Acute health clinical costing implementation guide

To support the 2014/15
Acute health clinical costing standards

Shaping healthcare finance

hfma

Contents

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Foreword

Patient-level costing has taken hold in the NHS. Its development started in the acute sector but is now being adopted in mental health and community settings. According to the Department of Health's 2012/13 reference costs publication, of the 161 acute trusts submitting costs in that year, 110 had already implemented patient-level information and costing systems (PLICS). A further 22 were mid-implementation with another 14 were planning to implement.

So this may seem an odd time to republish a clinical costing or PLICS implementation guide. But we believe the guidance retains great value and, three years on from its initial release, has benefited from significant updating.

The guide will be of most direct value to the small number of organisations still in the planning stages for clinical costing and those already in the throes of implementation. It sets out the case for change, highlights the importance of stakeholder and clinician engagement and provides pointers for the key steps of procuring and then implementing systems.

But it should also prove valuable for those with more mature systems and with experience of compiling and using patient-level costs. The guide should provide a helpful checklist to assess whether processes and systems are meeting requirements. And it may have specific relevance for organisations that are moving towards the end of their first clinical costing system contracts and are looking to renew or replace their existing system.

The NHS has set a goal of improving cost data and getting processes right from the start is vital. It is important to remember that the best practice costing – reflected in the HFMA *Clinical costing standards* – should be the key driver of costing system design, rather than costing systems dictating the way costs are collected. This guidance helps ensure that practitioners set their initial requirements and assess actual methodologies and processes with this goal in mind.

The HFMA is fully committed to the improvement of patient-level costing in the NHS. It has a formal role in publishing the annual *Clinical costing standards*, and has also developed, in partnership with Monitor, a materiality and quality score (MAQS) process and template to enable organisations to self-assess the quality of their costing process and data.

This guidance is part of a growing library of support material on the association's website (www.hfma.org.uk/costing) that aims to meet the needs of costing practitioners and their organisations.

John Graham, chair, HFMA Costing Practitioner Groups

Introduction

The aim of this document is to provide practical, hands-on advice and guidance to support the implementation of clinical costing. This guide was originally written to support the implementation of patient-level costing systems. However, the HFMA acute costing practitioner group believes that this guide can also add significant value to organisations with more mature patient-level costing in place.

It provides a useful tool to review the success of the implementation of patient-level costing – for example, in terms of the level of clinical engagement achieved, the functionality of the system implemented and areas where further development may be required. It also provides useful information for those organisations who may be considering a change to their costing system in order to better support the needs of their organisation.

This guide was first published in May 2009 by the Department of Health. It was updated by HFMA in 2011. This most recent update is intended align the information in this guide with the HFMA *Acute health clinical costing standards*, published in February 2014. These standards are published on the HFMA website (www.hfma.org.uk/costing) and form chapter 2 of Monitor's *Approved costing guidance*.

In February 2014, the HFMA published a *Mental health clinical costing support guide*. Part 2 of this guide sets out an implementation guide for patient-level costing in mental health services. This document is available for download from the HFMA website (www.hfma.org.uk/costing/supporting-material).

SECTION 1

Setting out the case for change – how is clinical costing different?

In order to deliver better care for patients in a time of financial constraint, organisations need detailed information about the current delivery and models of care for individual patients. PLICS (patient-level information and costing system) has numerous benefits for the whole organisation in terms of financial and clinical transparency, and most important, can drive and inform decisions about service improvement.

Change is often seen as threatening. Explaining the need for change and the consequent benefits are a prerequisite to ensuring a successful implementation. Responsibility for explaining the need for change should be assigned to an individual or a group who should regularly report back to the PLICS project board. This person or group must make sure that the relevant audience understands the benefits of PLICS.

This section discusses the benefits of PLICS, which can be used when setting out the case for changing an organisation's approach to costing through the implementation of PLICS.

Aggregation of costs

Costing at the patient level provides organisations with the flexibility to group costs in different ways – for example, by:

- Procedure/diagnosis
- HRG
- Service line
- Clinician
- Department
- Across pathways of care

This flexibility of reporting means the costing outputs can easily adapt – for example, if the design of healthcare resource groups (HRGs) were to change. PLICS provides useful information for understanding casemix and the costs of individual HRGs, because costing at the individual patient level allows organisations to identify easily the distribution and composition of costs.

Service line reporting

PLICS can support service line reporting (SLR) and therefore assist organisations in understanding the profitability of service lines. The benefit of deriving SLR from PLICS is that clinicians and managers can drill down through their service line reports to individual patients to gain a better understanding of what is driving their costs and profitability.

If PLICS is used to generate SLR reports, income needs to be brought into the costing system. Consideration will need to be given as to how to allocate this income to individual patients or services.

Transparency and ownership

Many members of the HFMA Acute Costing Practitioner Group report that PLICS greatly assists the ability of finance professionals to engage with clinical staff. This is because costing leads can discuss the costs of individual patients rather than average costs across a service – the component costs of an individual patient's care become more transparent. If clinicians are involved in making decisions on how to allocate costs and can review the outputs at this granular level, ownership and understanding of costing can greatly improve.

Cost management/investment

PLICS is being increasingly used by acute trusts as a tool to distribute efficiency savings across services. In addition, PLICS is being used as the basis for financial analysis within business cases and the costs

produced used to inform investment and disinvestment decisions. To summarise, PLICS supports organisations to:

- Provide a more robust basis for building business cases
- Demonstrate the profitability and sustainability of a service
- Facilitate more robust decision-making
- Inform CIP targets
- Help clinicians provide invaluable input into tariff design and national price-setting.

Improving data capture and data quality

Experience of implementing PLICS has shown that as cost information is shared across organisations, the quality of the data used to build these costs is improved. This is often because it raises the profile of information that may not be reported elsewhere in the organisation. This in turn can improve data capture.

For example, a service may see that by capturing information such as the time spent with a patient, the quality of the cost information produced can be significantly improved, and at the same time the information collected is clinically meaningful and can be used to support the performance and development of a service.

Future pricing role

Monitor is actively supporting PLICS in the development of costing acute services. In September 2013, the first voluntary national collection of PLICS data was undertaken, with 70 acute organisations submitting patient-level costs. Monitor regards PLICS as a potentially useful tool for costing acute services, and developing prices.

In summary, PLICS can improve the quality of the financial information produced and used within organisations. It can drive improvements in data quality as cost information is more actively interrogated and reviewed. PLICS enables a much better understanding of the costs and resources used for the treatment and care of individual patients and how these interact and change over time.

This provides the opportunity for more effective benchmarking between services and across organisations, and can support the development of more robust local tariffs. The greater transparency of financial information allows clinicians to become more involved in discussions around how resources are used and how their use varies.

The HFMA website contains case studies on how organisations are using PLICS and the benefits they are realising. These can be found at: www.hfma/org.uk/costing/case-studies

We are starting to see in some organisations that as PLICS matures it can lead to more robust strategic and operational planning and decision-making. All of these benefits will improve knowledge about the financial performance of an organisation and how resources are utilised, thus supporting real improvements in the quality of care given to patients.

Clinical costing therefore provides patient-level information that is more detailed, transparent and accurate than previous costing has allowed. This allows organisations to communicate with clinicians, managers and commissioners more effectively to inform discussions around finance and resource allocation and ultimately how patient care is delivered.

SECTION 2

Stakeholder engagement and management

PLICS should be seen as naturally belonging to the whole organisation and not just to the finance or information departments. Senior management, especially board members, should ensure that this is communicated to the whole organisation. All key stakeholders should be involved in the initial implementation and ongoing development of PLICS.

It is recommended that a PLICS project board is set up to oversee implementation. The project board should include senior clinical personnel, the finance director and the trust information lead. This board will be primarily responsible for meeting milestones and final delivery, as well as identifying key stakeholders – usually medical directors, clinical leads, general managers and financial managers. The project board will identify how the stakeholders will be involved and their requirements for training. They will also identify their performance information needs. This should be documented. It is recommended that the project board appoint an individual who is responsible for ensuring the ongoing involvement of stakeholders.

The project board should determine and choose the specific dedicated resources that will be used in the project and ensure that the dedicated lead is included in all project board meetings. The project lead should be someone who is numerically literate, who is capable of liaising with clinical staff in a manner that inspires trust, and has a record of resilience and accomplishment.

Clinical personnel and other information providers may well require additional remunerated time to fulfil their role in setting up and implementing raw data collection systems.

It is recommended that a brief status report be provided to the trust board each month detailing the project's progress against the pre-agreed time frames, outlining any variances, the reason for them and how they should be resolved. Such an approach reinforces the overall corporate nature of this activity.

Clinical leads and champions at different levels of the organisation should be identified and involved in costing. Clinicians will be more willing to become involved if the focus remains on the benefits that costing will bring to them and their patients. The training and coaching of lead managers and staff requires considerable time to be spent explaining how the costs link to clinical practice, and to ensure continuing strong levels of engagement.

Clinicians need to be involved in three key stages of engagement:

- **System design in the early stages of the PLICS implementation process**

It is a good idea to identify a few senior clinicians with management responsibilities who will be supportive and act as clinical champions as well as a few operational managers. In this way, important decisions about the level of detail and integration with other clinical systems can be made.

- **Validation**

Once costing reports are available, it is important to engage with clinicians to validate the underlying data and how it has been used to produce the end result. This will also help clinicians to become involved and to consider how their own practice links to the costs.

- **Using information**

Costing information and reports can be used at different levels of the organisation in a number of different ways, involving different groups of managers and clinicians. Time will need to be invested to discuss the reports and to encourage feedback.

SECTION 3

Procuring clinical costing software

A specialised PLICS system will normally consist of a data warehouse that can import data extracts and integrate them, a costing engine and a front end reporting and analysis tool.

The process of selecting the right solution and supplier for an organisation should ideally be led by the project board to ensure the requirements of the whole organisation are met and to ensure the solution fits with the overall strategy of the organisation.

It is strongly suggested that before any procurement process begins, the project board should consider the following issues. Answers to these questions are likely to impact on the system and supplier selected:

- What are the timescales for producing clinical cost information?
- What resources will be committed by the organisation to the implementation?
- What are the outputs required from the system for internal and external use?
- What information do the board, clinicians, managers and finance teams want to see?
- How will the information produced be used by the organisation?
- What information is available to support the implementation of clinical costing and what, if any, key information requirements are missing?

The procurement process

The right supplier can be a key resource in a timely and effective implementation. The objective is to supply accurate, timely, credible information and the extent to which a supplier is able to work internally with the trust to ensure that this is achieved can be a vital determinate in the right choice of supplier. For this reason, as well as to eliminate any possible reformatting of raw data, it is highly recommended that the trust chooses a supplier early in the process. This does not mean, however, that the PLICS process is unable to begin until a supplier is chosen. Forethought and understanding of what the trust really needs and where information shortfalls exist should be a precursor to supplier selection.

A sample list of questions that organisations may wish to use in their discussions with suppliers is provided in Appendix A. The questions are intended to provide insight into the areas that should be discussed and considered before a decision is made. There may also be other questions or considerations that organisations may have when assessing suppliers, such as integration with existing IT systems.

Organisations should go through the normal commercial procedures in evaluating prospective suppliers, basing any purchase decision on the normal parameters of value for money, experience, reliability, quality of product, back-up and ongoing service. References should be sourced from other users, and if possible, site visits should be undertaken to see systems in action, and to learn more about the operation of a system from those who are using it.

It is important to set out an appropriate evaluation period to adequately review all of the shortlisted products. Given the complexities involved, it is not possible to make an informed decision about a system's suitability in a demonstration that is less than an hour in duration. It is suggested that an agenda is forwarded to suppliers in advance of a meeting to outline all the topics the demonstration should cover.

To further evaluate the capabilities of systems and companies shortlisted from the demonstration process, it is worthwhile arranging a half-day workshop with a supplier so that a more detailed review of the system can be provided and tested. Methodologies and time frames can be discussed in more detail.

Any implementation of clinical costing will be an iterative process. For example, information gaps or problems with the quality of data will only become obvious when data is requested and then reviewed.

It is therefore important to set out clear expectations and deliverables for both the organisation and the chosen supplier.

Minimum requirements
The minimum requirements for a specialised PLIC system/supplier should include the following:

1. The PLIC system must be capable of reporting both cost and resource consumption data on a daily basis. The resource data produced must be clearly identifiable – for example, the ward name, pathology test, drug name, consultant name or code.

The ability to produce patient cost and activity data on a daily level is necessary to ensure maximum clinical engagement with the data. It enables clinicians to understand where there may be areas for efficiency savings and monitor adherence to or variance from established clinical protocols. It will also allow costs to be aggregated across a pathway of care.

2. A PLIC system must be capable of reporting on the underlying clinical information associated with patients. This may include procedure and diagnosis codes, for example.

Considering how a system will be used
It is worth spending significant time determining what information clinicians and other stakeholders will find most meaningful, as well as identifying current data gaps, before holding discussions with potential suppliers. The greater the effort, thought and discussion about how the system will be used, the greater the likelihood of choosing the best supplier as a result of a robust selection process.

Resource implications for operating the PLICS software
Post-implementation, ownership of the processes involved in generating PLICS data on an ongoing basis should ideally reside within the trust, and the trust must be capable of making any changes to the cost (or income) model(s) and the underlying methodologies that have been applied to the construction of the PLICS data. The PLICS supplier must be able to provide evidence of how ownership and knowledge is transferred to trusts to allow them to effectively run PLICS independently. It is also important that the data inputs are easily changeable to meet any updates to national cost collection guidelines.

PLICS system providers can play an important role in assisting an organisation in project implementation. Most organisations will benefit from the experience that PLICS suppliers can provide and the purchase should be seen as more than just a supply of software. It is suggested that potential suppliers should be exhaustively questioned regarding the support they could provide in ensuring that their software works as a business intelligence solution rather than just technical IT support for software and/or software support.

Who are the PLICS suppliers?
There are a range of suppliers with clients in the NHS. The list below sets out PLICS suppliers operating in the acute sector in England that are known to the HFMA:

- Allocate
- Ardentia
- Assista
- Bellis-Jones Hill
- CACI
- Civica
- Clearcost
- Healthcost
- Power Health

SECTION 4

Being clear about what you want to get from your costing

It is important that expectations and deliverables are clearly defined. Implementing PLICS will be an iterative process, with information gaps only becoming obvious when data is requested. It is important to define deliverables achievable within a period of time that is not so long that the project loses its momentum but is long enough to demonstrate some beneficial results. This ensures visibility and encourages support.

One of the key lessons that HFMA's acute costing practitioner group has shared is the need to be clear at the beginning of the process about how you want to use your costing system. The choice of system and how it is set up will determine how it can be used. Any changes post-implementation may take considerable time and have significant cost implications. In particular, organisations should consider whether they wish to use their PLICS system to do the following:

1. Comply with HFMA's clinical costing standards
2. Produce service line reports
3. Produce national cost collection reports – currently reference costs, programme budgeting returns and Monitor's voluntary PLICS cost collection
4. Undertake analysis at procedure, diagnosis or HRG level
5. Review the costs and resources consumed across pathways of care
6. Report costs and the resources utilised by individual patients by day

SECTION 5

Implementation

The amount of time required to implement PLICS depends on the organisation's starting point in terms of data quality, IT infrastructure, clinical leadership and so on. The initial implementation phase will take three to six months, assuming all the basic data required is readily available. This phase includes:

- Gathering and inputting base activity data
- Gathering and inputting base financial data
- Gathering and inputting activity and financial information to be used to allocate costs
- Producing data quality reports
- Writing bespoke scripts
- Creating costing model
- Producing costing output/reports

Once the initial costing output has been produced, there is usually a further six to 12 months' settling down period to further refine the reporting, review the outputs and sign off on the implementation phase. We will take each stage outlined above in turn and discuss the key steps that form part of the PLICS implementation:

Gathering and inputting activity data
The first step is to agree what your base activity dataset is going to be. Most organisations use the commissioning dataset. This ensures the patient activity that is costed reconciles back to the activity reported through Secondary Uses Service (SUS).

The inpatient, outpatient and A&E CDS will be required as a minimum. Best practice would dictate that patient-level costing can be extended to other services, if the information is available.

It is important to agree the fields that will be imported into our costing system in advance with your supplier. Post-implementation, this base activity extract will need to be provided in the same format each time the costing system is updated.

It is also important to consider which activity will be imported into your costing system. Standard 5 (Work in progress) provides more information on how activity that is unfinished in a financial reporting period should be costed.

Gathering and inputting finance data
The second step is to agree what your base record of income and expenditure is going to be. The HFMA Acute Costing Practitioner Group recommends that a ledger extract is used as the record of financial expenditure and income.

Again, it is important to agree the format of this extract with your supplier and with the financial accounts team. The extract must be produced in the same way, each time the costing system is updated. Ideally the same extract should be used that is the basis for all internal financial reporting, so that the costing output produced can be reconciled to the final accounts or internal board report. As a minimum, the ledger extract should include:

- Cost centre
- Cost centre description
- Account code
- Account code description
- Amount

As part of the ledger upload process, each cost centre and account code combination will need to be classified in order to comply with the clinical costing standards. This therefore requires three classifications:

- Direct, indirect or overhead
- Fixed, semi-fixed or variable
- Cost pool and cost pool group

Care should be given to the treatment of income. Standard 6 (Treatment of income) and Standard 7 (Treatment of non-patient care activities) provide further information on this. If the PLICS system is to be used to produce service line reports and report on profitability of services, the income received for a service will need to be included within the base financial extract. If PLICS is to be used purely as a costing system, income from patient care can effectively be ignored.

The aim of PLICS is to ascribe the actual cost of clinical activity to individual patients. This means non-patient care activities carried out by trusts need to be identified and both their income and cost measured accurately and excluded from those related to patient care. The major non-patient care activities are research and development, education and training and other commercial activities.

Gathering and inputting activity and financial information to be used to allocate costs
Standard 3 (Allocating costs) provides information on the allocation of overhead, indirect and direct costs. PLICS aims to record meaningful clinical interactions, processes and events which take place during a patient's episode of care or treatment and to ascribe the actual costs of those interventions to them. The quality of how costs are allocated to individual patients is a significant determinate of how good the costing data produced is. Ensuring the costing model allocates costs with relevant granularity, without becoming lost in the unimportant minutiae, is a pivotal judgment for each organisation.

The HFMA has developed a materiality and quality score (MAQS). The MAQS templates provides four options on how costs may be allocated for each type of cost. Each option is rated: baseline (0.25), bronze (0.5), silver (0.75) and gold (1). This score allows organisations to rate their allocation methodology for each cost type. This rating is multiplied by the financial value reported for that cost type to produce a weighted score. The MAQS is a significant step forward in providing transparency of approach in costing and showing organisations alternative allocation methods that would result in more accurate cost data being produced. Because the MAQS calculates a weighted score, it focuses on the materiality of each cost and is therefore an important tool that can assist organisations in targeting resources to achieve the greatest impact on quality.

It is often only when clinical staff understand how the data will be used and the importance of collecting it in an accurate and complete manner that data quality can improve. Standard 8 provides further guidance on the role of information in PLICS.

It is suggested that the costing team meet with the owners of information feeds, such as pharmacy to discuss drugs information. The rationale for data collection should always be fully explained to information providers. It is important that an action plan and timetable is agreed to bridge any gaps between existing and required data.

It is also important to ensure that these data fields can be provided in the same format and produced in the same way, each time an update is required. If extracts are not in the same format, they will usually fail in the upload process.

Data quality reports, writing costing scripts, producing outputs
Once all of the input data has been collected, an organisation will need to work with their chosen supplier to integrate these data sources. This will involve the process of writing a series of 'scripts' or 'rules' to integrate the data and to link it together.

It is important that an organisation takes time to understand this process as it will greatly impact on the accuracy of the cost information produced.

SECTION 6

The role of the Acute health clinical costing standards

The clinical costing standards set out best practice guidance to support clinical costing, so it is important they are used when setting up/designing clinical costing systems. Appendix B provides a summary guide to clinical costing that is taken from the introduction to the clinical costing standards 2014/15. This summary aims to support navigation through the costing process and how each standard fits into it.

STANDARD 2: CREATION OF COST POOLS/COST POOL GROUPS

All service costs need to be grouped into associated cost pool groups. Cost pool groups are 'types' of costs, forming a set of component costs. Cost pool groups are distinct from service lines or points of delivery. The aim of establishing cost pool groups is to provide sensible component costs for patients to enable possible benchmarking and comparison.

In implementing PLICS, it is important to try and get the structure right from the outset as it may be costly and time consuming to change it. Organisations have freedom to choose cost pools (within cost pool groups) to suit local circumstances. However, best practice dictates that these pools should map to the cost pool groups in the standards to enable like-for-like comparison. The recommended cost pool groups are:

- Blood and blood products
- CNST
- Medical staffing (excluding radiology and pathology medical staff)
- Ward and other settings (including ward nursing)
- Emergency department
- Critical care
- Outpatients (including outpatient nursing)
- Operating theatres
- Other specialist nursing staff (including consultant and specialist, non-ward specific nurses)
- Pathology
- Imaging
- Other diagnostics
- Drug costs
- Pharmacy services
- Prostheses/implants/devices
- Therapies
- Special procedure suites
- Radiotherapy
- Other clinical supplies and services
- Secondary commissioning costs
- Non-patient care activities (including education and training – see Standard 7)

Cost pool groups should be able to be reported inclusive and exclusive of overheads. .

STANDARD 6: TREATMENT OF INCOME

Income should be clearly identifiable for internal reporting without being 'netted off' from cost. This is done to ensure consistent treatment of different sources of income so that patient-level costs reflect the real cost of treating patients and do not include costs associated with non-core income. It also ensures that a consistent approach to the treatment of income to support the understanding of profitability at the patient and service-line level.

- All income should be classified as 'core' or 'other'. Core income relates to commissioning income for core NHS care given to patients, while other income includes service provision to other providers (rent or social care, say) or research and development income and education and training income (see Standard 7).

- All income should be classified as direct, indirect or corporate. The guiding principle is whether the income relates to direct patient care (direct) or patient care for other organisations (indirect) or non-patient services/goods (corporate). As a general principle, income should not be netted off from gross costs, but rather shown separately as an income stream.

Further guidance is provided below on income reconciliation:

- Each income category (direct, indirect, corporate) must be disclosed and reconciled to an individual organisation's accounts, whether the income is shown gross or netted off against cost to produce patient level costing.
- As a minimum, where both costs and income are fully absorbed, the total surplus/deficit should match that of the reported accounts for the period.
- In some instances, there may be a need to completely separate costs or income streams from patient services and other service lines/business units – for example, for costs associated with impairments. Where the organisation aims to fully reconcile to reported accounts, such monies may be allocated to an 'exceptional items' service line. However, such items may be only exceptional, and a breakdown of monies allocated in such a way must be kept and shared when necessary for completeness and transparency.

Further guidance is provided below on income matching:

- Income streams should be matched against relevant expenditure in accordance with IFRS. This requires identification and separation of expenditure at the lowest possible level. In particular, time and consumables incurred specifically for research and development and clinical training should be separately accounted for and not included in the costs of patient care.

Guidance is given below on changes to income – for example, arising from disputes/freeze date changes:

- The income reported in the costing system should equal the total reported on the general ledger. If credit notes or provisions are made, income reported in the costing system should change to reflect this.
- Emphasis must be placed on showing a true and fair view of profitability, whether at patient level or specialty level. With this in mind, it may be appropriate to allocate certain income adjustments or year-end agreements to an 'exceptional items' service line.

STANDARD 7: SEPARATING PATIENT CARE FROM OTHER ACTIVITIES

The costs of clinical training and education, and research and development should be separately identified from the costs of providing patient care. The 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. This is to provide a consistent methodology to ensure these costs are not included in clinical costs. This will also show the surplus/deficit of providing services to enable information for reimbursement discussions.

Training and education and research and development have historically been funded separately from healthcare. A costing methodology and guidance to support the national cost collection of training and education costs has been developed by the Department of Health and Health Education England and has been published for the NHS.

STANDARD 8: DATA INTEGRITY

This standard provides guidance on how organisations can assess and ensure the integrity of the patient level information used in the costing process. The clinical costing standards state that close working with 'owners' of data sources will be vital to ensuring accurate clinical costs. Data quality is a key issue in the implementation of clinical costing and its importance must be recognised throughout the organisation, from the owners of the data to board level.

The responsibility for accurate data input will usually reside with individual departments. These departments may or may not be part of the information department. They also may or may not be currently producing data that is used outside of their service. It is therefore important to explain how the

data that they are providing fits into the costing process, and how the outputs from the costing process will be used within the organisation.

It is vitally important to ensure that each data system is fully owned by the department/directorate/trust. To support this process, a system manager(s) should oversee the management of the system and the process it supports (this is supported through the NHS Information Governance standards).

It is suggested service-level agreements (SLAs) are set up for each identified data source. SLAs may include:

- A timetable for producing the data
- The format required for the data
- Confirmation of arrangements during annual leave
- The data quality checks that are required

Data quality issues will need to be addressed at the earliest possible stage in a clinical costing implementation project. Ideally, issues should be identified before data is imported into a costing system, as this will speed up the implementation and reporting process.

Each organisation should ensure data quality processes are in place, the accountability for which should be traced to board level. It is important to ensure that the trust board understands the implications of data quality and is kept informed of developments, issues and risks.

To support the link between data quality and clinical costing the following may be considered:

- In the design of a clinical costing system, data quality should be considered at the very beginning, and not just at the end. This will reduce error reports and improve efficiency, particularly if fewer issues need to be resolved at the end of the costing process.
- The process of obtaining and processing data should be included as part of the internal audit review of clinical costing (see Standard 10).
- Data should be put through a data staging/validation area, for validation/sense checking, prior to being imported into any costing software.
- Key data quality indicators should be incorporated to ensure accuracy – for example, completeness of a patient's NHS number being recorded.
- At a strategic level, data quality can be improved by integrating IT systems. This may not be possible, but any system improvements should be considered as future moves to improve clinical costing outputs.
- When systems are changed, migration of data covering up to10 years may be necessary in extreme cases. The key is ensuring a perfect mapping process is implemented between data names and categories, which may be different between systems, and that verification and controls are set up so that data is transferred correctly from point to point.

It is very important that data inputs are validated. There are a number of ways of introducing this process. For example, manual checks may be implemented, although it is recommended that automated processes are put in place. Reconciliation back to base data sets should also be encouraged to ensure all data input is fed through the costing system correctly.

Further information on data quality issues that may arise in a clinical costing implementation and possible solutions are provided on the HFMA website. This information also highlights some of the practical data issues that may arise in producing clinical cost information and some possible solutions to overcome these issues. To access this information please follow the link: www.hfma.org.uk/costing/supporting-material.

STANDARD 9: COSTING STANDARDS QUALITY ASSESSMENT

Organisations should document and measure the materiality and quality of their costing process. The materiality and quality score (MAQS) has been designed to assess an organisation's ability to provide robust, reliable data for internal and (potentially) external assurance by using a template.
It will help organisations that are implementing clinical costing to assess and monitor improvements in data quality and identify where efforts should best be directed to improve the most significant improvement in the quality of costing.

SECTION 7

Sharing initial outputs

PLICS is a journey. There will always be tension between those in an organisation who wish to share and start using outputs and those who feel more work is needed to improve accuracy. This is a healthy tension.

It is suggested that initial reports for review and feedback should be made available within six months. There should be no expectation that these initial draft reports will be 'perfect' but will rather be a learning exercise to expose gaps in raw data, business terminologies, object coding and allocation methodologies. It is important to be realistic about time frames and early results and to ensure that where there are gaps in data, or known issues with some of the input data, that these are clearly communicated.

Most organisations should be able to produce meaningful and fruitful data in nine to 12 months as an output from the initial implementation project. It is suggested that results are shared with the project board in the first instance and then more widely with the board and across services. Keeping the board up to date with the progress of the project and sharing early results enables them to see what information will be made available to them and discuss how this information may be used in the future once acceptance is reached over its quality. The timetable for results should also be clear.

SECTION 8

Ongoing development

It is important to realise that the installation of a PLIC system is not a one-off quick fix; it will be a start in the improvement and development of meaningful information to be used by clinicians and management in achieving the organisation's strategic, clinical and financial goals. For this reason, it is essential the ongoing development and improvement of the system is managed in the same way as the implementation – with a challenging but achievable project plan, status reports and board reviews.

Improvements may include upgrading or adding feeder systems, refining acuity allocations or enhancing cost allocation statistics. If an organisation fails to recognise this phase, it is likely the benefits attainable through the full potential of clinical costing will be reduced. The MAQS template provides useful information on where improvements in costing may be made. It also has the facility for organisations to input a target MAQS and see where resources could best be targeted to obtain the MAQ score.

It is recommended a data quality group is set up to oversee the development and provide a critical review of the system. This should include senior clinical staff and representatives from clinical coding, costing, information services and ICT. This group should report to the main PLICS board regularly to escalate data quality issues that will affect the quality of the costing output produced. It should be responsible for:

- Investigating the matching results of the data and focusing resources on specific areas for improvement where poor matching results are highlighted.
- Challenging existing data feeds and suggesting improvements. For example, ensuring time stamps are recorded on all date fields, rather than just DD/MM/YYY
- Using the MAQS tool to understand where current data feeds could be improved to give better allocation of costs – for example, introduction of nursing acuity for ward pay costs or capturing new data feeds to improve the allocation of a particular service
- Ensuring the development of the system supports the project board delivery plan and raising any risks to this with the project board
- Ensuring the system is compliant with the latest clinical costing standards

SECTION 9

Integration of PLICS

The implementation of PLICS should be seen as an organisational wide project, led by a project board. But as the system matures over one to three years, the aim should be to integrate PLICS fully within the trust. PLICS should be a key information source feeding into a range of operational and strategic activities.

The project team should consider how the structure of the costing team may need to change to support the ongoing update and development process, as well as how the integration of the costing outputs in the organisation can be supported. Consideration should be given to integrating PLICS into several areas:

Financial reporting

- Updates regularly reported at board level
- Information used as part of regular management meetings between the finance team and services
- Used to identify where efficiencies may be made
- Used to reset budgets
- Discussions with commissioners regarding price setting where prices are agreed locally

Performance management

- Regular performance reviews with services
- Development of business cases
- Performance demonstrated by PLICS may be used an indication of investment/disinvestment in a service

National reporting

- Production of the annual reference cost return
- Production of Monitor's voluntary PLICS data collection
- Production of programme budgeting
- Breakdown of HRG costs could be used to support national casemix development

Linking costs to outcomes

- Linking costs to outcomes as information becomes available
- Blending PLICS with other financial and non-financial data to obtain a fuller picture of service delivery.

SECTION 10

Conclusions

Our top 10 tips for a successful PLICS implementation are as follows:

- At the outset, explain the need for change and the consequent benefits of PLICS
- Gain commitment across the whole organisation
- Ensure that there is a robust and realistic project plan
- Identify and address any data quality issues at the earliest possible stage
- Ensure the project is adequately staffed and resourced at all stages
- Develop and resource the training/organisational development plan
- Be realistic about the timescale for achieving benefits
- Ensure that expectations are managed by regular communications
- Share information as soon as possible even if it isn't perfect in order to improve it further
- Don't forget - clinical costing is an iterative process that will require ongoing development

APPENDIX A

Questions for suppliers

Below are some sample questions. These questions are intended for use in the evaluation of different products and suppliers, and also for use in discussions with suppliers as part of the procurement of a patient-level information and costing system (PLICS).

A: TECHNICAL

a. What is the core database used within the system?

b. At what level is data stored in your system – for example, at the patient, department or service level?

c.
- Is full access provided to the resulting databases for the organisation or only the reporting information? If full access is not provided, what level of access is?
- Can you demonstrate the ease with which system interfaces are created?
- Are there any limitations in the use of your system – for example, the size of the data files that can be integrated?
- What are the server and other IT requirements to operate your system?
- What data quality checks and controls does your system include to monitor and analyse the quality of data being input into the system. For example, will new account codes, or drug names be notified?
- Are users required to learn a new programming language to make changes in how the data warehouse operates, such as the data linkage scripts, or make changes to the rules set up in the costing model? If so, what programming language is this?
- Will users be required to 'bolt on' an additional query tool in order to fully integrate and manipulate the data?
- Once the system is fully integrated, who will own the system? Will it reside on the organisation's servers or will it be reside with the supplier?

B: ABILITY TO ENGAGE CLINICIANS AND OBTAIN CLINICAL OWNERSHIP

1. Method

What will you bring/do to assist us in obtaining clinical ownership?

Can your system automatically run daily or weekly updates of patient-level data in order to support more timely clinical-level information?

2. Tracking resources to patients

a. Explain the ability of your system to accept and report input information at the levels described below, as well as at greater levels of granularity such as nurse time/cost within ward by patient by day. Relevant variables include:
- Wards
- Pathology
- Imaging

- Pharmacy services and drugs
- Therapies
- Critical care
- Operating theatres
- Special procedure suites
- Other diagnostics
- Emergency department
- Outpatients

b. Explain how you would help us deal with different levels of patient acuity.

c. Explain how you would help us cope with inadequate/non-existent data feeds.

d. Is your system capable of reporting both cost and resource consumption on a daily basis? Resource data means, for example, the drug name, ward name, consultant name or code.

e. Is your system capable of reporting on the individual diagnoses and procedures associated with a patient?

3. Comparability

a. Can your systems produce reports on costs at the following levels:
- by patient/specialty
- by procedure
- by types of procedure
- by age or other demographic

b. What patient-level reports have you actually provided to clinicians working in acute hospitals?

C: COSTING STANDARDS

a.
- Can your system meet the reporting standards as categorised in the *Acute health clinical costing standards*, published by the HFMA?
- What is your ability to reconcile back to general ledger?
- Is your system able to modify the general ledger so that it better supports patient costing activities and enables the clinical costing standards to be met – for example, by offsetting revenue, moving values from one cost centre to another, creating dummy cost centres and account codes?
- What/how complex or fixed – for example, hardwired – are any definitions or algorithms underpinning your costing methodology?
- Are you able to construct and resolve simultaneous equations in the allocation of costs where departments both distribute charges to and receive charges from another department? If not what do you do?
- Do you or can you attribute overheads and indirect costs to intermediate levels – such as ward costs or therapy sessions – before allocation to patients? Do you have the flexibility to then, if required, disintegrate and report these overheads separately by cost pool group in a patient's final cost bill – for example, ward costs (direct) and ward costs (direct/overhead)?
- Does your system allow users to easily review the indirect and overhead costs allocated to individual patients?
- Is there a limit to the number of cost components, cost weights and so on that can be defined as part of the costing process? Are you restricted in what you call them?
- Can you allocate direct costs to several different cost pool groups? For example, nursing

to outpatients and wards? Can this be done directly from individual account codes in the ledger or does information have to be 're-assembled'?

- How flexible is your system in using differing allocation methodologies for the same expense types within a setting such as a hospital? Some administration costs may be indirect in some circumstances but an overhead in others.
- If updating the patient-level data more frequently than monthly, can your system use previously calculated costs to estimate the costs of recent patients, or do you need to wait until the general ledger is closed and then the costing process is carried out again?
- How do you handle work in progress between years and between reporting periods?

D: WILL YOUR SYSTEM BE ABLE TO ADEQUATELY INFORM THE TARIFF?

- Are you able to group patients by HRG?
- Are you able to produce a report of the cost of individual patients, by cost pool group by HRG?
- Is your system able to cost and attribute care packages to individual patients?
- Does your system support the production of the annual reference cost return?
- Does your system support the production of the annual programme budgeting return?
- Was your system used by clients to submit PLICS data to Monitor as part of the 2013 pilot PLICS data collection exercise?

E: EASE OF USE

- How easy it is to write reports in your system? What skills are required? Is there a need for an external system report writer or specialist IT programmer knowledge?
- Can you demonstrate the ease at which knowledge of the system can be transferred and users can become self-sufficient in operating the system?
- Are the reporting and analysis standards within the system suitable for all levels and job specifications within the organisation – for example, business analysts, high-level managers, clinical consultants?

F: EXPERIENCE

a.
- How long has your product been on the market?
- What is the PLICS experience of the staff that you have in England for implementation in acute organisations?
- How many healthcare organisations have implemented your system in and in what countries? If applicable, what extra value can you bring to this organisation as a result of your overseas experience?
- What demonstrable experience do you have in talking to clinicians and managers and securing engagement in this PLICS implementation?
- How will you help us access the necessary granular information within our organisation to deliver a successful business solution?
- How many (i) acute and (ii) other organisations have implemented your full PLIC system in England – that is, costing to the patient at a granular level and subsequent reporting? Do not include sites where you have not supplied the costing engine as part of the solution. Provide references of all sites to allow independent verification by random sample

- How many staff do you have with NHS knowledge?
- How long will it take to properly implement your system? What will be the key steps and which will you do and which will we need to do?

G: COMMITMENT TO MARKET/RESOURCES/CAPACITY

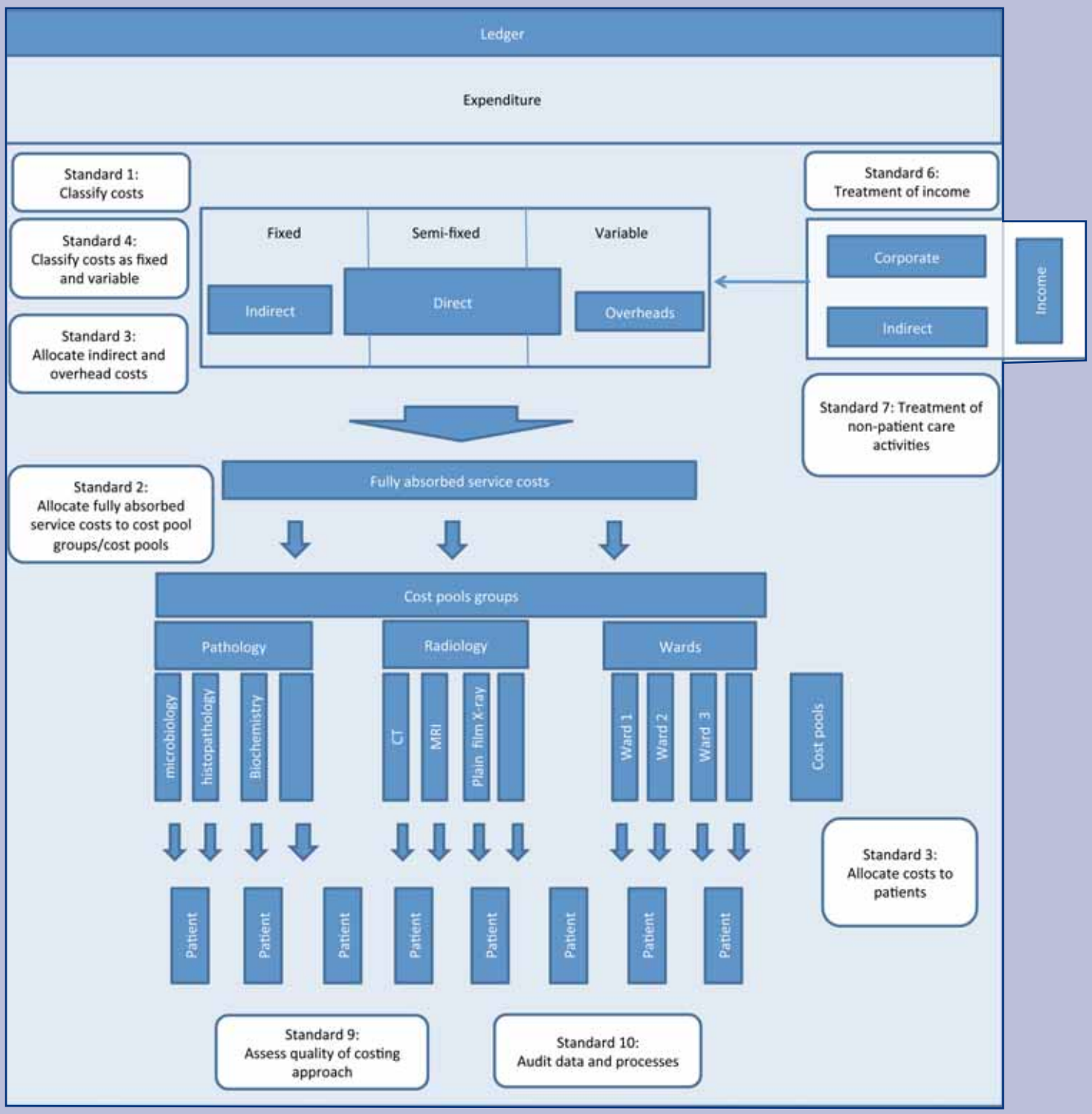
- What resources do you intend to commit to this market?
- What are the ongoing system support capabilities of your company?
- What are your ongoing training/knowledge transfer capabilities?

H: GENERAL

- How can we assess your financial stability?
- How much is your solution likely to cost and what are the main variables?
- How much do you anticipate the annual support/maintenance cost to be?
- Why should we choose you?
- How would we access your support/helpdesk if we were to experience a problem with the system?

APPENDIX B

Summary of the clinical costing process



The first step in the costing process is to determine the costs in the general ledger that are directly driven by patient care (doctors' time, administered drugs and prostheses, for instance) and those that are more loosely tied to patient activity. This means all cost centres in the ledger are assigned to either a direct, indirect or overhead costs category (Standard 1).

However some adjustments are needed. For example, many NHS organisations receive separate funding for clinical training and education. The costs incurred in delivering this training are not related to the treatment of patients. So to produce accurate costs for the treatment of individual patients, these costs – both the direct costs of time spent training and

a proportion of indirect/ overhead costs – need to be stripped out (Standard 7). Similarly, costs may have been incurred delivering a corporate service for an external organisation. For instance, the trust may be paid to deliver payroll or other financial services for a neighbouring trust. It would not be appropriate for the costs of delivering this 'additional' service to be allocated to patients. To prevent this, these costs need to be stripped out of the overall costs of the payroll or finance department. In some circumstances, an approximation of this can be achieved by subtracting (or netting off) the income received from the overall service delivery costs (Standard 6).

Once these adjustments have been made, the remaining indirect and overhead costs need to be allocated or apportioned to the direct cost centres (Standard 3, C1) to produce fully absorbed service costs.

Some organisations may also find value in classifying costs into variable (those that flex with patient numbers) and fixed (those that remain fixed regardless of the number of patients treated). Further guidance is planned for standard 4 in future updates.

The direct cost centres are then assigned to a cost pool group (Standard 2). This provides a more logical and useful breakdown of costs for analysis and benchmarking purposes. While many cost centres have the same name as a related cost pool group (for example, 'critical care') there are key differences. For example, medical staffing costs within the critical care department might appear under the critical care direct cost centre, but all medical staff costs from all direct cost medical staffing cost pool group. Likewise drugs stocked on a ward might appear in a ward direct cost centre, but all drug costs (including administered drugs and those stocked on ward) should be separately identified within a 'drug costs' cost pool group.

In each cost pool group, costs may also be separately identified within individual cost pools. So, 'wards' may be a cost pool group identifying costs across all wards but organisations may wish to identify the costs of each ward as a separate cost pool in that group.

Costs within these cost pools are then allocated down to patients (Standard 3, C2 and C3). Different allocation methods will be used depending on the nature of the costs being allocated. For instance, within a ward cost pool, nursing staff costs could be allocated on the basis of time spent on ward, with an adjustment for acuity (more intensive care, either involving more nurses' time or a more senior or specialist nurse). The HFMA has produced a paper on nursing dependency to provide more information for costing professionals. But consumables used on a ward could be allocated on the basis of the actual consumables used for each specific patient and other non-pay costs could be assigned on the basis of time on ward with no adjustment for acuity. Recognising the different cost drivers – rather than assigning all ward costs, say, on the same basis – will produce more accurate patient specific costs. This 'accuracy' or quality of the costing information can be measured by calculating a Materiality and Quality Score or MAQS (Standard 9).

Adjustments may also be needed to take account of work in progress. While costs start to be incurred as soon as a patient enters a hospital or clinic, income will only become due once that patient is discharged. Different approaches can be adopted to avoid these 'work in progress' costs being assigned to the wrong patients. Standard 5 provides further information on costing work in progress.

While the costing process is important in ensuring robust patient level costs, the overall results will only be as good as the core data used in the process. This ranges from the simple accuracy of assigning the right clinical codes to patient episodes and the correct entry of the patient information through to the accurate linking of patient resources to patient records.

Accurate costing is as much dependent on colleagues in IT, information and clinical coding as it is on costing accountants (standard 8). Audit also plays an important part in assuring and developing data accuracy and the robustness of the costing process (Standard 10).

APPENDIX C

HFMA ACUTE COSTING PRACTITIONER GROUP

Work to update the 2014/15 version of the *Acute clinical costing standards* and this *Clinical costing implementation guide* has been led by Helen Strain, HFMA costing lead. It has been informed by a survey of practitioners in NHS organisations and has involved considerable debate and discussion with the Acute Costing Practitioner Group. The HFMA would like to thank all of those individuals and their teams who have been involved in the acute costing practitioner group, and relevant subgroups. This group includes:

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