Integrated record keeping as an essential aspect of a primary care led health service

Michael Rigby, Ruth Roberts, John Williams, June Clark, Adrian Savill, Bruce Lervy, Gail Mooney

Three separate policy themes have been identified as important for the future development of effective health care in the United Kingdom. These are a focus on the extended primary care team as the prime means of healthcare delivery,¹⁻³ improved keeping of patients' records and communication between professionals,⁴ and greater recognition of consumers' wishes for good quality, well coordinated care.⁵ However, these three strands are generally being addressed separately, and inherited traditions of professional practice reinforce incompatibilities between them, although some official publications have recognised the need for innovation and greater flexibility.⁶

Good records are at the heart of professional practice. Moreover, good healthcare delivery, best use of healthcare resources, and delivery of a cohesive service that satisfies an increasingly demanding population can be achieved only with good communications and a shared clinical perception of a patient's problems and needs—seamless care is difficult to achieve without seamless information.⁷ Thus a new generation of integrated records is required to support the expanding primary care team.

The extended primary care team—an uneasy blend

The extended primary care team is a simple concept, yet it presents major problems of definition and legal underpinning. The core team has long been described,⁸ but policy makers remain reluctant to define the membership of the extended team despite this leading to confusion and frustration.^{9 10} The box shows the vagaries of membership

Accountability—As the extended team has no legal status, it requires individual clinicians to overcome organisational barriers through personal responsibility. The early origins of the NHS continue to linger, with general practice operating to one legal and financial mandate and NHS trusts and their staff working to a different one. This creates a complex situation for management and accountability. Most team members suffer a three way split between their autonomous professional commitment to their patient, their loyalty to the team, and their formal accountability to their employer. This stands in the way of good professional standards and perpetuates professional divisions between doctors, nurses, and other therapists because

Summary points

A primary care led health service, integrated services, and patient focused care are key concepts in current health policy

An increasingly aware and consumer oriented society expects informed, integrated care

The extended primary care team is promoted as the means of achieving this vision outside acute hospitals, yet this team has no legal or organisational standing and different members have different professional approaches

This is not a sound basis on which to organise or manage an essential service

An integrated primary care record that integrates the functions of general practice and community health systems is the necessary prerequisite to successful implementation of effective, efficient, and good quality primary care

A programme of research, development, and evaluation is required to achieve this

of different models of care and forms of record keeping.

Practice—The medical model, with its focus on physical diagnosis, may still predominate in the initiation of treatment. However, most care and support is delivered by nurses and therapists, with their holistic view and processes for functional assessment, and they form the majority of the team. Shared care brings further complexity, as it is normally between hospital consultant and general practitioner,¹¹ although it is the extended team that has to deliver the non-hospital component.

Record availability and integrated care—Clinical records are an essential part of practice, as a formal record and as a means of communication. Fragmented record keeping, however, makes this impossible. Too often patients become frustrated at the lack of knowledge of their case by individual health professionals, and annoyed at having to repeat information. Unfortunately, it is in the most sensitive areas, such as

Centre for Health Planning and Management, Darwin Building, Keele University, Keele ST5 5BG

Michael Rigby, lecturer in health planning and management

School of Postgraduate Studies in Medical and Health Care, Maes-y-Gwernen Hall, Morriston Hospital, Swansea SA6 6NL

Ruth Roberts, lecturer

John Williams, director

Bruce Lervy, senior lecturer in general practice

School of Health Science, University of Wales Swansea, Swansea SA2 8PP

June Clark, professor of community nursing

Gail Mooney, research assistant

Centre for Health Informatics, School of Health Science, University of Wales Swansea

Adrian Savill, projects officer

Correspondence to: Michael Rigby hma10@keele.ac.uk

BMJ 1998;317:579-82

Possible members of an extended primary care team**Core members employed by general practice**

- General practitioners
- Practice nurses
- Other directly employed professionals

Core members employed by NHS trust

(may belong to two or more extended teams)

- Community nurses
- Health visitors

Occasional members employed by NHS trust

(may come from more than one trust)

- Midwives
- Physiotherapists
- Occupational therapists
- Speech and language therapists
- Community psychiatric nurses
- Specialist liaison nurses

Other potential members

- Palliative care nurses (non-NHS)
- Social workers

treatment of advanced disease or support of children at risk, where discontinuity of care is most likely to occur; patients and family may even get conflicting advice or instructions.

Thus, the extended primary health care team is a de facto organisation but not a legal one. It is therefore necessary to make it work despite the limitations.

Information—the unifying factor

The key to all effective working is information. Most modern service industries have a clear communication system whatever their structure and complexity. In contrast, primary care records for individual patients are dispersed and uncoordinated. Essential communication, such as a notification of discharge from hospital, with its guidance on clinical management and prescribed drugs, may take days or weeks to reach members of the primary care team. Most official publications promulgating the extended primary care team fail to mention records, but the Welsh Office highlights the potential of information technology in “offering considerable scope for reducing bureaucracy and improving links between all key players in health and social care.”²

The Audit Commission states that 25% of health professionals' time is spent handling information and has also shown the poor level of development of community health records.⁴ However, the advantages of a modern and integrated approach to record keeping are known. Weed has promoted the move towards structured, problem oriented records,¹² while the advantages of integrated patient records for quality of care have been outlined.¹³ Major advances in information technology and telecommunications now give the health service the opportunity to move forward and to give primary care teams the information management system they need.

Vision of an integrated primary care record system

If integrated primary care is to work effectively it is important for all information about an individual patient to be drawn together into a single record that can be read, and added to, by any health professional involved. Already a small number of general practices encourage community nurses as well as practice nurses to use the practice record systems.¹⁴ However, this limited step is not enough to give different professional groups a shared perception of patient assessment or to identify the objectives of structured care and the means of delivering these. We have undertaken a detailed analysis of the issues involved.¹⁵

A structured primary care team record—A truly integrated record would enable common sharing of all the elements of the clinical process—history taking, assessment, planned pattern of care, delivery of care, and ongoing evaluation. It would thus show one integrated plan for the support of a patient, with common care objectives, giving a framework for all team members to use and to adjust when they identified a change in requirements. At the same time, unidisciplinary views are important, and so the system should allow data to be recorded and presented according to the particular viewpoints of doctors, nurses, and other healthcare professionals. It should also include functions for monitoring delivery of care to ensure quality.¹⁶

Coordination and confidentiality—Confidentiality and security are clearly major issues. In general, patients expect those delivering care to be fully briefed on their clinical problem and how it is being handled—anything less implies uninformed treatment. Yet there may be limits to how much information a patient wishes his or her family to know; similarly, a patient may wish only one profession, or indeed one individual, to know certain facts. Thus a shared record must also have strong overall security measures restricting access to those directly involved in the support of the patient, and clear published frameworks on confidentiality that include an element of personal choice by the patient.

Monitoring of quality and team development—An integrated record system would enable monitoring of quality and outcomes, and reduce the isolation of individual professionals. Moreover, review of performance and delivery should yield powerful information to drive team development to match changing needs and personal development, including focused professional education.

Harnessing information technology—The advent of computerised systems in general practices and hospitals, and intentions to improve community systems, together with increasingly affordable high quality communications systems, now bring the vision of integrated yet flexible records within reach of primary care. It is therefore important to identify the various possible approaches, and the related research issues, and discuss these constructively and openly so that the vision of an integrated system can be delivered safely.

Possible models for an integrated primary care record

Six different models of holding and managing integrated records for extended primary care teams can be postulated. Only field testing will show their comparative usefulness and costs.

Records based in general practice—The existing general practice system would be extended to accommodate the full record keeping function of all other members of the extended primary care team, who would keep no other records for those patients. However, few system suppliers seem to be addressing this, and, unlike the core specifications for general practice systems, there are no common defined requirements, not least because of the need for interprofessional agreement about practice.

Records based in community trusts—This model would see the local community trust housing the integrated record, with general practitioners having “real time” terminals to the system, and each practice able to view only its own patients’ records. This is theoretically possible and potentially efficient, but neither the agreement nor the investment is likely to be forthcoming.

The “virtual” integrated record—General practices, community trusts, and other contributory organisations would each provide modern electronic patient record systems for their own staff’s use, but a powerful interface function would enable (within confidentiality protocols) any health professionals involved in a patient’s care to call up on their integrated workstation the complete details for that patient. This is akin to the architecture of many hospital systems and is already happening in small scale, isolated, unpublished initiatives. However, it requires compatibility of electronic records’ structure, terms, coding, and electronic interface—currently happening more by chance than agreement. It might also be possible to build in patient access (and recording) to key parts of the record, thus addressing Tudor Hart’s concept of patients as co-producers of health.¹⁷

Management by a third party—This would contract responsibility for the physical aspects of the system (computers, records software, and telecommunications) to a third party that specialises in managing computing facilities, with strict legal obligations for issues such as confidentiality. Such “facilities management” solutions are increasingly used in commerce and industry because of their reliability and efficiency, but this model is not well accepted in health care. There may be a theoretical potential for misuse of information when it is held outside the NHS, but this is counterbalanced by the higher security and reliability of specialist computing and telecommunications facilities.

Patient held records—Already producing benefits in obstetrics, child health, and some aspects of shared care,¹⁸ this model would result in patients holding their complete record. This is probably not realistic for the whole of extended primary care, but it is an important model for determining how much information patients should hold about their own health care. Details of this model depend on whether the record is paper based or held on an electronic “smart card.” Patient held records also enable patients to participate in maintaining and adding to the record.

Prerequisites to implementing the integrated primary care record

- Agreed record structure
- Shared concepts of professional process
- Unique patient identifier
- Core set of information about patient
- Protocols to maintain confidentiality
- Common terminology and coding
- Interfaces between agencies
- Appropriate information technology
- Acceptance by patients

Formalised use of messaging—This model seeks to overcome problems through strong formalisation of communication. Although traditional patterns of record keeping would continue, whenever an important change to a record was made (such as to diagnosis, assessment, or scheduled pattern of care) information about the change would be sent automatically by paper or electronic communication to all other professionals involved in the care of that patient. It would require a structured list of health professionals currently involved with each patient, together with effective protocols to trigger automatically the transmission of the information. It would be important for the records of recipient teams to be updated and for the information to be assessed to determine if action needs to be taken. Consideration of the protocols and rules needed shows the impracticality of this model as a general solution.

Prerequisites to implementing an integrated record

To achieve the vision of an integrated record system, a number of arrangements about information systems and behaviour need to be in place as shown, starting with good professional understanding and culminating in patients’ acceptance.

Each issue, though challenging, is important in the process of improving healthcare delivery by extended primary care teams. Progress on most of the issues is currently limited because of the lack of any coordinated forum.^{19–20} The records will need to support the processes of care and not be merely a transactional log, and they must therefore enable professionals to contribute their own unique elements within an overall common framework. It would also be inappropriately regressive for the development of these records to be considered in isolation from the wider issues of extended teamwork and the major opportunities that electronic records give to enhancing informed integrated care.²¹ At the same time, there will have to be agreement on clear protocols to ensure confidentiality, restricting access to any individual record to those with a duty of care for that patient, or a defined and audited supervisory role.²²

In principle the new NHS number (in England and Wales) should provide the unique patient identifier needed for such records, except that is not available for neonates or people who are not registered with a general practitioner. The Community Health Index has largely addressed these issues in Scotland and

Northern Ireland. Version 3 of the Read Thesaurus, based on the clinical terms projects and including terms used by nurses and professions allied to medicine, should go a considerable way to meeting the need for unambiguous terms that are clear to professional colleagues,²³ with the necessary addition of terms for planning care, particularly for objectives of care, interventions, and care processes.²⁴ As data will be captured in many locations, including patients' homes and a range of other environments, user friendly methods of data capture that are acceptable to patients must be in place, and these require further comparative evaluation.

The research agenda

Warner has recently emphasised the importance of redesigning health services when circumstances change, rather than diversionary reorganisation.²⁵ The introduction of the extended primary care team is no less than redesign with major practical and legal implications, yet it is disguised as incremental change. Information and record keeping must be the core of this redesigned practice, properly addressed and evaluated. Though all the individual components of the models proposed already exist to a greater or lesser degree, bringing them together into an integrated record system that crosses professional and organisational boundaries will be new. It is therefore important to evaluate the effects of the new system, including the structure and content of the record and how these map to the actions of clinical users.²⁶ Above all, the outcome on patient care and its management must be assessed.

However, a recent parliamentary written answer indicates that, at present, the use solely of electronic records by general practitioners is a breach of service conditions.²⁷ This makes it difficult to conduct any practical field study, jeopardising any attempt to fully evaluate an integrated records system. Given the importance of the declared future role of the extended primary care team, and the suggested pivotal role of the integrated record, it would be perverse to proceed to widespread implementation without completing a full evaluation.

Conclusions

Developing an integrated primary care record raises several challenges, but it is essential that they are faced if a primary care led health service and the extended primary care team are to be functional realities. Health care is a fundamental human right, and the most important service industry in terms of its effects on human wellbeing and happiness. On the one hand, the extended primary care team is an innovative approach to sensitive delivery of health care; on the other hand, since it is put together without any legal, professional, or organisational underpinning, it is totally unmanageable and unaccountable.

The development of an integrated primary care record system (with the explicit knowledge of the patient) is the essential way forward. A structured development programme, supporting innovation and opportunity linked to rigorous scientific evaluation, is necessary and should extend beyond the narrower domain of general practice. In social and health terms

the potential impact of integrated primary care records is no less than that of electronic hospital patient records, which have been subject to considerable supported research, development, and evaluation.

Funding: None.

Conflict of interest: None.

- 1 Department of Health. *Primary care—the future*. London: HMSO, 1996.
- 2 Welsh Office. *Primary care—the way forward in Wales*. Cardiff: Welsh Office, 1996.
- 3 Scottish Home and Health Department. *Primary care—the way ahead*. Edinburgh: Scottish Home and Health Department, 1996.
- 4 Audit Commission. *Comparing notes—a study of information management in community trusts*. London: Audit Commission, 1997.
- 5 Secretary of State for Health. *The National Health Service—a service with ambition*. London: HMSO, 1996.
- 6 Welsh Office, Scottish Office, Department of Health. *Choice and opportunity—primary care: the future*. London: HMSO, 1996.
- 7 Drazen EL, Metzger JB, Ritter JL, Schneider MK. *Patient care information systems*. New York: Springer-Verlag, 1995.
- 8 Department of Health and Social Security. *The primary health care team; report of a joint working group of the Standing Medical Advisory Committee (the Harding report)*. London: HMSO, 1981.
- 9 Scott NCH. Personal care and teamwork: implications for the general practice-based primary health care team. *J Interprofessional Care* 1995; 9(2):95-9.
- 10 Williamson V. Personal care and teamwork in primary care: the patient's perspective. *J Interprofessional Care* 1995;9(2):101-6.
- 11 Edwards P, Jones S, Shale D, Thursz M. *Shared care—a model for clinical management*. Oxford: Radcliffe Medical Press, 1996.
- 12 Weed LL. *Medical records, medical education, and patient care—the problem-orientated record as a basic tool*. Cleveland, OH: Case Western Reserve University Press, 1969.
- 13 Williams JG, Roberts R, Rigby MJ. Integrated patient records—another move towards quality for patients? [editorial]. *Qual Health Care* 1993;2(2): 73-4.
- 14 Fogarty L. Primary care informatics development—one view through the miasma. *J Informatics Primary Care* 1997;2:29.
- 15 Rigby M, Roberts R, Williams J, Clark J, Sevil A, Morgan J, et al. *Integrated record keeping as an essential enabler of the extended primary health care team (the good EPHeCT record)—a description of the issues and of the research agenda*. Swansea: School of Postgraduate Studies in Medical and Health Care, 1997.
- 16 Rigby MJ, Robins SC. A networked patient-based integrated care system as a basis for the achievement of quality in practice. In: Roger-France F, Noothoven van Goor J, Staehr-Johansen K, eds. *Case-based telematic systems towards equity in health care (studies in health technology and informatics vol 14)*. Amsterdam: IOS Press, 1994.
- 17 Hart JT. *Feasible socialism—the National Health Service past, present, and future*. London: Socialist Health Association, 1994.
- 18 Gilhooly ML, McGhee SM. Medical records: practicalities and principles of patient possession. *J Med Ethics* 1991;17:138-43.
- 19 Rigby MJ. Information strategy—crystallising or crumbling? *Health Summary* 1992;IX(X):5-6.
- 20 Rigby M. UK health informatics—who leads, who represents? *Br J Health-care Computing Information Manage* 1998;15(4):23-6.
- 21 Pritchard P, Hughes J. *Shared care—the future imperative?* London: Royal Society of Medicine Press, Nuffield Provincial Hospitals Trust, 1995.
- 22 Rigby M. Keeping confidence in confidentiality: linking ethics, efficacy, and opportunity in health care computing—a case study. In: Anderson R, ed. *Personal medical information—security, engineering, and ethics; personal information workshop, Cambridge, UK, June 21–23 1996, proceedings*. Berlin: Springer-Verlag, 1997:129-50.
- 23 Swayne J. A common language of care? *J Interprofessional Care* 1993; 7(1):29-31.
- 24 Brewin M. Breaching the seams—the information implications. *Br J Occup Ther* 1995;58(12):519-20.
- 25 Warner M. *Re-designing health services—reducing the zone of delusion*. London, Nuffield Trust, 1997.
- 26 Beuscart-Zéphir MC, Brender J, Beuscart R, Ménager-Depriester I. Cognitive evaluation: how to assess the usability of information technology in healthcare. *Comput Methods Programs Biomed* 1997;54(1.2):19-28.
- 27 Millburn A. Patient records. *House of Commons official report (Hansard)* 1998 February 9; col 59.

(Accepted 5 July 1998)

Endpiece

Alternative definitions

Abstainer: A weak person who yields to the temptation of denying himself a pleasure.

Ambrose Bierce, *The Cynic's Word Book* (1906), subsequently titled *The Devil's Dictionary*

Netlines

NHS National R&D Programme on Health Technology Assessment

- The NHS National R&D Programme on Health Technology Assessment has a home page on <http://www.soton.ac.uk/~hta/>. Particularly worth viewing are the reviews they have published of various healthcare issues, including diagnosis and management of prostate cancer, outpatient services for control of chronic pain, neonatal screening for inborn errors of metabolism, and screening practice for Down's syndrome. All reviews are currently available online as full text on <http://www.soton.ac.uk/~hta/htapubs.htm>, in Adobe Acrobat's PDF format (<http://www.open.gov.uk/howto/acroread.htm>).

Terence Higgins Trust

- The Terence Higgins Trust now has a website on <http://www.tht.org.uk/>. The site contains information on a range of issues relevant to those with HIV infections and those who care for them, from housing and welfare rights to information on the treatment of Africans with AIDS.

UK universities and research institutes at a click

- If you are looking for the website for a UK academic institution, the School of Computing and Information Technology at the University of Wolverhampton has produced an excellent series of clickable maps (<http://www.scit.wlv.ac.uk/ukinfo/uk.map.html>).

Microbiology teaching on the web

- For a useful collection of microbiology courses on the web, see <http://www.wsu.edu:8080/~hurlbert/pages/altmicro.html>. The list is provided as a supplement to Ronald Hurlbert's course "Microbiology 101: Fundamentals of microbiology" (<http://www.wsu.edu:8080/~hurlbert/pages/101hmpg.html>) at Washington State University. For a student's assessment of microbiology teaching on the web, see <http://www.leeds.ac.uk/mbiology/fullproj/proj1.htm>. For an amusing but informative view of life as a bacterium, see Murray's page on <http://www.demon.co.uk/scotcal/murray/index.html>.

Cult of the personality: William Osler

- For all the information you could want on William Osler, visit Tan-Min Han's tribute page "Sir William Osler: the Man and Legend" on <http://www.shim.org/~minhan/osler-homepage/osler-index.htm>. Also worth a look is <http://www4.umdj.edu/camlbweb/osler.html>.

Nobel prize winners

- If you are embarrassed to admit you can't recall who won last year's Nobel prize in physiology or medicine, then visit

the Nobel prize internet archive (<http://nobelprizes.com/nobel/nobel.html>), which not only lists prize winners in each category but also provides bibliographic information and links to other relevant online information. The archive is fully searchable, which led me to discover that Sir Ronald Ross, 1902 Nobel laureate, was a Barts man. For some light relief, also take a look at the Ig Nobel prizes on http://www.eecs.harvard.edu/ig_nobel/, where you can learn that there really is a book devoted to identifying insects from the splatters they leave on your windscreen called *That Gunk on your Car* (http://nersp.nerdc.ufl.edu/~arm/people/hos/That_Gunk2.html).

The Internet Society of Orthopaedic Surgery and Traumatology

- The Internet Society of Orthopaedic Surgery and Traumatology, which aims to improve the quality of orthopaedic information on the internet, now has its own website on <http://www.isost.org>.

Paediatric respiratory medicine mailing list

- Anyone with an interest in paediatric respiratory medicine might like to join a new electronic mailing list, PED-LUNG, dedicated to this subject. See the PED-LUNG website for details (<http://www.resp.paediatrics.ubc.ca/ped-lung.html>).

Medical images for sale over the web

- If you need medical images and are willing to pay for them, you might like to visit the Mediclip website on <http://www.mediclip.com>, where you can search for, order, purchase, and download images, all via the web.

Sildenafil citrate (Viagra) online

- In preparation for the likely onslaught on prescription pads once sildenafil citrate is licensed in Britain, you might like to sample a few online resources dealing with the drug. Viagra Talk (<http://www.bigv.com/>) is an online forum, moderated by a physician, for exploring patients' and prescribers' experiences of the drug. The drug's manufacturer, Pfizer, has put together a site on <http://www.viagra.com/>, the Pillbox pharmacy has a set of frequently asked questions on <http://www.thepillbox.com/viagra.phtml>, and the Food and Drug Administration has provided information on <http://www.fda.gov/cder/consumerinfo/viagra/default.htm>.

Compiled by Mark Pallen

email m.pallen@qmw.ac.uk

web page <http://www.medmicro.mds.qmw.ac.uk/~mpallen>