Monitor

Making the health sector work for patients

2013/14 Patient level cost collection: review and lessons for the future

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About Monitor

As the sector regulator for health services in England, our job is to make the health sector work better for patients. As well as making sure that independent NHS foundation trusts are well led so that they can deliver quality care on a sustainable basis, we make sure: essential services are maintained if a provider gets into serious difficulties; the NHS payment system promotes quality and efficiency; and patients do not lose out through restrictions on their rights to make choices, through poor purchasing on their behalf, or through inappropriate anti-competitive behaviour by providers or commissioners.

Contents

1. Introduction

Since 2012 Monitor and NHS England have placed costing high on the agenda as a means of achieving higher quality care for patients within existing budgets.

From the first publication of our intentions on costing and cost collection in November 2012, **'**Costing patient care: Monitor's approach to costing and cost collection for price setting'**,** to our proposed plan to transform costing outlined in 'Improving the costing of NHS services: proposals for 2015-2021'**,** published in December 2014, we have worked closely with our stakeholders and partners to improve the quality of costing across the NHS.

The Patient Level Information and Costing System (PLICS) collections started with a voluntary collection of data from acute providers on care for admitted patients during 2012/13. They continue to be a vital indicator of the state of costing practice and of the guidance and tools available to costing practitioners.

The 2014/15 collection represents the third year of collecting patient level information. While the scope of the collection has remained unchanged we are looking into how we can extend coverage into other sectors.

This is an important time for costing in the NHS. The 'Approved costing guidance' for 2014/15 has been released and Monitor, Healthcare Financial Management Association (HFMA) and the Department of Health (DH) are beginning to plan for the 2015/16 collection. The engagement process for the proposed improvements to costing has closed; we have analysed the feedback and published our response. The costing transformation programme is being assembled and implementation will start in the coming months.

It is vital that we continue to improve current costing practice while taking the coming changes into account. Organisations must not hold back on making progress in the short term. Benchmarking, clinical engagement and embedding the use of cost information for financial and healthcare performance management remain fundamental principles.

1.1. How to use this document

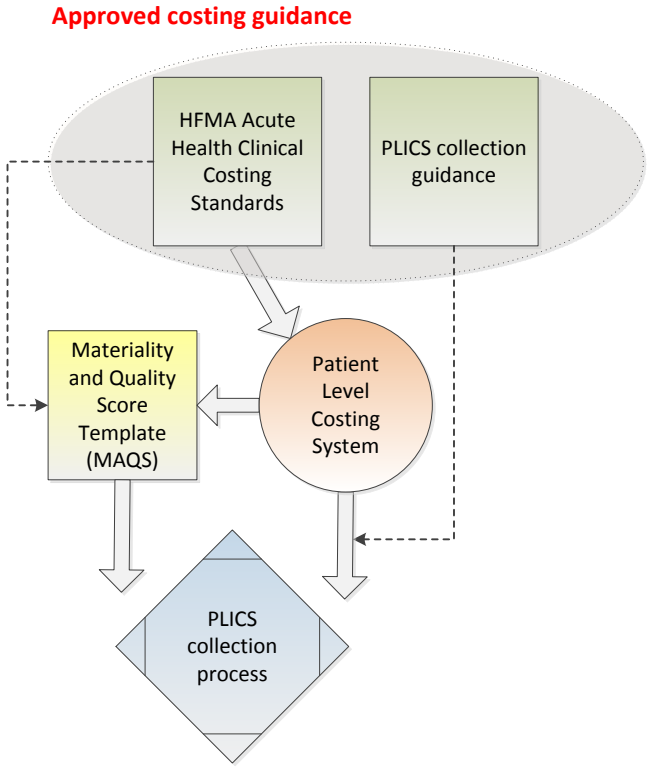
This document is intended for all NHS staff who are responsible for, or contribute to, the production of cost information. It includes information relevant to the overall process of patient level costing and highlights specific areas where we would encourage trusts to focus during the planning stage for the 2014/15 collection and beyond.

We recommend you review this document in time to ensure that you can consider the recommendations relating to the 2014/15 collection and implement considered changes before the start of the collection window. Particular note should be made of the recommendations highlighted within

boxes through the document. These are areas that we feel require specific attention during the preparation for the 2014/15 collection and are re-iterated in Chapter 9.

2. The patient level costing framework

Figure 1: The patient level costing framework



Each year Monitor publishes the 'Approved costing guidance' to clarify the approach to costing and cost collection that we are encouraging providers of NHS-funded services to adopt. The guidance is designed specifically to support both the reference cost collection and the PLICS collection and increase quality and consistency across providers.

The **PLICS collection guidance** section (Chapter 4) assembled by Monitor sets out the scope, data fields and other features of the PLICS collection.

The **acute health clinical costing standards** section (Chapter 2), which was developed by the Healthcare Financial Management Association (HFMA), sets out a common approach to producing clinical costs. We strongly recommended that providers use the HFMA standards where possible. For the PLICS collection we request explanations of any areas where the standards have not been followed. This will help us understand why different approaches may be necessary and where future support or guidance may be required.

With HFMA we developed the acute **materiality and quality score (MAQS)** template to help organisations understand and report on the quality of their current costing process and focus attention on areas that require improvement. We collect completed MAQS templates as part of the PLICS collection.

3. Who took part?

The 2013/14 patient level cost collection once again requested submissions from acute trusts covering admitted patient care with 68 providers submitting a return which represents 42% of all acute provider trusts.

The 68 trusts consisted of 52 organisations that made a submission in both 2012/13 and 2013/14 and 16 submitting for the first time this year. Fourteen trusts opted not to make a submission this year having submitted in 2012/13.

Table 1: Reasons for not submitting for a second year

Lack of resources	3
New system implementation	4
Lack of confidence in data and systems	4
Other	3

For 2013/14 we collected £14.6 billion of costs (£13.7 billion in 2012/13) across 7.9 million finished consultant episodes. (7.4 million in 2012/13).

Overall therefore, across the two years of collections we have collected patient level cost data from 82 organisations, more than half of all acute trusts and nearly 70% of those who have implemented patient level costing systems.

Table 2: 2013/14 acute provider patient level costing status

PLICS status	Number of acute trusts
Implemented	118
Implementing	21
Planning	10
Not planning	9
Not answered	2
Total	160

Source: Department of Health 2013/14 Reference Cost Survey

Figure 2: Percentage of episodes by point of delivery

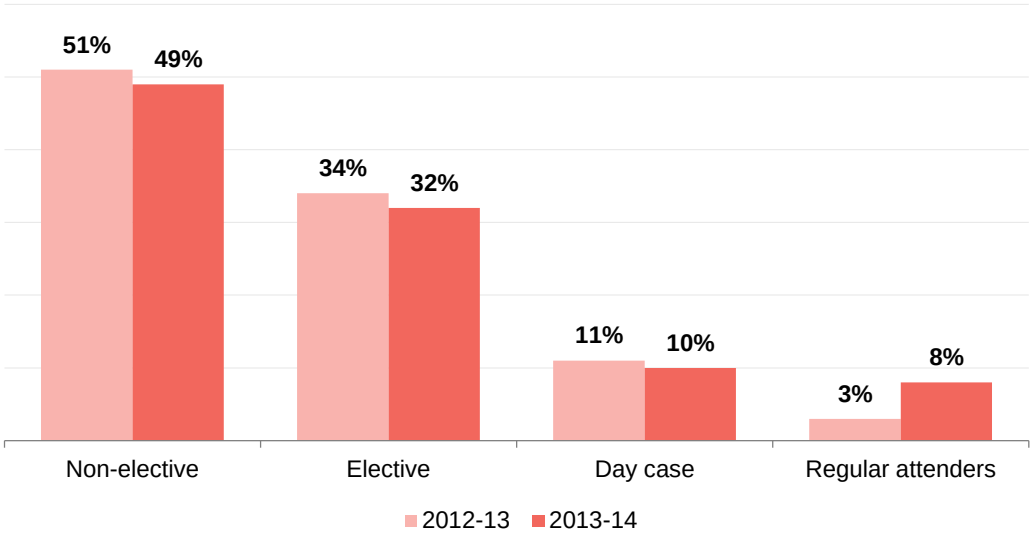


Figure 3: Participating trusts by type as defined by the Department of Health

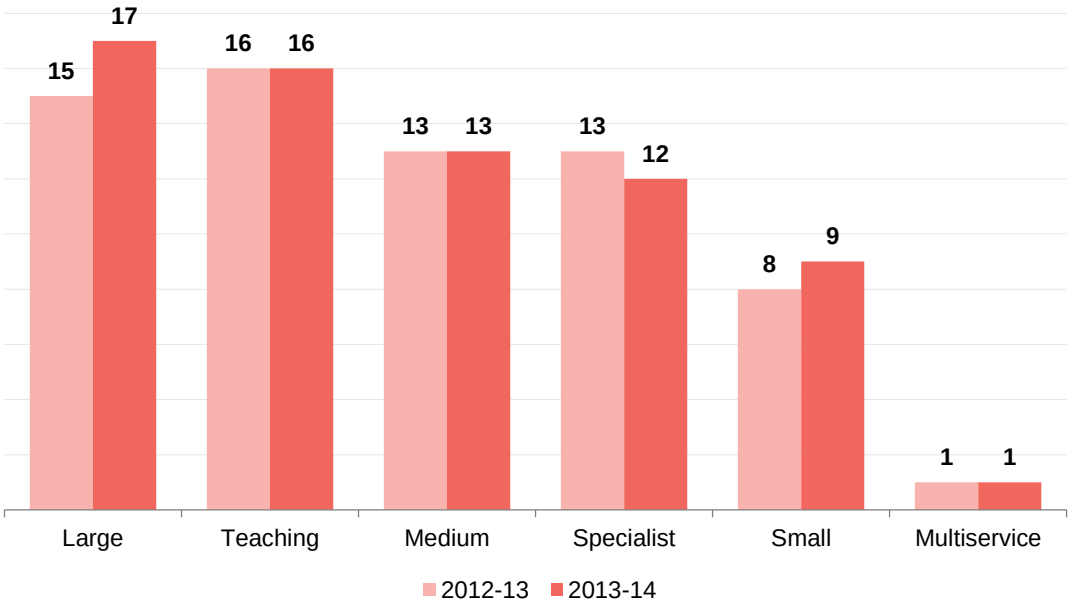
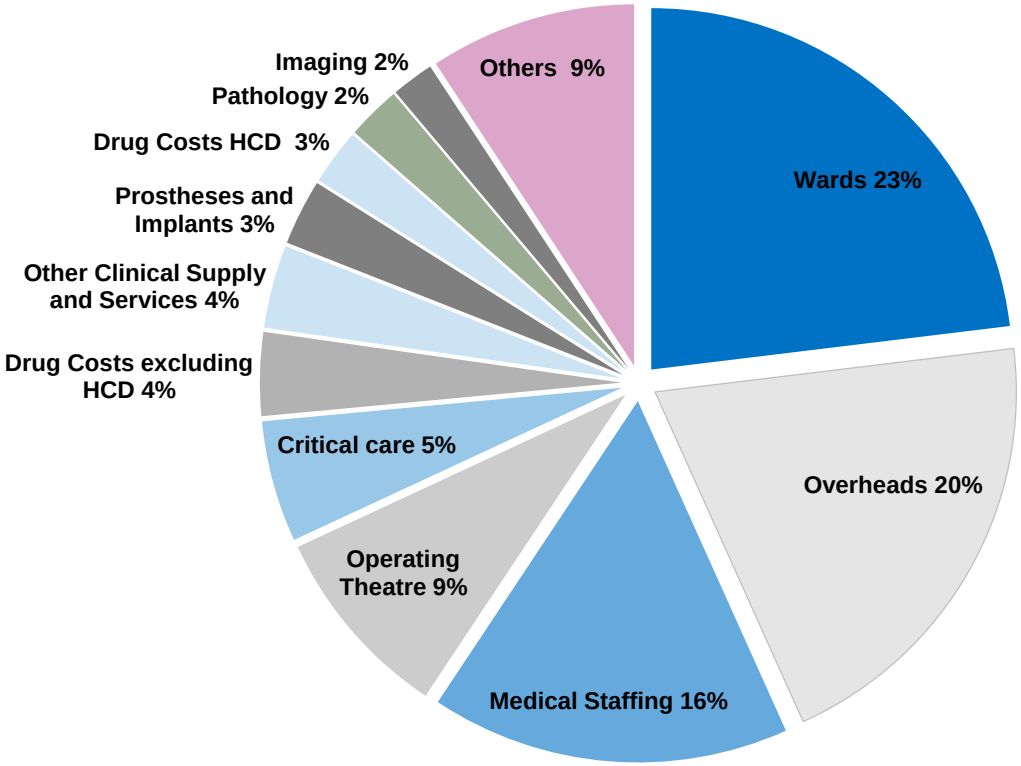


Figure 4: 2013/14 PLICS submission cost summary



4. What are the main issues?

Our second voluntary collection took place in 2013/14. The scope of the collection, the guidance and the applicable standards remained fairly consistent with the previous year and as a result we are finding similar themes occurring across both.

Looking at the two years of PLICS data so far the key issues that affect comparability can be grouped into:

- **Data quality**

There are some issues concerning incomplete, incorrect or missing patient attributes, and some trusts are submitting high levels of episodes with an HRG of UZ01Z- 'Data invalid for grouping'. But these issues represent only a small proportion of episodes in the entire submission.

- **Application of the costing guidance**

There are specific issues concerning:

  - inconsistent approaches to critical care, with some trusts continuing to report these costs separately to the related episode

  - some trusts are not submitting the MAQS template as part of the collection; the template plays an important part in our assessment of the robustness and quality of the methods underpinning the data

  - not being able to use the reconciliation statements to adequately assess the treatment of costs included in the PLICS submission due to different approaches being used; see chapter 7 for further details

  - inconsistency in the treatment of non-patient care income which creates uncertainty about the levels of income reflected in the cost pools; Chapter 5 has further information on a change to the guidance on reporting non-patient care costs and income

- **Application of the acute health clinical costing standards**

Different approaches to cost allocation methodology have resulted in continued issues relating to:

  - inconsistent cost pool classification which includes differing treatment of overheads and indirect costs

- different methods of allocating cost using departmental activity that has been matched to patient episodes

- trusts reporting levels of work in progress (WIP) that appear inconsistent with the actual treatment

- a wide range of Clinical Negligence Scheme for Trusts (CNST) costs reported for birth episodes across providers, with some trusts displaying cost patterns at patient level that do not reflect the methodology reported in the MAQS.

In some instances, issues about interpretation of the guidance and standards were due to lack of clarity in the documents themselves. The next chapter outlines work to address this.

5. What we said we would do and the progress we have made

The '2012/13 Patient level cost collection: review and lessons for the future' outlined actions we would consider for the 2014/15 collection. This chapter reflects on those and reports our progress. It looks at what we said we would do and:

- things we did
- things we made some progress on
- things we haven't done.

5.1. Things we did

1. ***We said we would*** *"consider how we can raise the profile of the treatment of overheads and provide clarity on how indirect costs should be allocated and which cost pools they should be reported in".*

The accurate treatment of overheads and indirect costs is important for making meaningful comparisons across providers. Organisations' infrastructure costs, while not to be ignored when considering how efficient a service is, will vary significantly and do not necessarily reflect specific clinical practice. Separately identifying overheads and including indirect costs in the relevant cost pools is therefore vital to understanding the real cause of cost variations.

We worked with HFMA on the 2015/16 acute health clinical costing standards released in February 2015 which have now clarified this area. **Standard 1 – classification of direct, indirect and overhead costs** includes additional detail in the indirect and overhead cost categories with comments to assist trusts. **Standard 2** – **creation of cost pool groups and cost pools** features a new section, **'Classification of indirect costs across cost pool groups'**. This outlines the cost pool groups that specific indirect costs should be reported in.

Recommendation: focus on classifying overheads and indirect costs

A consistent approach to separating overheads and accurately reflecting indirect costs in the appropriate cost pools is important to ensure all cost pool information is comparable across the sector. In the 2014/15 collection template we ask that trusts complete **Section 3 – breakdown of overheads** in the reconciliation statement to help us further understand the treatment of overheads.

2. ***We said we would*** *"consider the continued development of central validation process informed by engagement with trusts to understand how the validation process can be of most assistance".*

We believe that the central validation process is a key part of improving the quality of costing across the sector. For the 2014/15 collection we are working towards

additional validations to highlight significant year-on-year movements as well as incorporating some of the validations that focus on cost quality that we have been working on (see Chapter 6).

3. ***We said we would*** *"consider extending our central validation rules to highlight episodes that are missing key costs information based on procedure coding".*

This has been a major focus for Monitor since the 2013/14 collection ended; further detail can be found in Chapter 8.

4. ***We said we would*** *"create additional granularity within the medical staffing cost pool and other cost pools that include medical staffing to ensure we can identify it".*

On review, we found that the main issue with the existing cost pool structure was that we were not able to identify the total cost of medical staffing due to some of these costs being hidden in the Imaging, Pathology and Other Diagnostics cost pools. To ensure the medium-term development of patient level costing across the sector is consistent with the overall direction of travel, we have amended the 2014/15 template to separately report the medical staffing costs in these cost pools. All other medical staffing costs, including those associated with Operating Theatres and Specialist procedure suites should continue to be reported within the Medical Staffing (excluding Imaging Pathology and Other Diagnostics) cost pool.

We have also introduced an additional drug cost pool to capture drug costs associated with chemotherapy.

5. ***We said we would*** *"work with HFMA to update the WIP (work in progress) standards".*

Monitor and the HFMA have worked closely to clarify the treatment of work in progress, which has culminated in a fully revised **Standard 5 – work in progress** that is part of the 2015/16 acute health clinical costing standards released in February 2015. The new standard now has three levels, the first of which is fully aligned with the approach set out in the Department of Health's reference cost guidance.

We expect trusts to comply with Level 1 work in progress as a minimum but we encourage trusts to aim to achieve higher. The 2014/15 PLICS collection template sign-off sheet has been updated to reflect the new levels, and in anticipation of some trusts complying with Level 2 or 3, the data input sheet includes a **'WIP episode flag'**. The WIP episode flag should be flagged with a '1' according to the following rule:

- for level 2, all completed episodes within an incomplete spell should be flagged in the template

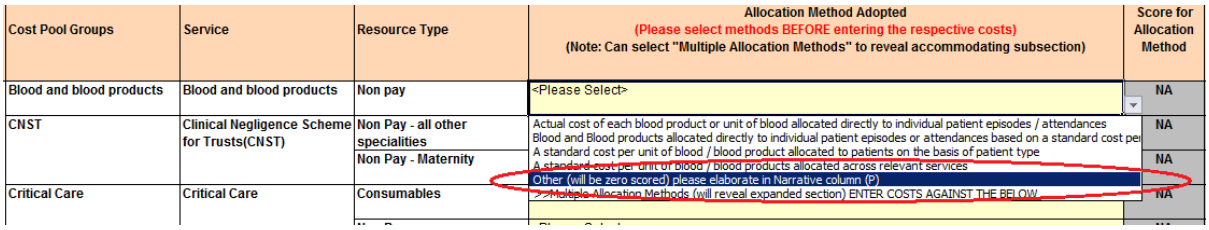
- for level 3, all incomplete episodes and all completed episodes within an incomplete spell should be flagged in the template.

6. ***We said we would*** *"adapt the MAQS template to allow organisations to reflect a deviation from the standards".*

To ensure we get a fuller understanding of whether organisations are complying with the acute health clinical costing standards or whether there are emerging methods of good practice, we felt it important that organisations were able to identify this within the MAQS template.

For the 2014/15 collection, as part of the overall restructure of the template layout, we have provided a function for trusts to show they have adopted an allocation methodology that is not defined in the standards. It should be noted that any methodologies identified in this way will be zero scored in the MAQS score calculation.

Figure 5: Screenshot from MAQS template



If none of the allocation methods specified in MAQS for a given service apply, trusts are asked to select 'Other' and provide further details in the Narrative column.

5.2. Things we made some progress on

1. ***We said we would*** *"work with HFMA to consider the benefits of identifying all costs incurred during a critical care stay which would enable reconciliation between reference costs and PLICS".*

For the 2014/15 collection we have not changed the guidance on the treatment of critical care and we continue to request that trusts do **not** unbundle critical care costs. Critical care costs should be reported as part of the total unit costs of a patient's finished consultant episode (FCE) within the correct cost pool. Work has been done to assess alternative options for the treatment of critical care in PLICS in a way that is more comparable to the reference costs. This is part of an overall assessment of the viability of aligning the two collections, but this project is still in progress.

2. ***We said we would*** *"consider development of a principled approach to the treatment of costs associated with unmatched activity".*

We felt that the lack of clarity in the acute health clinical costing standards about the treatment of costs associated with unmatched activity had the potential to create distorted patient level costs. There is now a section within **Standard 8a – data matching** of the 2015/16 acute health clinical costing standards that goes someway to clarifying an expected approach. The standards now state that ***'****unmatched activity should not be treated as an overhead to matched activity… Unmatched activity should be costed separately****'*****.** This is an important aspect of cost allocation so we will continue to work with HFMA to further clarify this, which may include providing examples and case studies to ensure there is no uncertainty around the expected treatment.

3. ***We said we would*** *"work with HFMA to consider restructuring Standard 3 so that all allocation methods are clearly laid out for each cost group".*

Having discussed **Standard 3 – allocation of costs** and its relationship with the methodologies in the MAQS template with HFMA, we appreciate that organisations should use all material available when assessing the allocation methodologies to apply. We welcome the restructure of the first page of Standard 3, which makes it clear that the allocation methodology detail is available in the MAQS template.

The additional sub chapters within Standard 3 relating to ward costs, operating theatres and medical staffing are clearer and have additional examples, while a new **Standard 3d – allocating emergency department costs** has been added.

To support Standard 3 of the acute health clinical costing standards, HFMA has also published a 'MAQS allocation methodologies – acute' table which lists all allocation methods and the associated scores together with some cost allocation methodology case studies. The case studies have been assembled with help from members of the acute costing practitioner group. These can be found on the HFMA website: http://www.hfma.org.uk/costing/standards/supporting-material/acute/Default.htm

4. ***We said we would*** *"consider appropriate treatment of key elements of non- patient care income and costs".*

The treatment of costs and income related to non-patient care activities has potential to significantly distort patient costs and makes it difficult to compare providers effectively.

The main issue here was the fact that we had different approaches defined with each collection and the standards requiring different methodology. In recognition of the strong link between the PLICS collection and the acute health clinical costing standards, we have aligned the collection guidance with the standards for the 2014/15 collection.

Standard 7 – treatment of non-patient care activities in the 2015/16 acute health clinical costing standards states: **"***costs incurred in other clinical and non-clinical*

activities, where the organisation's patients are not the primary reason for the activity should not be allocated to patients but separately identified".

Standard 6 – treatment of income states: "*Income should be clearly identifiable for internal reporting without being netted off from cost*".

In line with this, the 2014/15 PLICS collection template now includes two columns:

- Non Patient Care Activity Costs
- Other Income

Non-Patient Care Activity Costs should include: "*Costs from non-patient-care activities including education and training, research and development and commercial activities. Non-patient care costs should NOT be included within the total costs per Finished Consultant Episode (FCE)".*

Other Income should include: *"Income from private or overseas patients, service provision to other providers, provision of goods and services to non-NHS entities, research and development income and education and training income. Other income should NOT be included within the total costs per Finished Consultant Episode (FCE)".*

Recommendation: aim to separate all costs and income associated with non-patient care

We understand it may be difficult for trusts to accurately identify costs associated with some aspects of non-patient care. However, we feel this is an important aspect of patient level costing and an area that trusts need to begin considering in earnest now. We ask trusts to use the explanation box on the sign-off tab of the PLICS collection template to identify whether any non-patient care costs have been included within the cost pools.

5.3. Things we haven't done

1. ***We said we would*** *"consider collection of additional data to enable central HRG grouping of PLICS data".*

The ability to map alternative currencies onto costed patient level data by re-grouping the data centrally is important for us. But as we are keen to restrict the burden on trusts to providing meaningful cost information to us in the medium term, this development has been deferred. We will consider it in the design of the proposed costing approach and collection as outlined in 'Improving the costing of NHS services: proposal for 2015-21'.

2. ***We said we would*** *"incorporate an assessment of allocation costs to cost pools in MAQS*".

While this has not specifically been addressed in the design of the MAQS template for 2014/15 collections, our work using procedure codes to validate the cost pools (see Chapter 8) is a first step towards this type of assessment. As we develop this kind of validation we may be able to incorporate the assessment of the allocation of costs to cost pools as part of the central validation process.

3. ***We said we would***

- *"work with HFMA to give early indications of future minimum standards"*
- *"consider development of the MAQS calculation and template to move from a linear scoring scale to one that more directly reflects the benefit of the specific cost allocation being used"*
- *"consider specific validation processes to assist in assessing the quality of theatre times and critical care length of stay"*
- *"consider requesting further breakdowns of the services reported in 'other clinical support services'".*

We have not yet made progress on any of these. We will consider whether we are able to develop them this year or incorporate them in the longer-term design.

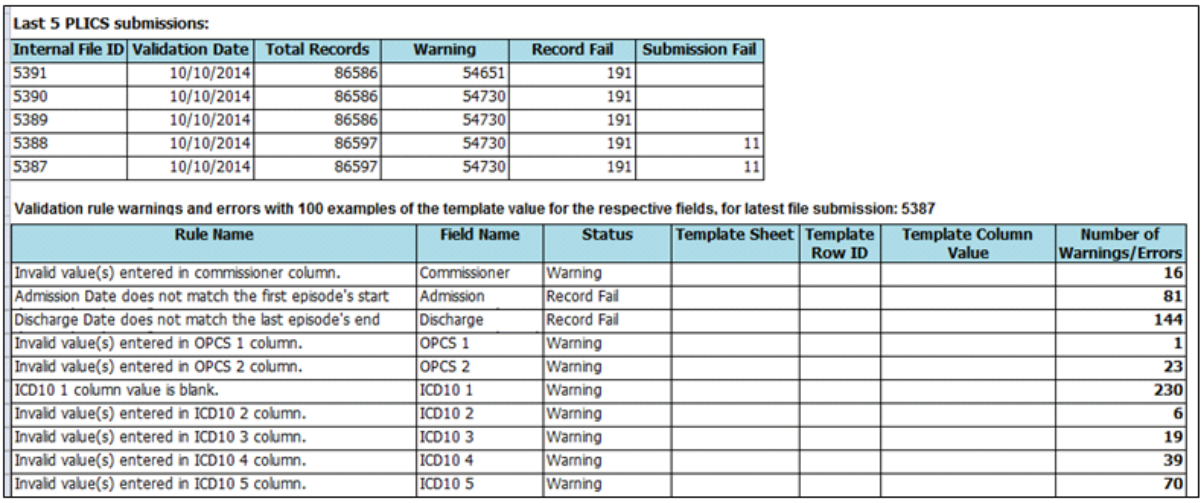
6. The central validation process and why you should use it

An important part of the patient level costing process is awareness of missing data or errors. This should lead to further investigation that may uncover issues in the underlying data or the way it is handled in the costing process that could affect the accuracy of the final reported cost. From a central collection point of view it is also important that we can use as much of the data as possible, so active validation is something we strongly recommend.

To assist trusts with the validation process, Monitor introduced an automated central validation process for the 2013/14 collection with feedback reports emailed directly to trusts identifying any validation errors. The report classified errors into three categories:

- **warnings** which may not have a major impact on the quality of data submitted but the recommendation is that trusts review and resolve where appropriate
- **record or submission fails** which indicate errors that make the episode invalid from a benchmarking/analysis point of view; therefore we ask that trusts pay particular attention to the cause of these and either correct them or ensure they can be fixed for future submissions.

Figure 6: Validation report screenshot



Last 5 PLICS submissions:

Internal File ID	Validation Date	Total Records	Warning	Record Fail	Submission Fail
5391	10/10/2014	86586	54651	191	
5390	10/10/2014	86586	54730	191	
5389	10/10/2014	86586	54730	191	
5388	10/10/2014	86597	54730	191	11
5387	10/10/2014	86597	54730	191	11

Validation rule warnings and errors with 100 examples of the template value for the respective fields, for latest file submission: 5387

Rule Name	Field Name	Status	Template Sheet	Template Row ID	Template Column Value	Number of Warnings/Errors
Invalid value(s) entered in commissioner column.	Commissioner	Warning				16
Admission Date does not match the first episode's start	Admission	Record Fail				81
Discharge Date does not match the last episode's end	Discharge	Record Fail				144
Invalid value(s) entered in OPCS 1 column.	OPCS 1	Warning				1
Invalid value(s) entered in OPCS 2 column.	OPCS 2	Warning				23
ICD10 1 column value is blank.	ICD10 1	Warning				230
Invalid value(s) entered in ICD10 2 column.	ICD10 2	Warning				6
Invalid value(s) entered in ICD10 3 column.	ICD10 3	Warning				19
Invalid value(s) entered in ICD10 4 column.	ICD10 4	Warning				39
Invalid value(s) entered in ICD10 5 column.	ICD10 5	Warning				70

We asked that trusts submit early in the collection window so they could act on any issues highlighted by the validation process and resubmit as many times as they require up to the collection close date.

This iterative process provides clear benefits and resulted in a big improvement in the quality of the final submissions received this year, as shown by one provider's submission history.

Table 3: Example provider's submission history

Date	Warnings	Record fails	Submission fails
08 August 2014	45,143	37,740	41,390
11 August 2014	45,143	37,740	41,390
19 August 2014	6,686	299	70
04 September 2014	6,686	299	0
04 September 2014	6,678	160	0
04 September 2014	6,678	160	0
04 September 2014	6,678	46	0
05 September 2014	6,678	2	0
05 September 2014	6,678	0	0

Initial feedback on this process showed that trusts were able to use the reports to improve their costing model, which improves both the usability of the data for internal management purposes as well as the overall quality of the collection.

Of the 68 trusts that submitted in 2013/14, 11 submitted only once and therefore were unable to get full value from the validation reports.

Recommendation: use the iterative submission and validation process

We believe that this validation process is essential to improving the quality of costing and recommend that all providers fully use this facility. **Submit – review – amend – resubmit** as many times as you need to.

Monitor will add further validations in the run-up to the 2014/15 collection.

7. The reconciliation statement and why it's important

One theme emerging from work on how patient level cost information can be used is the need to understand exactly what costs have been included. In our review of the 2012/13 patient level cost collection we highlighted the importance of consistent cost pool classification and allocation methodology, but equally important is ensuring that all providers are using the same 'cost base'. This means the overall costs included in PLICS should comprise the same categories of costs across all providers.

Analysis of the reconciliation statements submitted as part of the collection has highlighted inconsistencies in what costs have been excluded and how income has been handled. We were also told we should make the statement clearer.

Twenty-five trusts reported a difference between their PLICS model and the reconciliation to final accounts. In some areas the guidance did not adequately instruct trusts on the correct treatment of costs and income, particularly costs related to non-NHS patients and income related to non-patient care activities (ie education and training, research and commercial activities).

Trusts also told us they were uncertain whether the PLICS quantum should be based on the reference cost quantum or not.

For 2014/15 we have simplified the reconciliation statement, and the guidance states more clearly the costs we expect to be included in the PLICS collection.

Section 1.1A of the reconciliation statement in the 2014/15 PLICS collection template should be used to derive the total quantum for all services, not just admitted patient care. The values entered here should be taken from your final accounts.

Figure 7: 2014/15 PLICS collection template reconciliation statement screenshot – Section 1.1A

Section 1.1A - Expected PLICS Quantum

1	Operating expenses
2	Add: Finance expenses financial liabilities (FTs) or finance costs (NHS trusts)
3	Add: PDC dividends payable
4	Add: Finance expenses - unwinding of discount
5	Less: Actual cost of non-NHS private patients (**if applicable**)
6	Less: Actual cost of non-NHS overseas patients (non-reciprocal) (**if applicable**)
7	Less: Actual cost of other non-NHS patients (**if applicable**)
8	Less: Other operating income split into:
8a	Education and training income
8b	Research and Development
8c	Other (**all remaining other operating income**)
9	**Total PLICS Quantum (sums lines 1 to 8)**

Section 1.1B of the reconciliation statement should then be used after processing the PLICS model to remove all services that do not relate to admitted patient care, whether they are currently costed at patient level or not.

Figure 8: 2014/15 PLICS collection template reconciliation statement screenshot – Section 1.1B

Section 1.1B - Removal of Non Admitted Patient Care Costs (net of other operating income)

10	Less Non Admitted Patient Care services:
10a	Total PLICS costs (net of other operating income) for outpatients
10b	Total PLICS costs (net of other operating income) for A&E attendances
10c	Total PLICS costs (net of other operating income) for direct access services
10d	Total PLICS costs (net of other operating income) for healthcare at home services
10e	Total PLICS costs (net of other operating income) for community Services
10f	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10g	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10h	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10i	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10j	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10k	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10l	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
10m	[insert full details of additional PLICS costs or costs that are not currently costed at patient level]
11	**Total PLICS costs net of other operating income for Admitted Patient Care (sum of lines 9-10)**

Section 1.2 of the statement will check that the total on line 11 of section 1.1B matches the totals on the 'Data input' tab of the template. Any variance should be explained in this section only.

Figure 9: 2014/15 PLICS collection template reconciliation statement screenshot – Section 1.2

Section 1.2: Variances to Data Input

Line	Description	£
1	Section 1.1 Total (line 11)	0
2	Total from '2.Data Input': Non Patient Care Activity Costs (Column BC)	0
3	Total from '2.Data Input': Other Income (Column BD)	0
4	Total from '2.Data Input': Total Cost (BE)	0
5	**Total PLICS costs net of other operating income from '2. Data Input' (sum lines 2-4)**	0
6	**Variances between Section 1.1 Total (line 1) and '2. Data Input' Total (line 5)**	0

Please explain any variances:

Line	Description	Comments	£
1	[Insert description of variance factor]		
2	[Insert description of variance factor]		
3	[Insert description of variance factor]		
4	[Insert description of variance factor]		
5	[Insert description of variance factor]		

We recommend that trusts include non-NHS patient care cost and activity in the PLICS submission and use the 'Non-NHS patient flag' to identify them. If these patients are excluded, the full cost of any non-NHS admitted patients removed should be reported in section 1.1A of the reconciliation statement. The values reported in the statement will need to be extracted from the costing system to ensure the cost reported reflects all costs associated with that care.

If any income relating to non-patient care activities is excluded as a result of not being able to reasonably allocate it to patients, this should be reflected in section 1.2. The figures in section 1.1A (other than the non-NHS patient costs) should reconcile back to your final accounts.

Recommendation: Get the cost base right

We recommend that trusts use section 1.1A of the reconciliation statement in the PLICS template as a starting point to the PLICS collection process. Once the appropriate control total has been established, ensure the PLICS model reflects the PLICS quantum derived in the statement.

8. First steps to assessing the quality of patient costs

Monitor has started to explore the potential of validating the individual patient costs that providers submit through the patient level cost collection as an extension to the existing validation process that focuses more on the completeness and expected content of the patient attributes.

A key benefit of collecting patient level cost information is that we are able to look at costs of individual patient events and use the attributes recorded against that patient to highlight potential inconsistencies in the cost.

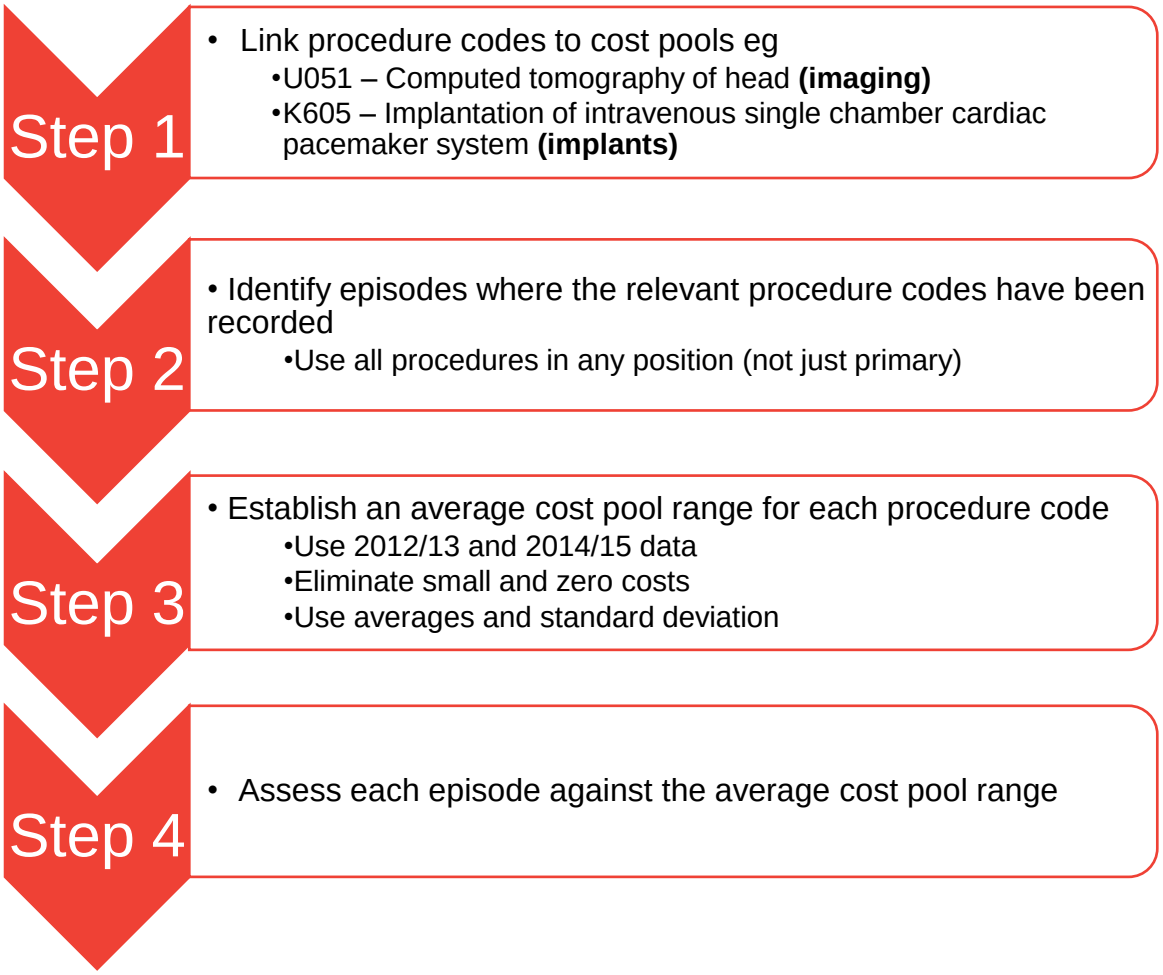
The PLICS collection currently requires trusts to submit up to 13 procedure and diagnosis codes. So for our initial look at developing more qualitative validation checks on the PLICS data we are assessing whether we can establish a link between clinical coding and the cost reported in the cost pools.

The aim of our work so far is to stimulate organisations into investigating their own ways of validating the quality of cost being derived in their patient level costing systems. At this stage we are not saying that the messages are necessarily definitive indicators of good or bad cost quality. But they do raise potential issues and we aim to work with organisations to promote and assist in developing additional validations.

As part of that, we outline here our methodology and present some high level analysis of the results.

8.1. Step by step methodology

Figure 10: Procedure code validation methodology



Step 1 - Link procedure codes to cost pools

We carried out a non-scientific mapping of procedure codes to cost pools based on the principle, 'does the presence of a given procedure code indicate that we would expect costs to be reported in a specific cost pool?' This initial identification of relevant procedure codes is subjective in some cases and is not considered to be definitive at this stage. We are expecting the process to grow with wider input.

In some cases this mapping is clear: the presence of **U212 Computed Tomography NEC** in the coding of an episode should indicate that costs of a certain level should be evident in the Imaging cost pool. In other cases the cost pool link cannot always be established with certainty. Surgical procedures, for example, may be performed in different settings across providers.

The result of this step was a list of OPCS codes that we feel can be linked to each of the following cost pools:

- Blood
- Cardiac Catheter Lab (which relates to Specialist Procedure Suites excluding Endoscopy suites)
- Drugs (High Cost and Other)
- Imaging
- Other Diagnostics
- Radiotherapy
- Theatres.

Table 4: Number of procedure codes considered for each cost pool category

Cost pool category	Number of procedure codes
Blood	2
Cardiac Catheter Lab	231
High Cost Drugs	48
Imaging	158
Other Diagnostics	67
Radiotherapy	17
Theatres	5,531

Step 2 - Identify episodes where the relevant procedure codes have been recorded

The next step involved taking each procedure code identified for a given cost pool and identifying the episodes in the PLICS submitted data from both 2012/13 and 2013/14 where the procedure code was present in any position. The PLICS collection requires providers to submit up to 12 procedure codes for each episode (for the 2014/15 collection this will be extended to13) so the code could exist in any of the 12 columns.

Step 3 - Establish an average cost pool range from the submission data for each procedure code

We believe the main purpose of this project is to identify episodes with zero or very small costs reported in a given cost pool despite the presence of specific procedure codes. There is, however, some benefit to seeing whether a reported cost also significantly varies from the collection average. This provides further clues to the success or otherwise of individual trust processes.

For this we have used averages derived from both years' submissions and an estimate of acceptable variation to provide a range. Note that these figures assume the cost pool value reported is all related to the procedure codes recorded, which in reality is unlikely to be true in all cases.

Example procedure code cost pool ranges are shown below.

Table 5: Example procedure code cost pool ranges

	OPCS code	OPCS name	Episodes with OPCS recorded	Lower avg cost range	Upper avg cost range
Implants	W371	Primary total prosthetic replacement of hip joint using cement	16,179	1,139	2,038
Imaging	U212	Computed tomography NEC	332,748	93	335
Cardiac Catheter Lab	K634	Coronary arteriography using two catheters	57,570	284	613
Drugs	X921	Cytokine inhibitor drugs Band 1	100,998	738	1,799
Other Diagnostics	A841	Electroencephalography NEC	10,385	120	311
Blood	X831	Blood products Band 1	4,601	743	1,546
Operating Theatres	J183	Total cholecystectomy NEC	22,615	679	1,171
Radio-therapy	X654	Delivery of a fraction of external beam radiotherapy NEC	77,279	17	183

Step 4 - Assess each episode against the expected cost pool range

The final step is to compare each occurrence of the relevant procedure codes to the calculated ranges and flag them as one of the following:

- ***zero cost*** – the procedure code is attached to an episode with zero cost reported in the cost pool to which the OPCS code has been mapped
- ***below range (small cost)*** – the procedure code has a cost pool cost attached to it which is reporting less than £10
- ***below range*** – the procedure code has a cost pool cost attached to it which is below the calculated average range
- ***in range*** – the procedure code has a cost pool cost attached to it which is within the calculated average range
- ***above range*** – the procedure code has a cost pool cost attached to it which is greater than the calculated average range.

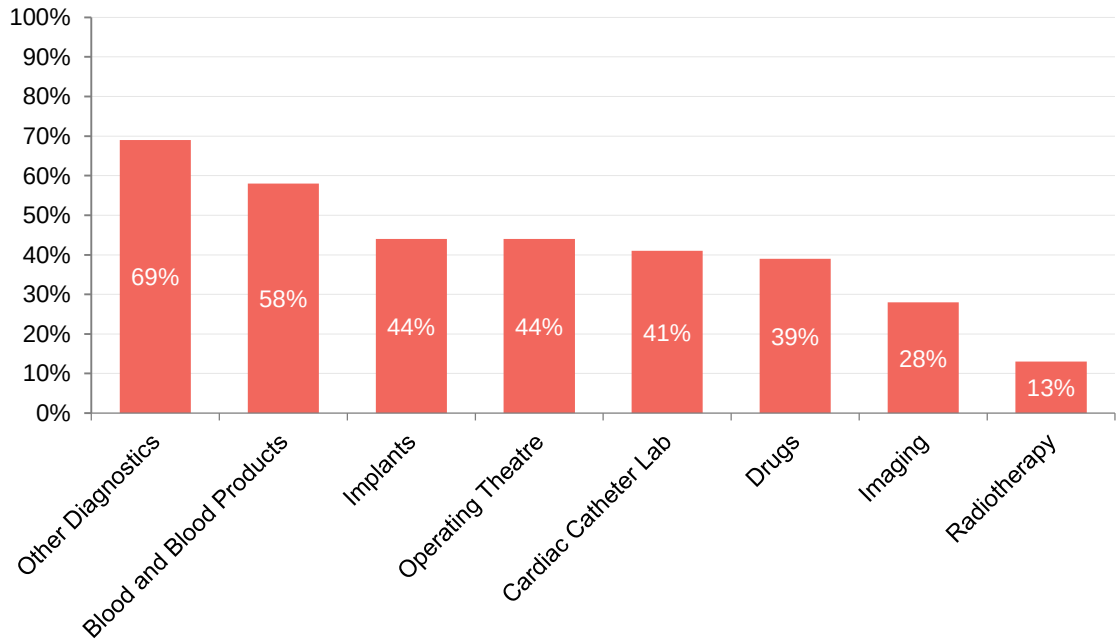
8.2. What did the analysis show?

Key findings were:

1. Significant levels of episodes with relevant procedure codes showing zero or small costs in the associated cost pools
2. At specific trusts we can see clear examples of what appear to be strong costing processes, which creates potential for cross-trust learning
3. Costs associated with ophthalmology-related implants were under-represented across the board.

We did see evidence of significant levels of episodes where the reported costs were not consistent with the procedure coding.

Figure 11: Percentage of episodes with relevant procedures but a zero or small cost (<£10) reported in 2013/14



Overall we reviewed 3.1 million episodes in the 2013/14 dataset and 2.6 million in 2012/13. The table below shows the number of episodes reviewed for each cost pool category. (Note that one episode can occur in more than one cost pool category).

Table 6: Occurrences of relevant procedure codes

Cost pool category	No of episodes reviewed	
	2012/13	2013/14
Blood	3,326	4,611
Cardiac Catheter Lab	139,690	160,161
Drugs	164,530	222,868
Imaging	541,911	668,934
Implants	245,547	271,875
Other Diagnostics	146,232	179,073
Radiotherapy	12,145	88,524
Theatres	1,853,470	2,155,302

Focusing on implants, we can see evidence emerging which points to some organisations potentially displaying good practices.

Table 7: Trusts displaying a good link between implant procedure codes and reported costs in 2013/14

Anonymised trust code	FCE count	Zero or small percent
T66	1,824	**0.55%**
T29	2,369	**2.95%**
T67	2,535	**3.71%**

Other organisations may have issues that need to be looked into further.

Table 8: Trusts not displaying a good link between implant procedure codes and reported costs in 2013/14

Anonymised trust code	FCE count	Zero or small percent
T42	4,496	**100.00%**
T19	2,991	**100.00%**
T72	7,966	**94.69%**

Specific observations were evident, such as ophthalmology implants being under-represented in the implants cost pool across the board, C751 - insertion of prosthetic replacement for lens NEC being the most frequently reported procedure code.

Table 9: Most frequently reported procedure code within Chapter B – eyes and periorbita (all providers 2013/14)

OPCS code	FCE count	Zero or small percent	Lower avg implant cost range	Upper avg implant cost range	Below range percent	In range percent	Above range percent
C751	117,209	**61.90%**	£54	£111	16.23%	13.42%	8.45%

The cost of ophthalmology implants may not be considered a significant cost at individual patient level. The combination of high volumes and material associated costs - for example, surgical kits - could, however, have an impact on the quality of the overall cost reported if these implants are not matched to the patients adequately.

8.3. Next steps

Over the coming months we intend to:

- get clinical input into the process, starting with the clinical representative on the costing policy advisory group
- issue trust level analyses to trusts that submitted PLICS data, to allow them to assess their numbers
- hold selected conversations with trusts to better understand how we can learn and share best practice.

Recommendation: internally validate cost quality

Use episode level procedure coding as a first step towards assessing the quality of costs being derived by the costing system. We will aim to issue our analysis as described in this chapter to assist with this.

Monitor will look at incorporating some of these procedure code checks into the automated central validation process.

9. Our five-step recommendation for continued progress

While we expect trusts to continuously review and improve their allocation methods we also recommend trusts to:

1. **Get the cost base right**

   We recommend that trusts use section 1.1A of the reconciliation statement in the PLICS template as a starting point to the collection process. Once the appropriate control total has been established, ensure the PLICS model reflects the quantum derived in the statement.

2. **Focus on classifying overheads and indirect costs**

   A consistent approach to separating overheads and accurately reflecting indirect costs in the appropriate cost pools is important to ensure that all cost pool information is comparable across the sector. For the 2014/15 collection template we ask that trusts complete ***Section 3 – breakdown of overheads*** *in the reconciliation statement to help us further understand the treatment of overheads.*

3. **Aim to separate all costs and income associated with non-patient care**

   We understand that accurately identifying costs associated with some aspects of non-patient care may be difficult for trusts. However, we feel this is an important aspect of patient level costing and an area that trusts need to begin considering in earnest now. Trusts are asked to use the explanation box on the sign-off tab of the PLICS collection template to identify whether any non-patient care costs have been included in the cost pools.

4. **Internally validate cost quality**

   Use episode level procedure coding as a first step towards assessing the quality of costs being derived by the costing system. We will aim to issue our analysis as described in Chapter 8 to assist with this.

5. **Use the iterative submission and validation process**

   We believe that using the validation process is essential to improving the quality of costing and recommend all providers use this facility. ***Submit – review – amend – resubmit*** *as many times as you need to.*

10. Next steps

10.1. 2014/15 collection

In coming months we plan to engage with providers for further insight into some of the issues and identify any elements of best practice related to our recommendations that we can share with the sector. The window for the 2014/15 collection is expected to be open between July and October 2015. We will announce the definite dates and process in May 2015. After the collection we will again share early findings in a webinar in November 2015 with a detailed report in spring 2016.

10.2. Costing transformation programme

We have published our **'Improving the costing of NHS services: proposals for 2015 to 2021 – our response to feedback'** at the same time as this review, which summarises the sector's feedback on our proposals and the changes we made as a result.

Work continues on scoping the workstreams scheduled for delivery in 2015. The three immediate workstreams are:

- **development of the minimum requirements for local costing software:** defining the necessary capabilities of a costing system to support the proposed costing process
- **acute standards development:** defining the minimum datasets, data dictionaries and the costing methodology, and outlining in detail how costs should be treated and what activities they should be matched to
- **value for money:** determining if the proposed costing approach will generate sufficient benefits for the sector to justify the cost of implementation and maintenance.

In autumn 2015 we will publish a detailed implementation plan for costing transformation. This will outline the detailed workstream plans, programme governance structure and key timelines.

Monitor

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