MGM
Mahatma Gandhi Mission

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"Strength does not come from winning. Your struggles develop your strengths. When you go through hardships and decide not to surrender, that is strength." - Mahatma Gandhi

MGM NEWS

Celebrating MGM's 25 SILVER YEARS Glorious Journey

# Changing Course Of Medical Education

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Medicine – the art and science of healing, has its roots literally amidst the roots of trees. Thousands of years ago, when neither of the words 'medical' or 'education' existed, our ancestor homo sapiens are known to have discovered cure properties amidst trees (herbs) and minerals, experientially learned from them to heal. Thus began the journey of medical education.

The first know evidence of trephination go as far back as in 6500 BC - times when the world population around 5 million (scattered but stable), hunting and gathering were sources of livelihood, people had started to farm, domesticate cows and make earthen pots! Moving forward 4000 years, there's evidence of medical texts in Egypt around 2500 BC, describing diagnosis and treatment of some 200 diseases. We are familiar about the contributions of our own 'Charak' and 'Shusruta' around 600 BC.

So if you truly ponder, the evolution of medical education itself has thousands of years of enriched foundation based on discovery, experiential diagnosis of symptoms, and administration of medicine (with or without surgery) for cure, more learning and documentation. Medical education has kept pace with the growth accelerators of human life such as the scientific, industrial, agriculture revolutions of the last few centuries and the latest buzz of the information and communications revolution in our lifetimes.

Today, our busy world is buzzing with ever growing graphs of life expectancies, alongside ever breaking diseases (like Ebola) gasping for cure. Medical education has changed course in tandem, undergoing quite an industrious transformation, from the quite life-cure cycles of yester centuries to the 24/7 medical emergency response air ambulances of today.

There are several perspectives to this transformation. But before we dwell deeper into it, let's nudge our thought a little, with an inspiring comprehension of medical education from a modern perspective. Today, medical education is like that immensely deep well, filled with phenomenal powers of healing. Your capacity to draw from this well, will determine the "***ed***ge you will have in yo***u***r vo***cation***" as a doctor or a nurse or a person directly or indirectly involved with patient care.

## Quality Education at MGMIHS

### Management Commitment to Quality

Dr. Sudhir N. Kadam, Honorable VC personally continues to be a strong and inspiring force for continually enhancing the quality of medical education being imparted at MGMIHS. He is ably supported by the entire management team, faculty, and staff.

### Quality Infrastructure

Over time, the University has invested in building quality infrastructure that includes well equipped laboratories, a library well equipped with virtual as well as e-learning resources; interactive boards and PowerPoint presentation facilities, OHP's, LCD projectors, DVD players and more in its classrooms and departments.

The University spends over 1.5 crore rupees every year in procuring books and journals. In addition the medical colleges have their own well equipped 800 bedded teaching hospitals with speciality and super speciality services both at Navi Mumbai and Aurangabad. Boys and Girls Hostels, Staff Quarters, Guest Houses, Cafeterias, spacious Playgrounds, Gymnasia are part of the campus.

### Quality Research

At MGMIHS, quality research is encouraged through a strong management commitment to pursue and promote it. Faculty and scientists are continually encouraged to develop research programs by leverage their technical strengths within a research condusive infrastructure available at MGMIHS. MGMIHS has invested in setting up state-of-the-art research laboratories in various areas of advanced biomedical research, like Proteomics, Stem Cell, Nanotechnology, Molecular Biology and Genetics.

***Medical education is that transformational tool of healing that the doctor can sharpen all his life!***

Let us now dwell on a few important aspects of the *changing* course of medical education:

### The Demand Explosion

India's population has burgeoned from about 40 million to over 120 million in just over 65 years post independence. In relative terms, this tripling has been quite sudden and in certain ways alarming too. Perhaps this has been one of the principal causes of our nation being severely stretched on many demand fronts - medical care being on the forefront. This has sort of triggered the surge in our needs for hospitals, doctors, nurses, medicines, and the entire ecosystem that surrounds medical care.

Combine this, with the fact that 200-250 million of this population are in the 18-25 age group, and most would be raring and all set to join the global workplace by 2030 including being in the medical care profession. As if in response to this emergency need to bridge the demand-supply gap, our medical education infrastructure has simply burst out making us perhaps the higher churner of medical practitioners in the world.

### Shared Knowledge

Knowledge multiplies by sharing and in the last two decades it is this sharing aspect that has transformed, multiplied and accelerated manifold, due to the information and communication revolution – permanently changing, course of how knowledge is shared easily, impacting medical education like never before.

On the one hand it has become faster, easier and affordable for people (including doctors, students as well as patients) to have access to information and share information instantly across time-zones. It has also meant that students now have easy access to specialized faculty across the globe.

On the other hand rapid advances in medicines, health care mechanisms coupled with instant tools of sharing information globally has led to teachers and faculty having to stretch themselves to keep up with the emerging trends, at the expense of perhaps some quality teaching and interaction time with interns. It has also ironically robbed the 'humane relationship connects' that used to exist between the doctor and patient, just a few decades ago –an important aspect of the healing process. Rather than we being masters of the tool, we end up becoming its slaves and too reliant or dazzled with its glamour value. In the process, we forget that the patient in need is indeed better served from the humane care and heal from a trustworthy doctor.

### Multi-mode, Multi-course Learning

Traditional modes of medical education were based on classroom, laboratory and experiential internships involving hands-on clinical experience. While these modes continue to exist, newer variety of teaching and learning methods too have evolved based on tools available from the information and communication technology world – such as 3D simulation of operative procedures or e-learning tools.

Highly accomplished scientists are a part of a Central Research Committee that monitors, co-ordinates, controls and facilitates research activities.

Collaboration within various departments of the medical colleges as well as other research institutions and industry is encouraged. Senior faculty members with good track record of pursuing quality research are recognised as Ph.D. Guides.

Students are encouraged and helped to write award winning research proposals for funding from agencies such as ICMR, DBT, BARC and others. The faculty and students are also encouraged and sponsored to participate in national and international conferences. MGMIHS has also started its own journal "MGM Journal of Medical Sciences" and accord priority to students to publish their research work.

**Quality Recognized & Certified**

In early 2014, MGMIHS was accredited by NAAC with a "Grade A". This independent certification speaks volumes about quality in our teaching, learning, and evaluation systems apart from best infrastructure and learning resources provided in the medical colleges and other institutions of the MGMIHS.

**Quality Assurance**

Over the years MGM has build an education environment that makes use of integrated technology in imparting education. To maintain high standards of internal quality, admission process at MGMIHS is transparent and open. It is purely merit-based. Selection process of teaching faculty too is rigorous with emphasis being on competence and teaching skills. All teachers have to go through skill enhancement programmes periodically to keep them up-to-date.

Another transformation in medical education has been the increasing availability of a large number of accredited courses and specializations to choose from as well as a large number of medical institutions offering these courses. While privatization of medical education may have led to an overall increase in the cost of medical education as well as health-care, it has also resulted in an increasing number of our people having local access to quality medical education as well as healthcare.

**Embracing Change For Better Healing and Caring**

It is human nature to resist change, but change is an inevitable constant that is better to embrace than be embarrassed about. Amidst all the upheavals caused by some of the changing aspects of medical education mentioned earlier, it is vital that we are level headed in our approach to medical education and don't lose sight of its purpose of healing and caring.

Any good engine of effective medical education has to have all its four cylinders firing efficiently namely - Research, Patient Care, Teaching and Community/Social Service. So while change will impact each of these four pillars, what matters is that we embrace change as that opportunity to reform medical education and make it better than ever before.

Thought pointers to ponder about changing course of medical education:

- **Patient Centricity.** Will be about delivering high-quality, patient-centric healthcare that is efficient, affordable and increasingly adaptable
- **Collaborative.** Will incorporate collaborative teaching and learning tools including telemedicine and caregivers experience in the curriculum
- **Inspires Research.** Will provide Infrastructure that inspires students to invest their beautiful minds in research oriented work in laboratories
- **Hands-on.** Involves Clinical training as a regular learning experience, and not just limited to the last six months of the internship period.
- **Ethical.** Insists on ethical aspects being practised and not just preached
- **Tech-Powered.** Prepares physicians to effectively use fast emerging technology tools
- **Community Service.** Ensures that the learning experience involves making a difference through community service to the needy
- **Humane Care.** Inspires values of practising the culture of the power of caring and healing with a humane and empathetic approach
- **Dynamic Learning Continuum.** Emphasises learning continually and keeping pace with the increasingly dynamic pace of change
- **Share-Learn-Serve.** Encourages the culture of sharing knowledge, learning from everyone and serving as many as possible

# Vice Chancellor's Voice

**Dr. Sudhir N. Kadam**
**Vice Chancellor**

Dear Reader,

**Greetings and wishes for your healthy and prosperous 2015!**

Last year was quite an amazing year for all of us at MGMIHS. It started with NAAC's "A" Grade accreditation for us. In a way, we turned the corner of our 25 silver years journey, with flying colours. We also successfully hosted our 4th convocation in 2014, besides several other valuable programs throughout the year. I wish to once again extend my heartfelt appreciation to all our team for your magnificient and often silent but invaluable contributions.

As we move forward, we need to once renew our commitment towards providing efficient and effective medical care services to the society at large, with humility and selfless dedication. The strong foundations of being able to do so are certainly rooted in our medical education and it is here that we all as teachers and learners have to raise the bar of excellence higher and higher, forever.

Sincerely,

## Medical Education For Effective Clinical Care

Fundamental to becoming a good doctor is the ability to provide effective clinical care. The terms 'good' and 'effective' bear the risk of being taken for granted amidst presumptions and obviousness. It is therefore vital that medical education plays a lead role in ensuring that this risk is negated proactively.

For building doctors who can and will deliver effective clinical care, medical education must have vital elements in its framework of delivery such as:

***Integrity:*** This is perhaps the difference between a doctor holding up the light of hope or striking it down like destructive lightning. Medical education has to inspire doctors into building and exhibiting strong moral character and uprightness. Irrespective of his levels of knowledge and confidence, a doctor has to recognize his humane humbleness, recognize the limits of his competency without shame and accurately represent facts that carry no bias of their own personal beliefs and certainly reach out to seek help and assistance from fellow doctors or experts, when needed. The doctor has to have uncompromising integrity with his patients at all times.

***360$^{0}$ Comprehension:*** Medical education has to train the doctor to develop multi-modal observation skills such as through visual observation, physical examination, listening to the patient and his family, aside the symptoms and test reports. It is only then that the doctor would be able to fully comprehend the situation from all aspects in order to accurately diagnose the cause and there from propose a remedy.

***Patient Care:*** It is very easy for doctors to get immersed into the world of medical education and in the process, unintentionally, losing sight of the fact that they are dealing with human beings having rights, concerns and stakes in the decision making process. It is therefore important that medical education continually reminds the doctor that their world is not about diseases and treatment, but about effective patient care. While giving them a complete and accurate picture of their illness, its consequences, the treatment options and their repercussions, etc., the doctor needs to appreciate the rights of patients and in that context respecting the decision arrived at in consultation and discussion with the patient (and family).

***Standards – Safety & Quality:*** While every patient is unique and different, the effectiveness of clinical care is determined by following a discipline of adhering safety and quality standards at all times.

***Knowledge Update:*** Medical education also serves as the bridge to keep the doctors updated and abreast about the advances and improvements in several facets of medical care as also keeping them informed proactively about some of the erstwhile practices that may have become outdated owing to obsolescence or advances.

***Skills Update:*** Medical education has the ability to provide avenues for doctors to sharpen and hone their skills through several modes of trainings including practical hands-on training on newer procedures and tools, off-line or on-line trainings as well as re-training related to newer forms available for patient care.

In conclusion, it would be only appropriate to state that medical education plays the role of being that strong foundation framework – a skeleton of sorts – based upon which an healthy body of effective clinical case can be build to serve.

# Editorial

**Dr. Chander P. Puri**
**Pro Vice Chancellor (Research)**

**Fostering Research at MGMIHS**

**Condusive Environment:** Over the years, MGMIHS has invested in setting up research laboratories in various areas of advanced biomedical research, like Molecular Biology, Stem Cell, Genetics, Nanotechnology and Proteomics

**Resource Collaboration:** Senior faculty with an established track record of pursuing quality research are recognized as Ph.D. guides at MGMIHS and encouraged to drive research not just within their own student fraternity but also in collaboration with other departments, medical colleges, research institutions and industry.

**Monitoring Progress:** At MGMIHS, a Central Research Committee has been established with the purpose of monitoring, co-ordinating, controlling and facilitating research activities. It comprises of respected and established scientists.

**Student Empowerment:** The students at MGMIHS are empowered to write award winning research proposals for funding from agencies such as ICMR, DBT, BARC and others. The faculty and students are encouraged and sponsored to participate in national and international conferences. MGMIHS has also started its own journal "MGM Journal of Medical Sciences" that accords priority to students to publish their research work.

## Research - An Essential Component In Teaching & Clinical Care

Right from our early childhood, curiosity triggers the quest for seeking answers. Initially, we are satisfied by the answers provided to us by our family and guardians. However, slowly we start seeking validation in the form or data, evidence as well as rational reasoning too. As we grow up, this curiosity scales up rapidly, transforming itself into a quest for higher knowledge that we seek from our teachers in schools. We also experience the power of creative but systematic and disciplined education, in continually increasing our knowledge bank. Our early school laboratories introduce us to the process of 'Aim-Apparatus-Method-Procedure-Observations-Conclusion'. Thus, the rudimentary seeds of research essentially become a part of our early education.

Curiosity, Questioning, Hypothesis, Observation, Testing, Analyzing, Seeking Truth, Discovering newer knowledge are all facets of learning, tied together in the string we call research. You will realize that these are also in complete harmony with the essence of what learning and teaching is all about, as well as what clinical care is all about.

Our first prime minister, Pandit Jawaharlal Nehru had beautifully written in 'The Discovery of India',"The search for truth and new knowledge, the refusal to accept anything without testing and trial, the capacity to change previous conclusions in the face of new evidence, the reliance on observed fact and not on pre-conceived theory, the hard discipline of the mind—all this is necessary, not merely for the application of science but for life itself and the solution of its many problems."

Research is the only way that we can empower our doctors to fight the future battles of unknown and emerging diseases (such as Ebola), it is the only way forward to build upon our limited understanding of tackling known diseases for which there are uncertain cures such as cancer, diabetes, dengue, malaria and more.

Teachers can inspire medical students and mould their minds towards undertaking the difficult path of meaningful research and not just be happy with a stethoscope waving on their immensely capable shoulders. Clinical research is essential for determining the effectiveness as well as safety of newer drugs and procedures eventually intended for clinical care. That makes research a truly essential component in teaching related to medical education as well as extending it into clinical care.

In conclusion, the importance of research being an essential component of teaching and clinical care stems from the fact that it brings with it the desire for a) critical and independent thinking, b) creativity with discipline – both vital ingredients for newer meaningful discoveries of safe, effective and affordable clinical care.

# Need to Improve Graduate Doctor's Clinical Skills

**Dr. (Lt. Gen.) Shibban K. Kaul**
**Pro Vice Chancellor**

**Clinical Skills Acquisition Challenges**

Most of our graduate doctors who pass out lack desirable levels of clinical skills in the relevant areas. Some of the reasons include:

1. Inadequate exposure to actual patient care in wards and OPD's during MBBS and internship.

2. Greater pre-occupation of students with preparations for appearing in PG entrance tests than with learning clinical skills during internship.

3. Defective mentorship on the part of teachers, who do not lay enough stress on teaching clinical skills to interns and don't mind signing their internship completion certificates without ensuring that the student has learnt the skills which he or she must do before qualifying for award of the degree.

4. Lack of good medical teachers. Better talented medical professionals prefer to opt for better paying private practice or corporate hospitals.

Our present MBBS curriculum consists of 4 ½ years of classroom teaching during which students are taught theory of art and science of medicine, supplemented with laboratory practicals and bedside clinics. This is followed by 1 year of rotating internship during which they are supposed to learn adequate clinical skills. After 5 ½ years the student is expected to have matured into a primary care physician capable of managing medical emergencies, diagnosing and treating common diseases, managing childbirth, identifying patients who need referral to secondary and/or tertiary care facilities, performing common medical and surgical procedures, educating communities about health matters including prevention of communicable and non-communicable diseases, helping in implementation of national health programmes, applying basic knowledge in research methodology, attending to medico-legal issues and exhibiting good communication skills including medical information technology. Have we succeeded in achieving these goals? Unfortunately the answer is 'no, we haven't', in respect of most of the medical graduates who pass out. Possible reasons are listed in the margin on the left side of this page.

What possible corrective measures can be taken to address the issue?

- Should OPD and ward postings be introduced from first term onwards?
- Should internship be extended to 1 ½ years, either by increasing MBBS course to 6 years or by reducing 4 ½ years of classroom teaching to 4 years? In the latter option we may have to make the curriculum trimmer by weeding out non-essential details.
- Should the student undergo another test at the end of internship to assess whether he/she has acquired adequate clinical skills and award degree only to those who pass? Those who don't, repeat internship training in part or full.
- Should fresh graduates serve at least for one year either in a hospital or in a primary health center before they are eligible to appear in PG entrance tests, so that they take internship period more seriously? Currently most students utilize the internship period for PG entrance test preparation.
- Should we attract better talent as medical teachers by offering better remuneration and other incentives? At present best of the medical professionals opt for better-paid jobs in corporate hospitals or go for private practice.
- Should we impose some penalty (like delay in promotion) for teachers if interns posted under their mentorship are found ill-trained in clinical skills?
- Should we make it mandatory for all Medical Colleges to establish clinical skill labs where students are taught all required skills?

We need to initiate a national debate about these important issues so that the regulatory governmental bodies enact necessary legislation for enhancing clinical skills of medical graduates. That will be an important step to bring about improvement in delivery of primary health care to our people.

# Medical Education In India

**Dr. Vichin Puri**
**MBBS (India), MD (USA), ABS, ASTS**

*Assistant Professor, Department of Abdominal Transplant and Hepato-Pancreatico-Biliary Surgery, University of Tennessee Health Science Center, Memphis TN 38104, USA.*

***The mind is not a vessel that needs filling, but wood that needs igniting.***
***-Plutarch***

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|---|---|
| *Doctor:Population ratio, India* | *1:1,700* |
| *Doctor:Population ratio, rural India* | *1:25,000* |
| *Doctor:Population ratio, World average* | *1:667* |
| *Doctor:Population ratio, Cuba* | *1:170* |
| *Projected shortage of doctors by 2020* | *5,00,000* |
| *Number of medical colleges in India (Govt: 183 and Pvt: 215)* | *398* |
| *Number of MBBS Seats (Govt: 24,935 and Pvt: 27,170)* | *52,105* |
| *Number of PG Seats (MD: 19,640; MS: 6,631; Diploma: 3,805)* | *23,074* |
| *Number of super specialty Seats (DM: 891; MCh: 1,005)* | *1,896* |
| *Contribution of South India towards MBBS students (Population: 252 million)* | *46%* |
| *Contribution of North India towards MBBS students (Population: 544 million)* | *16%* |
| *Deficiency of Teaching Faculty* | *25%* |

## A Snapshot Of Where We Are And Where We Need To Be

Doctors are expected to diagnose and treat diseases. However, the word “doctor” encompasses a lot more than just being a person licensed to treat an ailing body or restore health by treatment of illness. With an ever-increasing burden on the health care system, physicians today must demonstrate clinical prowess, intellectual curiosity, critical thinking, compassion, altruism and integrity. If that weren't enough, doctors need to be skilled teachers, mentors and strong administrators.

Medical schools and teaching hospitals are responsible to ensure that their graduating students exhibit the highest standard in professionalism, compassion and competence. This necessitates student education that goes beyond printed notes and textbooks. Teaching institutes must focus on attitudes and values that will lead to success in graduate medical education training and clinical practice. They must provide an appropriate academic environment that encourages students to match their interests and talents with societal needs in making career choices that will meet the national need. Medical schools should be charged with the responsibility of graduating students that are responsible, accountable and committed to continuing inquiry, self-study and research in addition to promoting the well being of their patients.

Medical education has evolved over the years. Today, the world's medical knowledge doubles every five years. In order to keep up with innovation and the latest in medical literature students need to have a strong foundation in basic science, research, statistics and clinical medicine. They must learn to decipher and interpret medical data accurately so that they can apply evidence-based medicine to their practices. Medical schools in India need to integrate clinical rotations early in their education process. Basic and clinical sciences and scholarly work need to be woven together throughout all years of medical education. The barriers among these disciplines should be broken down by mixing elements of investigation, basic science, and clinical practice within individualized educational blocks. The curriculum should be in context to the population's health needs. We must strive to produce 'doctors – scientists' who are capable of making a difference using clinical skill and innovation.

Teaching medicine in this day and age is extremely challenging. Medical school faculty members are being asked to assume new academic duties for which they have received no formal training. These include evidence-based practices, ambulatory care teaching, case based teaching and new computer-based instructional programs. In order to succeed at these new teaching tasks, faculty development is essential. India needs over 1,00,000 medical doctors in faculty positions at undergraduate and postgraduate levels. Most of them have little or no formal training in teaching. We need to provide the infrastructure and support to formulate a comprehensive faculty development program that allows for professional, instructional, leadership and organizational development of our faculty. These strategies will allow faculty members to excel as educators.

Standardization of curriculum and creating uniform benchmarks against which programs can be compared and ranked is the key to improving the overall quality of education. This can only be achieved by maintaining transparency and being honest of one's own program. Faculty, nurses and students should work together in evaluating one another through anonymous surveys. This will encourage behavioural modifications and academic improvement. Independent and unbiased assessment from accreditation boards will allow medical schools and hospitals to maintain the highest of standards. Internal and national level reviews will make everybody accountable. This will help lift the overall performance and will empower organizations to invest in their staff and students.

**Dr. Z. G. Badade, PhD**
**Registrar, MGMIHS**

**Medical Educator Role**

As medical educator, one needs to apply one's knowledge, clinical skills, and professional attitudes in patient care. As collaborator he needs to effectively work within a healthcare team to achieve optimal patient care. As manager he is an integral participant in healthcare organizations, organizing sustainable practices, making decisions about allocating resources and contributing to the effectiveness of healthcare system. As health advocator, he should be responsible to use his expertise and influence to advance the health and well-being of individual patients, communities and populations. As professional he should be committed to health and well-being of individuals and society through ethical practices, profession-led regulations, and high personal standards of behaviour.

An educator should have urge to learn and need to have goodness first and greatness later. He should impart methodology and not matter, style not substance, art not merely trash and thereby the excellence gets copied by the next in line. A teacher can never truly teach, unless he updates himself with recent advances. Medical teacher should conduct himself and extend quality care to the soma, the psyche and the soul. One ought to be larger than one's profession, fame and achievements.

## The Role Of A Medical Educator

An educator, in essence is one who leads, not by mere speech, but through personal example. He is a leader in the true sense of the word, because 'to lead is to know what it means to be last' goes a famous adage. A medical educator owes to himself and to his students clarity of thought and power of expression. Today student-teacher relationship is changing drastically as present system of education has changed. An institution is temple of learning; teachers are worshiper of Goddess and the students are disciple.

Modern Medicine is at the moment at crossroads, on one hand there are enormous technical advances and on other hand these advances are at high cost which denies quality care to increasingly large number of people. Health professionals need to correct this anomaly by preparing medical graduates in a proper mindset so that it benefits the patients.

The medical education of today will reflect the quality of tomorrow's health services. The existing education system has certain lacunae's which can be minimized by sensitizing the teachers with innovative approaches, creating intellectual relationship, changing work environment, motivation, adopting integrated approach of teaching and improving counseling skills.

Training teacher for tomorrow has become necessity of today. Formal training and an urge to self evaluate have an impact on outcome of teaching learning process. The progress in the field of education has halted because of rigid attitudes, unwillingness to innovate, lack of training facilities, lack of accountability and unavailability of rewards or punishments.

The educator needs to be an exemplary model and should be idealistic. He should be prepared to give the best possible and prepare students in the right direction. He should have the knowledge and the strength to do what one can do or should do, the prudence to refrain from what one cannot or should not, and the wisdom to know the difference.

A good teacher should have three qualities: knowledge, enthusiasm and humility before the vast ocean of knowledge and ignorance. The honest teacher is acutely aware of the extent of his ignorance, gray areas, controversies, enough information. He is a fellow student among all in class. As able administrator he brings out the best in his students and allows their qualities to blossom, by providing conducive atmosphere for excellence. To conclude, medical educator needs to be a role model, an expert in subject, an information provider, a resource developer, a good organiser/planner, assessor, mentor and learning facilitator.

# Workshop On Global Perspectives On Medical Education And Its Relevance To India

6th January, 2015
MGMIHS, Navi Mumbai

# TREATISE INSIGHTS

## What Makes a Good Medical Teacher?

**Ronald M Harden,** *OBE MD FRCP (GLAS.) FRCS (ED.) FRCPC*
*Professor of Medical Education (Emeritus), University of Dundee, Scotland*
*General Secretary of AMEE and Editor of Medical Teacher*
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These are exciting times in medical education with important developments in how we select our students, the planning of the curriculum including an outcome-based approach, new approaches to teaching and learning and a greater recognition of the importance of assessment of students with greater emphasis on authentic assessment. Critical to all of these developments is the teacher. There is good evidence that the success of an education programme is to a large extent dependent on the quality of the teaching. The role of the teacher may be changing but the fact remains that the teacher's role remains of the greatest importance for the success of the students learning.

The qualities of a good teacher can be recognised in three domains:

***The teacher's technical competencies:*** These can be related to the different roles expected of the teacher. They include the teacher as an information provider, the teacher as a role model, teacher as a facilitator of learning, the teacher as an assessor of the students learning, the teacher as a planner of the curriculum and the teacher as a developer of learning resources.

***Approach to teaching:*** Technical competence along is not sufficient. The good teacher must approach their teaching with an understanding of some of the basic principles of education, with the appropriate ethics and attitudes, with the appropriate decision making strategies including evidence-informed decisions and the use of intuition and judgement and working as a team member.

***The teacher as a professional****:* As a professional, the teacher takes responsibility for evaluating their own competence as a teacher and for their continuing professional development. *The good teacher can be represented by the formula:*

*Good teacher = Teaching competencies x Approach to learning x Personal development*

*Teaching competencies = Ieq + Req + Feq + Aeq + Ceq + Leq (e = extent, q = quality)*

*Approach to learning = S x E x D x T*

*Personal development = P*

*I: Information provider; R: Role model; F: Facilitator; A: Assessor (Examiner); C: Curricular planner;*

*L: Learning resource developer S: Scientific principles to education; E: Ethics and attitudes;*

*D: Best evidence medicine education; T: Team work; P: Personal development.*

## Reviving The Art Of Medicine

**Alaka Deshpande**, *M D*
*Hon. Professor of Medicine*
*Grant Medical College &*
*Sir J J Gr. of Govt. Hospitals*
*JJ Hospital, Mumbai*

Medicine is as ancient as mankind. After initial self healing processes medicine was practiced as magic medicine by sorcerers or shamans. It was Hippocrates (460 BC—370 BC) who separated medicine from religion. He emphasized on history taking, careful observations, and use of eyes, ears and hands. He talked about power of judgement. It was nothing else but ART of medicine.

Every country had own system of medicine. One is astonished to learn the progress made by using clinical tools like observations, clinical evaluations, rational analysis of data, using judgement to arrive at a diagnosis. This was art of medicine!

After industrial revolution, started the era of present medicine or Modern Medicine. I may attribute it from discovery of penicillin.

In early 20th century a Doctor was competent in both science and art of medicine. There was a strong bond between the patient and the doctor. In India it continued till about 1980s when a lot of mechanization came in medicine. With these gadgets both the doctor and patient were talking to machines instead of a dialogue. The medicine became mechanical and depersonalized. The art of medicine was dying.

The super-specialities fragmented medicine and negated the holistic approach.

In this country the medical education has remained exam-oriented. The training was also revolving around passing the exam as it was the only goal. We produced medical graduates but failed to produce the doctors. Present exam. System hardly assesses clinical skills. 2-D echo can diagnose valvular lesion but does not indicate LVF or CHF. X-ray chest does not reveal bronchial asthma.

Mechanization is not only killing the art but has also broken the bond between the doctor n patient bringing in a lot of arrogance! It needs to be revived. The basic essence of medicine is humanism. The clinical skills have no substitute. We need medical teachers who are trained in teaching skills, who can inculcate the philosophy of medicine, who can create not only good DOCTORS but also medical scientists.

We need a specialized training in practice of evidence based medicine. We need to develop basic sciences and research aptitudes. Only the clinical skills will nurture the progress of medicine. It has become imperative to include certain new disciplines like immunology, genetics, human sciences, economics, communication skills etc. The revival of art of medicine is essential for the progress of medicine! The robotics will give precision but not the tender human care that patients need.

# Challenges of Linking Health Professions Education With Health In India

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India is a country with rich heritage and diversity. The current population is above 1200 million over 30 States and 5 Union territories. There are 325 languages and more than 6000 dialects. There is wide diversity between poor and rich; urban and rural population as well as those who have access to health care and those who have poor access. Many lack access to quality health services — in large part because of a huge shortage, imbalanced skill mix, and uneven geographical distribution of professionally qualified health workers such as doctors, nurses and midwives.

Health is a whole and is an integral part of total human and social development. Emerging global health challenges are epidemiological and demographic transitions, population demands, technological innovation and professional differentiation. In India, health challenges include communicable diseases (TB, dengue), non- communicable diseases (diabetes, hypertension, IHD), Nutritional issues (SAM, MAM), Environmental issues (safe water and sanitation), increasing population and deficient medical care. Other issues are mainly Inequity in health and distribution of health care infrastructure, manpower and finance as well as urban- rural divide.

On other hand, Indian medical education system, one of the largest in the world, produces many physicians who emigrate to the United States, the United Kingdom, and several other countries. Medical schools in India have rapidly proliferated in the past 25 years, tripling since 1980 for a current total of 398. The number of schools is determined by each state; the allocation of income-generating “payment seats” in private medical schools, coupled with the high emigration, may be motivating the increase in physician production. Curriculum reform has been advocated for over 30 years, with calls for greater relevance of the curriculum to the needs of the community. There is always concern about quality of graduate and his/her capability to serve as primary health care physicians and most aim at being specialist and super-specialist physicians.

Over time, public health and medical education have become increasingly separated. Medical students being trained in highly sophisticated tertiary medical care lose their instinct for public health. Various attempts have been made to change the situation. Setting up of departments of preventive and social medicine, introduction of community health programs and clinical epidemiology have not had much success in restoring public health leadership among future doctors. As the health care crisis is real, medical education should have a prominent role, or even better, a leading role in national health systems reform. Medical schools should try to increase quality care at lower cost. Clinical teachers must be aware of the national situation and apply clinical, economical skill. If the clinical teachers practice clinical decision analysis in their patient care, it will automatically create a new culture and new scientific clinical skill. Another and more plausible measure to cut cost and improve the quality of care is to develop a good community health system which is much more cost- effective than the large hospital-based system. Doctors at the community hospitals, contrary to the medical specialists in the big hospitals, have system perspectives and managerial skills.

They are more likely to understand policy dimensions, not just technical ones, and therefore can assume new health leadership roles. The medical students should be trained at the community hospitals. The medical schools should help in strengthening the community hospitals and the latter should serve as the base for medical students' training. Moreover, at community hospitals, medical students will be better prepared to assume new health leadership roles. They can practice more clinical skills and comprehensive care, have more opportunity to carry out research, can learn to develop managerial skill as well as to understand policy issues.

Linkages between the medical schools and the community hospitals will reorient the medical schools toward wider health perspectives, thus enabling them to take part in health systems research and policy issues. Indian medical education needs a paradigm shift in thinking from economic viability to improving community health. There is a great need to develop public health consciousness and leadership to steer the world toward this new goal. Medical educationist should meet this challenge. They should provide leadership in health care reform for a more cost-effective system.

## Need–Based Medical Education and Training in India

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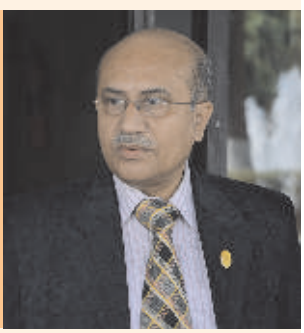

Medical Education was always given a top priority in India. The mythology, history and writings of the international scholars, date it before the fifth century BC. The texts of these medical trainings were called as Atharaveda and soon in post vedic period saw emergence of traditional Indian medical system of Ayurveda (Complete Knowledge for long life). The disciples were allowed to practice the art of medicine, only once the teacher was satisfied about their competence as well as soft skills of communication in the community.

The first western medicinal hospital was established by the Portugese in sixteenth Century and soon after the British occupation the present evidence based allopathic system was adapted in large scale. Soon Medical Colleges were established at Kolkata, Chennai, Mumbai, Lahore and Amritsar from 1835 to 1860, followed by similar colleges at Lucknow and Dhaka from 1912 to 1946. The syllabus and teaching pattern was imported from London and soon in 1933 medical council of India was established for the maintenance of uniform standards of medical education in India.

Today India has largest number of medical colleges (381); admitting and training 63,800 students per year and structured course runs for a period of 4 ½ years for graduation followed by a year of Internship.

**Problems & Prospects:**

In spite of the training methodology adapted by the medical teachers, they are often found to be deficient in the performance of clinical skills and problem solving. The problem is being compounded with poor communication skills as well as inability to explain. The public demands transparency, quality assurance and doubt the quality training in the performance of clinical responsibilities.

The syllabus/curriculum, still being followed traditionally in the medical colleges; stuffed with knowledge pertaining to basic sciences and clinical disciplines. A time has come to redefine the “must learn”; “useful to learn” and “nice to learn” in the existing curriculum.

The existing curriculum does not give much attention to medical ethics, managerial skills, soft skills of communication and leadership qualities, the cost- effective care in rural/ non-hospital settings.

The existing training is teacher oriented and needs to be student oriented and under supervision.

It is of common observation, that the period of internship is not being utilized to refine the clinical skills. They are being utilized more for the preparation of entrance examinations for various postgraduate courses.

The method of assessment needs more objectivity and transparency. The teachers are the corner-stone for any system of education. Teacher's aptitude, training perhaps the most vulnerable issue in existing system of medical training; their performance is taken for granted and the flair/true competence in teaching is never questioned.

With commercialization of medical profession, patient care is always considered inferior in medical colleges. There is need for dedicated service provision for the impressionable undergraduates.

**How to rectify and teach Need- Based medical education:**

a) Syllabus and teaching methodology: The medical education needs to be modified to a "collective effort" at learning between the students and teachers. Attempt should be made to cut short the overburdened syllabus to more clinically relevant applied subjects; rather than the didactic never ending, expanding talks on preclinical fundamental subjects; without compromising the quality. The teaching needs to modify the student oriented approach, where more time should be given to the student to think for themselves in place of teacher oriented monolog of didactic. Small group tutorials preferred clinical clerkship (on job training) must take more of the students' time. The bed side clinics should be modified.

b) What are out final objectives?: A trend which was prevalent in west, two decades back, is now being seen in India with craze of specialization, sub-specialization and sub-sub specialization. Today it has turned the trained medical graduates to referring PROs. Today the graduates are not confident in their approach towards the three basic specialties- Medicine/ Surgery & Midwifery and are not conducive to work in a village where more than 80% of patients are spread. He finds himself unfit to take responsibilities and work alone; though they may be good for working in large corporate hospitals under supervision of the "Boss". In our training and orientation, we need to learn from the Americans and western world and strengthen our training in the three major specialties, and only on definite pressing indication for intervention, a need for referral should arise.

c) Evaluation: There seems to be no fool-proof method of evaluation, however the semester wise examination being followed is far from satisfactory. In place of anxiety generating incomplete assessments through the semester ending examinations; long drawn continuous on the job evaluation through teacher and peer review can bring out strength/ weaknesses of the students better. The memory can still be tested with MCQs and a few essay type questions, as term ending examination but the continuous evaluation and novel creative questions, posing a real life problem as well as critical appraisal of the problem should preferred. The markings should be on various objective attributes in a close-marking method, bringing out the positive and negative of student abilities.

d) Doctor for the community: The conventional class room teaching fail to cover training in several other skills. The training needs to make the doctor handle the

occurrence of death with empathy, compassion and understanding. He should be trained to be more patient than the patient, having soft skills of communication. The training should include the pharmaco and investigative- economics; to minimize the investigations as well as spending on medicines. Doctor should be trained to tackle, local customs, taboos, superstitions and should be able to refute false dogmas. The medical education is an education for life and if encouraged in the right direction it will bring out a communities/ patient friendly doctor with capability to do good to most people, most of the time.

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## Innovations In Medical Education


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Education is a process, the main goal of which is to bring about desirable changes in the behaviour of the learner in form of acquisition of knowledge, proficiency in skills and development of attitudes.

The present system of Medical education of Modern (Allopathic) Medicine in India is implemented in Medical colleges. It is largely in classrooms, few laboratories and Hospital settings, students learn compartmentalized subjects, with rote memorization for examination purpose. There is teacher centric didactic approach and not much of integration between various disciplines. Students are not involved in active learning process and do not get holistic view of patient in community setting. There is lack of training in clinical aspects, communication skills, behavioural aspects, administrative, economic, managerial aspects which are required for professional development of a doctor.

Medical council of India (MCI) regulates standards of Medical education through regulations regarding medical curriculum, infrastructure, teaching faculty, students eligibility, and entrance examinations. Medical graduates are trained to become physicians of first contact who should be capable of looking after the promotive, preventive, curative and rehabilitative aspects of Medicine. MCI regulations were revised for undergraduate medical education in 1997. These emphasized small group teaching, community health care approach; problem based learning, horizontal and vertical integration. MCI, in vision 2015, has proposed new elements such as foundation course, early clinical exposure, electives, skill development.

Training of teaching faculty is an important area of concern. In 1974, NTTC centres were established for teachers' training with WHO support. FAIMER (Foundation for Advancement of International Medical Education and Research) is presently active in supporting faculty development in India. Despite of all these efforts, there is great need for innovative approaches to improve medical education in India.

The areas of actions would be in legislative reforms in medical education policy, curricular and infrastructural requirements by MCI, Training of teaching faculty, inputs from stakeholders such as faculty, professional institutions, pharma-medical equipment sector.

World federation for medical education (WFME) undertook an exercise to reorient medical education to produce doctors relevant to the needs of individuals and community, which culminated in "The Edinburgh Declaration" in 1988, in Scotland, UK. It has enlisted 12 principles for actions. These include widening of educational settings, national health needs as context of curricula, active learning methods training medical teachers and educators, coordination of medical education and health care system

In the present system there is information overload in all subjects, hence a new strategy "core with options" is adopted by some medical schools. Core curriculum comprises of basic knowledge, skills and attitude. Mastery of core curriculum is mandatory and ensures maintenance of standards, 'options' provides areas as per students' individual needs or interest, which provides for in depth study for high level competencies and critical thinking.

In addition to clinical competencies, students should develop general competencies, personal skills, like bioethics, communication skills interpersonal skills, problem solving ability, decision making ability, IT skills, management and organizational skills, team spirit, and doctor patient relationship.

COME (community orientation in medical education) encompasses health promotion, illness prevention, awareness of environmental and social factors in disease, targeting population needs. There are experiments of integrated approach with early clinical exposure. There is attempt of horizontal and vertical integration between departments with earlier introduction of clinical work and incorporation of basic sciences throughout undergraduate program.

New learning methods can be introduced e.g., cooperative learning, think-pair-share, team of faculty and students, case based and team based learning, self directed learning which include problem based learning, project based learning, task based learning. Problem based learning in educational strategy which adopts learner centric method, where students work on real life problems, where teachers act as facilitators.

The impact of information technology in phenomenal. New generation is computer – mobile - internet- Google-savvy. Appropriate inclusion of ICT in form of e-learning, social media interactive platform, U-Tube videos, MOOC (Massive open online course), Coursera should provide rich experience of learning, which provides recent development in distance education. There are online courses aimed at large scale interactive participation. Coursera is educational technology company offering many courses in different areas. It is collaborating with 114 Universities to offer 839 courses and has 10 million uses.

Research in medical education gives new insights in how students learn and acquire skills. Ideas in management should be applicable in improving management of medical education and health care delivery. Medical education is opening up for implementation of various innovative ideas from diverse fields, which will benefit health care delivery & overall well being of people across the globe.

# Medical Needs of Rural India

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I am sharing one case study with you all.

Patient of prolapse uterus was brought in bullock cart to our Janaki Hospital Andur early morning in 1990. Dr. Shubhangi took history and examined her. Sakhubai Bhosale, very poor woman, Paradhi by caste residing just one kilometer from our hospital on the roadside on national highway in small thatched hut with her husband. She went in labour in the night at about 10pm. Her husband called neighbour woman to conduct her delivery. There was no electricity connection in hut. In the lights of small kerosene lamp she delivered baby after four hours. Meantime kerosene in the lamp was exhausted. Her husband started burning wood for getting light. Placenta was yet to come out. Just by looking to the size of abdomen, Woman who was conducting delivery felt that there might be one more baby inside. She started scolding Sakhubai to bear pains. Sakhubai was totally exhausted. So the neighbour woman stood over the lower abdomen of Sakhubai and gave pressure over uterus. Ultimately placenta, uterus came out and patient went in shock and brought to hospital. We could survive her. It was painful experience for both of us.

Why it happened to Sakhubai? What are all factors affecting on her health such as poverty, illiteracy, affordability, accessibility, ignorance, and lack of doorstep health services, awareness? In this one example entire issues of rural health can be explained. We need to address rural health in comprehensive health care in medical education. We need socially oriented medicos with human sensitivity to address rural health issues. For creating social awareness in medicos we started movement HALO.

HALO stands for health and auto learning organization. It was started in 1980 at Govt. Medical College, Aurangabad, with the goal of creating socially conscious doctors. In the 1978's the Alma Ata Declaration was approved by the World Health Organization proclaiming health for all by 2000 AD. Medical officers at primary health centres were key persons to achieve the goal health for all in rural areas. If the medical officer is not socially motivated, it is very difficult to implement the scheme for bringing the health to the people. On this background, reorientation of the medical education scheme had been started by the government of India.

In present medical education system there is negligible space for social health. I made an appeal in those days before the medical students and asked few questions regarding their own births. When you were in the womb of your mother, do you know if your mother went to the ANC clinic? Did she receive a Tetanus Toxoid injection? And where was your birthplace? Was it where the animals stay or was it in a hospital? And how was your cord cut? Was it cut with a sterile knife or crushed with a stone? And still you did not get tetanus. Do you want the same kind of life for others or do you want to see change? And that is how the students got motivated and started the movement HALO.

## Research: Essential To Inform And Transform, Teaching and Clinical Environment In Medical Schools

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Research is an integral to almost every realm of our work in the medical institution whether it is teaching or protecting the health of people or delivering community services. It is directly connected with critical and independent thinking, creativity and more importantly to new discovery. It is the creative ability of the teacher to adopt a holistic approach and utilize his subject knowledge to design course content, develop effective performance tasks and design assessment tools. Creative thinking and experimentation of appropriate research methodologies can result into inventing new ways of learning, which may lead to improved pupil performance, increased motivation, commitment and better behaviour.

On the health front, the increased life expectancy at birth of our fellow humans, over the past century, can surely be attributed to advances in medical research. Improvement in awareness about disease, advances in diagnostic technologies, discovery of new drugs, improvements in drug delivery and surgical techniques have all resulted in an appreciable decrease in mortality and morbidity due to heart attack, stroke, diabetes, breast cancer and even mother-to-child transmission of HIV/AIDS. As our understanding of human biology at the molecular and genetic levels evolves further, one can envision health care that would predict our individual susceptibility to disease, and provide more useful and person-specific tools for preventing diseases.

The larger the university faculty dedicated to research, the better would be the research productivity shown by the university. It is essential to prioritize biomedical research in relation to disease burden and national needs. Public private partnership by bringing together government, academia and industry to build upon strict principles is essential. As far as possible, the outcomes of investment be measurable and address training, scientific consequences, technology creation and economic benefits.

Promoting critical thinking, curiosity for learning, academic medicine, research and innovation within the MGM Institute of Health Sciences is vital for the future of our students as well as patient care. The MGM trust recognizes this vital need and commits itself to accomplish this goal. The trust also appreciates that it requires long periods to move from discovery to competitive product delivery for which long-term, sustainable funding is essential.

## Scholarship and Research in Medical Education

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The traditional view of scholarship portrayed the scholar or academic in an “ivory tower” conducting original research in his field of interest, and its dissemination through publication. For many reasons including changes in healthcare provision, changes in public expectations, new educational thinking, the development of new technologies and globalisation, this narrow view of scholarship is outdated. Ernest Boyer (1990) in his seminal

work “Scholarship Reconsidered: Priorities of the Professoriate” extended and elaborated on the meaning of scholarship by defining four areas and explicitly linking scholarship and teaching:

- Scholarship of discovery: Generation of knowledge;
- Scholarship of integration: Making connections across disciplines and bringing new insights;
- Scholarship of application: Applying what is known to create new understanding;
- Scholarship of teaching: Transforming, extending and transmitting knowledge.

Other workers have built on Boyer's areas of scholarship (Glassick et al 1997; Hutchings and Shulman 1999). It is now widely recognised that a teacher may demonstrate scholarship not only by conducting original research but by applying and integrating the results of research done by others into his/her own teaching, by developing new courses, curricula and new assessment methods, based on evidence. Such application and transformation results in new knowledge being generated and publicly shared, contributing to the advancement of the field. However, in many institutions teaching is undervalued and takes its place behind patient care and clinical research. Teachers frequently receive little or no training in how to teach, or how to interpret research findings, or how to conduct research.

In this presentation, what is meant by scholarship of teaching will be examined in more detail, including how it is demonstrated and how it might be assessed and supported by an institution. Understanding research in medical education is a key part of scholarship. It is argued that every teacher ***can*** be a researcher – and even that every teacher ***should*** be a researcher. Building on previous work by Harden and Crosby (2000) in which the roles of the teacher were identified, it will be suggested that there is a need to consider an additional role – that of the teacher as a researcher.

Suggestions will be made as to how AMEE can help teachers who wish to develop their skills both as a teacher and as a researcher by attending medical education conferences, courses and workshops, by reading publications such as AMEE guides, journals including Medical Teacher, through the Best Evidence Medical Education Collaboration and by becoming part of the AMEE and MedEd World collaborative networks. The ultimate aim is to provide high quality, evidence-informed teaching which will result in the training of competent doctors to provide effective clinical care.

## Joy and Pain of Curriculum Planning and Development

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Following publication of document 'Tomorrow's Doctor' by GMC UK, there was wind of change in curriculum planning and its delivery. Faculty of Medicine, The University of Hong Kong decided to modify its basic science syllabus to integrated approach and PBL. It took nearly 12 months of deliberation with faculty members to agree upon such approach. After going through an initial phase of hostility new curriculum finally was inaugurated in August 1997. Evaluation of curriculum outcome was mainly based on 'internship performance' of new graduates with that of old ones.

There was perception that knowledge base of new curriculum graduates would be poor as

compared to old ones due to reduction in lectures and PBL approach. A MCQ test in basic sciences given to both cohorts at the beginning of internship did not show any difference in their scores. Workplace assessment of new curriculum graduates was much better in professionalism and approach to evidence based practice.

Joy of the planning and development was to make curriculum appropriate to student learning. Pain was to convince, change and implement traditional 'teacher centric' approach to integration and PBL.

## European Experience and Initiatives in Quality Assurance in Medical Education

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In an increasingly global and social accountable world the issue of Quality Assurance (QA) is of outmost importance being at the centre of education debate. In Europe the **European Network for Quality Assurance in Higher Education** is the responsible body for accreditation to national and regional agencies.

QA is not a new paradigm with a lot of effort being paid over the last two decades namely in the context of Bologna process where the 'Promotion of QA' was one of the initial 6 objectives of the Bologna Declaration signed in 1999 by 29 countries and now endorsed by 47 countries. **The European Standards and Guidelines for QA** (ESG) were submitted and accepted at the European Ministers of Education meeting in Bergen (2005).Presentation on other EU QA initiatives will be made namely the work achieved by the **EU Thematic Network MEDINE 2 Quality Task Force**.

QA is particularly relevant for medical education to protect patients. Without it, students and doctors' mobility would be impossible as how else could their degrees and periods of studies be recognised worldwide? This appears to be so evident that it's hard to understand why QA is perceived as so boring and unpopular, triggering so many negative reactions. The answer could be the frequent misinterpretations and wrong messages reducing QA to policing and inspecting people when ignoring its dynamic nature and its potential for development.

Therefore QA must take into account 3 dimensions:

- **QA to assure Basic Standards -** which implies accreditation (*according to a set of standards to be achieved*) and quality improvement (*doing things better to improve the process)* with QA as a dynamic process going far beyond the 'international recognition', 'recertification' and 'accreditation' of basic standards and minimum requisites.
- **QA to achieve Excellency -** which implies not only to assure basic standards and minimum requisites but to look at Excellency *as* proposed by the AMEE ASPIRE initiative to recognise and reward Excellency in medical schools.
- **QA as a Curriculum Mission -** which implies to have QA as a priority for under-graduate students from the very first day of their training so that they progressively acquire the capacity for '*self-assessment'* (to identify the gaps in their knowledge and skills) and for *life-long learning* (to identify what needs to be done to overcome those gaps).

QA is not just a **top down process** (*based on the institutional perspective with initiatives taken by governments, boards and medical schools*) but also a **bottom up process** (based on *the individual perspective with social accountable professionals responsible for QA in their daily practice).*

All three dimensions relate to the theme of this meeting **'Medical Education for Effective Curriculum Care'.** If medical schools believe in QA they must be considered as high priorities, crucial to achieve a powerful and exciting process.

Finally a word is needed to highlight that in higher education **– assuring basic standards and quality improvement, aspiring to Excellency and having a curriculum to equip students with self-assessment and life-long learning capacities-** are by no means only a European concern.

How medical schools **recognize, implement, evaluate and re-enforce the three dimensions** area a measure of what medical schools value in quality assurance.

## Ambulatory Care: Teaching Beyond The Hospital Wards

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Patients in hospital wards today are often acutely unwell or in the midst of active management. The duration of hospital stay is shorter than previously. Consequently hospital wards may be less appropriate for the learning needs of students than they were a generation ago.

The outpatient department (OPD), on the other hand, can provide a wider spectrum of common clinical problems but recently this has become a very busy area as healthcare professionals seek to provide high quality care in a strongly business style model. Clinical teaching in either venue is inevitably opportunistic and the experience is less likely to be as valuable for student learning than previously. The time has now come to identify alternative clinical teaching venues which can provide students with a more structured approach to learning with patients more representative of their learning needs.

Teaching in routine outpatient clinics can be improved by prior consideration of student needs, provision of dedicated teaching space, the recruitment of additional teaching staff and by the use of structured logbooks. Strategies are needed to help balance the learning needs of students with the healthcare needs of the large number of patients attending.

Additional places should now be sought in venues less often considered for student teaching. These may include screening clinics including pre- and post-natal clinics, child development clinics and pre- post-operative assessment units. Visits to other healthcare professionals such as therapists, dieticians and orthotists can be explored as well as attendance at clinics for multi-professional care such as diabetes and prosthetics. Further opportunities for learning in ambulatory care can be found in clinical investigation units for endoscopy or cardiology, the radiology department and the day surgery unit.

Innovative ambulatory care teaching venues may also be developed. Examples include a dedicated teaching clinic where “selected” new patients are seen in a student-centred environment or in a simulated outpatient clinic with “simulated” or “bank” patients.

The **Ambulatory Care Teaching Centre** in Dundee provides dedicated space and uses a "bank" of non-acute, system-sensitive patients and a variety of clinical tutors. Students apply clinical skills learned in simulation centres to interact with these patients with stable clinical signs.

The **Integrated Ambulatory Medicine Programme** in Dunedin (NZ) uses a simulated outpatient clinic adjacent to the clinical skills centre. Patients are invited from the outpatient department to augment students' clinical skills training and ward-based attachments.

In these un-crowded environments teaching staff valued the uninterrupted teaching time provided and the uniform student exposure to structured learning experiences.

Students valued the learner–friendly environment, the ability to transfer the clinical and diagnostic skills acquired to other clinical settings, and the benefit of focussed teaching with real patients. Patients appreciated the opportunity to contribute to the training of future doctors.

Strategies, tools and aids available to facilitate student learning in each of these ambulatory care teaching venues include, outcome-based learning, integrated learning, study guides, structured logbooks, task-based logbook and patient-based scripts.

## Accelerating Nursing Education: Preparing Professional Nurses For Tomorrow

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Nursing education was established in 1860 by Miss Florence Nightingale who devised a complete pattern of professional nursing education for the UK and for many other countries. The vocational training included a theory and clinical component during which students would be provided with minimum wage and in return, they were expected to accord service needs of hospital. The educational needs of the student nurse took second place to the service needs of the hospital. The major learning environment was actually the clinical setting and articulation between theory and clinical component on the whole was incidental. Learning by doing and learning by trial and error was emphasized more and the theory component was considered less important.

Nursing education program began to transit out of the hospital based apprentice program to academic settings over 50 years ago, that was the time when nurses were treated as functionaries who just carried out physicians' orders. With the demise of Nightingale model of general nurse training, a new era of nursing education began in which nurses gained access to education in their own discipline at all levels. The Nightingale apprenticeship model provided some basic principles for nurse education, which are valuable to present system of nursing education.

Nursing education has traveled the road to development to such an extent that it is available at various levels from undergraduate to doctoral programmes at college and university campuses. The nursing programmes recognized by Indian Nursing Council are undergraduate (B.Sc, Post Basic B.Sc Nursing), Post graduate (M.Sc Nursing, M. Phil) and PhD in Nursing which are accepted globally. Apart from these other recognized programmes are ANM, GNM and various speciality courses like Cardio Thoracic, Critical Care, Operation Room, Psychiatry, Emergency and Disaster, Neuro Science, Oncology, Neonatal, Orthopaedic and rehabilitation nursing.

The advancement in science and medical technology brought a revolutionary change in hospital technologies which demand highly skilled nurses with in depth knowledge, extended beyond mere technical competence. The complexity of care in multiple settings, advancing role of nurses as independent care providers and recognition of role of scientific evidence have changed the way nurses are viewed by the public. This change gave rise to development of new approaches by nursing profession in an attempt to provide comprehensive care to patient rather than simply meeting the few basic needs.

In current scenario the nursing profession is being transformed to meet the needs of new world and will be a major player in revolution. Nursing practice face a number of challenges in the 21st century including increasing number of acutely ill patients, escalating healthcare costs, shortage of nurses and a need to stay current with rapid advances in medical knowledge and technology. The demand for nurses with still higher levels of education and more advanced skills is escalating as they shoulder greater responsibilities and think analytically to assert their opinions persuasively. This will require smart, committed and decisive people to enter in the field of nursing.

The complexity of health care delivery system and changing role of nurses has contributed immensely to the need for change in nursing education. The discipline of nursing demands that the nursing students are fully engaged in learning and role formation, necessary to become professional nurses. Classroom and clinical education is of paramount importance for this transformation. The curriculum focuses on multi skill development in the students which include comprehensive clinical skill, teaching skill, research skill, computer skill etc. It also includes administrative and management skills such as leadership, supervision, collaboration, coordination, communication etc.

Nursing education has pivotal role in instilling positive attitudes toward learning. It prepares the student nurses to be able of "doing" as well as "knowing" the clinical principles in practice. The students enter into trust-based relationships with patients, peers, faculty and clinical staff for the purpose of providing care to vulnerable persons. Even as learners the students must demonstrate values of academic honesty, accountability, compassion, commitment, and adherence to legal, ethical, and professional standards both in the classroom and the clinical/ field settings.

Unlike classroom learning in which student activities are structured, students in clinicals frequently find themselves involved in unplanned activities with patients and other health care providers. They often find difficulty differentiating their roles of learner and worker. Inevitably, student nurses are thrust into the clinical area as short-term members of the patient care team. Clinical experiences require difficult adjustments for students as they move from an environment that encourages thinking to an environment that encourages doing. Lack of experience, unfamiliar clinical areas, difficult patients, fear of making mistakes and being evaluated by faculty members are the most common anxiety-producing situations identified by the students in the initial period of clinical experience. Integration of both theory and practice by competent and well organized supervisors enables them to gain confidence and competence to take care of the patients efficiently. Clinical placement provides students with optimal opportunities to observe the nurses in the hospital as role models and reflect on what is seen, heard, sensed, and done.

The youth of today is full of energy, creativity, and courage. While studying students find nursing education as strict, disciplined and less glamorous stream. The aspiring young nursing students need inspiration and motivation to find direction and satisfaction in the noble profession of nursing chosen by them as their career. A conscious effort with less bureaucratic and more supportive environment towards student empowerment provides retention of students and eventual job satisfaction. Teacher plays a pivotal role in the lives of students to inculcate good values and develop interest in nursing. The teacher's role is to transform student in to caring, committed and creative practitioners. As rightly said by spiritual leader Dalai Lama, *"When educating the minds of our youth, we must not forget to educate their heart".*

Today's nurses are not only caring for sick; but also changing very notion of modern medicine and health care delivery system. Nurses are giving educative talks, publishing scientific research, handling various mobile devices, electronic medical records, and actively addressing health care policy. Nursing Education strives hard to prepare such professional nurses, capable to be an effective member of the health care team and navigating clinical systems.

## How Can We Change Healthcare Education To Meet Healthcare Needs of India

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Healthcare model in India is largely influenced by medical discipline. Such predominance is reflected in both sectors i.e. health care delivery and education. Although all health care disciplines strive towards a common goal which is patient-centric, education and training in each health discipline cannot be imparted in exactly same manner owing to specific characteristics of each profession. Therefore deliberations on 'Health care education' in India should not be restricted to 'Medical education' alone.

Fundamental philosophies developed for medical education in India need to be modified exclusively for each health discipline within the broad ethical framework. Constantly amended regulations of Medical council of India for graduate and postgraduate education provide a firm template for further work in this area.

Physiotherapy is largely a 'care' based health discipline (versus 'cure' based medical discipline) with huge potential to improve health-related quality of life. Practice settings vary across a broad spectrum from health promotion, prevention, treatment/intervention, habilitation or rehabilitation.Therefore a strong need of the hour is to bring uniformity in Physiotherapy education throughout India across these settings in context with our current health needs.

Physiotherapy has a huge potential to manage the growing burden of non-communicable diseases in India which should be emphasized proportionately in its education. Moreover, training in Physiotherapy needs to strongly shift the paradigm from traditional tertiary care practice to primary care to strengthen its role in health promotion and prevention.

Importance of including research training in the education of all health disciplines education including Physiotherapy cannot be reiterated enough to improve quality of evidence-based health care education; to generate evidence which is relevant to Indian health care needs (as ethnic, social and economic variations from the western world can make it difficult to apply readily available evidence to health problems pertaining to India).

At MGM Institute of Health Sciences, we have introduced a proactive change by commencing research training in year one of Physiotherapy graduate course. Additionally, increased impetus on research training at post-graduate level of Physiotherapy education strengthens the research portfolio of emerging post-graduates.

We also believe that if we initiate attempts towards building inter-disciplinary communication among health care disciplines at graduate level and re-iterate its relevance at post-graduate level, our health care professionals will emerge with a patient-centric, multi-disciplinary health care approach which will be effective in improving treatment outcome.

Last but not the least, health care curriculum in India should motivate our students to think along health care device innovation and participate in our Prime Minister Dr.Modi's vision of 'Make in India' to make India self-reliant in health care.

## Medical Education

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Medical Education in India has reached newer heights, but we do have a long way to go. We need to have education based more on clinical skills and problem solving than only theoretical knowledge. A student passing out should be able to integrate the knowledge to diagnose and treat a patient.

There needs to be a change in the curriculum to have good clinician. In most of the colleges the subjects are taught in isolation and it is very difficult for the student to integrate the basic science with clinical situation and diagnosis conditions, he is often confused and starts depending on other means to arrive at a diagnosis and treat patient. A lot is being left to technology for diagnosing conditions it should always be an adjunct to the diagnosis and not the direct means to diagnosis.

During the course of learning emphasis must be laid on communication skills and ethics. These are important skills to be developed in a doctor to treat patients with a human touch.

The requirement for managing patients in a rural set up is necessary and application of knowledge to treat them must be added to the course not just posting them in rural environment.

There needs to be a change in the examination system also making it a more objective structured clinical examinations based on application and skill rather than just knowledge dominated. The students should be judged on standard knowledge acquired during the course. They need to be assessed throughout their course and graded for the achievement of their desired knowledge.

The student needs to have an aptitude to come in to the profession of serving the sick not for only making money, it needs dedication, honestly and hard work, to be in the medical profession.

Briefly, we need good teachers. Doctors become teachers, some do well as teachers, others do well as doctors but very few make both good teachers and doctors. Our teachers need to be trained and should update their knowledge to keep abreast with the latest in the medical field to be able to give the best to their students.

We do want a change and this is necessary, but who will bring about the change is a big question. Forum like this should submit their report and start the process of the change we expect to see in the medical profession.

## Medical Education System - Experience & Improvement

**Rohan Yewale**
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They say that 'A doctor “practices medicine” till the end of his life'! Our medical education is an extremely diverse system having direct impact on the health care system in our country. Different sections of our society have different perceptions about this system.

To begin with, the very basic step towards the beginning of this journey is a common entrance test (CET) which perhaps needs to be improved to bring in more standardization by overcoming some of the challenges posed by varied syllabus across different states. CET's are tough and fiercely competitive as well. It is only after conquering the CET that one can qualify to resume the education journey in the world of medicine and healing in a new environment. The first year MBBS course covers the basics that form the foundation of one's entire career. However it is quite challenging too, given the fact that aside the studies, the student also has to adjust to the new environment which can sometimes take a couple of months too, can be quite demanding on the fresher. Maybe an area of improvement could be to readjust three months from the 18 months period in the second year of MBBS, into the first year itself – thus giving a breather of three additional precious months in the first year. This might help build doctors with a more solid first year foundation than scurry through it

An area of improvement could be in the form of stressing more on clinical orientation by complementing conventional descriptive text with case oriented discussions and exercise at the end of each topic or system. The applied importance of any topic should be stressed upon. For example, the structure of Haemoglobin in biochemistry could be better explained in terms of its relevance and the various haemoglobinopathies. The hunger to know the pathogenesis behind every disease can thus be instilled in the minds of a young student. Interactive and participative learning can build the overall personality of the student.

Often students get stressful during MBBS examinations. Conducting periodic tests/tutorials might help students prepare better manner and remove fear. During internship, a student could be made aware of the various legal aspects in the profession like the importance of documentation. There is perhaps also a need to increase the overall post graduate seats in our country, given the huge requirements of doctors in our country. The system should work upon inculcating communication skills and counselling of students during internship.

## Critical analysis of Medical Education in India.. A students perspective.

**Sameer Dawoodi**
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India has the largest number of medical colleges in the world (more than 350), and we get a significant number of medical tourists, a reflection of the high-level of medical expertise that we possess. However, a majority of our citizens have limited access to quality

healthcare — less than half of our children are fully immunised. Similarly, the minimum of three checkups during pregnancy remains unavailable for half of our pregnant women. To understand this paradox, we have to go back to the clinical settings where doctors avail training.

Challenges at the macro levels requiring improvements cut across the entire process from selection to certification. Medical schools should perhaps adopt innovative teaching strategies for enhancing students learning, improve the methods used to assess students' performances, and focus on the professional development of faculty as teachers and educators along with students. Inclusion of adequate clinical skills in the curriculum too will go a long way in making better doctors.

Although, the recruitment of fine practitioners in private institutions ensures quality healthcare is delivered at the tertiary level, it needs to translate down to the poor and needy too. Our Noble Laureate, Mr. Kailash Satyarthi's recent statement about India having a million problems but a billion solutions is quite inspiring and in a way applicable to us as well. We must Identify problems and challenges relating to examination, curriculum, teaching, infrastructure, administration and access. Considerable progress needs to be made in medical education hands-on learning. A USMLE based, concept oriented examination needed.

Schools need to incorporate problem-based team learning, group discussions, and learning through simulation. The curriculum needs to include inter-professional and community-based education. American Medical schools are integrating Complementary and Alternative Medicine (CAM) into existing course work. The entire person healing initiative includes a mind-body class to help students use techniques to manage their own health and improve self-care.

The 'Real' rural India is still largely not catered to thus accounting for gross primary level healthcare issues in our country. This can change if we radically improve the quantity and quality of graduating doctors. The demand - supply deficit must reverse, whilst also ensuring that the quality of medical education improved.

## Changing Face of Healthcare and Medical Education in The Modern India

**Sourabh Kumar**
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In considering the subject which has been assigned to me, I feel that proper treatment necessitates wide definition to include remarks on certain problems in medical education. It would be a long shot if I say that the Medical Education and the health care system is functionally at an optimum level where doctors are highly committed to the profession.

Medical profession is considered to be the noblest of all professions because it deals directly with the lives of patients. The doctors earn high respect from the society because of the noble work they are associated with. Considering the sensitive nature of the profession, where even minor mistakes can have serious repercussions, it is highly imperative that the standard of medical education should be strictly regulated and regularly updated.

In a developing nation such as India, medical services play a very important role in the well-being of their citizens and indirectly play a very important part in the economic and overall development of the nation. The development of good medical services in the country is almost entirely dependent upon the medical education imparted in the various medical colleges of the country. Also, for the effective implementation of the various National Health Programs started by the Government of India, and research work in the field of medicine, medical colleges and teaching hospitals play a very vital role.

Currently there are 398 medical colleges in the country (including both government sector and private sector medical colleges) for teaching modern system of medicine with annual intake of over 52,000 medical students who add to the existing medical manpower. Despite this, India continues to face a poor doctor to patient ratio with only one doctor available for 1588 people in the country compared to 390 in USA and the ideal doctor to patient ratio being targeted as 1:500. There are only 733,617 registered allopathic doctors in the country, with most of them concentrated in the urban areas making condition worse in the rural areas. To add to it the entire process of medical education right from the entrance examinations, admissions, academic and clinical education and everything that goes around making a good doctor are severely stressed and need to be continually evolving and improving in keeping with the times and changes in our way of life.

Another aspect is Research which is an indispensable aspect to ensure and if at all possible to improve the quality and come up with innovative ways to cater to the ever increasing population of the country. It is a long and tiring process and the results are often disappointing and no other reason except a sheer fondness and a profound commitment to the cause that can keep the researcher motivated enough to keep going. One way to promote research at all levels is not only to give not only recognition but also some advantages to the people doing research.

Like other professions Medicine is not learnt in books but is learnt bedside by the patient and for which a constant supply of patients a must. Practice makes a man perfect and this aspect holds true especially to medicine. We must make sure that we do not have disparities of some of India lacking basic of health faculties while in other areas there are innumerable elaborate hospitals but with a very low patient turnover.

Now coming on to the personnel aspect of a doctor's life which is quite influenced by the System the challenges of putting in long tiring hours day after day and the stress emanating from this requires vents. And it is here that innovation is necessary, so that the state of exhaustion is carefully given avenues to calm and heal with adequate rest. Policymakers, physicians and those who teach physicians must open their eyes to the opportunities, realities, and responsibilities. We perhaps need a holistic, radical approach to restructure the entire medical education system in India. And where does that being. Well, it begins with us, by “being the change” rather than being a store of complaints looking at solutions from the outside world.

***Variability is the law of life and as on two faces are the same, so no two bodies are alike, and no two individuals react alike and behave alike under the abnormal conditions which we know as disease. - William Osler***

## Building the Doctors of Tomorrow

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The life so short, the craft so long to learn - Hippocrates.
As this title quote from Hippocrates implies, medicine is a complex subject and one that is constantly evolving with not only our increased understanding of human anatomy, but also as the pathogens transform themselves to survive in a modern world. Over the past few years, we have improved our methods of education moving from an apprenticeship based model where student knowledge was restricted to that of his teacher and self-observations, to evidence driven paradigm with access to a broad information library of congregated through decades of research. However, we have a long way to go, first to match the educational best practices, and subsequently surpass them.

First and foremost our medical education should focus on building better doctors. Our students need to go beyond just the surface diagnosis and focus on resolving the underlying root causes of ailments. They need to not only resolve the immediate issues, but also be able to advice patients on living healthier and better lifestyles. This requires developing strong fundamentals using theoretical and significant amount of practical experience. Our schools must establish processes and acquire technologies which will help our students' first assist and then lead the treatment of maladies under experienced supervision.

We also need to increase our emphasis on driving continuous growth through research and development. Today, we drain our resources in managing manual and bureaucratic processes, physical paperwork and following outdated guidelines. We need spend less effort non-value added activities by establishing simplified processes and using information technology to manage them. Our focus must now shift towards research. We are a nation of over 1.25 Billion people, consisting of more than 4500 anthropologically defined populations (castes, tribes and religious groups). These variation provide our doctors with a unique research opportunity unavailable in most other geographies. We need to support and lead in the development of the body of medical knowledge both in collaboration and competition with the world's leading institutes. Our research goals can be further augmented by providing a platform for our existing doctors and students to collaborate with our capable alumni.

This is an exciting time in the medical profession. Global technology shifts are disrupting traditional methods of doctor-patient interaction. Doctors are able to now analyze, diagnose and treat medical ailments from a location thousands of miles away from patients. Pathogens are transforming to sustain themselves in a new world with perhaps a warmer world. As we develop cure for prevalent ailments new disorders are seeding themselves in the vast community. These disruptions will change our traditional way of operation and our direction of research. We need plan for these changes, and help prepare not only our students but also our alumni to weather them. We need more collaboration and accelerated knowledge sharing across staff-student-alumni through research, workshops, guest lectures and remote online discussions and as an education and research institute, we must to lead them.

## Biggest Challenge faced by Medical Students

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Medical education has evolved as the years have progressed. Subjects that were considered to be minor subjects in medicine 30 years ago have turned into major subjects today. As the content of medicine increase in size it was natural that the duration of undergraduate course had to be increased from 4 years to 4.5 years. Thus it's safe to say that the biggest challenge facing students in medicine today is time and its management. Currently, 4.5 years of undergraduate medical training is divided as - first year of one year duration, second year of 1.5 years duration and third year of 2 years duration (Part I & II).

In my humble opinion this system should be changed so that the first year is of 1.5 years in duration and second year is of 1 year during. First year consists of three main pre-clinical subjects - Anatomy, Physiology and Biochemistry. Anatomy is further divided into General Anatomy, Gross Anatomy, Neuroanatomy, Histology, Embryology and Genetics. Second year consists of four subjects Pathology, Microbiology, Pharmacology and Forensic Medicine. These subjects are significantly smaller in volume and content as compared to first year subjects and hence can be taught in a shorter duration of time. First year is the foundation year in Medicine. It forms the basis of the future subjects we learn. In India, due to the constant change in entrance examinations and admission procedures, first year effectively gets shortened to 10 months or less. The new academic year begins in July-August and final exams are usually in May of the following year. Thus, due to the large volume of syllabus to cover and shortened time-frame, teaching is rushed. This causes immense stress, even to the most regular and dedicated students. From a student's perspective, it takes a few months to get accustomed to medical college and before you know it the year is over and final exams are upon you. Students scramble to cover the syllabus and are forced to use guides and review books instead of standard text books. This leads to exam-oriented study and superficial knowledge. If we allot more time to the first year, we are giving students an opportunity to have enough time understand and assimilate the entire syllabus. It will allow them to study the topics in-depth and give them enough time to grasp concepts for application. This will benefit students in undergraduate learning as well as in future practice.

## Medical Education System

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This profession is termed as the NOBLEST profession. There was a time when Doctor was termed as GOD. However, this view is changing rapidly. Doctors are now looked upon as service providers of medicine and healing, in the league of any other profession as such.

A major role in the shift of this belief can be attributed to the rapid changes happening all around us that our education system has had a tough time keeping pace with and in the

process losing some of its age old shine and lustre.

**What Are Some Limitations And Challenges Facing Our System:**

1. More pressure on literature than clinical skills
2. Non inclusion of behavioural studies in curriculum
3. Selection criteria in entrance examinations that needs improvement
4. Inadequacies within the teaching arena

There is no doubt that Indian students are well versed with their literature, but what they come short in is their clinical skills. As per MCI Guidelines MBBS curriculum has:

- 1 year of basic sciences
- 1 and half year of para-clinical sciences
- 2 years of clinical sciences
- I year of rotator internship

Out of 5 years only 1 year has real time clinical exposure which should be increased in my view but not on the expense of increasing course time line but by integrating various subjects together.

For instance if we integrate subjects like physiology with medicine or anatomy with surgery it will not only shorten the course timeline but also will give a more holistic approach toward the subject. Nowadays we see even whatever time students have in internship they spend it on studying rather than getting accustomed to hospitals.

Our entrance system is objective type which only tests a student's memory recall power this should not be the sole criteria for someone's selection into a particular course, inclusion of clinical skills in entrance examination will help not only to improve selection process but also it will encourage one to go in hospitals and get clinical exposure.

In modern world we see even good doctors get mobbed by society and they face a constant threat this is due to the fact that we don't teach behaviour and leadership attributes in our colleges which a doctor should posses, we should have a scope for sympathy and empathy in our system. Teaching should be comprehensive and should generate interest of students in the subject. I will say teaching should be an art and should be learnt properly before you start making others learn from you.

These improvements are surely not enough and it requires a lot of dedication and effort to change our medical education and bring it the glory days it deserves. I am sure if we starting implementing some of them starting with ourselves, it will be right approach to a tough road.

***He who studies medicine without books sails an uncharted sea, but he who studies medicine without patients does not go to sea at all. William Osler***

# Centeranian's Living to 100 Secret!

**Dr. Sandeep Rai**
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Our life expectancy continues to inch upward, a happy trend, although some wonder if we could still be doing better. Infectious disease and acute illnesses, once the leading causes of death, have given way to chronic ailments and degenerative illnesses like heart disease and Alzheimer's disease that people often live with for decades. Physically and mentally, the health of today's 70-year-old now equals that of a 60-year old in the 1970s. While the older adults have at least one chronic health problem, however disability has slowly but significantly declined.

Simple lifestyle choices have an enormous impact on longevity and quality of life. Life expectancy measured from birth is more than five years shorter for a black person than a white one, although the gap narrows to less than two years for those who survive to age 65.If you live to celebrate certain milestones of age, your life expectancy stretches. In other words, the longer you live, the longer you're likely to live. Because many people who have chronic

## 7 Steps To A Longer Healthier Life

How long are you likely to live? Will your later years be blessed by healthy aging or marred by a host of illnesses? Certainly, the answers to those questions rest partly with the genes you've inherited. A study of Swedish twins ages 80 and older attributed about half of the changes in mental function to genes. Other twin studies suggest genes are responsible for up to 35% of the physiological changes of age and that longevity itself is 25% to 35% inheritable. But don't start viewing your genetic inheritance with rue or glee. Genetics is only part of the equation. Simple math tells you there's plenty of room left for the role that other factors— such as your diet, exercise, incorporation of mind body techniques like Meditation and Yoga in your life style and regular exams for illnesses, play in how you age. We suggest the following seven tips that promote longevity and wellness through the years:

**1. Stay Current -** One key to longevity seems to be keeping up with the times. Though it goes against the stereotype that the elderly are unable or unwilling to learn anything new, an increasing number of centenarians are embracing new media and technologies. Twelve percent surveyed have used an iPod--three times the number reported three years ago. Eleven percent have watched a video on YouTube and, compared with just one percent two years ago, eight percent have sent a text message. Curiosity and creativity are among the qualities shared by healthy elders who recommend always trying to learn something new.

**2. Stay Connected -** Daily communication with loved ones may also contribute to living longer. A large percentage of those polled - 82 percent-talk to a friend or family member every day, and nearly 80 percent feel that an active social life is more important to maintain as you age than an active sex life. Some studies have shown that those with satisfying social relationships (including a stable marriage) experience less mental decline due to aging and remain more mentally alert than their more isolated peers.

**3. Eat, Sleep and Exercise Well -** Eating right, sleeping enough, and exercising regularly are at the top of the to-do list for people who have made it to 100. Three-quarters of respondents make it a point to eat nutritious, balanced meals and get eight hours of sleep every night. Nearly half walk or hike once a week for health benefits and more than 30 percent get weekly exercise from activities like gardening. Focusing on these areas can help you maintain a healthy weight over your lifetime and feel better mentally as well as physically. The "New England Centenarian Study," conducted by Boston University's School of Medicine, found that centenarians are almost always lean, especially the men .Whether you're concerned about weight gain, sex drive or chronic diseases, the key to healthy aging is a healthy lifestyle. Eating a variety of healthy foods, practicing portion control and including physical activity in your daily routine can go a long way toward promoting healthy aging. Better yet, it's never too late to make healthier lifestyle choices.

ailments or engage in behaviours that raise the risk of accidents or illness get cut from the herd much earlier, the oldest old are often remarkably healthy.

What are the secrets to a long life and healthy aging? Who better to ask than some of the centenarians, who have topped the age of 100? Indian data is scarce on this issue, but according to the U.S. Census Bureau, about 84,000 centenarians currently live in the United States and by 2040, and this fast-growing segment of the American population is expected to reach 580,000--a seven-fold increase. How can we boost our chances of one day joining their ranks? Some clues appear in a recent national poll of centenarians, which asked 100 people turning 100 or older about their lifestyle choices and advice. The survey from United Healthcare, called "Evercare 100@100," reveals a number of commonalties that many in this age group share.

What is essential for healthy aging? Perhaps a stress free, optimistic, healthy and satisfied lifestyle. One should fully engage with life. People who are curious, open, and eager to make connections with the world most enjoy the last decades of their lives. Even in the face of disabilities, these people seem to thrive and find joy despite their challenges. Depressed, anxious, or grumpy people live less and also take far less pleasure in living their lives. Mind Body techniques like Meditation & Yoga should be incorporated in one's life style as they go a long way in achieving a stress free long life. No magic pill, no secret potion can make us long-lived and healthy. But if you bring to your life appreciation and respect, and embrace aging with good humour, grace, vigour, and flexibility, you will—at the very least— be happy to grow old.

**4. Stick to Routines -** Many of those who live the longest have a fondness for daily and weekly routines. In addition to healthy habits formed by connecting with others and staying fit, nearly 75 percent make it a point to laugh or giggle every day. More than 60 percent meditate or practice some other "spiritual" activity each day to help keep them centred.

**5. Volunteer -** Giving back is another avenue to longer-term health and happiness. Close to 90 percent of centenarians believe that volunteering helps improve emotional health and can make people happier. Seventeen percent have volunteered in the past six months.

**6. Optimism -** It's obvious that healthy people live longer than sick people. If optimism actually improves health, it should also boost longevity — and according to two studies from the U.S. and two from the Netherlands, it does. The first American study showed that optimism was linked to longevity and for every 10-point increase in pessimism on the optimism–pessimism test, the mortality rate rose 19%. A more recent U.S. study showed that the most pessimistic individuals had a 42% higher rate of death than the most optimistic. The two Dutch studies have also reported similar results. Personality is complex, and doctors don't know if optimism is hard-wired into an individual or if a sunny disposition can be nurtured in some way.

**7. Live a Stress Free & Satisfied Life -** It's often said that the secret to happiness is being happy in what you have, and not in what you don't. Centenarians seem to prove this point, with the oldest Americans harbouring few regrets and expressing contentment of the lives they've led. In an impressive show of strong adjustment and coping skills, nearly 80 percent said there was nothing they would have done less of; over 60 percent said there was nothing they would have done more of in their lives. In the end, what more could you want from a long life than that?

There may be some truth behind the notion that stress can turn your hair gray. People experiencing chronic or long-term stress, as well as recurring depression, can actually age faster, according to a new study. People who are severely stressed have shorter telomeres — the outermost part of the chromosome that gets shorter as we grow older. While short-term stress—such as the kind of heart-racing, sweaty palm anxiety you may experience before giving a big speech—has been linked to health benefits such as boosting immunity, long-term stress has been pegged as a culprit in everything from weight gain to heart attack to hair loss. A new study from San Francisco is the first to show that the impact of life's stressors accumulate over time and accelerate cellular ageing. Hence adopting strategies which helps one to cope with day to day stresses will go a long way in achieving healthy aging and attaining longevity. One such mind body technique is **SAHAJA YOGA ,** which is a unique form of Meditation in which an inner transformation takes place by which one becomes energized and de- stressed. This taps into a universal physical phenomenon that is not related to race, age or culture. Scientific studies from around World and especially from MGM Institute of Health Sciences, Navi Mumbai, have proved beyond doubt that Sahaja Yoga Meditation (SYM) acts by reducing sympathetic activity (Stress) and promoting parasympathetic activity (Relaxation).

# Reaching Out To Special Children

**Dr. Shrirang Sevekar**
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**MGM Dental College & Hospital.**

Data from the National Sample Survey Organisation 2003 has estimated that about 0.3 million children in the age group of birth to 6 years have hearing impairment in India. In addition to this, over 21,000 children are born deaf every year, which implies that one child per every 1,000 live births is hearing-impaired. In India, hearing impairment accounts for 1,261,722, or 5.76% of the total number of disabled. Two main types of deafness may be described, conductive and sensory neural. The degree of hearing loss resulting from these impairments may range from slight (average loss not exceeding 40 decibels) to profound (average loss in excess of 95 decibels) and may be unilateral or bilateral. Four degrees of hearing loss have been suggested. They are: mild (26-40 db), moderate (41-70 db), severe (71-90 db) and profound (>90 db). Deaf children constitute one of the major groups of disabled children. People with disabilities represent a substantial section of the community.

## Dental Screening Camp

The Department of Preventive & Pediatric Dentistry, Mahatma Gandhi Mission's Dental College and Hospital, Kamothe celebrated Children's Day on 14th November 2014 in a very unique way. The Department organized a comprehensive Dental screening camp at Helen Keller Institute for Deaf and Deaf Blind, Ghansoli, Navi Mumbai. The exercise to reach out at the institute was to assess the oral healthcare needs of the special children. It was intended to increase the awareness of importance of oral health. Essentially, the department was keen to understand the viability and challenges to adopt the institute for all the future dental healthcare needs of special children. This is the beginning of long term association between MGM Dental College and Helen Keller Institute for the noble goal of maintenance of good oral hygiene of visually and hearing impaired children.


***Children's Day Celebration: Dental Screening Camp***

Oral health has strong biological, psychological and social consequences as it affects aesthetics, communication, and quality of life. Good oral health is important for proper mastication, digestion, appearance, speech and general health. In fact, the oral health is directly linked to happiness and good general health. Normal facial morphology and its components are necessary for harmony and the aesthetics of the craniofacial complex.

Oral and dental anomalies are a frequent problem for special needs patients, particularly those who have hearing impairment and/or are blind. The oral health of disabled children may be neglected because of a focus on their disabling condition, other major disease(s) or limited access to oral health care. It has been reported that “dental treatment is the greatest unattended health need of the disabled”. Some of the reasons include inability to access oral care facilities, practical difficulties during

It is estimated, that worldwide there are about 500 million people with disabilities. Historically, they have been ignored, vilified or even hidden away in institutions. Providing health care services for children with special care needs will continue to be a challenge in the 21st century.

Following approach will be adopted by us as a long term policy to improve the attitude and awareness amongst the carers in this institute:

1. Primary prevention approaches will be taught to the staff of institutions, to the caregivers and, when appropriate, to the individual children and young adults.

2. Pit and fissure sealants will be applied to the permanent molars and premolars soon after eruption. Parents will be advised about the need for regular monitoring and maintenance of fissure sealants.

3. The children and young adults will be given suitable toothbrushes and fluoride toothpaste and shown how to brush their teeth and gingival crevices.

4. Fluoride varnish will be applied to any areas of enamel decalcification for children with poor tolerance of dental procedures.

6. MGM Dental college will include oral health as part of training or socialization programmes for special children.

7. In-service training in the promotion of good oral health for children with disabilities and in how to access oral care will be provided for teachers, institutional staff and parents.

8. Children who require extensive dental care needs will be treated in Department either chair side or under general anaesthesia, case basis.

treatment sessions, and the socio-economic status of the disabled person, underestimation of treatment needs, communication problems and poor patient cooperation. The magnitude and severity of oral health problems in disabled children are worse than in the general population with more untreated dental diseases.

According to the Indian National Sample Survey of 2003, about 1.8% were physically, visually or hearing-impaired (Around 21,906,769 disabled citizens!!!). Visual impairment was the most frequently occurring disability, followed by speech, hearing, movement and mental disabilities. In poor societies, many disabled people find it difficult to survive; nutritional status is very low and services are inadequate and hence disabled people often live in extreme poverty, misery and despair, leading to dependency and deprivation. In 2003, sensory impairment (visual and hearing together) accounted for the largest percentage of disability in India. There were 10,634,881 visually impaired people who represented nearly 49% of all the disabled Indians. A legal definition of a blind person is one who, even with the best optical correction, can see less at 20 feet than a person with normal vision can see at 200 feet (a visual acuity is 20/200) or whose field of vision is limited to a narrow angle. Visual defects are one of the most common causes of disability in the world, and visual impairment in childhood is often part of a multiple disability disorder.

The most common dental problems faced by these children include extensive dental decay (Caries), severe gingival diseases (Gum bleeding) and periodontal diseases (Mobility of teeth) and traumatic injuries. The removal of plaque from teeth is a skill that can be mastered only when the individual has the dexterity to manipulate a toothbrush and an understanding of the objectives of this activity. It is obvious that many disabled individuals find the maintenance of their own oral hygiene much more difficult than normal individuals because those with hearing impairment cannot understand and respond to the instructions given and those who are blind lack the vision to understand and master the technique of oral hygiene practices. The higher levels of dental disease in these handicapped people seem to be due to poor use of dental services and lack of dental awareness. Improved access to dental services as well as oral health education is necessary to ensure that optimum dental health is within the reach of these less fortunate children.

It was extremely disheartening to observe high caries prevalence and gum diseases in the children of Helen Keller School underlying the extensive unmet needs for dental treatment. Although the institute has been highly proactive in getting individual based dental needs treated at nearby dental clinics. Nonetheless, the need of the special children is the regular monitoring with special focus on prevention-based intervention programme. Therefore, the Dept of Preventive & Preventive Dentistry has decided to provide such a long term commitment to benefit this institute in future.

# A Tiny Little Young Year!

## A Poetic Expression

When I use my microscope,
First I clean it like stethoscope,
I remove all the dust by using tissue paper,
Cleaning of microscope very easy and cheaper,
After using microscope I put a cover,
It provide protection from dust forever,
Because I love microbiology!

When I do the culture of bacteria,
First I cleaned laminar air flow area,
Sprit soaked cotton use to clean inside,
UV light on for one hour and wait outside,
Switch off UV light and switch on air and tube light,
Do streaking on the culture plates and close it tight,
Because I love microbiology!

Growth of bacteria required proper incubation,
During this period bacteria undergo multiplication,
Write down colony morphology and do Gram's stain,
To see Gram positive bacteria in pair-cluster and chain,
Gram negative bacteria may be seen as cocci and bacilli,
When focused under oil immersion lens with oil apply,
Because I love microbiology!

Identify the bacteria by using biochemical test,
IMViC, TSI, Urease and PPA tests are the best,
Antibiotic sensitivity test done by method Kirby-Bauer disc,
Performed on solid media Muller Hinton agar in Petri dish,
Give the sensitivity report according to zone of inhibition,
It helps to prevent mortality and recover patient's condition,
Because I love microbiology!

Poem by Mr. Gurjeet Singh
Assistant Lecturer, Department of Microbiology
MGM Medical College, Navi Mumbai

## Disclaimer



## MGM Tiny Tots Crèche Is One Year Young

**MGM Tiny Tots Crèche has completed one full year – An achievement indeed!**

A year and a half ago, our Hon. Vice Chancellor - Dr. Sudhir Kadam heard that many female staff members had to go home to breast feed their babies. A known visionary Dr. Kadam decided to end this by creating a space on the campus which would keep the babies happier, safer and most importantly closer to their moms.

Tiny Tots crèche started on 17th December 2013 with just one baby and today the number has gone up to 9. The centre has 3 full time house-keeping staff working round-the-clock from 7.30am to 5pm. A trained pre-school teacher is also appointed for the overall well being of the children, to inculcate good manners and develop appropriate language & communication skills which prepare kids for school. The environment and location is very child friendly and kids love to come here daily. The staff at the crèche is now well trained, they love to take care & be surrounded by children. Mrs. Anita Mulik, clerk and Mrs. Ujwala Patil, accountant accepted administrative responsibility of the crèche, in addition to their existing portfolios – and truly deserve a special appreciation for reaching out.

Throughout the year there were many moments of celebrations with the so-called difficult to manage kids suddenly becoming manageable, kids with language barriers understanding the language of care and love, kids enjoying as little Radhas & Krishna's on Janmashtami, making Rakhi's for Rakshabandhan, lighting and decorating Diya's for Diwali, enjoying Children's Day to name a few.

On its first anniversary MGM Crèche is moving ahead a step further and starting its own Playschool and Nursery. Those interested can contact the crèche office for further details. I would also like to take this opportunity to request all MGM staff members to donate toys/books/baby cots/ basically all kiddie stuff which are in good condition and now not used by your kids to the crèche.

Parents have shared their delightful experiences such as:

Dr. Vishwas & Dr. Deepika Sathe – proud parents of little Akira say, ' Crèche is a real blessing for MGM Staff in view of safety and their involvement in extra-curricular activities. Crèche staff takes good care of children & appointment of teacher Mrs. Sangita Nikam has helped Akira to grow more in knowledge as well as other activities & enhanced her social skills'. Dr. Ranjana Savarkar- mother of Stithpradnya agrees with Dr. Sathe and further says, 'Day care is good in some sense like it's spacious and has caring maushi's with a teacher to supervise them. Additional infrastructure should be provided to make it a better place'

Dr. Prajakta Radke, who kept her baby Preesha in the day care when she was 7 months old & Dr. Shubhangi Jain, Nishka's mother wants to thank the management for starting a day care centre in the campus itself because if required one can go and see their baby. All parents including Mrs. Priyal Bandekar have said that the cleanliness of the crèche is up to the mark and that the staff is sensitive, supportive and very particular in maintaining the feeding time of the kids.

***Article Contributed by Dr. Vrushali Panhale (PT) In-charge Creche***
***Principal I/C MGM College of Physiotherapy, Kamothe***

## Seminar Report - "Current Research Trends in Micro-manufacturing at North-western University, USA, 15-12-2014

**Issues Discussed At The Seminar**

Prof. Ehmann discussed the research background at North-western University, and also described how teaching–learning process may be assisted by industrial research support. In the core area, he introduced micro-machining concept by defining the specifications in terms of dimensions and tolerances of parts. Audience observed the table top experiments and distinct manufacturing carried out Micro Lathe machine. Prof. Ehmann intermingled with Dr. Kaul, PVC-MGMIHS, about the machining of surgical instruments like single and multi-point needles, injections. Ehmann focussed the applications of micromachining in Microalgae applications which was encouraging thought for Dr. Abhijeet Jadhav from Biotechnology department of MGMCET. The critical and significant concern of reducing the friction using technique of hydrodynamic lubrication (Seebeck Curve) in micromachining made scientifically understandable by Prof. Ehmann for the faculty of Mechanical Engineering department. Prof. Ehmann also discussed the energy efficiency problem in micromachining process and demonstrated the parts that save energy during their actual utilization. He consequently presented how the manufacturing field is transformed from traditional, micro, nano, stages to additive manufacturing now-a-days.

**Editor Requests and Credits**

The newsletter, "MGM NEWS" will be published quarterly. The staff and students of the MGM Institute of Health Sciences and its associated colleges and institutes are invited to send their contributions and/or suggestions for consideration of publication in the next issue.

I also take this opportunity to express gratitude to Mr. Sunil Tatkar, Founder and Managing Partner, Valurevolution™ for his valuable contributions, including creative thinking, editing and artwork, for the MGM NEWS.

Dr. Chander P. Puri
Chief Editor
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The fourfold objective of seminar was to:

1. Give knowledge about introduction and applications of micromachining.
2. Provide international exposure of research for faculty and staff.
3. Direct the students towards research and higher students in micro-manufacturing.
4. Endow-with Interdisciplinary relevance of manufacturing with all engineering courses.

**The distinguished guest** speaker for the seminar - Prof. Kornel Ehmann, (B.S. M.S. PhD Mechanical Engineering) is a Professor in Mechanical Engineering Department at North-western University, USA. Prof Ehmann has published over 250 articles and supervised over 40 MS and 40 PhD students. He is currently editor in chief on the Elsevier/SME journal-Manufacturing Letters. He has served as the Technical Editor of ASME Transactions, JMSE, the President of NAMRI/SME and as the Chair of Manufacturing Engineering Division of ASME (American Society of Mechanical Engineers).


*The seminar has set the standards for Benchmark Professor and the MGMCET faculty have prospect to accomplish and sustain these levels. It has also thrown light on the improvement of research culture at MGMCET. The faculty and students need to grasp novel opportunity of publishing research work to the International Journal "**Manufacturing letters**" published by ELSEVIER whose Chief Editor is Prof. Kornel Ehmann. Furthermore, MGMCET is on the upward curve of collaboration with North-western University, USA, intended for higher studies and research of graduate students.*

## Essential Ingredients of Enhancing Clinical Skills

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Clinical skill is a discrete and observable act of medical care. These are formulation of clinical methods competencies through which clinical practice is realised. Before dwelling on enhancing clinical skills at graduate levels, let us first consider, what is ailing the clinical curriculum presently.

Most of the medical colleges continue to acquire same set of core clinical disciplines that were viewed critical in preparing doctors for general practice in 1950s. With advancing times, new developments in the field of investigations and diagnostics including advancements in therapeutic modalities, it has become mandatory to review the contents of syllabi for graduate curriculum. Teaching Methodology and assessment also requires over hauling. Towards this, Medical Council of India has done tremendous homework and produced a document called vision 2015, Medical Council of India ( MCI). It was published in March 2011. The mission was to develop systems which could continuously asses the needs, aspirations, enhance the quality and standards of medical education and training in India with the aim to standardize the output of graduate medical education in the form of "Indian Medical Graduate", a skilled and motivated doctor. Vision 2015 is a comprehensive document outlining, graduate, postgraduate, post doctoral trainings, the suggested changes in curriculum, teaching and assessment methods.

Changes in curriculum means deleting what is obsolete and introducing what is new and relevant in the contemporary context.

However, if we look at the main ingredients of enhancing clinical skills, these are;

1. The medical student.
2. The teacher.
3. The institute.
4. The curriculum - what to teach?
5. The teaching methodology-how to teach?
6. The assessment-how to asses as what has been grasped by the student.

1. **<u>The medical student</u>: -** The student has to be meritorious, really interested in the field of medicine and not merely forced by the parents to become a doctor. In Indian scenario, a teenager at 18 is hardly mature to make a decision of his career. He is influenced and dictated by parents. Lack of interest and aptitude to become doctor can be a great impediment in transforming into a competent clinical physician. Therefore, an aptitude test in addition to competitive examinations is essential.

2. **<u>The Teacher :</u>** Teaching Medical professions is a matter of commitment devotion, dedication and intense involvement. The teacher has to be self motivated person, avid reader and should keep abreast in latest development in the field of medicine. We have come across many great teachers in our institutions. Today, practicing in corporate sector is lucrative and many brains are attracted by rich dividends paid by the corporate Sector. There have been many instances where centres of

excellence like AIIMS New Delhi, PGI Chandigarh, and GIPMER Pondicherry have suffered as brilliant doctors walked out to corporate sectors.

Not only this, in the late sixties, doctors started concentrating on private practice and thus Govt has to introduce NPA (Non Practicing Allowance) to keep doctors engaged in teaching. Therefore monitory dividends commensurate with interest of teachers are also a matter of consideration.

3. **The Institutions:** Institutions like, AIIMS Delhi, PGI Chandigarh, and GIPMER Pondicherry provide rich academic atmosphere for doctors to grow. It is the academic atmosphere, values of teaching, pride in student teacher relationship, commitment to teach, and infrastructural facilities which matter to a large extent.

4. **The Curriculum :** What to teach?
   The focus has to be the problems faced by the population at large of that country or region.
   For example, focus in India has to be Road traffic Accidents, Malaria, TB etc. These diseases are prevalent and practical exposure to these will be relevant and easily understood. What to teach is being planned by MCI in its vision document 2015. Health economics is also to be stressed as we have to produce Indian Medical Graduate who keeps economy of the patient and country in mind when offering treatment.

   1. **Teaching Methodology:** Some teachers have inherent qualities of being a good teacher, orator, and demonstrator. Everyone cannot do it. Therefore, teachers have to be given basic training in teaching methodologies. Refresher courses and workshops can be held. Mannequins, models, videos, simulators, can all be helpful in teaching clinical skills. Simplified approaches are best suited i.e, breaking up a complex lecture with smaller & simpler, modules is suggested.

      Unique methods such as clinical skills workshops portrayed of clinical scenarios by standardised patients also are recommended.

   2. **Assessment:** Assessment of medical students on how much have they picked up and grasped is equally important. These are both subjective and objective methods of assessment. The students have to demonstration on real patients or on mannequins.

To sum up, enhancing clinical skills is a maltifactorial task wherein there is interplay of student and teacher involving various teaching methodologies and assessment techniques. Accreditation bodies too can contribute to maintaining standards of institutes and doctors by enforcing strict standard and testing techniques. “Will” to achieve excellence in medical education both by teachers and students is the driving force. Simplified approach to teaching clinical skills is a boon.

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## Predictive Research In Medical Education

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Education and research are the integral parts of all human societies. Education is a continuous process and we are in the world of constant flow of information and knowledge. Education brings into focus the social aspect of humans where research is able to deliver vital needs of the society with continuous changes. Although, education and research independently carry many challenges but bringing them together makes a unique module which has the potential to contribute for the betterment of people's life. High proportion of our good health care is made possible by the research done by universities and various institutes all over the world and by the actions of people who gained knowledge from university education. Research driven universities promote excellence in research and education by giving importance of interdependence of these activities in advance learning program. Hence, as a medical university it is our primary responsibility to transform health care through research and education. The quality of patient care is most importantly dependant on essential segments like quality of infrastructure, quality of education, training, competence of personnel and efficiency of operational system. But the most fundamental requirement of efficient process is the adoption of a system that provides strong base for patient care.

Although, research and education has tremendous/endless contribution in the field of health care in the form of science and technology but the present scenario demands an integrative approach in reference to the prediction of diseases to deal with the health care issues. In context, to revive the health care system, there should be incorporation of predictive, personalized, foresighted, and discovery based research in medical education. To achieve this, our commitment for high value education along with research will be essential aspects of the quest. The future of medicine's focus may potentially shift on preventing disease rather than treating existing diseases, typically late in their progression. Therefore, a new philosophy in healthcare is emerged which will provide platform for personalized patient's treatment. Recently, predictive diagnostics has gained importance in targeted preventive and individualized treatment approaches. The predication based research will allow to select an appropriate treatment or therapy which can be customized depending upon the genetic information/or other molecular level information's, analysis of an individual, applying appropriate and optimal therapies. Personalized medicine provides the hope for better diagnosis with earlier detection and prevention of various diseases, development of targeted drugs and therapies with more efficiency. The primary aim of research based education is to provide the appropriate treatment to the patients at the right time and make the synergy of education and research for patient care. The foresightedness in transformational status of disease and infection in future research related medical education will be a boost in this direction.