



Improving patient care and clinical governance through the utilisation of a clinical information system

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Abstract

Purpose – This paper seeks to provide an overview of how the involvement of clinicians in the design and implementation of an electronic clinical information system has contributed towards more effective clinical governance, while improving the care of patients with a diagnosis of psychosis.

Design/methodology/approach – A data collection form was designed by a consultant in public health and a group of consultant psychiatrists to facilitate and standardise the data to be collected and stored on the information system. Two research nurses conducted a retrospective case note audit to record specified data on all existing patients from an inclusive diagnosis list in contact with CMHTs.

Findings – The establishment of PsyCIS has increased the understanding of the nature and prevalence of psychosis in Greater Glasgow for patients aged 18-65. As well as giving some insight into how the needs of this patient group are being addressed, it has also provided clinicians with the ability to benefit from their collective experience on the treatment and support of this patient group.

Practical implications – To ensure excellent data quality and information management systems, it is essential to involve clinicians in their design and validation. The primary goal of information should be to aid clinical practice and patient care. Well designed datasets will also provide information that can inform clinical governance as well as the management of services and resources.

Originality/value – This paper supports the view that clinical audit and electronic clinical information systems are imperative for effective clinical governance.

Keywords Information systems, Information management, Clinical governance, Mental health services

Paper type Research paper

Introduction

Clinical governance is the framework by which National Health Service organizations are held accountable for continuously improving and maintaining high standards of patient care. A key component of the clinical governance process is clinical audit. (Oyebode *et al.*, 1999) The process of audit is the principal method used to monitor quality. Inextricably linked to this is health informatics, defined by the Department of Health(2002) as:

The knowledge, skills and tools which enable information to be collected, managed, used and shared to support the delivery of health care and promote health (Department of Health, 2002).

Reliable information and effective knowledge management are essential if a Trust or clinical service is to meet the objectives set out by clinical governance.



Health care data quality issues

The Audit Commission, (1995, 2002) examined the state of information, data quality and its management within the NHS. A wide range of operational and governance measures to improve the status and effectiveness of information management were identified, as well as what was required from clinicians, managers and the NHS to ensure standards improved.

The Audit Commission(2004) published a further report on the key messages and lessons learnt from the two previous data quality programmes, and highlighted issues concerning data quality. While there was evidence of standards improving, the state of systems in mental health care Trusts was found to be far from adequate. The report highlights, that trusts who use information poorly or who have poor data quality, are unlikely to be in a position to provide services efficiently, effectively and economically. It goes on to state that a core requirement for effective governance is the development of appropriate information systems, of which data quality should be an important dimension.

Reasons for inadequate data quality and information management

Lack of clinical input has been cited as a major factor in the failure of information technology in health services (Heathfield and Wyatt, 1993). While many patient administration systems are in existence, clinicians believe the main function of these systems is to provide information that supports management and administrative functions rather than being of clinical use (Lelliott, 1995). An additional factor is the failure to take into account the social and professional cultures of health care organisations and to recognise that the education of clinical and administrative staff is an essential precursor prior to the implementation of any new information system (Littlejohns *et al.*, 2003).

Meeting the challenge

If information management, data quality and information technology are to succeed within health care, past reasons for inadequate data need to be addressed. The Department of Health (1998) information strategy document identifies an additional component for the success of information technology in the NHS. This involves the development of a long-term information culture throughout the wider professional community in the NHS and to ensure all health care staff develop a deeper level of understanding concerning the link between good information and effective service delivery.

There is evidence that mental health services are learning from past failures. The involvement of clinicians in England in the development of the mental health minimum data set (MHMDS) ensures that a standardised approach to the collection of mental health data means that data will be meaningful and useful at all levels. Incorporating national data sets as part of electronic patient records will ensure that data quality and usage continues to improve.

The following data items: diagnosis; new NHS number; and ethnic coding, were highlighted by The Audit Commission, 2004 as contributing to poor data quality in mental health Trusts.

These three data items are recorded as part of the (MHMDS). They are also recorded as part of the Psychosis Clinical Information System (PsyCIS) which has been implemented in Greater Glasgow.

The new NHS number is not used in Scotland; in its place is the Community Health Index number (CHI), a unique identifier for all people registered with a GP in Scotland.

This paper describes how through clinical leadership an information culture has been established and data quality has been improved within the mental health partnership of NHS Greater Glasgow. Ensuring a patient administration system supports clinical functions, has meant that information from the system does not solely relate to corporate governance, performance management and service planning. It also provides meaningful clinical data which can be used to inform practice.

The Glasgow Psychosis Clinical Information System (PsyCIS)

Community Mental Health Teams (CMHTs) were established in Greater Glasgow during the 1990's. The clinical management of patients with psychosis is a central task for these teams. Prior to the design of PsyCIS and identification of all patients with psychosis on the caseloads of the 16 CMHTs across Greater Glasgow to be entered onto the system, there was no mechanism for monitoring the long-term follow up care of this patient group other than on a case-by-case basis by individual clinicians and their teams. Useful insights remained buried in case notes and patient administration systems. Consequently it had not been possible to make evidence-based judgments about how well such patients were being managed, or whether particular approaches to care were achieving better outcomes than others or if particular patient characteristics were predictive of future prognosis.

Established in June 1999 and developed by a steering group of consultant psychiatrists and primary care information service staff, PsyCIS was the vision of Dr Laurence Gruer (Consultant in public health medicine) and Dr Denise Coia (Clinical adviser: mental health, Greater Glasgow NHS Board). The underlying philosophy was to create a robust electronic system for monitoring the long-term follow up care of patients in the Greater Glasgow area with a diagnosis of psychosis.

Table I Lists the ICD 10 (WHO, 1992) diagnostic categories included on the system.

Methodology

The PsyCIS steering group agreed a number of clinically and socially important data sets for recording on the clinical information system from which it is possible to monitor key aspects of the long term follow up care of this patient group. These are listed in Table II.

Two research nurses were employed to conduct a retrospective medical case note audit to capture this data on as many patients as possible with a diagnosis from Table I, being cared for by the 16 adult CMHTs of the then Greater Glasgow Primary Care Trust.

Data was collected over a 42-month period, from February 2002 to August 2005. The research nurses were supported by a project co-ordinator and three project administrators.

Prior to the research nurses commencing the case note the administration team visited each CMHT to ensure that the caseload details on the patient administration system were accurate.

ICD 10 Code	Description
F20-F29	Schizophrenia, schizotypal and delusional disorders
F30	All manic episodes
F31	All bipolar disorders
F323	Severe depressive episode with psychotic symptoms
F333	Recurrent depressive episode, current episode with psychotic symptoms
F334	Recurrent depressive episode, currently in remission. Where previous diagnosis has been psychotic depression
F060	Organic hallucinosis
F061	Organic catatonic disorder
F062	Organic delusional (Schizophrenia-like) disorder
F0630	Organic manic disorder
F0631	Organic bipolar affective disorder
F1(x)5-F1(x)56	Psychotic disorder due to psychoactive drug use
F1(x)75	Late-onset psychotic disorder due to psychoactive substance use
F531	Puerperal psychosis NOS

Table I.
Psychotic disorders for
inclusion on system

CHI No.	DOB
Ethnicity	Reported deliberate self harm in past year
Marital status	Number of reported self harm attempts in past year
Current general practitioner	Has patient been in prison in past year
HoNOS	Current psychotropic medication
Where living and if alone or with others	Current care programme approach status
All current ICD 10 diagnoses including substance misuse	Adverse drug effects in relation to current prescription
Current employment activity	Date of first psychotic diagnosis
Detained under mental health act in past year	Drugs stopped in year due to adverse effects
Does patient have a carer and who provides majority of care	Structured specialist mental health treatments delivered in past year
Highest educational attainment	Other agencies contributing to mental health care in past year
Family history of psychosis	Current severity of illness
Number of hospital admissions in past year and total days	Date of first known contact with services

Table II.
Core PsyCIS information

This provided the consultant psychiatrists at each of the 16 CMHTs with an opportunity to update ICD ten diagnoses for their patients which the administration team would enter on the patient administration system. Once inactive cases were taken off and diagnoses entered on to the system, the caseload was refreshed and the research nurses worked from these lists to identify patients with an inclusive diagnosis from Table I.

The percentage of team caseloads with any diagnosis recorded ranged from 30 per cent to 75 per cent. If a patient did not have a diagnosis on the system or an abbreviated diagnostic code, then their case notes were checked by the research nurses to minimise the likelihood of any patient with a diagnosis from the inclusive list being missed.

Where a diagnosis was unclear, a clinical consensus was reached between the research nurses and the responsible consultant psychiatrist.

In total more than 8,000 case notes were audited and 4,438 patients were identified as having a psychotic illness from the inclusive diagnosis list. All 4,438 patients had data collection forms completed by the research nurses and these were entered onto the PsyCIS system by the administration team.

Following the completion of the retrospective case note audit, all CMHT's continue to provide information on all new cases of psychosis as well as annual update information on patients already on the system.

Management of the system was the responsibility of the project co-ordinator. After each CMHT's data was collected a number of routine check audits were carried out to maintain data accuracy and integrity.

Data was retrieved from the system by the information services department, the project co-ordinator and members of the administration team. This data was then sorted and analysed by the lead research nurse to produce reports for individual consultants, teams and managers. These reports provide a comparison between the clinician's or team's patients on the system with those of the rest of the city.

Findings

The quality of information about patients with psychosis receiving long term care in Greater Glasgow as a result of the involvement of clinicians in the design and ongoing evaluation of the clinical information system:

- The annual incidence rates for each type of psychosis can be calculated.
- The prevalence of each type of psychosis for patients (18-65) is known for the health board area.
- It is possible to map how well patients are doing through the annual update of information about patient's current clinical status, treatment and circumstances.
- It is possible to compare and contrast patients in numerous ways; evaluating different forms of treatment; comparing outcomes for similar groups of patients in different parts of the health board area. Consequently the system is potentially a powerful research.
- Resource allocation can be facilitated according to need.
- Coordination of mental health registers between primary and secondary care has been established.
- Psychotropic medication usage for different patient groups can be determined.
- There is a better understanding of the circumstances and management of patients from ethnic minorities.
- Clinical governance can be supported through data analysis and further audit.
- Information available can also be used for education and training.
- Local performance management is facilitated.

Cost

It would be difficult to provide an estimated cost for establishing a system like this. An electronic patient administration system suitable for recording clinical data was

already in use. This would be a considerable cost if an organisation's current systems were not flexible enough to incorporate this type of information. The work carried out by information service staff would be difficult to cost as this resource was utilised on an as required basis, while other services external to the project that were factored into the work plan were never used.

Low ICD-10 diagnosis recording on the patient administration system increased the length of time required by the research nurses to complete the retrospective case note audit.

Conclusion

High quality data, information management and information technology are essential for improved patient care and effective clinical governance. Better utilisation of information is increasingly seen as a way to ensure that services are provided more efficiently, effectively and economically.

Better information to support the work of the NHS is a key priority of the information strategy outlined for the modernisation of the NHS. (Department of Health, NHS Executive, 1998) Reducing clinician cynicism about distorted management priorities regarding information and the establishment of an information culture through education, training and development are seen as essential if the obstacles to improving data quality, information management, and information technology are to be overcome.

The example of PsyCIS demonstrates that by involving clinicians in the design and ongoing validation of specific data collection, the result is an information system which provides a demonstrable practical contribution to the day-to-day care of patients. To create a culture where information is viewed in this way, it is essential to demonstrate the role and benefits of information in the delivery of patient care. If this is achieved, then clinicians are more likely to view the development of information management skills as an essential part of their continuing professional development to ensure effective delivery of care.

If the establishment of an information culture is to be successful within health care, clinicians should be involved in the design and ongoing evaluation of information systems that are a support to clinical care. In addition information systems should be adaptable enough to incorporate not only nationally agreed data sets, but also data sets which may be pertinent at a local level. By applying these principles the result will be high quality data that facilitates improved patient care, clinical governance and performance management.

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About the authors

John Park works as a lead research nurse for the Psychosis Clinical Information System project with a remit across Greater Glasgow NHS board. In addition to overseeing the retrospective case note audit he has provided data analysis and clinical reports to all clinical teams. He has been involved in a number of large-scale clinical audits within the field of adult mental health care and developed a number of electronic systems for capturing clinical information. His special interests include schizophrenia, public health and health informatics. He has contributed to a number of posters and presentations at several national conferences. John Park is the corresponding author and can be contacted at: John.Park@ggc.scot.nhs.uk

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