

REPORT

Centre for
Mental Health



Outcomes and performance in liaison psychiatry

Developing a measurement framework

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Foreword

Psychological medicine, and the liaison psychiatrists and teams who deliver it, are key to the future integrated management of long term medical conditions as well as mental health conditions presenting outside formal mental health settings.

Psychiatric service models that seek to bring its benefits to the people in our acute care hospitals and medical and surgical care pathways have struggled to defend their value for the want of adequate measures of outcome. Whilst there is mounting evidence for the economic benefit of these services, the evidence for what they actually do for people in terms of enhancing their experience of care or its quality remains relatively weak.

The Royal College of Psychiatrists in partnership with NHS England commissioned the Centre for Mental Health to produce a consensus framework for the measurement and evaluation of the heterogenous collection of liaison psychiatry models currently operating in English hospitals, so that their value in terms of quality and economic output can be understood.

This report sets out the evidence and consensus for a balanced scorecard approach to the problem measuring elements of structure, process and outcome. The framework addresses measurement at the level of the patient, their referrer, the provider and the commissioner.

The Royal College of Psychiatrists welcomes this report, and looks forward to the widespread adoption of the framework and the balanced scorecard, supported by adequate information management systems, so that people who use the service, their carers and supporters, referring clinicians, health care providers and their commissioners can all be confident in the model of care.

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Executive Summary

This report describes a framework for measuring outcomes and performance in liaison psychiatry, to be used for such purposes as accountability, performance management and service improvement.

The work is based on a review of published research and discussions with a wide range of stakeholders in the NHS. It was commissioned by the Royal College of Psychiatrists and the South West Strategic Clinical Network.

Liaison psychiatry services address the mental health needs of people who are being treated primarily for physical health problems or symptoms and the availability of these services has expanded considerably in recent years. Continuation of this trend is likely to require improved arrangements for measuring the outcomes and performance of local services, which at present are very variable in content and quality.

Liaison psychiatry services operate in a number of different settings or clinical environments, carrying out a wide range of different activities in support of patients suffering from many different types of clinical problems. This complexity and heterogeneity of service provision necessarily rule out any very simple, all-purpose approach to the measurement of outcomes and performance.

The aim of this report is not therefore to recommend a fixed list of outcome and performance measures but rather to describe a framework that allows a range of measures to be used in a logical and organised way, linked to the key aims or objectives of service provision.

The proposed framework for measurement follows earlier studies of health service performance assessment in distinguishing between three dimensions of health care delivery: structure, process and outcome. In other words, what resources are available in the settings in which health care is provided (structure), what is actually done in the delivery of care in terms of specific activities (process), with what results (outcome)?

Improvements in outcomes, particularly in the form of better health, are the ultimate test of the effectiveness or otherwise of health service provision, but - particularly in the case of liaison psychiatry - information on outcomes is often difficult to collect and interpret. Outcome measures therefore need to be supplemented by measures relating to structure and process.

A further complication is the need to allow for multiple outcomes. We identify four main areas or dimensions of outcome for measurement purposes: clinical effectiveness, i.e. the impact of liaison psychiatry on health and well-being; patient satisfaction; satisfaction of other stakeholders, such as the medical staff who refer patients to a liaison service; and impact on NHS service use.

Taken together, these considerations suggest the need for a 'balanced scorecard' approach, including a mix of measures or indicators drawn from the three dimensions of structure, process and outcome and covering multiple outcomes.

In large and diverse liaison services a single scorecard may be insufficient to capture the full range of activities and in these circumstances there is merit in having separate scorecards for each major clinical environment in which support is provided, i.e. emergency departments, inpatient wards, outpatient clinics and community settings. These scorecards can also be adapted to meet the information needs of the various stakeholders who have an interest in the performance of the service: patient, clinician, service manager, commissioner etc.

Many of the key indicators which are recommended in the research literature can be derived from routine data collection systems, but some depend on other approaches, such as service or casenote audits and periodic surveys of patients and other stakeholders.

The precise choice of indicators to be used in populating the balanced scorecard is likely to vary to some degree from service to service, depending on local priorities and the scope and balance of service provision. At the same time there is also a case for reducing the extent of diversity in current practice, particularly in relation to outcome measures for clinical effectiveness.

1. Introduction

This report describes a framework for measuring outcomes and performance that is designed for widespread adoption and development by liaison psychiatry services in the NHS. It was commissioned by the Royal College of Psychiatrists and the South West Strategic Clinical Network.

It is essential that the measurement framework described here has a practical application and that the ideas underpinning it have been discussed with a broad range of stakeholders, not just those who provide liaison psychiatry services but also those who commission them and who work with them. The proposals in this report have therefore been tested with clinicians, commissioners and managers from both mental health and physical health services across the country. They also take into account key findings from a review of published research and related literature.

Liaison psychiatry services address the mental health needs of people who are being treated primarily for physical health problems or symptoms and the availability of these services in acute hospitals has expanded considerably in recent years. A recent editorial in the *British Journal of Psychiatry* (BJP) has identified a number of reasons for this growth, including: “almost overwhelming evidence” of clinical need; accumulating evidence that the better management of psychiatric illness in medical patients is not only effective but may also generate cost savings; and a growing demand from both clinicians and patients for more integrated and patient-centred care (Sharpe, 2014).

Drawing on such developments, a number of bodies have recommended the planned expansion of liaison psychiatry, including the Department of Health (DH, 2012), the Joint Commissioning Panel for Mental Health (JCPMH, 2013), the Royal College of Psychiatrists (RCP, 2013) and the Centre for Mental Health (Parsonage, Fossey & Tutty, 2012). This has led to the commissioning of new services, particularly based on the Rapid Assessment Interface and Discharge (RAID) model developed at City Hospital, Birmingham, which was explicitly identified in the 2012/13 NHS Operating Framework as an example of good practice under the Quality, Innovation, Productivity and Prevention (QIPP) agenda (Department of Health, 2011a).

The report by the Centre for Mental Health referenced above has argued that “*the status of liaison psychiatry should change. It needs to be recognised as an essential ingredient of modern health care and not an optional extra which is merely nice to have*”. Notwithstanding the recent expansion of services, it is clear that there is still some way to go before this change is achieved. The coverage of liaison psychiatry services in acute hospitals remains patchy around the country, with some areas still having little or no provision, and there is also a good deal of variation in the quality of services and in models of care. And looking beyond the acute hospital sector, there is even further to go, as the provision of community-based liaison psychiatry is at best described as being in the embryonic stage, despite the very large numbers of people with long-term physical conditions and co-morbid mental health problems who might benefit (Naylor *et al.*, 2012).

The BJP editorial identifies a number of challenges that need to be addressed if the expansion of liaison psychiatry is to be sustained. One of these is that services must develop greater clarity about what they are seeking to achieve. Although meeting unmet psychiatric need may seem sufficient, a more precise articulation of service aims and their associated outcomes is required and quantitative information from the measurement of these outcomes needs to become routinely available.

We very much agree with this line of argument, but would also note that, as yet, there is no overall agreement on the most effective ways of measuring the outcomes and performance of liaison psychiatry services. As will be discussed in more detail below, there are a number of good reasons for this lack of consensus and accordingly the aim of this report is not so much to recommend a fixed list of outcome and performance measures but rather to describe a framework that allows a range of measures to be used in a logical and organised way, linked to the key aims or objectives of service provision.

Looking ahead, it is clear that the financial constraints currently affecting the NHS will be as severe in the foreseeable future as they are today. In such circumstances it is inevitable that health service commissioners will set stringent tests before agreeing to fund the provision of new or expanded services, including clear evidence at the appraisal stage of the likely effectiveness and cost-effectiveness of proposed developments and also robust arrangements for monitoring the achievement of claimed benefits after implementation. A coherent framework for measuring the outcomes and performance of liaison psychiatry is likely to be essential if such requirements are to be convincingly met.

2. Outcomes and performance in liaison psychiatry – evidence

This chapter provides a brief thematic review of published evidence on the measurement of outcomes and performance in liaison psychiatry. A fuller review of the literature covering the period 1975-2001 is given in Callaghan *et al.* (2003), while more recent evidence is summarised and assessed in Wood & Wand (2014). An early but still relevant discussion of ‘concepts and controversies’ in this area is provided by Lipowski (1977).

A common theme emerging from the literature is that the available evidence is, in the words of Wood & Wand, “notably disparate and variable” in the measurements used to gauge the effectiveness of liaison psychiatry services. Some general reasons for this are discussed below, followed by more detailed analysis of measurement issues in four specific areas:

- clinical effectiveness;
- user views;
- the impact of liaison psychiatry on health service use; and
- education and training.

Measurement problems

It is generally accepted that the published evidence base on the effectiveness of liaison psychiatry is incomplete or inconclusive in important respects. To take just one example, very little is known about the impact of liaison psychiatry teams working in the emergency departments of acute hospitals, even though this accounts for a significant proportion of the overall workload of many services around the country. One major reason for this lack of hard evidence is that measuring the outcomes and performance of liaison psychiatry is inherently difficult. Particular challenges include the following:

1. Different activities

Liaison psychiatry services carry out a wide range of different activities, including not only the diagnosis and treatment of mental health conditions but also consultation and liaison with other health professionals, risk assessments, advice on mental capacity assessments, the management of challenging or disturbed behaviour, advice on medication, participation in discharge planning for hospital inpatients and the education and training of acute hospital staff. This list is by no means complete. Heterogeneity of activities necessarily carries through into a need for multiple measures of outcome and performance if the full impact of a liaison psychiatry service is to be properly assessed.

2. Different environments

Liaison psychiatry services also operate in a number of different clinical environments, including emergency departments, general or surgical inpatient wards, outpatient clinics and – to a limited degree – community settings. These environments vary greatly in their function and hence in the nature and types of liaison psychiatry interventions that are appropriate, again implying the need for a range of outcome and performance measures, in this case measures which are setting-specific.

3. Different clinical problems

Liaison psychiatry services deal with a very wide range of clinical problems. For example, the types of patients seen in an emergency department, often with presentations of acute mental illness or self-harm, may be very different from those seen on general or surgical wards, where patients typically have co-morbid mental

health problems such as depression or delirium that are not their primary reason for admission. Some inpatients may also have complex presentations that appear to have no underlying physical pathology. These so-called medically unexplained symptoms are likely to have an underlying psychopathological dimension that would benefit from liaison psychiatry intervention, including in some cases on-going treatment in outpatient clinics after discharge.

psychiatry input. For example, mental illness among hospital patients may in some cases develop as a psychological reaction to physical illness or because of the organic effects of physical illness on mental function. It would not therefore be surprising in these cases if any improvement in physical health resulting from hospital care led to a matching improvement in mental health, irrespective of any support provided by a liaison psychiatry service.

4. Shorter hospital inpatient stays

Acute hospital inpatient stays are becoming ever shorter, having fallen by a third in the last decade, and on average they now last only 5.2 days (NHS Information Centre, 2014). This necessarily limits the scope for securing significant improvements in mental health while a patient is in hospital and increasingly the role of liaison psychiatry services in the ward environment is to provide rapid-response support for urgent cases, focusing on assessment, management of patients during their time in hospital and onward referral or signposting to community-based services. Corresponding to this, the benefits of liaison psychiatry for inpatients mainly take the form of improved patient management and reductions in the time spent in hospital. The outcome measures needed in this context are therefore likely to be very different from those appropriate to an outpatient-based treatment service providing courses of psychological therapy which may extend over a number of weeks.

5. Attributing reasons for improvement

The patients seen by liaison psychiatry services are not only heterogeneous in nature but are also supported by other health services, which makes it difficult to determine the extent to which any improvement in mental health or other outcomes can be attributed to the liaison

These various difficulties for the measurement of outcomes and performance in liaison psychiatry are compounded by two further, more practical factors.

1. Wide variations in service models

Notwithstanding some convergence in recent years, there remain wide variations in service models for liaison psychiatry in this country, including differences in methods of delivery, in the structure and composition of teams and in approaches to treatment. Such variability means that outcome and performance measures appropriate to one service may not be readily applicable to another.

2. Data access and quality

It is usually the case in this country that liaison psychiatry services are delivered by professional staff who are employed by a mental health trust but who work in a physical health trust. This combination of different provider organisations, each with their own IT systems, governance mechanisms and payment regimes, can create problems, particularly in relation to data sharing. Such problems are widely found. For example, a study of a liaison psychiatry service working in a hospital emergency department in Sydney noted that deficiencies in the methods of routine

data collection used in the emergency department were a major constraint on undertaking a detailed audit of the activities of the liaison psychiatry team (Webster & Harrison, 2004). Problems of data linkage and extraction have also been identified in two other Australian studies (Wand, 2004; Sharrock *et al.*, 2006).

Clinical effectiveness

A substantial number of mental health outcome measures, both generic and condition-specific, have been suggested as useful in assessing the clinical effectiveness of liaison psychiatry services (Aitken, 2012) and a brief overview of those most commonly used is given below.

In general terms the use of clinical outcome measures is most straightforward where liaison psychiatry services are providing therapeutic interventions in outpatient clinics, essentially because patients are usually being seen for long enough that measurable changes in their mental health status can be reliably assessed. At the other end of the spectrum, liaison psychiatry services working in emergency departments or inpatient wards may have only a single contact with some patients and in these circumstances the use of clinical outcome measures is clearly of limited relevance.

In between these two extremes, whenever liaison psychiatry teams see a patient on more than one occasion, they should be encouraged to ascertain whether the patient's mental health state has changed. It is therefore important that any clinical measures or instruments used should be easy to administer (by all members of a multi-disciplinary team), quick, reliable and sensitive to change.

Leading examples of generic outcome measures or scales include the following.

The Clinical Global Impression Scale (CGI):

The CGI was originally developed for use in clinical trials to provide a brief assessment of the clinician's view of a patient's overall functioning before and after initiating a study medication (Guy, 1976). The CGI is an easily administered and readily understood tool (Busner & Targum, 2007). It comprises two components. The first of these, called the CGI-Severity, is used to determine the severity of the patient's psychiatric condition. Based upon observed and reported symptoms, behaviour and function in the past seven days, the clinician is asked: "Considering your total clinical experience with this particular population, how mentally ill is the patient at this time?" This is then rated on a 7-point scale (1=normal, not at all ill; 2=borderline mentally ill; 3=mildly ill; 4=moderately ill; 5=markedly ill; 6=severely ill; 7=among the most extremely ill patients).

The second component of the tool is the CGI-Improvement (CGI-I). This requires the clinician to consider: "Compared to the patient's condition at admission [prior to medication initiation], this patient's condition is: 1=very much improved since the initiation of treatment; 2=much improved; 3=minimally improved; 4=no change; 5=minimally worse; 6= much worse; 7=very much worse since the initiation of treatment." As this tool was originally developed for clinical drug trials (Guy, 1976), liaison psychiatry services using it have modified the CGI-I to meet their needs. The tool enables clinicians to track a patient's improvement over time.

Health of the Nation Outcome Scale (HoNOS):

This scale was developed by the Royal College of Psychiatrists' Research Unit and is an instrument with 12 items measuring behaviour, impairment, symptoms and social functioning (Wing *et al.*, 1996). The scales have been tested for acceptability, usability, sensitivity, reliability and validity, and can be administered and used in any setting (Royal College of Psychiatrists, 2012). Although HoNOS is now mandated by the NHS and provides the basis for determining the patient groupings or clusters used in payment by results for mental health, its utility for liaison psychiatry services remains in question. For example, the consultation role of liaison work may not be captured and the time frames within which liaison psychiatry services often work may be too short to show clear symptomatic change (Ranjith, 2010).

Although easy to use, HoNOS is designed primarily for use in patients with severe mental illness. Some specialties, including learning disability, child psychiatry and old-age psychiatry, have modified the HoNOS scale for use in their own particular settings. In the UK there have been attempts to do the same in liaison psychiatry, retaining the general structure and many of the original questions, whilst modifying them to make them more relevant and applicable to liaison psychiatry. There is on-going work to conduct larger-scale studies to establish the validity and reliability of this approach (Santhouse, 2014).

EuroQol 5 Dimensions (EQ5D):

The EQ5D measures health-related quality of life and is a standardised instrument for use as a measure of health outcome. It is also used to generate a measure of the quality-adjusted life-year (QALY), a generic measure of health status which takes into account both the quantity and the quality of life. The use of EQ5D as an integral component of Patient Recorded Outcome Measures (PROMs) for certain elective surgical procedures has been mandated in the NHS since 2009. Alongside condition-specific outcome

measures it is expected these data would be used to inform both the commissioning process and clinical improvement (Jacobs & Moran, 2010). Although the use of EQ5D is becoming routine in other parts of the NHS, the utility of this measure is only just beginning to be realised in liaison psychiatry. A major advantage of this approach is that it allows calculation of cost per QALY gained, which is the standard metric used by NICE and others for assessing the cost-effectiveness of different health service interventions.

Turning now to measures or scales which are condition-specific, a selective list of examples is as follows.

Clinical Outcomes in Routine Evaluation (CORE):

The CORE-Outcome Measure (Barkham *et al.*, 1998; Barkham *et al.*, 2001; Evans *et al.*, 2002) is a popular patient self-report measure which can be used across all service settings delivering psychological treatments, together with a practitioner-completed component termed the CORE-Assessment (Mellor-Clark *et al.*, 1999). This tool is used by some liaison psychiatry teams as a useful outcome measure in follow-up and outpatient settings, for example in services working with patients with Chronic Fatigue Syndrome presentations.

Hospital Anxiety and Depression Scale (HADS):

This scale, validated for use with hospital inpatients (Zigmond & Snaith, 1983), is a quick-to-administer tool with dimensions for symptoms of anxiety and depression. Although Aitken (2012) reports that HADS is not always helpful in measuring symptom reduction or recovery, it is often used in clinical trials and is also used in outpatient settings. HADS is a good tool to guide the clinician to make further inquiry, although Martin (2005) has called into question its clinical efficacy and use as a screening tool for liaison psychiatry services.

Mini-Mental State Examination:

This is one of the most widely used screening tools for cognitive impairment (Folstein *et al.*, 1975). It is not a diagnostic tool and cannot be used to distinguish between dementia, delirium and other disorders (Anderson & Ooman, 2012). It does test a number of different areas of functioning such as concentration, attention and orientation, and gives an overall rating of cognitive impairment.

Geriatric Depression Scale:

This scale has been developed to take account of the confounding symptoms of physical illness, and it has the advantage that it can be self-administered (Yeservage *et al.*, 1983).

Confusion Assessment Method:

This is the most widely used assessment method to detect delirium (Inouye *et al.*, 1990), it is quick to administer but requires specific training (Anderson & Ooman, 2012).

Alcohol misuse:

Various assessment and screening tools have also been developed to detect alcohol misuse (Carnwath, 2012) such as the Alcohol Use Disorder Identification Test (AUDIT) (Saunders *et al.*, 1993), the Fast Alcohol Screening Test (FAST) (Hodgson *et al.*, 2002) that can be used in a busy emergency department and the TWEAK test (Chang *et al.*, 1999) that can be used with pregnant women.

As these examples show, a large number of different clinical tools for identifying and measuring mental health states have been considered in the research literature, but the consensus seems to be that there is no one instrument that can be universally applied across the full range of activities carried out by liaison psychiatry services. Condition type, setting and clinician choice are all factors in deciding which tool may be the most appropriate. De Albuquerque Citero *et al.* (2008) also argue that general wellbeing may be a more important barometer than clinical mental health outcomes, being more broadly-based as a measure of psychological adjustment. An increasingly widely-used measure of this type is the Warwick-Edinburgh Mental Well-being Scale (Stewart-Brown & Janmohamed, 2008).

As a final point on clinical outcome measures, consideration should be given in some contexts to the possible impact of liaison psychiatry interventions not just on mental health but on physical health as well, particularly as a result of any improvement in the ability of patients to manage their own physical conditions that may result from better mental health.

It is unlikely that in the context of an acute inpatient setting changes in physical health outcomes could be attributed to liaison psychiatry interventions. However, a number of research studies and service evaluations have shown that liaison psychiatry interventions in outpatient settings can have a positive impact on the management of long-term conditions such as diabetes, chronic obstructive pulmonary disease and coronary heart disease. Fellow-Smith *et al.* (2012) cite a number of examples of these services and of the types of physical health outcome measures used in parallel with measures specific to mental health.

Similar approaches in considering the impact of liaison psychiatry interventions may also be used in relation to the management of, for example, chronic pain, medically unexplained symptoms, stroke, neuro-degenerative conditions, epilepsy, sexual dysfunction and sickle-cell disease.

User views

The views of people who use liaison psychiatry services have been studied by a number of authors and a common theme in this literature is that the term ‘user’ should be interpreted broadly, to include not just the direct recipients of a service but also a range of other stakeholders including carers, medical staff who refer patients to the service and other hospital staff whose roles may be affected by the work of a liaison psychiatry team. The importance of ascertaining the views of both patients and professional stakeholders has been emphasised by Donabedian (1980) in a general study of quality assessment in health care, as satisfaction with a service and perceptions of its quality may well differ depending on the perspective taken, a potential mismatch which has been highlighted in relation to mental health services by Anthony & Crawford (2000).

A study of a liaison psychiatry service working in the emergency department of an inner city London hospital which found no such mismatch was undertaken by Eales *et al.* (2006), based on qualitative interviews with samples of service users and professional stakeholders such as A&E nurses. Three main themes were reviewed: the practicalities of service provision, such as waiting times; the qualities needed in staff providing the service; and the process and experience of receiving the service.

Key areas of expectation among service users were found to be short waiting times, privacy, and treatment by staff with relevant specialist knowledge and with skills in communication and relationship building. Professional stakeholders supported many of the aspects identified by service users and no conflict arose in what the two groups considered to be important.

Summers & Happell (2003) undertook telephone interviews based on a structured questionnaire with 136 patients who used the psychiatric liaison service in the emergency

department of Melbourne Hospital. They found that in general patients were satisfied with the availability of staff with a psychiatric qualification, but were dissatisfied with the waiting times of the liaison service and with the attitudes of the general hospital staff towards mental illness. They noted that education is a key role for a liaison psychiatry service, especially in relation to appropriate behaviour and interventions in a clinical setting. They identified that services should enhance collaboration between mental health and acute care staff. This study highlights the importance of collecting good quality process data, so that services can be benchmarked against quality indicators.

A UK study by Morgan & Killoughrty (2003) focused on the knowledge and attitudes of acute hospital medical staff towards psychological problems in their patients, updating an earlier study by Mayou & Smith (1986). Comparing the two studies, it was found that physicians and surgeons in the more recent exercise showed greater appreciation of the importance of the psychological needs of their patients but also that they had insufficient time to meet these needs. In consequence, the vast majority of respondents desired greater psychiatric input.

The views of referrers have also been considered in other studies. For example, Solomons *et al.* (2011) conducted a qualitative study of the perceptions of a liaison psychiatry service among senior medical staff working in the acute medical wards of a London hospital. They found that referrers particularly valued speed of initial response to a referral and a short time taken by the liaison psychiatry service to produce a definitive management plan. It is suggested by the authors that both these metrics could be used as quality indicators. In a US study Lavakumar *et al.* (2013) reviewed a number of possible quality assurance measures for liaison psychiatry and found from a survey of referrers that referrer satisfaction was perceived by the majority of respondents as a useful global measure of the overall effectiveness of a liaison psychiatry service.

In an Australian study Wynaden *et al.* (2003) considered attitudes of emergency department (ED) staff towards liaison psychiatry services at Freemantle Hospital. In a small qualitative study the researchers thematically grouped the responses from ED staff into three areas: quality enhancement; impact on the ED environment; and education and support. The study highlighted the impact of liaison psychiatry practitioners on helping to assess psychiatrically unwell patients before they were prematurely discharged from the department. They also noted the complex, diverse and advanced practice role undertaken by mental health liaison nurses.

Wand (2004) audited emergency department data on the liaison psychiatry input in a hospital in Sydney and found that liaison psychiatry nurses were able to see patients close to or at point of triage, with speed of response being rated highly by staff and patients alike. ED staff also rated highly the access of psychiatric input, assessment and coordination of care. Sharrock *et al.* (2006) drew similar conclusions and noted that clinical consultation led to the demystification of mental illness and a sense of empowerment among general hospital staff in the delivery of care for patients with co-morbid mental health problems.

Impact on health service use

It is well established that co-morbid mental health problems substantially increase the costs of health care for many physical health conditions. According to a recent review, cost increases of 45-75% per case may be observed across a wide range of long-term conditions, based on costs measured after adjustment for the severity of physical disease (Naylor *et al.*, 2012). Particularly in the present financial climate, a potentially very important outcome of liaison psychiatry is therefore that it can save costs in the NHS, by reducing the burden of excess service use associated with mental health co-morbidities.

In support of this, a body of evidence going back 30 years or more shows that the effective management and discharge planning of older inpatients with co-morbid mental health conditions can significantly reduce lengths of hospital stay, e.g. Levitan & Kornfeld (1981). Estimates vary between studies, but they generally suggest reductions in the range 2-5 days per patient. Further savings may come from reduced rates of hospital re-admission and reduced rates of institutionalisation after discharge, with one study showing that a sample of older patients with mental health conditions were twice as likely to return to independent living if they received liaison psychiatry support as a matched sample of patients receiving care as usual (Cole *et al.*, 1991).

Reference may also be made to an independent economic evaluation of the RAID liaison psychiatry service in City Hospital, Birmingham, which on conservative assumptions identified a total reduction of 14,500 hospital bed-days, equivalent to savings of £3.55 million, in the first full year after the service was introduced (Parsonage & Fossey, 2011). About half of this saving related to shorter lengths of stay in hospital and the other half to reduced rates of re-admission.

Some 90% of the financial benefits associated with RAID resulted from reduced bed use among older patients, even though this group accounted for only 60% of referrals from inpatient wards. Overall, the financial benefits attributable to RAID exceeded the cost of the service by a factor of 4 to 1. Even higher returns have been found in some other studies. For example, a liaison psychiatry intervention for older patients evaluated in two US hospitals showed a benefit:cost ratio of 5:1 in one site and 8:1 in the other (Strain *et al.*, 1991).

Much less evidence is available on the impact on health service use of liaison psychiatry interventions in other clinical settings, although some positive results have been reported in individual studies. For example, a study of the cost-effectiveness of a psychological intervention for irritable bowel syndrome provided in an outpatient clinic found that over a 12-month follow-up period the intervention reduced health care costs by 41% compared with treatment as usual (Creed *et al.*, 2003). Similarly, early results from an ongoing evaluation of a community-based diabetes service in south London which includes an integrated liaison psychiatry component shows a significant impact on service use, including reductions of 45% in A&E attendances and 43% in inpatient admissions for diabetes-related problems (reported in Moulin & Parsonage, 2014).

Education and training of medical staff

The provision of education and training for medical staff is increasingly seen as a core function for all liaison psychiatry services working in acute hospitals. This is for a number of reasons:

1. Identifying mental health conditions

First, training improves the ability of hospital staff to identify mental health conditions, many of which otherwise go undetected. There is a reasonable body of evidence to show that training increases detection rates (Tabet *et al.*, 2005). Among other things, better identification of mental health conditions is likely to improve the quality and timeliness of referrals to a liaison psychiatry service. Timeliness is particularly important from a cost perspective, as delays in the engagement of a liaison psychiatry service are strongly associated with increased lengths of stay (Kishi *et al.*, 2004).

2. Better patient outcomes

Second, there is some evidence that training improves the quality of care provided by acute hospital staff, leading to better patient outcomes (Teodorczuk *et al.*, 2010). The RAID evaluation described above estimated bed-days saved by the service separately for two groups of patients: one group directly seen and managed by members of the liaison psychiatry team and the other managed by ward staff who had received training from the RAID team. Overall, it was estimated that nearly half of all the reduction in inpatient bed use was associated with patients supported by trained ward staff, without any direct intervention by the RAID team.

3. Increasing hospital capacity

And third, training increases the overall capacity of the hospital to manage patients with co-morbid physical and mental health problems. The number of such patients is typically so large that not all can be seen by a liaison psychiatry service. The availability of trained clinical staff allows the liaison team to concentrate on the more severe and complex cases, without a need to spend time on the management of patients whose problems are relatively straightforward. Guidance from the Department of Health on the care of patients with dementia in acute hospitals suggests that training is the most cost-effective option for increasing the capacity of hospitals to improve dementia care (Department of Health, 2011b).

3. Developing a measurement framework

Structure, process and outcome

Most measurement frameworks for assessing the quality and performance of health services build on a model developed nearly 50 years ago by Donabedian which distinguishes between three dimensions of health care delivery: structure, process and outcome (Donabedian, 1966).

Structure refers to the key resources or inputs available in the settings in which health care is provided. These include human resources (numbers of staff and their qualifications), material resources (facilities, equipment etc.) and also organisational features such as management structures and payment systems. Some but not all of these components of structure can readily be measured in quantitative terms.

Process describes what is actually done in the delivery of health care in terms of specific activities such as the diagnosis of health problems and their treatment, with measurement based on quantifiable **outputs** such as the numbers of patients treated. The provision of inpatient care is thus a process or activity and the associated output is the number of patients assessed and supported.

Outcome refers to any consequence of health care in terms of the changes or benefits that result from the activities and outputs of the service in question. These are most obviously measured by any improvement in patients' health, but measurements may also be made of other dimensions of outcome, such as patient satisfaction or cost savings.

Donabedian argues that "*outcomes, by and large, remain the ultimate validators of the effectiveness and quality of medical care*" but also that reliance on this approach is subject to a number of limitations. In some cases outcomes are difficult to measure, for example because long periods may elapse before they become apparent; outcomes may be influenced

by many factors other than health care; and measures of outcome may provide limited insight into the reasons why any improvement has occurred.

In some circumstances outcomes may indeed even be misleading as indicators of quality, because they are not in themselves direct assessments of quality. Outcome statements only offer an inference about the quality of process and structure, and the strength of the inference depends on the strength of the causal relationships between structure, process and outcome.

Building on this line of argument, developments since Donabedian's initial study have therefore sought to devise measurement frameworks which elaborate on the nature of these causal relationships, particularly in the form of logic models, an approach now widely used by programme managers across the public and private sectors (McLaughlin & Jordan, 1999).

In essence, a logic model is a systematic formal statement of the structure/process/outcome framework in terms of a chain of cause-and-effect relationships, defining all the key building blocks needed to bring about a given objective. A simple diagrammatic representation is shown in Fig 1.

A major strength of the logic model approach is that it identifies the underlying assumptions in an intervention or service which can be measured and tested. This may be particularly helpful when outcomes are difficult to measure on a routine basis, because if detailed research has shown the various links in a causal chain to be solidly based, then more reliance can be placed on measures relating to structure and process, which are generally easier to collect. Put very simply, a logic model says that if A and B are in place, C will follow. Assuming A and B are precisely defined in ways that can be routinely measured, e.g. in terms of adherence to evidence-based fidelity standards, then the need to measure C as well is significantly reduced.

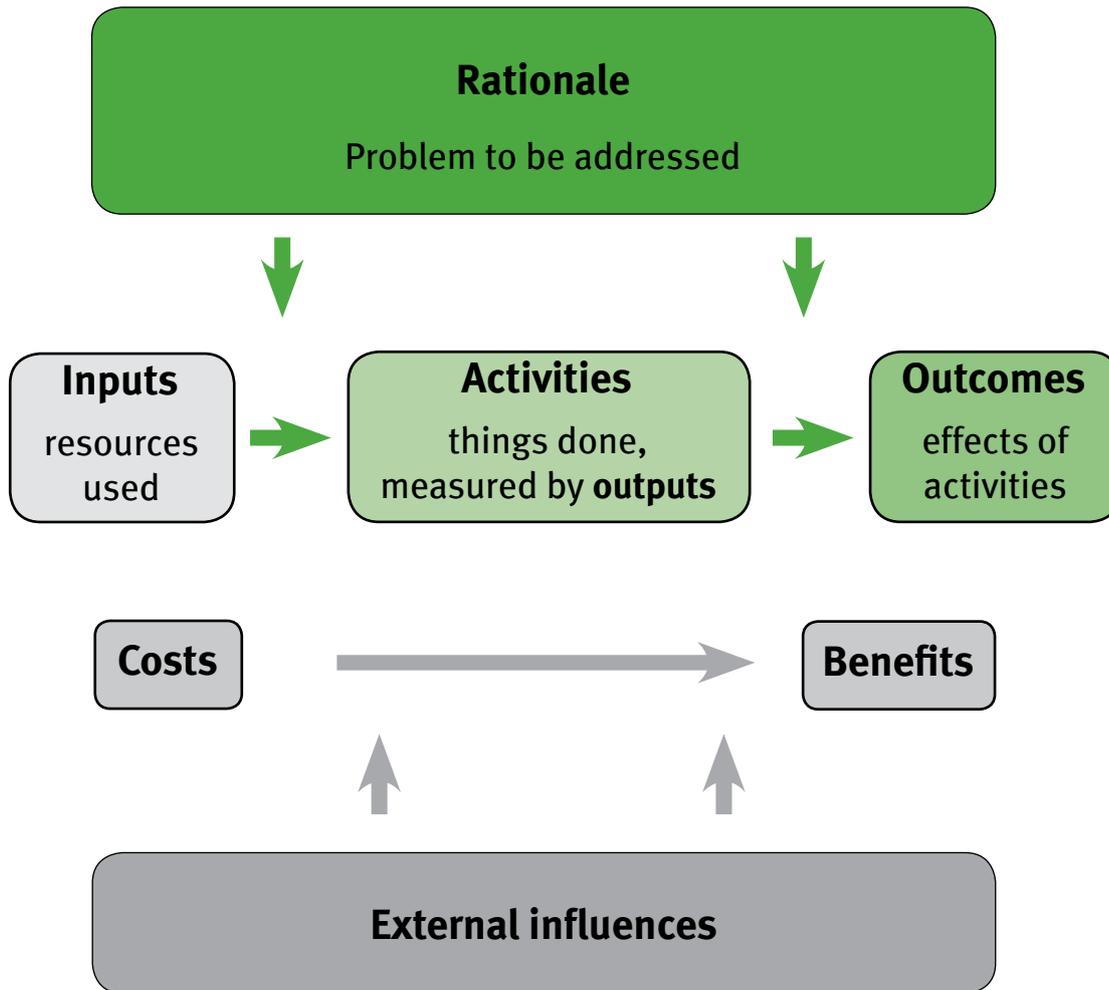


Figure 1: The logic model - the structure / process / outcome steps to bring about an objective

More generally, work on the logic model approach has highlighted that measures of structure, process and outcome each have their own strengths and weaknesses, particularly in contexts where a service being assessed has multiple outcomes which in turn are the result of multiple causes. In consequence, the best strategy for assessing quality and performance is to include a mix of indicators drawn from the three dimensions of structure, process and outcome: the so-called ‘balanced scorecard’ approach. Some indicators may be more relevant to particular aspects of quality and performance than others and broad agreement between indicators drawn from the different dimensions may give greater confidence in an overall assessment.

Application to liaison psychiatry

As discussed in Chapter 2, liaison psychiatry services operate in a number of different settings or clinical environments, carrying out a wide range of different activities in support of patients suffering from many different types of clinical problems. The complexity and heterogeneity of service provision necessarily rule out any very simple, all-purpose approach to the measurement of outcomes and performance in this context.

A further complication is the relative lack of high-quality research evidence on what works in many areas of liaison psychiatry. In effect, the logic models underlying important aspects of service provision remain under-

developed and at present often rely more on informed judgement and expert opinion than on quantitative relationships derived from a large body of well-conducted research.

These and other considerations point strongly towards use of the balanced scorecard approach outlined above, as previously recommended in the Centre for Mental Health’s report on ‘*Liaison psychiatry in the modern NHS*’ (Parsonage, Fossey & Tutty, 2012) and subsequently endorsed in the Royal College of Psychiatrists’ report on ‘*Liaison psychiatry for every acute hospital*’ (RCP, 2013).

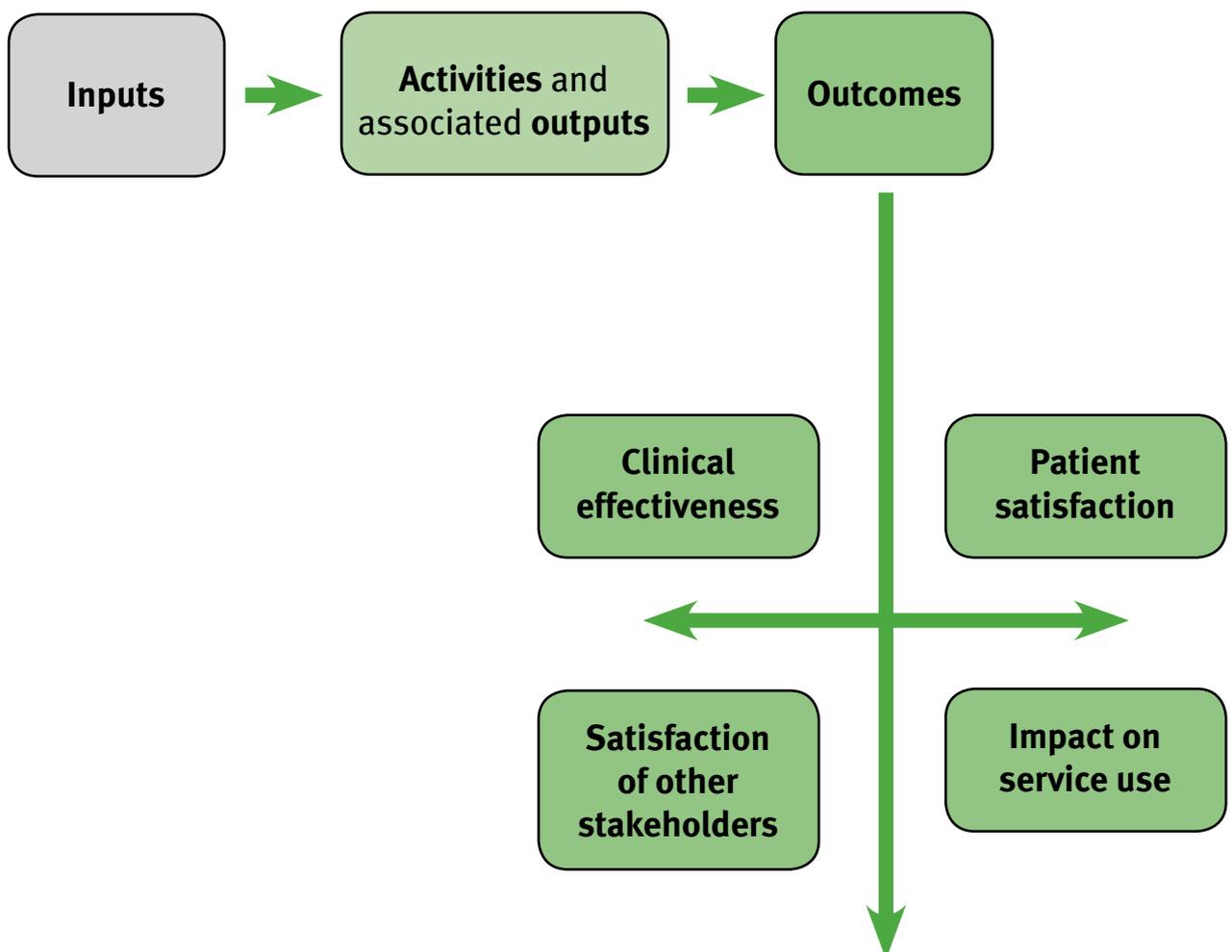
They also point towards the need for more research on the effectiveness and cost-effectiveness of different interventions and service models in liaison psychiatry, a need recognised in the decision made by the National Institute for Health Research in 2013 to commission a large new programme of

work in this area, and towards the continuing development of outcome and performance measures, particularly those which can be collected on a routine basis for purposes of accountability, performance management and service improvement. The proposals set out below for the form and content of a balanced scorecard approach should therefore be seen as suggestions for further discussion and on-going development.

Based on our review of recent research and discussions with stakeholders in the NHS, we propose that the framework for a balanced scorecard - or set of scorecards - in liaison psychiatry should be as shown in Fig 2.

As can be seen, this includes measures drawn from each of the three dimensions of structure, process and outcome, in line with the general thrust of the theoretical literature outlined above. As discussed, outcomes are the ultimate

Figure 2: Framework for a balanced scorecard approach



test of a service's success or failure but are often difficult to measure and interpret, hence the need for more straightforward supporting indicators relating to structure and process.

The literature on logic models indicates that the choice of specific measures relating to structure and process should reflect the importance and reliability of the elements concerned as causal influences on outcomes. In the context of liaison psychiatry, this choice is hampered somewhat by the shortage of quantitative research evidence on the causal relationships involved. On the other hand, recent years have seen a growing consensus of expert opinion on many of the key elements of a good service, as set out in guidance documents produced by the Joint Commissioning Panel on Mental Health (JCPMH, 2012) and the Royal College of Psychiatrists (RCP, 2013). Also relevant are the standards used by the Royal College's Psychiatric Liaison Accreditation Network (PLAN) (2010) for accreditation purposes and a recent set of reports by Aitken *et al.* (2014) which provide exemplar service specifications for four models of hospital-based liaison psychiatry for which there is evidence of cost and quality outcome benefits.

All of these documents provide benchmark measures relating to key features of service provision, such as appropriate staffing numbers and qualifications, against which any individual service can be assessed.

In relation to outcomes, the proposed framework for a balanced scorecard identifies four main areas or dimensions for measurement purposes, reflecting the multiple outcomes potentially deliverable by liaison psychiatry services and the range of stakeholders who may benefit. These areas are: clinical effectiveness; patient satisfaction; satisfaction of other stakeholders; and impact on NHS service use.

As emphasised throughout this report, the measurement of outcomes in liaison psychiatry is subject to a number of difficulties of definition, collection and interpretation. For example, in the area of clinical effectiveness, it seems clear that there is no one instrument that can be universally applied across the whole field of liaison psychiatry, but beyond that there is only limited consensus on what specific measures should be used in particular contexts. If different measures are used between services, this inevitably limits the scope for benchmarking or comparisons of performance. On the other hand, consistent use of a particular measure within any individual service should permit some assessment of whether improvements are being made and sustained over time.

Outcome measures or indicators collected on a routine basis require careful interpretation, particularly to take into account causal influences other than the provision of a liaison psychiatry intervention, and may need to be supplemented by one-off research or evaluation studies to establish a fuller picture. For example, one potentially important outcome of a liaison psychiatry service working with hospital inpatients is the reduction of lengths of stay, but a wide range of factors influence the time patients spend in hospital, including technical advances in medical care and the availability or otherwise of post-discharge support services in the community. The introduction or expansion of a liaison psychiatry service may therefore be associated with shorter stays without necessarily being the main or only cause, and use of a simple indicator, i.e. length of stay, to assess impact or performance is potentially misleading in the absence of further information and analysis.

In terms of practical application, the variety and complexity of work undertaken by many liaison psychiatry services suggest that it may be impractical to attempt to capture the full range of activities and outcomes in a single balanced scorecard. For example, there is relatively little in common between the work of a liaison psychiatry team operating 24 hours a day in the emergency department of a large acute hospital and one providing courses of psychological treatment in outpatient clinics during office hours for patients with medically unexplained symptoms and related syndromes.

In particular, there are likely to be major differences in the standards or criteria against which the performance of these two teams will be assessed, in the first case the key requirements being associated with aspects such as speed of response, accuracy of assessments and possible impact on frequent attendances at A&E and unnecessary inpatient admissions while in the second case the focus is likely to be more on improvements in clinical outcomes and subsequent reductions in NHS service use. For these reasons we suggest that, for large services carrying out a wide range of different activities, a separate scorecard should be prepared for each major clinical environment in which support is provided: emergency departments, inpatient wards, outpatient clinics and community settings.

Subject to this complication, we set out below a possible list of key performance measures or indicators drawn from the literature, to be used in populating a balanced scorecard.

Inputs/structure

- Staffing numbers and skill mix
- Hours of operation
- Availability of adequate accommodation on the hospital site
- Availability of suitable facilities for patient assessment in the emergency department and all wards
- Access to the information systems of the general hospital and local mental health services
- Suitable arrangements for referrals, e.g. single point of access
- Availability of suitable mechanisms for clinical supervision and governance.

In all these cases information can be collected in an annual service audit and compared with appropriate benchmarks or fidelity standards, as set out in PLAN documents or in guidance reports such as those produced by the Royal College of Psychiatrists (2013) and Aitken *et al.* (2014).

Activities/outputs

- response times, separately for routine, urgent and emergency referrals
- numbers of patients seen, separately for major age and diagnostic groupings
- proportion of patients aged 65+ with dementia having a review of psychotropic medication
- proportion of patients with alcohol problems given a brief intervention for alcohol misuse
- proportion of patients attending A&E for self-harm receiving a psychosocial assessment
- numbers of general hospital staff attending mental health training sessions.

Information in all these areas should be available from routine data collection, supplemented if necessary by periodic casenote audits.

Outcomes

- improvements in health and well-being, based on appropriate generic and/or condition-specific outcome measures
- improvements in patient satisfaction
- improvements in family/carer satisfaction
- improvements in referrer satisfaction
- reductions in length of stay among patients with a mental health diagnosis
- reductions in readmission rates among patients with a mental health diagnosis
- reductions in numbers of discharges to institutional care among patients with a mental health diagnosis
- reductions in numbers of frequent attenders at A&E
- reductions in numbers of serious untoward incidents
- reductions in numbers of mental health-related A&E waiting time breaches.

As discussed earlier in this chapter, information on outcomes is often difficult to collect and a number of different methods and sources will be needed to cover all the measures suggested above, including periodic surveys and casenote audits as well as routine data collection systems.

The measurement of outcomes also gives rise to significant problems of interpretation; for example, how much of an observed reduction in, say, length of stay among patients with a mental health diagnosis be attributed to the activities of a liaison psychiatry service? There is no simple answer to this question, though some insights may be provided by benchmarking exercises (e.g. comparisons with other hospitals which have different levels of liaison psychiatry provision) and by one-off research or evaluation studies, undertaken particularly when a new service is introduced or an existing one is substantially changed in scale or scope. Another possibility in some circumstances is to use an outcome measure primarily as a means of exceptions reporting, serving as a prompt or trigger for more detailed investigation if the measure in question is moving in the wrong direction relative to an external benchmark.

The precise choice of indicators to be used in populating the balanced scorecard, whether relating to inputs, activities or outcomes, is likely to vary to some degree from service to service, depending on local priorities and the scope and balance of service provision. At the same time there is also a case for seeking to reduce the extent of diversity in current practice, particularly in relation to outcome measures for clinical effectiveness where the large number of measures currently in use necessarily limits the scope for benchmarking and comparisons between services.

One way forward may be for the liaison psychiatry profession to develop agreement on a single generic clinical tool for measuring clinical outcomes, such as the Clinical Global Improvement Scale, to be used by all services, not in place of other measures but as a supplement to them. Key requirements for any such universal measure are that it is quick, cheap and easy to collect and also applicable in a wide range of different clinical settings.

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Outcomes and performance in liaison psychiatry

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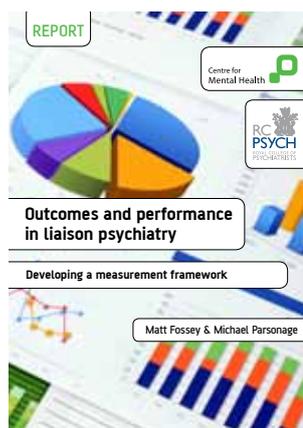
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