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Study: To improve and demonstrate the structural properties of the care clusters that form the basis of the PbR currency development programme (Care Pathways and Packages Project).

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A Report on the development of a

Mental Health Currency Model

(including suggestions on the development and testing of PbR tariffs)

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Preface

Preface

This document arises from a series of meetings between the three authors during the six months from October 2007 through March 2008. The authors are all engaged in work leading to the development of mental health PbR currencies and tariffs.

Roland Self is Associate Director of Psychology at the South West Yorkshire Mental Health NHS Trust and the principle developer of the Integrated Packages Approach to Care (InPAC). He was a member of the Programme board, Project Board and Chair of the Clinical Sub-group of the 'Northern' PbR Project and is a member of the National PbR Mental Health Expert Reference Panel.

Jon Painter is the Care Pathways and Packages Lead for Rotherham Doncaster and South Humber Mental Health NHS Foundation Trust. He was a member of the Clinical Sub-group of the original 'Northern' PbR Project and is the second clinical lead for the current Northern Consortium.

Rebecca Davis is the Manager of the Mental Health Commissioning Toolkit Project. This is a CSIP funded joint collaboration between Pennine Care Trust and its five principal commissioners to develop mental health currencies by introducing outcomes and currencies. The project is now a Payment by Results Development Site. Like Roland Self, she is currently a member of the Department of Health Mental Health Payment by Results Expert Reference Panel.

In discussion the authors reflected on the difficulties others had experienced in applying currency development to mental health services. They concluded that attempting to develop a currency by traditional means is fraught with difficulty and likely to end in failure at this stage. Despite this they believed that progress could be made if a different methodology was employed. As a result they identified the possible benefits to the wider debate of them pooling their respective knowledge and expertise into a single document describing development of a mental health currency that could be used immediately by commissioners and provider trusts to improve the understanding of funding of services while providing a methodology to increase their capability for developing and testing a PbR tariff for mental health in due course.

The document should not be viewed as a project proposal or project initiation document for the development of PbR tariffs for mental health services. Rather, its purpose is to describe the development of currency units for mental health and to illustrate how these could be used in any such project. It is hoped that this will stimulate their use by those that wish to undertake such a project. The difference should be clear.

A. AIMS AND SCOPE OF THIS PAPER.

This paper describes a methodology developed to overcome the problems encountered by those attempting to produce a mental health currency and tariff system. The approach is based on the care clusters developed in the Integrated Packages Approach to Care methodology (Self *et al* 2008). Taking these clusters as a starting point, work that has been recently undertaken to develop a currency model is described and a methodology for introducing these currencies and for developing and testing tariffs explored.

It must be recognised, however, that the process of introducing the currency and developing tariffs cannot be undertaken in a single step. What is proposed is an iterative process involving modelling and simulation of emerging information and simultaneously carrying out essential model validation.

The proposed currencies cover the majority of adult mental health services. Mental health services provided by General Hospitals, General Practitioners and Specialist Secure Provision are outside the scope of this study.

The products and benefits arising from this work.

The product described in this paper is a **currency model** based on the care clusters of the Integrated Packages Approach to Care (InPAC) (developed for applying and testing by **April 2008**).

> **Immediate benefits include:**
> Patient classification system to describe and benchmark services
> Clearer understanding of who does what and for whom
> Tool for demand and capacity modelling
> Tool to support service redesign
> Currencies from which to develop local PbR tariffs
>
> **Longer-term benefits include:**
> Convergence of care provision to guidance and best practice
> Framework for outcomes and quality measures
> Workforce modelling and planning tool
> Currencies from which to develop national PbR tariffs

The remainder of this paper describes the development of the currency model and an outline of the ways in which the methodology may support those wanting to develop a better understanding of mental health services from a business point of view and those wanting to develop a mental health PbR tariff. Thus this paper describes steps that can form the basis for a logical programme of work leading to PbR tariffs for mental health services with later steps being dependent on successful completion of earlier steps. In the process of undertaking this work, commissioners and provider trusts will increase their understanding of funding of mental health services and increase their capability for developing and testing PbR tariffs.

Steps already undertaken and described here

      a. Properties required of currency

      b. Properties required of tariff

      c. Description and definition of categories (Care Clusters)

      d. Development of currencies (Clusters and additional criteria including time frames)

Steps that might form the basis of any future programme

      e. Benchmarking of services

      f. Capacity modelling of services

      g. Tariff modelling and testing

      h. Concurrent model development and validation (i.e. a to d above)

Each stage should demonstrate how the evolving currency and tariff meets the properties required.

As organisations move along this process we might confidently expect that trusts will move from services purchased as a block, with little understanding of what services are being provided, to one based on currency capacity and then ultimately tariffs. Issues such as individualised budgets and provider plurality can be addressed on the way.

B. BACKGROUND TO CURRENCY DEVELOPMENT

The need for a programme of work

The NHS reforms, DOH (2000) were aimed at improving the quality, effectiveness and efficiency of NHS services. Structural changes (NSF) have been followed by 'levers for change' aimed at putting the service user at the heart of the NHS through explicit patient choice. Choice and Payment by Results (PbR), the mechanism by which patient choice is made meaningful by attaching payments to these choices, are crucial to this process. PbR describes the Department of Health's approach to structuring the relationship between NHS commissioners and health-care providers. Providers are paid a standard tariff for each case of a particular type of healthcare problem they treat. The aim is to provide incentives to ensure that treatment is provided at the lowest cost consistent with quality and outcome considerations. However, this approach depends upon being able to develop meaningful categories of patients whose health needs cost a similar amount (currencies). Although proving difficult in practice, progress has been made and in acute hospital care most procedures are being brought into this system.

Despite this progress elsewhere, currency development in mental health services has proved elusive. As a result of this failure the bulk of mental health services continue to be funded on a historical 'block contract' basis or through specification of 'inputs' such as the number of beds or provision of teams etc. Alternative providers are funded per bed day or per attendance. Neither of these approaches provides incentives for efficiency, effectiveness or quality or for improved or new ways of working. Thus the need to develop a PbR currency for mental health remains. Without this, reform cannot proceed and many feel that mental health services will continue to be disadvantaged by a lack of clarity over what they are getting paid to provide (Elphic, 2007).

Understanding the issues

Essential for the PbR strategy to work is the formation of categories that define groups of patients who are similar to one another (currencies) on which to base the price (tariff). Developments in England have typically worked with two types of groupings: Health Benefits Groups (HBG) which refer to the similarity of patients' presenting problems and, Healthcare Resource Groups (HRG) which group patients on the basis of the resources

they utilize. Groups, derived from statistical analysis of routinely collected data or clinically described groups may be used to look for predictors of resource use. Typically diagnosis or some variant of it may be sought as this aligns the payment with clinically meaningful groups. But, in whatever way they are developed, evaluation of currency categories is based on an examination of the proportion of cases fitting key defining indicators for membership and the homogeneity of resource use within categories. Good currency categories are considered to be those that demonstrate homogeneity of resource use, with variance in resource use within categories being relatively small compared to that overall. Traditional methods involve analysing routinely collected data relating to service users in these groups and using this to perform regression analysis to produce or test currency categories that predict resource use.

HBG/HRG development in the UK has largely been built around acute inpatient care, mostly comprising episodes of short duration that are viewed as discrete events. Payment is on the basis of a fixed amount of money for episodes in each HBG/HRG. The basic amount is calculated from average national costing data.

Applying this model to mental health raises two types of problems (SHAPE, 2007). Firstly, Mental Health services are severely handicapped in the process because of a lack of a suitable classification. Diagnosis has not proved useful for PbR classification purpose because of the often very variable course of illness and resource use for people with the same initial diagnosis (SCMH, 2004). In any case many people in receipt of mental health services do not have a formal diagnosis as they are not seen by a psychiatrist. This situation is likely to be compounded by New Ways of Working, where psychiatrists will adopt a more consultative role, seeing and hence only able to give a diagnosis to fewer, more complex cases (DOH, 2007a). Secondly, a currency model based on predictable short term care is unsatisfactory where there are longer term care needs. Long term care needs often involve a mix of acute and chronic presentations with often complex variations over time involving seriousness, complexity and risk. Care may also involve combinations of community care, in-patient care and day-care in unpredictable sequences.

However, perhaps the biggest problem in developing PbR currencies is the extremely wide variation in resource provided in different services and the way these resources are prioritised. Whilst this has improved with the introduction of the National Service Framework (NSF), large parts of mental health services remain the result of idiosyncratic

historical decisions. Because of this, methodologies commonly used to test currencies are not immediately relevant to mental health services as they stand. Finding a lack of resource homogeneity within categories would render the categories unusable for developing tariffs. However, where lack of resource homogeneity is a structural feature of services it is not a failure of categories per se, but reflects the need to introduce practice standards before developing tariffs and thus developing payment for quality.

This problem was demonstrated by the most extensive study of HBGs in mental health, undertaken in Australia (Buckingham *et al*, 1998), which developed 42 HBGs. Whilst they found that the groups were promising, they predicted much less of the variance in spending that typically found in other clinical areas demonstrating only a modest relationship between patient attributes and resource use. They reported that this seemed to reflect an unusually large variability between providers with service availability a bigger predictor of resource use than service user need. Large variability in resource use between providers was also a feature of the conclusions to a small scale study carried out in the North of England (the National PbR Programme (DOH, 2007b).

The introduction of NICE guidelines has introduced a challenge into the system for consistent practice and resource use but even where guidance does exist it is rarely adopted in full and where it doesn't exist practice reflects the history of each locality. Thus extreme practice variation is the norm rather than the exception in mental health services. For example, in a recent survey of service users' care, those with a moderate to severe anxiety disorder were found to be seen by any one of a range of practitioners ranging from a Consultant Psychiatrist through a Clinical Psychologist to a qualified CBT therapist to a Community Psychiatric Nurse (Unpublished study, SWYMHT 2008). What the service user received ranged from medication, skilled psychological therapy to the application of some therapy skills in a helping relationship. These variations rarely reflected the needs or choices of the service user but the availability of skills and services. Complex cases were found to fare no better with important elements of care either unavailable or inaccessible for many in some areas, whereas in other areas comprehensive specialist services exist. With interventions displaying such practice variation, and different procedures with different outcomes being undertaken for the same health need, then even the most obvious categories will fail to produce resource homogeneity however it is measured.

Until practice standards are improved and resources equalised, currencies cannot be developed and tested against current activity in practice. This therefore calls for a methodology that improves practice standardisation as well as developing currencies and tariffs that are not dependent on current practice.

A final hurdle to the development of currencies in mental health is the quality and availability of activity data. As the SCMH (2004) report points out, the use of activity related payments will require very substantial improvements in the coverage and quality of existing mental health information systems. It goes on to say that compared to the acute hospital sector mental heath starts from a long way back and implies a 10 year journey. Supporting evidence for this position comes from evidence for the failure to collect even the Mental Health Minimum Data Set by most trusts in the recent DOH project, although they theoretically had the information systems available (DOH, 2007b). This suggests a lack of culture of data collection which may take some years to overcome, particularly if the data set remains detached from grass roots practice, rather than being an aggregation of meaningful service user information.

Because of these problems mental health currencies cannot be developed directly by analysing existing practice as is done in the traditional methodology employed in the acute medical sector. Therefore, unless the development of currencies and tariffs is deferred indefinitely, an alternative methodology will have to be found.

Summary of problems identified in developing mental health PbR currencies.

1   Lack of satisfactory classification system
2   Large provider variations in provision of care
3   Mix of short-term and long-term cases
4   Variable care needs within same episode
5   Lack of appropriate testing methodology
6   Extremely poor information systems and no culture of activity data collection

C. THEORY OF CURRENCY DEVELOPMENT

Developing a definition of currency and properties to be tested.

In order to develop a PbR currency for mental health it is necessary to understand why a currency is required and what properties would define a good one. Without these it would not be possible to demonstrate that any developed currency is fit for purpose. The methodology to test the currency should be defined in advance of any testing.

The following paragraphs provide a summary of relevant literature (Buckingham, B. et al 1998, Carthew, R et al 2003, DOH, 2007, Elphic, M. 2007, Fairburn, A. 2007, Marshall, R. 2008. The Audit Commission. 2008.)

The function of a PbR currency:

> *A currency must support the fair and equitable reimbursement of a provider for providing an appropriate service to service users with clearly defined clinical needs to an acceptable standard.*

Thus a currency isn't just about reimbursing an organisation for what they are providing, but for what they should be providing whilst allowing for reasonable variations in interventions. The currency should provide incentives for efficiency, effectiveness, quality and innovation.

Classification system.

The basis of a currency is the classification system which underpins it. Without a suitable classification system a currency cannot exist.

A classification system is a spatial, temporal or spatio-temporal segmentation of the world, ie a set of boxes (metaphorical or literal) into which things can be put to do some kind of work (Bowker and Star, 2000).

In an abstract, ideal sense a classification system should exhibit the following properties.

*There are consistent, **unique classifying principles** in operation.*

*The categories are **mutually exclusive**. In an ideal world categories are clearly demarcated into which objects will uniquely fit.*

*The **system is complete.** The ideal classification system provides a total coverage of the world it describes.*

In practice rules for determining category membership are very important because very few people in each group will be exactly the same as one another. Part of the essential model validation work should include the development of appropriate membership criteria that allows for maximum membership inclusion whilst retaining the exclusiveness of categories. This will require an understanding and application of approaches such as 'fuzzy clustering via proportional membership model' (Nascimento, S. 2005).

Properties that a MH PbR currency must incorporate.

In addition to the properties described above, it is necessary for a classification system to be useful in practice for the work it is designed for. Thus a currency must have properties that make a classification system fit for purpose. Below are described the properties that a PbR currency must incorporate.

Clinically Meaningful – made up of groups of patients/service users that are recognisable, meaningful and acceptable to clinical staff.

Resource homogeneous – patient/service users in group require clinically similar treatments/ interventions and use similar types and levels of health-care resource.

Benchmarking – support comparison of activities between organizations and standardised healthcare commissioning.

Workable - be supported by underlying information flows that are easy to collect in routine practice.

Quality – support policy goals for efficient, effective, accessible safe services.

Setting independent – not be dependent on existing service structures but allow for innovation in practice.

Classification and currency properties can be combined and are summarised in Appendix 1.

Describing the variables required for a currency

In its simplest form the description of a currency only requires a small number of variables to be defined. These include:

- The ability to categorise service users into groups
- A time period
- The ability to describe the interventions received by each group

Currency representation
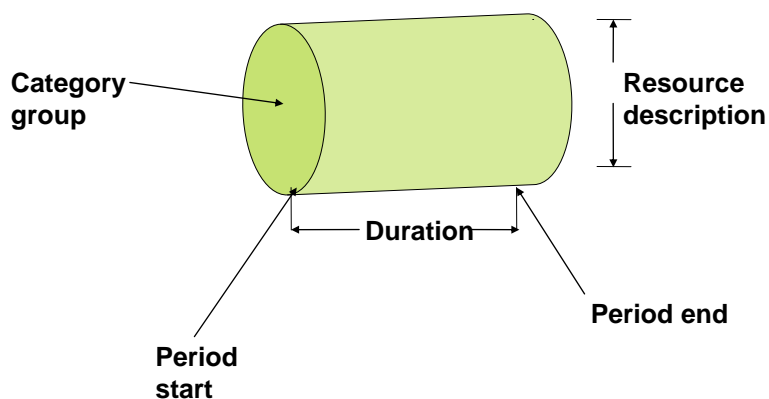
For relatively straightforward groups such as moderate anxiety these components are easily understood from NICE guidance. I.e. the period start and end correspond to the first appointment and the last appointment respectively and the duration sixteen contacts. Resource corresponds to a band 6 worker for 1 hour sessions. Thus the currency is described in ways that allow a price or tariff to be calculated. A range of methods of determining the cost can obviously be employed but the currency described in these terms provides a fairly straightforward way of ultimately relating tariffs to good practice.

For long term care, the period of care is still defined by the start and end point but now this will be specified in advance as occasions when periodic reviews will occur, for example every three months. Duration is now defined as a period of time. Resource continues to be defined by the number of people involved, their level of skill and the intensity of their contact with the service user.

Periods of care and reviews
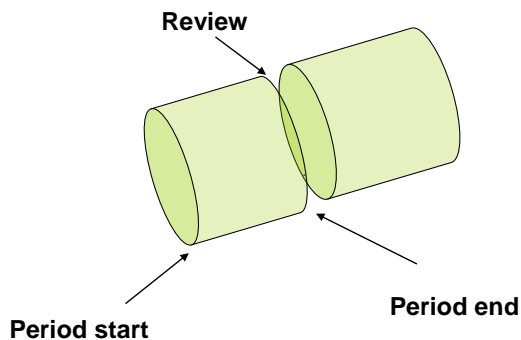
Not all real-life situations will fit so easily as this. A service user's needs may sometimes change such that they will get allocated to a new care group and so receive a different package of care. Thus there will be a **care transition point** which may occur at either a periodic review or an unscheduled review. Either way this will describe the transition from one care package (currency unit) to another. If this occurs at an unscheduled review the service user will have received only a proportion of one currency unit and then start at the beginning of another.

Currencies and care transition points
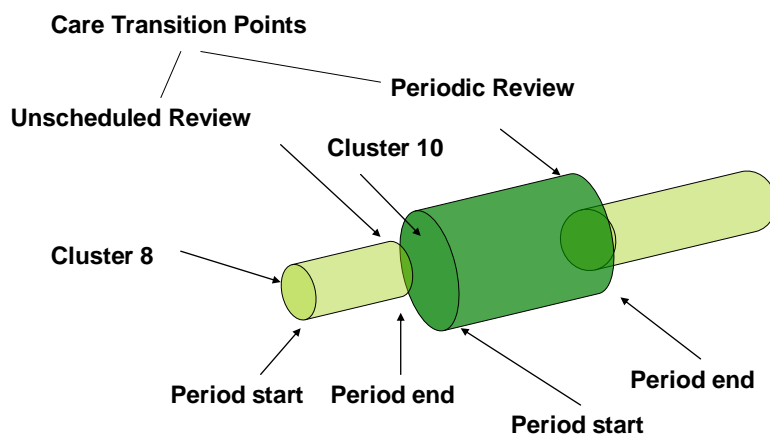
Operationalizing the currencies

Turning groups into meaningful currency units requires the definition of all the variables described above. These include

- Comprehensive set of category groups
- Period duration/expected course of disorder
- Descriptions of resource for each group
- Care transition protocols (including exit criteria/outcomes)

With these definitions in place there is a currency model that enables a range of activities to be undertaken. The development of these variables is described in the next section and details of their application follow.

D. KEY CONCEPTS AND DEVELOPMENTS

Integrated Packages Approach to Care

The Pathways and Packages approach offers a classification system that potentially meets the criteria outlined above for a PbR currency whilst overcoming the problems experienced with other classification systems by those attempting to develop PbR currencies and tariffs.

The approach was originally developed in the South West Yorkshire Mental Health Trust. It was designed to promote consistent high quality practice and to provide high quality data about the needs of people using health and social care systems in a form that supports strategic planning and service development. At its core is the Clinical Decision Support Tool (CDST). The CDST comprises:

- A standard summary needs assessment
- A range of needs based care clusters
- care packages or pathways are attached for each care cluster

The clinical validity of the care clusters has been demonstrated through the involvement of expert clinical groups and concurrent validity data, (Self, *et al* 2008) and the utility of this approach as a possible PbR currency was successfully explored as part of the national PbR programme (DOH, 2007b). Thus it is proposed that this approach provides a classification system for mental health that can be developed to provide a PbR currency from which tariffs can ultimately be derived.

Describing and defining the care clusters

The care clusters were derived from an iterative process involving assessment of service users needs, statistical cluster analysis of assessment scores and expert multidisciplinary opinion.

The Care Clusters

Number	Description
1a*	Common Mental Health Problems (Low Severity)
1b*	Common Mental Health problems (Low Severity with Greater Need)
2a*	Non-Psychotic (Moderate Severity)
2b*	Non-Psychotic (Severe)
3	Non-Psychotic (Very Severe)
4a*	Non-Psychotic Disorders of Overvalued Ideas
4b*	Enduring Non-Psychotic Disorders (High Disability)
5	Non-Psychotic Chaotic and Challenging Disorders
6	Substance Misuse
7	First Episode in Psychosis
8a*	Recurrent Psychosis (Low Symptoms)
8b*	Ongoing or Recurrent Psychosis (High Disability)
9	Ongoing or Recurrent Psychosis (High Symptom and Disability)
10	Psychotic Crisis
11	Severe Psychotic Depression
12	Dual Diagnosis
13	Psychosis and Affective Disorder Difficult to Engage
14**	Cognitive Impairment (Low need)
15**	Cognitive Impairment (Moderate Need)
16a**	Cognitive Impairment (High need with functional complications)
16b**	Cognitive Impairment (High need with physical complications)

* Original care clusters disaggregated in the light of clinical experience and to align with up-to-date guidance.

** Care clusters developed through working groups. Concurrent validation studies have not yet been undertaken for these clusters.

The process identified clusters of service users based on similarities and differences along a number of dimensions which included:

- Types of symptoms
- Severity of symptoms
- Complexity of disorder
- Chronicity of disorder

Each care cluster contains people with similar care needs. The broad description of these needs is indicated by the description given for each care cluster. How these care clusters relate to one another is illustrated on the following pages. The detailed needs for each cluster including the typical scores service users would attain on the summary of needs assessment scores are described by the system. This includes the 'key defining indicators' that determine whether an individual fits a particular cluster or not.
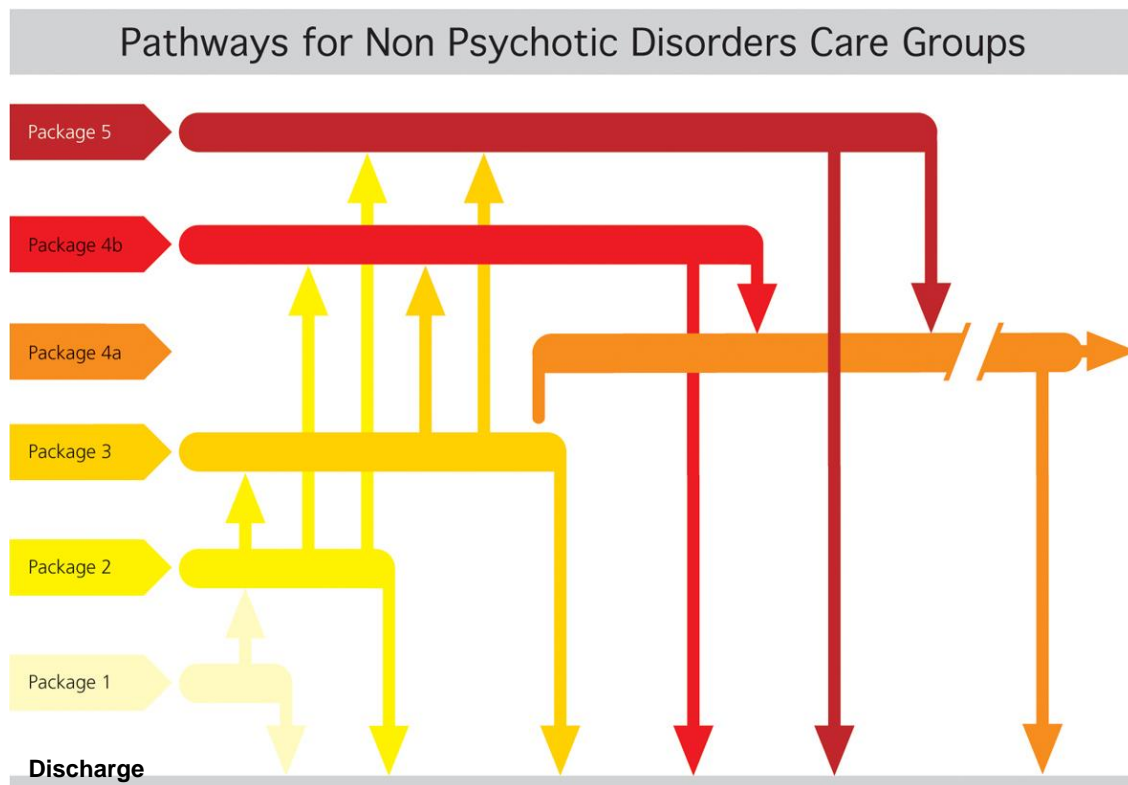
Relating the care clusters to the service user journey

Care clusters are established by identifying the needs of service users in the care system at a particular 'moment in time.' Whilst this adequately explains the needs of people on a given day it doesn't explain the changes in individual care needs over time or how this relates to the care clusters. However, the InPAC model can contain and explain significant changes in care needs. Some changes are simply described as variations that are expected within a cluster, whereas larger variations lead to a reassignment of cluster.

An example of the first of these is where someone in care cluster 2a (moderate anxiety) improves as a result of therapy. Their assessment scores will fall, but this is to be expected within the cluster assignment, and so they are not reassigned until they are discharged. However, some people may have changes in summary assessment of needs scores which do lead to a change in cluster assignment. For example, a person in care cluster 8b with ongoing psychosis (high disability) will have fluctuations in their condition that are appropriately managed within the care package with many variations in summary of assessment of needs scores not placing the person in a new cluster. However, if they were to suffer a psychotic emergency and their needs change sufficiently their scores would place them in care cluster 10, where they will receive a much more intensive

package. Following recovery their scores will fall and once more reflect 8b membership. These points of significant change in need can be seen as 'care transition points' and are very important to care planning and commissioning systems. The description of expected outcomes and criteria for care transition is an important part of the process of currency development. The development of these protocols is described later.

Further examples of how service users' journeys may unfold are illustrated below. These 'potential journeys' describe the possible routes a service user's individual 'journey' might take. Thus packages of care sit on potential pathways along which a service user journeys as their needs change. An increase in scores that match the criteria for a more intensive care package will usually lead to assignment to a new cluster. However a reduction in needs assessment scores can reflect the impact of the service on a person's current state and not any lasting underlying change in their condition. Therefore, whilst needs assessment scores will define cluster membership at the outset of a period of care, **care transition protocols** are required to explain how and when people exit them. A better shared understanding of service users in each care cluster and how changes in need are defined ensures that decisions are more open and explicit and justifiable to all.

Pathways for Non Psychotic Disorders Care Groups

Pathways for Psychotic Disorders

Long-term Disability

Package 10/11

Package 8a

Package 7

Discharge
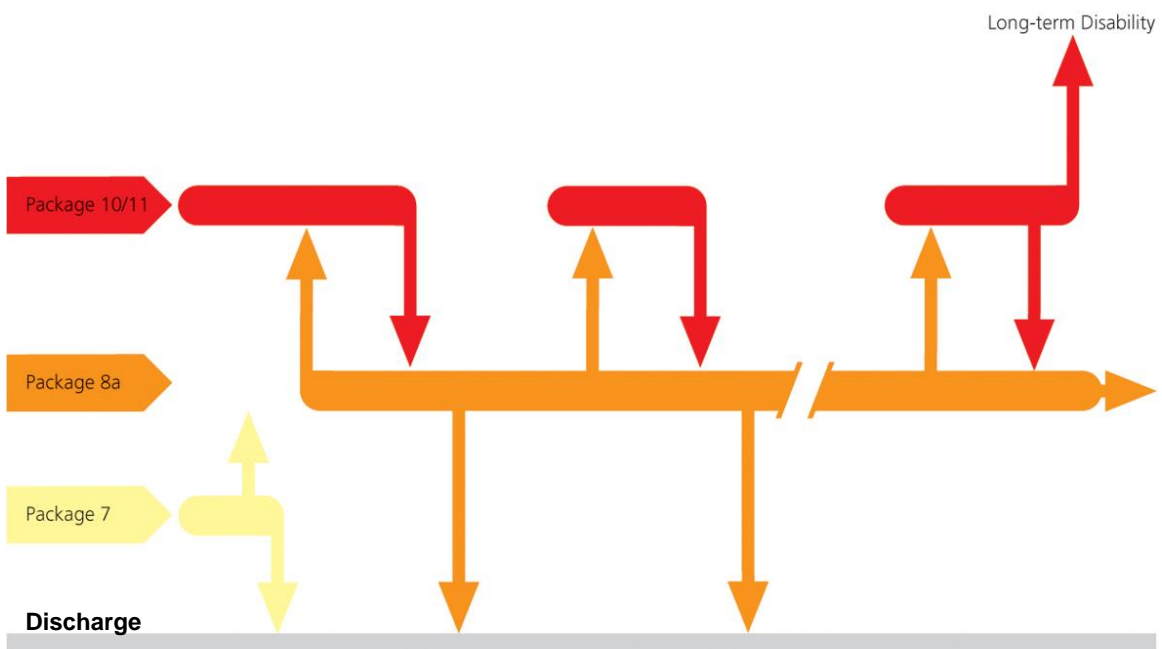
Pathways for Continuing Psychotic Disorders

Package 10/11

Package 12/13

Package 8/9

Long-term Disability

22
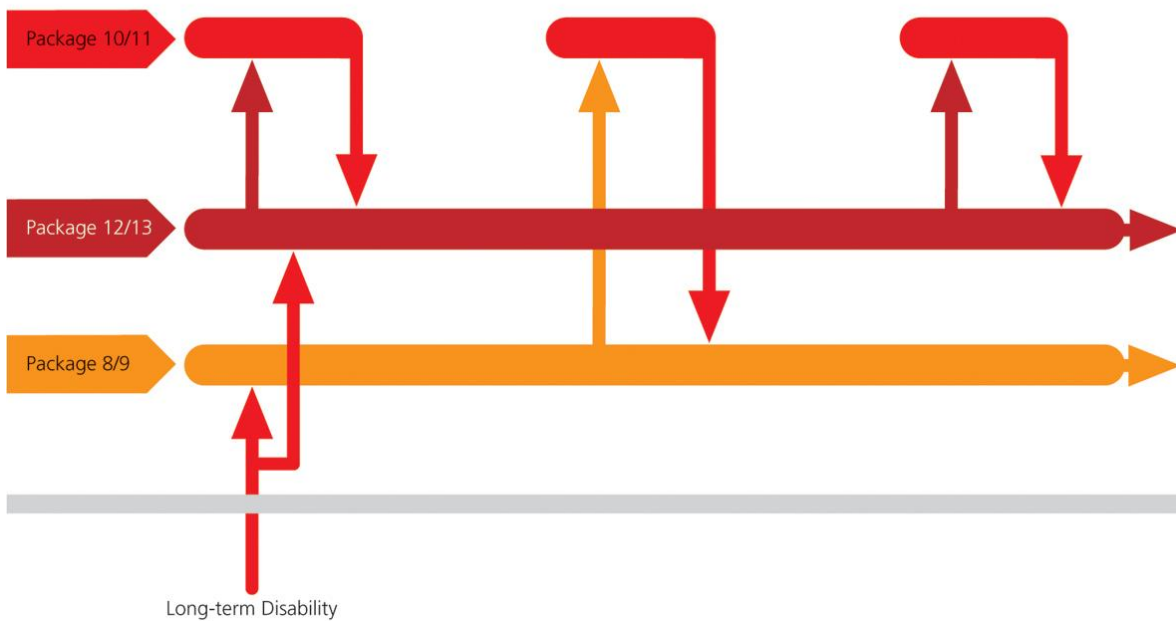
Expected course of disorders and defining the duration of periods of care

A person's mental health needs vary according to a number of factors including type and severity of symptoms, complexity and chronicity. It is, in part, the combined effect of these factors which will dictate the duration of their condition.

For the more straightforward clusters (eg cluster 1b) this duration can be derived from the best practice recommendations about the number of therapy sessions that should be delivered, leading to an estimate of 8 weeks (NICE, 2004). However, for more complex clusters the episode duration is likely to be significantly longer. For example, there is evidence to suggest a much longer episode duration for cluster 7 (First episode psychosis) (typically 3 years) in order to minimise the risk of relapse regardless of level of recovery made (DOH, 2001).

To be manageable from a commissioning perspective, these longer term episodes must be broken down into shorter periods of care. Furthermore, in order to be successfully operationalised, the duration of these periods should have clinical relevance through their alignment with the CPA review process.

In this way, a picture can be built up which pre-defines both the expected interval between clinical reviews and the period of care (used primarily for commissioning purposes) according to the nature of the condition and the anticipated overall episode duration.

Example:			
Cluster	**Clinical (CPA) review interval**	**Commissioning Period duration**	**Anticipated course of condition**
1b	1 week	8 weeks	8 weeks
7	6 months	1 year	3 years

(See also Appendix 2)

Cluster Weightings

The clusters were developed on the basis of grouping together people with similar health needs at a given time (eg referral) so that their needs for resources could be outlined in advance. It follows that in general individuals with the same needs and in the same cluster should consume similar resources. If the activities could be specified exactly (as they can be in some procedures) then it should be possible to calculate the overall cost of each patient category from the cost of the individual inputs as it is in some acute procedures. Unfortunately, in mental health, as previously discussed, the link between patient need and intervention is far weaker. This is for two reasons. Firstly, service user need has not been the overriding organising principle for services and secondly, clinical consensus is difficult to attain. In the original Northern Pilot project (DOH, 2007b) clinical consensus was difficult to reach over what constituted appropriate care for the 'average' person in each particular needs based cluster. Significant convergence to agreed best practice for each cluster may take many years although standard costings based on this should remain the ultimate goal. However, given the level of difficulty encountered across just six trusts, combined with the hugely differing service configurations currently delivering interventions, the national adoption of a tariff based on average costs of current activity will be highly problematic.

An alternative strategy is therefore required to understand the non-linear relationship in resource usage that exists between the clusters that will avoid the many pitfalls that will otherwise be encountered.

One solution that is showing merit is the use of cluster weightings that are derived from best practice inputs. These can help to explain the relative differences between the clusters in terms of resource usage, without first needing to produce accurate costings that are based on the aggregation of all the elements of a service user's care. Thus we readily arrive at a comprehensive set of relative cluster weightings that can be tested and refined in parallel with existing commissioning arrangements. The potential benefits of this are discussed further in the tariff development section.

Care transition protocols

It is essential to establish a comprehensive and transparent set of protocols that identify when assessed changes in need should result in allocation to an alternative cluster (together with a change in care pathway/package) and conversely, when they should not.

Given the significant variation in cost weightings between clusters, it is vital that any prospective system must be able to distinguish and correctly take account of some key issues.

Firstly, it must allow for transient fluctuations in wellness, viewing these as natural and acceptable variations that fall within the thresholds of a particular cluster, despite a new cluster being apparently indicated. Here for example, a patient previously allocated to cluster 7 (First episode psychosis) might briefly engage in illicit drug use, but not for long enough to warrant the additional interventions associated with allocation to cluster 12 (Dual dignosis), despite matching that cluster's needs profile at a point in time. Clearly, the potential for a patient to resolve their own substance misuse problems leads to a clinical decision to 'watch and wait' which must be reflected in the care transition protocols.

Secondly, it must embrace the concept of recovery, by treating mid-therapy improvements in needs assessment scores (that indicate a lower cluster) appropriately. For example, best practice guidance would suggest that a person allocated to cluster 2a should be offered approximately 16 sessions of cognitive behavioural therapy. An intermediate review could indicate that their needs assessment scores after eight sessions match the profile for cluster 1b. It would however be neither cost effective, nor clinically desirable to curtail therapy in favour of a less intensive programme, due to the increased likelihood of relapse/deterioration associated with receiving a partially completed care pathway/package.

Thirdly, it must ensure that changes in need that require an increased level of intervention are adequately funded. The relapse of a previously stable, long term condition (eg cluster 8b) which is significant enough to produce a needs profile matching that of cluster 10 is highly likely to require additional resources, and should therefore attract a higher rate of funding.
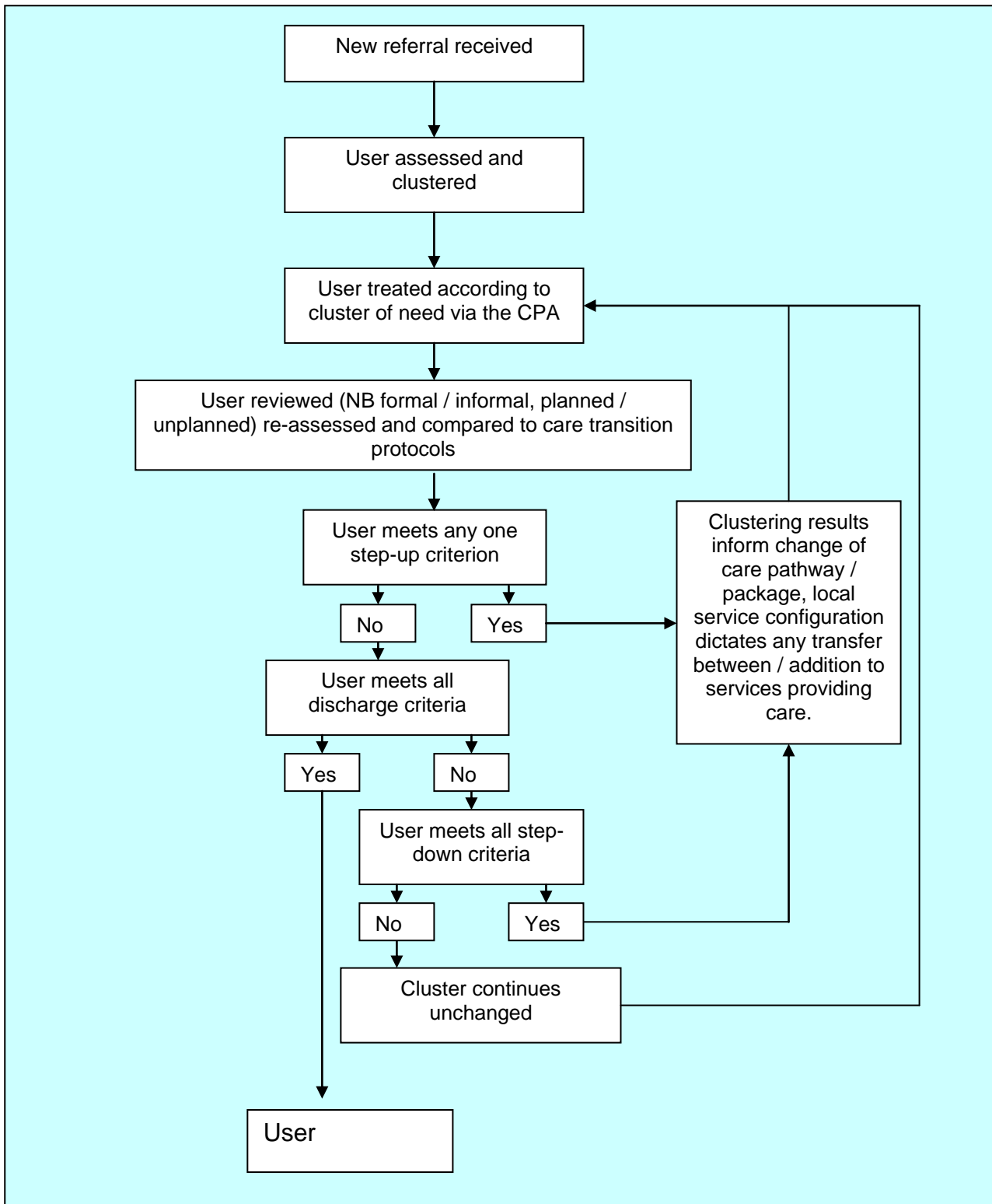
The above flow chart depicts a hierarchical process which must be applied throughout an episode of care in order to discern needs assessment scores that should trigger a step up or down in care cluster, from those which should not.

Working with the flowchart, and with reference to the potential patient flows depicted earlier, a comprehensive set of criteria can be produced to ensure that there is consistency in how people move between clusters. In effect, these are a set of commissioning rules to be applied whenever a person recovers, relapses, experiences a crisis, or maintains their level of wellness. In this way, each junction on the 'map' of potential patient journeys will have a consistent set of rules ensuring that commissioning arrangements reflect the realities of clinical practice, rather than being clinically sterile.

Examples:			
Cluster	**Step up Criteria** (Any of the following criterion is met)	**Discharge Criteria** (All of the following criterion are met)	**Step down Criteria** (All of the following criterion are met)
1a	• Patient fits profile of any other cluster	• Low mood scores 0 • Anxiety Scores 0 • Suicidality scores 0	N/A
13	• Patient fits profile for clusters 10 or 11. • Patient scores above 2 on substance misuse problems, and this results in excessive	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Hallucinations/delusions score 0-1. • Is informal. • Has required no inpatient / Intensive Home Treatment	• Has fitted the profile for clusters 8a, 8b, or 9 for past 12 months. • Has required no inpatient / Intensive Home Treatment for the past year.

This has two primary benefits. Firstly it will ensure fair and equitable reimbursement (one of the ten previously defined requirements of a PBR currency) and secondly, it will allow meaningful comparison of patient flows between providers. In this way it will be possible to benchmark: the proportion of new referrals that are successfully discharged at the end of a period of care; the proportion that deteriorate and require an increase in cluster (and associated interventions); and those whose cluster remains unchanged and thus require an extension or repetition of the period of care at the same level of intensity. (Benchmarking is discussed more fully later in the paper).

Clearly, further work is required to validate clinically any such set of criteria, and to establish how some of the less tangible criteria may be robustly measured. However, in providing an interim step towards truer outcome based commissioning arrangements, the developments described in Appendix 3 are likely to be of value.

Summary of minimum data requirements

In order to use the currencies as a means of understanding services and then ultimately for funding purposes trusts will have to be able to capture and report against all of the elements previously described by each service user ie.:

- Cluster
- Period start/ Period end
- Duration of period
- Periodic and unscheduled reviews
- Care transition points

Detailed staff activity data is not required at the early stages in order to understand what is being provided and at what cost. However, consistently collecting existing types of activity data e.g. bed days, outpatient appointments are collected consistently related to service users may be of some use in estimating resource use.

Clinical and Information system requirements

Within the complex array of service user information collected during an episode of care there is a need to develop a <u>spine</u> of information which records formal moments in the provision of care as described above. Clinically these will relate to the allocation, review and discharge cycle. Whist this is ultimately clinical, it needs to be linked in an explicit way for the requirements of commissioning.

In order for duration to be captured, whether it is a fixed predetermined period or a variation there must be a formal line which captures clinical activity in relation to this. All periods must end with either a periodic review or an unscheduled review which must be held within a central process. Where multiple clinicians are involved this would presumably be formalised through the CPA and care coordinator role. However, even where a single clinician is involved the clinical processes must be formally linked to the same system.

One of the requirements of making this work is being able to distinguish between clinical information necessary for the currency and other clinical information. Many summary

needs assessments may be recorded but only some will be relevant to formal reviews and (re)allocation to care cluster. Care transition protocols have not yet been fully developed to describe how service users move between care clusters once their care has commenced. However, the system will have to be able to support recording of decision making along the lines described.

Data collection and clinical processes

Adoption of the Pathways and Packages approach requires routine use of a clinical scale (Summary of Assessment of Need) applied at periodic intervals and the clinical allocation of service users to clusters. Although this is not currently part of the MHMDS it is easy to append and use in practice.

The data collection cycles revolve around 'periods of care'. Periods of care are defined as a period of time for which a service user is in receipt of a package of care. Subsequent periods might repeat the same package of care or may involve a different one. A new period of care defines a new cycle of data collection.

Data will relate to all treatment settings including:

- Acute inpatient care
- Inpatient care
- Day treatment and care
- Community services

Settings or movement between settings does not in itself trigger a new period of care, only a change of need defined by a change in care cluster triggers this.

The cost of crisis and emergency care received through for example Crisis Resolution Home Treatment Teams, Acute Wards or PICUs will be apportioned as part of the proportional weighting process (described in section F).

E. USING THE CURRENCIES TO DEVELOP CAPABILITY

Having established a suitable classification system and developed this into a currency model it is now possible to move on to subsequent stages of the journey. The ultimate aim of the development of currencies for mental health is the development of a PbR tariff. However, this cannot be achieved in its entirety straight away because considerable development is required even to get to the point of currency testing. Classification development, currency development, testing and implementation are an iterative process. But, developing the capability and undertaking the process fulfils many important management functions. Some examples of how participating in this process may be of immediate benefit to organizations are listed below. It should be remembered that the purposes of exploring the use of the model in these areas is to improve our understanding of mental health currencies and tariffs, and any project developed for this purpose should not be distracted by all the many ways in which the model could be developed.

In deciding in what ways the model can be used now, organizations will need to assess the range of potential uses of the model and compare it against existing processes. Should organizations conclude that the methodology offers improvements on their existing systems they may wish to employ it.

Practical applications of the currency

The mental health currency described can be used immediately by commissioners and provider trusts to improve the understanding of funding of services while providing a methodology to increase the capability for developing and testing a PbR tariff for mental health. Examples of the types of processes that can be undertaken are given below. Clearly what is described is just the beginning of the journey with much more sophisticated analyses possible, and essential, as capability develops

Uses may include:
- Benchmarking teams and services.
- Demand and Capacity modelling
- Financial modelling and tariff development

Others uses that won't be considered here include:

- Workforce modelling.
- Service re-design.
- Clinical guidelines and outcomes.

Benchmarking teams and services

An important stage in currency development will be the process of benchmarking services to identify differences and to explore these. It can provide information to compare teams or sites on the number of particular cases being seen, the length of stay or treatment duration for particular clusters etc. This will itself produce interesting questions that will influence practice in a normative direction. This can be undertaken at different levels of sophistication as expertise and systems develop. Some examples are illustrated below.

A simple description of the service users, in terms of which cluster they belong to, on the books on a given day gives an immediate sense of the types and numbers of service users being seen. This information can be used to benchmark teams and services and explore the issues that arise. The two teams illustrated below, from the same trust, are for similarly sized populations with similar demographics yet there are some interesting differences.

CMHT 1 Caseload
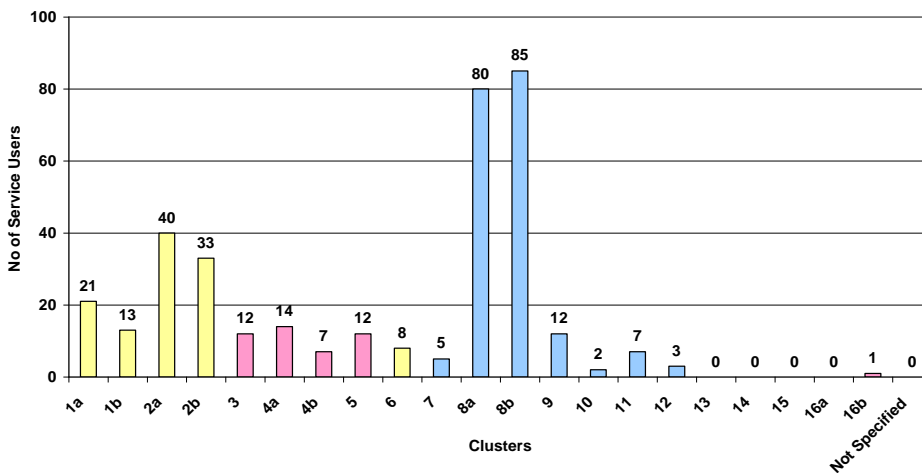
CMHT 2 Caseload
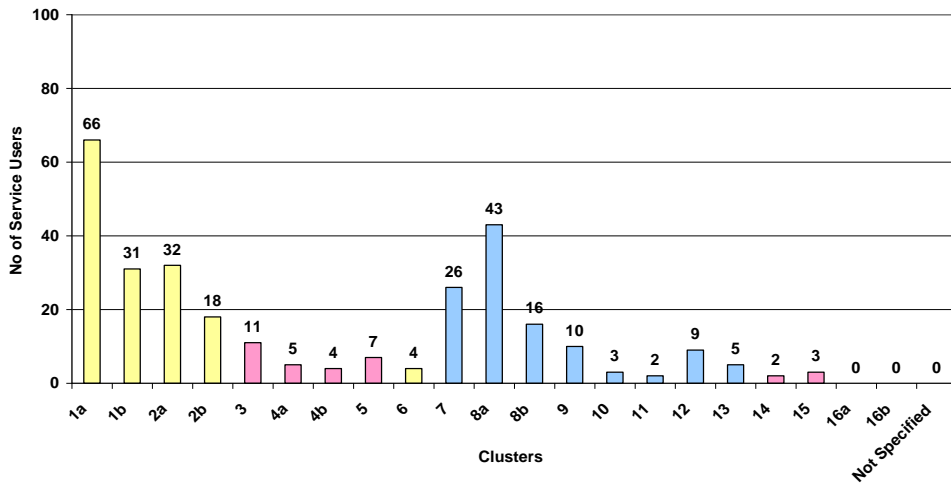
The reason for such differences can be explored as can the staffing numbers and skills profiles for each team. Do the staff numbers reflect the apparent amount of work being done, do the skills vary in ways that would be expected from the caseload composition etc.

CMHT 1 - staffing

CMHT 2 - staffing

A horizontal bar chart titled "CMHT 2 - staffing" with y-axis labelled "Professional /Staff Group" and x-axis labelled "Number of Staff (WTE)" ranging from 0 to 20.

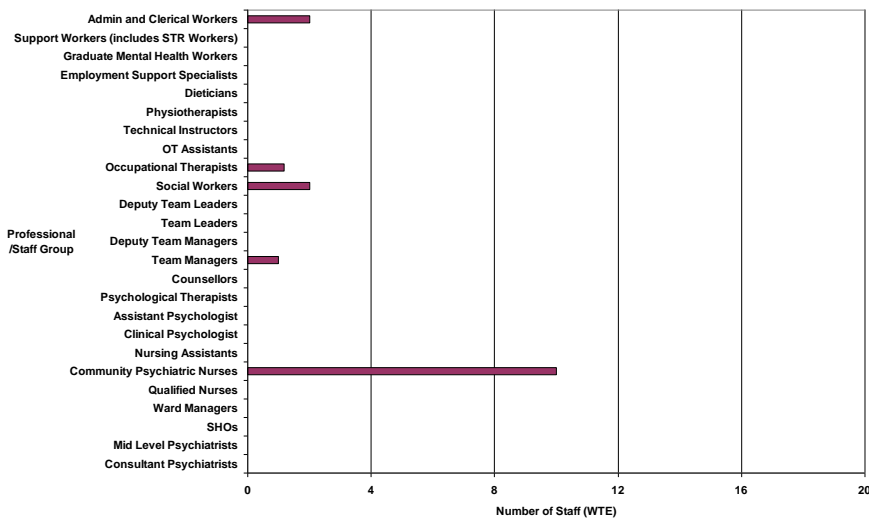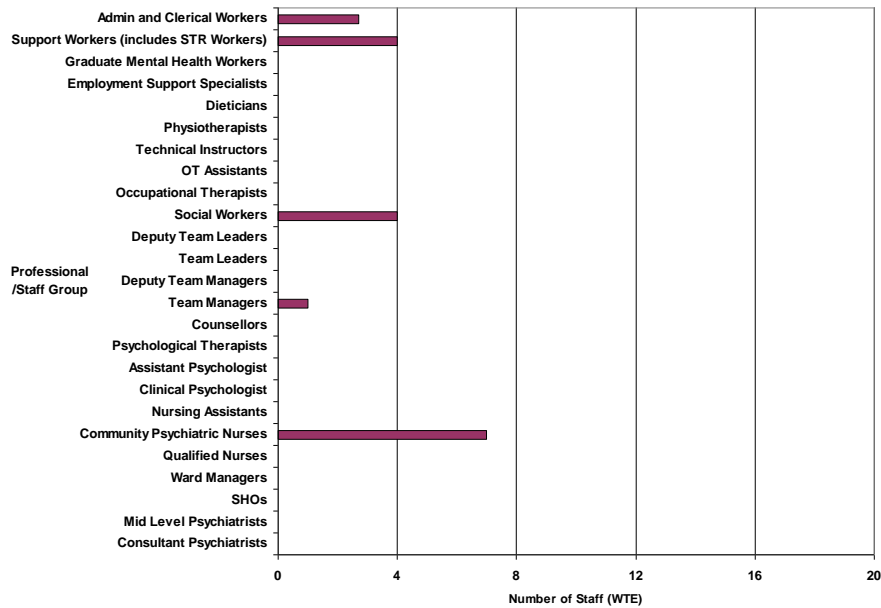| Professional /Staff Group	Number of Staff (WTE)
Admin and Clerical Workers	~3
Support Workers (includes STR Workers)	~4
Graduate Mental Health Workers	0
Employment Support Specialists	0
Dieticians	0
Physiotherapists	0
Technical Instructors	0
OT Assistants	0
Occupational Therapists	0
Social Workers	~4
Deputy Team Leaders	0
Team Leaders	0
Deputy Team Managers	0
Team Managers	~1
Counsellors	0
Psychological Therapists	0
Assistant Psychologist	0
Clinical Psychologist	0
Nursing Assistants	0
Community Psychiatric Nurses	~7
Qualified Nurses	0
Ward Managers	0
SHOs	0
Mid Level Psychiatrists	0
Consultant Psychiatrists	0

Capacity modelling

Looking at average caseload data gives a clear picture of how many service users in each cluster is being seen week in and week out. However, to understand the capacity of a service in any meaningful sense we need to know how many of each currency unit is being seen. This gives us a better idea of the outputs of a service. Over time the data will of course be collected and the actual outputs known. In the mean time the capacity of services can be estimated from caseload data, staffing levels and the available guidance. This builds an increasing understanding of what a service is doing and creates a foundation for more sophisticated contracting.

An example of how simple caseload data can be used to develop a fairly good estimate of capacity for a service is demonstrated below. Provided that service users are only counted once (i.e. only those cases for which the staff member is the care coordinator are counted), and certain assumptions are made, then the capacity for each cluster can be estimated and expressed in currency units per year.

For example, estimating the number of 2a currency units per year from caseload data is straightforward. If each unit is 16 x 1hr weekly session then 2.4 service users can be seen in each 1-hr clinical slot per year (assuming a 42 week year). The caseload of 173 represents clinical slots each of which that can accommodate 2.4 service users (the multiplication factor). Thus the capacity is 454, 2a currency units per year.

Capacity modelling from existing services

- eg Cluster 2a

> **caseload 173**
> **Currency period = 16 x 1 hr sessions**
> **Assuming a 42 week year X 2.6**
>
> **Total 2a currency units per year = 454**

It is easy to spot the potential problems with such an approach but it can be cross-checked and areas for exploration identified. If we knew what proportion of our staff time was spent seeing people in this cluster, we can estimate the capacity from NICE guidance. In the service being described, nine wte staff were identified as seeing people in cluster 2a. Therefore we can do the following calculation and estimate the capacity of this part of the service.

Capacity modelling from guidance

- eg Cluster 2a

> » **NICE guidance = 16 x 1hr sessions**
> » **Currency 2a period = 16 hrs**
> » **Assumptions 16 hrs a week x 42 weeks**
> » **Total 2a currency units per staff per year = 42**
> » **Total capacity = 42 x staff number**
>
> » **From reconfiguration exercise staff = 9**
>
> » **Total capacity 2a currency units= 42x9 = 378**

Using the currency period of 16 weeks which is the same as NICE guidance, and the assumptions of a 42 week year and 16 hours face to face a week, the capacity is now estimated as 378, 2a currency units per year.

Observed differences could be the result of a range of factors. Staff could be keeping people on their caseload and not seeing them, they may be doing more face-to-face work that the assumption allows for and related to this our assumptions may be wrong and need modifying. Either way the exploration becomes explicit and meaningful.

Whilst some of the clusters provide a bigger challenge much of the groundwork has already been explored when developing weightings for the clusters. Establishing the period of care for each cluster allows us to apply the logic above to all clusters. The capacity of a service can be described and illustrated as below. This gives the estimated number of each currency unit that the service can see in a year.
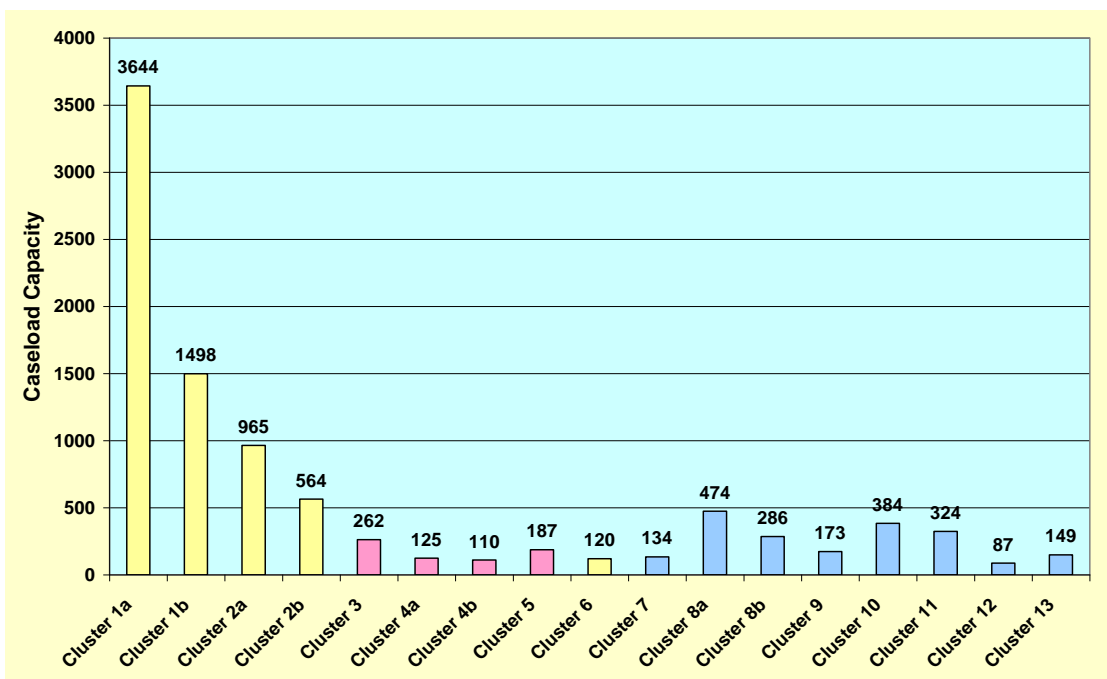
Such data can be used to compare actual performance with expected performance and performance of services against each other. In addition it forms the basis for financial analyses and together with the weighting methodology described in the next section will allow for the exploration of the distribution of costs within and between services.

F. DEVELOPING AND MODELLING TARIFFS

Once a currency has been specified – i.e. a way of counting services provided that includes both a classification of service and a definition of an episode – then work on developing a tariff – the price of the currency unit - can begin.

For the NHS in England since 1991, when the beginning of commissioner / provider separation and contracting raised the question of *price*, price has been related to *cost* – guidance has generally stipulated this, and indeed the acute services Payment by Results tariff is explicitly related to the national average cost. (This is not necessarily the case in commercial business, where cost will only be one factor in the pricing decision.)

This distinction is raised because it is worth keeping in mind that the methodologies and processes required to develop a cost that can be the basis of a national currency price – the funding requirement charged to commissioners – will not necessarily be the same as the costing information required to inform business decisions.

The purpose of this section is not to be a tariff manual but to relate some of the issues in implementing a care group tariff to some of the practices and ideas that the NHS already uses.

NHS Reference Costs

Each year all NHS provider organisations calculate their reference costs. This is a retrospective costing collection exercise using the previous year's financial and activity data and is done in the summer i.e. after year end financial statements have been completed, audited and signed off. The purpose of the exercise is to determine each organisation's average *total* cost for producing certain outputs, and from this to calculate both the national average cost – the average of averages – for each type of output, and the comparative average cost in total of that one organisation against similar ones – the reference cost index.

The product or output units are specified by the Department of Health, and although they do change year on year this is *usually* in an incremental way. The 2006/07 list of outputs for mental health services was:

|	
Inpatients - occupied bed days	Adult - Intensive Care
Inpatients - occupied bed days	Adult - Acute Care
Inpatients - occupied bed days	Adult - Rehabilitation
Inpatients - occupied bed days	Children
Inpatients - occupied bed days	Elderly
Outpatients - first appointment	Adults: Drugs and alcohol
Outpatients - first appointment	Adults: Other
Outpatients - first appointment	Children: Drug and alcohol
Outpatients - first appointment	Children: Other
Outpatients - first appointment	Elderly
Outpatients - follow ups	Adults: Drugs and alcohol
Outpatients - follow ups	Adults: Other
Outpatients - follow ups	Children: Drug and alcohol
Outpatients - follow ups	Children: Other
Outpatients - follow ups	Elderly
Community First face-to-face contact	Adults: Drugs and alcohol
Community First face-to-face contact	Adults: Other
Community First face-to-face contact	Children: Drug and alcohol
Community First face-to-face contact	Children: Other
Community First face-to-face contact	Elderly
Community Follow-up face-to-face contact	Adults: Drugs and alcohol
Community Follow-up face-to-face contact	Adults: Other
Community Follow-up face-to-face contact	Children: Drug and alcohol
Community Follow-up face-to-face contact	Children: Other
Community Follow-up face-to-face contact	Elderly
Community First Non face-to-face contact	Adults: Drugs and alcohol
Community First Non face-to-face contact	Adults: Other
Community First Non face-to-face contact	Children: Drug and alcohol
Community First Non face-to-face contact	Children: Other
Community First Non face-to-face contact	Elderly
Community Follow-up Non face-to-face contact	Adults: Drugs and alcohol
Community Follow-up Non face-to-face contact	Adults: Other
Community Follow-up Non face-to-face contact	Children: Drug and alcohol
Community Follow-up Non face-to-face contact	Children: Other
Community Follow-up Non face-to-face contact	Elderly
Domiciliary Visits	Psychiatrists
Domiciliary Visits	Psychologists
Specialist Teams - Contacts	Community MH Teams
Specialist Teams - Contacts	Crisis Resolution Home Treatment Teams
Specialist Teams - Contacts	Assertive Outreach Teams
Specialist Teams - Contacts	Early Intervention in Psychosis Services
Specialist Teams - Contacts	Homeless Mental Health Services
Specialist Teams - Contacts	A&E Mental Health Liaison Services
Specialist Teams - Contacts	Crisis Intervention Service
Specialist Teams - Contacts	Emergency Duty Teams
Specialist Teams - Contacts	Other MH Specialist Teams : adult
Secure Units - occupied bed days	Local Psychiatric Intensive Care Units
Secure Units - occupied bed days	Low Level Secure Services
Secure Units - occupied bed days	Medium Level Secure Services :
Secure Units - occupied bed days	High Dependency Secure Provision : Women's Services
Secure Units - occupied bed days	High Dependency Secure Provision : Mental Health / Psychosis
Secure Units - occupied bed days	High Dependency Secure Provision : Learning Disabilities
Day Care Facilities - Days	Adult
Day Care Facilities - Days	Child
Day Care Facilities - Days	Elderly

These differentiate mental health service provision by service, by some notions of time duration or episode and in some instances by client group. Community health services follow a similar pattern. In the acute sector, inpatient services are now specified by Healthcare Resource Groups (a classification based on diagnosis and procedure to group patient episodes with similar resource use together) and by finished consultant episode, with a differentiation between planned and unscheduled care. This means that rather than a cost per bed day, there is a cost for the package of care received by a patient. The national tariff, or price charged to commissioners, is based on the historical national average cost (although the tariff unit is spells not consultant epiosodes).

Costing methodologies for reference costs in practice will be a mix of top down and bottom up exercises. For example, care episodes know to have very expensive direct costs – for example some operations- may be calculated 'bottom-up' but then reconciled into a top-down exercise.

Top down Costing

One way of calculating the cost of one unit of activity is to find out or calculate the total costs of producing all units of the same type and then dividing by the volume of units.
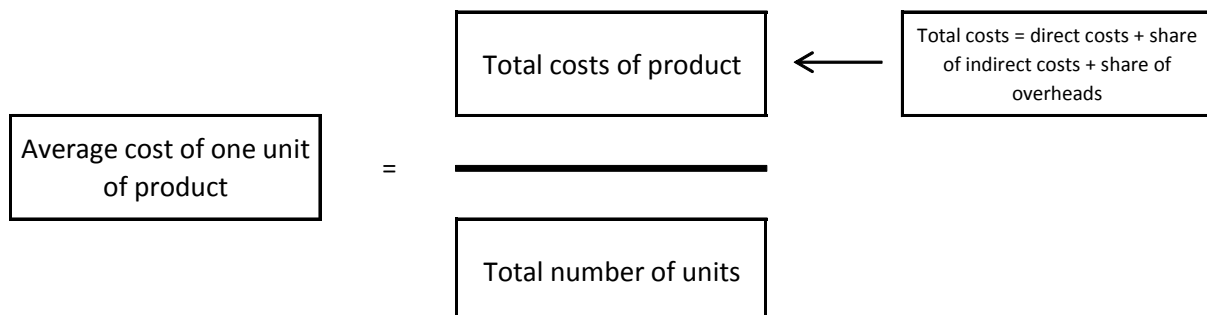
Total costs are the sum of; all the costs of activities that can be directly attributed to that product and that product only (for example joint prostheses are a direct cost of joint replacement operations); plus a share of indirect costs – costs that are linked to the output but may be shared amongst a number of products (for example a receptionist who assists patients at clinics for more than one specialty); plus a share of overheads – the fixed costs of running the organisation (for example The Board of Directors). The distinction between indirect costs and overheads may be arguable in many instances; the point is that methodologies must be devised or assumptions made in sharing them between different products.

This is called top down costing because the idea of 'one unit' comes at the end – the process is of aggregating and apportioning a control total until the last step which is dividing by the volume of product to give an average cost.

Bottom – Up Costing

Conversely, bottom up costing is the idea of building up what it costs to produce one unit of product.

Cost of one unit of product	=	Cost of *x* amount of element A	+	Additional amount to cover indirect costs / overheads
		Cost of *y* amount of element B		
		Cost of *z* amount of element C		
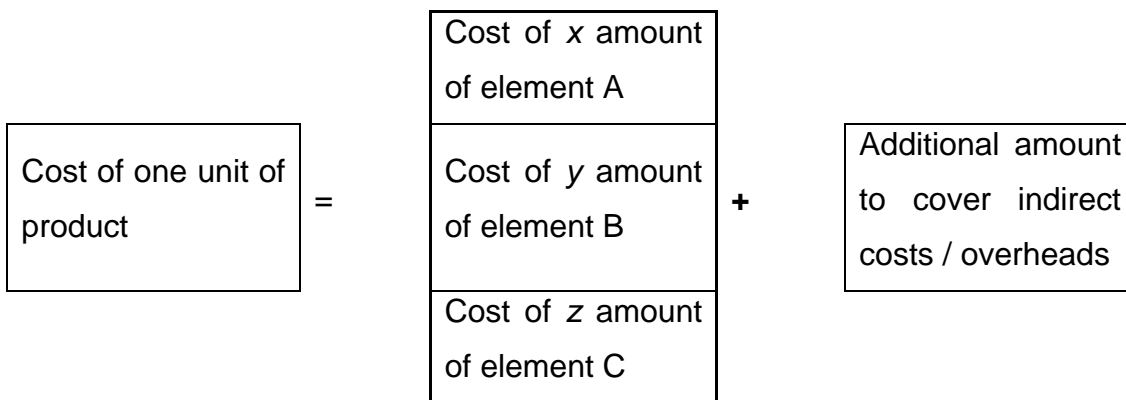
So, for example, for an outpatient appointment this might involve calculating the number of minutes of medical time at a certain cost per minute, the same for nursing time, the likely usage of consumables etc. Indirect costs and overheads might be estimated by adding a fixed percentage to the total direct costs.

Standard Costing

Standard costing is a means of calculating what it *should* cost to produce something. This is useful in comparison to what it actually does cost in order to drive good practice and efficiency.

Some important points to note:

- In allocating or apportioning costs, NHS organisations try to use 'activity based costing' ideas i.e. identifying what is the driver of a particular cost – what makes it occur or vary

- In dividing total costs by volume, some weighting may be used. For example; in calculating community contact costs, a mental health provider may know total costs for Community Mental Health Teams for adults, and the activity volumes for first and follow-up contacts both face-to-face and not. However, in order to arrive at the four different average costs the provider will have to decide a relative weighting for first and follow-up, face to face and non-face to face. This may well be done by an estimate of relative clinical time spent, based on the knowledge of CMHT members.

- Episodes of activity should be recorded on patient administration systems, but where data is incomplete sampling and estimating is allowed.

The purpose of reference costs is to give a historic, average total cost for the purposes of comparison, and is closely linked to external financial reporting. Output costing exercises can have other purposes including cost control, calculating surplus or deficit on particular services, and decision making. Service Line Reporting may be an example of this. In these instances, the average total historic cost per unit is not the number that is needed.

Local Costing for Care Group Clusters

In introducing care groups, it should be noted that new products or output units are being introduced, and a substantial part of this whole paper is devoted to explaining how these can be specified and recorded.

Care Packages and Pathways

The original PbR care pathways and packages study (DOH 2007b) briefly tested currency viability by employing some bottom up methodologies. Only direct costs were tackled, and only certain care group clusters. The work was not taken as far as giving any indicative costs.

Bundling-Up Based on Historic Information

Another approach is to take actual activity information by patient, and attribute costs to this bundle of care. If each patient record can be attributed to a particular care group, then

there will be a selection of patient records for each care group from which either an average historic cost or a relative value unit can be derived.

The CSIP funded Mental Health Commissioning Toolkit Project in the Pennine Care Health Economy has tried this approach, using reference cost specified output units as the elements for weighting the bundles of care.

Example

Care Group Episode

21 occupied bed days - adult inpatient ward	9 contacts Crisis Resolution Team	6 Contacts CMHT

The advantages of this approach are;

- It is to a large extent a re-presentation of existing information, with recognisable control totals and audit trails.
- It uses cost information that all NHS organisations have in a similar format.
- Depending on the sophistication of the costing systems, the organisation may be able to disaggregate to a greater level of detail easily. For example, the reference cost average may be the collation of a number of hospital sites or borough services for that Trust, and the Trust has the information by locality readily available.

The disadvantages are;

- Activity information by patient is very likely to be incomplete, and how to compensate this is an issue. One way is to use the average costs as relative value units, and flex or scale the total costs of the exercise back to the known total costs of services for the period for that organisation
- Can the care groups of patient records reasonably be attributed retrospectively, even if there is a robust census of current patients and service users by care group?
- Can the start and end dates of episodes be picked out or derived well enough?

Relative Value Units (Weightings) Based on Best Practice Care

Another approach would be to work out the relative resource use of the different care groups. This could then be multiplied by the volumes in each group and the result divided back into a financial control total – perhaps a provider organisation's total budget, or total clinical services budget – to give a cost by care group episode for that organisation. Both bottom-up costing and relative value units are attractive starting points for mental health services, as it seems a reasonable hypothesis that clinical time is the key cost driver or variable in specialist services, at least beyond inpatient stays - other important areas would be drug costs. (Compare this to acute services where some very serious pieces of equipment and consumables have to be factored in.)

To achieve this, provider costs are viewed as direct (staff time and medication) indirect (eg non-clinical service managers) or overheads (eg costs of premises etc.) For each set of costs, it is helpful to produce relative weightings for each cluster. These sets of weightings can then be combined to give an overall cluster weighting which, in turn can be applied to provider budgets in order to derive actual costs per case. At the outset, little is known about the distribution of each set of costs and hence separate weighting methodologies are required for each.

NB figures used are for illustrative purposes only.

Direct costs (staffing):

Despite the lack of agreement over the type of care that should be provided to each cluster, there are numerous best practice guidance documents that can be used to establish the level of direct resource use for particular clusters (thus avoiding the problematic interim stage of agreeing on the type of interventions to be costed for each cluster). For instance, the NICE Guidance on anxiety and depression specifies the number, duration, frequency, overall length of therapy sessions and the level of skill required to deliver the sessions for various severities of the conditions. These can be readily matched to the clusters, and lead relatively easily to a direct cost for each of the less intensive clusters.

For the more complex clusters, the Mental Health Policy Implementation Guide (DOH, 2001) specifies the constitution of Assertive Outreach and Early Intervention in Psychosis teams for given numbers of service users. Making the same allowances for non-clinical activities etc. this results in a more complex, more intensive and hence more costly care pathway / package than above for an identical time period.

These in turn allow a second direct staff cost to be calculated which, although not the true cost, is useful in understanding the relationship between the resource usage of these two clusters.

Using a combination of expert clinical judgement regarding the relative complexity of each cluster, and all available best practice guidance, a comprehensive picture of the direct staffing costs for each cluster can be built up.

The final stage is to factor in the anticipated duration of the periods of care which increases the variation between the clusters due to the frequent correlation between treatment intensity, complexity and hence longer periods of care.

Cluster weighting for periods of care
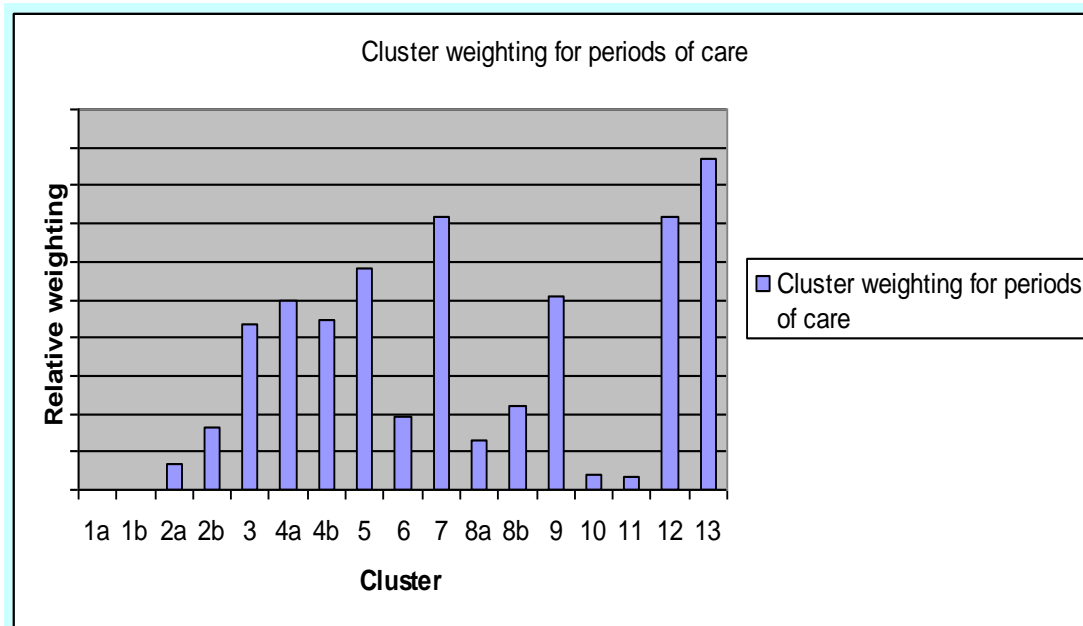
Direct costs (medication):

In the majority of mental healthcare clinical experience would suggest that the costs of medication for each cluster constitute a much smaller proportion of the total costs than staff time. It is also likely that these costs vary significantly by cluster. Further more, as there appears to be no correlation between staffing costs and medication costs by cluster, a second methodology is required to adequately capture the impact of medication costs on the overall relative cluster weightings.

The cluster descriptions provide lists of commonly associated diagnosis and ratings of key symptoms for which medication is commonly utilized. In combination with best practice prescribing guidance and national prescribing statistics expert clinical consensus can be reached as to the most commonly prescribed drug groups (eg anti-depressants, 1st generation oral antipsychotics etc.) for each cluster. In each instance, this can be further developed to produce a cluster-specific list of the most commonly prescribed medications within in each drug group. Using the WHO's daily drug doses and the latest costs for each medication it is possible to determine the theoretical average cost for each drug group by cluster. As with the staffing costs, this is not a real cost, but a figure that can be used to understand the relationship between the intensity of medication costs by clusters for equal periods of time.

Example:

According to NICE Guidance for Anxiety and Depression (2004) cluster 2a is likely to require a course of first line antidepressants for 6 months. Most commonly prescribed medications and their associated costs are:

Specific drugs to be included in group	WHO Daily Drug Doses (Dec 2007)	Cost for 1 week course of each medication (using March 2008 tariff)	Average cost (in pence) for 1 week for drug group
Citalopram	20	31.75	
Fluoxetine	20	15.75	
Sertraline	50	35.25	
			27.58

Again, the final stage in the methodology is to convert these cost intensities to a relative weighting that takes account of not only the anticipated duration of the period of care, but also the usual duration for which each medication will be prescribed within the period.

Example:

Average cost (in pence) for 1 week for drug group	Course duration (weeks)	Period of care (weeks)	Average cost per episode (pence)
27.58	26	39	717.08

These can then be used to produce a similar set of weightings that represent the variation in medication costs per case.

Medication weightings for anticipated periods of care
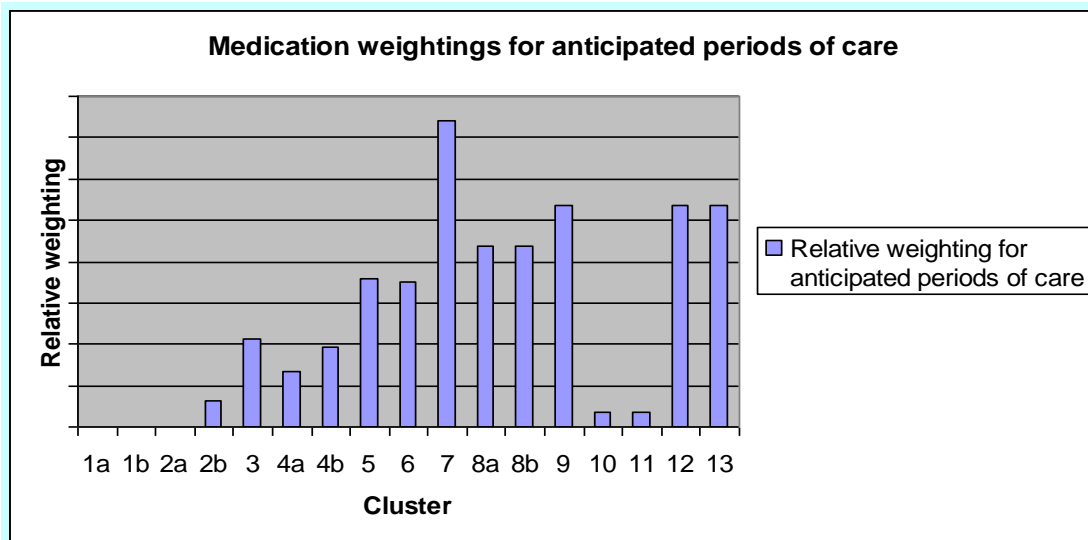
NB further development of the medication weighting methodology will be necessary to take account of the complex shared-care prescribing arrangements that often exist between primary and secondary care, however at the outset it is essential to understand all that an individual requires, before decisions can be made as to who should meet the costs (often referred to as unbundling).

Combining direct costs

As previously indicated, in mental healthcare the general level of expenditure on staffing vastly outweighs that of medication. This will need to be accounted for when combining these two sets of weightings into one overall direct cots weighting so as to provide a true reflection of the impact of each set of costs.

Indirect costs and overheads:

A significant proportion of the cost of mental healthcare provision is classed as indirect, or overheads. Again, the correlation between these and the direct costs is not always apparent. Consequently transparent apportionment of these costs is essential if meaningful comparisons are ultimately to be made between service providers of all levels.

Acceptable rules for apportioning costs across packages would have to be developed. Examples of costs:

Patient attributable costs(P)   care costs   direct – eg contact

                                                                        Indirect – eg CPA review

                                                        Non care costs

                                                        Supervision

Non patient attributable costs (N) teaching/training

                                                        R+D and audit

                                                        Consultation/ liaision

                                                        Unregistered patient

Non attributable costs (G)   Overheads and infrastructure costs

Here much can be learned from more established financial methodologies, most notably Service Line Reporting where overheads are subdivided and attributed to meaningful divisions of an organisation (eg directorates, teams, geographical areas etc.) No single methodology is used; instead the seemingly most appropriate is selected according to the nature of the cost to be apportioned (Monitor, 2006). For example, the costs of providing a Human Resources function may be apportioned according to the number of whole time equivalent (w.t.e) staff in each service line. Alternatively, the cost of providing Estates and Maintenance Services may be apportioned according to floor space (M^2).

Other issues would include how to include the cost of inpatient stays and the use of Crisis Resolution Home Treatment Teams. In the short term costing these separately may be expedient but certainly as data is collected the use of these facilities by the various clusters could be determined and added to the tariff for each cluster. This will lead ultimately to a setting independent system.

Moving to a National Mental Health Tariff

If a number of providers worked out local costs for clusters and episodes as defined here, then a national price could be calculated from the average, as with the general and acute tariff.

Such a PbR system will of course need many other features including:

- Scope and excluded services

- Arrangements for outliers / anomalous situations

- Payment mechanisms and timing

- Rules of conduct

- Information sharing protocols

- Arrangements for verification and audit

G. CONCLUSION

This paper describes the development of the currency model and an outline of the ways in which the methodology may support both those wanting to develop a better understanding of mental health services from a business point of view and those wanting to develop a mental health PbR tariff. Steps that can form the basis for a logical programme of work leading to PbR tariffs for mental health services as well as work already undertaken to develop a currency model that can provide immediate benefits to commissioners and providers of mental health services are made available. Ways in which some organisations are already using this methodology to develop business capability by benchmarking and capacity modelling are also described. Examples of the ways in which costs could be distributed are also presented.

The authors propose that the currency could be used within programmes of work seeking to develop national PbR tariffs for mental health services. It must be recognised, however, that the process of introducing the currency and developing tariffs cannot be undertaken in a single step. What is proposed is an iterative process involving modelling and simulation of emerging information and simultaneously carrying out essential model validation.

Immediate benefits include:

Patient classification system to describe and benchmark services
Clearer understanding of who does what and for whom
Tool for demand and capacity modelling
Tool to support service redesign
Currencies from which to develop local PbR tariffs

Longer-term benefits include:

Convergence of care provision to guidance and best practice
Framework for outcomes and quality measures
Workforce modelling and planning tool
Currencies from which to develop national PbR tariffs

As organisations move along this process we might confidently expect that trusts will move from services purchased as a block, with little understanding of what services are being provided, to one based on currency capacity and then ultimately tariffs. Issues such as individualised budgets and provider plurality can be addressed on the way. An outline timetable of possible activities is illustrated in appendix 4.

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I. APPENDICES

Appendix 1

Summary of the requirements for a PbR Currency

The above analyses can be summarised in a simple table (See appendix) and we might expect that any currency model should be able to demonstrate these properties.

1   *There are consistent, **unique classifying principles** in operation.*

2   *The categories are **mutually exclusive**. In an ideal world categories are clearly demarcated into which objects will uniquely fit.*

3   *The **system is complete**. The ideal classification system provides a total coverage of the world it describes.*

4   ***Clinically Meaningful** – made up of groups of patients/ service users that are recognisable, meaningful and acceptable to clinical staff.*

5   ***Resource homogeneous** – patient/ service users in group require clinically similar treatments/ interventions and use similar types and levels of health-care resource.*

6   ***Benchmarking** – support comparison of activities between organizations and standardised health-care commissioning.*

7   ***Workable** - be supported by underlying information flows that are easy to collect in routine practice.*

8   ***Quality** – support policy goals for efficient, effective, accessible safe services.*

9   ***Setting independent** – not be dependent on existing service structures but allow for innovation in practice.*

10   *A currency must support the **fair and equitable reimbursement** of a provider for providing an appropriate service to service users with clearly defined clinical needs to an acceptable standard.*

Appendix 2

Cluster clinical review, period of care and course of condition durations

Cluster	Clinical (CPA) review interval	Period duration	Anticipated course of condition
1a	1 week	6 weeks	6 weeks
1b	1 week	8 weeks	8 weeks
2a	4 weeks	6 months	6 months
2b	4 weeks	9 months	9 months
3	6 months	1yrs	2yrs
4a	6 months	1yrs	3yrs
4b	6 months	1yrs	Long Term
5	6 months	1yrs	Long Term
6	6 months	1yrs	Long Term
7	6 months	1 year	3 years
8a	6 months	1 year	Long Term
8b	6 months	1 year	Long Term
9	6 months	1yr	Long Term
10	1 week	4 weeks	4 weeks
11	1 week	4 weeks	4 weeks
12	6 months	1year	Long Term
13	6 months	1 year	Long Term

Appendix 3: Care Transition Protocols

Cluster	Step up Criteria (<u>Any</u> of the following criterion is met)	Discharge Criteria (<u>All</u> of the following criterion are met)	Step down Criteria (<u>All</u> of the following criterion are met)
1a	• Patient fits profile of any other cluster	• Honos Plus item 7 = 0 • Honos Plus item 8 = 0 • Honos Plus item 2a = 0	N/A
1b	• Patient fits profile of any other cluster (excluding 1a)	• Honos Plus item 7 = 0 • Honos Plus item 8 = 0 • Honos Plus item 2a = 0	N/A
2a	• Patient fits profile of any other cluster (excluding 1a or 1b)	• Honos Plus item 7 = 0 • Honos Plus item 8 = 0 • Honos Plus item 2a = 0 • 16 sessions of appropriate talking therapy completed.	N/A
2b	• Patient fits profile of any other cluster (excluding 1a, 1b or 2a)	• Honos Plus item 7 = 1 or less • Honos Plus item 8 = 1 or less • Honos Plus item 2a = 1 or less • 20 sessions of appropriate talking therapy completed.	N/A
3	• Patient fits profile for clusters 4a, 5 or 11.	• Honos Plus item 7 = 1 or less • Honos Plus item 8 = 1 or less • Honos Plus item 2a = 0	N/A
4a	• Patient fits profile for cluster 5 or 11.	• ???	• Patient has received treatment for 3 years. • Patient fits profile for cluster 4b • Have completed at least one course of an appropriate talking therapy.
4b	• Patient fits profile for cluster 11.	• ???	N/A
5	• Patient fits profile for clusters 10 or 11.	• ??	•
6	•	•	•

Cluster	Step up Criteria (Any of the following criterion is met)	Discharge Criteria (All of the following criterion are met)	Step down Criteria (All of the following criterion are met)
7	• Patient fits profile for clusters 10, 11. • Patient scores above 2 on substance misuse item and this results in excessive variance from the care required by a cluster 7 patient.	• Has received 3 years of EI intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Has completed 3 yrs of EI treatment.
8a	• Patient fits profile for clusters 8b, 9,10, 11, 12 or 13.	• Fits profile of cluster 8a at the point of the planned CPA review. • Requires no psychotropic medication or has been on a stable dose for the past year. • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	N/A

Cluster	Step up Criteria (Any of the following criterion is met)	Discharge Criteria (All of the following criterion are met)	Step down Criteria (All of the following criterion are met)
8b	• Patient fits profile for clusters 9, 10, 11, 12 or 13.	• Fits profile of cluster 8a at the point of the planned CPA review. • Requires no psychotropic medication or has been on a stable dose for the past year. • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Has fitted the profile of cluster 8a for past 12 months
9	• Patient fits profile for clusters 10, 11, 12 or 13.	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Fit profile of a cluster 8b for 1 year

Cluster	Step up Criteria (Any of the following criterion is met)	Discharge Criteria (All of the following criterion are met)	Step down Criteria (All of the following criterion are met)
10	N/A	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Patient fits profile of any other cluster.
11	N/A	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Patient fits profile of any other cluster.

Cluster	Step up Criteria (Any of the following criterion is met)	Discharge Criteria (All of the following criterion are met)	Step down Criteria (All of the following criterion are met)
12	• Patient fits profile for clusters 10 or 11.	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Honos item 3 scores below 3 for previous 6 months.
13	• Patient fits profile for clusters 10, 11. • Patient scores above 2 on substance misuse item and this results in excessive variance from the care required by a cluster 13 patient.	• Has received 2 years of specialist MH intervention. • Requires no psychotropic medication or has been on a stable dose for the past year. • Scores 0-1 on Honos item 6a • Is informal. • Has required no inpatient / IHT packages for the past year. • Any residual risks can be managed by primary care. • Scores 0-1 on Honos Plus item 12. • Level of social inclusion meets service user's expectations.	• Have fitted the profile for clusters 8a, 8b, or 9 for past year. • Has required no inpatient / IHT packages for the past year.

Appendix 4 Outline timetable of activities and project outputs and products.

	Nov 07		Apr 08			Apr 09			Apr 10	

Outputs/Products — Nov 07

- InPAC model
- CDST
- InPAC Guide

Apr 08 — Currency model / Testing method / Modelling tool

Benchmark services / Service users / Staff

Apr 09 — Revised currency model, testing methodology and modelling tool

Benchmark services / Service user flows / Resource use

Final currency description

Demand and resource modelling tool

Apr 10

Currency development and testing work-stream

Develop currency model:
- properties of currency
- operationalize currency
- operationalize properties
- develop model
- testing methodology
- capacity model for service
- hypotheses to test
- criteria for success

Currency testing 1:
- Provisional currency model
- Data collection and analysis
- Review and modify currency model

Currency testing 2:
- Modified currency model
- Data collection and analysis
- Review and modify currency model

Final model description:
- Performance of currency
- Recommendations
  (a) use
  (b) development

Introduce currency model into use:

Model validation work-stream

Existing provisional CDST

Summary Assessment Tool:
- Development
- Validity
- Reliability

Classification groups:
- Repeat original methodology
- Validity Reliability

Care Packages
- Repeat original methodology

Introduce Packages into clinical use:

Concurrent tasks to support above work-streams

- Set-up local teams
- Train local staff
- Develop demand and capacity model
- Develop modelling tool

- Ensure IT and data quality
- Collect data for currency testing
- Data for validation

- Collect data for currency testing
- Data for model validation
- Develop IT systems to support care planning

- Workshops for care plan validation

- Training for staff

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