‘Change is the essence of life. If you do not change you shall perish.’ These were the words told by Sri Krishna to Arjuna in Bhagavad Gita. Today, after thousands of years after those words, the process of change is on. The fields of Information Technology (IT) & Bio-Technology (BT) are the modern development and the Medical Technology (MT) has the benefits to use the services of both. The role of IT in Mental Health Care has been a cause of major debate today. The traditional Vs evidence based Mental Health Care has brought up many queries.

Since the beginning, humankind has sought to use elements in the surrounding environment to make life easier and the tasks at hand more efficient. In keeping with this tradition, people have toyed with and explored the concept of using machines to solve problems since ancient times.

While the exponential growth of computer technology is, in many regards, exciting and possibility-rich, there does exist within this fertile field the potential for negative consequences. Issues are being raised regarding questions of the burgeoning race of machines and their “rights”, if any. It is understandable that computers with human-level intelligence (better) would have a huge impact on our everyday lives and on the future course of civilization. A computer system can be trained quickly, has virtually no operating cost, never forgets what it learns, never calls in sick, retires, or goes on vacation. Beyond those, intelligent computers can consider a large amount of information that may not be considered by humans. A “knowledge engineer” interviews experts in a certain domain and tries to embody their knowledge in a computer program for carrying out some task (Briscoe, 1997).

The examination of pertinent ethical issues is necessary because of the uncertainty of the evolution of thinking machines. How will these machines feel about their creators? Some influential thinkers in the field have suggested the possibility that the human race will be forced to serve as a “slave race” to computers. Such postulations are motivation for imposing guidelines on this field of research. Although this example may appear contrived, issues such as this demand serious consideration. Questions such as these, for now, remain unanswerable (Huang & Alessi, 1996).

Patients and medical professionals need easy access to vast quantities of medical information (Robinson, 1997). The amount of information in the primary medical literature alone is overwhelming. MEDLINE, an on-line repository of medical abstracts, contains more than 8.6 million bibliographic entries from over 3800 current biomedical journals and adds 31,000 new entries each month. To help people make effective use of this information, researchers in medical information access are developing new techniques to:

- automatically organize documents retrieved from a search.
- visualize groups of documents among multiple dimensions.
- integrate information from a variety of sources.

Data sensing, acquisition and storage technologies have led to vast observational data sets being routinely collected in almost every aspect of biology and medicine. A significant research challenge is developing theories, algorithms, and tools to handle massive data sets so that scientists and clinicians can try to better understand the phenomena generating the data. In particular, we are interested in developing both predictive and descriptive models for structured data, including multivariate, time series and sequences, spatial (2D and 3D), spatio-temporal, and longitudinal (or repeated measures) data (Wallace, 1999).

The knowledge required to use the basic functions of most of the software available today is limited to a few clicks of a mouse. “Surfing the net”, “upgrading” and “electronic textbooks” have become commonly used lay terms. Unfortunately, many physicians continue to be wary of computers. Some even refuse to dedicate the time needed to learn the basics of computing. Consequently, they are frequently unable to take advantage of the benefits offered by these technological wonders. A general consensus

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among computer proficient physicians and educators is that "physicians unwilling or unable to utilize these electronic resources will not only be unable to learn in the workplace, they will not be able to successfully cope" (Robinson, 1997). Descriptions of successful computer education efforts among health care professionals abound in the scientific literature, predominantly in the area of nursing (Modai & Rabinowitz, 1993). Medical schools have also described attempts to include such training efforts in their overburdened curricula. Some published reports have evaluated computer literacy during the residency years, including psychiatric medicine. It is recognized that computer proficiency is necessary in many areas of medicine: administration, clinical practice, research, as well as education (McCormick & McCormick, 1992).

Literature searches, slide making, word processing and lab results retrieval represent just a few of the computer skills residents are expected to have in order to perform daily residency activities. Residency research requirements, if present, can hardly be fulfilled without the assistance of computers. Yet, many trainees enter residency without basic computer skills. At present, efforts to intervene earlier in the educational process have not been completely successful (Briscoe, 1997).

With the increased global perception of the importance of computers as information management tools, it is possible that program directors may have attempted to compensate for the lack of formal computer training programs by overreporting exposure and actual usage of computers (Glowniak & Bushway, 1994). On the other hand, with the increased prevalence of computer knowledge in younger generations, residents may already be using computers more effectively even without specific computer instructions in residency training programs. Further studies are warranted that evaluate not only residents’ direct opinions as to what the real needs are, but also the status quo of residents’ computer knowledge and usage (Fuller, 1996).

Computers are a reality in the lives of physicians. Most residency programs appear not to provide adequate exposure and training in computers to meet the professional needs of their residents. Many physicians lack the minimal computer skills needed to confidently face the challenges of practicing medicine as clinicians, administrators, educators and/or researchers (Glowniak & Bushway, 1994). Computer education has been listed in the Core Curriculum for Psychiatric Medicine for over two – three years. Computer skills are described in the literature as being essential for professional success. In their daily activities, residents are expected to perform a number of actions that require frequent use of computers (Modai & Rabinowitz, 1993).

It is, therefore, important to develop a curriculum that contains general guidelines broadly useful by residency programs planning on establishing computer-training programs. Usefulness will depend on curriculum flexibility to accommodate for changes in technology, the various levels of knowledge of computing residents possess and the different existing attitudes towards computers and computer education. Such effort will benefit not only residents but also established educators who may also lack these essential skills.

Computers entered the medical arena on a small scale in the 1950s. Computers of this era were primarily employed by research labs to develop more sophisticated medical diagnostic equipment for the processing of signals and images. By the late 1950s, however, computer technology entered the hospital setting: a few progressive hospitals began to apply computer technology to patient information systems which required the digital capture of a large array of disparate information. The systems used for medical research differed dramatically from patient information systems in that they only required the application of well-defined, unchanging data sets. Conversely, patient information systems demanded more complex programming and more sophisticated technology that was not available until the late 1950s and 60s (Heilbroner, 1967).

In United States by the mid 1960s, the confluence of improved computing and communications technology, an increasing awareness of computer technology in the hospital sector, and congressional approval of federal funding for biomedical applications, made the development of patient information systems feasible for more institutions. Europe and Japan followed it. While more institutions began to develop patient information systems, they were crude creations supported by monstrous mainframe computers and proprietary programming languages and hardware. Such systems could not manage large numbers of patient records over extended periods of time. By the late 1960s, integrated circuit computers and relational database applications allowed for more robust, flexible, "modular" approaches to system design (Fuller, 1996). With an exponential growth of software development from 1990’s, it has found its usage in varied areas world over. However, though we were slow to enter this bandwagon, India has become a global leader in software development recently. Its influence is likely to grow in the coming days. Psychiatry and other professions have no other go except to embrace it and march along.
Conclusion

Computers aiding doctors will be beneficial, but the human doctor should not be replaced. Expert systems have the power and range to aid, to benefit, and in some cases replace humans, and computer experts. If used with discretion, will benefit human kind. It is now clear that medicine is to be confronted with a new methodology, concept and language, based on the inevitable development of computerization and datamation. No medical student should hereafter be graduated without a reasonable understanding of this revolutionary movement. The greater challenge rests in the need for education in these techniques for the physicians in practice. No system has been set up to meet this need, and we believe that the Indian Psychiatric Society should move into a position of leadership.

References

Briscoe M (1997). Obstacles to the use of computers in British Mental Health Services. Psychiatry Services; 48: 329-330.

Fuller R (1996). Human-Computer-Human Interaction: How computers affect interpersonal communication. In Day D L and Kovacs (Eds). Computers, Communication and Mental models. Taylor & Francis, London.

Glowniak M, Bushway M K (1994). Computer networks as a medical resource: Accessing and using the Internet. JAMA; 271:1934 -1939.

Heilbroner R L (1967). Do machines make history? Technology and Culture; 8:335-345.

Huang M P, Alessi N E (1996). The Internet and future of Psychiatry. AJP; 153:861-869.

McCormick N B, McCormick J W (1992). Computer friends and foes: Content of undergraduate’s electronic mail. Computers and Human Behaviour; 8: 379-405.

Modai I, Rabinowitz (1993). Why and how to establish a computerized system for psychiatric case records. Hospital and Community Psychiatry; 44:1091-1095.

Robinson D (1997). Surfing the Internet. Challenges for health care. Psychiatry Services; 4:124-126.

Wallace P (1999). The Psychology of the Internet. First edition, Cambridge University Press, Cambridge.