

State of Medical Informatics in India

A Roadmap for Optimal organization



Dr Suptendra Nath Sarbadhikari, the Founding Chair, Department of Biomedical Informatics at PSG IMS&R, Coimbatore shares during interview with Medical Equipment & Automation that The informatics tools, commonly known as Information and Communication Technology (ICT) tools, judiciously applied to healthcare delivery, can help us to deliver more effective, more efficient and more patient-oriented health care.

— Medical informatics can be called the art and science of processing biomedical or healthcare information. Please brief us on the various advantages of Medical informatics.

Health information management is becoming increasingly important to effective and efficient health care. The informatics tools, commonly known as Information and Communication Technology (ICT) tools, judiciously applied to healthcare delivery, can help us to deliver more effective,

more efficient and more patient-oriented health care. However, improperly used they would waste time and money, create inefficiencies, and dehumanize our interactions with each other. Healthcare delivery personnel who understand and are able to utilize health informatics tools and applications will be more empowered to deliver better healthcare.

— You have pioneered in this area of modern medical technology. Can you give us a brief account in regards to your expertise and research interests?

After MBBS, I completed my PhD in Biomedical Engineering from IT-BHU, Varanasi. My PhD thesis was on building diagnostic decision support systems from EEG in Depression. After that I was a Research Associate and then an Honorary Visiting Scientist at the Indian Statistical Institute, Kolkata where I extended my work on soft computing tools for clinical decision support systems (CDSS), using inference and rule generation techniques.

Following that I have been a faculty at the Sikkim Manipal

University; School of Medical Science and Technology, IIT Kharagpur; and the Centre for Digital Health, Amrita University. At Amrita, I was the Course Coordinator for M.Sc. (Medical Informatics) and M.Tech. (Biomedical Engineering). Since January 2008 I have been setting up the Department of Biomedical Informatics in PSG Institute of Medical Sciences and Research, Coimbatore. I have been working on decision support systems throughout. However, one of my fundamental papers has been on neuro-informatics and has been widely cited globally.

In a country like ours where there is an acute shortage of healthcare professionals and infrastructures, can medical informatics serve as blessings in resolving these issues? If yes, how?

Certainly. It can form the backbone for health literacy campaign where health care workers and students can be introduced to advance health literacy, adult basic education learners can be trained for immediate application to daily life and the students up to Class 12 and beyond can also be targeted to improve the health literacy of future generations.

Health literacy applies to all individuals and to health systems. For example: An individual can be health literate by using the skills needed to find, understand, evaluate, communicate, and use information on health. Similarly, Health care professionals can be health literate by presenting

information in ways that improve understanding and ability of people to act on the information. Finally, Systems can be health literate by providing equal, easy, and shame-free access to and delivery of health care and health information.

Would you like to share your views regarding the state of medical informatics in India?

In 2005, I had written an article on “The state of medical informatics in India: A roadmap for optimal organization” which has been well cited globally. Right now not many hospitals in India are fully digital. My personal guess is that within the next 5-10 years all healthcare delivery will be somehow linked to ICT.

Even the WHO aims to make all persons in the world have access to an informed healthcare provider by 2015. The scenario is likely to become positive very soon with the current Government intending to stress a lot for optimally utilizing the ICT resources in all sectors of life including healthcare. With Dr Sam Pitroda having taken over as the Advisor to the PM on information, infrastructure and innovation, things are likely to move fast very soon. The excellent ICT infrastructure in India will be utilized optimally for healthcare delivery, among other areas

Can you highlight the major barriers and initiatives needed in optimizing the use of Medical Informatics in India?

We can divide the barriers into

three: attitudinal, technological and financial. For the attitudinal “change” the necessity is of “change management” where the end users (health care delivery personnel as well as the patients) need to be made aware of the benefits and involved as major stakeholders during the planning phase before thrusting on systems over them. Technology is advancing very fast and technological barriers are being overcome.

However, there is a mismatch between the language and workflows of the healthcare delivery systems / personnel and the ICT technocrats. Again training for proper multi-disciplinary understanding would be necessary. For the financial constraints, better allocation of scant resources and proper prioritization will be of immense help.

Do you think that basic medical science education should include medical informatics as a compulsory subject?

Definitely. I have also written an article regarding the same, “Basic medical science education must include medical informatics”. However, it should not be treated like a separate subject.

Medical students need to acquire a lot of soft skills like communication skills and medical informatics is similar to that. Enrico Coiera, has compared “Informatics tools” to the “stethoscope” in cardiology. It cannot “replace” the doctor but can very much “empower” the doctor to treat the patient better. “Informatics” is the “logic of health care”.

What is your opinion regarding e-learning in medical education? Do you think it has a role in raising awareness of medical informatics?

Of course. I am happy to inform that my Supercourse lecture: "How to design an effective e-learning course for medical education" has been among the "Top 20" to be downloaded globally. I have been successfully running e-learning courses on health informatics and I offer a fully online 12-week Certificate Course on Health Informatics at PSG IMS & R.

In my online course I have been getting students from all over the world for eg., USA, UK, Europe, Africa, Iran, Malaysia, Saudi Arabia and Pakistan. The general feedback is very good since all my modules have a mandatory time-bound assignment that is akin to a real life problem. I offer round the clock online mentoring.

Participants successfully completing courses on health informatics are likely to be involved in the identification, planning, implementation and use of computer-based information systems in all areas of the healthcare industry, including hospitals and health directorates. The ones from a technology background may envision the potential benefits of using computers and work at the interface of technology and society in the area of healthcare delivery.

As medical technology has gone through tremendous transformation, what are the most significant changes you have noticed in the field of biomedical engineering recently?

The most significant contributions of clinical biomedical engineering have been in instrumentation for diagnosis, therapy, and rehabilitation. Cell biology,

tissue engineering, and nanotechnology also have emerged as clinical realities. Imaging, telemedicine and virtual robotic surgery are some of the other emerging areas. Molecular and genomic medicine, systems biology and interactomics are some of the more recent ones.

What according to you has been the most exciting and interesting progress in the field of automated diagnostic systems in the last 10 years?

Global mandate is on reducing errors, improving quality, and lowering cost in health care and move towards Individualized medicine. Also, the realization that CDSS is necessary and ways to implement it usefully have to be found out. Patient-centric view, using open source tools and collaboration among healthcare users are gradually replacing the age-old top-heavy approaches. +



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