MENTAL HEALTH INFORMATION SYSTEMS

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INTRODUCTION

Information is needed by mental health professionals, managers and planners to make evidence-based decisions. Some information can be usefully collected and processed on an ad hoc basis through cross-sectional surveys or an audit cycle. However, there is crucial information about mental health services and the needs of the population served that requires regular and consistent review in order to enable those who are managing and providing services to make informed decisions to improve effectiveness, efficiency, equity and quality of care. This is particularly relevant at the present time of continuing efforts to improve and reform mental health services. In 2005, the WHO published guidance on Mental Health Information Systems as part of its 'Mental Health Policy and Service Guidance Package'[1]. The expense and technical expertise required to set up an MHIS may seem prohibitive, but elsewhere in the Eastern Mediterranean region, a mental health information system has been developed and implemented in Egypt as part of a bilateral developmental programme between the Egyptian government and the government of Finland. This is now providing useful information to policy makers, managers and clinicians working towards the goals of the Health Sector Reform Programme.

A mental health information system (MHIS) is a system to collect, process and analyse information about mental health and mental health care, and to communicate the results in a form that is accessible and useful to those who can use it. A good MHIS facilitates effective planning, budgeting, delivery of mental health care, and evaluation. Glover et al (2002) stated that: "an information framework should indicate the groups of people (e.g. by age, gender, ethnic group, social class) who are receiving care, their specific types of mental health problems, the care they are receiving, the results of that care, and how satisfied they are"[2].

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Scope of MHIS

Ideally, an MHIS should collect information from all levels of mental health needs and care, that is, from the community, primary care, and specialist mental health services. At the community level this includes the prevalence and needs in the community, and the provision of self-care, family care and informal community care. At the primary care level, there are hidden and conspicuous mental health needs, and the corresponding provision of medical, psychological and social interventions. The specialist mental health services may include services in the community, the general hospital, long-stay facilities and specialist services. In reality, attempting to establish, de novo, a comprehensive MHIS to cover all these areas would be a Herculean task. Historically, even in the wealthiest countries, attempts to design and implement large scale health information systems have foundered because they have been unwieldy and too costly. It is more practical to start on a smaller scale, to take opportunities, to collaborate with existing health information systems (e.g. in primary care), and to build information systems into new developments and reforms.

While developing the MHIS in Egypt, the decision was taken to start with a simple, feasible and useful system, coordinated with the existing information systems of the National Information Centre for Health and Populations and the Health Services Reform Programme. The Egyptian MHIS implementation plan included the requirement that the systems should be reviewed and re-evaluated, further developed, added to, and, when necessary, redundant items should be removed. Having initially focussed on facility-level data, future developments are likely to include development of indicators of the delivery of high quality care at the individual patient level, and the system is flexible to allow the inclusion of the work of NGOs and private psychiatric practice in the future.

The way information is collected, processed and used can be summarised as an information loop. The loop starts with the *collection* of raw data elements. These are then *processed* to produce Indicators. The Indicators are *analysed*, and reports prepared for *dissemination*. The findings can then contribute to improvements in services, which can be monitored when the loop begins again with the next cycle of data collection. Each step on the loop needs to be carried out properly in order for the whole process to be effective. Therefore training and quality assurance is needed throughout the loop. The technical staff involved at each step need appropriate training on data input, quality control, data transmission procedures, processing and reporting methods, and confidentiality.

Users of MHIS

An MHIS can potentially provide information that is useful to policy makers, managers, and service providers. However, each of these different information-users requires different types of information. For example, service providers are most interested in information about episodes of care and the care of individual service users. Managers are more likely to use information at the level of a team, service or facility, while policy makers are likely to be most interested in systems-level information to help development and monitor implementation of new policies and mental health reforms. To address these different uses, the MHIS needs to include both a patient record system to collect episode and case-level data, and a service management system to collect information about services that can be used for management and planning.

It is also important to consider the level within the provision of mental health care at which each indicator can be utilised. Historically, data has often been reported up to the central level, and the service providers have been left out of the reporting loop. However, there are some indicators that can be most effectively used at the facility, hospital, district or regional levels to improve service provision or identify shortfalls. For example, some episode- and case-level data is best processed and disseminated at a local level, whereas information about facilities and systems may be best analysed and reported regionally or centrally. The analysis of information is best carried out close to those who will use it, so that the communication of results is timely, pertinent and accurately targeted.

The requirement that an MHIS has to serve several different masters creates an intrinsic tension between their different needs and aspirations. This can undermine the implementation and quality of the MHIS, particularly if the MHIS has limited use for service providers and is seen by them as an additional burden of data collection that is to be used as a management tool. Planning of an MHIS requires careful consideration of these different information needs. Involving key stakeholders to help identify the most useful indicators and how they should be reported during the planning and implementation of the MHIS is one way to try to avoid such problems. From the outset, it is crucial that people believe in their mission. It is important that the project sets off on a positive note, and that this is maintained by positive reinforcement and support from higher levels of management.

Where there is an existing general health information system (HIS), it is important to explore the possibilities of collaboration. Mental disorder is often present in those with physical ill-health, but the mental disorder is often missed. Inclusion of mental health in a general HIS, and training in its detection and key associated factors, should help advance the integration of mental

health services into general health care. Sharing of technical infrastructure and staff time and exchange of expertise in information systems and mental health care will allow the MHIS to take advantage of the existing information funding, infrastructure and methodology.

Data elements and Indicators

The MHIS collects a set of raw data or data elements. At the level of the individual, the data elements could include socio-demographic and clinical information. The latter includes diagnosis, severity, duration, disability, family history, investigation results, service use and clinical outcome. In their review of the challenges and opportunities of MHIS's in developing countries, Ndetei and Jenkins (2009) have summarised the difficulties in collecting reliable and valid data[3]. For example, there are significant differences between the major diagnostic systems, and classification systems change and develop over time with each revision. The multi-axial classification systems used in secondary care in some high-income countries, are currently inappropriate in primary care in some low-income countries where the priority is to recognise mental health disorder, rather than to make a diagnosis for the MHIS. However, Ndetei and Jenkins see that there are opportunities to empower nurses, clinical officers and community health workers to detect mental disorders and use simple classification systems, and to supplement this with systematic recording of simple data on function, productivity, and dealing with disabilities on pencil and paper tally sheets in the clinics[3]. They suggest that data collection instruments should be in simple language that can be self-completed or read out by a lay person, and that these could be based on existing research assessments with proven test-retest reliability. Ndetei and Jenkins place particular emphasis on the importance for developing countries to use creative approaches by involving community members, traditional healers, midwives and general doctors in recognising and recording priority mental disorders and its effects on the lives of the individual and their family[3].

In order to be useful, data elements are used to construct indicators. Indicators are the summary measures of the mental health service and the population served. The construction of an indicator usually involves the application of a formula to standardise the item against a population size or time period. For example, the data element on number of admissions can be used to construct an indicator of the number of admissions per year per 10,000 population at risk. Indicators provide evidence of the current situation and if repeated can be used to monitor change. Indicators are the currency of the MHIS, and therefore identifying the relevant and useful indicators should be the starting point before specifying the elements of information that are to be collected in the MHIS data set.

Indicators are classified into four basic types: need, input, process and outcome. Need indicators summarise the needs for mental health service or care, for example: the percentage with chronic and enduring mental health problems, or the percentage with new episodes of common mental disorder. Input indicators summarise the resources that are being put into mental health care, for example: human resources, money, beds and medication. Process indicators summarise what is being done by the mental health service, for example: the number of patients seen or the number admissions standardised for a time period and population at risk). Outcome indicators are perhaps the most difficult to measure; they summarise the effect that the mental health service has on the mental health of the population served, for example by reducing symptoms, disability and suicide, or improving quality of life.

The task of identifying indicators should be carried out in consultation with stakeholders to ensure that the MHIS is relevant and useful. The World Health Organisation has recently developed the WHO Assessment Instrument for Mental Health Systems (WHO-AIMS), which is a comprehensive assessment tool for mental health systems designed for middle- and low-income countries. It consists of six domains: policy and legislative framework, mental health services, mental health in primary care, human resources, public information and links with other sectors, and monitoring and research. It aims to collect the essential information for development and monitoring of mental health policy and service delivery, and as such it provides an ideal foundation for the development of facility- and system-level indicators of an MHIS.

There is rarely a gold standard (or standard range) that can be applied from a reference book and compared with the results from the MHIS. The findings of an MHIS have to be set against the local context, which differs from country to country, and from community to community. Nevertheless, indicators can provide clear evidence of how a service is performing relative to its service specification, and most indicators can be used comparatively (for example, comparing different regions or facilities), or to examine time trends as new services or reforms are put in place. Therefore planners should have a clear idea of the ideal range within which they aim for an indicator value to fall, given the circumstances, culture and constraints of their own environment.

Potential hazards

The mere existence of a MHIS is not a panacea for information needs. Some of the most common problems are due to poor quality data: "garbage in, garbage out". Clinicians are often expected to provide the data, but

without being given the time to do it, without an adequate explanation of why it is being collected and what it is going to be used for, and without training in the correct procedures to record data. So much data may be collected that not all of it can be analysed, which is frustrating and a waste of time for those who have put effort into collecting it. It is important to involve clinician representation at an early stage during the development of the MHIS, not only to ensure the clinical relevance of the indicators and that the MHIS is user-friendly, but subsequently to act as champions to involve and train clinicians and managers on the importance and procedures of data collection and interpretation of MHIS findings.

Another source of difficulties is when findings are reported in a way that is inaccessible or not useful to those who could potentially use them. Care should be taken to ensure that the standard format of reporting at facility, hospital, district, regional and national levels are appropriate and meaningful, and that some interpretation and comment is included. This is not only important during the design of the MHIS, but also when it is established and being used. In Egypt, MHIS-staff visit facilities on a monthly basis to present and discuss findings with managers and clinicians. This ensures that the MHIS is relevant, and the stakeholders have an input into fine tuning of the reporting so that it is presented in a way that is useful to them. It also provides a good incentive to service providers and managers to ensure that the quality of data entered is accurate.

One of the main challenges in setting up an MHIS is that it is time-consuming and requires resources. The human resources required to implement an MHIS include the technical staff to develop and run the system for data entry, processing, analysis, reporting and quality control. It is easy to underestimate the extra time and resource required of service providers, to be trained, collect data, and then to access, understand and act on the results. It is also necessary to invest in the development and installation of the relevant IT and communications software and hardware, and where computers or electricity are not available, setting up a paper-based system of data-collection that can feed into the MHIS.

CONCLUSION

The purpose of this brief overview of some of the advantages and challenges of setting up an MHIS has not been to suggest that establishing a fully comprehensive MHIS is the way forward; that would be impracticable. However, the potential for an MHIS to inform mental health care improvements is probably greater in developing countries than in developed countries. Since an MHIS is required, its components should be developed as opportunities occur, while keeping methods flexible and remaining aware that each component may ultimately become part of a comprehensive system. Key opportunities may arise to integrate mental health into the general HIS in the general hospital and in primary care. Creative approaches can be sought through working with lady health visitors, midwives, traditional healers or community members. Within psychiatric services there is a responsibility to provide efficient and effective community, acute inpatient and long-term care that needs to be informed by the evidence from an MHIS. Finally, it is important to consider incorporating relevant components of an MHIS when new services are being developed or reforms put in place.

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