Monitor

Independent Regulator
of NHS Foundation Trusts

3 Guide to developing reliable financial data for service-line reporting:

defining structures and establishing profitability

NEXT

Contents

Introduction

About service-line management

Service-line management (SLM) is a combination of trusted management and business planning techniques that can improve the way healthcare is delivered. It was developed by Monitor for NHS foundation trusts, drawing on evidence from UK pilot sites and the experience of healthcare providers worldwide.

By identifying specialist areas and managing them as distinct operational units, SLM enables NHS foundation trusts to understand their performance and organise their services in a way which benefits patients and makes trusts more efficient. It also enables clinicians to take the lead on service development and drive improvements in patient care.

SLM provides the tools to help trusts identify and structure service-lines within their organisation, ensuring clear paths for decision making and accountability. It also builds a framework within which clinicians and managers can plan service activities, set objectives and targets, monitor their service's financial and operational activity and manage performance.

SLM relies on the production of timely, relevant information about each service-line, to enable analysis of the relationship between activity and expenditure for each service-line as well as showing how each service-line contributes to the overall performance of the trust. It also encourages ownership of budgets and performance at service-line level.

The first step to achieving the necessary level of detail is the move to service-line reporting (SLR), which focuses on ensuring that financial data is collected and used effectively by service-line.

About this guide

This guide is the third in a series of documents produced by Monitor to help NHS foundation trusts move towards service-line reporting (SLR) and service-line management (SLM). Trusts are advised to work through this guide before moving on to *Working towards service-line management: a toolkit for presenting operational service-line data*.

It describes a process of seven steps towards implementation of SLR, describing for each step:

- why the step is important (unless this is obvious);
- the sub-steps that need to be covered at each stage
- the IT and training requirements for each sub-step; and
- the timeline and resource requirements for implementation.

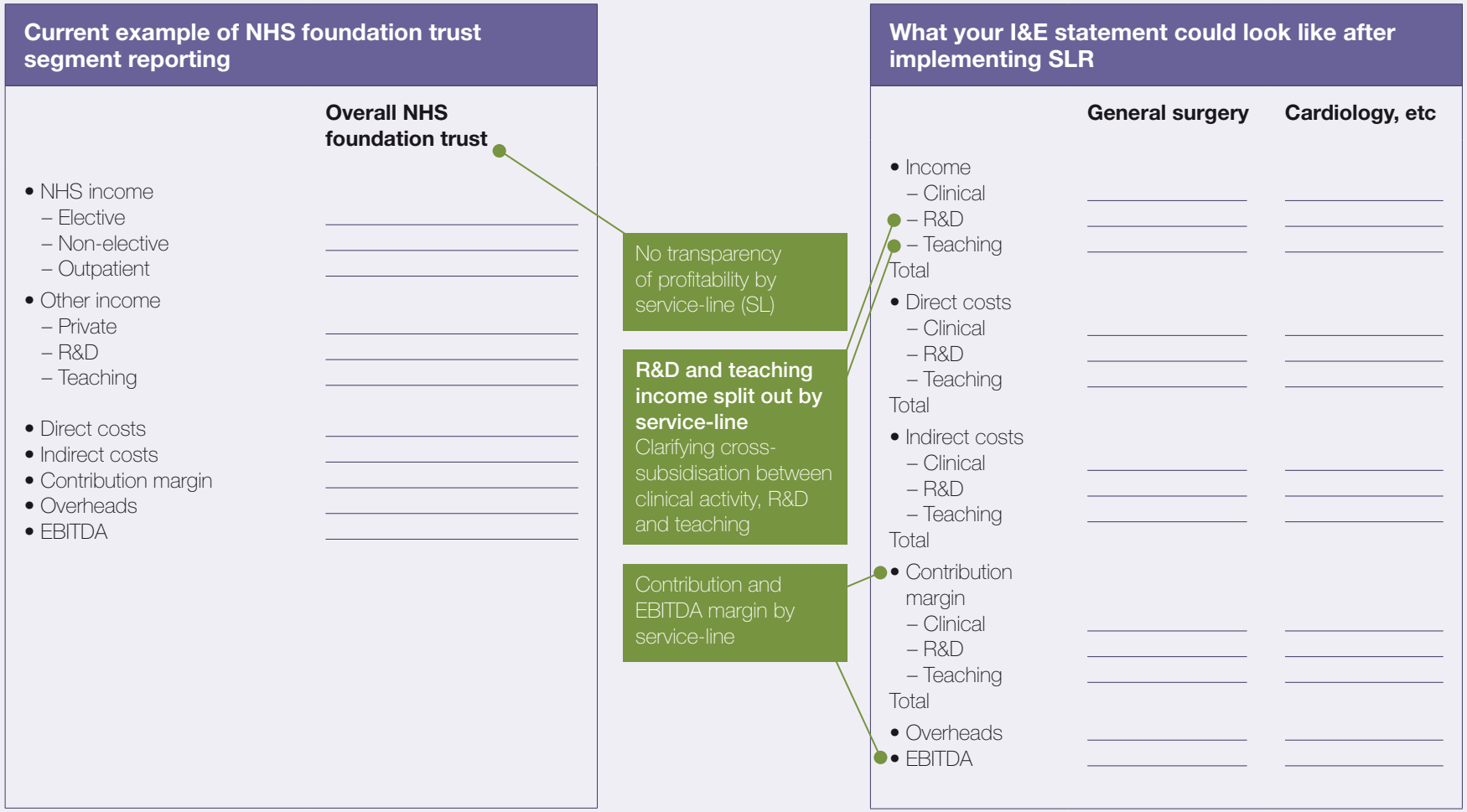
It also describes how trusts can overcome some of the obstacles that may arise when introducing SLR, and includes an example work plan for implementation.

What this guide will and won't do

What the guide sets out to do…	…and what it does not intend to do
…describe a process that NHS foundation trusts can use or adapt to increase their understanding of their service-lines' contribution to overall profitability	provide a must-do list of steps that all NHS foundation trusts need to complete in exactly the way suggested
…focus on the areas of cost and income allocation that are novel to most NHS foundation trusts and not covered by existing NHS guidance	provide detailed advice on areas already covered by NHS guidance, e.g. allocation of PbR costs, reference costing
…describe the critical components required for the majority of NHS foundation trusts to develop SLR suited to their organisational structure	address issues unique to particular NHS foundation trusts or help create standardised report to support benchmarking among NHS foundation trusts

More about SLR and the implementation process

SLR: making the profitability of each service-line more transparent



Source: Pilot interviews

Three principles to ensure useful SLR

1 All costs and revenues (including R&D/ teaching) must be allocated by service-line (to contribution margin/EBITDA level)

2 The service-lines should be clinically and organisationally discrete, and material in terms of income

3 All costs should be allocated using the principles of the NHS costing manual

Using these three principles, NHS foundation trusts will need to develop their own process for implementing SLR; this document sets out one such process, based on best practices in the UK and overseas

Seven key steps for implementation

Insights from best practices in the UK and overseas…

A dedicated project team from three UK pilot NHS foundation trusts and Monitor

- Interviewed more than 20 key people from best practice NHS foundation trusts:
  - Medical directors and clinical leads
  - finance directors and managers
  - general managers
  - IT managers
- Interviewed international best practice hospitals* in:
  - Germany
  - Norway
  - New Zealand
  - United States

*Summaries of international case studies can be made available upon request

…have been distilled into seven key steps for implementing SLR

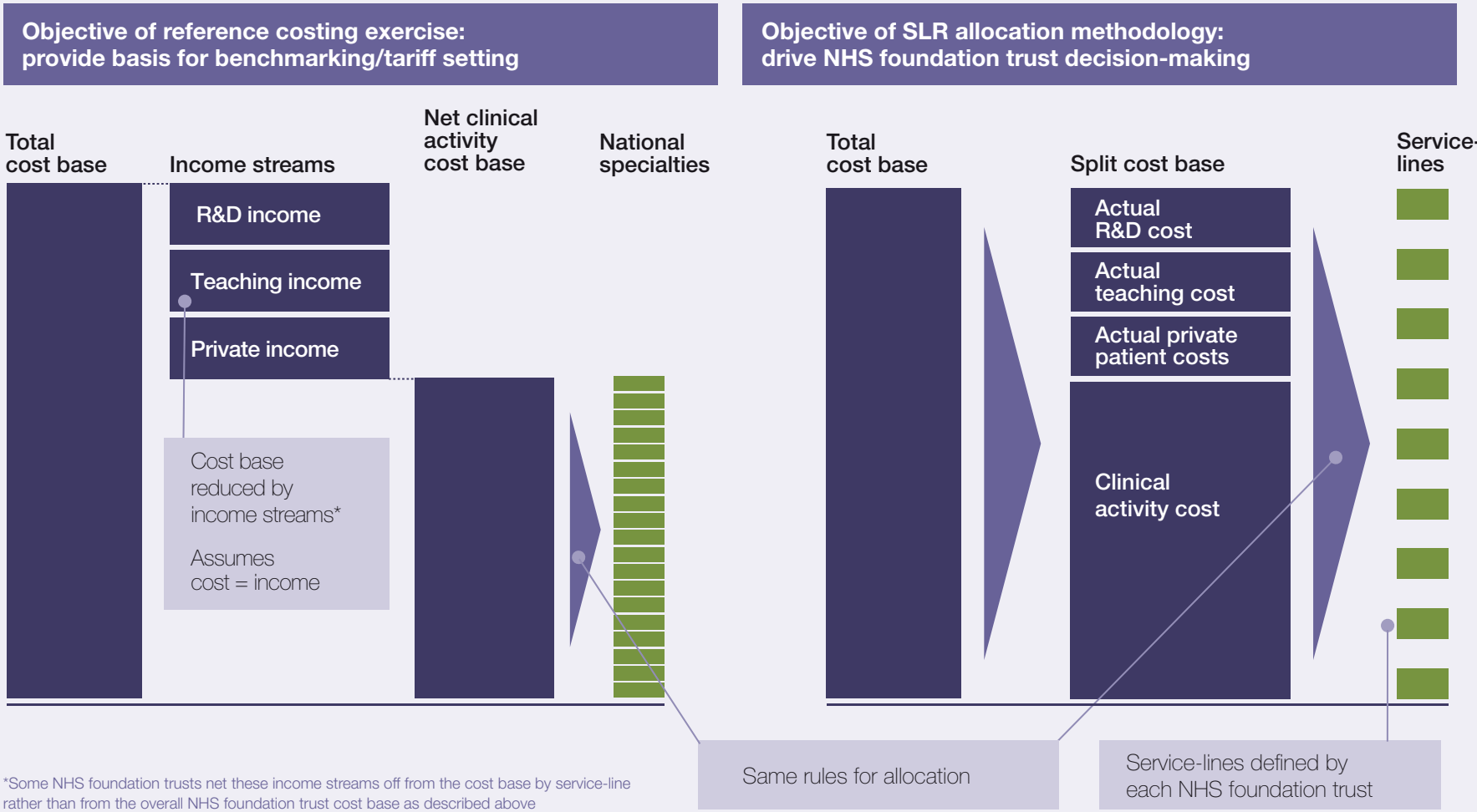
1. Ensure continuous involvement of all key stakeholders
2. Define service-lines, profitability measures and reporting frequency
3. Ensure sufficient quality of coding and data collection
4. Allocate R&D income and cost to service-lines
5. Allocate teaching income and cost to service-lines
6. Allocate activity-related NHS income and cost to service-lines
7. Allocate income and cost for non-NHS related activity to service-lines

The importance of each step

Step	Key objectives	Why the step is important
1 Ensure continuous involvement of all key stakeholders	• Identify key stakeholders and establish processes to ensure their continuous involvement	• Builds support for the process and helps to ensure implementation
2 Define service-lines, profitability measures and reporting frequency	• Create consensus on definitions to facilitate decision making on the basis of the results	• Facilitates communication of results, secures accountability and enables link to incentives
3 Ensure sufficient quality of coding and data collection	• Identify priority areas for improvement and set up processes for continuous tracking of improvements	• Helps ensure robustness of results and credibility among all stakeholders
4 Allocate R&D income and cost to service-lines	• Separate R&D income and costs from clinical activity	• Increases transparency of true contribution from clinical activity without cross-subsidisation from R&D
5 Allocate teaching income and cost to service-lines	• Separate teaching income and cost from clinical activity	• Increases transparency of true contribution from clinical activity without cross-subsidisation from teaching
6 Allocate activity-related NHS income and cost to service-lines	• Fair allocation of income when multiple service-lines are involved in one spell	• Helps ensure robustness of results and credibility among all stakeholders
7 Allocate income and cost for non-NHS activity to service-lines	• Allocation of private income among service-lines OR separation of private income into a separate service-line	• Clearly separate NHS and non-NHS income to avoid cross-subsidisation

SLR compared to reference costing exercise

SLR has different objectives to a reference costing exercise



*Some NHS foundation trusts net these income streams off from the cost base by service-line rather than from the overall NHS foundation trust cost base as described above

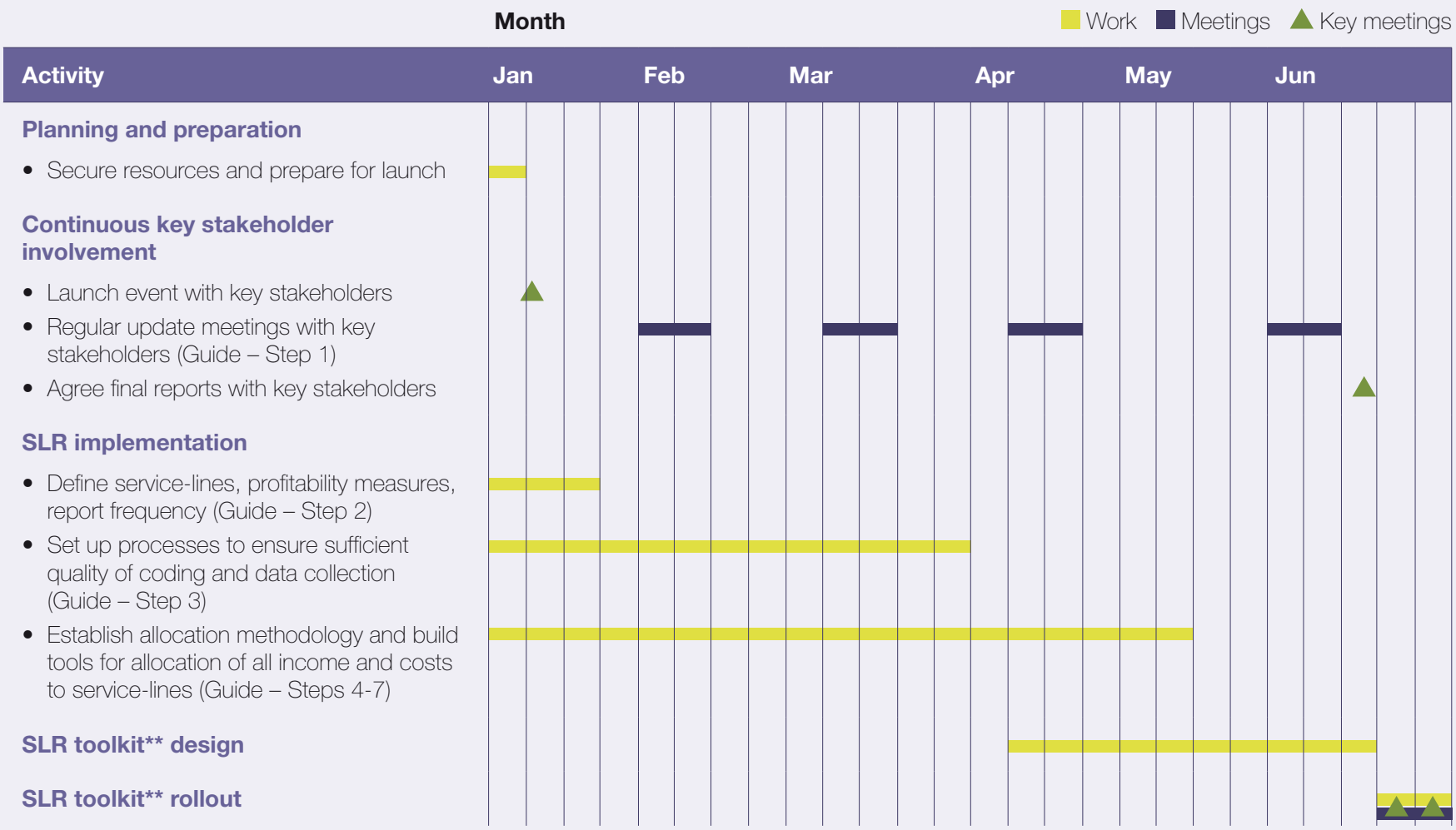
Source: Pilot interviews

Patient-level/clinical costing systems (CCS)

Patient-level/clinical costing systems are not required for SLR, but will simplify implementation

Timescale for implementing SLR

Developing reliable financial and operational data is estimated to take around six months*



*Developing reliable financial data for SLR takes three to six months, depending on the NHS foundation trust's starting point, and development of SLR operational data takes two to three months. **For details about the "SLR toolkit" please refer to the separate document, Service-line management: a toolkit for presenting operational service-line data. Source: International best practice case studies; UK pilot discussions

Resources for implementing SLR

Developing reliable financial data for SLR takes three to six months with one full time resource and full commitment from top management and stakeholders

	Estimated time to establish processes to support reliable financial data for SLR (FTE days)*,**	Estimated resources required annually to maintain reliable financial data for SLR process (FTE)*,**
1 Ensure continuous involvement of all key stakeholders	10 – 20	~0.1
2 Define service-lines, profitability measures and reporting frequency	0 – 10	<0.1
3 Ensure sufficient quality of coding and data collection	20 – 30	0.1 – 0.2
4 Allocate R&D income and cost to service-lines	20 – 40	0.2 – 0.3
5 Allocate teaching income and cost to service-lines	20 – 30	0.1 – 0.2
6 Allocate NHS income and cost to service-lines	10 – 20	0.2 – 0.3
7 Allocate income and cost for non-NHS related activity to service-lines	10 – 20	0.2 – 0.3
	90 – 170	**1.0 – 1.5**

*Includes only time required for dedicated core project team, not time for data gathering/verification by key stakeholders outside the core team. Indicated resource requirements are incremental to what is needed to maintain all current processes (reference costing, etc.)

**Key assumptions on which the above implementation timeline is based:
1) Full top management and key stakeholder commitment to support data collection and verification needs (to be secured as part of Step 1)
2) NHS foundation trust does not have a clinical costing system – if this is available, resource requirements are significantly less

Source: International case studies; UK pilot discussions; CCS vendors

The seven steps towards implementing SLR:

Step 1: Ensuring the continuous involvement of all key stakeholders

Step 1

Ensuring the continuous involvement of all key stakeholders

		What to do	IT and training requirements
1.1	Ensure top management involvement	• Ensure top management is committed to SLR implementation and communicates this to the whole organisation	
1.2	Identify all other key stakeholders	• Key stakeholders typically include; – medical directors and clinical leads – finance directors and managers – general managers	
1.3	Discuss method of involvement and requirements with each stakeholder	• Agree how to make sure all stakeholders are engaged in service-line based; – strategy setting – budgeting – operational management and follow up • Agree on requirements for teaching and continuous performance information needs	• Training for all relevant people to understand key financial concepts as required
1.4	Build consensus around process to ensure continuous involvement	• Make sure all stakeholders agree on process for ensuring involvement • Document agreed process	
1.5	Assign responsibility for follow-up meetings and agenda setting to ensure continuous involvement	• Agree on one person to have overall responsibility for ensuring all stakeholders are trained and kept informed as required; – invite to regular follow-up meetings – set agenda for follow-up meetings – document results and next steps from each meeting	

Source: International best practices; UK pilot discussions

The seven steps towards implementing SLR:

Step 2: Defining service-lines, profitability measures and reporting frequency

Step 2

Defining service-lines, profitability measures and reporting frequency

What to do

2.1 Define a set of service-lines which are clinically different, material in size, and aligned with organisational structure

- Define service-lines using key criteria;
  - generates a material income
  - clinically different from other areas
  - aligned with organisational structure – e.g. one director/manager with overall responsibility for the service-line
- Decide whether R&D and teaching should be separate service-lines, or included as a part of each service-line
  - If included as a part of each service-line, income and costs need to be split between R&D, income and teaching for each cost type
- Decide whether to make private patients a separate service-line, or linked within each of the other service-lines
- Include as separate service-lines, if relevant, the radiology and pathology work that generates its own income streams – e.g. through direct access

2.2 Define measures of profitability to use internally and externally

- NHS foundation trusts may find useful both EBITDA (which may be required for external reporting) and contribution margin (including only direct and indirect costs, without overhead allocations), focusing on costs that the service-lines can control. See further discussion on page 20.

2.3 Decide on frequency of service-line reporting

- Identify which processes and systems should be handled monthly and which should be handled only quarterly. Key considerations:
  - Time for reconciliation of activity (the faster income is known, the more useful monthly service-line profitability reporting is)
  - Frequency of stock counts (e.g. for medical consumables)

Source: International best practices; UK pilot discussions

Step 2.1

Defining measures of profitability to suit your information requirements

Option A – contribution margin includes service-line facilities

Income

Cost

- Direct cost
  - Pay
  - Non-pay
- Indirect cost
  - Pathology
  - Radiology
  - Nuclear medicine
  - Etc.
- Facilities – related to specific service-lines

Contribution margin

Overhead cost

- Facilities – not related to specific service-lines (e.g. HQ)
- Top management
- Etc.

EBITDA

Advantage: Contribution margin captures all costs in service-line's control

- Drives right behaviours, e.g. economising on space utilisation

Option B – contribution does not include facilities costs

Income

Cost

- Direct cost
  - Pay
  - Non-pay
- Indirect cost
  - Pathology
  - Radiology
  - Nuclear medicine
  - Etc.

Contribution margin

Overhead cost

- All facilities
- Top management
- Etc.

EBITDA

Advantage: Avoids contentious issue of facilities cost allocation to distract from the overall message and impact of SLR in organisation

Option B may be best to facilitate short-term implementation, but to support the right behaviour, Option A is likely the best long-term option

Source: International best practices; UK pilot discussions

The seven steps towards implementing SLR:

Step 3: Ensuring sufficient quality of coding and data collection

Step 3

Ensuring sufficient quality of coding data

		What to do	IT and training requirements
3.1	Prioritise most important data quality areas	• Agree which input data will have an impact on service-line profit estimates (see next page for examples of key measures) • Agree required accuracy level for credible service-line estimates – Not all data need to be 100% accurate – important to decide when 80% accuracy is sufficient	–
3.2	Diagnose status of the prioritised data quality areas	• Collaborate with information providers to understand the current status of input data quality/accuracy	–
3.3	Agree action plan for areas with insufficient quality of coding and data collection	• Identify target vs. current state quality/accuracy level • Outline action plan and timeline by data source to reach the required level in quality of coding and data collection	–
3.4	Provide required training	• Teaching for all relevant staff in relevant coding and data collection areas – Include the rationale for why they are important	• Training for employees involved in the relevant coding and data collection areas
3.5	Create follow-up system and process to track quality of coding and data collection	• Review progress in improving input data quality monthly • Put together system-generated or manually-generated reports as required to get clarity on data quality	• Set up relevant system reports (e.g. tracking of uncoded episodes)

Source: International best practices; UK pilot discussions

Step 3.1

Typical key coding and data collection areas

	Key information input	Where information is used
Programmed activity system/ job plan	• Job plan detailing share of consultants' time spent among different activities (clinical work, R&D, teaching)	• Allocation of consultant costs between clinical, R&D and teaching activities
Patient administration system	• All treatments by patient • Consultants involved • Bed days	• Estimation of activity-related income • Allocation of ward costs
Operating theatre	• Theatre minutes per patient • High-cost supplies information	• Allocation of operating theatre costs • Allocation of high-cost consumables costs
Intensive care unit (ICU)	• Bed hours per patient/HRG/service-line	• Allocation of ICU costs
Ward coding	• Bed days per patient/HRG/service-line	• Allocation of ward costs
Nursing and allied health staff	• Share of time spent on R&D vs. clinical work	• Allocation of staff costs among clinical, R&D and teaching activities
Diagnostics and other clinical support	• Relevant activity info for radiology (scans), pathology (tests), physiotherapy (conditions) • High-cost tests and scanning costs by service-line	• Allocation of radiology, pathology and physiotherapy costs • Allocation of high-cost scanning costs
Procurement	• High-cost equipment information (orthopaedic prostheses, etc.)	• Allocation of high-cost prostheses costs
Pharmacy	• High-cost drugs information	• Allocation of high-cost drugs costs

Source: International best practices; UK pilot discussions

The seven steps towards implementing SLR:

Step 4: Allocating R&D income and cost to service-lines

Why is step 4 important?

Step 4 is important to ensure fair profitability estimates between service-lines and avoid hidden cross-subsidisation within service-lines

Scenario 1: R&D income 'netted off' total cost base leading to flawed surplus figures

		Cardiology	T&O
Clinical (actual)	Income	90	95
	Cost	90	100
	Margin	0	-5
+			
R&D (actual)	Income	20	0
	Cost	10	0
	Margin	10	0
≠			
Overall (allocated)	Income	90	95
	Cost	90	90
	Margin	0	+5

10 – 10

Same of amount of income netted off from each service-line (income allocation based on share of cost)

Netting off R&D income from cost base falsely makes T&O look profitable

Scenario 2: Fair allocation of R&D income

		Cardiology	T&O
Clinical (actual)	Income	90	95
	Cost	90	100
	Margin	0	-5
+			
R&D (actual)	Income	20	0
	Cost	10	0
	Margin	10	0
=			
Overall (allocated)	Income	110	95
	Cost	100	100
	Margin	10	-5

Actual income allocated to cardiology

All income and cost should be correctly allocated to avoid distortions

- **R&D, teaching, and private income can make up 10 – 20% of a teaching hospital's income**

Source: UK pilot discussions

Step 4

Allocating R&D income and cost to service-lines

Step 4 can be broken down into four stages

		What to do	IT and training requirements
4.1	Set parameters for integration of R&D in SLR	• Make sure that as part of Step 2 consensus among key stakeholders is established on; – whether to make R&D a separate service-line or integrate R&D as a separate item (as on page 4) within each service-line – whether to make R&D income and cost part of contribution margin or part of overhead	–
4.2	Decide income and cost allocation methodology	• Identify key costs to allocate (see page 23) • Decide on level of detail in allocation by cost item – When can overall NHS foundation trust assumptions be used and when are individual service-line assumptions more appropriate? (see page 25)	–
4.3	Set up processes for collecting the required data	• Set up key processes to ensure that the relevant data for allocation of income and cost is available • Assign responsibility for each data collection process (see page 27)	• Adjustment of clinical support service request forms/systems – Training in how to enter data/importance of accurate data entry to consultants, nurses and clinical support staff • Updates to consultant job plans – Instructions to consultants and clinical directors on how to fill out/appraise new job plans (see key processes on page 27)
4.4	Iterate and refine R&D allocation over time	• For example update income allocation methodology based on R&D output measures if/when they become available	–

Source: International best practices; UK pilot discussions

Step 4.2

Identifying major R&D related income and costs

Key income and cost categories		Relevant R&D areas
Income		• NHS funding, commercial funding, charity funding
Cost	Consultants	• Consultants' time spent on R&D activity
	Other direct staff	• Other staff time spent on supporting R&D activity (includes general and specialist nursing, allied health professionals and other non-consultants)
	Drugs and supplies	• R&D patients incur an incremental amount of drugs and supplies used in wards and outpatient clinics due to more intensive care requirements
	Clinical support services (CSS)	• Use of radiology, pathology, nuclear medicine, etc. for R&D purposes
	Facilities	• R&D's use of facilities (includes space used purely for R&D and space used for R&D purposes part of the time)
	R&D management	• Staff and staff-related costs related to management and administration of R&D
	Overheads	• R&D's share of overall NHS foundation trust overheads
	Other	• Other costs that are attributable to R&D

Source: UK pilot discussions

Step 4.2
R&D income allocation

Income can be allocated in two ways. Use option A if you can link R&D projects to income, otherwise use option B

A Link specifically funded projects to service-lines

R&D Project/ programme	Project/programme specific income (£k)	Service-line*
Proj/prog 1	1,050	Cardiology
Proj/prog 2	950	Neurology
Proj/prog 3	850	HIV
Proj/prog 4	750	Cardiology
Proj/prog 5	650	Neurology
Proj/prog 6	550	HIV
Proj/prog 7	450	Cardiology
Proj/prog 8	350	Neurology
Proj/prog 9	250	HIV
Proj/prog 10	150	Cardiology
All projects	**6,000**	

Best option if project-specific funding data is available

Service-line	Allocated income
Cardiology	2,400
Neurology	1,964
HIV	1,636
Total	**6,000**

Mix of options A and B suitable if some but not all funding is linked to specific projects/ programmes

B Allocate income among service-lines based on share of budgeted cost

R&D Proj/prog	Income	Proj/ prog cost budget (£k)	Share of total cost budget = share of income allocation	Income allocated (£k)	Service-line
Proj 1		1,000	18%	1,091	Cardiol.
Proj 2		900	16%	982	Neurol.
Proj 3		800	15%	873	HIV
Proj 4		700	13%	764	Cardiol.
Proj 5		600	11%	655	Neurol.
Proj 6		500	9%	545	HIV
Proj 7		400	7%	436	Cardiol.
Proj 8		300	5%	327	Neurol.
Proj 9		200	4%	218	HIV
Proj 10		100	2%	109	Cardiol.
Total	**6,000**	**6,000**	**100%**	**6,000**	

Best option if project-specific funding data not available

- **Use budgeted costs rather than actual cost to avoid 'rewarding' budget overruns**

Service-line	Allocated income
Cardiology	2,400
Neurology	1,950
HIV	1,650
Total	**6,000**

*If several service-lines are involved in one project, then allocate among them proportionally
Source: UK pilot discussions

Step 4.2
R&D cost allocation

R&D cost can be allocated in two ways – decide for each R&D related cost category which option is the most appropriate

A Use different assumptions for R&D share of cost for different service-lines

Example: Consultant cost

Service-line	Consultant cost base (£k)	Share of consultant cost related to R&D	Consultant cost related to R&D (£k)
Cardiology	5,000	10%	500
Neurology	4,000	11%	440
Oncology	5,000	8%	400
HIV	3,000	14%	420
Paediatrics	4,000	4%	160
T&O	7,000	2%	140
General surg.	6,000	2%	120
General med.	6,000	2%	120
Total	**40,000**		**2,300**

Service-line specific assumptions

- 2 – 14% based on consultant job plans/appraisals

Use option A

- For cost types that are large in terms of R&D expenditure
- When R&D share varies greatly between service-lines
- If data available at a reasonable cost

B Assume R&D is same share of cost for all service-lines

Example: General nursing cost

Service-line	General nursing cost base (£k)	Share of gen. nursing related to R&D	Gen. nursing cost related to R&D (£k)
Cardiology	6,000		60
Neurology	4,800		48
Oncology	6,000		60
HIV	3,600		36
Paediatrics	4,800		48
T&O	8,400		84
General surg.	7,200		72
General med.	7,200		72
Total	**48,000**	**1,00%**	**480**

Same share of cost applied across all service-lines

- 1% based on interview with nursing head

Use option B

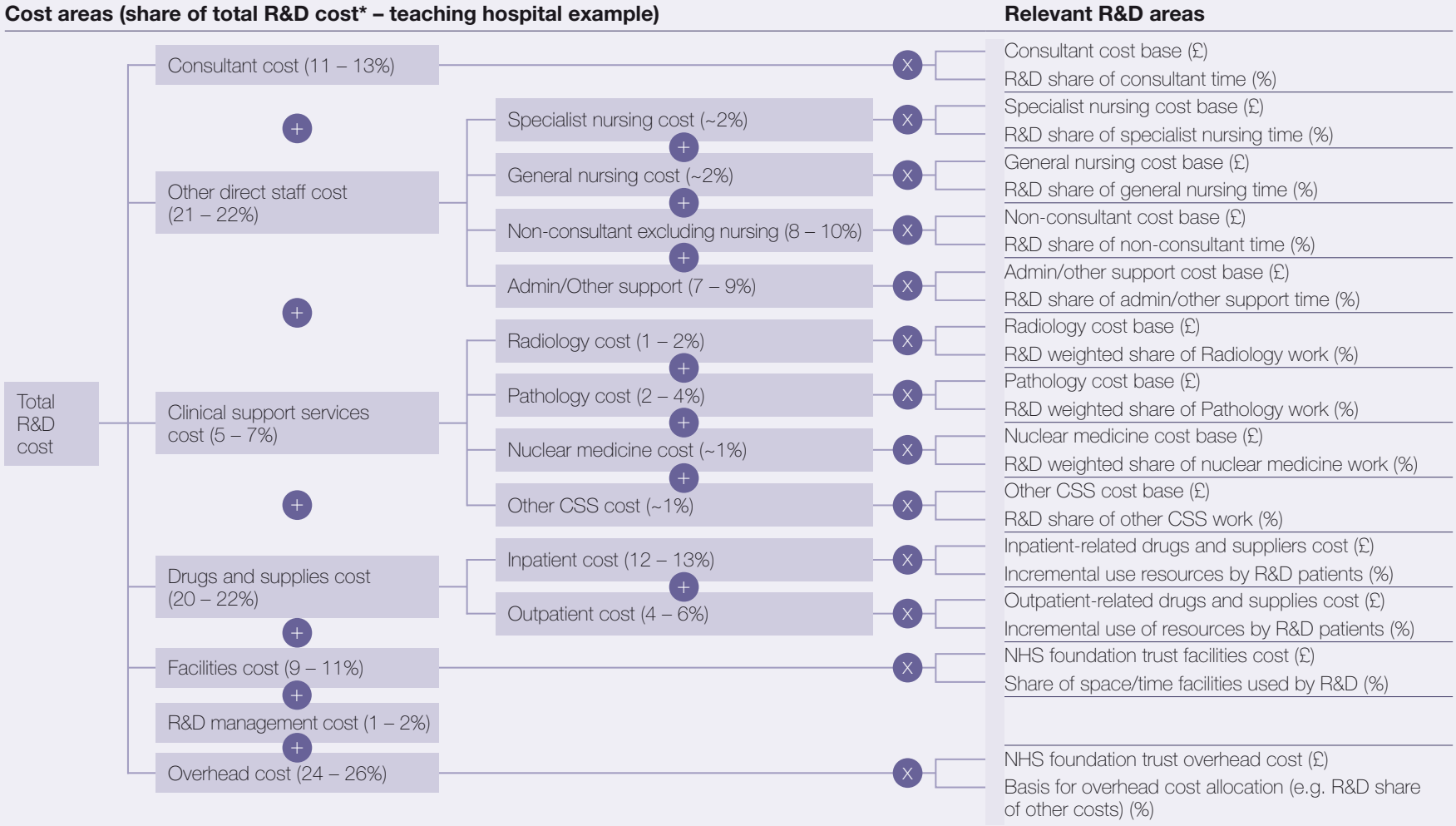
- For cost types that are small in terms of R&D expenditure
- When R&D share does not vary greatly between service-lines
- If data not available at a reasonable cost

Source: Pilot interviews; international case studies

Step 4.2

Making sure all relevant R&D costs are covered

The following is a pilot example of the costs covered



*Other costs 3 – 4% in teaching hospital trust example

Source: International case studies and UK pilots

Step 4.3

Establishing key processes to enable reporting of R&D income and cost

Key income and cost categories		Key processes/analyses to identify R&D costs	Example frequency of data collection	Pilot preferred allocation option*	Process/ analysis owners
Income		• Establish R&D project budgeting process record how commercial and new NHS funding is linked to specific projects and service-lines	Annual	B	R&D management
Cost	Consultants	• Ensure R&D share of consultants' time is captured in job plans/appraisals (see example of job plan format on page 28)	Annual	A	Clinical directors
	Other direct staff	• Assess share of nurse, AHP and other non-consultant time spent on R&D	Annual	B	Heads of relevant staff
	Drugs and supplies	• Estimate incremental amount of drugs and supplies used in wards/outpatient clinics due to R&D patients	One-off analysis	B	R&D/finance management
	Clinical support services (CSS)	• Allocate CSS (and, where relevant, weight) of activity between R&D and clinical activity	Monthly	A	CSS financial managers
	Facilities	• Integrate R&D usage as one component of facilities' planning/budgeting	Annual	B	R&D/finance management
	R&D management	• Capture all R&D management-related costs	Annual	B	R&D management
	Overheads	• Allocate pro rata based on R&D's overall share of other cost	Annual	B	R&D/finance management
	Other	Identified by cost item	Annual	B	R&D management

Finance to co-ordinate process and establish link to financial planning/ reporting

*Refers to options for income and cost allocation described on page 24 and 25

Source: International case studies and UK pilots

Step 4.3

Capturing the share of consultant time spent on R&D and teaching

The following is an example of a new job plan to capture the share of consultant time spent on activities related to R&D and teaching

Category	Classification	No. of PAs
A1*	Direct patient	6.00
A2*	Direct patient care with undergraduate students (ward rounds, outpatients only)	1.50
B	On call (predictable)	0.50
C	On call (unpredictable)	0
D	**Total direct care**	**8.00**
E1	CPD	0.50
E2	Admin	0.50
E3	R&D (writing, conferences, travel, etc.)	1.00
E4	Teaching** – Postgraduate	0.25
E5	Teaching** – Undergraduate	0.25
E6	Other	0.50
	Total	**11.0**

*Most NHS foundation trusts will likely want to cover a wider range of direct patient care activities in the job plans – e.g. report theatre time, outpatient time separately. Any such split is fine as long as the combined undergraduate teaching/patient care in ward rounds and outpatients is transparent

**Includes preparation, teaching and reviewing for teaching that is not part of A2

Capture cost of productivity loss related to combined undergraduate teaching/patient care (see Step 5)

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
AM	A1	A1	A1	E4 E5 E6	A2		
PM	A1	A1	B E2	E3	A2 E1		A1

Capture R&D costs (see Step 4)

Capture undergraduate teaching costs (see Step 5)

Source: UK pilots

Step 4.3

Capturing information about R&D costs

The following is an example of a new imaging request form to capture information about the R&D share of radiology costs.

NHS foundation trust imaging request

Patient type Please tick: ☐ NHS ☐ Private ☐ Daycase **Patient mobility** Please tick: ☐ Walking ☐ Chair ☐ Trolley ☐ Mobile ☐ Unable to stand	**Patient details** **Surname:** **(or family name)** **First name(s):** **Sex:** ☐ Male ☐ Female
Clinical details: **Allergies:**	**Date of birth:** **Consultant:** **Speciality:** **Ward:** **Examination required:** **Research study:** ☐ Yes ☐ No **Research project:**
Signature: **Doctor's name:** **Bleep number:**	**For Radiographer's use**
Date:	**LMP:** **Pregnancy check:** ☐ Yes ☐ No

Key info to capture radiology cost related to R&D

Similar forms can be used to capture R&D share of work for other clinical support services

Source: UK pilots

The seven steps towards implementing SLR:

Step 5: Allocating teaching income and cost to service-lines

Step 5

Allocating teaching income and cost to service-lines

	What to do	IT and training requirements
5.1 Set parameters for integration of teaching in SLR	• As part of Step 2, make sure that consensus among key stakeholders is established on; – whether to make teaching a separate service-line or integrate teaching as a separate item (as on page 4) within each service-line – whether to make teaching income and cost part of contribution margin or part of overhead – which areas of teaching should be separated from clinical activity (see page 32)	–
5.2 Decide on methodology for teaching income and cost allocation	• Decide level of detail in allocation by cost item – When can overall NHS foundation trust assumptions be used and when are individual service-lines appropriate? (see page 33 for relevant cost areas to cover)	–
5.3 Set up processes for collecting the required data	• Set up key processes to ensure that the relevant data for allocation of income and costs is available	• Updates to consultant job plans – Instructions to consultants and clinical directors on how to fill out/appraise new job plans

Source: International case studies and UK pilots

Step 5.1

Separating undergraduate teaching from clinical activity in reporting

	Key costs	Income
Undergraduate students	• Cost of consultants' pure teaching (does not include combined teaching/patient care) – Includes all related activities such as preparation and review of students' work • Reduced productivity of consultants while combining teaching/patient care • Central facilities' use • Programme administration • Overhead	• Service Increment For Teaching (SIFT)
Postgraduate medics	• Salary, study leave compensation • Consultant teaching time • Programme administration • Overhead	• Medical and Dental Education Levy (MADEL) • Patient care related income
Non-medical staff	• Facilities use • Consultant time • Non-medical staff time • Programme administration • Overhead	• Non-Medical Education and Training (NMET) • Patient care related income

Logical to separate undergraduate teaching from clinical activity

- Completely separate income stream (no patient care income from undergraduate students)

Separation of postgraduate – and non-medical training does not pass cost/benefit test

- High cost/difficulty
  - Postgraduate medics and non-medical staff contribute to patient care related income – very difficult to separate from overall clinical income
- Very limited benefit
  - MADEL and NMET funding based on actual placements, so income is easy to allocate to the right service-line – no risk for unfair allocation among service-lines

Source: UK pilot interviews

Step 5.2

Identifying major teaching-related income and cost

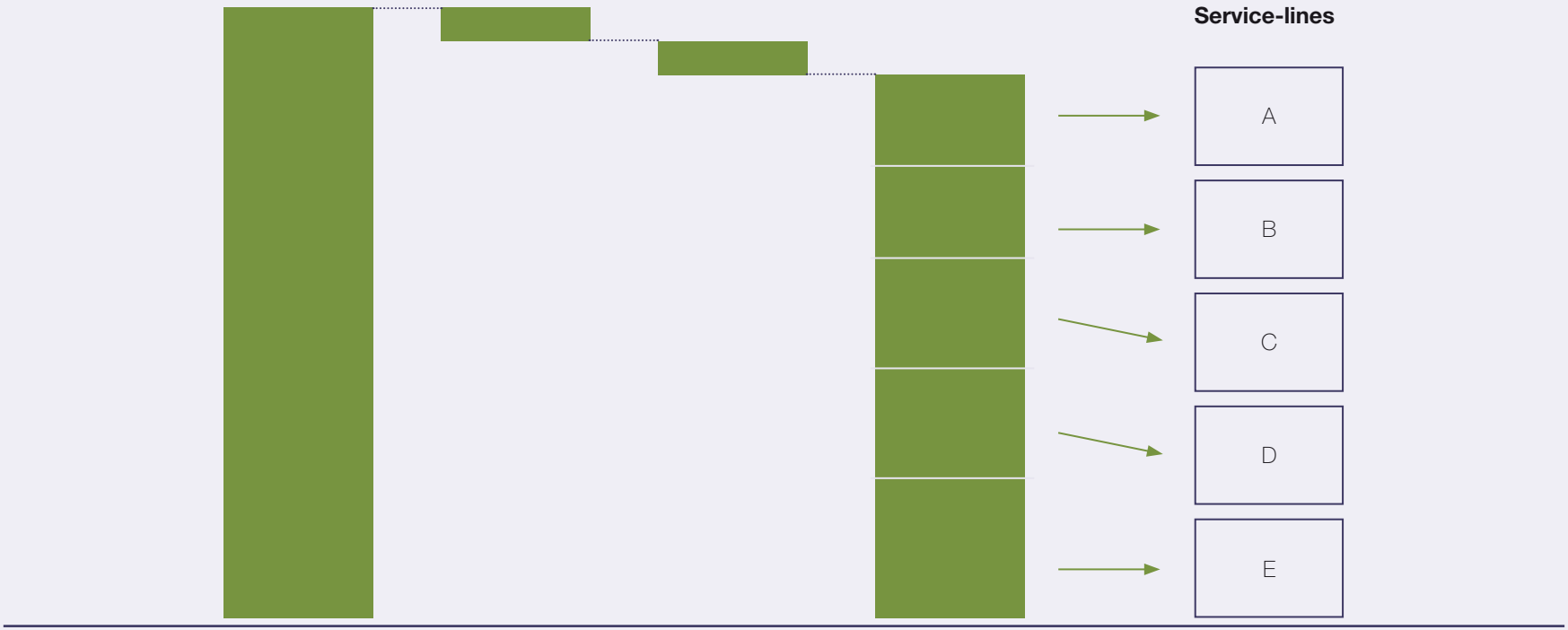
Key income and cost categories		How each category relates to teaching
Income		• Service Increment for Teaching (SIFT)
Cost	Consultants	• Cost of consultants' pure teaching of undergraduate students including all related activities – e.g. preparation and review of student work, consultants' own training to become teachers • Cost of consultants' productivity loss while combining teaching/patient care provision in wards and outpatient clinics*
	Other direct staff	–
	Drugs and supplies	–
	Clinical support services (CSS)	–
	Facilities	• Cost of facilities for administration of undergraduate teaching that do not relate to specific service-lines
	Teaching management	• Staff-related costs for administration of undergraduate teaching programmes
	Overheads	• Undergraduate teaching share of overall NHS foundation trust overheads
	Other	• Other costs that are attributable to undergraduate teaching

*Combined teaching/patient care provision in, for example, theatres, chemotherapy etc. which is not considered to reduce consultants' productivity

Source: Pilot interviews with clinicians and undergraduate teaching management

Step 5.2

Methodology for allocation of SIFT income to service-line



1. Allocate income related to space used that is not attributable to specific service-lines to 'central overhead'
   - Allocated income should just match estimated costs

2. Allocate income for teaching admin not attributable to specific service-lines to 'central overhead'
   - Allocated income should just match actual costs

3. Allocation of remaining income to be based on share of students in each service-line

Source: UK pilot interviews

Step 5.2
Approaches to allocating cost

Cost can be allocated in two ways, depending on which is the most appropriate for the trust's teaching-related cost types

A Use different assumptions for teaching share of cost for different service-lines

Example: Consultant pure teaching cost

Service-line	Consultant cost base (£k)	Share of consultant cost related to pure teaching	Consultant cost related to direct teaching (£k)
Cardiology	5,000	5%	250
Neurology	4,000	4%	160
Oncology	5,000	4%	200
HIV	3,000	3%	90
Paediatrics	4,000	5%	200
T&O	7,000	6%	420
General surg.	6,000	5%	300
General med.	6,000	6%	360
Total	**40,000**		**1,980**

Service-line specific assumptions

- 3 – 6% based on consultant job plans/appraisals

Use option A

- For cost types that are large in terms of teaching expenditure
- When teaching share varies greatly among your service-lines
- If data available at a reasonable cost

B Assume same share of cost for all service-lines

Example: Teaching programme management cost allocation

Service-line	Training costs (before programme admin and overhead allocations) (£k)	Programme admin cost	Allocated programme admin cost (£k)
Cardiology	2,800		28
Neurology	2,000		20
Oncology	2,700		27
HIV	1,600		16
Paediatrics	2,200		22
T&O	3,000		30
General surg.	2,700		27
General med.	3,000		30
Total	**20,000**	**1,00%**	**200**

Same share of cost applied across all service-lines

- Based on management cost of £200k (= 1% of total other teaching costs)

Use option B

- For cost types that are small in terms of teaching expenditure
- When teaching cost share does not vary greatly among service-lines
- If data not available at a reasonable cost

Source: UK pilot interviews

Step 5.2

Estimating the cost of consultant productivity and loss due to combined teaching/patient care using a mix of options A and B

Example: Cost of consultant productivity loss during combined teaching/patient care

Service-line	Total consultant cost (£k)		Share of time combining undergraduate teaching and patient care (%)		Cost of time consultants combine teaching/ patient care (£k)		Consultant productivity reduction during combined teaching/patient care (%)		Cost related to loss of consultant productivity (£k)
Cardiology	5,000		5%		250				63
Neurology	4,000		5%		200				50
Oncology	5,000		6%		300				75
HIV	3,000		6%		180				45
Paediatrics	4,000	X	5%	=	200	X		=	50
Trauma & Orthopaedics	7,000		6%		420				105
General surgery	6,000		5%		300				75
General medicine	6,000		4%		240				60
Total	**40,000**				**2,090**		**0.25**		**523**

Service-line specific share of time when consultants teach students while providing patient care resulting in reduced patient care productivity;

- Estimate based on % share of patient administers (PAs) in consultant's job plan (see example on page 28) OR plan for the service-line overall
- Productivity loss relevant for ward rounds and outpatient work

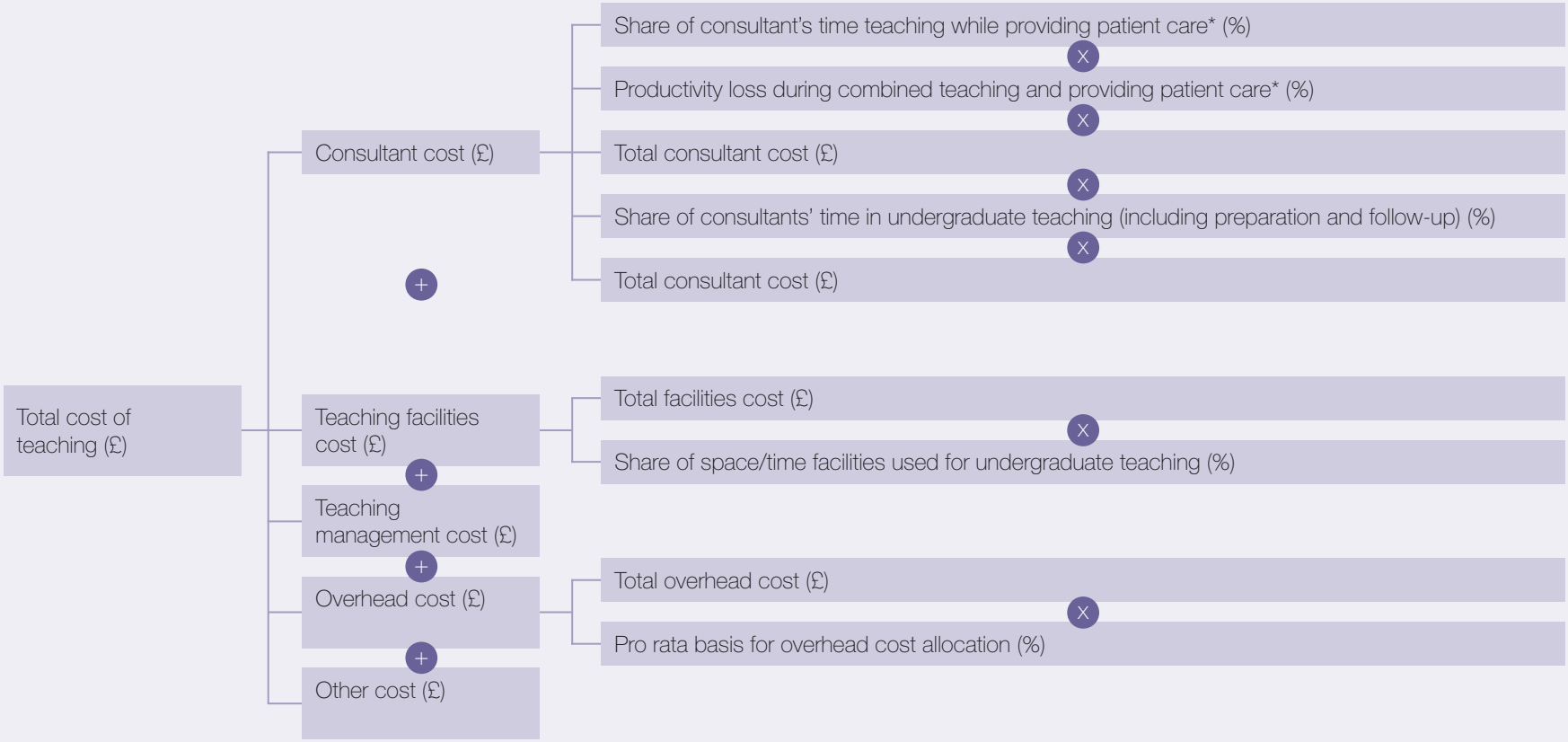
Generic assumption of how large the rate of productivity loss is during combined teaching and patient care;

- Productivity loss relevant for ward rounds and outpatient work
- Estimate of productivity loss based on sample studies with selected consultants, identifying approximate % share less patients seen per patient administers (PAs) (15 – 25% estimate among pilot trusts)

Source: UK pilot interviews

Step 5.2

An overview of allocation of incomes and cost related to teaching



*Include only activities for which combined teaching and patient care result in lower patient care productivity.
Pilot experience suggests these areas are ward rounds and outpatient work

Source: International case studies and UK pilots

Step 5.3

Establishing key processes to enable reporting of teaching income and costs

Key income and cost categories	Key processes/analyses to identify teaching costs	Example frequency of data collection	Pilot preferred allocation option*	Suggested process/ analysis owners
Income	• Estimation of central facilities costs • Analysis of share of students in each area (details on page 34)	Annual	As described on previous page	Teaching management
Cost – Consultants	• Ensure teaching share of consultant's time is captured in job plans/appraisals	Annual	A	Clinical directors
Cost – Consultants	• Estimate consultant productivity loss	One-off analysis	NA	Clinical directors
Cost – Other direct staff				
Cost – Drugs and supplies				
Cost – Clinical support service				
Cost – Facilities	• Split out from facilities' budget based on share of time/space used for teaching	Annual	A B	Teaching management
Cost – Teaching management	• Based on actual costs for programme admin	Annual	B	Teaching management
Cost – Overheads	• Allocate pro rata based on teaching's overall share of cost	Annual	B	Teaching management
Cost – Other	• Identify by cost item	Annual	B	Teaching management

Facilities related to specific service-lines

General facilities

Finance to coordinate process and establish link to financial planning/ reporting

Ensure that all data collection initiatives are coordinated with R&D-related initiatives

- Several overlapping data collection processes

*Refers to options for cost allocation described on page 35

Source: International case studies and UK pilot

The seven steps towards implementing SLR:

Step 6: Allocating activity-related NHS income and cost to service-lines – Income

Step 6

Why is Step 6 important?

Example event: A patient is admitted with a broken hip after a fall where he/she also received minor concussion

Scenario 1:
Allocating all income to the dominant Finished Consultant Episode (FCE)

All income to dominant FCE

Service-line	FCE	Income £	Income Share of total income	Actual cost £	Actual cost Share of total cost	Margin £
Trauma & orthopaedic	Primary hip replacement cemented	7,509	100%	6,000	80%	1,509
Neurology	Head injury without significant brain injury without critical care	0	0%	1,500	20%	-1,500

Scenario 2:
Allocating income among FCEs based on benchmark cost

Fair allocation of income…

Service-line	FCE	Income £	Income Share of total income	Actual cost £	Actual cost Share of total cost	Adjusted national reference cost* £	Adjusted national reference cost* Share of total cost	Margin £
Trauma & orthopaedic	Primary hip replacement cemented	6,099	81%	6,000	80%	5,759	81%	99
Neurology	Head injury without significant brain injury without critical care	1,410	19%	1,500	20%	1,331	19%	-90

…based on adjusted national reference cost*

Allocation of income among all included FCEs prevents bias towards service-lines with many dominant HRGs (e.g. trauma & orthopaedic, oncology)

Suggest using relative reference cost as basis for allocation of income*

- Adjusted for local case mix and tariff exclusions such as high-cost drugs

*See page 45 for elaboration on why national reference cost should be used as basis

Source: NHS reference costs, UK pilots

Step 6

Allocating NHS income to service-lines

	What to do	IT and training requirements
6.1 Collect key patient data	• Collect data for input list to episode HRG grouper – Patient ID, age, sex, point of delivery, diagnosis codes, procedures (operation codes), discharge method, episode ID	• May require teaching/discharge note format changes to ensure all data is captured
6.2 Generate episode healthcare resource groups (HRGs)	• Use tool that takes the patient and treatment data input file described above and generates HRGs by episode	• Use existing 'HRG grouper'
6.3 Create episode activity report	• Use output from episode HRG grouping • Separate non-Payment by Results (PbR) activity and allocate directly to service-lines (refer to list of exclusions in 2006 *Payment by Results* guidance) • Add key inputs for PbR spell grouping – Admission date, episode order, discharge date	• Modify input file to ensure software retains key information
6.4 Separate non-payment by results (PbR) activity	• Multiply by tariff and allocate directly to service-lines	• Use existing tools
6.5 Identify and add up non-HRG activity reimbursements	• Identify and add up non-HRG activity reimbursements – Outpatients – A&E – Critical care	• Use existing tools

Source: UK pilots

Step 6

Allocating NHS income to service-lines (continued)

		What to do	IT and training requirements
6.6	Simplify activity information to spell level	• Apply tool that groups all FCEs within a single spell, identifying dominant and non-dominant FCEs • Key info needed to be retained – Non-/Dominant/HRG, LoS* (non-elective short stay reduction applicability), outlier days, special service codes/FCE, service-line/FCE, spell unique ID/FCE	• Use existing 'Episode to spell converter' • Create add-on that retains the key information required
6.7	Create base tariff apportionment basis	• Apportion cost based on national reference costs for each of the HRGs involved – Reference cost should be adjusted locally to capture biases in case mix within an HRG, or tariff exclusions such as high-cost drugs	• Create a tool that looks up national reference costs for all FCEs and applies local adjustments – Tariff exclusions – Adjustment for local case mix • Tool needs to be updated as tariffs change or local adjustments agreed
6.8	Calculate base tariff	• Apply tool that looks up base tariff for the dominant HRG and discounts non-elective short-stay reductions from the base tariff (based on PbR spell length of stay)	• The following should all be integrated into one tool that supports the whole process of allocating income – Needs to be developed locally
6.9	Apportion base tariff among FCEs ▶ Income type 1**	• Apply tool that allocates base tariff among the relevant FCEs and service-lines based on (adjusted) relative national reference costs (from Step 6.7)	

*Length of stay. **Refer to page 44 for details

Source: UK pilot interviews

Step 6

Allocating NHS income to service-lines (continued)

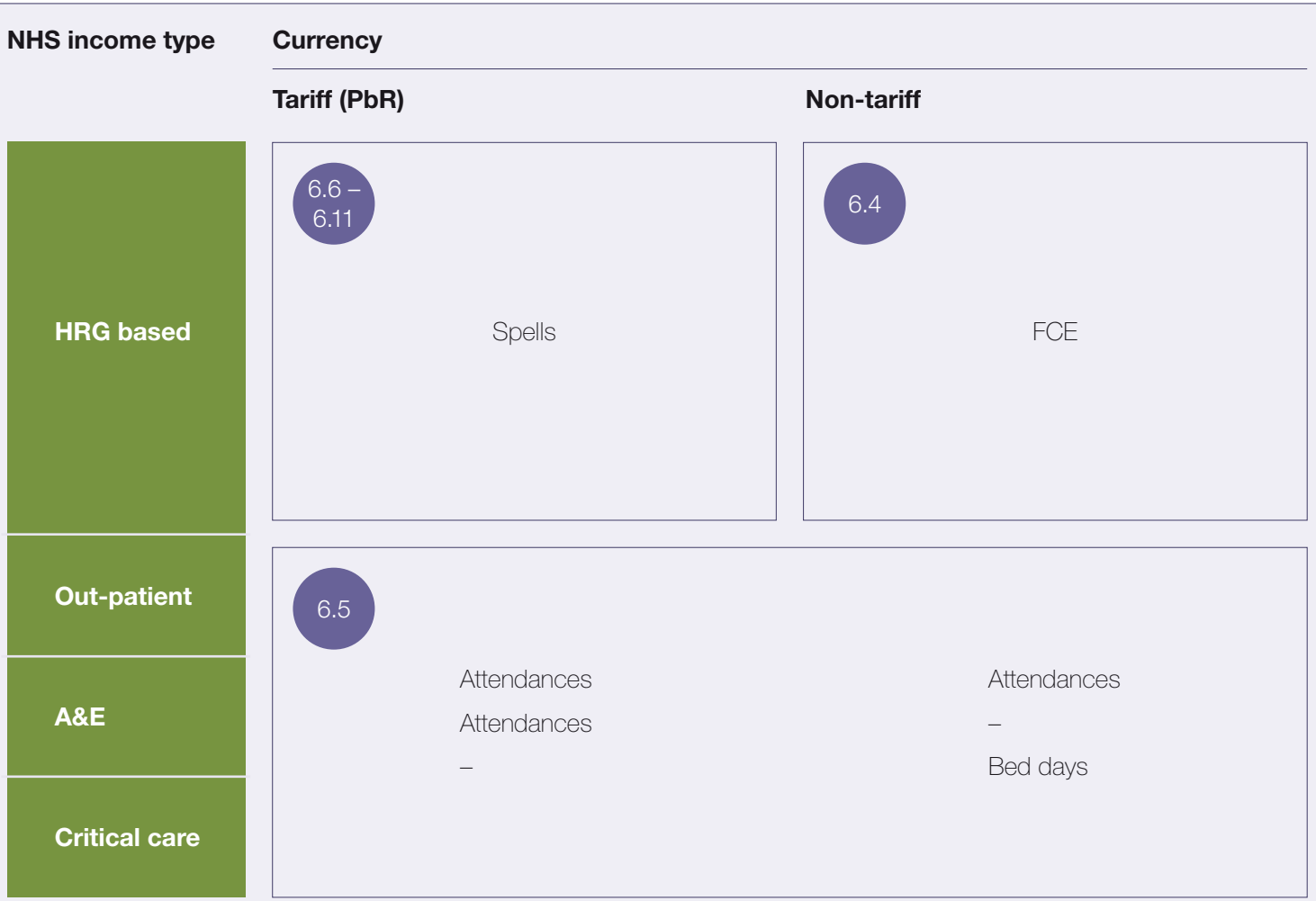
		What to do	IT and training requirements
6.10	Calculate and apportion specialist service top-ups by FCE ▶ Income type 2*	• Apply tool that – Calculates specialist supplements for the whole spell – Looks up which FCE(s) trigger the specialist treatment supplements – Allocates directly to the FCEs involved	• The following should all be integrated into one tool that supports the whole process of allocating income – Needs to be developed locally
6.11	Calculate and apportion outlier days compensation by FCE ▶ Income type 3*	• Apply tool that – Calculates LoS by FCE – Multiplies the number of days by the tariff to generate outlier days' compensation – Allocates the compensation among the different FCEs involved based on which FCE incurred the outlier days	
6.12	Summarise income types* 1, 2 and 3 by service-line	• Apply tool that – Multiplies each income type by the market forces factor – Maps FCE income to the relevant service-lines – Reconcile results with overall PbR income	

*Refer to page 44 for details

Source: UK pilot interviews

Step 6

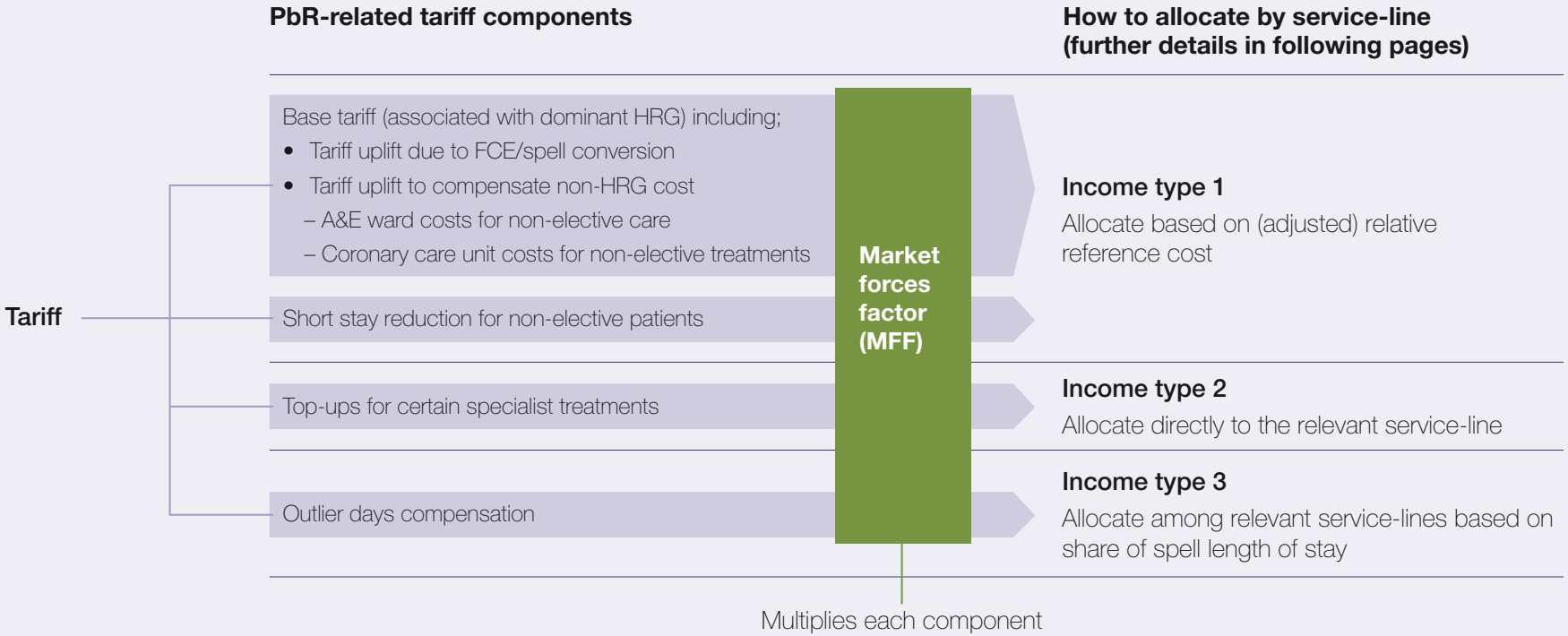
The importance of allocating all areas of NHS income to service-lines



Source: NHS guidelines; UK pilot interviews

Step 6

Different cost allocation methods depending on type of tariff component



Source: NHS guidelines; UK pilot interviews

Step 6
Using national reference costs

When several service-lines are involved in one spell, using national reference costs as the basis for allocation of income yields the fairest outcome

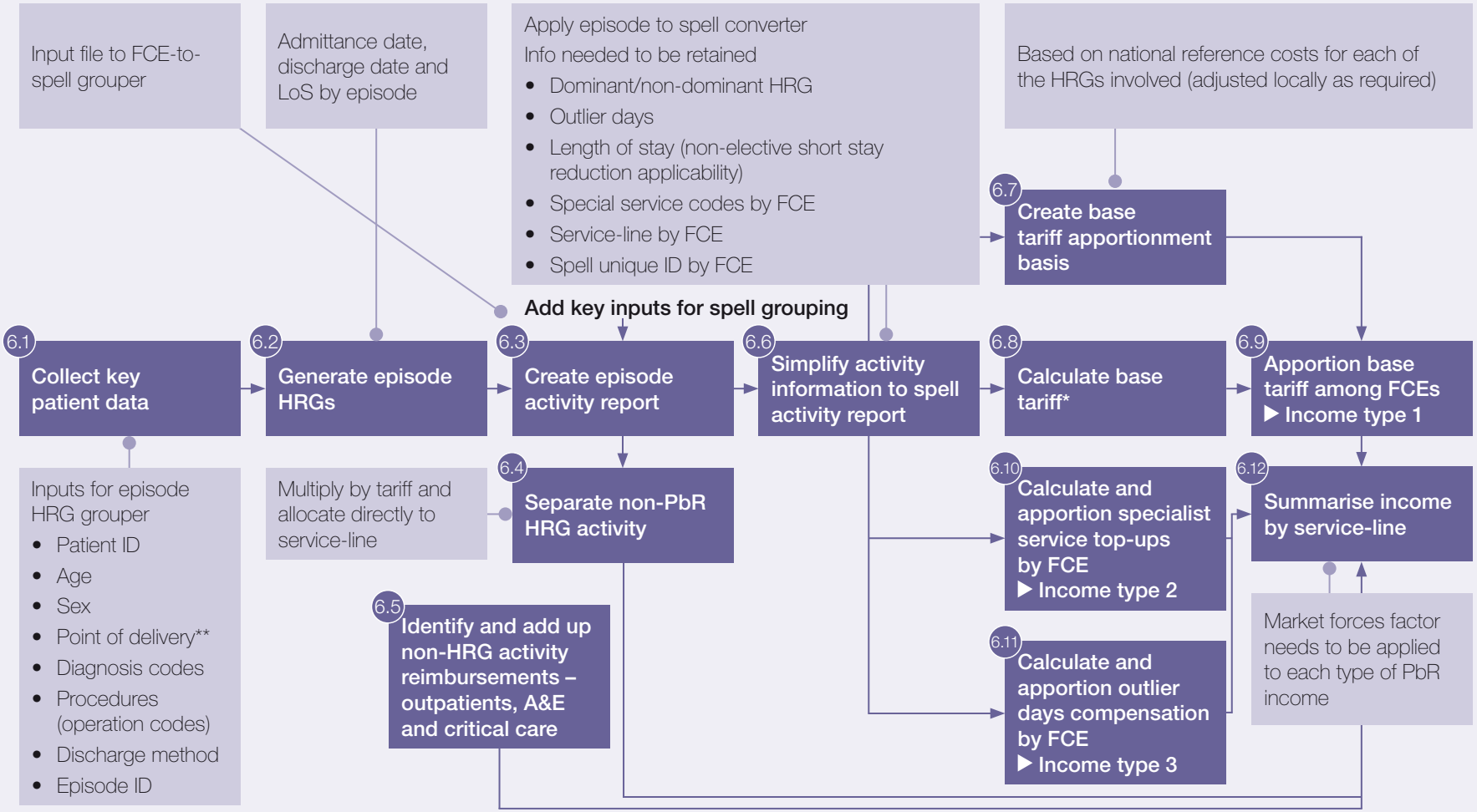
Recommended option

Options for how to allocate income to avoid bias due to FCE/spell issue	Considerations
A Split income across FCEs according to relative tariff	• Multi-income FCEs have uplifted tariffs to account for other FCEs associated with them which distorts the allocation in favour of the dominant FCE
B Split total 'margin' (tariff minus cost for all FCEs) between the FCEs	• Treats both FCEs as being equally profitable, distorting the allocation towards the less efficient FCE
C Split income across FCEs according to their relative reference costs	• Creates no systematic bias • However, allocation only as accurate as reference costing – Recommended to adjust reference costs based on local case mix and tariff exclusions such as high-cost drugs

Source: UK pilots discussions

Step 6

Summary – how to allocate NHS income to service-lines



*Accounts for non-elective short-stay reductions. **May be added in Step 6.6 instead
Source: UK pilot interviews

Step 6

Suggested method for allocation outlier days compensation

FCE	Spell	FCE Length LoS	Spell LoS	Spell trim point	National reference cost (NRC) per outlier day (£k)	Spell outlier days compensation	Weighting	Outlier days compensation allocation
FCE 1 (dominant)	Spell A	10	100	50	200	10,000	$\frac{2{,}000}{11{,}000} = 18.2\%$	1,558
FCE 2 (non-dominant)	Spell A	90	100	50	100	10,000	$\frac{9{,}000}{11{,}000} = 81.8\%$	8,181

$$\frac{\text{Episode LoS x episode NRC}}{\sum \text{(FCE LoS x FCE NRC) for all episodes}} = \text{Weight for each FCE}$$

Source: UK pilot interviews

Step 6

Allocating NHS cost to service-lines

		What to do	IT and training requirements
6.13	Ensure cost base includes only activity-related costs	• Take out estimated R&D and teaching costs (from steps 4 and 5) from cost base	–
6.14	Allocate PbR costs to specialties using the same methodology as in reference cost exercise	• Use the reference costing exercise's 'level 2' (specialty level) cost allocation rules (note that the cost base is different due to steps 4 and 5) • Ensure that PbR related cost and non-PbR related cost are separated	• No requirements besides what is already used in reference costing process
6.15	Allocate non-PbR costs covered by 'known' HRG cost	• Use identified HRG costs where available and allocate among the non-PbR-related activities	• No new requirements beyond systems currently used for reference costing
6.16	Allocate non-PbR costs not covered by 'known' HRG costs	• Expand the scope of the RCI methodology to include the costing of these services, and then allocate among the non-PbR-related activities	
6.17	Map specialties to your defined service-line structure	• Match the income split into RCI specialities with your service-line structure (from step 2) • If RCI specialties split into several of your service-lines, either use sub-speciality or HRG-level information to split between the service-lines involved	–

Source: UK pilot interviews

The seven steps towards implementing SLR:

Step 7: Allocating income and cost for non-NHS related activity to service-lines

Step 7

Allocating income and cost for non-NHS related activity to service-lines

		What to do	IT and training requirements
7.1	Define non-NHS related activity/ income streams	• Typically include private and overseas income, and charity funding	–
7.2	Allocate non-NHS income to service-lines	• Allocate between service-lines based on contracts with non-NHS customers and agreements with charities	• Summary income report from financial systems
7.3	Allocate non-NHS costs covered by 'known' HRG cost	• Use identified HRG costs where available and allocate among the non-NHS related activities	• No new requirements beyond systems currently used for reference costing
7.4	Allocate non-NHS costs not covered by 'known' HRG costs	• Expand the scope of reference costing allocation methodology to include costing of these services, and then allocate between the non-NHS related activities	

Source: UK pilot interviews

Glossary of terms

Glossary of terms

Term	Meaning
CCS (Clinical costing system)	Software that enables patient or treatment-level allocation of an NHS foundation trust's costs
Contribution margin	A service-line's profitability considering only the income and direct and indirect costs related to that service-line. Overhead costs are not included in the contribution margin
EBITDA	Abbreviation for earnings before interest, taxes, depreciation and amortisation. A measure of profitability similar to contribution margin, but which includes overhead costs
MADEL	Abbreviation for medical and dental education levy. NHS funding to support salary replacements for postgraduate medical and dental trainees
NMET	Abbreviation for non-medical education and training. NMET funding supports pre- and post registration tuition and salary replacement for non-medical staff (nurses and allied health professionals)
PA	Abbreviation for programmed activity. A unit of consultant activity. Typically corresponds to four hours of work
SIFT	Abbreviation for service increment for teaching. NHS funding to support NHS foundation trust's costs of undergraduate teaching

Source: Department of Health

Further information about SLM

This guide is one of a series of documents produced by Monitor to help NHS foundation trusts implement SLM. All of these guides can be found on Monitor's website www.monitor-nhsft.gov.uk/slm

- *Working towards service-line management: a how to guide* – this guide sets out the processes and structures necessary to implement SLM within a trust setting;
- *Working towards service-line management: organisational change and performance management* – this guide looks at ways in which service-line reporting (SLR) can be used as a motivational tool and to influence;
- ***Guide to developing reliable financial data for service-line reporting: defining structures and establishing profitability* – this guide helps foundation trusts move towards service line reporting and describes how some of the obstacles to SLR can be overcome;**
- *Working towards service-line management: a toolkit for presenting operational service-line data* – this guide describes a range of service-line reporting (SLR) tools and shows how they can be used to present data to encourage informed decision making; and
- *Working towards service-line management: using service-line data in the annual planning process* – this guide shows how SLR data can be incorporated into a trust's business planning cycle.

To help implement SLM, Monitor – working in conjunction with various external organisations – can offer a comprehensive package of support, specifically tailored to individual needs, both in terms of cost and relevance. The support routinely includes consultancy and advisory services, board level diagnostics, individual coaching, strategic goal setting and the opportunity to join learning sets. For more information contact slm@monitor-nhsft.gov.uk

Monitor

Independent Regulator
of NHS Foundation Trusts

4 Matthew Parker Street
London
SW1H 9NP

T: 020 7340 2400
W: www.monitor-nhsft.gov.uk
E: slm@monitor-nhsft.gov.uk

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