Framing statement

A serious problem exists in the use of information technology in caring for patients by primary care practitioners in the United States of America. There is currently no identifiable national strategy for the use of information technology and management in primary health care addressing this problem, and there is a critical need to establish and fund a centralised, co-ordinating group to provide strategic leadership in its development.

Introduction

The Primary Care Informatics Working Group (PCIWG) of the American Medical Informatics Association (AMIA) has, through its national meetings and subgroups, been developing a National Strategic Plan for Primary Care Informatics. This plan is divided into four sections: clinical, education, research and infrastructure, and the working group has acknowledged that significant progress is dependent upon a funded infrastructure that effectively brings together relevant stakeholders. This paper is the product of the PCIWG, endorsed November 2000, and is a work in progress.

Background

The future of US health care depends on the development of high-quality, cost-effective primary health care. This will require widespread utilisation of usable, effective ambulatory primary care information systems, including an Electronic Medical Record (EMR) and systems delivering ‘just in time’ clinical information at the time and place of care.

It is generally agreed that improvements in primary care services will significantly improve the overall quality of US health care, improve access and significantly decrease costs. For these, and other reasons addressed below, there is widespread support for promoting and enhancing primary care practice. This support has come from the public, organised medicine, medical educators,
managed care organisations, insurers, and other payers, government agencies and individual practitioners.

The United States is a world leader in medical informatics. The development and use of information technology in primary care in the US, however, has lagged far behind the growth of primary care informatics in many other countries and the advances of US medical informatics in general. This is evidenced by the small percentage of US primary care providers who use EMRs, the absence of primary care medical informatics fellowships, the quantity and quality of primary care informatics research, and the lack of funding for primary care informatics training and research.\(^1\text{,}\text{5}\)

A paucity of divisions of informatics in primary care educational settings and the absence of fellowships result in only a few primary care practitioners trained in informatics. For those who are trained, the availability of funded positions is limited. The lack of a concerted national effort or spokesperson minimises the attention paid to informatics within primary care. The absence of national standards or specifications for primary care systems creates barriers to progress toward technological solutions. Each of these impediments will be favourably influenced by an appropriate infrastructure.

It is the position of the PCIWG that the US federal government, and other public and private agencies, can and should advance primary care informatics by supporting and funding a nationwide primary care infrastructure, and by providing incentives for the participation of other entities, including practitioners, academic departments, training programmes, vendors and existing medical informatics centres.

The following sections of this paper will discuss the identified causes and discuss how funding of an infrastructure would address them.

### Identified problems

#### No effective voice

There has been no centralised, co-ordinating group in the US addressing the use of information technology in primary health care. This is not the case in other countries, such as the UK and Australia, which have been very successful in developing and implementing national strategies and initiatives. The PCIWG has, over the past two years, brought together senior representatives from the major primary care societies in the United States, who have met, agreed to explore the concept of a central co-ordinating group and endorsed the following vision statement:

In order to provide all US citizens with high-quality, affordable health care, every primary care provider must be given the opportunity of using an electronic ambulatory information system, including a fully functional electronic medical record and with ability to access needed clinical information at the time and place of care.

This group has been named the National Alliance for Primary Care Informatics (NAPCI).

#### Tertiary care concentration

Historically, advances in health care have been developed and advanced in academic health centres. As a result of the Flexner Report in the early 1900s, medical schools focused more and more on tertiary care.\(^6\) This led to a decrease in the production of primary care physicians, maldistribution of providers, problems of access and fragmentation of care that continued until the Millis and Willard Reports in the 1960s, which laid the foundation for the establishment of family practice departments in academic medical schools and a resurgence of primary care.

Medical informatics has also developed primarily in tertiary academic centres. Funded from sources including the National Library of Medicine and the Agency for Health Research and Quality (formerly known as the Agency for Health Care Policy and Research), premier schools such as Duke, Harvard and Stanford have become centres of excellence. The result is strong, excellent divisions of medical informatics in tertiary care settings. Much of the research and training in these settings is inappropriate for primary care and is not relevant to care of the general public. At the same time, there has been little or no development of informatics training or research in the primary care setting. A clear factor in this ‘informatics gap’ is the lack of funding for divisions of primary care medical informatics, fellowships in primary care medical informatics, research in primary care medical informatics and other projects.

The natural history of new technology and/or knowledge is to progress over time, from the embracing by a few academicians to increasing acceptance and growth within prestigious centres to eventual widespread dissemination among institutions and practitioners. For primary care to play a key role in addressing some of the serious problems facing health care today, a prolonged ‘lag time’ in the development and implementation of primary care electronic information systems is simply not acceptable, and it is imperative to minimise delays and expedite the dissemination process.

#### Financial focus

In earlier days, both clinical and administrative records in physicians’ offices were kept manually.
In time, the availability of computers and telecommunications led to increasing automation of the business side of health care. Non-clinical personnel concerned with financial matters took responsibility and control of computerisation of the business side of medicine, and the resources and the authority to make decisions about automated systems has been vested in those with a predominantly economic interest in health care, such as administrators of large facilities, health maintenance organisations (HMOs) and third party payers. The use of computers for billing, collections, and administrative purposes led to two misconceptions:

1. Computers are primarily useful for business, not clinical, purposes
2. Computers are, therefore, appropriate tools for administrative functions, but not for clinical records or direct patient care.

As a result, the development of clinically relevant information tools for non-academic ambulatory care has been slow. Much money and effort have been spent developing information systems that focus on the financial and business aspects of practice without capturing significant clinical data. In most cases this focus has been short-sighted. Healthcare providers have found the systems unhelpful in direct patient care, and lacking the clinical components necessary to provide the types of information needed to make the important administrative decisions required in today’s increasingly complex and competitive environment.

Limited training opportunities

At present, there are only a few identified divisions or centres for primary care medical informatics in the US. Without an established academic presence and centres of excellence, and without a cadre of trained informaticians, primary care informatics has not had the national voice or influence to effectively compete for funds. Up until now, national primary care professional organisations have not found medical informatics to be a high priority, and their usual effectiveness has not been available to this initiative. With medical schools and academic medical centres facing increasing financial hardship, funding for the establishment of divisions of medical informatics is not available from current resources.

Research

In contrast to traditional academic research efforts, many of the important questions in primary care informatics are in the area of applied research, and most medical informatics studies reported in the current literature have little application to primary care. There is a great need for research addressing the issues of ambulatory primary care. To be meaningful, these studies must be conducted by primary care practitioner/researchers, carried out in real primary care settings, using valid, standardised research methods, especially usability and performance studies.

Need for standards

There are no US standards for structuring or coding primary care medical records. No specifications exist for the optimal hardware, software or user interfaces suited to the primary care setting. This lack of standards hinders the development of primary care systems and constrains the deployment of those systems that have been developed.

Lack of infrastructure

All of the above arise from the absence of a nationwide infrastructure to support primary care medical informatics.

Proposed solution

Centralised co-ordinating group for primary care informatics

The first step must be the establishment of a centralised co-ordinating group, made up of key stakeholders, serving as ‘one voice’ for primary care informatics. This should provide strategic leadership, guidance and support in the development and implementation of a dynamic strategy for the use of information technology in US primary health care. The NAPCI, developed through the AMIA’s PCIWG, demonstrates the commitment of both the information technology and primary care societies to this concept.

Funding and implementation

In the present financial climate of health care, with its strong emphasis on cost-containment, return on investment and near-term profits, it is unlikely that adequate funding will be available from healthcare institutions. It is imperative that the federal government makes funds available to establish and operate this infrastructure.

A sufficient budget, estimated at US$20 000 000, is needed to support the establishment and operation
of a central co-ordinating group that will collect data, convene key working groups, undertake specific projects, prepare reports and support the partnership of the key stakeholders.

ACKNOWLEDGEMENT

This paper is also due to be published in the Journal of the American Medical Informatics Association.

REFERENCES

1 The National Strategic Plan in Primary Care Informatics is in its final stages of editing, will be broadcast to all members of the Primary Care Informatics Working Group, and then will be finalised to be presented to the AMIA board for endorsement, before publication.

ADDRESS FOR CORRESPONDENCE

Dr HC Mullins
7935 Parker Road
Fairhope
AL 36532
USA
Tel: +1 251-928-0905
Fax: +1 251-928-0106
Email: hmullins@jaguar1.usouthal.edu

Accepted November 2001