Foreword

It is safe to say that the deployment of what is commonly referred to as "Health Information Systems" in the "real world" has a history that exceeds a span of four decades. I would suggest that research in this field predates deployment by at least another decade, if not more. Traditional barriers to deployment were a combination of factors including: lack of funding, unwillingness of healthcare leaders to trust the concept of "computerization," lack of adequate technologies to support automation, and "political will" on the part of governing authorities.

The application of information technologies over that period of time, by and large, centered on the automation of processing data rather than the use of information inherent in the science of health informatics and bioinformatics. The systems that succeeded were isolated in the sense that they were designed and deployed to serve the needs of specific organizations rather than altruistically the patient or the caregivers and clinicians. That is not to say that these conflict. However, it suggests that the acceptance of these systems was based largely on senior management decisions rather than necessarily by consensus.

Over the past decade we have witnessed a number of systemic if not endemic global changes, likely prompted by the Internet and popularized by automated teller machines (ATMs) and online banking – with the consequence of creating a population which has faith in information and communication technology and which is rapidly integrating it in their day to day lives. This factor, together with research in bioinformatics and genomics, rapidly evolving useable technologies, media popularity, and political will (with associated funding) has created the need to transform the field of "Health" in its entirety.

The keystone to the transformation is the electronic health record (EHR) within a national or regional context – its definition is somewhat elusive, ranging from being a repository of an individual's contact and insurance information, chronic disease and drug allergies to being inclusive of encounter information, medication profiles, and diagnostic history. Several countries, notably the UK, Canada, and Australia have invested significant sums of public funds in these broad national strategies.

Another primary area is that of the electronic medical record (EMR) broadly and generally defined as a womb – to- tomb record of interactions of a specific individual with the health delivery system inclusive of reports, physician notes, images, diagnostic results, and basic information included in the aforementioned EHR. The EMR is normally seen as being held in the custody of the individual's general practitioner or family physician.

Inherent in the transformation are clinical information systems which are designed specifically to provide informatics support to clinicians in the delivery of clinical interventions to the patient inclusive of clinical decision support, best practices and outcomes.

Health surveillance systems are on the immediate horizon of needs as evidenced by the SARS pandemic and the Asian bird flux that is currently a significant issue.

On a global basis various components of the transformational changes have been implemented with varying degrees of success. The consultative processes that accompanied implementation or lessons learned after top-down implementation attempts have precipitated some broad challenges or opportunities:

- The need for thinking within a global context and adoption of internationally accepted standards specifically as they relate to interoperability, nomenclature and other standards.
- The need for preparing organizations for change through a facilitative collaboration process as opposed to "damage control' after the fact.
- The need to identify the client of applications and ensure that they are involved in the development and implementation process.
- The need for formal education for Health Informaticians, certification, codes of practice, i.e. the basic elements of a career choice.
- The need for consistent review of privacy, security and confidentiality legislation, policies & procedures and the penalties for breaching them.
- The need to be able to measure information – based health delivery systems or components thereof from both a patient outcome and return on investment perspective.

A recent (November 19, 2007) public opinion poll (funded by Health Canada, Canada Health Infoway, and the office of the Privacy Commissioner for Canada) indicated that 88% of Canadians supported the development of EHR's; of those who had personal experience with an EHR, 89% said that, in terms of overall effectiveness for the health care system, the electronic system was better.

The time is now.

The vision of Healthcare Transformation has positioned the human, social and organizational sciences specific to health information systems in the forefront of research and application in the real-word setting. This book brilliantly clarifies the enormous complexity and multiple dynamics of health care and the informatics sciences that support it.

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