

# Perspective Article

## Medical Education & Clinical Practice : Present & Future

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### Salutation to my teachers! Greeting to my colleagues! Gratitude to my students and patients!

A doctor according to Ryle's description is one, who given the advantages of higher education, is nevertheless expected to combine in his person, the attributes of a scientist, healer, priest and prophet. "In posterity's harsh judgment, doctors will continue to be found wanting on some attributes as "there is probably no servant of the community of whom a greater degree of omniscience is demanded, or upon whom a graver responsibility in respect of personal and sometimes social guidance is imposed".

As is too well known, medical education is the father of medical practice. To quote Sir William Osler "to study the phenomena of disease without books is to sail an uncharted sea," whilst to study without patients is not to go to sea at all". Since medical education and clinical practice are intricately bound we need to modify educative initiatives to meet the competencies and skills required by the doctors of the morrow. "The central mission of education will always be to improve the quality of health care delivered by doctors and we must never fail to remember the central role played by patients as the ultimate recipients of our skills What doctors do, and how and when they do it, depends on the quality of medical education. We need to get it right" – Bligh & Parsell.

Predicting what clinical medicine and medical education will be three decades from now is anybody's guess. Whatever is said and done, patients and their families want physicians who are gifted in diagnosis and treatment and who are caring individuals with interpersonal skills needed to communicate complex information in stressful circumstances.

The art and science of medicine was imparted by my teachers at the bedside while the honing of clinical skills was by observation of how the teachers approached patients and their problems. Initial training in basic sciences was imparted to build on knowledge later. Long hours in the wards were the order of the day. Instruction was highly lecture based leading Meyers Jourer to remark "a steady diet of lecturing leads to intellectual anemia".

### What is the order of the day?

We have student directed teaching/learning processes, self directed learning techniques with educations facilitating the learning processes. Advances in science and technology saw the advent of technology enabled learning fast catching up – computer assisted learning, e-learning, learning management systems, virtual class rooms, virtual library, video and tele-conferencing etc. These tools can only augment conventional methods,

because too much of gadgets do not teach human aspects and result in doctors being seen as lacking empathy, communicating only in a technical jargon and without understanding of patients' real needs. Integrated teaching-learning modules, problem based learning with guidance of teachers, small group learning are other methods used. "There is no cement like interest, no stimulus like the hint of practical knowledge" said Flexner.

Simulations based skills training provides a risk free learning in complex, critical and rare situations. It also promotes team based interprofessional approach to health care. Standardized Patients (SP) i.e. persons trained to portray a specific patient in a consistent, standardized manner is used in some centers to emphasize that symptoms must be felt and not memorized. The SP presents case history in response to questioning and may undergo a physical examination at the examinee's direction. SPs complete checklists following encounter with the examinee. Informed patients, vast knowledge in emerging areas, increased work load for physicians and demanding students' need to be addressed discreetly.

### What do we foresee in the future?

As human vanity is unchanged, change and challenge are irresistible Exponential growth in computing is envisaged. "Neural computations" will allow self-learning software to awe-inspiring sophistication. Artificial intelligence will diagnose and recommend therapy. Computers will collect histories (perhaps via speech recognition programs) along with physical examination and special investigation. Diagnosis and therapy will be suggested based on previous experience and existing state of the art stored in gadgets. Molecular genetic banks will allow new syndromes to be recognized. Robotic surgery will be the order of the day. WHO KNOWS? – Failure to use a computer may be prima facie evidence of malpractice. Virtual reality where 3-D scene is viewed through stereo-goggles may allow surgical training by simulation. Medical education will be professionalized and treatment personalized. The use of technology in diagnostics and therapy, systems approach to analyze all genes at once, molecular approach to disease, nano size devices to measure thousands of blood elements, DNA sequencers to decode human genomes rapidly, nano drug delivery and targeted drug delivery, and data bank will lead to result about health and disease.

Predictive & personalized medicine, preventive medicine, participatory medicine and digitization of medicine will lead to universal democratization of health care. Cyber medicine is yet another interesting arena which is developing rapidly with scope for extensive future applications.

Change is inevitable and will be driven by needs from within and without. Change for the better is always welcome. However, medicine is and will always be a human and humane endeavour and not an industry and physicians should not be reduced to only providers, gate keepers or resource managers. Healthcare can never be of high quality if the patient-physician interaction is hurried, disrespectful, cold, callous, or uncaring, whatever the advances in technology. The eye is the window of the soul and an eye on patients needs is the hallmark of an astute clinician.

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