stay or theatre minutes.
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 patient treatment under the care of one consultant that has finished.
Healthcare Resource Group (HRG)	Standard groupings of clinically similar diagnosis and procedure codes that use similar levels of resources.
Hospital Episode Statistics (HES)	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) and 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.
Market Forces Factor (MFF)	An index used to estimate the unavoidable cost differences of providing healthcare.
Materiality and Quality Score (MAQS)	A measure of the materiality and quality of an organisations costing process devised by HFMA.

National Tariff	From 1 April 2014 the term National Tariff will refer to the legal framework, within which Monitor and NHS England discharge their responsibilities in relation to the NHS payment system. This includes nationally set prices, the methodology for setting them and the payment rules for variations to national prices (including local modifications) and local price setting. See also Payment by Results.
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	Costs which are calculated by tracing the actual resource use of individual patients.
Patient-Level Information and Costing Systems (PLICS)	IT systems which combine activity, financial and operational data to cost individual episodes of patient care. This is a 'bottom-up' approach to costing where an organisation records individual interactions and events that are connected with a patient's care from the time of admission until the time of discharge. The direct and indirect costs of the resources used during those interactions are allocated to the patient, much like a bill someone would receive at the end of a hotel stay.
Payment by Results	The previous term used for the payment system in England, within which there was a national tariff that referred to the nationally set prices paid for each currency. The Department of Health publication, *A simple guide to Payment by Results*[24] , provides a useful introduction. See also National Tariff.
Quantum	The total monetary amount available at a trust to be allocated within reference costs.
Service line reporting (SLR)	A method for reporting cost and income by service lines to improve management's understanding of the contribution of each service line to performance.
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.
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 Healthcare Resource Group (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.
Unit cost	The unit cost is the cost incurred by an organisation to produce, store and sell one unit of a particular product. Unit costs include all fixed costs and all variable costs involved in production.

[24] https://www.gov.uk/government/publications/simple-guide-to-payment-by-results

Annex A: Survey Analysis

2013-14 Reference Costs Survey

Headlines

1. Some headline findings from the 2013-14 survey are that:

- 207 providers have implemented, are implementing, or are planning to implement PLICS, this is the same number as in the 2012-13 survey.
- 130 providers have implemented PLICS, compared to 121 in 2012-13.
- Of these, 126 (97%) used PLICS data to support some or all of their reference cost return, and 124 (95%) used the HFMA clinical costing standards.
- There is still a wide variation in PLICS implementation by organisation type, with 118 (74%) of acute providers having implemented PLICS. But just 1 (10%) ambulance provider, 2 (11%) community providers and 9 (16%) Mental Health providers having implemented PLICS.
- When asked to score themselves against the four levels of clinical and financial engagement, from purely board level (level 1) through to full engagement across all departments and clinical specialties (level 4), 49 providers reported working at level 4, this is a reduction from the 56 providers that reported working at level 4 in 2012-13.
- Providers employ on average 2.76 whole-time equivalent staff to run the costing system and produce cost information, this is a reduction from the figure of 2.88 in 2012-13.
- Providers spend on average 93 days preparing and submitting the annual reference costs return, this is the same figure as in 2012-13.

Introduction

2. Many organisations have implemented PLICS. These systems help organisations understand exactly how costs are built at patient level. They are used to inform decision making to improve both the quality and effectiveness of services. The Department continues to encourage their use in the NHS, both for their local benefits and to improve the quality of reference costs.

3. As part of the collection we conduct a mandatory annual survey of all providers to assess:

(a) progress in implementing PLICS,
(b) the extent to which providers are using PLICS to underpin their reference costs, and for which service areas,
(c) the extent to which providers are using the *HFMA clinical costing standards*, and,
(d) their level of clinical and financial engagement.

PLICS implementation

4. PLICS identify and record the costs of individual patients. Events such as theatre minutes, diagnostic tests and prosthetics can be tagged to the patient record. It is a bottom up approach, rather than a traditional top down approach based on averages and apportionments. Costing at a patient level reflects actual interactions and events related to individual patients and the associated costs.

5. PLICS provide providers 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.

6. There is an annual voluntary patient-level cost collection, this is managed by Monitor. They have recently published the results and findings of their first collection (2012-13), they can be found here.[25]

7. *Costing Patient Care*[26] set out Monitor's intention, over the longer term, to move to PLICS as the main source of data for price setting.

8. The survey results show that 207 providers (85%) have implemented, are implementing, or are planning to implement PLICS (Table 1).

Table 1: PLICS implementation status in NHS trusts and NHS foundation trusts, 2013-14

	Acute	Ambulance	Community	Mental Health	All providers
Implemented	118	1	2	9	130
Implementing	21	0	2	13	36
Planning	10	0	4	27	41
Not Planning	9	9	9	7	34
Not Answered	2	0	1	0	3
Total	160	10	18	56	244

9. Although there has been no increase in this figure since 2012-13, there has been an increase in those who have actually implemented PLICS (Table 2).

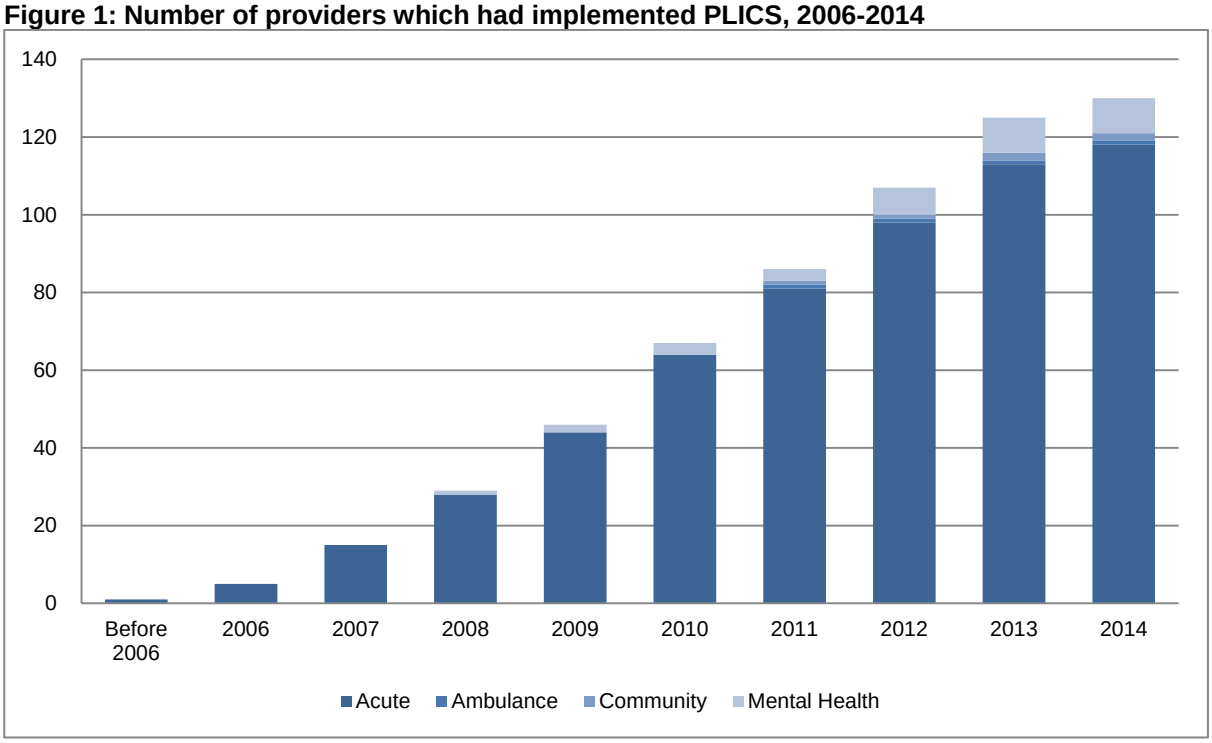
Table 2: Increase in providers that have implemented PLICS since 2012-13

	Acute	Ambulance	Community	Mental Health	All providers
2012-13	110	1	2	8	121
2013-14	118	1	2	9	130

10. These numbers reflect a steady increase in the numbers of providers that have implemented PLICS since the Department first started surveying uptake (Figure 1).

[25] https://www.gov.uk/government/publications/patient-level-cost-collection-201213-review-and-lessons-for-the-future
[26] https://www.gov.uk/government/consultations/costing-nhs-patient-care-monitors-approach

Figure 1: Number of providers which had implemented PLICS, 2006-2014



11. 126 of the 130 providers that have implemented PLICS used their system to inform some or all of their 2013-14 reference costs return (Table 3). The four providers that did not, reported that their system was not fully developed and tested or that due to new software their costing needed to be re-scripted.

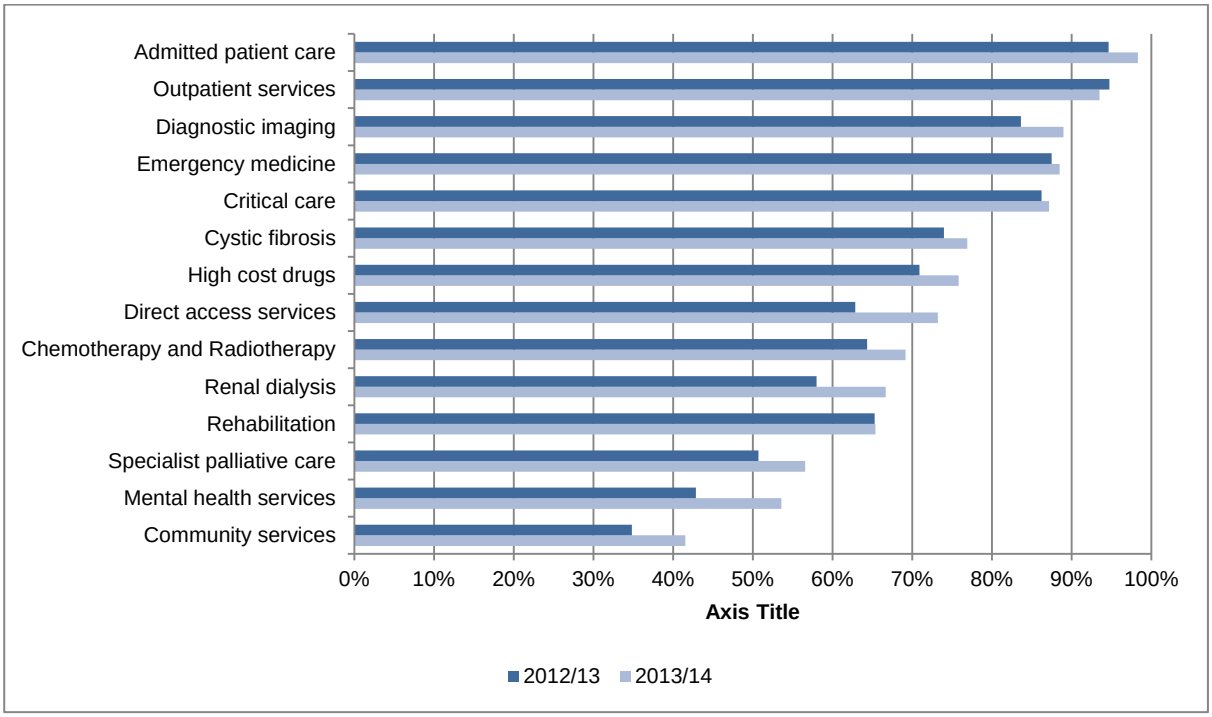
Table 3: Providers using PLICS to support reference costs

	Acute	Ambulance	Community	Mental Health	All providers
Yes	116	0	2	8	126
No	2	1	0	1	4
Total	118	1	2	9	130

12. Although providers have implemented PLICS, this might not necessarily be across all services provided by the provider. We therefore asked these providers to indicate which services in their reference costs were supported by PLICS data.

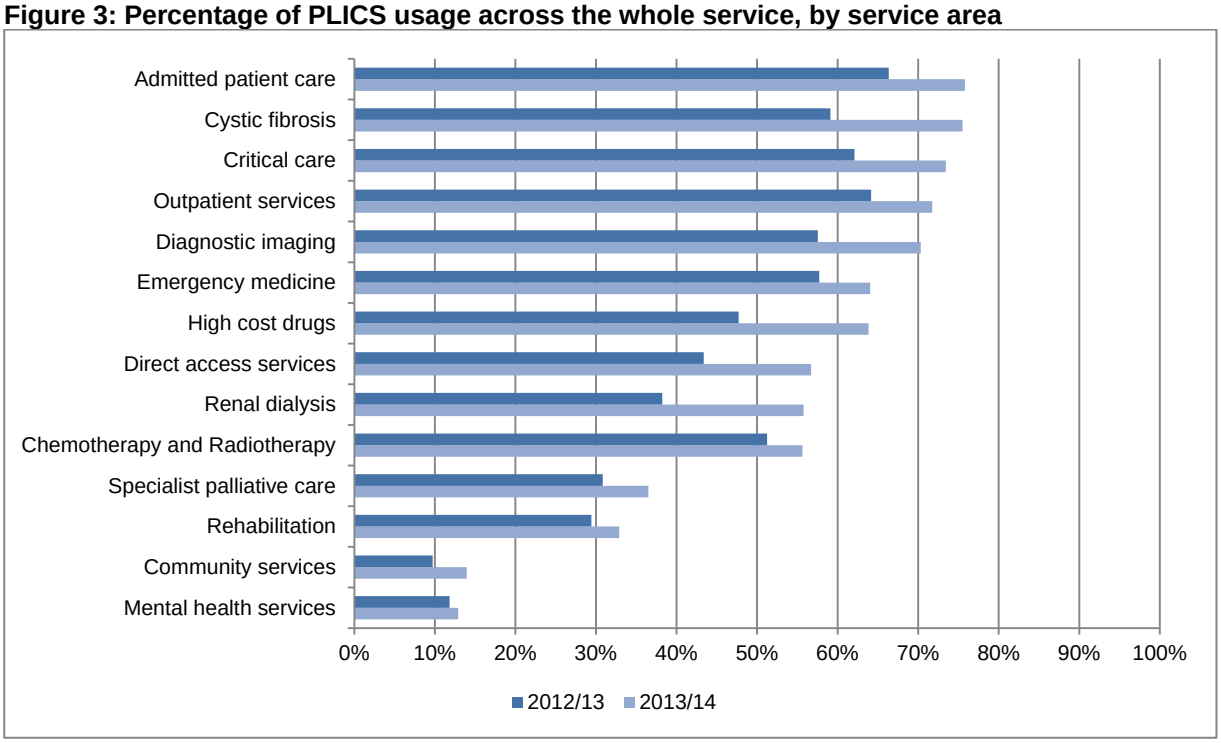
13. Figure 2 shows, for each department, the percentage of providers with costs in that area who use PLICS to support their reference costs return. It shows that PLICS data are mostly used in established clinical areas with good data flows, such as admitted patient care and outpatients. Patient-level data are least likely to be used for community services. Figure 2 also shows an increase in usage across all service areas, with the exception of outpatient services, since 2012-13

Figure 2: Percentage of PLICS implementers using patient-level data to support reference costs by service area



14. Figure 3 shows, for each department in the reference costs collection, the percentage of the total spend of each service which is supported by PLICS. In this instance there is an increase in each service area.

Figure 3: Percentage of PLICS usage across the whole service, by service area



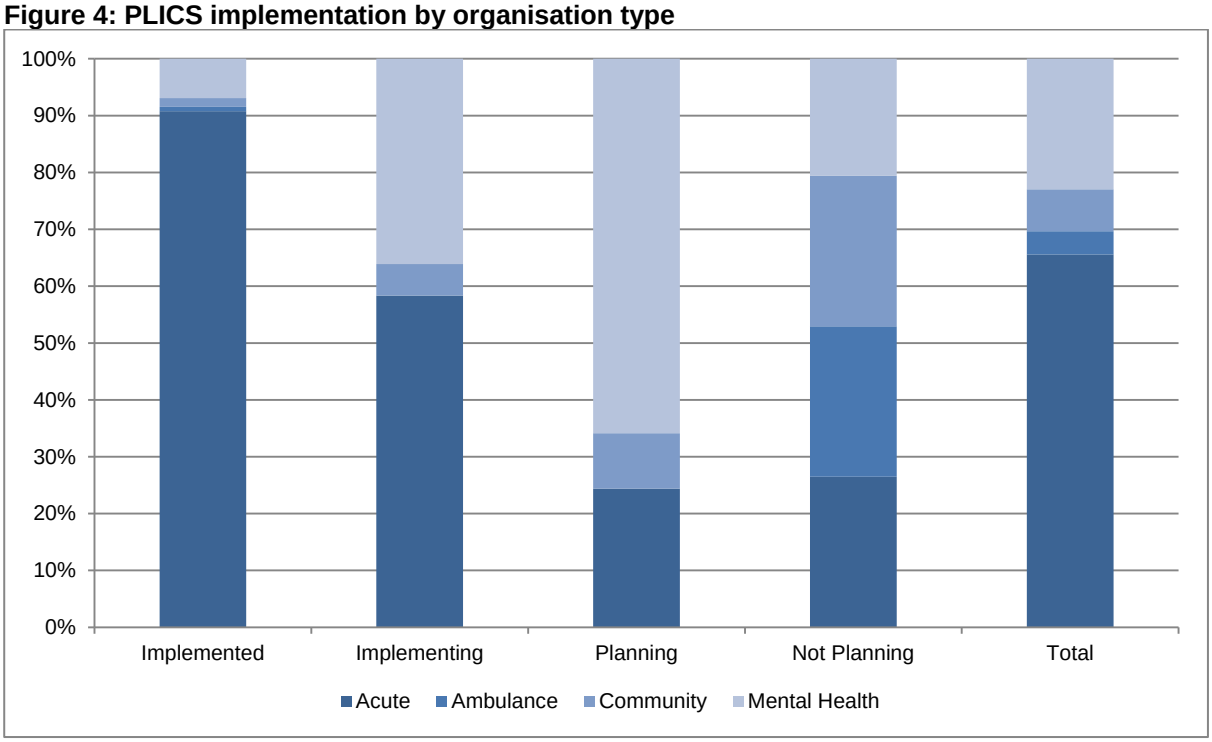
15. Table 4 shows the extent to which the quantum of costs for each service in reference costs was underpinned by all providers using PLICS to inform their return. £18.4bn (76%) of admitted patient care costs were supported by PLICS.

Table 4: Total quantum, by service area, supported by PLICS implementers

Service	Value of reference costs underpinned by PLICS £m	Total value of reference costs £m	Percentage of service underpinned by PLICS
Admitted patient care	18,372	24,237	76%
Cystic fibrosis	77	102	76%
Critical care	1,981	2,697	73%
Outpatient services	6,754	9,413	72%
Diagnostic imaging	636	905	70%
Emergency medicine	1,473	2,300	64%
High cost drugs	926	1,450	64%
Direct access services	547	965	57%
Renal dialysis	298	533	56%
Chemotherapy and Radiotherapy	814	1,464	56%
Specialist palliative care	40	111	37%
Rehabilitation	294	894	33%
Community services	711	5,092	14%
Mental health services	856	6,633	13%

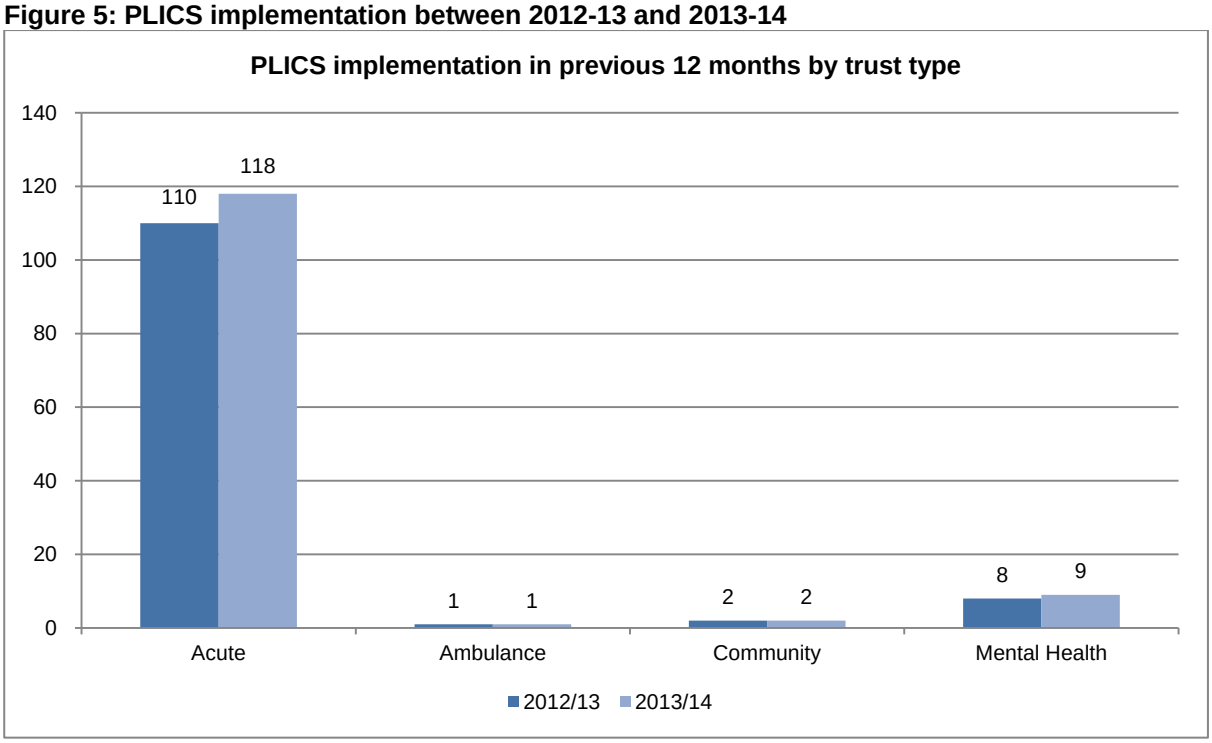
16. Figure 4 shows that there is still a wide variation in PLICS implementation by organisation type, with 118 (74%) of acute providers having implemented PLICS. But just 1 (10%) ambulance provider, 2 (11%) community providers and 9 (16%) Mental Health providers having implemented PLICS.

Figure 4: PLICS implementation by organisation type



17. The number of acute providers that have implemented PLICS has increased in the last year from 110 to 118 (Figure 5). There has also been a slight increase in mental health providers that have implemented PLICS.

Figure 5: PLICS implementation between 2012-13 and 2013-14



18. 80% of providers are using PLICS to produce and report patient-level costs at least quarterly (Table 5).

Table 5: Regularity of producing patient level cost information from PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Fortnightly	8	0	0	0	8
Monthly	30	1	0	5	36
Quarterly	55	0	2	3	60
Biannualy	5	0	0	1	6
Annually	9	0	0	0	9
Not Reporting	11	0	0	0	11
Total	118	1	2	9	130

19. Providers that are implementing PLICS are at various stages in the process (Table 6).

Table 6: Providers in the process of implementing PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Completed and improving accuracy	11	0	0	4	15
Dual running with existing costing system	6	0	0	5	11
Supplier chosen	4	0	2	4	10
Total	21	0	2	13	36

20. Table 7 shows the timescales for the 77 providers currently implementing and planning to implement PLICS. By 2017, 150 acute providers (94%), 45 mental health providers (80%) and 7 community providers (39%) anticipate running PLICS.

Table 7: Timescales for providers implementing and planning to implement PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Within 1 year	19	0	1	9	29
1-2 years	9	0	3	22	34
2-3 years	2	0	1	5	8
3 years +	1	0	1	4	6
Total	31	0	6	40	77

21. The 34 providers not planning to implement PLICS cited various reasons (Table 8). 11 providers are focussing on service line reporting (SLR). SLR is a complementary tool to PLICS, that takes a combined view of resources, costs and income, and hence profit and loss, by each service line or specialty within the provider. Most ambulance providers are not convinced of the benefits of PLICS to their organisations.

Table 8: Reasons for not implementing PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Focusing on SLR	1	3	5	2	11
Future of organisation is uncertain	4	0	1	0	5
Implementing new information systems	1	0	0	2	3
Not convinced of benefits to our organisation	1	6	1	2	10
On-going strategic review of benefits	2	0	2	1	5
Total	9	9	9	7	34

Clinical and financial engagement

22. Effective clinical[27] and financial engagement should be an integral part of the costing process in order to ensure good quality data. The Department has defined four levels of engagement:

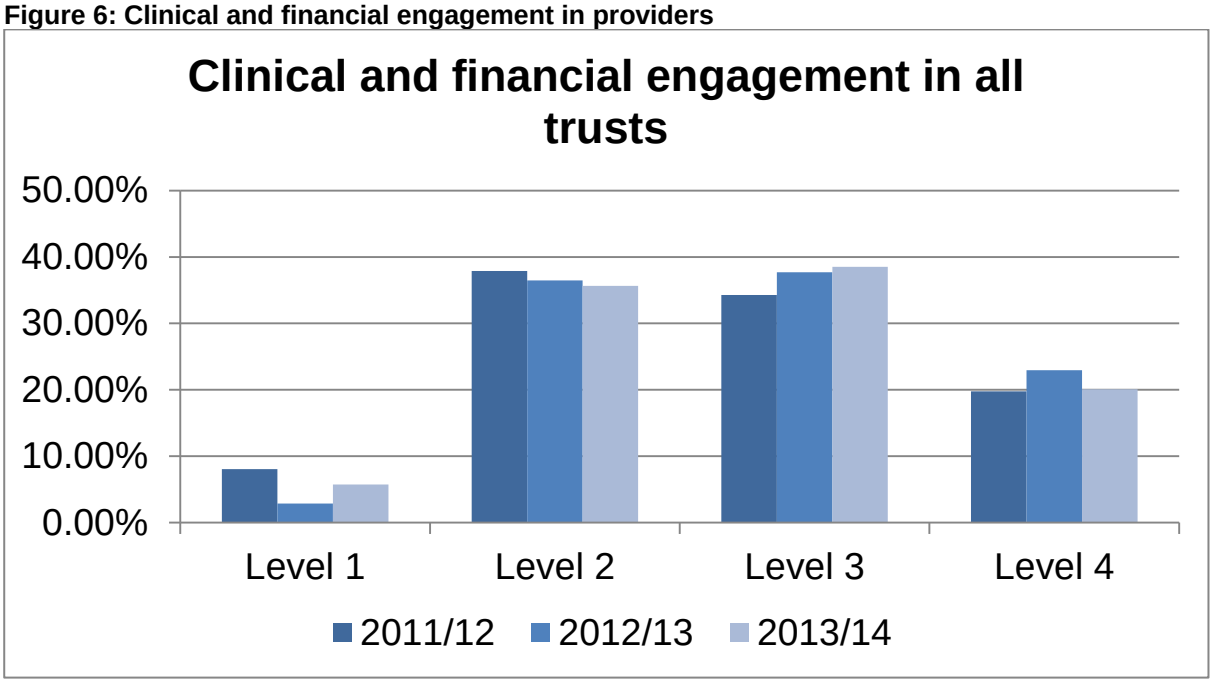
(a) Level 1: Engagement is only at board/strategic level. For example, dialogue takes place between medical director and finance director, but there is no real joined-up, collaborative work between the wider clinical and finance teams.
(b) Level 2: There is some joined-up, collaborative work between 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.
(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

[27] Clinical covers the full range of clinical staff working in the NHS, including medical, nursing, and allied health professionals.

work as integral members of clinically led quality improvement teams and both professional groups share cost and quality data to improve outcomes.

23. Our survey asks providers to self-assess themselves against these levels. The results for the last three years are shown in Figure 6. Whilst there has been an increase in providers reporting level 3 engagement, engagement at level 4 has reverted to the same figure as in 2011-12.

Figure 6: Clinical and financial engagement in providers



24. The 36 providers implementing PLICS were asked the level at which clinicians were working with the finance team on implementation. Only 11% assessed themselves at level 4.

25. In November 2013 the Department published *Effective Clinical and Financial Engagement: A Best Practice Guide for the NHS*[28]. This guide highlights examples and benefits of best practice in the top performing providers. It includes a self-assessment tool to support providers in making an objective assessment of their level. The tool will improve standardisation of the data collected in future surveys.

Clinical costing standards

26. The *HFMA clinical costing standards*[29] provide recommended best practice for the production of patient-level costs. Many of the standards are also appropriate for non-PLICS costing. Separate standards currently exist for acute and mental health services, and the intention is that they will be developed for community and ambulance services in the future. Originally published by the Department in 2009, in the following year the Department asked the HFMA to take over responsibility for developing 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.

[28] https://www.gov.uk/government/publications/nhs-clinical-and-financial-engagement-best-practice
[29] http://www.hfma.org.uk/costing/

27. 124 (95%) of the 130 providers that have implemented PLICS reported using the *HFMA clinical costing standards* (Table 9) to support their reference costs return. Of the three providers not using the standards, one reported that they were not supported by the system, and the remaining two suggested that further refinements to their systems were necessary.

Table 9: Use of the HFMA clinical costing standards in reference costs

	Acute	Ambulance	Community	Mental Health	All providers
Yes	113	0	2	9	124
No	4	1	0	0	5
Not answered	1	0	0	0	1
Total	118	1	2	9	130

28. 114 providers (88%) of the 130 providers that have implemented PLICS fully or partially used the *HFMA clinical costing standards* as part of their implementation, and 14 of the 16 that did not confirmed that they have subsequently reviewed their system against the standards (Table 10).

Table 10: Use of the HFMA clinical costing standards during implementation by providers that have fully implemented PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Fully	60	0	0	6	66
Partially	43	0	2	3	48
Not at all	14	1	0	0	15
Not answered	1	0	0	0	1
Total	118	1	2	9	130

29. All of the 36 providers currently implementing PLICS are using the standards as part of their implementation (Table 11).

Table 11: Use of the HFMA clinical costing standards during implementation by providers that are currently implementing PLICS

	Acute	Ambulance	Community	Mental Health	All providers
Fully	12	0	1	10	23
Partially	9	0	1	3	13
Not at all	0	0	0	0	0
Total	21	0	2	13	36

30. 96 providers that have implemented PLICS have used the materiality and quality score (*MAQS*)[30] to assess their costing performance, compared to 25 in 2011-2012 and 51 in 2012-13. The MAQS was developed by the HFMA to provide a consistent methodology for providers to assess and improve the quality of their costing data.

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

Other findings

31. We asked providers how many whole-time equivalent (WTE) staff were engaged in running the costing system and producing cost information (Table 12).

Table 12: Average number of WTE staff running costing systems and producing cost information per provider

	Acute	Ambulance	Community	Mental Health	All providers
Finance staff	1.83	1.59	1.42	1.73	1.77
Information staff	0.60	1.01	0.86	1.09	0.74
Other staff	0.14	0.00	0.03	0.67	0.25
All staff	2.56	2.60	2.32	3.49	2.76

32. Table 13 shows the changes in WTE resource engaged in costing per provider between 2012-13 and 2013-14. It shows that there has been a slight decrease in all areas.

Table 13: Change in WTE engaged between 2012-13 and 2013-14

	2012-13	2013-14
Finance staff	1.80	1.77
Information staff	0.78	0.74
Other staff	0.29	0.25
All staff	2.88	2.76

33. We also asked providers to estimate the total resource commitment (in number of days) of collating and submitting the annual reference costs return (Table 14).

Table 14: Average number of days spent collating and submitting the annual reference costs return per provider

	Acute	Ambulance	Community	Mental Health	All providers
Finance staff	84	14	48	59	73
Information staff	14	3	19	14	14
Other staff	7	2	6	6	7
All staff	105	19	73	79	93

34. Table 15 shows the change in number of days of resource commitment used to collate and submit the annual reference costs return between 2012-13 and 2013-14. It shows that the days spent in providers in total haven't changed, however there has been a slight shift towards the work being done by finance staff rather than those in other departments.

Table 15: Change in number of days spent collating and submitting the annual reference costs return per provider

	2012-13	2013-14
Finance staff	69	73
Information staff	15	14
Other staff	9	7
All staff	93	93

35. The full results of the survey and all information relating to the 2013-14 reference costs collection have been published alongside this document.

Annex B: Self-assessment quality checklist

Question 1: Total costs: The reference costs quantum has been fully reconciled to the signed annual accounts through completion of the reconciliation statement workbook in line with guidance

Fully reconciled to within +/- 1% of the signed annual accounts	242
Fully reconciled to within +/- 1% of the draft annual accounts [state reason]	2

Question 2: Total activity: The activity information used in the reference costs submission to report admitted patient care, outpatient attendances and A&E attendances has been fully reconciled to provisional Hospital Episode Statistics and documented

Fully reconciled and documented	103
Partly reconciled	46
n/a - reconciliation completed but to another source [state reason]	76
Not reconciled	19

Question 3: Sense check: All relevant unit costs under £5 have been reviewed and are justifiable

All relevant unit costs under £5 reviewed and justified [state reason]	80
n/a - no relevant unit costs under £5 within the submission	164

Question 4: Sense check: All relevant unit costs over £50,000 have been reviewed and are justified

All relevant unit costs over £50,000 reviewed and justified [state reason]	100
n/a - no relevant costs over £50,000 within the submission	144

Question 5: Sense check: All unit cost outliers (defined as unit costs less than one-tenth or more than ten times the previous year's national mean average unit cost) have been reviewed and are justifiable

All unit cost outliers reviewed and justified [state reason]	122
n/a - no unit cost outliers within the submission	122

Question 6: Benchmarking: Data has been benchmarked where possible against national data for individual unit costs and for activity volumes (the previous year's information is available in the National Benchmarker)

All cost and activity data within the submission has been benchmarked using the National Benchmarker prior to submission	53
All cost and activity data within the submission has been benchmarked using another benchmarking process [state]	59
Some but not all cost and activity data within the submission has been benchmarked using the National Benchmarker prior to submission	69
Some but not all cost an activity data within the submission has been benchmarked using another benchmarking process [state]	42
No benchmarking performed on the cost data prior to submission	21

Question 7: Data quality: Assurance is obtained over the quality of data for 2013-14

An external audit has been performed on data quality	25
An internal audit has been performed on data quality	25
Internal management checks have provided assurance over data quality	162
Assurance has been obtained over data quality but not for 2013-14	27
No assurance has been obtained over data quality	5

Question 8: Data quality: Assurance is obtained over the reliability of costing and information systems for 2013-14

An external audit has been performed on costing and information system reliability	25
An internal audit has been performed on costing and information system reliability	27
Internal management checks have provided assurance over costing and information	164

system reliability	
Assurance has been obtained over costing and information system reliability but not for 2013-14	20
No assurance has been obtained over costing and information system reliability	8

Question 9: Data quality: Where issues have been identified in the work performed on the 2013-14 data and systems, these issues have been resolved to mitigate the risk of inaccuracy in the 2013-14 reference costs submission

All exceptions have been resolved and the risk of inaccuracy in the 2013-14 reference costs submission fully mitigated	86
Some exceptions have been resolved but not all	94
Exceptions have yet to be resolved	5
n/a - no exceptions noted	59

Question 10: Data quality: All other non-mandatory validations as specified in the guidance and workbooks have been considered and any necessary revisions made

All non-mandatory validations have been considered and necessary revisions made	151
All non-mandatory validations have been considered and some but not all necessary revisions have been made [specify and state reason]	20
Some non-mandatory validations have been considered and necessary revisions made [specify and state reason]	27
No non-mandatory validations have been investigated [state reason]	2
n/a - no non-mandatory validations have occurred	44

Annex C: Reference costs 2013-14: A Guide to using the data

Annex C: Contents

Introduction

1. This annex supplements the publication of the 2013-14 Reference Costs by providing technical guidance to anyone wishing to conduct analysis using the reference cost data

2. We have provided the source data submitted by trusts in a series of comma separate variable (CSV) files. These can be found online alongside this publication. Chapter 3 of this annex describes these files and their contents.

3. We have also published the source data submitted by trusts in the reconciliation statement return on the Unify2[31] forum. This return 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. We are releasing this information on Unify2 to enable trusts to benchmark their data.

Chapter 1: Analysing the costs of NHS Services

4. Below are four examples to illustrate how the data can be used to analyse and investigate costs across the NHS.

Example 1: Calculating average costs - normal delivery in an inpatient setting

5. 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 1).

Table 4: Normal delivery HRGs

HRG	Description
NZ30A	Normal Delivery with CC Score 2+
NZ30B	Normal Delivery with CC Score 1
NZ30C	Normal Delivery with CC Score 0
NZ31A	Normal Delivery with Epidural or Induction, with CC Score 2+
NZ31B	Normal Delivery with Epidural or Induction, with CC Score 1
NZ31C	Normal Delivery with Epidural or Induction, with CC Score 0
NZ32A	Normal Delivery with Epidural and Induction, or with Post-partum Surgical Intervention, with CC Score 2+
NZ32B	Normal Delivery with Epidural and Induction, or with Post-partum Surgical Intervention, with CC Score 1
NZ32C	Normal Delivery with Epidural and Induction, or with Post-partum Surgical Intervention, with CC Score 0
NZ33A	Normal Delivery with Epidural or Induction, and with Post-partum Surgical Intervention, with CC Score 2+
NZ33B	Normal Delivery with Epidural or Induction, and with Post-partum Surgical Intervention, with CC Score 1
NZ33C	Normal Delivery with Epidural or Induction, and with Post-partum Surgical Intervention, with CC Score 0
NZ34A	Normal Delivery with Epidural, Induction and Post-partum Surgical Intervention, with CC Score 2+
NZ34B	Normal Delivery with Epidural, Induction and Post-partum Surgical Intervention, with CC Score 1
NZ34C	Normal Delivery with Epidural, Induction and Post-partum Surgical Intervention, with CC Score 0

[31] Unify2 is the corporate collection system used by the Department to collect reference costs.

6. The second step is to identify a weighted average cost from the total activity and costs across the required settings (Table 2). 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 are summed but the excess bed day activity, which is already included in the inlier activity, is ignored.

Table 2: Calculating the average cost of a normal delivery

	A	B	C	D= A*C
Setting	Activity	FCEs	National Average Unit Cost (£)	Activity x unit cost (£)
Day case	52	52	430	22,341
Elective Inpatient	1,579	1,579	2,046	3,230,469
Elective Inpatient Excess Bed Days	206	-	278	57,339
Non-Elective Inpatient- Long Stay	153,754	153,754	2,501	384,473,374
Non-Elective Inpatient-Long Stay Excess Bed Days	53,662	-	402	21,570,247
Non-Elective Inpatient- Short Stay Excess Bed Days	230,744	230,744	1,279	295,014,411
Total	-	**386,129**	**1,824**	**704,368,182**

7. The national average unit cost of an inpatient normal delivery is £1,824. Note that these costs relate to the delivery episode itself, and no additional costs are incurred 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.

Example 2: Using the code to group - coeliac disease

8. Hospital episode statistics (HES)[32] are collected by individual diagnoses or procedures. Reference costs are not.

9. However, it is possible to use the Code to Group workbook[33], 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.

10. For example, the costs associated with coeliac disease (ICD-10 code K900) are included in one of the HRGs for non-malignant gastrointestinal tract disorders with an HRG root code of FZ91, 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.

[32] http://www.hscic.gov.uk/hes
[33] http://www.hscic.gov.uk/casemix/costing

Example 3: Comparing costs over time - cholecystectomy

11. To examine the difference between the day case and elective inpatient costs of performing a cholecystectomy (gall bladder removal) between 2005-06 and 2012-13, the first step is again to identify the relevant HRGs. However, a complicating factor when comparing reference costs between years, especially over an extended period, is that they have been collected on different versions of HRGs. The tables below illustrate the changes for cholecystectomy.

Table 3: Cholecystectomy HRGs under HRGv3.5 in 2005-06 reference costs

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

Table 4: Cholecystectomy HRGs under HRG4 in 2006-07 to 2008-09 reference costs

HRG	Description
GA10A	Cholecystectomy with CC
GA10B	Cholecystectomy without CC

Table 5: 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

Table 6: Cholecystectomy HRGs under HRG4+ in 2012-13 to 2013-14 reference costs

HRG	Description
GA10G	Open or Laparoscopic Cholecystectomy, 18 years and under
GA10H	Laparoscopic Cholecystectomy, 19 years and over, with CC Score 4+
GA10J	Laparoscopic Cholecystectomy, 19 years and over, with CC Score 1-3
GA10K	Laparoscopic Cholecystectomy, 19 years and over, with CC Score 0
GA10L	Open Cholecystectomy, 19 years and over, with CC Score 3+
GA10M	Open Cholecystectomy, 19 years and over, with CC Score 1-2
GA10N	Open Cholecystectomy, 19 years and over, with CC Score 0

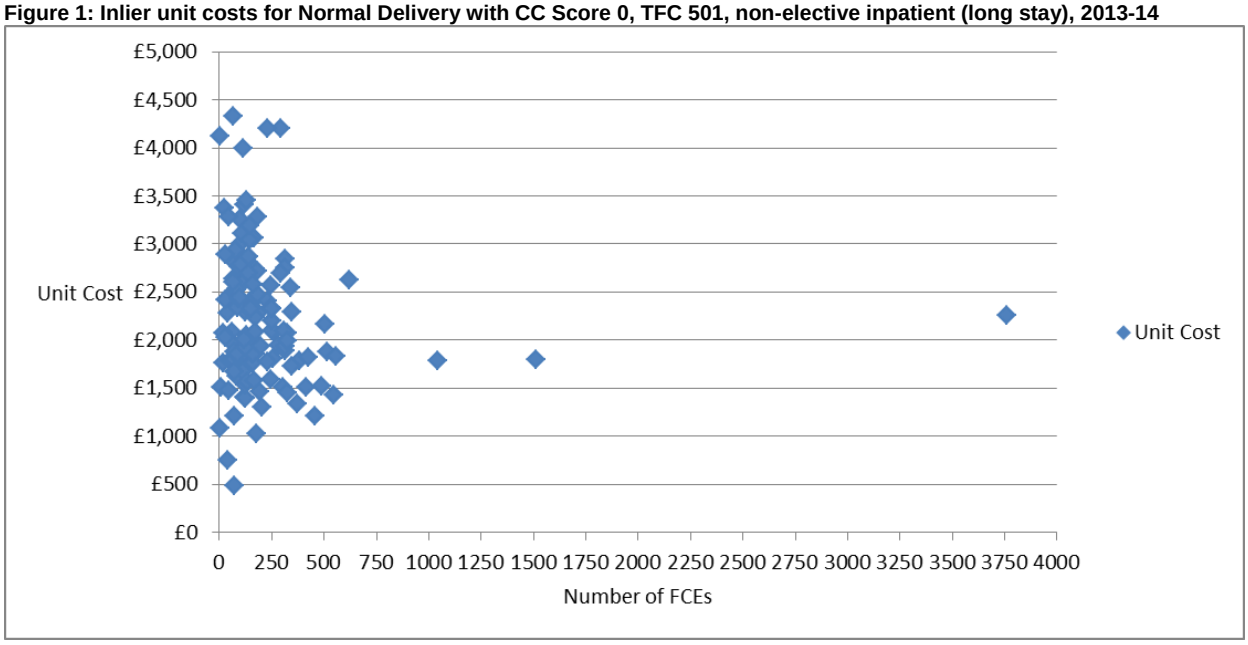
12. Once the required HRGs for each year have been identified, the method described in Example 1 can be followed to obtain the required average cost.

Example 4: Comparing costs between trusts - normal delivery

13. Table 1 showed the national average unit cost for the normal delivery HRGs across all trusts. It is possible to undertake a more detailed organisation level analysis using the source data provided alongside this publication.

14. Figure 1 shows the trust level data for a normal delivery with complications and comorbidities score 0 (NZ30C) in obstetrics (TFC 501) in a non-elective inpatient (long stay) setting. Even though the national average unit cost is £2,149, the data shows a range of different costs across trusts.

Figure 1: Inlier unit costs for Normal Delivery with CC Score 0, TFC 501, non-elective inpatient (long stay), 2013-14



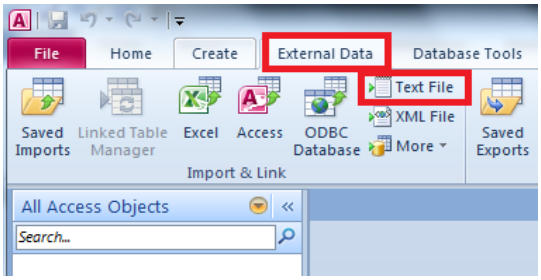
Chapter 2: Analysis by Trust, Setting, Service and Currency.

1. This chapter outlines standard queries to support analysis of the data. Users should first import the CSV files described in Annex A into Microsoft Access. The notes that follow are based on Microsoft Access 2010. The process for other versions may differ slightly. Only the files “1 Data.csv” and “1 Data MFF Adjusted.csv” are required for running these queries. The MFF adjusted data is used for RCI related queries, while the unadjusted data is used for the remaining queries.

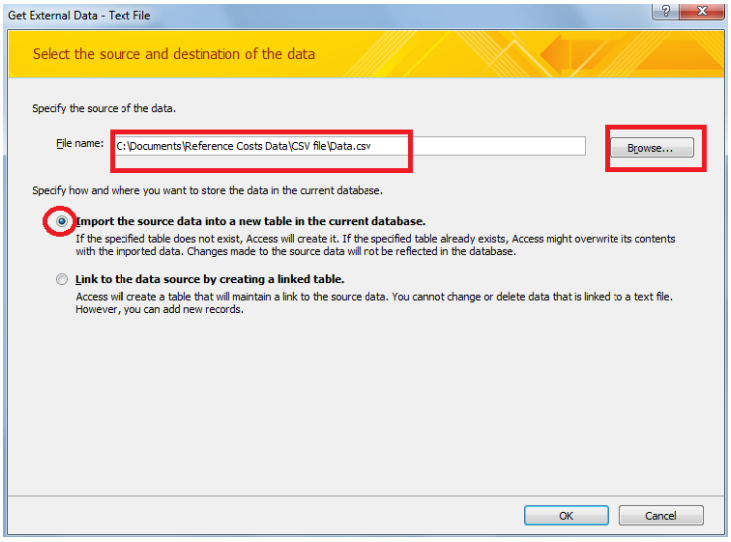
Importing the data

2. The following process will need to be completed twice to ensure that both the “1 Data.csv” and “1 Data MFF Adjusted.csv” files are imported.

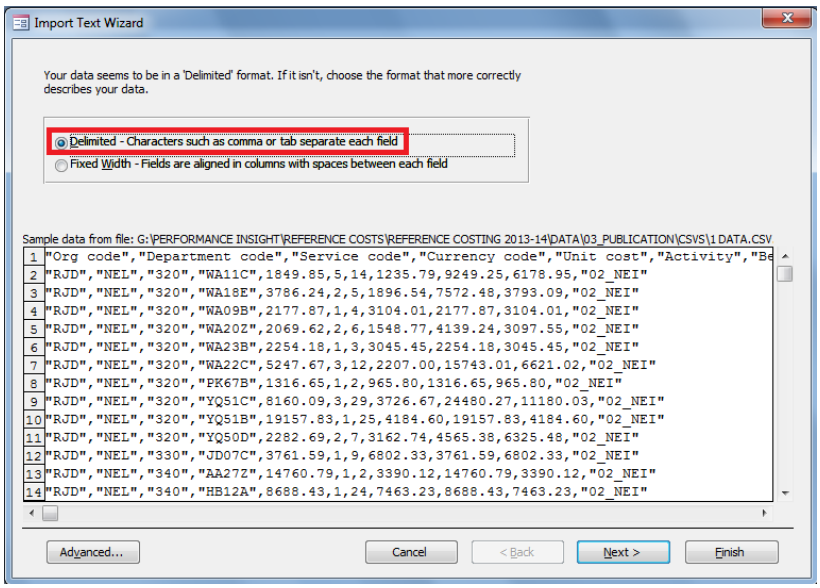
3. To import the data into Microsoft Access, first navigate to the ‘Import & Link’ section of the ‘External Data’ tab and click on ‘text’.



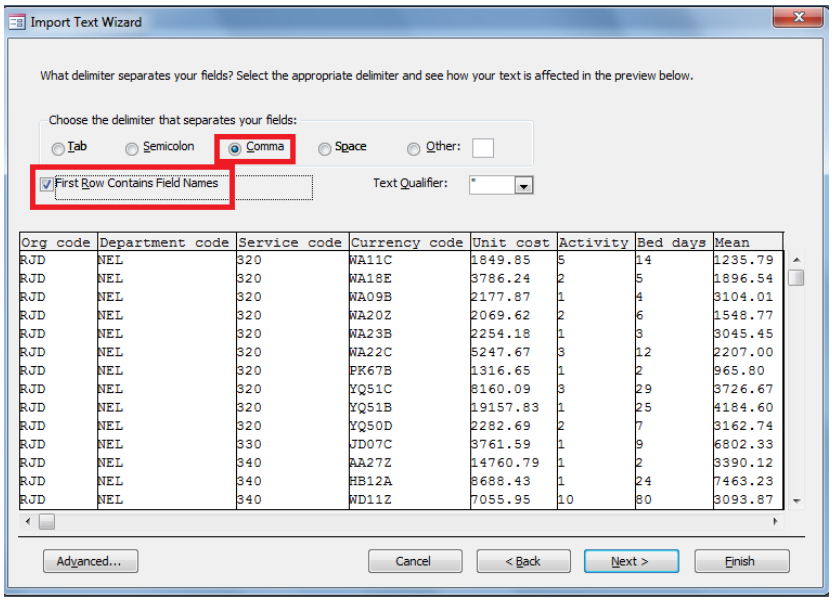
4. A dialogue box will appear. Click on browse and navigate to where you have saved the .CSV files and select the one you wish to use. Ensure that the option ‘Import the source data into a new table in the current database’ is selected. Then click OK.



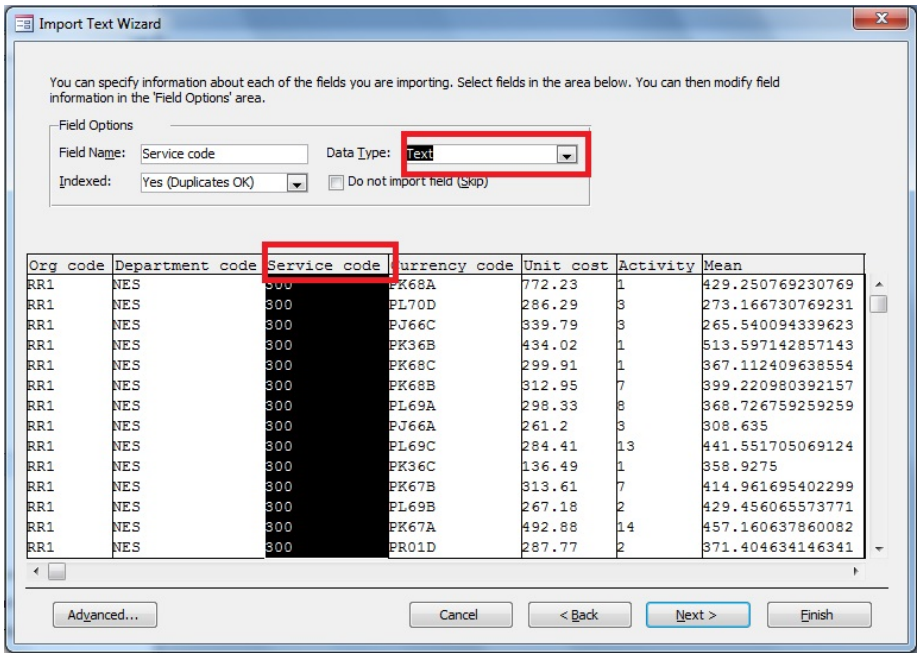
5. The ‘Import Text Wizard’ will then open. Ensure that the option ‘Delimited- Characters such as comma or tab separate each field’ is selected.



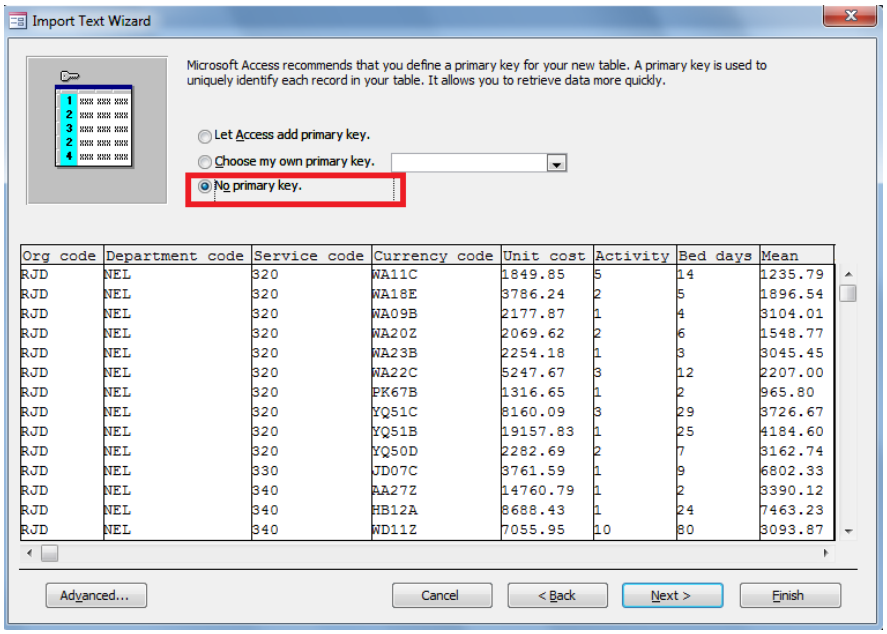
6. At the next window, ensure that the ‘Comma’ option is selected and tick the ‘First Row Contains Field Names’ box. Click next.



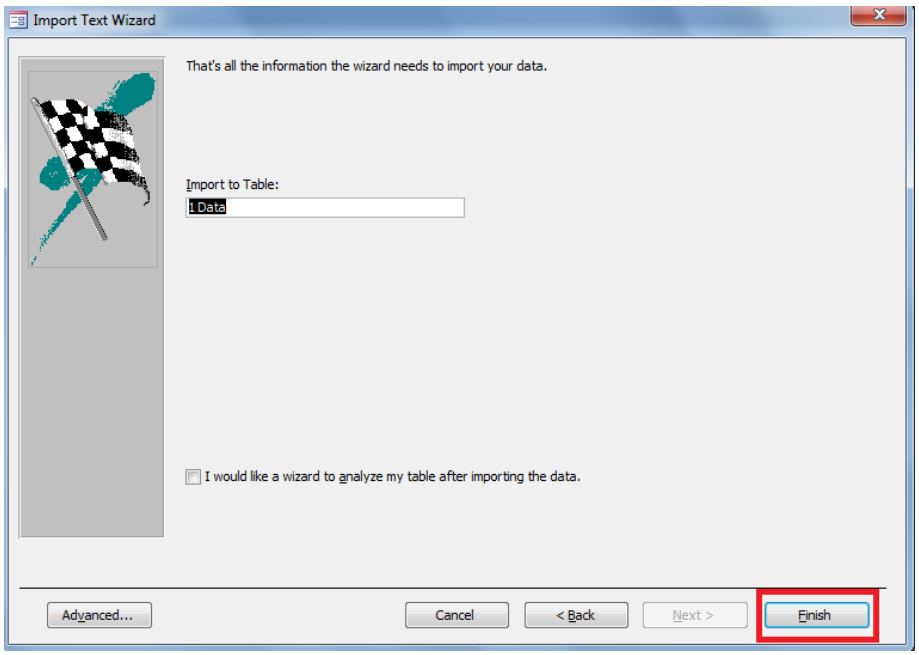
7. At the following window it is important to ensure that MS Access recognises the 'Service Code' field as text. To do this select the 'Service Code' field by clicking on the field name and then select 'Text' in the 'Data Type' box.



8. The following window will ask whether you wish to select a primary key. Select the option 'No primary key' and click next.



9. The final window of the Import Text Wizard will then appear. Click finish, making sure not to change the name of the table the data will be imported to.

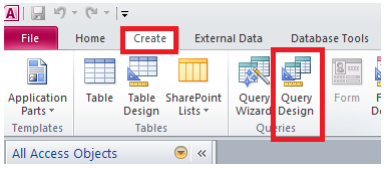


10. The first set of data is now imported. Return to paragraph 2 and repeat the process to ensure that both the “1 Data.csv” and “1 Data MFF Adjusted.csv” files are imported.

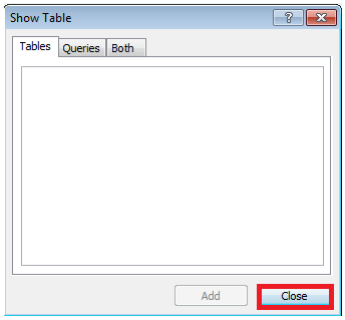
Creating standard queries

11. 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.

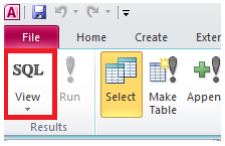
12. Having imported the CSV files into a Microsoft Access database, click on ‘Create’ and then on ‘Query Design’.



13. A Show Table window will pop up. Click ‘Close’ .

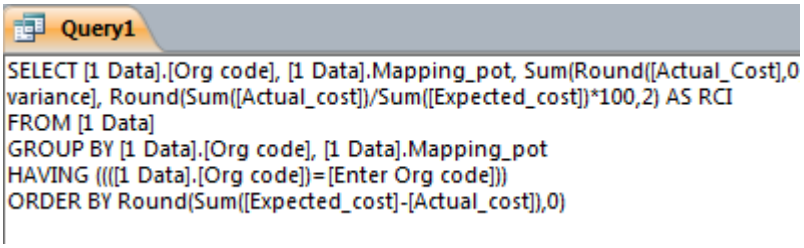


14. Click on ‘SQL’ in the top left hand corner.



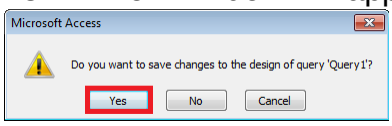
15. A new window will appear.

16. Paste the SQL text for query '01 By Org and RCI pot' in the first row of the table below into the window.

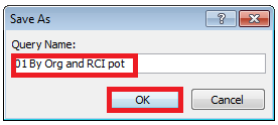


17. Close the window.

18. A new window will appear. Click 'Yes'.



19. A new window will appear. Type in the name from the table above in step 14, then click 'OK'.



20. Repeat this process for the remaining queries listed in the Table 7 below.

Table 7: SQL Queries

Query name	SQL text – RCI related queries
01 By Org and RCI pot	SELECT [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, Sum(Round([MFFd Actual_Cost],0)) AS [Actual cost], Sum(Round([MFFd Expected_cost],0)) AS [Expected cost], Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0) AS [Cost variance], Round(Sum([MFFd Actual_cost])/Sum([MFFD Expected_cost])*100,2) AS RCI FROM [1 Data MFF adjusted] GROUP BY [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot HAVING ((([1 Data MFF adjusted].[Org code])=[Enter Org code])) ORDER BY Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0);
02 By Org, RCI pot, Dept	SELECT [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code], Sum(Round([MFFd Actual_Cost],0)) AS [Actual cost], Sum(Round([MFFd Expected_cost],0)) AS [Expected cost], Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0) AS [Cost variance], Round(Sum([MFFd Actual_cost])/Sum([MFFd Expected_cost])*100,2) AS RCI FROM [1 Data MFF adjusted] GROUP BY [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code] HAVING ((([1 Data MFF adjusted].[Org code])=[Enter Org code]) AND (([1 Data MFF adjusted].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([MFFd Expected_cost]-[MFFd Actual_cost]),0);

03 By Org, RCI pot, Dept and Service	SELECT [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code], [1 Data MFF adjusted].[Service code], Sum(Round([MFFd Actual_Cost],0)) AS [Actual cost], Sum(Round([MFFd Expected_cost],0)) AS [Expected cost], Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0) AS [Cost variance], Round(Sum([MFFd Actual_cost])/Sum([MFFd Expected_cost])*100,2) AS RCI FROM [1 Data MFF adjusted] GROUP BY [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code], [1 Data MFF adjusted].[Service code] HAVING ((([1 Data MFF adjusted].[Org code])=[Enter Org code]) AND (([1 Data MFF adjusted].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 MFF adjusted].[Department code])=[Enter Department code])) ORDER BY Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0);
04 By Org, RCI pot, Dept, Service and Currency	SELECT [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code], [1 Data MFF adjusted].[Service code], [1 Data MFF adjusted].[Currency code], Sum(Round([MFFd Actual_Cost],0)) AS [Actual cost], Sum(Round([MFFd Expected_cost],0)) AS [Expected cost], Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0) AS [Cost variance], Round(Sum([MFFd Actual_cost])/Sum([MFFd Expected_cost])*100,2) AS RCI FROM [1 Data MFF adjusted] GROUP BY [1 Data MFF adjusted].[Org code], [1 Data MFF adjusted].Mapping_pot, [1 Data MFF adjusted].[Department code], [1 Data MFF adjusted].[Service code], [1 Data MFF adjusted].[Currency code] HAVING ((([1 Data MFF adjusted].[Org code])=[Enter Org code]) AND (([1 Data MFF adjusted].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 MFF adjusted].[Department code])=[Enter Department code]) AND (([1 Data MFF adjusted].[Service code])=[Enter service code])) ORDER BY Round(Sum([MFFd Expected_cost]-[MFFd Actual_cost]),0);

Query name	SQL text – Unit Cost related queries
05 Unit Cost by Organisation, Department and Currency	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], [Enter Org code, Leave blank to show all], [Enter Department code, Leave blank to show all], [Enter Currency code, Leave blank to show all] HAVING ((([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Currency code])=[Enter Currency Code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([1 Data].[Currency code])=[Enter Currency Code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([1 Data].[Currency code])=[Enter Currency Code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([1 Data].[Currency code])=[Enter Currency Code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)); 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], [Enter Org code, Leave blank to show all], [Enter Department code, Leave blank to show all] HAVING ((([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Department code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Department code, Leave blank to show all]) Is Not Null)); 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], [Enter Org code, Leave blank to show all], [Enter Currency code, Leave blank to show all] HAVING ((([Enter Org code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Currency code])=[Enter Currency code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is

Query name	SQL text – Unit Cost related queries
	Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([1 Data].[Currency code])=[Enter Currency code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null));
08 Unit Cost by Department 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], [Enter Department code, Leave blank to show all], [Enter Currency code, Leave blank to show all] HAVING ((([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Currency code])=[Enter Currency code, Leave blank to show all]) AND (([Enter Department code, Leave blank to show all]) Is Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([1 Data].[Currency code])=[Enter Currency code, Leave blank to show all]) AND (([Enter Department code, Leave blank to show all]) Is Not Null) AND (([Enter Currency code, Leave blank to show all]) Is Not Null));
09 Unit Cost by Organisation	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], [Enter Org code, Leave blank to show all] HAVING ((([Enter Org code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Org code])=[Enter Org code, Leave blank to show all]) AND (([Enter Org code, Leave blank to show all]) Is Not Null));
10 Unit Cost by Department	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], [Enter Department code, Leave blank to show all] HAVING ((([Enter Department code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Department code])=[Enter Department code, Leave blank to show all]) AND (([Enter Department code, Leave blank to show all]) Is Not Null));
11 Unit Cost by Currency	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], [Enter Currency code, Leave blank to show all] HAVING ((([Enter Currency code, Leave blank to show all]) Is Null)) OR ((([1 Data].[Currency code])=[Enter Currency code, Leave blank to show all]) AND (([Enter Currency code, Leave blank to show all]) Is Not Null));

Using the standard queries

RCI queries

21. 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.

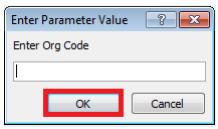
22. The RCI standard queries all show actual cost, expected cost, cost variance (expected cost – actual cost) and RCI. The cost variance is similar to the RCI, however it takes activity into account. The queries are sorted by cost variance – ascending.

23. 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	✓	✓	✓	✓	✓

24. 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.

25. 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

26. 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.

27. Unlike the RCI standard queries, these queries do not require the input of an organisation code. However, the queries give the option to select a specific organisation, department or currency, or a combination of these three. If you do not wish to make a selection, then the ‘Enter Parameter Value’ window can be left blank.

Chapter 3: Source data

We have provided the source data in CSV files alongside his publication. These should be downloaded and saved locally.

CSV file name	Contents
1 Data/ Data MFF Adjusted	Organisation level data
2 Organisation description	Data provider 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 Mapping pots description	Mapping pot name
9 Memorandum data	Organisation level memorandum data
10 Memorandum units	Activity unit for memorandum data
11 Mental health memorandum data	Memorandum information collected for mental health care clusters
12 Spells data/Spells data MFF Adjusted	Organisation level spell data
13 Survey	Responses to the reference costs survey

The following tables describe the contents of each CSV file:

1 Data

Field name	Description
Org code	Organisation code
Department code	Department code (e.g. EL)
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 Table 6 “Units” for details
Bed days	Number of inlier bed days
Mean	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[34]	Maps all activity to one of 13 groups for the purpose of calculating service level RCIs

2 Organisation description

Field name	Description
Org code	Organisation code
Organisation name	Organisation name
Org type	Trust type: acute, ambulance, mental health or community
Underlying MFF	Market forces factor for the organisation, used for calculating RCIs
Rebased MFF	Underlying MFF, scaled to ensure that adjustment is cost

[34] Cystic fibrosis, Intermediate Care, Crisis Response, Early Discharge Services (currency code IC01), and UZ01Z are not included in the published RCI calculation. They are allocated to the 13_Excl pot.

	neutral (nationally) when applied to the of data. *This is the MFF used to adjust data and produce RCIs*

3 Department description

Field name	Description
Department code	Department code (e.g. EL)
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. EL)
Service code[35]	Service code (e.g. 100)
Currency code[36]	Currency code (e.g. AA02A)
Units	E.g. FCE

7 Mapping pot

Field name	Description
Department code	Department code (e.g. EL)
Service code	Service code (e.g. 100)
Mapping pot	Mapping pot (e.g. 01_EI)

8 Mapping pot description

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

9 Memorandum data

Field name	Description
Org code	Organisation code
Department code	Department code
Service code	Service code
Currency code	Currency code
Memo	See Table “10 Memorandum units” for details

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

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

10 Memorandum units

Field name	Description
Department code	Department code
Service code	Service code
Units	Depending on the department code, the unit is either - (CC) the number of critical care periods, collected in addition to the number of critical care bed days for adult critical care - (DA) the number of requests, collected in addition to the number of tests for directly accessed pathology services - (RENALCKD) the average number of sessions per week per patient of home haemodialysis, collected in addition to the number of sessions for haemodialysis

11 Mental health memorandum data

Field name
Org code
Department code
Service code
Currency code
Unit cost per occupied bed day
Cluster days in admitted patient care
Unit cost per non-admitted patient cluster day
Cluster days in non-admitted patient care
Average review period (days)
Total number of completed cluster review periods

12 Spell data[37]

Field name	Description
Org code	Organisation code
Department code	Department code (e.g. EL)
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	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

13 Survey[38]

Field	Description
Org	Organisation Code
Q1	What is the status of patient level information and costing systems (PLICS) in

[37] We have provided two versions of the Data file. One containing the costs submitted by trusts, and a second where we have adjusted the costs for each trust's MFF. The latter file should be used for calculating RCIs. Otherwise we recommend using the first file.

[38] We have not supplied responses to the following survey questions:

- Q7, If you answered yes to Q6, what is your current MAQS score? (optional)
- Q24, Do you have any other comments?

Field	Description
	your organisation?[1]
Q2a	How many whole-time equivalent (WTE) staff are engaged in running your costing system and producing cost information: Finance staff?
Q2b	How many whole-time equivalent (WTE) staff are engaged in running your costing system and producing cost information: Information staff?
Q2c	How many whole-time equivalent (WTE) staff are engaged in running your costing system and producing cost information: Other staff?
Q3a	What is the resource commitment (in number of working days) of collating and submitting the annual reference costs return by the following occupational groups: Finance staff?
Q3b	What is the resource commitment (in number of working days) of collating and submitting the annual reference costs return by the following occupational groups: Information staff?
Q3c	What is the resource commitment (in number of working days) of collating and submitting the annual reference costs return by the following occupational groups:: Senior managers?
Q4	What is the level of clinical and financial engagement in your organisation?[3,4]
Q5	Who is the supplier of your PLICS?
Q6	Have you used the materiality and quality score (MAQS) as detailed in the HFMA clinical costing standards?
Q8	How often are you producing and reporting patient level cost information?
Q9	Did you use PLICS to support your reference costs return?
Q10	If you answered yes to Q9, which service areas were supported by PLICS?
Q10a	Admitted patient care
Q10b	Outpatient services
Q10c	Emergency medicine
Q10d	Chemotherapy and radiotherapy
Q10e	Critical care
Q10f	Diagnostic imaging
Q10g	High cost drugs
Q10h	Rehabilitation
Q10i	Specialist palliative care
Q10j	Renal dialysis
Q10k	Direct access services
Q10l	Mental health services
Q10m	Community services
Q10n	Cystic fibrosis
Q11	If you answered no to Q9, is there a particular reason for this?
Q12	Did you use the HFMA clinical costing standards as part of your PLICS implementation?
Q13	If you did not use the HFMA clinical costing standards as part of your implementation, have you subsequently reviewed your system against the standards?
Q14	Did you use the HFMA clinical costing standards when producing your reference costs?
Q15	If you answered no to Q14, why are you not using the HFMA clinical costing standards?
Q16	When was your PLICS implemented?
Q17	What stage of implementation are you at?

Field	Description
Q18	What is your timescale for completing PLICS implementation?
Q19	How involved have clinicians been in implementing PLICS?
Q20	Are you using the HFMA clinical costing standards as part of your PLICS implementation?
Q21	If you are not using the HFMA clinical costing standards why is this?
Q22	What is your timescale for completing PLICS implementation?
Q23	If you are not planning to implement PLICS, what are the main reasons why?