Conclusion

From a management perspective, these new challenges have forced Healthcare Stakeholders (HS) to look at different healthcare management concepts that could alleviate the problem of information explosion. The following are some of the new paradigms and concepts that have caught the attention of HS.

EVIDENCE-BASED MEDICINE (EBM)

EBM is defined as the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients (Cowling, Newman, & Leigh, 1999). A typical EBM process starts with an identification of knowledge gaps in current healthcare treatment processes, followed by a search for the best evidence. This is then succeeded by a process to aid in the selection of appropriate electronic data and information sources and IT applications that focus on clinical competencies in context of the evidence generated.

The next step is to carry out a critical appraisal of the best evidence identified by carrying out checks for accuracy and diagnostic validity of the procedures and treatments identified by the best evidence generated. The costs and benefits of alternative procedures (i.e. the current best evidence procedure/treatment being recommended) are then considered. The last step is its application to patient healthcare which calls for integration of the identified evidence with the General Practitioners’ (GP) clinical expertise so as to provide best treatment and care (Cowling, Newman, & Leigh, 1999).

MODEL OF INTEGRATED PATIENT PATHWAYS (MIPP/IPP)

It has been argued that the model of integrated patient pathways (MIPP/IPP) is a more comprehensive concept for HIs (Schmid & Conen, 2000). As the acronym suggests, IPPs aim to enable better support for HIs by focusing on the creation of clinical guidelines for commonly accepted diagnostic and therapeutic procedures at a defined level of quality. This would lead to cost efficient treatment. It could be
argued that IPP calls for in-house development of standardised clinical treatment procedures for some pre-defined diagnoses and treatments.

IPP aims to ensure that patients receive the right treatment which is based upon best practice guidelines that have sufficient evidence to warrant the label of “best practice” and which have been proven to be clinically adequate (Schmid & Conen, 2000). They argue that when a hospital tries to implement IPP, it will automatically go through a circular chain process that calls for identifying sources of best practice, converting them to organisation-wide implementation practices and then, based upon their performance, converting them to benchmarks.

**CLINICAL GOVERNANCE (CG)**

Clinical governance (CG) was first introduced in the UK in a National Health Service (NHS) white paper (Firth-Cozens, 1999) and calls for an integrated approach to quality, team development, clinical audit skills, risk management skills, and information systems. A typical CG process can be delineated into a sequential process that calls for (a) the means to disseminate knowledge about relevant evidence from research, (b) best treatments rather than focusing just on recognition of poor treatments, (c) better appreciation of what IT-led solutions can do for clinical governance and (d) knowing what data and information is available so as to provide baselines for best care and treatments.

The NHS has witnessed the incorporation and development of many approaches that support and promote effective health care, but in practice, none of them have been successful (Melvin, et.al, 1999). The problem may lie in the lack of proper systems to support the measurement of clinical organisational effectiveness in a healthcare delivery context (Zairi & Whymark, 1999).

One of the biggest challenges in having concise summaries of the most effective clinical practices is establishing what is meant by “quality in healthcare” (Sewell, 1997). Measurement standards in clinical practice will change from each context. This is attributed to the linkage between measurement standards and values and the expectations of the individual HS which, in turn, originate from the shared values, expectations to which all the HS subscribe (Sewell, 1997).

In the UK, the NHS has started to support the concept of clinical governance by identifying individual best effective clinical practices. This process provides concise summaries of the most effective clinical practices in all key clinical areas. Summaries that are successfully substantiated are then disseminated throughout the NHS (Melvin, et.al, 1999). It has noted that the USA, Canada, Australia and New Zealand have adopted a formal accreditation system for the healthcare sector based upon the ISO 9000 approach (Sewell, 1997).
The rationale behind the CHIN concept is to allow users to collect data which could be used to formulate best practice protocols for effective treatment at a low-cost, i.e., clinical best evidence practices for both healthcare diagnosis and delivery (Kennedy, 1995). It was anticipated that the advent of CHINs, in conjunction with Internet technologies, would empower HS to provide healthcare to patients in real time whilst being in geographically-distinct locations (Kennedy, 1995; Morrissey, 2000).

The advent of CHIN was accompanied by a wave of new technologies that focused on establishing electronic connectivity amongst different HS, creating the visage of a virtual e-healthcare system (Mercer, 2001; Pryga & Dyer, 1992). This allowed CHINs to transmit healthcare information across departmental and organisational boundaries. As CHINs developed further, it became clear that the existing technological infrastructure was inadequate in empowering appropriate healthcare stakeholders with contextually accurate information at the precise time in the right format (Mercer, 2001).

The failure of existing healthcare management concepts to tackle the information overload in healthcare has strengthened the case for incorporating the KM paradigm in healthcare (Mercer, 2001 and Health Canada, Online). The need for integration of KM in healthcare has been supported by Jurisica et al. (2001) who note that systematic knowledge management (i.e. support for acquisition, representation, organisation, usage, and evolution of knowledge in its many forms) can alleviate problems caused due to the information explosion in the biomedical domain.

It has been argued that future healthcare stakeholders would need to combine management skills with clinical knowledge (Stefl, 1997). The way forward for HIs is to “integrate clinical knowledge bases at the point of care…thereby rendering it more accessible” which would call for streamlining clinical knowledge into the workflow of healthcare processes (Blumenfeld, 1997, pp. 44). KM can assist in this context, as it is a multi-disciplinary paradigm, which uses technology to support the acquisition, generation, codification and transfer of knowledge in the context of specific organisational process (see section 2.3).

The very nature of healthcare processes calls for physicians to use both KM strategies [(1) codification strategy and (2) personalisation strategy] (Wyatt, 2001). The codification strategy could be very effective for repetitive healthcare processes for routine medical conditions (e.g. influenza) whilst the personalisation strategy could be more suitable for variations of routine medical conditions and non-routine medical conditions (e.g. Meningitis).

In the UK, the National Health Service (NHS) emphasis has concentrated on KM strategies supporting codification to standardise treatment of routine cases. The
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aim of the NHS is to create “a standard approach…for dissemination based on best NHS practice…to raise performance to that of the best units (Wyatt, 2001, pp. 6).

**KM: HEALTHCARE SUCCESS STORIES**

The biggest success story of KM in Healthcare is the discovery of Viagra. Pfizer were testing a new angina drug and the results were not promising. However, a few researchers noticed that the angina drug improved male sexual potency. They asked around and found that the best-suited management team to exploit this was in the USA. The findings were then sent from the UK to the US and history was made. What is unique about this was that the UK based researchers had no idea of the importance of their work, but due to an effective KM infrastructure, they were able to locate the best experts to look at their work. If this KM infrastructure was not there, the findings angina drug could so easily have landed on the desk of the wrong person who could have simply filed them away not realizing their significance (Tyler, 1999).

In another study, a group of physicians observed that they needed new or clinically important information only once or twice a week, and could meet these needs by consulting a textbook or journal. The same groups of same physicians were then questioned while seeing patients and in less then half a day, up to 16 requirements for new, clinically important data were identified. When a test was carried out to confirm if they could confirm what the information needs would actually be met by looking at textbooks or asking colleagues, it was found that only 30 per cent of these information needs could be met by looking at textbooks or asking colleagues. The study concluded that for the same group about eight clinical decisions a day might have been altered if the necessary information had been available (Rowland and Harris, 1998).

The process of creating new drugs has been conventionally divided into two main phases: (1) Discovery and (2) Clinical development. In clinical development, one of the main challenges is to gather sufficient evidence that validates the use of the drug, both from safety and efficacy issues. The logistics and costs of clinical development trials as seen below can be overwhelming.

A clinical development trial for a recently approved drug by the US based Federal Drug Administration’s (FDA) Cardiovascular and Renal Drugs Advisory Committee involved 11000 patients in 27 countries and 700 treatment centers (Koretz & Lee, 1998). On average, pharmaceutical companies spend about US $350 million over a period of 8 to 12 years to bring an archetypal new drug to the consumers and the average submission reports on 60 clinical trials and the report typically runs into thousands of pages (Koretz & Lee, 1998).
**Conclusion**

Hoffmann-LaRoche – a leading pharmaceutical organisation was facing a similar challenge. Hoffmann-LaRoche was investigating new ways of reducing the time taken to launch a new product on the market and commenced a KM program. The results were astonishing. Before the introduction of the KM programme, an average drug used to cost $250 million and used to take five to eight years to develop. Now, the savings of the KM programme are estimated at $90 million. Even more remarkable was the result achieved in getting US FDA approval for the distribution of pharmaceutical products. After the introduction of the KM programme, the time taken for US FDA approval fell from three years to nine months (Seeman, Online).

The major contention of this book is that KM can assist the healthcare industry. Future healthcare systems would see increased interest in knowledge recycling of the collaborative learning process acquired from previous healthcare industry practices. The healthcare sector has been exclusively focussed on IT to meet challenges as described in this section. This research reiterates that this challenge cannot be met by an IT led solution alone.

Organisational aspects, such as KM initiatives, should be incorporated within the technological revolution that is speeding across healthcare industry. There needs to be a balance between organisational and technological aspects of the healthcare process i.e. one cannot exist without the other.

It is important that clinicians take a holistic view of their organisation. This requires clinicians to have an understanding of IT in a healthcare context and a shared vision of the organisation. KM can help the healthcare sector to make tacit knowledge explicit and re-purposed via new IT innovations. This book concludes with the assessment that the KM concept is an important and appropriate vehicle to guide medical informatics and the healthcare sector into the new millennium.

**REFERENCES**


Conclusion


Conclusion

