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Information-based management of mental health services: a two-stage model for improving funding mechanisms and clinical governance

The government and commissioners have a responsibility to distribute resources for healthcare services to ensure equity across the country. They should also be concerned about quality, cost-effectiveness and safety. However, at present these tasks are seriously hampered by a lack of good-quality information about what is happening within services. Internal trust management is also poorly informed.

Mental health services may be said to be hard to quantify, but the criticism could be made that the lack of information is actually a result of poor effort and methodology rather than any inherent immeasurability. A genuine complication arises from the split in care provision between health and social care. This division runs through both the commissioning and information processes and can only be resolved by high-level political intervention. Since that seems unlikely to occur in the near future, this paper concerns only the health side, and uses the appropriate terminology, but the proposal made here would not hinder a closer partnership – indeed the suggested information tools have been designed with joint care in mind.

Current information base

The Mental Health Minimum Dataset (MHMDS; <http://icservices.nhs.uk/mentalhealth/dataset/pages/scope.asp>) is the main source of standardised, routinely collected information for management, but at present there are very few mental health units that provide a full reporting dataset. The reasons given are the lack of information technology and difficulty persuading clinicians to collect data for which there is little visible use. The scope of the MHMDS also has limitations.

- There are no standardised data collected routinely on the conditions or problems for which service users are treated (except for the diagnosis of hospitalised patients).
- There is no national classification of mental health interventions (except in child and adolescent mental health services and substance misuse), so there is no

information on what care each patient receives, or for how long.

- Although the MHMDS includes clinical severity and outcome measures as an option, collection of this information has never been mandated, or encouraged by performance indicators, so that there is no means of monitoring effectiveness.

It is unlikely that these obstacles could be overcome within 5 years, since the necessary work is not scheduled by the Department of Health, the Information Centre, or the National Programme for Information Technology.

Current approach to funding

Service-level agreements work on an 'historic' basis, each service provider getting the same as in the past year, unless there is a reason for change. Once provided with a 'block budget' the trust executive has few *direct* constraints to shifting revenue from one part of the service to another – but there are many other influences to be balanced. Local distribution of funding is important to mental health services because there is a very wide geographical variation in need (prevalence rates for some disorders such as schizophrenia vary as much as fivefold owing to socio-economic factors).¹ Since there will always be a pyramid of need within the community, rather than a fixed number of 'cases', it is not easy for commissioners to set targets for funding without adequate information.

Service configuration

Local services have become more uniform in their structure as a result of central initiatives such as the National Service Framework for Mental Health (Adults of Working Age) and various performance indicators (Department of Health, 1999). The greater the similarity of service models across the country, the easier it becomes to implement information-based approaches to commissioning, and to establish quality benchmarks for common service types. A classification of services, including definitions of each

1. In contrast, 'demand' (as opposed to 'need') is often greater for services for people who are less severely affected and therefore articulate.



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type, is in operation for mapping purposes and could be used more widely (<http://www.amhmapping.org.uk>; see Appendix 2 in data supplement to online version of this paper).

Payment by results

In acute hospitals the Payment by Results programme allows commissioners to vary budgets according to the number of treatment procedures that have been carried out. This is already in operation for 70% of secondary care. However, no country has used such a system for mental health services, despite many pilot projects and 15 years of research in this country (Oyebode *et al*, 1990; Parsonage, 2004). Indeed there is doubt within the mental health domain that payment by results, as currently applied in acute hospitals, can ever be made to work – because there has been a poor statistical correlation between costs and the care data examined so far in pilot projects. Also, the recommendations of the latest project in England would be unlikely to be implemented in all trusts until 2010 – 6 years behind the introduction of payment by results in most acute hospitals (Department of Health, 2005).

Payment by results is intended to normalise funding between similar services in different geographical areas, which arguably might promote equity of access to each sort of treatment. However, within each locality there is still competition for resources between each of the sectors and specialties. Therefore if comparative deficits can be proved to commissioners through the payment by results scheme, then a care domain for which there is no set tariff becomes a natural target for 'budget balancing'. Since mental health services will account in 2006 for approximately half of the 30% of National Health Service total budget which is still not included in payment by results tariffs, we are thought to be at a disadvantage. Therefore, there would be a benefit to the mental health community if a safe method could be found for introducing tariff-based funding, but a way must be found to 'split' budgets to reward good performance.

Research findings

Some salient findings from previous case-mix projects are still relevant.

- The cost of providing care varies significantly between different care settings (such as hospital wards for general psychiatry and medium secure units, community mental health teams and assertive outreach teams).
- In hospital, a patient's diagnosis is a better predictor of consumption of resources – of how long a patient will need to remain in hospital once admitted – than any other factor. Severity is less predictive (as measured by Health of the Nation Outcome Scales (HoNOS; Wing *et al*, 1998) or sub-scores; by measures of functioning, etc). Adding the two effects, by stratifying diagnostic groups according to severity of

problems, improves the correlation slightly, but still only accounts for about 15% of the variance (Horn *et al*, 1989; McCrone, 1995; Elphick *et al*, 1997).

- Community patients who have been recently referred, or recently hospitalised, will attract more resources in the first weeks of an episode of care within a particular setting, after which the frequency of contacts diminishes (Elphick *et al*, 1997).
- Neither diagnosis nor severity seems to determine how much resource a community patient will get over a period of time (as measured by face-to-face contact with staff). It is not impossible to collect such data – there have been projects in which broad diagnostic data as well as data using ratings such as HoNOS have been reliably collected by members of all care professions – it is more a question of what use can be made of the information once collected (Elphick *et al*, 1997; Carthew *et al*, 2003).
- The care information which is available, and is both descriptive of the type of problems that the service user is confronting and correlated with costs, concerns the setting in which the patient is cared for and how new they are to that setting.

Which data could inform funding decisions?

Condition

Funding could be varied according to the number of care episodes², with budgets split between groups with various types of diagnoses, problems or needs. There are validated brief assessment scales which measure social, psychological and functional factors as well as medical parameters, but there is no established mechanism for their use. It would take several years to establish the collection and analysis of community data in all trusts. Diagnostic groupings (healthcare resource groups (HRGs)) might be used for hospitalised patients, but could not be introduced ahead of groupings for community care because of the risk of distorting clinical decisions to admit or discharge from hospital (Elphick & Anthony, 1996). Therefore, information on condition is important for monitoring services but on its own it is not sufficient to guide funding decisions.

Severity

Budgets could be varied according to different levels of severity or complexity at the start of each episode or period of analysis. There is no established single national scale for severity or mechanism for its use in funding, although suitable candidates might include the Threshold Assessment Grid (TAG; Slade *et al*, 2001). The HoNOS was designed as a repeated-measures scale for outcome but is being used in a major collaboration as part of the payment by results project in north-east England as a multi-domain severity measure for allocation into a number of 'empirically determined' care packages (Department of Health, 2006). The care programme approach (CPA) level has been proposed as a proxy measure for severity or complexity – but there seems to

2. The term 'episode' would need to be carefully defined and is not synonymous with the MHMDS term 'spell'. Different results would be obtained by using the number of episodes planned, initiated or completed, or the number in progress at any time.



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be no consistency between teams as to where the threshold lies for enhanced CPA, so the data could easily be manipulated. Status according to the Mental Health Act 1983 appears to be poorly correlated with costs (Elphick *et al*, 1997), and the same would probably apply if any standardised measures of risk could be agreed nationally. Severity measures are in general not as predictive of resource consumption as might be thought, particularly in community care. They might be better used to set and monitor criteria for entry and discharge from services, in conjunction with other data rather than as the primary currency for determining resource allocation.

Interventions

Funds could match the number of interventions provided (or started) within a similar group, as in acute trusts. However, there is no national classification of interventions for mental health, and therefore no research base to support such an approach. Furthermore, the treatment provided and the amount of relief afforded to the patient (the true 'results') are not as closely linked in mental healthcare as they are in most branches of medicine, because of the number of intercurrent factors that can affect outcome. Those factors may be suspected to vary systematically, disadvantaging those in deprived areas. None the less this is plainly an important data item with which to make sense of the others, and it would surely surprise the public to learn that there is no way of collecting information on what interventions are used in mental health units.

Outcome

Funding variations might be used to reward the total 'health gain' of a population, by summing individual outcomes. The HoNOS is a centrally commissioned, well researched and validated set of outcome scales with setting-specific variants, which has been available for many years (Wing *et al*, 1996; Trauer, 1999). A Department of Health review of HoNOS and other measures was completed in 2005 (National Institute for Mental Health in England, 2005). Collection of data has been hampered by a lack of information technology and the absence of an integrated approach to the use of information (Slade *et al*, 1999). Changes in HoNOS ratings from the start to finish of an episode or intervention might be used as a proxy for the health gain resulting from an intervention. However, systematic variations in the starting prognosis between localities might be expected, so that greater therapeutic input would be required to achieve the same result. A funding mechanism should surely take note of the necessary input as well as the outcome. Hence outcome measures are not suitable for use as a single-item measure for service agreements.

Care setting

Funding levels could be set according to the number of care episodes carried out within a particular care setting

(team, department, etc). The Durham mapping classification of services (<http://www.amhmapping.org.uk>) has been in operation for 5 years and most trusts already return data in this format. As detailed activity data can be allocated to each team using the set of definitions, the system provides the best chance of resolving top-down budgets with bottom-up costings and with clinical data. The mapping service is also set up to assist commissioners by providing a range of data comparing levels of need and provision between areas, using data from a census-based needs index; this should prove useful, although it is important to emphasise that using the classification as a basis for splitting budgets does *not* mean that population needs indices should be used for setting funding levels automatically.

In the past, the use of care settings or service types for funding allocation has been rejected because it was not thought to constrain providers sufficiently. However, there are ways of reducing those risks (see Appendix 1 in data supplement to online version of this paper). By taking this approach, commissioners should encourage more sophisticated information management within provider organisations and provide an organisational sub-structure upon which information cultures could be based. This therefore appears to be, perhaps unexpectedly, the favoured option for immediate implementation.

Proposal

Stage 1

Service-level agreements should specify separate budgets for teams, clinics or departments using the Durham definitions, combined if necessary to form funding blocks. The local configuration of services is now consistent enough for national benchmarking costs to be derived for many of the most important services provided – for various types of wards, for crisis teams, assertive outreach teams, medium secure units, community mental health teams, etc. The same national classification is in the MHMDS, and is proposed in plans for a national electronic care record service, and in the Choose and Book Initiative (<https://www.healthspace.nhs.uk/chooseandbook>). It will therefore allow data to be intelligently related across management domains.

For community services the tariff then needs to recognise another dominant and easily defined aspect of care which has marked cost implications – namely whether the patient is newly referred to the service or is receiving maintenance/continuing care (Table 1). Costs are greatest in the first stages of care after a patient has been accepted by a community team (whether from primary care or a recent in-patient episode) and then diminish significantly in most mental health settings if the patient remains in care. The former category will also contain patients who require only assessment and advice and are then discharged back to the care of the referrer.

Tariffs would therefore be based for in-patient care upon the number of bed days provided in each class of in-patient unit, and for non-hospital care upon the number of 'new' and 'continuing/maintenance' care days



Table 1. Stage 1. Funding adjustments separated for each service or care setting using the Durham mapping classification¹

Hospital care, bed days	Community care, care days	
	New	Continuing
Adults of working age <ul style="list-style-type: none"> ● Acute in-patient unit/ward ● PICU ● Etc. Older age adults <ul style="list-style-type: none"> ● In-patient care ● Etc. CAMHS <ul style="list-style-type: none"> ● Tier 4 teams ● Etc. 	Adults of working age <ul style="list-style-type: none"> ● CMHT ● Homeless ● Etc. Older age adults <ul style="list-style-type: none"> ● Home care service ● Etc. CAMHS <ul style="list-style-type: none"> ● Generic teams ● Etc. 	Adults of working age <ul style="list-style-type: none"> ● CMHT ● Homeless ● Etc. Older age adults <ul style="list-style-type: none"> ● Home care service ● Etc. CAMHS <ul style="list-style-type: none"> ● Generic teams ● Etc.

PICU, psychiatric intensive care unit; CAMHS, child and adolescent mental health service; CMHT, community mental health team.
 1. A full list of service types is given in Appendix 2 of data supplement to the online version of this paper; definitions at <http://www.amhmapping.org.uk>

within each type of setting. The new or continuing category would be assigned automatically, based upon a set time period, by the local information system rather than by care staff. It should not be determined by reference to a notional care pathway stage. The set period may need to be different for each type of service. A patient seen by more than one team simultaneously should be counted that number of times. Patients who are discharged and re-allocated to the same team within a short period would not be classed as new.

This mechanism would allow certain specialised services to be funded centrally, or at a different organisational level to other services, since they could be defined using the same classification. It would also allow services such as child and adolescent mental health and substance misuse to develop at a faster pace, given that they have agreed standard interventions within a national data-set (Ford *et al*, 2006).

Such a funding system is based upon a different concept to payment by results in acute hospitals, but is compatible with it and intuitive. It requires no additional data collection in most trusts. The risks of introducing perverse incentives are reduced by the clear boundaries between the tariff groupings. Yet it allows much greater comparability between equivalent services in different parts of the country, so that equity of provision can be improved.

Stage 2

This funding system would still leave open some opportunities for unwanted local manipulation of both information and service models. However, the first stage would effectively endorse and promote a set of ready-made natural divisions within which better clinical governance could operate (Table 2). The types of data rejected as candidates for the first stage should then come into their own, both within provider organisations and across the purchaser-provider boundary. There are different measures of quality and outcome that are appropriate to particular service types, such as the HoNOS 'family' of variants, which were designed for

Table 2. Stage 2. Funding mechanisms and clinical governance strengthened within each service or team by setting-specific information management

Information on:	Used within:	Used to improve:
<ul style="list-style-type: none"> ● Interventions ● Condition ● Severity ● Outcome 	Hospital <ul style="list-style-type: none"> ● Adults of working age Community <ul style="list-style-type: none"> ● CMHT ● Crisis ● Outreach ● Elderly ● CAMHS ● Liaison ● Psychological therapies 	<ul style="list-style-type: none"> ● Entry/discharge criteria ● Case-mix analysis ● Bed occupancy ● Readmissions ● Human resources ● Incident management

CAMHS, child and adolescent mental health services; CMHT, community mental health team.

separate age-groups and sub-specialties. Commissioners should use such data (rated by both professionals and service users) alongside the proposed measures of care volume to make their decisions and to inform their discussions with provider executives.

Data from classified local services should be comparable with national benchmarks. Together the data should be used to provide information on:

- thresholds of entry to services (measured using a functional rating such as TAG)
- case-load and case-mix analysis (numbers of cases and standard data on their biological, psychological and social problems and needs)
- aggregated outcome measures; analysed for each condition type, service type and/or intervention
- bed occupancy, length of stay, readmission rates
- the number and types of interventions that are carried out in each care setting (using a national interventions classification)



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- there should be provision in every mental health service for comparison of these data with local rates of serious incidents, staff sickness, etc and other measures of quality; recognition and drive is needed from the Department of Health itself, and adequate funding needs to be provided to support the relevant initiatives; neither Connecting for Health nor the Payment by Results programme currently has the required resources or domain expertise to manage or carry out this work.

Information technology requirements

Funding systems will have to be run using minimal information technology systems over the next 5 years since the plans within the National Programme for Information Technology are not sufficiently developed for mental health to support increased data collection across the country until at least 2009. Most mental health trusts have sufficient capacity to return the data suggested above, but the Secondary Uses Service of the Information Centre for Health and Social Care (SUS) will require advance notification of the need to receive an enhanced data-set from trusts, and analyse and provide information in the required format for service agreements. Local information technology systems would need software modifications to support the allocation of care episodes to 'new' and 'continuing' categories. Within the MHMDS, more than one such episode would be added together to create a 'spell' under current definitions.

Summary of proposal

It is suggested that payment by results for mental health services should initially use a tariff based only upon data that are currently collected routinely. Resources should be varied according to the numbers of episodes completed within a reporting period in each of a number of standard national treatment setting types, compiled using definitions derived in national service mapping. For 'community' as opposed to hospital settings, the case-load may be further subdivided to reflect the increased resource need for recently referred patients and those newly discharged from hospital. It is suggested that such a system could be implemented within a much shorter time frame than is currently envisaged for payment by results, thereby reducing the negative impact upon funding.

It is proposed that in a second stage of implementation an *extended* data-set, including data on the four inter-related dimensions of condition, severity, intervention and outcome, should become part of a comprehensive approach to the monitoring of service quality, both by commissioners and as a part of trust clinical governance. This will allow an incremental approach to be adopted, with different data types collected in various treatment settings.

Declaration of interest

None.

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