UK and Croatia: family practice, its medical records and computerisation in the context of an enlarged Europe

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ABSTRACT

Background Croatia and the UK have list-based general practice systems: patients register with a single practice. They are also progressively computerising family practice. We set out to identify and report where these countries might learn from each other’s experience.

Method Experiences, similarities and differences were derived from a literature review and visits to practices in Croatia and the UK.

Results Both countries had developed unique but sophisticated paper-based primary care record systems. They have now moved to promote the computerisation of primary care; both countries see this as integral to patient safety, quality improvement and derivation of data for health service management. However, the development of primary care computing has been an organic process with small suppliers producing trial systems with natural selection of the more effective system.

Conclusions IT has the potential to improve patient safety and the quality and efficiency of primary care. The lack of a theoretical framework for the comparison of systems hampers the development and selection of an optimum system.

Keywords: computers, family practice, general practice, informatics, medical records – computerised, primary care, quality assurance

Introduction

The UK and Croatia both have registered list systems, where patients register with a single doctor who acts as a gatekeeper for other services. The UK system has its roots in the National Insurance Act of 1911, which set out to provide access to primary medical care for the population. In the late 1940s when the National Health Service (NHS) was formed, general practice became part of the wider NHS, available to all and free at the point of care. Until 2004, patients registered with a single general practitioner (GP); from 2004 onwards registration was with a practice. When a patient moves from one GP practice to another a central registry ensures that their medical records follow them. In Croatia there is also a comprehensive state system for the provision of primary care. Patients also register with a single GP, receiving personal care from a doctor–nurse team. Croatia has a standardised system of paper-based medical records, which, as in the UK, follow the patient as they move from practice to practice.

A wish to raise standards and achieve value for money in both health systems has led to reform and contractual changes for GPs, including the more widespread adoption of computerised medical records systems and attempts to share information across the health system. In the UK, the reforms have included cash-limiting of prescribing; setting of national quality standards; financially incentivised quality improvement
in chronic disease management; and transferring more control of secondary care services to groups of practices. An ambitious National Programme for Information Technology (IT) is being set up to support these changes, linking clinical data across the health service.2

In Croatia, the principal reform has been the shift from state-run to ‘privatised’ general practice. Starting in 1996, practices have had the option of taking up an individual private contract with the Croatian Institute of Health Insurance (CIHI); by 2004, more than 80% of general practices had taken up this type of contract. This new contract included limits on referral and sick leave rates as well as for the first time limiting the annual expenditure on prescribed drugs according to an age-based patient profile for each general practitioner.3

This paper compares and contrasts UK and Croatian family practice and looks to identify lessons from each system, particularly in relation to general practice information systems.

Method

We conducted a literature review using Medline, Embase and hand-searching Informatics in Primary Care; the Proceedings of Medical Informatics Europe Conferences for the last three years; the Proceedings of Medinfo2004; and the Proceedings of the EFMI Special Topic Conferences held in the last three years.

We visited practices in the UK and Croatia that used examples of the different information systems available in those countries. We also visited and spoke to vendors of software and academics in primary care and health informatics. The data collected were recorded using laptop computers as a field notebook and were then subjected to thematic analysis.

The data collection was in six thematic areas:

1 An overview of the organisation of general practice with an emphasis on systems in place to ensure quality and continuity of care.
2 Systems in place to monitor the quality of care and use of true or surrogate markers of health outcomes, including the amount of certificated sickness absence, on the grounds that it provides an indication of the health of a community and can be seen as an appropriate outcome measure for general practice.
3 Identifiable national schemes to improve computerisation.
4 The nature of the medical record, both paper-based and computerised, including access to and integration with data held elsewhere within the health system.
5 The use of the computer to improve patient safety and monitor quality, both locally within the practice as well as use of data at the regional or national level to monitor quality.
6 Exploration of the mechanism for the unique identification of patients and the protection of their data, both locally within the practice and across health service-wide systems.

Results

The UK and Croatia both have registration-based systems with mechanisms to promote quality and continuity of care. The UK system historically had registration with an individual GP, though this disappeared in 2004, with registration now taking place at the practice level. Over time practices have become larger and more multidisciplinary, with GPs working within primary healthcare teams. In Croatia the unit of delivery of general practice is the doctor–nurse pair. Generally the nurse acts as receptionist to the doctor as well as carrying out a range of other health-related duties. These range from wound care to the management of repeat prescriptions, with scope to expand prevention and chronic disease management roles. Whereas in the UK a patient may see a range of available doctors and nurses, dependent upon availability, in Croatia the doctor–nurse partnership ensures a much more intimate relationship between the patient and a primary care provider unit which consists of just a doctor and nurse. This does not stop several doctor–nurse practices operating in one building; the Croatian health centre model consists of many doctor–nurse pairs located in the same building. Other services might be present on site, for example child health services. However, the reimbursement system limits practices’ ability to cross-cover; only the registered doctor is eligible to receive payments for patients’ care.4

The UK has a combination of national guidelines and financially incentivised quality targets in place to improve clinical standards.5 In Croatia these systems are at an earlier stage of development congruent with current levels of computerisation. As UK practice became more computerised so the scope for audit increased. Initially these activities were locally led, taking place in practices or via local Medical Audit Advisory Groups (MAAG). It became clear at the time that it was hard to conduct audits if data were of poor quality; whilst many GPs recognised the need for important data to be coded, the widespread coding of data only really started when financial incentives were offered to practices. Most chronic disease areas, including those not included in financial targets, are coded. Most coding is currently done using the Read
terms, though the UK is due to migrate to the Systematised Nomenclature of Medicine – Clinical Terms (SNOMED-CT). Coding in Croatia is mostly carried out using the International Classification of Diseases (ICD) and potentially the International Classification of Primary Care (ICPC). The GP’s gatekeeper role involves managing resources through making appropriate prescribing and referral choices, as well as seeing that patients return to work as soon as they are able. In Croatia, detailed information is collected about sickness absence from every GP practice. In the UK, although there are codes for sickness absence they are only used in a patchy way. These codes usually do not have an associated numeric field (to allow the number of days of absence to be recorded). Unlike in Croatia, no systematic data are collected by GPs on the amount of sickness absence in the UK. UK GPs are provided with data on prescribing, receive visits from pharmacists working as advisors and have the opportunity to take part in prescribing initiatives from time to time. Practice-based commissioning, where a group of practices take over the budget for secondary care, is being introduced as a way of controlling secondary care costs. In Croatia, the practices that have moved since 1996 to individual contracts have new responsibilities for prescribing and referrals with emphasis on financial control.

The history of UK general practice computing is much like that of Croatia, in that there were multiple small suppliers producing systems with different specifications. In the UK, free computers for GPs and subsidised computer purchase, together with contracts in 1990 and 2003 which required increasing levels of data recording to support GP payment, led to more widespread use of GP computers, but it still remains largely impossible for patients who move practices to have their records passed on electronically (though this is about to change with the rollout of the GP2GP software). More recently the National Programme for IT has been seeking to integrate clinical data held across the NHS. However, GPs who have used the same brand of computer system for many years have become attached to it and do not wish to change systems. UK GPs have been promised a choice of computer systems. In Croatia, there is a programme for the ‘informatisation’ of primary health care, which includes provision of data to health insurance and public health institutes. The Croatian GP computer market still contains small-scale vendors who make simple stand-alone systems, as well as large multinational collaborators offering hosted systems that could form part of a fully integrated health system. The problems in both countries are the same. Practitioners get used to proprietary systems that are easy to use, even if they are hard to search and not compatible with other systems. This makes transfer of records and migration between systems challenging.

Both the UK and Croatia have long-established unique paper patient record systems; medical records draw from a large part of the reception area of practices in both countries. These paper records had many advantages not shared by the computer records that replaced them – completion of a brief handwritten note interferes with the consultation less than making a computer entry. The UK paper-based system uses a so-called ‘Lloyd George’ medical envelope that was invented in 1911 and retained because it encouraged brevity, it is easy to scan visually, and it is readily portable. Although A4-size and family records were tried, neither became popular (except A4 records in Scotland because of financial subsidy). In Croatia, either family or individual records are the norm. The UK Lloyd George record is roughly A5 size and the Croatian family envelope about one and a half times that size.

In both the UK and Croatia, patient safety, quality improvement and use of data for health service planning are important roles for computer systems. All UK GP computer systems and some of the Croatian systems incorporate drug interaction and drug safety alerts. In the UK, quality improvement is dominated by the Quality and Outcomes Framework – financially incentivised chronic disease management targets. These are applied on a ‘one size fits all’ basis and are not sensitive to local needs. Croatian quality improvement initiatives largely reside with the local practice.

Both countries have different ways of providing data for health service planning. In the UK, certain quality-related data sets are collected from all practices, and governmental and non-governmental organisations also have access to pooled anonymised data from volunteering practices. In Croatia, practice data are to be made available to the Institutes of National Insurance and Public Health.

Unique identification of patients has been a greater problem in the UK than in Croatia. In the UK, the original NHS number was not unique and had varying formats, so practices and hospitals developed their own patient reference numbers. A sine qua non of developing a service-wide IT system was the development of a unique NHS number. In Croatia, each patient has a Personal Identification Number (PIN) used for both health and national insurance. However, this PIN changes when moving jobs and on retirement.

Neither country has yet fully solved issues of security. Larger systems in both countries have higher levels of security, though the larger the system the greater the scope for systematic breaches of information security, especially where there is linkage to the internet. The smaller practice-based systems have fewer security features, but if they remain stand-alone, especially not having internet connections, they may have sufficient protection, with the potential impact of any system failure being local rather than health service-wide.
Discussion

The drivers towards the computerisation of primary care are similar in both countries. Improving patient safety through alerts, and the ability to audit the quality of care, are important drivers towards computerisation, aspirations which are recognised internationally.\(^{13,14}\) Primary care data are also a rich source of information for health service planning and research.\(^{15,16}\) Both the UK and Croatia see the GP as the gatekeeper and controller of health service expenditure, with systems in place for controlling prescribing and referral costs.

Important differences between Croatia and the UK are:

- the emphasis in Croatia on small doctor–nurse partnerships as the unit of delivery of primary care; this could contribute to close relationships with patients and to improved continuity of care. In contrast, UK general practices are progressively getting larger and more population-oriented
- Croatia is using ICD for clinical coding like most of the rest of Europe,\(^{7}\) while the UK is moving down the Read–SNOMED-CT route. There is debate about which coding system offers the most appropriate level of granularity for GPs\(^{17}\)
- the key quality target for UK practice is chronic disease management, while in Croatia emphasis is placed on the monitoring of sickness absence.

Whilst there are many similarities between the needs of primary care in both countries, their computer systems are the result of local manufacture. Both countries have started with a number of very small suppliers, with numbers of systems rationalising over time. The same has been reported when contrasting parts of Europe with established computerisation with the USA, where computerisation in family practice is much less established. What appears to be lacking is any model for the important components of a primary care computer system, for instance, interface for recording the problem, for prescribing, for referral and so on, which might improve the standard of the computer interface and the quality of data that could be derived from it. Further research is needed in this area, or system developers may continue to produce systems that have some excellent and some poor areas of functionality.

Conclusions

There are areas of difference and areas of similarity between the primary care systems in Croatia and the UK; they both provide personal list-based primary care capable of influencing overall health service costs. Both countries see IT as a key element of delivering quality in primary care and deriving data for health service management. Lessons could be learnt from each other – the most valuable would be a theoretical model for core components of a primary care computer system for Europe.

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REFERENCES

1 Royal College of General Practitioners. General Practice FAQs. www.rcgp.org.uk/information_services/information_services_home/general_practice_faqs.aspx
6 SNOMED-CT. www.connectingforhealth.nhs.uk/systemsandservices/data/snomed
9 GP2GP. www.connectingforhealth.nhs.uk/systemsandservices/gp2gp/support/gp2gp
10 GP Systems of Choice. www.connectingforhealth.nhs.uk/systemsandservices/gp2gp/support/gp2gp
11 Quality and Outcomes Framework. www.bma.org.uk/ap.nsf/Content/qof06


**CONFLICTS OF INTEREST**

None.

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