The REFINEMENT Project

Research on Financing Systems' Effect on the Quality of Mental Health Care (No.261459)

The REFINEMENT Decision Support Toolkit for improving the financing of mental health care

THE MANUAL

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REFINEMENT Work Package 9:
Building optimal models of mental health care financing

SEVENTH FRAMEWORK PROGRAMME

PARTNERS

The REFINEMENT project is conducted by an experienced team of health economists, mental health service researchers, public health specialists and social care experts from eight European countries.

	Italy	University of Verona
Ludwig Boltzmann Institute Social Psychiatry	**Austria**	Institute for Social Psychiatry Ludwig Boltzmann
LSE The London School of Economics and Political Science	**England**	London School of Economics and Political Science
PSI•COST	**Spain**	Scientific Association Psicost
SINTEF	**Norway**	SINTEF Technology and Society
National Institute for Health and Welfare	**Finland**	National Institute for Health and Welfare
UPEC Université Paris-Est Créteil Val de Marne — Connaissance • Action	**France**	University of Paris East Créteil
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1 Introduction

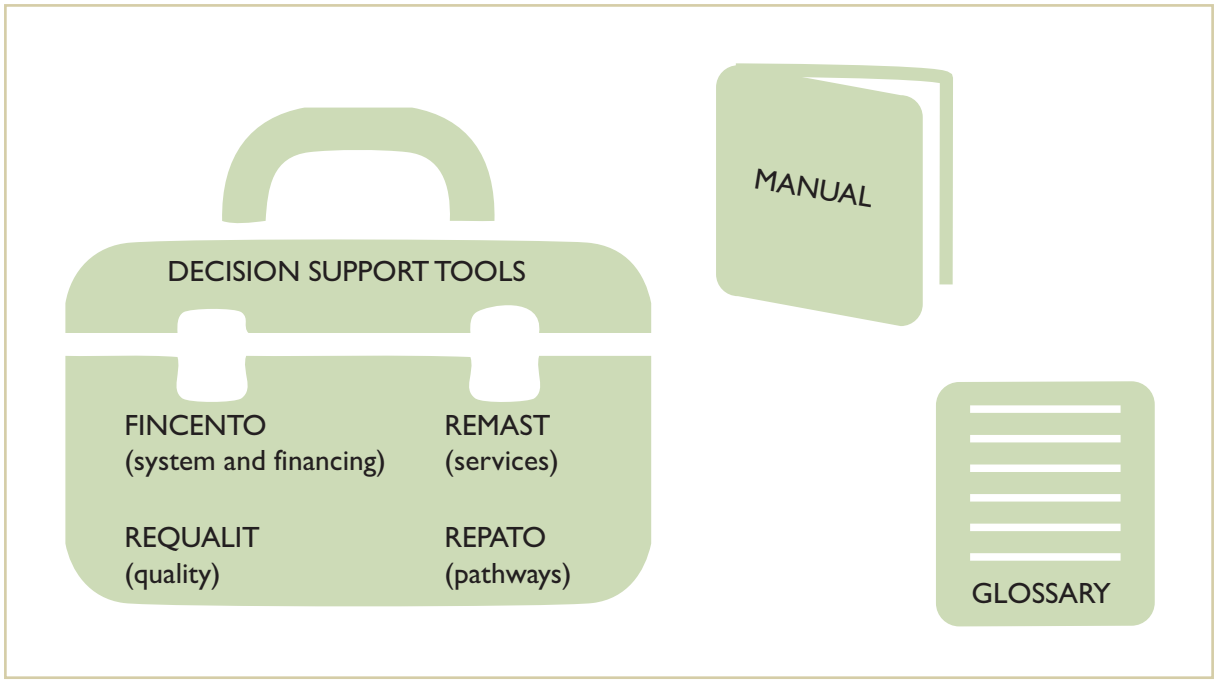
Mental health is a key priority area for Europe, as evidenced by the publication by the European Commission in June 2008 of its European Pact on Mental Health and Wellbeing and by the recent endorsement by the WHO European Region Member States of the European Mental Health Action Plan. The REFINEMENT (REsearch on FINancing systems' Effect on the quality of MENT-al health care) project initiated from the necessity to compare and standardise the different and elaborate systems of both financing and performance assessment of mental health care in Europe, in order to promote knowledge of how financial systems can be used to support the development of good-quality and efficient services. The scope of the project was to advance the exchange of information on current financing models and to identify innovative financial and non-financial incentives that influence the performance of the mental health system.

The overarching goal of the REFINEMENT project was to look at the relationship between different models of health care financing and the extent to which mental health care services could meet the goals of high quality, equity, efficiency and better long term health outcomes. This has been done by bringing together an experienced team of health economists, mental health service researchers and public health specialists from nine countries (Austria, England, Estonia, Finland, France, Italy, Norway, Romania and Spain). In terms of funding models and interfaces with social care services these nine countries cover a representative range of health care systems across Europe. In order to reach its aims, the REFINEMENT project was organised into nine work packages (see Table 1). The project was financed for three years

Table 1. Work packages

Mandatory	
WP1	management
WP2	evaluation
WP3	dissemination
Technical	
WP4	analysis of the financing of health and social care systems
WP5	functional and dysfunctional financial incentives
WP6	service mapping for mental health care
WP7	pathways of care
WP8	quality of mental health care and met/unmet needs
WP9	building of best practice models of mental health care financing

Figure 1. The REFINEMENT Decision Support Toolkit



by the European Commission within the 7th Framework Programme (project code 261459) and started in January 2011.

The final aim of the REFINEMENT project was to develop a tool for making a comparative and comprehensive overview of links between the financing of mental health care in Europe and the outcomes of mental health services. The REFINEMENT Decision Support Toolkit (DST) (Figure 1) for improving financing of mental health care integrates four different tools developed through the REFINEMENT Project for mapping and assessing service systems and financing mechanisms for mental health care. The DST helps decision makers to evaluate key features of the mental health care system, linking financing models and payment mechanisms to indicators of structure, process and outcomes of mental health services. The DST is also available online at www.psychiatry.univr.it/refinement/DST

The REFINEMENT DST has three components:

- **REFINEMENT Decision Support Tools.** There are four separate tools for collecting information on specific topics (Table 2)
- **REFINEMENT Glossary.** This presents the terms and definitions concerning mental health care provision and financing in Europe that are used in the REFINEMENT toolkit.
- **REFINEMENT Decision Support Manual** (this document). The Manual provides guidance on how to use the REFINEMENT DST.

  It also includes descriptions of different theoretical concepts of quality (chapter 2) as well as a discussion of the main issues in health care financing (chapter 3).

Table 2. REFINEMENT Decision Support Tools	
FINCENTO Financing & INCENtive TOol	A tool for collecting information on key features of the health system, in general in terms of regulations and funding, and on key aspects of health and some social services providing care for people with mental health needs in terms of their organisation, regulation and payment mechanisms. It also considers the incentives and disincentives in these mechanisms.
REMAST REfinement MApping Services Tool	A tool for collecting detailed information, within a study area, of the structure of health and social care services, that provide care for, or are used by, people with mental disorders of working age in terms of service distribution and utilisation. REMAST also covers information on mental health policy and characteristics of the study area in terms of the demographic, socioeconomic and geographical environment.
REPATO REfinement PAthways TOol	A tool for collecting information describing the typical and most common pathways of care for people with mental health needs in the adult population. The tool includes different indicators describing the interface between primary and secondary care, care coordination and continuity, and hospital readmissions after acute hospitalisation. It also looks at financial and other factors influencing service utilisation patterns.
REQUALIT REfinement QUALIty of care Tool	A tool for collecting information on the performance and outcomes of care for people with mental health needs, including a range of different indicators and measures which represent a combination of phase level (input, process, outcome) and quality dimensions (effectiveness, efficiency, appropriateness, patient centeredness/responsiveness, continuity, coordination, accessibility, equity, safety, capability and sustainability) of the mental health system covering different care settings (whole system, inpatient care, community care).

Chapter 4 provides an introduction of the tools developed in the REFINEMENT project, describing the main content of each tool, important prerequisites in using each tool, type of data sources used and examples of topics and indicators that are either covered by the tool or can be derived from the information collected. It also includes a section on limitations in the development of the REFINEMENT DST. At the end of the chapter two examples of methods for data analysis are described, methods for analysing spatial accessibility and the relative efficiency of health care districts respectively.

Illustrations of the information collected using the tools based on examples from the REFINEMENT partner countries are provided in an appendix to the manual. More comprehensive and detailed

examination of the data collected in the REFINEMENT project can be found in McDaid et al. (2013), Straßmayr et al. (2013), Università degli Studi di Verona et al. (2012), Weibold et al. (2013) and Donisi et al. (2013).

Abbreviations

ABF	Activity Based Financing
ALOS	Average Length Of Stay
DEA	Data Envelopment Analysis
DRG	Diagnosis Related Groups
DST	Decision Support Toolkit
EU	European Union
FFS	Fee For Service
GH	General Health
GP	General Practitioner
LTC	Long-tern Care
MH	Mental Health
NHI	National Health Insurance
OECD	Organisation for Economic Co-operation and Development
OOP	Out-of-pocket Payment
P4P	Pay for Performance
SHI	Social Health Insurance
VHI	Voluntary Health Insurance
WHO	World Health Organization

2 Quality of mental health care services – setting the scene

The overarching aim of the REFINEMENT project is to look for relationships between different models of health care financing and the extent to which mental health care services can meet the goals of equity, efficiency and better long term health outcomes; all aspects of "health care quality". There is no uniform definition of quality, rather it is necessary to consider quality as a multi-dimensional concept. This is reflected in the approach taken by, among others, the OECD where quality is defined as: "the degree to which health services for individuals and populations increase the likelihood of desired health outcomes and are consistent with current professional knowledge" (OECD, 2004). Similarly the World Health Organization (WHO) identifies six dimensions of quality for use on a system level (WHO, 2006). Thus, according to WHO health care should be:

- Effective
- Efficient
- Accessible
- Acceptable and patient centred
- Equitable
- Safe

In addition to being multi-dimensional, quality in the provision of health care is often discussed according to a framework suggested by Donabedian (1980). Here quality of care can be described either in terms of structural characteristics, processes or outcomes. Structural characteristics are typically measured in terms of inputs consisting of visible (mainly staff, facilities and budgets) and invisible (experience, qualification and skills of staff, working relationships, legal and policy frameworks) resources. For example, as suggested by the WHO (2005), an appropriate human resources policy for mental health should be developed; continuing education, training and supervision should be developed for the provision of the best quality of care that meets users' needs; and a motivated workforce will be more cost-effective. Other important input issues are the balance between hospital and community services and the dissemination of clinical guidelines, protocols and higher level policy inputs.

Processes represent a range of actions which take place in the delivery of mental health care. The measurement of process helps to identify areas of relative over and under provision, or whether people receive care that is evidence-based or conforms to consensus expectations about quality (NMHWG Information Strategy Committee Performance Indicator Drafting Group, 2005). Moreover,

process measures at national/regional level (e.g. admission rates) allow comparisons (within or between countries) that can be of help in a continuous effort to improve services. An important process issue will be individual pathways to and through mental health services; the term is connected to the accessibility and continuity domains of quality of care.

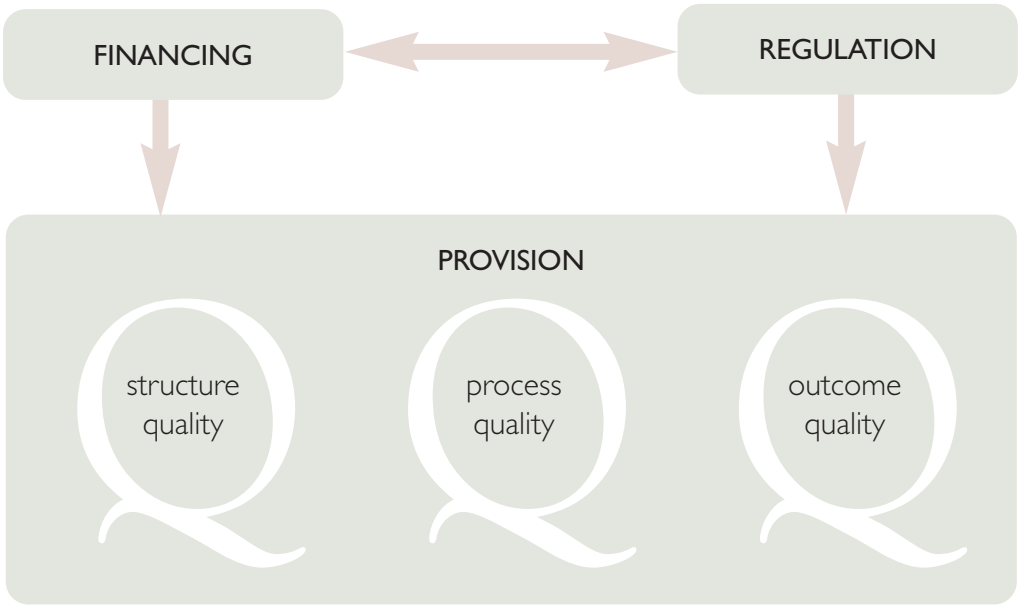
Finally, outcomes are considered to be changes in functioning, in morbidity or in mortality (Thornicroft and Tansella, 2009). Narrowly defined, outcomes refer to changes in health status. Changes in functioning can cover different aspects: employment status, physical morbidity, suicide and self-harm, homelessness, mortality, symptom severity, impact on caregivers, satisfaction with services, quality of life, disability, as well as met and unmet needs for care (Thornicroft and Tansella, 1999). The majority of these outcomes can be assessed at individual level using a variety of instruments and scales. The assessment of needs, broadly considering both met and unmet needs, is an essential outcome indicator, both in service planning and in routine clinical practice to understand if the care provided is adequate and sufficient. Finally, service users' satisfaction with health services must be used for quality assurance purposes and it is generally considered a key dimension of quality of care.

In mental health care the distinction and balance among input, process and outcome are not always clear-cut (Thornicroft and Tansella, 1999). This is partly because of the lack of consensus on the terms and the presence of interconnections among these three categories; moreover, a lot of mental health disorders are chronic, relapsing and with remitting conditions and do not fit the structure-process-outcome sequence. We illustrate this in Figure 2, which incorporates (and expands on) the multi-dimensional definition suggested by WHO and combines this with Donabedian's traditional structure, process, and outcome framework. Illustrations of quality domains are taken from the Australian National Mental Health Performance Framework* (NMHWG Information Strategy Committee Performance Indicator Drafting Group, 2005).

Thus "quality" is a concept that is both multidimensional and complex. This should not deter policy makers from seeking to improve the quality of their mental health care systems – indeed this is one of the main aims of REFINEMENT – but it underlines the necessity of approaching the issue carefully and with a clear understanding of what, in the specific context, is meant by quality. One of the purposes of the different tools developed as part of the REFINEMENT project (see below) is to help policymakers in this task. To set the scene we provide an illustration by looking more closely of one of the dimensions of quality; "efficiency".

* www.health.gov.au/internet/mhsc/publishing.nsf/Content/performance-framework-1

Figure 2. Concepts of quality of care



QUALITY DOMAINS

EFFECTIVENESS Desired outcome in an appropriate timeframe.

APPROPRIATENESS Relevance to the client's needs and based on established standards.

EFFICIENCY Achieving desired results with the most cost effective use of resources.

ACCESSIBILITY Care at the right place and right time irrespective of income and cultural background

CONTINUITY Uninterrupted, coordinated care or service across programmes, organisations and levels over time.

RESPONSIVENESS Respect for client orientation (respect for dignity, confidentiality, participation in choices, promptness, quality of amenities, choice of provider…

CAPABILITY Capacity to provide a health service based on skills and knowledge

SAFETY Avoidance or reduction of harm from health care management or environment.

SUSTAINABILITY Ongoing provision of infrastructure such as workforce, facilities and equipment. This should be innovative and respond to emerging needs.

2.1 Example: The concept of efficiency

Policy makers are often given the impression that there seems to be a trade-off between quality and efficiency. When designing health care policy it is useful to consider whether this trade-off is real or merely the result of concepts that are ill defined. Efficiency (which is different from "effectiveness") is intuitively related to the relationship between the use of resources and the result/outcome of an activity. There are different interpretations of the term. Building on the way the term is defined within the economics literature we can distinguish between no less than four different forms of efficiency.

These can be described as:

Technical efficiency. If services and products are produced with no waste of resources the production is characterised as technically efficient. Another way of putting this is to note that it is not possible to increase output without using more resources or alternatively not possible to decrease the use of resources without decreasing output. In the REFINEMENT toolkit indicators of technical efficiency will typically be ratios of outputs to inputs (e.g. consultations per man-year, discharges per acute care bed etc).

Cost-efficiency. If services and products are produced at their minimal cost, production is said to be cost-efficient. This implies both that there is no waste; thus the requirement of technical efficiency is met, and that the cost-minimising combination of inputs is used. In the REFINEMENT toolkit indicators of cost-efficiency could be differences in the use of (costly) inpatient beds vs day care or outpatient care.

Scale efficiency. If the scale of operation means that average costs are minimised, production is said to be scale-efficient. If this is not met efficiency can be improved either by increasing the size (economies of scale) or decreasing size (diseconomies of scale) of operation. In the REFINEMENT toolkit indicators of scale-efficiency will typically be descriptions of utilisation of capacity, i.e. bed utilisation rates.

We note that these three types of efficiency all describe the relationship between the use of inputs and the volume of outputs. When policy makers are to consider efficiency, they need to take some time to consider which type of efficiency they actually are pursuing. In some cases the mix of inputs will not be under the control of the local decision maker. Thus the ratio of labour to capital, the mix of professions etc., may be determined politically, by agreement with labour organisations, etc. In such cases the aim is to eliminate waste, i.e. utilise the existing resources optimally, and the relevant measure of efficiency is that of technical efficiency. In other cases new treatment programmes are to be established, either because old programmes are to be replaced or because new patient groups are being treated. In this case cost-efficiency is the relevant measure of efficiency. Finally there may be cases where new treatment facilities are planned, or where mergers of existing facilities are considered. In this case it is important to consider whether the new facility will be scale efficient.

In addition to the three types of efficiency described above, policy makers will also be concerned about the distribution of health care services. There may be more or less specific goals related to which patient groups should or should not be prioritised. The extent to which these goals are obtained can be expressed as the degree of *allocative efficiency*. Obviously this type of efficiency is considerably more difficult to measure; primarily because it is difficult to be specific about the goals of the health care system.

2.2 How is 'quality' approached in the REFINEMENT project?

As noted above, quality is multi-dimensional and complex. This is recognised in the REFINEMENT project, both in terms of the number of different tools that are provided, but also in the level of detail of the tools. REFINEMENT provides policy makers with a large number of quality indicators along the dimensions described in Figure 2. Furthermore, these indicators reflect the structure, process and outcomes of the provision of services. The specific tools describe these indicators in detail:

FINCENTO provides a tool for collecting information useful for comparing key features of the organisation and financing models of mental health care.

REMAST provides a tool for performing a detailed service mapping within a study area. It is especially useful for getting a good overview and comparison of services structures and resources for systems where the initial information and data are limited.

REPATO provides a tool for collecting information to identify and assess patterns of service utilisation within and between different settings.

REQUALIT provides a structured guide to collect and interpret indicators of the quality of mental health system inputs, processes and outputs.

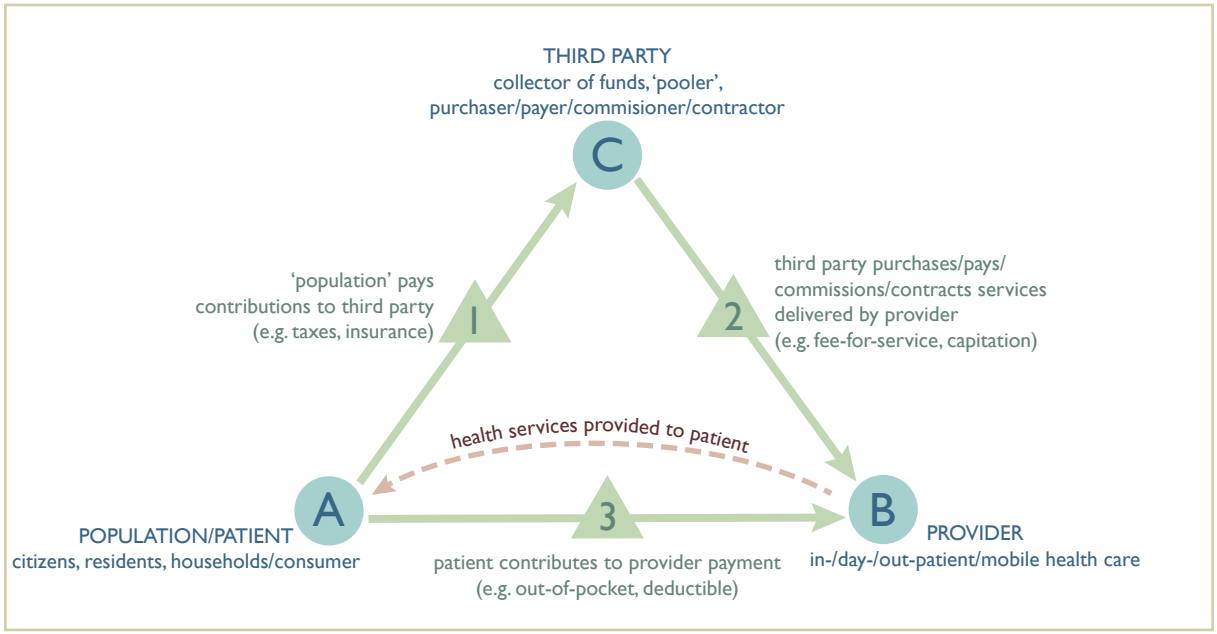
Together the separate tools enable analyses of the links between the financing and quality of mental health care services.

3 Mental health care services – issues in financing

REFINEMENT is about the relationship between *financing* and quality. In this section we provide a brief overview of some of the different financing decisions that need to be made in a health care system. Across Europe we see large variations in the way services are funded, resources allocated and providers paid. These variations reflect the fact that countries operate their health care systems in different historical, political and cultural contexts, as well as because of an underlying uncertainty as to "what works". In this section we describe the different financing decisions. The purpose is to provide the necessary conceptual and empirical background for the use of the toolkits available through the REFINEMENT project.

Figure 3 shows a stylised flow of funds in a health care system: a third party (C) collects funds (1) from the general population (A), allocates resources to and pays (2) the providers of health care (B), who render a service to the general population (A). In addition to this flow of funds, patients contribute to provider payments through out-of-pocket payments (3). The third party may encompass separate authorities responsible for the collection and allocation of funds on the one side and the purchasing/commissioning/contracting of services on the other. Purchasers in some cases may also be the owners/providers of services.

Figure 3. The health care triangle



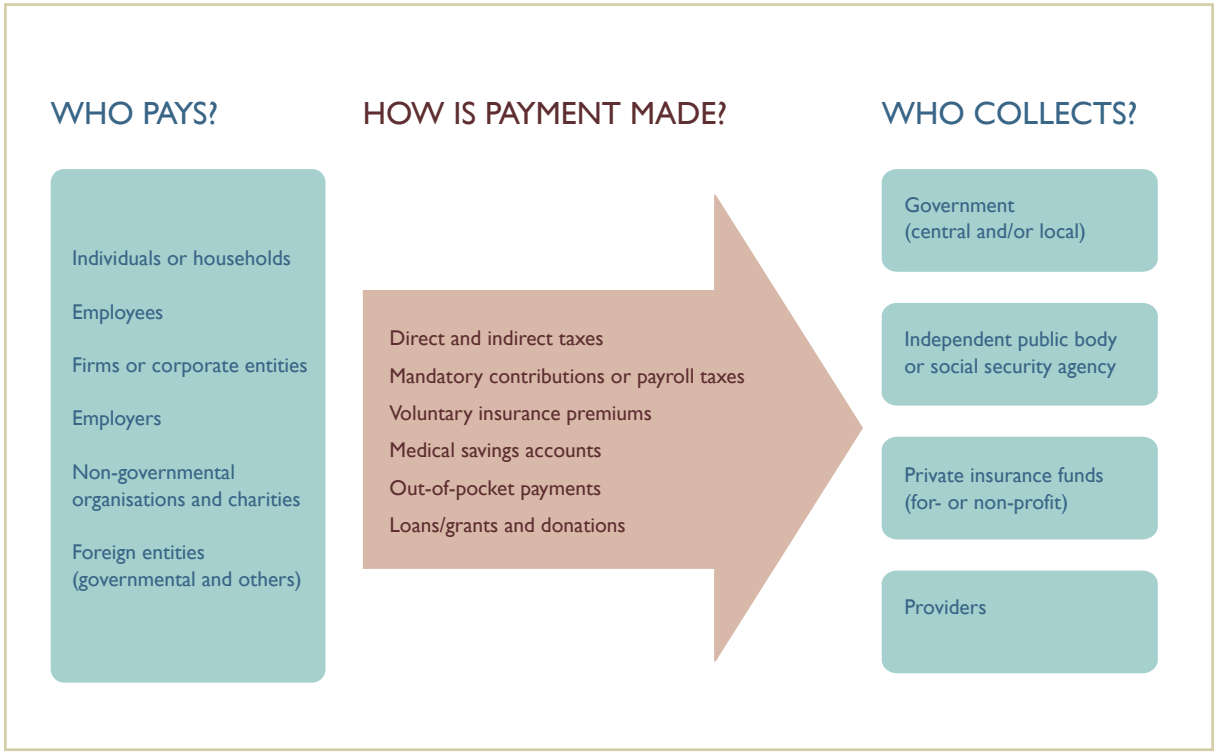
Adapted by Straßmayr et al. (2013) from Reinhardt (1990)

From the triangle we see that health care financing involves four (connected) decisions: i) How should health care be funded? ii) How should risk be pooled? iii) How should funds be allocated between different types of services and different groups of the population? iv) How should the providers of health care services be paid?

3.1 Funding – the collection of revenues

The collection of revenues incorporates decisions about who should pay, how payment should be made and to whom payment should be made. (Those with a special interest in this topic would do well to read Mossialos et al (2002)). In broad terms the answers to these questions are usually one or more combinations of contributors, payment types and collectors shown in Figure 4.

Figure 4. Funding – the collection of revenues



Adapted from Mossialos et al. (2002)

In most countries there is a funding mixture. Some countries are mostly dependent on mandatory Social Health Insurance (SHI)* funding (e.g. France and Estonia), while others are mainly tax funded (e.g. Spain, England and Italy) and some rely heavily on both (e.g. Austria). In some countries labels can be misleading, social insurance contributions in England and Norway are actually taxes rather than insurance. There is typically no separate collection of funds for mental health services. However, social services and other services used by people with mental health needs may be funded separately from health care services. They often have different eligibility rules and entitlements, with funding coming from different sources, sometimes including a substantial reliance on out-of-pocket payments.

* Health care financing mechanism usually established by national legislation. It is also called compulsory and statutory and may be administered by the public or private sector.

The way health services are funded will have implications for the quality of health care:

First; funding is not only a question of *raising* funds, but also a question of how the financial burden is *distributed* among employers and employees, as well as among different groups in a society. To illustrate this consider two alternatives: in the first alternative health care is financed through flat ("community rated") insurance premiums while in the second it is financed through the tax revenues generated from income tax. In the insurance based model each individual will pay the same absolute price for health care, in the tax model people with a higher income will usually pay more than people with lower incomes. Assuming that low income individuals are more likely to use health care we see that the tax-based system reallocates more resources from the "wealthy and healthy" to the "unwealthy and unhealthy". Health systems have traditionally been characterised according to their main source of financing; e.g. tax- vs. insurance-based. This distinction is increasingly becoming less relevant when discussing the performance of health care systems. In the vast majority of insurance-based systems a combination of private and public insurance (often funded from general government revenues) secures full population coverage. Furthermore, the combination of community rating (i.e. insurers are prohibited from charging consumers with different premiums based on individual risk assessment) and an employer contribution than depends on individual wages, makes the distinction between insurance and tax funding even more marginal. Nevertheless, differences in the ways funds are collected may have consequences for the organisation of the health care system.

Second, the way the health care sector is funded will also have implications for the organisation of health care and – by extension – the allocation of resources and the payment of providers (Wendt, 2009). As an example consider on the one hand a system where private sickness funds are the main collector of funds (such as in Austria). In this case there will be relationships between a number of private purchasers and private providers. Thus the organisation of the delivery system may be different from a system where funds are collected through taxes levied by the state or regional government (such as in Spain).

Third, one should note that revenue collection does not always imply risk pooling. Risk pooling occurs when the financial risk is transferred from the individual to a population. Collecting revenues through taxes or compulsory insurance thus combines pooling and revenue collection, while out-of-pocket payments and individually risk adjusted insurance premiums do not. In most European countries the dominant sources of funding for mental health care services are taxation or social insurance. Care needs to be taken, however, that this funding actually covers a comprehensive set of mental health services. Thus, even when entitlement to mental health care is formally given, access may be limited and/or inequitable for mental health care services if coverage is limited and much weight is put on out-of-pocket payment or supplementary voluntary health insurance. In

some countries the responsibility for part of the services may also be shifted from the health to the social sector. If this is combined with high co-payments access may both be limited and unequal (McDaid et al 2007; Knapp and McDaid, 2006).

Finally we turn to out-of-pocket payments. These may be fiscally motivated (i.e. to raise funds) or used to deter "unnecessary" use of services. There are three types of out-of-pocket payment:

Deductible means that insurance (tax or social) only covers expenses in excess of the size of the deductible;

Co-insurance implies that individuals cover a fixed share of expenses;

Co-payment implies that they pay a fixed price per service. In some cases, services might be completely funded through out-of-pocket payments up to a specified financial ceiling.

Out-of-pocket payments are controversial and vary between countries and services. The design and extent of out-of-pocket payment will obviously influence access to health care services. Thus if user charges are to be used they need to be value-based, by which we mean directed at making people reduce the use of low value services. Charging patients for services we want them to use may only makes sense from a fiscal point of view (although this may be short-sighted if these leads to deterioration in health status). And in that case the distributional effects of user charges clearly are less desirable than increasing taxes.

3.2 Risk pooling and resource allocation

"Pooling" means that we combine the uncertain risk of individuals into a calculable risk for larger groups. Insurance companies or public authorities cannot charge/tax individuals according to individual risk. Thus premiums are "community rated" and revenues are "pooled" before they are allocated to service providers. Pooling of funds thus refers to the "accumulation of prepaid revenues on behalf of a population" (Kutzin, 2001). This might refer to the whole country or regions, e.g. provinces in a federal state or regional trusts or from different health insurance funds. In most EU countries publicly collected funds for health tend to be pooled at national level, but there may be multiple pools when funds are also collected at sub-national level. Thus in the Nordic countries local authorities will often collect funds for a subset of health care services. In social health insurance systems private (or public) insurance funds will collect funds, and there may be multiple competitive or non-competitive funds which are geographically or occupationally defined. Generally pooling will be more difficult the smaller the population. Thus, for small populations it will be difficult to predict with any degree of certainty the level of expenses incurred during, say, a fiscal year. For larger populations the level of uncertainty will be smaller.

The way risks are pooled and resources are allocated will have implications for the quality of care for several reasons:

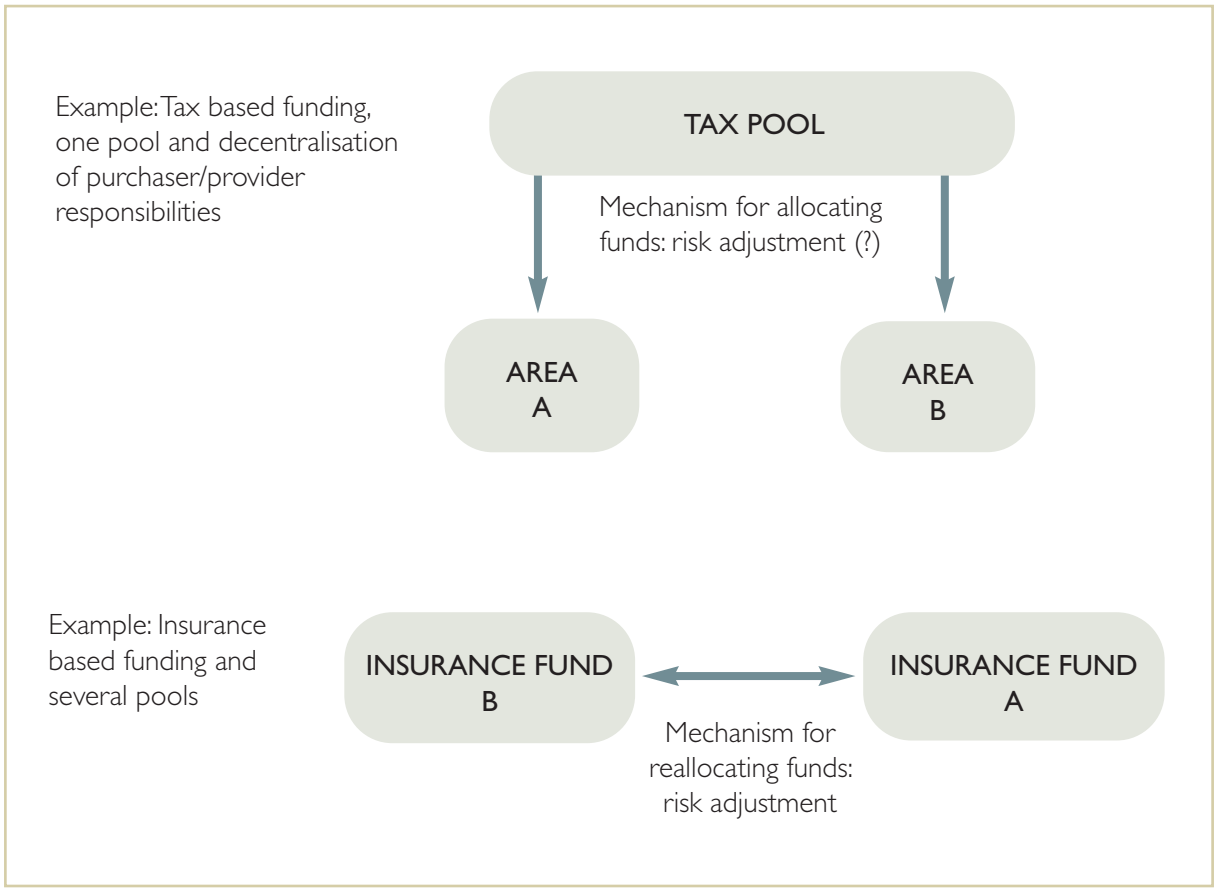
First, whether pooling is on a national, regional or local level may have consequences both for geographical equity (access not depending on place of residence) or socioeconomic equity (access not depending on socioeconomic status). In some countries pooling is done at a national level, thus all funds are collected by the central government (e.g. as is the dominant model in England). In this case access is in principle universal, but the central government will subsequently need to distribute funds between a) different types of services (e.g. mental vs. physical health care or inpatient vs outpatient care) and b) between different geographical areas. The first decision is essentially one of political prioritisation between different services; the second is a question of providing equal (opportunity for) access for the whole country. Alternatively in systems where pooling is on a sub-national level; i.e. taxes are collected by local governments', differences in prioritisation between local authorities may create geographical differences in the availability of services. In some countries (e.g. Norway and Spain) the central government will to some extent provide income equalising grants (earmarked or non-earmarked) to local governments.

Second, in insurance based systems pooling is important because it is necessary to avoid a situation where high risk groups in the worst case scenario may find it difficult to obtain insurance and in the "best" case scenario may end up paying substantially higher premiums in order to get insurance. Thus the common solution is to introduce a mechanism called "community rating" where insurers are not allowed to charge different premiums based on perceived risk. This is a mandatory requirement for social health insurance in Europe. This again means that insurers (private and public) need to be compensated for differences in the risk profiles of their populations – a process known as risk equalisation. To compensate sickness funds with a severe risk profile a redistribution between funds is carried out.

Third, in tax based systems the responsibility for providing services may be decentralised to local geographical areas. These may or may not be politically determined, but they raise the need for a mechanism for the allocation of resources between areas. Similarly, in insurance based systems, sickness funds will be responsible for the provision of services and premiums are community rated – i.e. the same for all individuals. Thus, in both these settings there is a need for a "risk adjustment/equalisation formulae", as illustrated in Figure 5. In some tax funded systems monies may be allocated very crudely based on historical precedent, whilst in others, e.g. in England, complex resource allocation mechanisms may be used.

Fourth, the type of risk that is pooled is of importance. One alternative would be to pool risk for all forms of health care services, another would be to create mental-health specific risk pools. In the first case the decision on the allocation of funds between patient groups is delegated to the regional/local purchasers of services, which may (but need not) imply that resources are subsequently allocated/spent unfavourably on mental health care, in the second case there will be a mental-health specific budget. Furthermore, the

Figure 5. Resource pooling, allocation and risk adjustment



distinction between health and other services is also relevant. Health care spending competes with other types of spending, while mental health care spending competes with spending on other types of health care. To "protect" mental health care a possible strategy can be to "earmark" a fixed share of the health care budget to mental health services. The purpose of earmarking is to "ring fence" mental health care; that is prevent (perceived) pressures from physical health crowding out mental health services. One example of successful earmarking is the Norwegian "escalation plan" for mental health care services (Kalseth and Eikemo, 2008).

Finally, how risk is adjusted may also affect quality. In short, a risk adjustment formula assigns an expected (relative) level of health care need to an individual, based on a set of characteristics such as age, gender, income, education, lifestyle, residence etc (Penno et al., 2013). For individuals the stochastic (random) component will be large, but once we reach population groups of around 100,000 to 150,000, the need for health care can be predicted with a high level of accuracy. It is well known however that the need for mental health care services depends on different characteristics than the need for physical health care services. Thus in some countries we find mental health care specific risk adjustment formulae..

3.3 Paying health care providers

There are several ways of paying providers. The literature on payment models can sometimes seem confusing in its use of terms. Payment models can be described by the factors affecting the income of the providers, e.g. costs, activity, results, patients, population, either in isolation or in combination (see Table 1). For our purposes it will be convenient to make the distinction between some broad groups of provider payment models, whilst also noting that in most cases payment will in fact be made using a mixture of these models.

Table 3. Provider payment models

Income linked to activity, costs or results?	Payment based on	Type of payment mechanism
Yes (Variable)	Activity and costs	Cost reimbursement Fee-for-service etc where price/tariffs closely reflects provider unit costs Budgets based on historical costs
	Activity, but not costs (fixed price/tariffs)	Fee for service (FFS) Per diem Case based (e.g. DRG) Episode based: bundled payment
	Results	Performance based payments, where payments adjusted to reflect achievement of quality and other targets
No (Fixed)	Period	Global budgets
	Population	'Geographic capitation' (formula based budgets for providers with catchment areas)
	Patients (on list)	Capitation (with/without risk adjustments)

In **fixed payment models** provider income is unrelated to actual levels of activity (and costs) of the individual provider. Examples would be so called capitation based models, where the budget is determined based on the size of the population to be served by the health care provider (and sometimes also the perceived need of that population, i.e. risk-adjusted capitation), or budgets calculated based on the expected costs of providing a specific set of functions. Thus under this heading we will typically find:

- Global budgets; i.e. providers are given a fixed budget for a specified time period that is intended to cover a specific set of

services. The size of the budget may be determined by the type and/or the volume of services delivered. This term is usually used for institutions or sometimes group-practices.

- Capitated budgets; i.e. budgets that are set in advance and based on the size of the population that are covered or patients on a list (e.g. for primary care practitioners). Capitated budgets may also be needs or risk-adjusted.

In **variable payment models** provider income is linked to the amount of activities provided, i.e. variation in activities induces changes in payment. The most well known example would be the use of DRG-type payment systems for hospital care. It should be noted, however, that the unit of payment (the "activity") may also be single or multiple items of services, bed days ("per diem") or complete episodes of care. Fee for service is in principle a form of activity related financing, as long as fees depend only on the type and number of services given, and not the actual amount of resources put into each service. Thus under the heading of **activity related systems** we will typically find:

- Fee for service (FFS) payment; i.e. payment is related to the number and type of services.
- Case based payment (for example by DRGs); i.e. income is related to the number of treated cases*.
- Per diem payment; i.e. income is related to number of days spent in the health care facility.
- "Bundled" payment models; i.e. income is related to predetermined expected costs of episodes of care or groups ("bundles") of related health services. Bundled payment models comprise a variety of specific payment methods, depending on how related services are grouped (e.g. covering single or multiple health care providers of different types) and time period covered. DRGs can also be a form of bundled payment. Flat rate per patient per period (may be diagnosis/patient group specific) which can be found in some payment schemes, for example for general practitioners is another**. Bundled payment models are particularly relevant for users making use of a variety of services and frequent contacts with health care providers for the same problem.

In activity related payment models the reimbursement is unrelated to the actual (unit) costs of the individual provider. The price/rate/tariff per unit of activity reimbursed is (typically) fixed, according to a scheme set in advance by the third party payer. In some activity related systems the total budget of the purchaser is fixed (i.e. capped at the macro level) and price per unit of activity reimbursed is endogenous (floating rate), and set retrospectively based on the available total budgets and total volume delivered. These types of activity related systems are sometimes referred to as point-systems (Benstetter and Wambach, 2006).

* The term Activity Based Financing (ABF) is typically used to describe case based payment systems. Here we use a broader definition of activity related payment models.

** This is different from capitation in that it refers to patients actually using the service(s). This need not be the case for capitation systems. The broader the "bundles" are defined the more it resembles capitation models.

To distinguish activity related payment models from reimbursement of costs the price should be independent of the actual costs of the individual provider*. If the reimbursement is also linked to the individual (actual) costs of the provider the system can be characterised as cost based. In **cost based** models providers will (partly or fully) be reimbursed based on the actual cost of the activity. Examples would be budgets that are based on historical costs (and adjusted for expected increased in wages and prices), and volume based models (FFS, per case, per diem etc) where the price-schedule is closely related to the providers own costs of providing services. Thus under this heading we will typically find:

- Budgets based on historical costs, i.e. the past year's costs.
- Volume based models e.g. "Fee for service", where the price (fee) schedule closely follows the costs of services, i.e. the provider will bill the purchaser based on actual costs**.

Finally payment may be related to **results or performance** – what has sometimes been termed "pay for performance" (P4P). P4P will rarely be the dominant type of payment, but is often a supplementary payment mechanism used to enhance specific dimensions of quality. Thus, in this case, provider income (partly) depends on some predefined performance measure. Such measures are typically related to process, structure or outcome of services. Thus under this heading we will typically find:

- Target payments; i.e. models where income is (partly) related to the provider reaching certain predefined targets for activity.
- Relative target payments; i.e. models where providers compete for a limited reward based on their internal ranking.
- Penalties for "underachievement"; i.e. models where payment is withheld or even deducted when providers do not meet specific performance targets.

This typology of payment models is useful to illustrate different principles that can be used when paying providers. These are also closely related to the type of incentives embedded in payment models now discussed. In reality models are more or less strictly enforced; i.e. can be more or less fixed/variable. A global budget model or a capitation model may turn into a variable type of model in regard to incentives if surpluses/deficits are fully or partly retracted/covered by the purchaser. Likewise an activity related model may turn into a cost based model if prices/rates/tariffs actually paid are changed/renegotiated based on observed surpluses/deficits of providers. The more regularly amendments are made, i.e. the more amendments can be expected to happen (anticipated), the less fixed/purely activity related are the models in the eye of the provider.

* Some authors use the term "retrospective" to characterise systems where payment is related to actual costs, and "prospective" to characterise systems where payment is independent of actual (although not expected) costs (Jegers et al 2002).

** Formally we would argue that FFS (and other volume based models) is related to the level of activity. However, when used on detailed and specific services where the fee structure is closely related to individual provider costs, the distinction between activity related and cost based financing becomes blurry.

3.3.1 Incentives

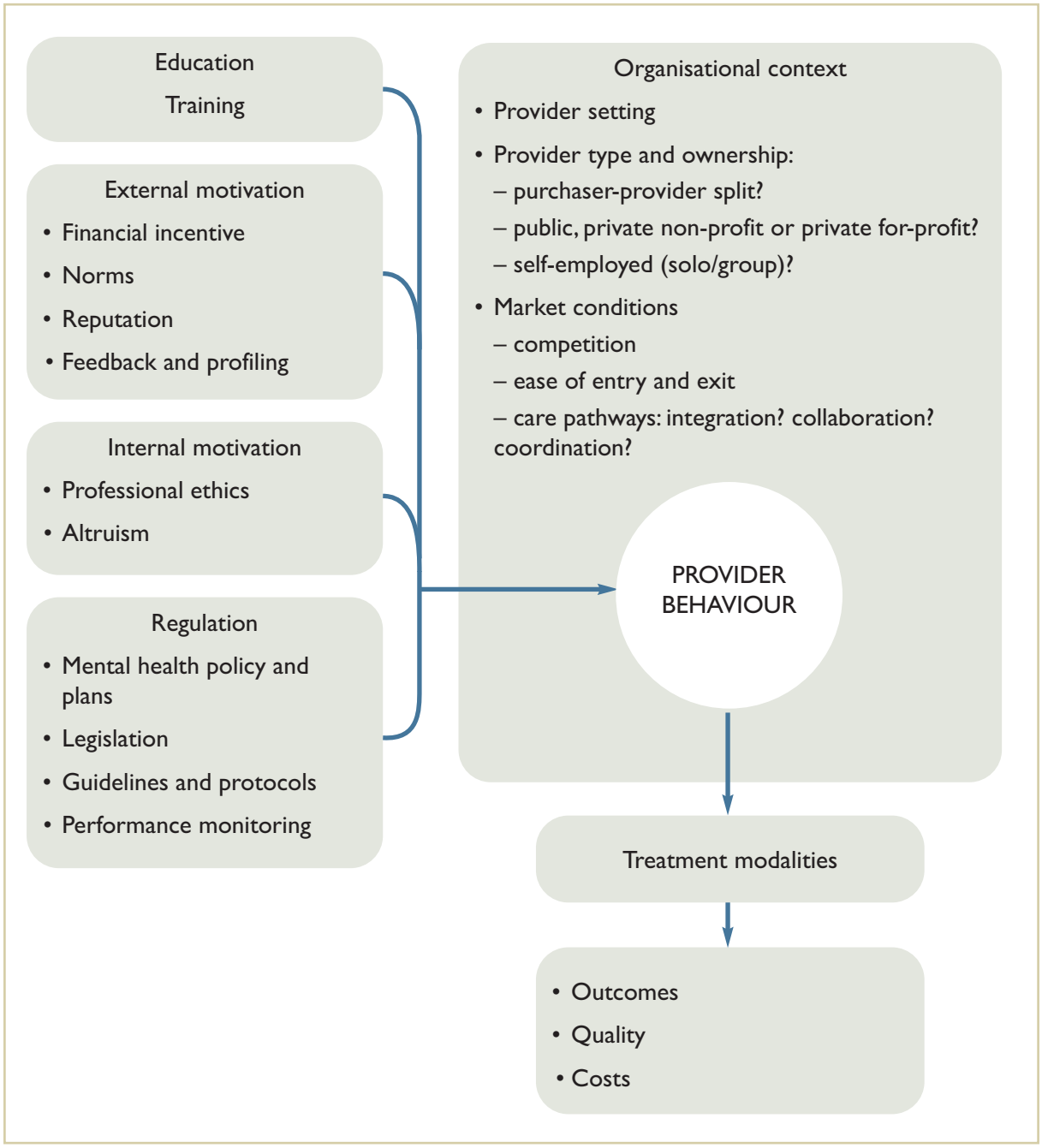
A provider payment model is a contract between a purchaser and a provider of services. Its incentives are related to how it distributes risk between the purchaser and the provider and how the marginal income it generates is related to marginal cost. The incentives of provider payment models should be discussed in relation to the different dimensions of quality as they were described earlier. In addition, health care systems are constrained in their use of resources by fiscal limits, thus the possible effects of provider payment models on the containment of costs will also be important.

How a specific provider payment model will work depends on several factors. Within a country goals may differ between public and private providers, models may be enforced more or less strictly by different purchasers, providers may be heterogeneous and react differently to incentives etc. Comparing countries may also be difficult because of contextual differences that may limit the transferability of experiences from one country to another. Other non-financial incentives, such as care protocols and clinical guidelines, performance monitoring, patient choice and provider competition etc., may reinforce, weaken or counteract financial incentives embedded in the payment model (see Figure 6). Nevertheless, discussing the *possible* incentives that are built into the different payment models provides a useful background when contemplating which form of payment mechanism to choose. In many cases the inbuilt incentives of a particular payment mechanism will be identical for different provider groups, in other cases they may differ.

Generally, provider payment models based on **cost compensation** are not likely to improve efficiency. When providers know that their costs will be reimbursed, there are, of course, few incentives to organise the delivery of services in such a way that the use of inputs is minimised. This is likely to be the case both for primary, outpatient and inpatient care. Access, on the other hand, may be good as capacity is likely to respond to a favourable payment model. For single handed providers of primary care, capacity will be limited by the number of hours in a day, however unless there are restrictions on establishing new practices we may still see an increase in capacity in primary care. Moreover, quality of treatment may not be an issue, again because providers will be reimbursed for actual costs. And if quality of treatment is an issue, it may be because cost compensation may lead to oversupply or overuse of services, thus actually reducing the level of quality. The main reason we seldom observe pure cost compensation models is that they are likely to be costly. Thus, in an environment of cost-containment such models are simply not feasible.

Fixed payment models, on the other hand, are well suited if cost-containment is the focus of health policy. Being "fixed" these in principle set an upper limit to health care costs. The incentives to increase efficiency are not prominent – provider income will be independent of the level of efficiency. To what extent there will be challenges related to access and quality of treatment will depend both on the overall capacity of the system and on the extent that providers (and purchasers) put weight on these goals. The incentives for providers may also vary between the different types of fixed budget

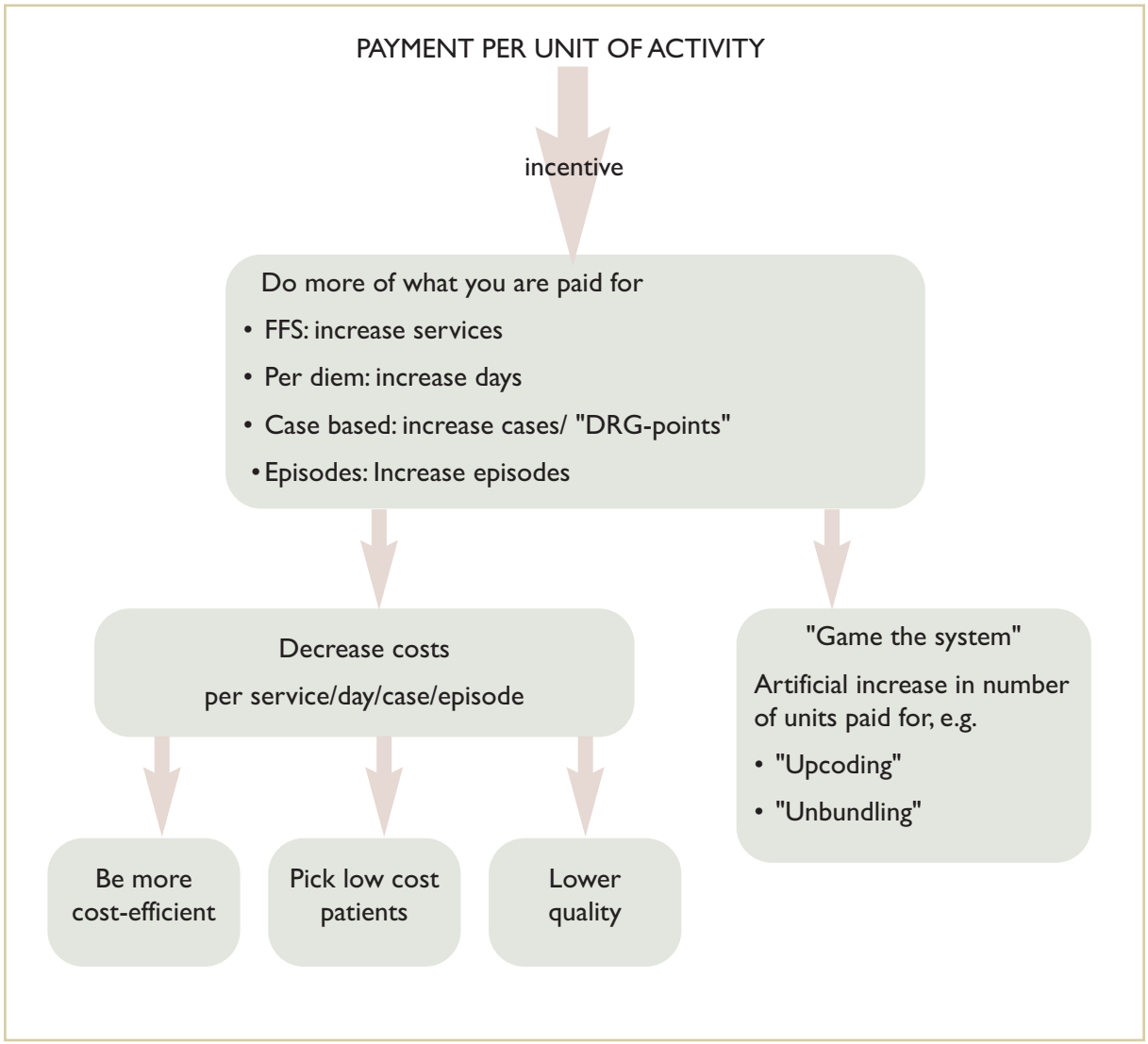
Figure 6. Factors that affect provider behaviour



Adapted from Yip et al. (2010)

models. Capitation models with competition between providers for patients may increase responsiveness to patient wishes and may, for example in primary care settings, weaken the gate-keeping role of general practitioners (GPs) inducing more referrals to specialist care (Iversen and Ma, 2011). Capitation where the physician can influence which patients to include on the list may induce "cream-skimming" behaviour (avoid costly patients) (Olsen, 2009). In addition to cost containment, a potential advantage of global budgets is flexibility in the use of funds within the budget which can ease change and development in service delivery patterns.

Figure 7. Potential provider responses to payment models relating income to activity



Activity related payment models will provide incentives for cost-efficiency, since the income of the provider will be unrelated to actual costs. Thus providers are likely to reduce costs in order to maximise income or free resources in order to increase activity, as in Figure 7.

Note, however, that the effects of this payment form will depend on the type of activity that is reimbursed. In a fee for service model, each service may be efficiently provided, but the number of services may be too large. In a per diem system average length of stay may be too long, even when the use of resources each day may be cost-efficient. The opposite may be the case for case-based financing, i.e. having an incentive to reduce length of stay. Thus, if use of activity related payment is motivated by a desire to improve efficiency, careful consideration needs to be made regarding the unit of activity that is to be reimbursed. On the other hand this may also influence both treatment quality and access. Patient selection (''cream skimming''/"cherry-picking" as well as ''dumping'') and "gaming" ("up-coding"/"DRG-creep" and "unbundling" (changing the timing or

location of services)) are well known side effects of activity related payment. "Bundled" payment models may induce care coordination if the bundle includes services delivered by multiple providers in different settings. However, in the case of independent service providers, this also raises the need for mechanisms for dividing the shared payment.

Activity related payment may also be challenging in terms of cost containment. Unlike fixed budgets, providers may increase their income and thereby purchaser costs by increasing their activity. To control costs the total budget of the purchaser is fixed in some activity related systems. This may take two forms; either there is an upper limit to the activity that is reimbursed or the reimbursement rate is made contingent on the level of activity. Thus the actual reimbursement per unit of activity (point value) to the provider is determined by the total activity of all providers. Hence the income of the provider is not only dependent on own activity, but also on the activity of all other providers. This may reinforce provider incentives, inducing a "treadmill effect" (Benstetter and Wambach, 2006).

Finally, performance related payment is likely to improve performance along the quality dimensions that form the basis of the performance payment. In most cases there is a fixed budget available for performance related payment, thus cost containment is not threatened. However there is a clear danger of what is often termed ''teaching to the test''; i.e. providers will have in focus the quality dimensions that are rewarded, and potentially lose focus on other (equally important) dimensions. In addition to attention shift, performance related payment may also induce other unintended consequences such as "gaming" and loss of intrinsic motivation (Glasziou et al 2012).

Different types of provider payment are often mixed to balance incentives. For instance to enhance efficiency, access and quality and at the same time contain costs, global budgets may be combined with other contractual arrangements like predetermined target/objectives related to activity and quality measures or with limited use of activity related financing. Likewise capitation may be combined with fee for service system to balance incentives for cost-containment and efficiency.

Out-of-pocket payments (OOP) create financial barriers to accessing services which may affect the help-seeking behaviour of patients, e.g. deter use and affect choice of provider or service type. As noted, the primary goal of out-of-pocket payments should be to limit the use of services where there is no benefit. However, few OOP schemes make this distinction, thus it may also provide an incentive to deter care that is beneficial. Care may also be displaced to other parts of the health system, e.g. a shift from primary care to presentation at accident and emergency units if out-of-pocket costs are lower in these facilities. It may also affect provider behaviour (e.g. referral patterns) when providers are concerned about their patients access to services.

4 Guide to the use of the REFINEMENT Toolkit

Mental health care financing concerns the choice of financing models, as well as the structure and organisation of these services. The REFINEMENT Decision Support Toolkit (DST) can be used to collect information for different purposes related to the financing of mental health care services, including a systematic description of the mental health service system in a study area, tracking changes in the mental health service system in a study area over time, as well as a comparison of mental health service systems in different study areas. The study area may also vary, including country, regional and local service systems depending on the purpose of the study.

To use the Toolkit in its full breath the study area(s) should encompass the key health and social services, including hospital services, community mental health and social care services. It covers services directed to, or which are used by, adults aged 18 years or over with mental health needs, excluding dementia and substance use disorders.

The tools or any one part of each tool may be used separately. To facilitate separate use, some topics are covered in several tools. However, the tools are also linked together, implying that specific parts/topics in one tool make use of information collected in another.

Use of the REFINEMENT DST can provide a very rich set of data to evaluate a mental health service system. Together the separate tools enable analyses of the links between financing and the quality of mental health care services (see Figure 8). FINCENTO covers system

Figure 8. The REFINEMENT Toolkit: The link between financing and quality of care

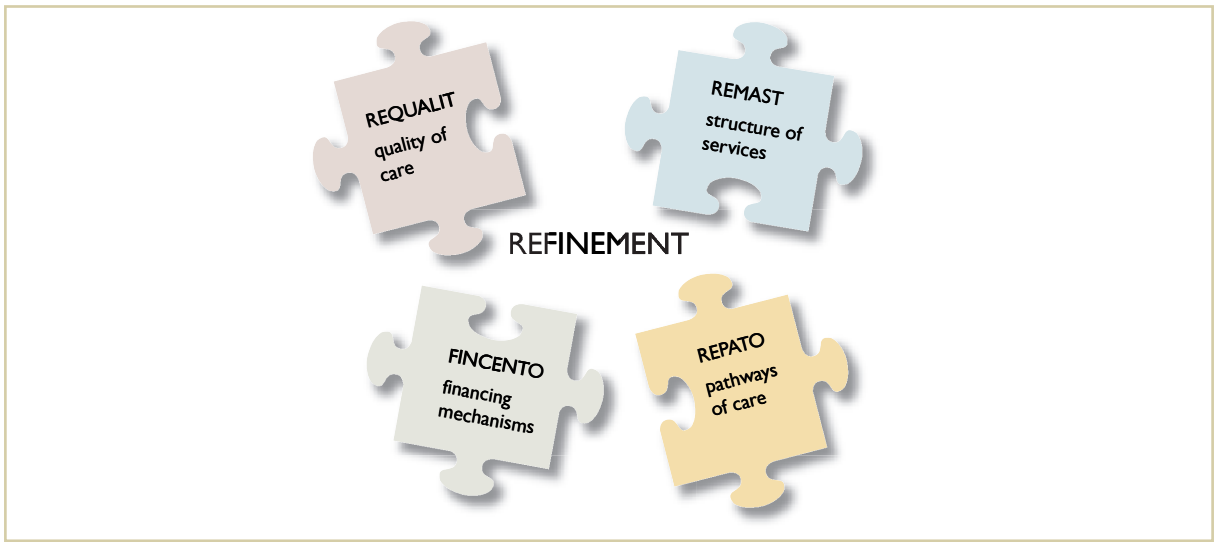


Figure 9. Interpretation of indicators: illustration of possible influencing factors

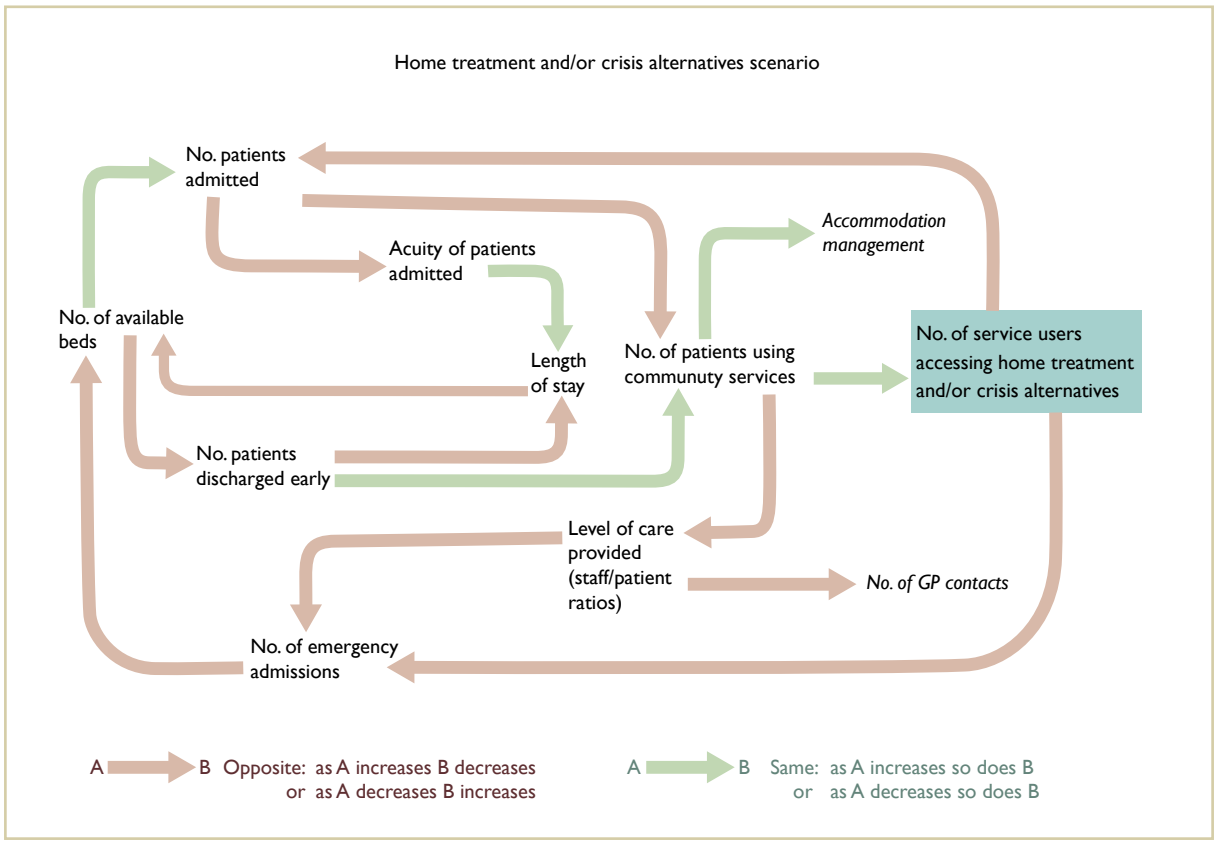


Figure from Whole Systems Partnership and Brunel University, 2012

characteristics and payment models for different care providers. REMAST offers a tool for performing a detailed service mapping, enabling a study of structure quality. REPATO covers characteristics of care pathways, i.e. topics mainly related to process quality. REQUALIT includes a selection of quality indicators covering structure, process and outcome quality.

Here we give an introduction to the content and application of each of the four tools. The topics listed for each tool are either topics/indicators included in the tool or examples of indicators that can be derived from the data collected with each tool.

Generally, separate indicators should not be evaluated in isolation since one factor typically is influenced by other factors (as illustrated in Figure 9). For example, average length of hospital stay may be influenced by bed availability and the availability of community services. Hence, high average length of stay may have a different interpretation in a system with a low number of hospital beds (e.g. indication of high threshold for being admitted and thus severity) than in a system with a high number of hospital beds. Likewise, high average length of hospital stays may not only be influenced by the characteristics of the hospital setting but may also be an indicator of the poor availability of community services.

The accompanying text to the topics coved in the tools on the relevance and possible influencing factors is not exhaustive. Examples are included as suggestions of factors that should or could be assessed in relation to the topic/indicator in question, in order to better interpret the data.

4.1 Limitations

People with mental health needs are not only cared for in specialist mental health services but also in general services, especially in primary care, but also in non-psychiatric beds in general hospitals or in nursing homes. While efforts have been taken to also include these services in the DST, limits were found in this task and, with the exception of physician-led primary care, the DST may not represent these more general services.

Services for people with mental health problems, as well as the ways in which they are financed, are constantly developing. Models of community based services and more patient centred services are being implemented with a stronger reliance on preventive actions and follow-up services that are provided outside of the health care sector including education, employment and work-related services, housing and other types of social care services. These types of services may have other financing systems with regards to sources of funding, entitlement, user contributions and mechanisms used to pay providers. The extent and how services for people with mental health needs are coordinated and/or integrated both within the health care sector and between sectors varies; a huge variety of new models of integration and coordination of services, as well as in financing, can be found.

The enormous complexity in service and financing systems has posed a challenge in developing the REFINEMENT DST. The emphasis of the DST is on capturing the key characteristics of health care services and the main social care services provided to people with mental health needs in the adult population. The methodology for the mapping of frequency, utilisation patterns, financing and other characteristics of different care types and organisational subtypes does not fully capture the different integrated care systems and coordination mechanisms that may be in place. Including descriptive information to supplement the more structured mapping of services and financing systems is therefore crucial.

Adding to the challenge of mapping and describing services and financing systems is the big problem of inconsistency in terminology in use. The terms and concepts used to describe and define different care types and financial mechanisms vary between and even within service types, care settings, countries, languages and academic disciplines. The REFINEMENT DST provides a glossary which tries to harmonise the use of terms in different tools, but ambiguity and different interpretation of these terms in different contexts and settings should be kept in mind.

One of the benefits of the DST developed by the REFINEMENT consortium is that it provides a structured template of information required to adequately plan and finance services for people with mental health needs. Thus the DST should not only be seen as a strict approach to collecting information perfectly and completely, but also as a guidance document on how to conceive these planning issues in a structured way.

The reader should be mindful that the DST has been developed mostly on data not collected for whole countries but only for selected "study areas". Great caution has been taken to make the DST universally useable in a European context.

4.2 FINCENTO: Financing & INCENtive TOol

FINCENTO is a structured catalogue of questions, which guides decision makers on how to collect essential information for systematically describing the financing mechanisms involved in providing care for adults with mental health needs in a specific country or otherwise defined geographical area.

It looks at how revenue for third party payers is generated and pooled, as well as how provider payments and user charges are regulated, including the description of financial and non-financial incentives and disincentives. Based on experiences obtained in pilot studies in eight European countries, the final version of FINCENTO covers a wide array of different financing practices, which makes the text version of this tool appear quite large. However, for any specific country or geographical area only a few of the categories will apply. Any future web-based interactive version of the tool will in practice make this much shorter as repetition will be avoided. It has to be kept in mind that some part of the complexity of FINCENTO results from the fact that care for people with mental health needs is not only provided by specialist mental health services but also by general health services and services organised outside the health sector (such as social care, housing and employment services).

Table 4 gives an overview of the content of the tool and its division into two broad areas focused on the revenue collection and payment mechanisms used.

Table 4. FINCENTO: content and data sources

Content	Data sources
Part A: Regulations, collection and pooling of funds • Overview of the key features of the health and social care system • Overview of coverage and entitlements to health and social care/welfare services • Financing health care: overview of overall sources of revenue for the health care system, including consumer directed payments • Pooling and resource allocation of publicly collected funds for health • Health care system capital infrastructure funding **Part B: Organisation, structure, payment mechanisms, regulations, incentives and disincentives for health and non-health system services** • Physician-led primary care • Specialist mental health outpatient care (psychiatric ambulatory care services, psychiatric day care services, psychiatric mobile services, consultation/ liaison psychiatric services, telephone, internet and computer based services) • Inpatient mental health care (psychiatric and non-psychiatric beds) • Services for housing, employment and vocational rehabilitation • Prescription medications • Coordination of care	Information should be derived from all available sources including publications, reports, statistics, as well as, where required, from interviews with experts and from specific data analyses.

Table 5 provides a detailed overview of the issues to be covered when looking at the financing of the health and social care systems in general, and for mental health in particular. Table 6 goes on to provide a detailed illustration of issues set out in Part B of the FINCENTO. For instance, the need to better understand the competing incentives and disincentives that impact on system performance.

Table 5. Part A: regulations, collection and pooling of funds

Examples of topic covered	Relevance
Third party payment in modern health care systems	Because of the unpredictability of when someone will need a health service, financing systems have developed in modern societies where funds are created either from taxes and/or from mandatory or voluntary insurance mechanisms from which service providers are paid. This has led to a situation where the provider of a service usually has more information than both the payer and the patient, and where therefore the provider could make use of this asymmetry for her own interest. The different types of payment mechanisms of the provider and the inbuilt or explicitly designed financial incentives and disincentives, as well as the way in which user charges are regulated, can be understood as counteracting this asymmetry of information and power in order to achieve equity, cost-effectiveness and high quality in providing care for people with mental health needs.
Overview on overall source of revenue for the health care system	While the focus of the tool is on care for people with mental health needs it nevertheless also has to consider the funding and financing mechanisms for health and social care in general. There are at least three reasons for this: (1) It is likely that the financing mechanisms are the same (or have the same structure) for mental health care as for general health care (or, in the case of social care, as for social care in general). In this case it has to be determined how functional or dysfunctional these general financing mechanisms and their inbuilt incentives are for the care of people with mental health needs, i.e. whether or not the financing mechanisms and incentives/disincentives achieve their intended aims for mental health care in the same way as they do for general health (and social) care. (2) It may be the case that specific financing mechanisms exist for mental health care – in this case it is of interest to examine whether these specific mechanisms and the inbuilt incentives are adequate, i.e. functional or dysfunctional in terms of providing high quality mental health care (or whether, for instance, reimbursement for mental care is disadvantageous if compared to the financing of general health care). (3) It is important to look at general health and social care financing because of the well-documented large co-morbidity between mental and physical disorders.
Pooling and resource allocation of publicly collected funds for health (taxes, mandatory health insurance)	Revenues are "pooled" before they are allocated to service providers. Pooling of funds refers to the accumulation of prepaid revenues on behalf of a population (this might refer to the whole country or regions, e.g. provinces in a federal state or regional trusts or to specific health insurance funds). In most EU countries publicly collected funds for health tend to be pooled at national level, but there may be multiple funds when funds are also collected at sub-national level. Mechanisms may then be used to address any local areas that may have lower levels of tax based income. Social health insurance funds may also have to pool their resources or participate in risk equalisation procedures to transfer money to those insurance funds whose members may have more risky profiles or lower income. Risk pooling can promote equity in health care systems.
Health care system capital infrastructure	This topic looks at how funds are allocated to investment in health care system capital infrastructure, such as new psychiatric units or social care centres or costly investments in major equipment, such as brain image scanners, and again determine whether there are any differences in funding for new mental health specific capital investments compared with investments in general health system infrastructure.

Table 6a. Part B: Organisation, structure, payment mechanisms, regulation, incentives and disincentives for health and non-health system services

Examples of topic covered	Relevance
Provider types and subtypes	In many countries there may be different organisational structures for services that ostensibly have the same function, with different payment mechanisms, with different accessibility to the population and differences in other characteristics. The purpose of Part B of the tool is to document these subtypes of service in a concise way so that an overview is provided. This includes: Physician-led primary care services. Five types of specialist mental health outpatient care services (psychiatric ambulatory care services, psychiatric day care services, psychiatric mobile services, consultation/ liaison psychiatric services, telephone, internet and computer based services). Two types of inpatient mental health care services (psychiatric inpatient care services and non-psychiatric beds in acute general hospitals used by patients with mental health needs). Selected additional services for housing, employment and vocational rehabilitation (housing support, employment intermediation services and vocational rehabilitation services). Equity issues may be at stake if different subtypes of publicly funded services exist. Accessibility is an important issue, since it can be different for different parts of the population. Another issue related to service subtypes is the possibility that some subtypes of services can cream skim and leave or send the more difficult/costly patients to other services who cannot refuse to treat them. Mechanisms of cream skimming on the part of a provider can be very subtle, if, for instance, it is possible to influence waiting lists.
Frequency of services	Some services might be rare in a country or an area within a country, others might be very common or the dominant service model.
Volume of care provided	The frequency of the existence of a type of service might not provide meaningful information on the extent of care it provides. In order to get a better picture of service provision the volume of care provided also needs to be documented. In order to illustrate what is meant by "volume of care" an example is given here. In Austria self-employed single handed general practitioners dominate, in primary care, but only little more than half of these GPs have a contract with social health insurance (SHI) and are directly paid by SHI (with a flat rate per patient per time period plus fee-for service), and around 40% do not have a contract with SHI and bill the patient who can then send the bill to a SHI and is partly reimbursed). While GPs without a SHI contract are quite frequent on the one hand, they do not provide a large amount of care, since they can choose their opening hours and can regulate their accessibility also by charging much more than the patient is reimbursed by SHI.
Legal status/ ownership of service	The public-private ownership issue is of high relevance in today's discussion on improving health care systems. Owners of services can be public or private entities and may also respond differently to the same type of financial incentives depending on objectives and context.

Table 6b. Part B: Organisation, structure, payment mechanisms, regulation, incentives and disincentives for health and non-health system services

Examples of topic covered	Relevance
Payer-provider split	It is important to distinguish between public and private financing and public and private (for profit and not for profit) provision of services. FINCENTO covers only services which are financed publicly (e.g. from taxes and/or mandatory social or substitutional voluntary health insurance) or by a mix of public and private contributions (e.g. patient co-payments, supplemental or complementary voluntary health insurance. The frequent assumption behind a payer-provider split is that this will increase, e.g. by competition, the quality of care. In some instances, however, no payer-provider split may exist.
Provider payment mechanism and inbuilt incentives and disincentives	All provider payment systems create economic signals and individual providers respond to these signals to maximise the positive – and minimise the negative – effects on their income and other interests. Provider payment systems can be designed to create economic signals that lead providers to self-interested behaviour that is also in the interest of the purchaser, the patients, and ideally in the interest of the health care system as a whole (Langenbrunner et al. 2009). Not only the different types of mechanism, which are used to pay services, are of interest, but also their relative importance in terms of total revenue for these services. It is helpful to know whether payments are made retrospectively or prospectively, and how often payments are made. If there are substantial differences in the use of payment mechanisms by different structures, this should be documented. Any information about contracts or other regulatory devices that influence the use of payment mechanisms is of interest (for instance, whether there are limits on the amount of activities that are funded by specific payment mechanisms).
User charges and user payment reimbursement	User charges can have an effect on access and the extent of mental health care service utilisation. It should therefore be explored, whether there is evidence that user charges have an effect on service use, and specifically if the size of payment has an influence on service use. It should be specified whether user charges are made at point of service use or retrospectively, and also whether reimbursement mechanisms exist. Exemptions or ceilings on these payments exist in many countries to provide a financial cushioning for people in poor socioeconomic situations and those in need of extensive health care services.
Restrictions / incentives on the number of services in a geographical area	It is of interest if there are any regulations stipulating the maximum number of services that can be provided or specifications set out in some national or local plan or needs assessment. It is of interest to check if there are maximum limits on the number of people that can enrol with any service or if there are incentives provided to encourage the provision of services in some areas of a country e.g. in socially deprived communities which might have a high rate of people with mental health problems/substance use disorders or in rural areas.
Types of service user	There may be differences in the spectrum of patients using a service. Often overt or covert mechanisms select patients with less severe conditions, leaving patients with severe disorders to other services. The financial implications of such selection procedures ("cream skimming") are not always obvious but should be explored.

Table 6c. Part B: Organisation, structure, payment mechanisms, regulation, incentives and disincentives for health and non-health system services

Examples of topic covered	Relevance
Financial incentives/ disincentives for mental health care	The assumption that service providers could make use of their information advantage for increasing their profit margin (e.g. by providing unnecessary services), has, over recent decades, led to the introduction of a whole range of provider payment mechanisms which have implicit or explicit incentives to better reflect the interest of patients and the third-party payers. Some of these incentives and disincentives are contractual and intended, e.g. to affect provider treatment decisions (Christianson et al. 2007; Chaix-Couturier et al. 2000). Others have emerged as having unintended consequences, e.g. cream skimming; or competing target payments, where less work-intensive targets are chosen. Potential non-financial incentives, e.g. professional guidelines, clinical audit or patient behaviour, which could modify the influence of financing system factors on the quality of mental health care, should be considered only when a realistic answer on their impact can be given. Non-financial incentives/disincentives can be contractual or laid down in more loosely stated qualitative and quantitative targets, goals and performance monitoring. While describing the financing mechanisms used is a demanding task, the identification of incentives is even more challenging, since arrangements concerning incentives may vary to a large degree and can often be elicited only by looking into details of contracts and regulations. For examples of financial incentives and disincentives please see the pilot study report by Straßmayr et al. (2013). Attention should be paid to hidden incentives/disincentives (e.g. resource allocation and payment mechanisms do not fully cover the costs of care) and to whether resource allocation and payment mechanisms (such as DRGs) offer the possibility of upcoding the diagnostic code used (because of the higher level of reimbursement received).
Prescription medication	FINCENTO covers out-of-pocket payments related to prescription medicines and their potential role as incentives and disincentives for service users.
Incentives/ disincentives for coordination of care	Coordinated care is a key quality issue in health care. If care is not coordinated, resources might be wasted due to duplication of diagnostic tests, multiple medication and conflicting care plans and patients might get harmed. This is particularly an issue for people with mental health needs, due to high co-morbidity with physical health problems. Fragmented care delivery is particularly ill-suited to meeting the health needs of people with one or more chronic conditions. These people require seamless care over extended periods of time and across sectors and care settings. Better care coordination has therefore become an explicit objective of health system reform in many countries (McKee and Nolte, 2009). FINCENTO aims at eliciting information on incentives/disincentives to initiate and support coordination of care between different types of services.

4.3 REMAST: REfinement MApping Services Tool

The REMAST Tool allows a good-quality common description of key features of mental health service provision, including those provided by primary and social care services, and enables researchers, service planners and policy makers in different regions, countries and at the European level to compare 'like with like' and to allow adequate use of data from different service systems. REMAST also allows collection of the data necessary to make an assessment of the spatial distribution of services in selected study areas. The tool was built using the experience of previous developed and validated international instruments: the European Services Mapping Schedule (ESMS), the Description and Evaluation of Services and Directories in Europe (DESDE) and the WHO Assessment Instrument for Mental Health Systems (WHO-AIMS).

A section of the REMAST is dedicated to variables related to the concept of Socio-Economic Status (SES). SES is a complex concept with no universal definition. When one looks at the international research literature on SES it is evident that it is related to social class, social position, occupational status, educational attainment, income, wealth and standard of living. It also appears that there are different ways of measuring SES, something that is often country-specific and related to the different questions asked in national population censuses. For all these reasons, REMAST collects available data on several socio-economic variables of the study area that could be summarised in a single SES-index following previous research experiences.

The REMAST takes also into much consideration health geography by devoting considerable attention to the geographical or spatial distribution of health facilities as an important factor that influences overall population health. The question of spatial organisation and the distribution of health care facilities is one element of the spatial equity of public services. The REMAST tool tries to analyse the spatial dimension of mental health care delivered by health and social services. The notion of spatial equity implies the use of accessibility as a tool for assessing whether or not equity has been achieved. Accessibility measures can be viewed as a social indicator when they assess and show the availability of social opportunities for individuals. REMAST can then be used in combination with a Geographical Information System (GIS) for a broad range of mental health services; to date such studies have only been conducted on single services at a local level.

Tables 7, 8, 9 and 10 provide an overview of the different domains of investigation that are covered by REMAST. Table 7 indicates sources of data to be collected, including the use of geographical datasets, while Table 8 highlights the importance of understanding mental health policy and legal safeguards. Table 9 provides extensive information on key indicators of different aspects of quality that can be derived from REMAST data, while Table 10 looks at aspects of the local setting and context.

Table 7. REMAST: content and data sources

Content	Data sources
Mental health systems checklist • Policies and legislative framework	Data from different public sources and/or interviews with system representatives.
The ecological setting of the study area • Population data by age and gender • Socio-Economic Status (SES) • Geographical data	Routinely collected census data (the lower level of disaggregation of data is preferable). Corine Land Cover dataset*/ GMES Urban Atlas Dataset**
Service inventory File (SIF) • Mapping all health and social services directed towards, or used by, working-age population with mental health needs located in the study area	The instrument is based on the Description and Evaluation of Service and Directories in Europe for Long Term Care (DESDE-LTC). The instrument classifies provision in a "service mapping tree" on the basis of operationalised definitions of mental health services. Use of the instrument requires an investment of time and resources in training before use, as well as in collecting data. The data is collected by survey and interviews with all relevant service providers.

* Corine Land Cover Dataset: The land cover project is part of the CORINE programme and is intended to provide consistent localised geographical information on the land cover of the Member States of the European Community. Temporal coverage: 2006.

** GMES: The Urban Atlas is providing pan-European comparable land use and land cover data for Large Urban Zones with more than 100.000 inhabitants as defined by the Urban Audit. Temporal coverage: 2005–2007.

Table 8. Mental health systems checklist: policies and legislative framework

Examples of topic covered	Relevance
Mental health policy Also used in REQUALIT	The philosophy of psychiatric reforms in European countries has implicitly or explicitly been based upon some key principles of community psychiatry and incorporated actions along the following axes: • the deinstitutionalisation process and closure of old mental hospitals; • the development of alternative community services and programmes; • integration with other health services; and • integration with social and community services. Wide differences are present within the Member States of the European Union (EU), with different levels of implementation of the principles of community psychiatry.
Mental health plan	Mental health services in many countries are currently subject to change and are being reviewed and redesigned. These changes reflect, in part, the growing evidence of what constitutes cost-effective care, and also an acknowledgement of the failures of a system of care that was based on old-fashioned and remote institutions. Asylums do not offer the quality of care that is expected today, both by patients and their families. There is also an increasing worldwide focus on chronically disabling conditions, including mental disorders, rather than infectious and communicable diseases. Emphasis is given also to actions for promoting mental health and preventing mental disorders.
Monitoring and training on human rights	People with mental disorders around the world are exposed to a wide range of human rights violations. People with mental disorders also face discrimination on a daily basis including in the fields of education, employment and housing. Mechanisms to monitor human rights should be established to protect against inhuman and degrading treatment, poor living conditions and inappropriate and arbitrary involuntary admission and treatment. People should also have access to complaints mechanisms in cases of human rights violations.
Mental health authority	The 'mental health authority' is an organisational entity responsible for mental health care within a region or country. The Department of Mental Health or the Mental Health Office in the Ministry of Health may be considered to be a 'mental health authority'. The presence of such authority is seen as a guarantee of integration and homogeneity of policies and practices.

Table 9a. Service Inventory File

Examples of topic covered (can be derived from REMAST data)	Relevance
Ownership and payment mechanisms for each service	Gives the opportunity to link financing and service characteristics at provider level.
Number of mental health services by type of service	Indicate how services are organised in the area: large centralised services vs. small decentralised services closer to the population. Should be evaluated in relation to average size of service (staff/beds/places), size of catchment area (population served) and population density (population per km^2).
Sectorisation of mental health services	Sectorisation may secure more evenly distributed services and better care planning and coordination. On the other hand, it may restrict access to mental health services for people outside the catchment area. Related to patient choice and gate-keeping.
Scale of provider systems – size of catchment areas (real potential users)	Small catchment areas may indicate inefficient scale and unnecessary duplication of services (depending on the type of services provided). This should be evaluated in relation to population density (population per km^2). Smaller catchment areas may be necessary to provide reasonable accessibility in rural areas. *Caution*: the notion of catchment areas is related to the sectorisation of mental health services, which may be absent in some systems.
Opening days/week hours/day of mental health outpatient and day services	Indicator of accessibility of services.
Capacity: staff levels by type of mental health service	The capacity in the system will determine the likelihood that an individual will be able to access and utilise services. High staff levels may, on the other hand, lead to supplier induced demand. This should be evaluated in relation to the size of the catchment area (population served) and needs (e.g. SES index).
Capacity: beds by type of mental health service (e.g. hospital acute, hospital non-acute, community indefinite stay, community limited stay)	The capacity in the system will determine the likelihood that an individual will be able to access and utilise services. High bed levels may, on the other hand, lead to supplier induced demand (too many and/or too long stays). This should be evaluated in relation to size of catchment area (population served), needs (e.g. SES index), as well as average length of stay (ALOS), bed occupation rates and patient turnover, and availability of outpatient and day care services.
Capacity: places by type of mental health day service	The capacity in the system will determine the likelihood that an individual will be able to access and utilise services. This should be evaluated in relation to the size of the catchment area (population served) and needs (e.g. SES index), as well as by the availability of other community services.

Table 9b. Service Inventory File

Examples of topic covered (can be derivered from REMAST data)	Relevance
Qualifications and skill-mix: physicians, psychologists, nurses etc; by type of service	Indicators of structural quality such as multidisciplinary teams in mental health services are seen as a good provider of a comprehensive bio-psycho-social model of treatment. They should be evaluated in relation to the size of the catchment area (population served) for each category, as well as their share of the total workforce.
Integration and balance of care: share of services with bio-psycho-social staff *(at least one doctor, one nurse and one social worker or occupational therapist)*	Indicators of structural quality such as multidisciplinary teams in mental health services are seen as good providers of a comprehensive bio-psycho-social model of treatment.
Integration and balance of care: social professionals *(social workers and occupational therapists)* in mental health services Also used in REQUALIT	Indicators of a comprehensive approach to mental health care. The presence of social workers and occupational therapists in multi-professional teams of mental health services indicates services oriented towards rehabilitation and recovery. They should be evaluated in relation to the size of the catchment area (population served).
Balance between hospital and community care: share of staff in hospital care	The indicator of deinstitutionalisation and shift towards community based care. It should be evaluated in relation to per capita rates of use for both hospital and community care, and rates as well as types of beds/places in hospital and community care, in order to interpret the share and to evaluate the levels of care provided in different part of the system. This impacts on service utilisation patterns (REPATO).
Balance between hospital and community care: access to and diversity of community care	The indicator of deinstitutionalisation and a shift towards community based care. This impacts on service utilisation patterns (REPATO).
Integration and balance of care: hospital v. community beds or short term v. indefinite stay beds or beds within health sector v. non-health sector or average number of beds (size) for different type of bed-categories (acute hospital etc)	These could be defined as input indicators and at process level they could be connected to continuity of care (they should be considered in connection with " after-care continuity", "readmission" etc.). Possibly influenced by the availability of community and/or home/mobile teams.

Table 9c. Service Inventory File

Examples of topic covered (can be derived from REMAST data)	Relevance
Integration and balance: hospital v. community-based services – *ratio between the rate of beds in hospital-based and community-based services* Also used in REQUALIT	Must be evaluated in relation to each of the bed rates, and to the existence of other types of long term care housing support not defined as residential care (REQUALIT). Caution: (1) Community beds (indefinite stay beds) may be poor quality beds-ref: deinstitutionalisation/not supporting independent living. (2) A high rate may be due to the use of alternatives to community beds such as long term care housing support not defined as residential care (supported housing)
Integration and balance of care: availability of home/mobile outpatient services – *number, rate of mental health mobile services and proportion of total mental health outpatient services* Also used in REQUALIT	These could be defined as input indicators and at process level they could be connected to continuity of care (they should be considered in connection with "after-care continuity", "readmission" etc.). They should be evaluated in relation to size of catchment area (population served).
Integration and balance of care: availability of (health and non-health) day services – *number, rate and proportion of mental health, work/work-related and other day services*	These could be defined as input indicators and at process level they could be connected to continuity of care (they should be considered in connection with "after-care continuity", "readmission" etc.). They should be evaluated in relation to the size of the catchment area (population served).
Availability of 24-hour acute mental heath services by type of service. Also used in REQUALIT and REPATO	These should be evaluated in relation to the size of the catchment area (population served). A high number per capita indicates a high need for personnel to be present or on call to staff the 24-hour services that have alternative uses. Low numbers may indicate poor accessibility. Large catchment areas in terms of land area and low population density may necessitate higher numbers per capita to ensure accessibility. These should be evaluated in relation to average travelling time to service. Caution: emergency services may be provided by general health services.
Interface between service sectors: number of health and non-health/mental health and general health services in residential, outpatient and day care	Indicator of the balance between health and non-health services among all services devoted to the care of people with mental disorders.

Table 9d. Service Inventory File

Examples of topic covered (can be derived from REMAST data)	Relevance
Utilisation rates by type of mental service	These should be evaluated in relation to the size of the catchment area (population served). The number of patients is an indicator of accessibility. Activity rates (admissions, outpatient consultations, days in day care)may also reflect service intensity and potentially supplier induced demand. Different payment mechanisms will have an impact on utilisation, e.g. differences between budgets set for a capitated population compared to some form of activity based financing mechanism. Both are also potentially influenced by out-of-pocket payments. Possibly influenced by availability, capacity, geographical accessibility, needs (SES-index), benefit packages and eligibility for services (FINCENTO).
Bed occupancy rate in acute mental health wards *(sum of days per year/sum of beds*365)* Also used in REPATO	As a rule, a bed occupancy rate of about 85 per cent would be preferable, deviating rates could indicate over-/undersupply of resources (Phillip et al. 1984). Possibly influenced by the availability of non-acute hospital beds, community housing facilities/flats and other community services. Related indicators are ALOS and patient turnover in acute wards.
Average length of stay (ALOS) in acute, non-acute hospital, and non-hospital mental health beds *(sum of days per year/sum of admissions per year)* Also used in REQUALIT and REPATO	Length of stay is the main driver of variation in inpatient episode cost. High ALOS in may be an indication of inappropriate and inefficient care. Too short a length of stay could cause adverse effects on health outcomes. Low ALOS may be associated with high unplanned readmission rates. Higher than average lengths of hospital stay for people with serious mental illness may reflect inadequate community services and supports. The Key Performance Indicator Framework for New Zealand Mental Health and Addiction Services (Northern DHB Support Agency, 2012) has proposed as good practice a range of 14–21 days in stay on acute wards, with anything above 30 days triggering an alert. Low bed rates may be associated with higher ALOS if only the most severe cases are admitted. ALOS in one type of bed can be influenced by capacity and ALOS in other types of beds. Possibly influenced by bed rates (acute hospital, non-acute hospital and other inpatient beds) and availability of community housing facilities/flats and other community services. Related indicators are bed occupancy rates and patient turnover. Caution: The indicator for acute and non acute hospital stays can be affected by hospital ward structure. If the typical pattern is to transfer acute patients to non-acute wards after initial screening/treatment of acute symptoms, the ALOS for the entire hospital stay should be calculated, separating acute and non-acute stays by the type of the admission (acute vs planned admission).
Patient turnover *(sum of discharges per year/sum of beds)* Also used in REPATO	High patient turnover (annual discharges per bed) may be associated with an increased risk of readmission within 30 days (Heggestad 2001). Possibly influenced by bed rates (acute hospital, non-acute hospital and other inpatient beds) and the availability of community housing facilities/flats and other community services. Related indicators are bed occupancy rates and ALOS.

Table 10. The ecological setting of the study area: population data, socioeconomic status and geographical data

Examples of topic covered (can be derived from REMAST data)	Relevance
Geographical accessibility of (a) acute services, (b) outpatient care services, (c) day care services - percentage of inhabitants who live within: 0–10, 10–20, 20–30, and >30 minutes driving from (a)/(bi)/(c) Also used in REQUALIT and REPATO	The question of spatial organisation and distribution of health care facilities is one element of the spatial equity of public services. Analysis using a Geographical Information System (GIS). Use drive time isochrone maps. Conducting an accessibility assessment typically requires three main types of information: 1. Locations of services (from the Service Inventory File (SIF)); 2. Distribution of the resident population in the surrounding area; 3. Details of the road network. This should be evaluated in relation to population density of the catchment area (population per km^2). Caution: emergency services may be provided by general health services
SES-index	Tool to examine the relationship between mental health service use and deprivation. Socioeconomic characteristics in the ecological setting are important health determinants and thus determinants of demand for health services.

4.4 REPATO: REfinement PAthways TOol

REPATO asks, in a structured way, relevant questions to describe pathways of care for adults with mental health needs within and between selected major general and specialist care settings for a specific country, region or otherwise defined geographical area.

After a literature review and pilot studies in eight European countries, as Table 11 shows, three practically relevant topics were selected: (1) service utilisation patterns within primary care, and also between primary care and specialist mental health care, (2) continuity of mental health care and (3) readmission following acute psychiatric hospitalisation. Of, course, many other pathways exist and multiple step pathways could have been included, but this would in most cases overtax the resources of mental health care planners. The selected "one step" pathways, if adequately described, can in themselves provide valuable insights into the functioning of the system of care for adults with mental health needs.

In relation to the main topic of the REFINEMENT project, the information collected on pathways may have a double meaning: first, pathways of care are in themselves indicators of quality of care (e.g. continuity of care, hospital readmission rates) which are influenced by the availability of services (see REMAST), by financing mechanisms (see FINCENTO) and by other factors; second, pathways of care influence other quality of care indicators, such as patient satisfaction

Table 11. REPATO: content and data sources

Content	Data sources
1. Service utilisation patterns within primary care and between primary care and specialist mental health care 2. Continuity of mental health care 3. Readmission following acute psychiatric hospitalisation	Information should be derived from all available sources including publications, reports, statistics, as well as, where required, from interviews with experts and from specific data analyses.

(REQUALIT). In addition to describing the pathways – by empirical data or expert knowledge – factors possibly influencing specific patterns of pathways should be considered (examples for such potentially influencing factors are provided throughout REPATO). An important distinction is made throughout: whether the pathway described relates to all types of patients or only to subgroups, especially to severely mentally ill and/or people with complex needs (defined pragmatically for the purpose of REPATO as being diagnosed with schizophrenia or bipolar disorder), for whom pathways are mostly different from those with less severe disorders.

Tables 12, 13 and 14 show the topics covered in REPATO and their potential relevance for the quality of mental health care.

Table 12. Service utilisation patterns within primary care and between primary and specialist mental health care

Topics covered	Relevance
Initial and subsequent outpatient service contacts in case of mental health problem Referrals from GPs to outpatient mental health services Exclusive utilisation of primary health care services for mental health treatment (including the main reasons for this service utilisation pattern) Referrals from GPs and other services/sources to acute psychiatric inpatient care Aftercare following acute psychiatric hospitalisation Existence of clearly defined and delimited responsibilities of primary and mental health care providers Relationship between the severity of mental health problems and the intensity of mental health care Capacity of specialist mental health services Collaboration between primary and specialist mental health services SWOT analysis of the care system with regard to the interface between primary and specialist mental health care Models of integrated care between primary and secondary care in the field of mental health (including their underlying financing and regulatory mechanisms)	Relates primarily to the efficiency (desired outcome with most cost-effective use of resources) and appropriateness (care is relevant to service users' needs and based on established standards) of the patient trajectory and the basic assumption that the intensity of mental health care might have to be directly related to the severity of mental health problems. Thus, it might be advisable that mild to moderate mental health problems should be managed in primary care, while patients with severe mental health problems should be referred to specialist mental health services (e.g. Thornicroft and Tansella 1999, Slade et al. 2008) Possibly influenced by: service structure (see also REMAST), provider payment mechanisms and user charges (see also FINCENTO), other factors, such as the existence of a gate-keeping system, significance of psychiatric issues in the postgraduate training of GPs, capacity in primary and specialist mental health care, responsibilities in and collaboration between primary and specialist health care, primary care practice types, primary care practices with on-site mental-health workers, existence, level of mandation and practical application of guidelines for referral and treatment of mental disorders, relationship styles between primary and specialist mental health care services and accessibility of outpatient mental health services. Where appropriate a difference is made between patients with mental health needs in general and severely mentally ill patients and/or patients with complex needs (defined pragmatically for the purpose of REPATO as people diagnosed with schizophrenia or bipolar disorder) since pathways might be quite different for severely mentally ill patients and/or patients with complex needs (as well as for other subgroups of course – respective observations should be covered in the comments section of each item). Caution: indicators have been developed in REPATO in a highly formalised way to provide the possibility to document exact information in cases where this is available. If information is limited, then estimates have to be made. It should be clearly stated where estimates are used.

Table 13. Continuity of mental health care

Topics covered	Relevance
Specialist mental health outpatient follow-up care within 7, 30 and 180 days after discharge from acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorder) Days to first specialist mental health outpatient follow-up visit after discharge from acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorders) Average number of specialist mental health outpatient follow-up visits within 30 and 180 days after acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorders) Dropout from specialist outpatient mental health care (including separate calculations for new service users and also for individuals with severe mental disorders)	Continuity of care is commonly regarded as a central characteristic of high quality care for longer term mental disorders and thus represents a separate quality dimension in established frameworks for health performance, e.g. in Canada (McEwan and Goldner 2001), Australia (NMHWG 2005), and OECD (Hermann et al. 2004). As the concept of continuity is multifaceted, no common definition has been established so far. In general continuous care can be characterised as being reliable, uninterrupted, coordinated, provided over time and across interfaces. The REPATO tool focuses on the continuity of follow-up care after psychiatric hospitalisation and on the continuity/discontinuity of outpatient mental health care. The OECD used "Timely Ambulatory Follow-Up after Mental Health Hospitalisation" as a quality indicator, because "most patients treated in the inpatient setting for a psychiatric disorder require follow-up ambulatory care to promote further recovery and prevent relapse. Scheduling outpatient appointments proximally to discharge is generally recommended to address side effects that can result from inpatient medication changes and to support compliance with the treatment plan. Shorter gaps between discharge and aftercare may contribute to greater continuity of care and lower risk of relapse. Scheduling outpatient appointments proximally to discharge is generally recommended to provide the patient with support during the transition, monitor for signs of relapse, address side effects resulting from changes in treatment, and encourage compliance with the treatment plan." (Hermann et. al. 2004, 14) Disengagement or dropout from care can be regarded as an opposite of continuity of care. A high dropout rate is considered to be an indicator of low quality of care, showing a poor fit between care supply and care demand (Morlino et al. 2009). Possibly influenced by: travel times to specialist outpatient mental health services, waiting times for regular outpatient appointments with publicly funded mental health providers, the balance between psychological/psychotherapeutical and pharmacological treatment, application of strategies for engaging and retaining service users in care, existence of community mental health services, availability of and travel time to 24-hour ambulatory emergency mental health treatment, acute psychiatric hospitalisations with referrals to services outside local area, acute psychiatric hospitalisations with discharges against medical advice, existence of discharge planning interventions, existence of regular inter-agency collaboration and communication, limited specialist outpatient mental health coverage, referral or preauthorisation requirements for specialist outpatient mental health care, out-of-pocket requirements for specialist outpatient mental health care and equivalency of out-of-pocket payments in primary, non-psychiatric and psychiatric care. Where appropriate a difference is made between patients with mental health needs in general, and severely mentally ill patients and/or patients with complex needs (defined pragmatically for the purpose of REPATO as people with schizophrenia or bipolar disorder) since pathways might be quite different for severely mentally ill patients and/or patients with complex needs (as well as for other subgroups – respective observations should be covered in the comments section of each item). Caution: indicators have been developed in REPATO in a highly formalised way to provide the possibility to document exact information in case this is available. If information is limited, estimates have to be made and it should be stated in the comments section that estimates are reported.

Table 14. Readmission following acute psychiatric hospitalisation

Topics covered	Relevance
Readmission rates within 7, 30, 90 and 180 days after acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorder)	Readmission rates are often used as outcome measures for the effectiveness and appropriateness of community care, as well as for the quality of the previous hospitalisation. Given the high cost of institutional care, reducing readmission rates can have a substantial effect on mental health spending.
Community tenure: days between discharge from acute index hospitalisation and first acute psychiatric readmission (including separate calculations for individuals with severe mental disorder)	Despite the belief that the risk of readmission is relatively independent of service system variables and more strongly related to patient-bound clinical variables (Sytema and Burgess 1999), there is at least modest evidence that discharge planning measures to prepare service users for discharge can protect against early readmission (Durbin et al. 2007). As after hospital discharge the responsibility for the prevention of readmissions passes gradually from the hospital to the community provider/s, REPATO differentiates between earlier and later readmissions to be able to relate the different findings more precisely to hospital- versus community-related variables.
Average number of readmissions within 180 days after discharge from acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorder)	Possibly influenced by: involuntary periods during acute psychiatric hospitalisations, bed occupancy at acute psychiatric wards, patient turnover on acute psychiatric wards, average length of stay on acute psychiatric wards, collaboration with families of service users, existence of discharge planning interventions, existence of community mental health services, capacity and accessibility of acute inpatient mental health care, bed rates, capacity and accessibility of outpatient follow up care and financing mechanism of acute psychiatric inpatient treatment.
Readmissions with outpatient contacts after index discharge from acute psychiatric hospitalisation (including separate calculations for individuals with severe mental disorder)	Where appropriate a difference is made between patients with mental health needs in general and severely mentally ill patients and/or patients with complex needs (defined pragmatically for the purpose of REPATO as people diagnosed with schizophrenia or bipolar disorder) since pathways might be quite different for severely mentally ill patients and/or patients with complex needs (as well as for other subgroups of course – respective observations should be covered in the comments section of each item).
	Caution: indicators have been developed in REPATO in a highly formalised way to provide the possibility to document exact information in case this is available. If information is limited, estimates have to be made and it should be stated in the comments section that estimates are reported.

4.5 REQUALIT: REfinement QUALIty of care Tool

It is commonly recognised that quality of care can be considered as a multi-dimensional construct; that indicators can be considered as proxy measures for dimensions of quality of care; that the same indicators can be considered as measures for different dimensions of quality because they are neither comprehensive nor mutually exclusive; and that a whole, balanced and tailored set of indicators is required as it will influence the health care policies to be adopted. Phase, dimension and setting are three possible approaches used in the literature to categorise indicators of quality of mental health care. The data collected with REQUALIT, as indicated in Table 15, contains a broad set of indicators which represent a combination of phase level and quality dimensions, considering different setting types in the mental health system.

Table 15. REQUALIT: Content and data sources

Content	Data sources
Section A Statistical indicators	Statistical data (based on administrative data/case register studies, previous empirical findings etc).
Section B Various questions are included in order to consider: • the main data analysis/survey-based measures of quality, principally outcome measures (e.g. needs or quality of life); • aspects of quality of care potentially present in policies and legislation or mandatory protocol; • aspects concerning service users' and families/carers' perspectives; • the presence of monitoring system or best practice programmes.	Review of empirical findings (research publications), official documents and expert interviews.
Section C Indicators on integration and balance of care, and geographical accessibility and availability of services using data collected from REMAST	REMAST data

Tables 16, 17 and 18 show the topics covered in REQUALIT and their potential relevance for the quality of mental health care.

Table 16a. Section A – statistical indicators

Topic covered	Relevance
Suicide rates	Suicide is a serious public health problem and an international health priority. According to WHO, many European countries should reduce existing rates by at least a further one-third by the year 2020 (WHO, 1998). As Jacobs and McDaid suggested (2009), suicide rates may be a good indicator of how well health and other local services meet the needs of people with mental health problems. High rates of suicide might suggest further investigation on different aspects of the system such as access to treatment; integration of health and social services; clinical, organisational, staffing and resource management in psychiatric services. According to these statements, suicide rates as an outcome measure could be connected to other processes and input factors of the health and mental health system. As summarised by While et al. (2012), service-related risk factors for suicide identified in previous studies include poor continuity of care, scarcity of well-developed mental health services in the community, reduction of care at final appointment before death and missed appointments with services.
Length of stay (can be derived from REMAST)	Length of stay is the main driver of variation in inpatient episode cost. High ALOS may be an indication of inappropriate and inefficient care. Too short a length of stay could cause adverse effects on health outcomes. Low ALOS may be associated with high unplanned readmission rates. Higher than average lengths of hospital stay for people with serious mental illness may reflect inadequate community services and supports. The Key Performance Indicator Framework for New Zealand Mental Health and Addiction Services (2010) proposed as good practice a range of 14–21 days of stay in acute wards, with anything above 30 days triggering an alert. Low bed rates may be associated with higher ALOS if only the most severe cases are admitted. ALOS in one type of bed can be influenced by capacity and ALOS in other types of beds. Possibly influenced by bed rates (acute hospital, non-acute hospital and other inpatient beds) and availability of community housing facilities/flats and other community services. Related indicators are bed occupancy rates and patient turnover in acute wards. Caution: the indicator for acute and non acute hospital stays can be affected by hospital ward structure. If the typical pattern is to transfer acute patients to non-acute wards after initial screening/treatment of acute symptoms the ALOS for the entire hospital stay should be calculated, separating acute and non-acute stays by the type of the admission (acute vs planned admission).
Readmission rates after acute psychiatric hospitalisation (Also included in REPATO)	Readmission rates can be an indicator of poor quality inpatient care or poor outpatient/community follow-up. Unplanned readmissions may indicate that the treatment, or the subsequent community follow-up, was sub-optimal (or that the discharge was premature). Inpatient: good quality of care in hospital and good discharge management can reduce readmission rates. Outpatient: appropriate and coordinated follow-up care after discharges can reduce readmission rates. Given the high cost of institutional care, reducing readmission rates can have a substantial effect on mental health spending. Caution: readmission rates should be used with caution as an indicator of hospital provider quality, in part due to possible adverse incentive effects. They should be evaluated in relation to other possible influencing factors such as bed capacity, ALOS, bed occupancy rates, discharge planning, geographical accessibility of outpatient services, capacity in community follow up and support services, waiting times and patient case-mix.

Table 16b. Section A – statistical indicators

Topic covered	Relevance
Involuntary admissions (Also included in REPATO) Use of coercion measures: seclusion rate	Involuntary admission of patients to psychiatric institutions and the use of coercive treatment severely affects patients' rights and freedom. This may be an indicator of standards of care. The overuse of highly restrictive treatments indicates a lack of more appropriate, less restrictive therapies or services/staff that lack respect for client dignity. This may have serious adverse effects. Possibly influenced by (indicators from REQUALIT and/or REMAST): • Legal criteria, procedural regulations and time periods for involuntary admission, • Legal conditions, human right, rules and regulations concerning involuntary admission and treatment, • Psychiatric bed rates, • Availability of emergency services, • Availability and quality of community services, • Presence of forensic beds and crisis resolution facilities, • Availability of early intervention, • Deprivation.
Supported employment	Traditional rehabilitation, based on the train-and-place model, is the most widespread approach to support people with mental health problems to return to employment. On the other hand, the supported employment model (the so called place-and-train model) emphasises direct job placements as opportunities for people with mental health problems to experience both the benefits and the challenges of real-world occupations.
Supported housing	The assessment of housing problems or needs of people with mental health problems is an indicator of a comprehensive approach to mental health. Moreover, more developed services could also assess: housing location (accessibility to services and facilities, the neighbourhood built environment); housing deterioration; housing disarray; housing instability; housing cost needs and the economic management of housing.
Continuity: days to first aftercare visit (Also included in REPATO)	Scheduling outpatient appointments proximally to discharge is generally recommended to provide the patient with support during the transition, monitor for signs of relapse, address side effects resulting from changes in treatment and encourage compliance with the treatment plan. Possibly influenced by discharge planning, geographical accessibility of outpatient services, capacity in community follow up and support services, waiting times and patient case-mix.
Continuity: outpatient follow-up care after acute psychiatric hospital discharge (Also included in REPATO)	Shorter gaps between discharge and aftercare may contribute to greater continuity of care and lower risk of relapse. Possibly influenced by discharge planning, geographical accessibility of outpatient services, capacity in community follow up and support services, waiting times and patient case-mix.

Table 16c. Section A – statistical indicators

Topic covered	Relevance
Community Tenure: 1-year post-discharge (Also included in REPATO)	Readmission rates can be an indicator of poor quality inpatient care or poor outpatient/community follow-up. Inpatient: good quality of care in hospital and good discharge management can reduce readmission rates. Outpatient: appropriate and coordinated follow-up care after discharges can reduce readmission rates. Possibly influenced by bed capacity, ALOS, bed occupancy rates, discharge planning, geographical accessibility of outpatient services, capacity in community follow up and support services, waiting times and patient case-mix.

Table 17a. Section B – review of empirical findings (research publications), official documents and expert interviews

Topic covered	Relevance
Outcome assessment Service-user satisfaction	Although there is a consensus that outcomes should be routinely measured in mental health services, there is limited evidence that routine outcome measurements can deliver improvements in the quality of local service delivery and patient-level care. The evidence from randomised controlled trials suggests that one-off or infrequent outcome measurements have little effect on improving quality of life or other outcome measures. However, outcome measurement done more regularly (more than once or twice) can significantly improve patients' quality of life and reduce psychiatric admissions (Jacobs and Moran, 2010). In general, outcome measures in mental health can include different domains such as symptoms, social functioning, quality of life and users' needs. However, it is relevant to note that a wide number of rating scales are used in psychiatric research, but few are used routinely in clinical practice or performance monitoring.
Physical health	The evidence consistently indicates that the mortality rates from many physical illnesses are significantly higher for people living with enduring mental illness than for the general population (Harris and Barraclough, 1998; Grigoletti et al., 2009). According to the Royal College of Psychiatrists in the UK (2009), all people with psychiatric disorders should have access to primary healthcare services. Moreover, psychiatrists should work together with general practitioners (GPs), should be able to assess the physical health of their patients by taking a medical history, conduct a physical examination and liaise with other health professionals. They should keep their skills and knowledge in physical healthcare up to date.
Employment services Housing services	See descriptions of "Supported employment" and "Supported housing" in Section A. In Section B, similar information is collected from empirical findings (research publications), official documents and expert interviews.

Table 17b. Section B – review of empirical findings (research publications), official documents and expert interviews

Topic covered	Relevance
Stigma and discrimination	Cultural barriers like stigma could influence accessibility to services and help seeking.
Early intervention	Adolescence and young adulthood are critical periods for the onset of mental health problems, and almost 50% of syndromes emerge by age 14, with 75% of disorders having their onset before 24 years of age (Kessler et al., 2005). A specific focus on prevention and early intervention is necessary in order to reduce youth and adult mental health difficulties in the long term (Burns et al., 2002; McGorry et al., 2006). Indeed, the early years in the development and onset of serious mental illness are critical, since illness often strikes when young people are forming social roles, personal identities, relationships and independence.
Ethnic/cultural disparities	Socio-demographic, cultural, gender and religious diversity is central to the development of accessible and relevant mental health strategies. Marginalisation affects a person's ability to exercise autonomy and citizenship, and that person's access to material and psychosocial resources. People experiencing marginalisation have fewer opportunities to participate in community activities, are more likely to experience disparities in access to health care, education and employment, and, as a result, experience higher rates of mental health problems.
Staff needs, morale and training	Staff training and morale are considered by Thornicroft and Tansella (2009) as input resources to services. Moreover, an appropriate human resources policy for mental health should be developed in mental health services through continuing education, training and supervision.
Best practice core programmes	The presence of Best Practice core programmes is connected to appropriateness and effectiveness. The existence and monitoring of any recommendations/regulations which set out mandatory implementation of care on the basis of the best available evidence is an important indicator of quality.
Assessment of quality and monitoring mechanisms	The presence of evaluation programmes/accreditation systems/monitoring mechanisms/performance assessment or similar procedures on the quality of mental health care indicates a particular focus given to «quality» by that mental health system.

Table 18. Section C – indicators on integration and balance of care, geographical accessibility and availability of services

Topic covered	Relevance
Balance (Derived from REMAST)	Indicator of a comprehensive approach to mental health care. The presence of a variety of professional staff (i.e.: social workers and occupational therapists) in the multi-professional teams of mental health services indicates services that are oriented towards rehabilitation and recovery. This should be evaluated in relation to the size of the catchment area (population served).
Integration (Derived from REMAST)	A set of indicators derived from REMAST data that could be defined as input indicators and at process level they could be connected to continuity of care (should be considered in connection with "after-care continuity", "readmission" etc.). They should be evaluated in relation to the size of the catchment area (population served).
Policies (Derived from REMAST)	The philosophy of psychiatric reforms in European countries has implicitly or explicitly been based upon some key principles of community psychiatry and incorporated actions along the following axes: (i) the deinstitutionalisation process and closure of old mental hospitals; (ii) the development of alternative community services and programmes; (iii) integration with other health services; and (iv) integration with social and community services. Wide differences are present within the EU, with different levels of implementation of the principles of community psychiatry.
Services accessibility and availability (Derived from REMAST)	Accessibility is a multi-dimensional indicator of the quality of mental health care and it is defined as "the ability of users to obtain care/service at the right place and right time based on needs". According to Thornicroft and Tansella (1999), in mental health systems accessibility is used in relation to geographical distance or to travel times from patients' homes to mental health service sites, delays in how long it takes for patients to be assessed or treated, and to selective barriers or filters which reduce the uptake of services by all patients (such as stigma) or for some sub-groups of the population (such as ethnic minorities). In addition, accessibility can refer to the availability of the service to patients outside office hours, such as at night and at weekends. It can also refer to the public visibility of the service.

4.6 Methods for data analysis – examples

4.6.1 Geographical Information Systems and related spatial analysis (GIS-SA)

In recent years a lot of research has focused on studying population health and health services using geographical information systems (GIS) and spatial data. Spatial analyses of geocoded health data offers the possibility to address many important public health questions, for example:

- Are services located in areas of high need?
- Are some population groups or communities poorly served?
- What are the communities that are a long way from a hospital?
- How much distance, cost, time and effort are involved in reaching service facilities?

Access to health care services varies according to both non-spatial and spatial factors. Non-spatial factors encompass economic, cultural, and social issues, as well as factors related to health care organisation and networks, while spatial factors concern the environmental context, the availability of facilities, public transport and road network infrastructure. Their respective importance depends on the type of health care framework (e.g. General Practitioners, General Hospitals, specialist services, etc.) and on the type of health problem considered.

Geographical accessibility measures how physically accessible resources are for the population, without considering if the offer would be enough to cover demand, while availability reflects what resources are available and in what amount.

Combining these two types of measure into a single index provides a measure of geographic (or spatial) coverage, which is an important measure for assessing the degree of accessibility of a health care network.

An accessibility index measures how accessible resources are for the population. The resources might be available but inconveniently located (e.g. remote rural area).

Traditional methods to measure spatial accessibility to health care include provider-to-population ratios, travel time to nearest provider, average travel time to provider and gravity models.

The REMAST Atlas makes use of catchment area analysis using drive time isochrones maps, for each of the eight Refinement countries covered, to analyse the potential accessibility and ability to travel of the population to mental health services.

The catchment area for a health care provider is the geographical area that contains the bulk of the served population. Understanding service areas is important for health care providers because it ties the client population to a particular area or set of communities. This area can be examined to see if all populations are being adequately served. It can also look at access in terms of the diversity of population health needs. Analysing the social and demographic characteristics of service areas may reveal populations with unmet needs.

Conducting an accessibility assessment typically requires three main types of information:

1. Locations of service facilities;
2. Distribution of the resident population in the surrounding area;
3. Details of the road network.

Based on this analysis, it is possible to determine how many inhabitants live within one hour's driving distance from a facility or how many people have to drive longer than e.g. ninety minutes to reach any facility.

The application of spatial accessibility analysis needs three main parameters which are described in detail below: the supply, demand and computation of accessibility measures.

Supply is represented by mental health services. Mental health service addresses have to be geocoded and integrated into GIS software.

Demand is represented by total potential mental health care users. Population size and location data can be obtained from GEOSTAT 1A, which is a European project under development from a European population grid dataset, with Census data referring to the year 2006. One of the most important parameters in measuring spatial accessibility is the distance between the supply and demand locations; detailed and updated street networks data from OpenStreetMap can be used. Through this instrument travel time zones around psychiatric service locations were accurately estimated and the travel time between service locations and population locations has been measured.

The results of spatial accessibility should illustrate the significance of spatial access in the allocation of health care services and ensure equitable access to healthcare services. Policymakers and stakeholders should be informed of the location of services and be aware of the existence of shortage areas for a better provision of mental health care.

4.6.2 Relative Efficiency Analysis based on Rules (REA-bR)

Within health system research, there is an increasing interest in methods for the assessment of efficiency in regional comparisons. Operational research (Data Envelopment Analysis – DEA) and statistics (Monte-Carlo Simulation – MCS) may improve understanding of system efficiency in a broader context (small health areas/ mental health districts).

The REA-bR model is an expert-based procedure that helps decision makers to compare different mental health models in terms of their relative technical efficiency. It incorporates a non-parametric Data Envelopment Analysis (DEA) for assessing relative technical efficiency into a Monte-Carlo simulation engine. Monte-Carlo simulation lets us multiply the number of observations (mental health districts) and conduct a sensitivity analysis in uncertain environments where researchers and decision makers want to answer what-if questions.

A key feature of REA-bR is the application of a set of rules enabling the assessment of relative technical efficiency according to a predefined care model . This care model is included in the analysis through a knowledge base designed by a set of expert-based rules, for an example of this we refer the reader to Gibert et al (2010). These rules interpret data (“appropriateness”) from the simulation engine, with results analysed by the DEA in order to obtain relative technical efficiency – in terms of probability- of mental health districts.

Relative technical efficiency results let researchers and decision makers compare the mental health models (districts) under study.

REA-bR can be used to analyse different combinations of input and output variables, i.e. evaluation of their relative efficiency according to different scenarios. Its parameters, as well as the knowledge base rules, can also be modified according to the expert's opinion (e.g. to take account of different community care models). This allows a flexible and dialogue based approach to evaluating relative efficiency of mental health districts, identifying potential for improvement in service design.

By using the REA-bR, probable efficient mental health models can be identified and described in each district. Potential improvements on each input and output, also in each district, can be assessed by comparing inefficient observations to efficient ones in the same or in a different district.

The specific outcomes of REA-bR are:

1. the knowledge base for the Mental Health Community Care model,
2. input/output values – ranges – that make a specific mental health model or district efficient/inefficient,
3. comparisons between efficient mental health models in different districts,
4. improvement recommendations for each input/output and district, and
5. study of the relationships between efficient mental health models and financial systems and quality of service indicators.

There need not be a unique efficient mental health model identified using the REA-bR, there may be many. The REA-bR tool and the conclusions obtained from it when incorporating "what-if" questions (adding new districts or modifying parameters, input/output values and/or the structure of the knowledge base rules) can be used in evidence-based health planning by incorporating them in a Decision Support System.

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